

ONE WORLD, ONE MONEY?

Robert Mundell and Milton Friedman debate the virtues—or not—of fixed exchange rates, gold, and a world currency.

Robert Mundell et Milton Friedman débattent des vertus—ou des vices—des taux de change fixes, de l'étalon or et d'une monnaie mondiale.



1. Exchange rates: Fixed or flexible?

Creation of the euro, among other developments, has increasingly focused attention on the question of fixed exchange rates versus flexible exchange rates. Even in Canada, seminars and conferences have been held exploring the subject. Would a global move toward fixed exchange rates, including currency blocs, be a good idea or not?

Milton Friedman: Discussion of this issue requires replacing the dichotomy fixed or flexible by a trichotomy: 1. hard fixed (e.g., members of Euro, Panama, Argentine currency board); 2. pegged by a national central bank (e.g., Bretton Woods, China currently); 3. flexible (e.g., US, Canada, Britain, Japan, Euro currency union).

By now, there is widespread agreement that a global move to pegged rate regimes would be a bad idea. Every currency crisis has been connected with pegged rates. That was true most recently for the Mexican and East Asian crisis, before that for the 1992 and 1993 common market crises. By contrast, no country with a flexible rate has ever experienced a foreign exchange crisis, though there may well be an internal crisis as in Japan.

The reasons why a pegged exchange rate is a ticking bomb are well known. A central bank control-

ling a currency that comes under downward pressure does not have to alter domestic monetary policy. It can draw upon reserves of foreign currency or borrow foreign currency to meet the excess demand for foreign currency. However, that recourse is limited by the amount of foreign exchange reserves and borrowing capacity. It is never easy to know whether a deficit is transitory and will soon be reversed or is a precursor to further deficits. The temptation is always to hope for the best, and avoid any actions that would depress the domestic economy. Such a policy can smooth over minor and temporary problems, but lets minor problems that are not transitory accumulate. When that happens the minor adjustments in exchange rates that would have cleared up the initial problem will no longer suffice. It now takes a major change. Moreover, the direction of that change is clear, offering close to a one-way bet to currency speculators, who perform the useful function of forcing the central bank to accept the inevitable sooner rather than later.

A hard fixed rate is a very different thing. My own view has long been that for a small country, to quote from a lecture that I gave in 1972, "the best policy would be to eschew the revenue from money creation, to unify its currency with the currency of a large, relatively stable developed

country with which it has close economic relations, and to impose no barriers to the movement of money or prices, wages, and interest rates. Such a policy requires not having a central bank." [Milton Friedman, *Money and Economic Development*, (Praeger, 1973), p.59] Panama exemplifies this policy, which has since come to be called "dollarization." A currency board is a slightly less rigid version of a hard fixed rate than dollarization. A further movement in this direction, creating perhaps a number of currency blocs consisting of a major country and a number of much smaller countries with close economic ties to the major country, may well occur and be a good thing.

The one really new development is the euro, a transnational central bank issuing a common currency for its members. There is no historical precedent for such an arrangement. It involves each country's giving up power over its internal monetary policy to an entity not under its political control. Such a system has economic advantages and disadvantages, but I believe that its real Achilles heel will prove to be political; that a system under which the political and currency boundaries do not match is bound to prove unstable. In any event, I do not believe the euro will be imitated until it has a chance to demonstrate its viability.

Robert Mundell: First of all, let me say

that I feel honored to debate these issues with Milton Friedman, a great economist and from whom I have learned a great deal over the past few decades.

Although there are real differences between our positions on alternative routes to monetary stability, I am also convinced that an important part of the differences reduce to linguistic problems.

I can illustrate this by the use of the term “fixed” exchange rates. I use the term “fixed exchange rates” to mean a process in which the central bank fixes the price of foreign exchange (or gold, but that is not relevant in the current context) and lets the money supply move in a direction that keeps the balance of payments in equilibrium. There is a whole spectrum of possibilities underneath this term:

1. *A common currency area.* This is the apotheosis of fixed exchange rates. The BC dollar, the Ontario dollar and the Quebec dollar are the same currencies, the Canadian dollar. Settlement between regions, provinces and municipalities is automatic. If there is an excess supply of money in one province combined with a corresponding excess demand for goods, the excess money leaves that province (a balance of payments deficit) and that completes the adjustment process. The same adjustment process applies between New York and California or between different Federal Reserve districts. This fits Friedman’s category of “unified.”

2. *A “dollarized” area.* A good example is Panama. When a peninsula jutting out from the Republic of Columbia separated from it to become Panama in 1904, the new republic signed a treaty with the United States committing itself not to create a paper currency. Panama’s own currency, the balboa, is a coin equivalent to the US dollar, but most transactions are in US paper dollars; the balboa is “hard-fixed” to the dollar. With this system, Panama has had the most stable currency in Latin America, getting in effect the US inflation rate throughout the 20th century.

Other examples include San Marino, which uses the Italian lira, Monaco, which uses the French franc, and Andorra, which uses both the French franc and the Spanish peseta.

Similar arrangements exist in the small republics carved out of South Africa, using the latter’s currency, the rand. This also fits Friedman’s category of “unified.” Recent examples include Montenegro (using the DM-to-become-the-euro) and Ecuador (using the dollar).

3. *A monetary union.* Belgium and Luxembourg have had a monetary union since the inter-war period. Luxembourg francs circulate side-by-side with Belgian francs but monetary policy is conducted by the dominant

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partner, Belgium. Luxembourg’s role is completely passive; lacking a currency to manipulate, Luxembourg has the lowest public debt—almost none—in the European Union. A similar example is the Scottish pound which for centuries since the *Treaty of Union* circulated side-by-side with the British pound. This fits Friedman’s category of “hard fixed.”

4. *A currency board system.* Under this arrangement, a country has its own currency, but it is completely backed by a foreign currency to which it is rigidly fixed. The money supply moves in exactly the same way as if the country used the foreign currency to which it is fixed. This fits Friedman’s category of “hard fixed.”

Most currency board systems in the real world differ in some respects

from each other and may not meet exactly all the qualifications. Hong Kong’s system is a good example (at least until 1997, when the government established the Hong Kong Monetary Authority and threatened to introduce discretion into monetary policy). Argentina has had a partial currency board since 1991. Estonia (from 1992), Lithuania (from 1994), Bulgaria (from 1997) and Bosnia and Herzegovina (from 1997) are other examples.

An interesting variant on the currency board system is provided by the example of the 13 CFA franc countries in West and Equatorial Africa that were formally French colonies. They had currency board arrangements, the exchange rates on which, with respect to the French franc, were underwritten or guaranteed by the French treasury. They altered the system somewhat with a large devaluation in 1994, but they are now fixed to the euro through the French franc.

5. *Fixed rates.* A looser form of fixed exchange rate system in which the monetary authority exercises some discretion with respect to the use of domestic monetary operations but nevertheless allows the adjustment mechanism to work. A deficit in the balance of payments requires sales of foreign exchange reserves to keep the currency from depreciating, and this sale automatically reduces the money base of the financial system, setting in motion a decline in expenditure that shifts demand away from imports and exportable goods and corrects the deficit. An analogous process occurs in the opposite direction to eliminate a surplus.

Recent examples of this kind of fixed exchange rate system include Austria and the Benelux countries which, over most of the 1980s and 1990s, kept their currencies credibly fixed against the DM. Before 1971, under the Bretton Woods arrangements, the major countries, with the single exception of Canada, practiced this system. Germany, Japan, Italy and Mexico, for example, were able to keep fixed exchange rates in equilibrium for most of the period between

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1950 and 1970. The gold standard system that prevailed before the First World War was precisely such a system with a considerable amount of discretion on the part of central banks, but not enough to undermine confidence in the parities.

6. *Pegged exchange rates.* The distinction between fixed and pegged rates that I find useful refers to the adjustment mechanism. Under a fixed rate system, the adjustment mechanism is allowed to work and is perceived by the market to be allowed to work. Whereas under “pegged” rates or “adjustable peg” arrangements, the central bank pegs the exchange rate but does not give any priority to maintaining equilibrium in the balance of payments. There is no real commitment of policy to maintaining the parity and it makes the currency a sitting duck for speculators.

Some countries that have pegged rates engage in sterilization operations. The Bank of England, for example, automatically buys government bonds whenever it sells foreign exchange to prevent the latter transaction from reducing the reserves of the banking system, and, conversely, it sells government bonds when it buys foreign exchange. This practice might have made sense when it began in 1931, after Britain went off gold and set up its exchange equalization fund to manage its new floating arrangements, but the Bank of England kept the system even

after Britain had returned to a fixed—or more correctly, pegged—system. As a consequence, Britain faced periodic balance-of-payments crises over most of the post-war period.

I do not count “pegged but adjustable” rates among the category of fixed rates. But when economists attack fixed rates they nearly always focus their attention on “pegged rates.” I have never nor ever would advocate a general system of “pegged” rates. Pegged rate systems always break down. Monetary authorities may, as a temporary expedient, find pegged rates useful as a tactical weapon over some phase of the business cycle, but it cannot and should not be elevated into a general system.

Where do Friedman and I differ in this category? I can happily accept his terms “unified” or “hard fixed” for the first four arrangements outlined above, and we have no important disagreement on “pegged rates,” except possibly their usefulness as a temporary expedient. But there may be a real difference between us in connection with the fifth category, which I call simply “fixed rates” without excluding from that category unified or hard fixed. I believe that larger countries can have a hard fix without establishing a currency board system or monetary union, and I would say that the Bretton Woods arrangements proved that, as did the gold standard in the past, and as did the experience of Austria and the Netherlands in the exchange rate mechanism of the European Monetary System.

There are something like 178 currencies in the world. A vast number of these smaller currencies have been floating and unstable. Most of the smaller countries that have economic links to the dollar or euro areas would be better off fixing their currencies in hard-fix fashion to one or the other areas. But there are several countries that could also benefit from the stability that fixed rates can provide without going to the full extent of dollarization or euroization or adopting a currency board. There are other routes to credi-

bility than currency boards.

Milton Friedman: I appreciate Bob Mundell’s kind comments. We have been friends for more than three decades, during which I have benefited greatly from his writings and many discussions, as I am benefiting from this one.

Bob and I have no disagreement on the theory of international trade and finance, as evident by my complete agreement with his taxonomy of alternative exchange arrangements. We share and strongly support the view that policies about trade and finance should have as their objective the maximum possible free trade in goods and services and free movement of capital. We also agree that maintenance of a relatively stable price level of final goods and services will generally promote that objective.

In view of my answer to the first question, I shall interpret the meaning of “fixed” as “hard fixed” or “unified.” The economic factors that country A should consider in deciding whether to unify its currency with that of country B are:

1. *How extensive is trade between A and B?* The more extensive the trade the larger the gain from the unified currency in the form of savings in transaction costs, and the smaller the cost from unnecessary adjustment to monetary changes in B.

However, this item is not as simple as it may appear. The adoption of a unified currency may have a major

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effect on the amount of trade between A and B.

2. *How flexible are wages and prices in A?*

3. *How mobile are workers within A and between A and B?*

4. *How mobile is capital within A and between A and B?* The more flexible are wages and prices, the more mobile are workers and capital, the easier it will be for country A to adapt to factors that under a flexible rate would lead to changes in the exchange rate, usually described as asynchronous shocks that affect A and B differently.

5. *An inevitably political question: How good is monetary policy in A; in B; and how good is it likely to be?* In practice, this is often the most important question. Experience suggests that in a small developing country an independent internal monetary policy is likely to be highly unstable, with occasional episodes of high inflation. There is every reason to believe that the monetary policy of the US, or Germany, now the euro, or Britain, however flawed from the large country's own point of view, will provide much more stability than the small country will produce by itself. This has probably been the major factor that has led countries to consider or to adopt a currency board or dollarization.

6. *Another inevitably political question: What is the political relation between A and B?* To cite two examples:

- Hong Kong, where items 1, 2, 3 and 4 are all favorable to a unified currency with the US dollar. Item 5 is not, since Hong Kong could have been counted on to have as good a monetary policy as the US, whose past monetary policy leaves, to put it mildly, much to be desired. In practice, Hong Kong's currency board has been highly successful, despite a severe attack during the East Asian crisis.

- Argentina, where item 5 was clearly the major reason for the adoption of a currency board tying the Argentine currency to the US dollar. Items 2, 3 and 4 are much less favourable than in Hong Kong. Limited flexibility and mobility are likely to

subject the Argentine currency board to repeated tests. The resultant uncertainty and its effect on interest rates has led Argentina to consider replacing the currency board with dollarization.

Robert Mundell: The choice between fixed and flexible exchange rates is an oxymoron. The alternatives are incomparable. A fixed exchange rate system is a monetary rule. A flexible exchange rate is the absence of that particular monetary rule and is consistent with price stability or anything at all, including hyperinflation. The real choice is between a fixed exchange rate monetary rule and alternative monetary rules such as inflation targeting or monetary targeting.

The choice between the three monetary rules depends on several factors, including the actual and desired rate of inflation. Assuming a country wants monetary stability, but is in a state of high inflation, it should adopt a monetary rule because the high inflation rate is almost certainly due to excess growth of the reserve base of the money supply (usually fiscal deficits that have to be financed by the central banks).

At lower rates of inflation, say below 15-20 per cent *per annum*, it is better to shift to inflation targeting, which, at lower inflation rates is better for fine tuning because it is less susceptible to variations in the money multiplier and income velocity, even though its implementation depends on forecasts of inflation to take account of monetary lags.

At rates of inflation below, say, five per cent, a fixed exchange rate can be the best monetary rule (but not, of course, for all countries). Equilibrium under fixed exchange rates means that the country's money supply is directed by its balance of payments. When the balance is in surplus, the money supply expands and that increases expenditure on goods and securities and that corrects its surplus. When the balance of payments is in deficit, the money supply contracts and that decreases expenditure on goods and services and corrects its deficit. The country will

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But a fixed exchange rate with the dollar is a viable alternative for countries like Canada or Mexico and other Latin American countries, and a fixed exchange rate with the euro is a viable alternative for several countries in Central and Eastern Europe and Africa.

then get the inflation rate of the currency area it is joining. This is how Austria and the Benelux countries maintained their equilibrium in the DM zone in the 1980s and 1990s, and it is how monetary policy works in the euro zone.

A fixed exchange rate monetary rule is not appropriate for all countries at the present time. Big countries cannot fix to little countries. The United States, at present the world's largest currency area, has no viable alternative to inflation targeting. But a fixed exchange rate with the dollar is a viable alternative for countries like Canada or Mexico and other Latin American countries, and a fixed exchange rate with the euro is a viable alternative for several countries in Central and Eastern Europe and Africa.

A currency board system is a special case of a viable fixed exchange rate system. Under a pure currency board system a country fixes its currency to a foreign currency, and purchases and sales of the foreign currency are automatically reflected in changes of the monetary base.

The choice of system therefore depends on the current rate of inflation, the position of a country (is it near a large and stable neighbour?) and its willingness to share the inflation rate of that area.

2. The C-dollar: Fix or float?

Robert Mundell: I would answer the question “What are the main economic considerations whether a country should have fixed or flexible exchange rates?” differently.

Some countries don’t have an option. The United States can’t fix its dollar! To what would it fix? Big countries can’t fix to little countries and expect to get any stability out of it.

Smaller countries have an option. Canada has a GDP about 1/12 that of the United States, considerably smaller than the GDP of California. If California were a separate country, it would elbow Canada out of the G-7. But if California were a separate country, it couldn’t do better than to use the US dollar, or, if it wanted to have its own currency to nourish its feelings of self-importance, it would be best advised to fix the Californian dollar to the US dollar. Countries with a unified currency system trade a great deal more with one another and are able to exploit the gains from trade and therefore have a higher standard of living.

If Canada had the same currency as the United States and a genuine free trade area, Canadians would have as high or higher a standard of living as the average American.

Two countries can have a common currency or maintain fixed exchange rates, however, only if they are willing to accept a common rate of inflation. If inflation preferences differ, they should have separate currencies and flexible exchange rates.

Other things equal—including inflation rates—large currency areas are more stable and more resistant to shocks than small currency areas. In a monetary union or fixed exchange rate arrangement between a large and a small country, most of the gain goes to the small country.

If for example, Canada and the United States fixed exchange rates between their two dollars, Canadians would gain much more than Americans

because they would participate in a currency area that had global dimensions. Also, Canadians would have a stable purchasing power over a continental basket of goods and securities instead of the much smaller local Canadian basket.

Another consideration for fixing is the quality of monetary policy. The United States has had some ups and downs in the quality of its monetary policy, but by and large it has been superior to that of its North American neighbors. This greater stability is reflected in the exchange rates. In Mexico, the peso was worth 8 cents for more than 22 years between 1954 and

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1976. After Mexico abandoned its fixed exchange rate system in 1976, it lost its monetary stability, and suffered from debt and currency crises, from which it has not even to this day recovered.

Canada had a dismal experience with floating exchange rates in the 1950s and far from insulating itself from the US business cycle it duplicated it with recessions in 1954 and 1957 and stagnation after that. The government then decided to “talk the Canadian dollar down” from its high perch and immediately got itself embroiled in the currency crisis of 1962, after which it kept the Canadian dollar fixed at US92.5 cents. In 1970, however, Canada went back to floating and in the 1970s the dollar was as high as

US\$1.07. But the late 1970s saw too much inflation and the late 1980s too much deflation, and the end result was that the Canadian dollar is now hardly two-thirds of a US dollar. Over the long run the United States has had a more stable monetary policy than Canada.

I have no important objections to the factors Friedman includes on his list. The more closely countries are integrated, the more adjustment will be facilitated. But the overriding criterion of a workable currency area is that member countries agree on the target rate of inflation and are willing to accept the arrangements for fixing exchange rates and deciding upon the monetary policy that will bring the common target rate of inflation about.

Milton Friedman: Where Bob and I sometimes disagree is about the best way to achieve the objective that we jointly seek. Such disagreement reflects divergent judgements about (a) the empirical importance of shocks affecting different entities differentially; (b) the efficiency of present mechanisms other than exchange rate changes for adjusting to those shocks; (c) perhaps the importance of such mechanisms; and (d) the political consequences of a monetary area that is not coterminous with a political entity.

Bob’s comments on Canada’s experience with floating exchange rates since 1970 offer an excellent example of items (a), (b) and (c). He writes: “In 1970, however, Canada went back to floating and in the 1970s the dollar was as high as US\$1.07. But the late 1970s saw too much inflation and the late 1980s too much deflation, and the end result was that the Canadian dollar is now hardly two-thirds of a US dollar.”

Over the 30 years from 1970 to 2000, Canadian inflation has averaged about 0.5 per cent a year higher than US inflation. That accounts for somewhat more than half of the decline in the Canadian dollar relative to the US dollar in the past 30 years. The important point for present purposes is the remaining nearly half of the decline in the Canadian dollar.

That reflected different forces affecting the Canadian than the US economy. If the Canadian dollar had been rigidly tied to the US dollar, those differences would have required Canada to deflate relative to the United States, with unfortunate consequences for Canada that would have strained, to put it mildly, the trade relations between the two countries, and have put strong pressure on Canada to devalue or float. In my opinion, Canada was better served by a flexible rate in those 30 years than it would have been by a fixed rate.

I do not agree with Bob's comment that "Over the long run the United States has had a more stable monetary policy than Canada." I believe the reverse is true, certainly in the 1930s, but also since 1970.

Robert Mundell: By a "better monetary policy" I mean less inflation, and Milton's own data, that Canadian inflation has averaged 0.5 per cent a year higher than the US confirms that statement.

But the situation is much worse for Canada, because, in the later 1970s, when the United States was moving into an inflationary period of three years of back-to-back two-digit inflation (1979-81), Canada was allowing its dollar to depreciate, and then, after the US had got, with Reaganomics, its inflation rate down to four per cent, the Bank of Canada announced, in early 1987, a policy of zero inflation, and this policy was accepted, or at least condoned by the Canadian government. But the Bank of Canada had no idea of what a zero-inflation equilibrium in Canada would mean at a time when the US had four per cent inflation, or if it did, its spokesmen never let the market or the government know their ideas. Assuming equal growth rates in Canada and the US, an inflation differential of four per cent would mean that Canadian wage rates would have to rise by four percentage points less than US wages. It also meant that Canadian bonds would have to yield four percentage points less than US

bonds, despite the fact that throughout Canadian history, Canadian yields have had to be higher, not lower, than US yields. The Canadian dollar then soared from about US73 cents to over US91 cents in 1990, only to begin its long descent in the 1990s to a low point (so far) of US62 cents. The epilogue is that the Conservative Party, which presided over the fiasco, which almost broke up Canada, were all but wiped out in the next elections. Never since the Federal Reserve let itself get dragged into the Great Depression in the early 1930s has a central bank done so much harm to its people!

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There were two mistakes here. One was in the wisdom of the choice of a goal of zero inflation at a time when its great neighbor to the south had four per cent inflation. The problem is expectations. Canadians and Americans frequently listen to the same television programs and Canadian and American predictions get mixed up. Because there was no serious dialogue about the implication of its policy between the Bank of Canada and the Canadian public, expectations were not correctly adjusted and the Canadian economy took a bath, with higher, not lower interest rates, and much higher, two-digit unemployment at a time when US unemployment was getting down

below five per cent. By and large, the Canadian public has never understood this episode in its history, and the newly-formed Free Trade Area unfairly got much of the blame.

I think Canada had a worse monetary policy than the United States over the past three decades because 1. its average inflation rate was higher, as Milton agrees; 2. Canadian monetary policy was more inflationary than the US at a time when the latter was too inflationary; and 3. Canadian monetary policy was more disinflationary than the US at a time when the US had brought its inflation close to its consensus equilibrium. Only in the past few years could we say that Canadian policy was as good or better than American.

Had Canada fixed its dollar in the 1970s at parity with the US dollar it would have had less inflation than it did in the 1970s and much less unemployment than it had in the 1980s — and it still would have had a viable Conservative Party!"

Milton Friedman: I confess that Bob has made a good case that I gave too much credit to Canada when I linked its monetary policy after 1970 with its policy in the 1930s, when it clearly did have a better monetary policy than the US.

Combining Bob's story about Canadian monetary policy with my own knowledge of US monetary policy, both countries had poor monetary policies from 1970 to the late 1980s, and both have had much better policy thereafter. My main point, however, remains. The history of US monetary policy since the establishment of the Fed has many more periods of poor than of good policy. If I were a Canadian, I would not regard that record as an adequate basis for committing the country to US monetary policy—dollarization with no escape hatch.

Part of the difficulty here and elsewhere is in the meaning of price stability. The prices that are relevant to Canada are not necessarily the same as those that are relevant to the United States, given the different composition of both consumption and production.

Mundell After the eleven currencies of the[euro] zone were locked to the euro and to each other, even before the euro has been issued as a paper currency or a coin, speculative capital movements between the lira and the mark, the franc and the peseta, and all the other currencies became a thing of the past.

The desirable monetary policy has as its objective stability of different price indexes.

Robert Mundell: I don't agree. Imagine for a moment that Canada and the United States had a common currency. They still have a quite different production mix, but quite a similar consumption mix. Why wouldn't Canadians want price stability over a North American basket rather than just the basket of products produced by BC, Alberta, Saskatchewan, etc.? A very important concern is the value of investments for social security, and here, I think, the broadest possible basket is best. Or suppose that BC had a separate currency. Why would British Columbians want stability of their incomes over a narrow BC basket, in contrast to a national basket or, better, a continental basket?"

Milton Friedman: There is no simple answer to the definition of the price level that it is desirable to stabilize. This is an issue that has been debated for many decades. Should it be the price level of the goods and services that people on the average consume? Or that the economy produces? Or of the factors of production employed by the economy? Or of labor services alone? There are advantages and disadvantages to each. Whichever is chosen, the index should be for the economic and political entity that is doing the stabilizing.

Bob sets up a straw man when he asks "Why wouldn't Canadians want

price stability over a North American basket rather than just the basket of products produced by BC, Alberta, Saskatchewan, etc.?" He is comparing a consumption index with a production index. If the index to be stabilized is the consumption price level, it will include goods imported from abroad, weighted by their importance in local consumption. That weight will not be the same as the weight of those goods in the US index. In addition, the price may not be the same, whether because of transportation costs or local tariffs or other reasons. In any case, the local weight and price are the ones relevant to the local consumer. Similarly, one should compare a production index for Canada with a production index for the US, not a consumption index with a production index.

3. The euro revolution

Robert Mundell: The advent of the euro has demonstrated to one and all how successful a well-planned fixed exchange rate zone can be. After the 11 currencies of the zone were locked to the euro and to each other, even before the euro has been issued as a paper currency or a coin, speculative capital movements between the lira and the mark, the franc and the peseta, and all the other currencies became a thing of the past. It ended uncertainty over exchange rates and destabilizing capital movements. The 11 countries of the euro zone are now getting a better monetary policy than they ever had before. The creation of the euro zone therefore suggests a viable approach to the formation of other currency areas when prospective members can agree on a common inflation rate and a coordinated monetary policy.

It is important at the outset, however, to make a distinction between a single-currency monetary union that involves each country scrapping its own currency, and a multiple-currency monetary union, where the nation-states retain their own currency. The

former, which is the objective of the euro-zone countries, involves a step toward political integration that goes much beyond the latter approach.

Milton Friedman: My difference with Bob which reflects what I earlier labelled (d) is exemplified by my pessimism and his optimism about the euro. We agree that the euro has no historical precedent. I believe we also agree that its attainment was driven by political, not economic, considerations, by the belief that it would contribute to greater political integration—the much heralded United States of Europe—that would in turn render impossible the kind of wars which Europe has suffered so much. If achieved, political integration would render the monetary and political areas coterminous, the historical norm.

Will the euro contribute to political unity? Only, I believe, if it is economically successful; otherwise, it is more likely to engender political strife than political unity. And here, I believe, is where Bob and I differ most. Ireland requires at the moment a very different monetary policy than, say, Spain or Portugal. A flexible exchange rate would enable each of them to have the appropriate monetary policy. With a unified currency, they cannot. The alternative adjustment mechanisms are changes in internal prices and wages, movement of people and of capital. These are severely limited by differences in culture and by extensive government regulations, differing from country to country. If the residual flexibility is enough, or if the existence of the euro induces a major increase in flexibility, the euro will prosper. If not, as I fear is likely to be the case, over time, as the members of the euro experience a flow of asynchronous shocks, economic difficulties will emerge. Different governments will be subject to very different political pressures and these are bound to create political conflict, from which the European Central Bank cannot escape.

Robert Mundell: My own view about the politics of the euro is that it will provide a catalyst for increased political

integration in Europe, which, after two centuries of a Franco-German rivalry that has periodically engulfed the entire world, is highly desirable. Increased political integration would also enhance Europe's voice on the world political stage and allow Europe to share some of the leadership role and burden of the United States. In my view there are few, if any, risks associated with an increased power position of Europe in world affairs.

I do agree with Milton that the political benefits will bear fruit only if the euro is also an economic success. But on economic grounds alone I believe the case for the euro is overwhelming. The 11 countries of the euro area have now a common capital market instead of 11 different markets. The locking of exchange rates has completely eliminated speculative capital movements within the euro area and put the hedge funds out of business in that sector. No one would dream of imposing "Tobin taxes" on currency transactions within the euro area. The fixed exchange rate route to currency integration has been an outstanding success.

I also believe that every country in the euro area is now getting a better money than they had before. First of all, the size of the euro area is vastly larger than the size of any of the

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national currency areas, and that affords to each country a better insulation against shocks. The gains in this respect vary in inverse proportion to the size of the country. The currencies of small countries can get blown out of the water by speculative attacks. Germany may gain less proportionately than the smaller countries, but the Germans now have, or will have when the transition is complete, a currency that is three times larger than the mark area alone.

The biggest issue between Milton and myself lies in the quality of the monetary policy. I believe that every country in Europe is getting a better monetary policy than it had before. This is, I think, obvious for countries like Italy, Spain and Portugal, which, before the euro area was formed, had interest rates several percentage points above German rates. The convergence of interest rates has brought great gains to the capital markets and to the reduction of the interest burden of the public debt.

Milton Friedman: Two final comments. First, given that the euro has been established, I hope that I am wrong and Bob is right that it will induce its members to introduce enough freedom in internal prices and wages and encourage enough mobility to prove my fears unjustified. It is in the interest of Europe and America that it succeed. Second, flexible rates are not a guarantee of sensible internal monetary policy. A country can have bad internal monetary policy with fixed rates or with flexible rates. What flexible rates do is to make it possible for a country to have a good internal monetary policy, regardless of the policies followed by other countries.

Robert Mundell: I agree with both Milton's last comments, although I would put the conclusions a little differently. We both agree on the importance of price flexibility. Exchange rate changes can never be a substitute for the vast number of changes in individual prices that have to be made in an efficient market. But the possibility of exchange rate changes has neverthe-

Friedman Flexible rates are not a guarantee of sensible internal monetary policy. A country can have bad internal monetary policy with fixed rates or with flexible rates. What flexible rates do is to make it possible for a country to have a good internal monetary policy, regardless of the policies followed by other countries.

less deflected the attention of policy makers from the vastly more important subject of flexibility in all individual markets. I believe that flexibility of individual prices will be fostered by the euro area and that, with exchange rate changes ruled out, policy makers will increasingly turn to deregulation and fewer controls.

I agree that a country is better off with a national monetary policy if the monetary policy is likely to be better than that in the rest of the world, as it could be if the rest of the world is unstable. Short of a monetary union with the euro and yen areas, the United States has no real alternative to inflation targeting and a flexible exchange rate.

But apart from the United States, most if not all countries would benefit from being part of a larger currency area, for reasons of economies of scale, cushioning against shocks, and a better monetary policy. Most of the 175-odd currencies in the world should be classified as "junk" currencies, sources of instability rather than anchors of stability. Europe has been the pioneer in the process of forming a larger currency area, and I believe it is an example that will be increasingly imitated in the rest of the world. It is even possible that the process could lead to a reformation of the international monetary system, a result that would have the promise of optimizing the efficiency of our world trade and payments mechanism.

4. Has fixing hurt the Irish economy?

Could we consider a question of Robert Mundell's: "Does Ireland need a separate monetary policy?" Why is Ireland better off as part of the euro zone, in view of labour mobility, language and other political obstacles to economic adjustment mentioned by Prof. Friedman?

Robert Mundell: There is, to be sure, a widely-held view that every country needs a different monetary policy, and that a one-size-fits-all monetary policy won't be efficient. Suppose, for example, that one country, say Ireland, grows more rapidly than another country. Does this mean that Ireland should have a higher interest rate in order to prevent inflation? I don't believe that's true at all.

Suppose for a moment we shift the example to California within the US currency area. Suppose California grows more rapidly than other states while the Federal Reserve keeps monetary policy adjusted to maintain price stability (zero to two per cent inflation) within the United States as a whole. More rapid growth in California just means that more of the new money created by the Fed will find its way into that state rather than into the slower-growing states. Interest rates in California should stay exactly at the same level as they are in the rest of the US monetary union.

Does this mean that California's price level has to move differently than the price levels in the other states? If all states measured inflation by an index of prices of a common basket of goods, inflation rates in the long run would have to be the same. But the more rapid growth in California might put up the prices of some California-specific factors, like labour, that may cause California's price index to rise more rapidly than elsewhere. Money wages in California might rise faster than elsewhere and this would mean a rise in real wage rates expressed in terms of the com-

mon US basket. But why shouldn't Californian workers participate in the growth and why should that be considered inflation?

Ireland's case is not basically different. With more rapid growth in Ireland than in the rest of the euro area, wage rates grow more rapidly than elsewhere and prices of non-traded goods may rise relative to goods in the rest of the euro area. Such changes in relative prices are frequently necessary, but they should never be confused with inflation, which is a monetary phenomenon.

Higher growth in a common currency area does not, in fact, always lead to more rapid increases in the price level. The effect on the price level depends on the sector in which productivity growth takes place, giv-

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ing rise to the need for changes in relative prices. If the productivity growth is primarily in the (internationally-) traded goods industries, the prices of these goods have to fall relative to the prices of traded goods, and with fixed exchange rates, the prices of domestic goods have to rise. If, on the other hand, the productivity growth takes place in the domestic goods industries, the prices of domestic goods have to fall.

It is true that an independent monetary policy with a flexible exchange rate could lead to apprecia-

tion of the Irish punt in the former case, and depreciation in the latter case, and that these exchange rate changes would ameliorate the price pressures. But there are severe limitations on this alternative:

1. Ireland's real exchange rate may have to appreciate or depreciate by, say four per cent a year during the period of high growth, but the flexible exchange rate would not produce a smooth and steady appreciation. Volatility might make the punt fluctuate by several percentage points up and down more than is necessary, and this unproductive volatility would lead to overshooting that would introduce new and spurious inflationary developments. Expectations factors would lead to sympathetic overshooting of interest rates and false pricing.

2. Economic models, such as the two-sector model applied here, give a distorted and over-simplified picture of the real world. Instead of "traded" and "domestic" goods, there are dozens of such types, each of which have different productivity experiences. During growth, some industries grow rapidly, others more slowly and some may even decline as comparative advantages are lost. The dozens of necessary industry-specific price adjustments cannot be duplicated by the single variable of the exchange rate. With the punt tied to the euro, Ireland can import the scarcity relationships of the vast euro area, without filtering these relationships through a fluctuating and volatile exchange rate.

3. The admittedly-higher inflation experienced by a fast-growing country within the euro area is mitigated by the fact that inflationary pressures there will be recorded in the inflation rate of the euro area as a whole, and thus, other things equal, lead to a tighter monetary policy in the whole area. (This argument is more important the larger is the weight of the growing country's goods in the price indexes of the euro area, and would not therefore be of much relevance in the case of a low-weight country like Ireland.)

4. Countries in the euro area have to accept inflation differentials insofar as the consumer price indexes on which they are based refer to different baskets of goods and services. In the same way, New York, Louisiana and California can have different inflation rates. But what is relevant for policy purposes is the common inflation measure of the euro area, the so-called Harmonized Index of Consumer Prices (HICP), produced by Eurostat, the statistical arm of the European Commission, that tries to measure a common basket of goods. The HICP index for Ireland will show less inflation than Ireland's national index of consumer prices, largely because of the rapid growth of Irish wages.

5. The increase in the inflation rate in Ireland has been due entirely and perhaps not mainly to differential productivity growth. The fall of the euro by 25-30 per cent must bear a large share of the blame, Ireland, being on the northwest fringe of Europe, having a much larger pass-through effect, by which the lower euro affects Irish prices earlier, and to a larger degree, than the other members of the euro area.

6. It is not at all clear to me that Irish workers and property owners would prefer to experience their higher real incomes in the form of an appreciation of the punt rather than an increase in prices denominated in punts and euros. My guess is that the Irish workers like the rapid rises in wages and property values, and that the main complaints about the process come from euro-skeptics!

7. By giving up its link to the euro, Ireland would lose its direct link to the now vast euro-area capital market.

8. Foreign investment would shun Ireland because it no longer would have the same currency as the Continent. Producers' profits could be wiped out by sudden and unpredictable exchange rate changes. The UK example shows that the volatile pound in the past year has induced several Japanese car makers to with-

draw their operations from the UK.

9. Ireland, a small country, would find that the real burden of its taxation moves up and down with a volatile exchange rate.

10. Ireland, for hundreds of years a backwater colony with a per capita income less than half that of the U.K., has now outstripped it and that great success has been due primarily to a. entry into the EU; b. low tax rates that make foreign investment attractive; and c. certainty about its monetary policy and exchange rate with other EMU members.

More rapid growth in a country is not, in my view, a good argument for an independent monetary policy, nor, in practice, is the argument about asymmetrical shocks. Specific shocks and individual growth experi-

Friedman Adjustment to the current rapid rise in productivity [in Ireland] and the inevitable subsequent tapering off would be easier if consumer prices were stabler and the punt was appreciating relative to other currencies. That is what could be happening if Ireland had its own currency and monetary policy.

ences are inevitable in a world of change, but the exchange rate is almost never the best form of adjustment. The exchange rate is a monetary variable that can change the price level or inflation rate but cannot offset the effects of shocks due to changes in the terms of trade, disasters like earthquakes, or large movements of population.

Milton Friedman: Consumer prices in Ireland are currently rising at between 15 per cent and 20 per cent per annum—more rapidly than in

other members of the euro because Ireland's rapid growth is generating a balance of payments surplus that is adding to its money supply. Wages must rise that rapidly just to keep pace with inflation. They are rising more rapidly still because real wages are rising as well. The rise in nominal wages to offset inflation is pure noise that establishes misleading expectations in both the wage recipients and the employers. Adjustment to the current rapid rise in productivity and the inevitable subsequent tapering off would be easier if consumer prices were stabler and the punt was appreciating relative to other currencies. That is what could be happening if Ireland had its own currency and monetary policy.

To put this point in a very different way, Ireland's membership in the euro forces it to use some of its scarce internal capital (the counterpart to its balance of payments surplus) to purchase additional euros. The additional euros that finance the higher consumer price level do not serve any productive function. On the contrary, they simply introduce irrelevant noise. If Ireland had its own monetary policy, the capital used to purchase additional euros would be available for internal investment.

What about Bob's point that countries like Italy, Spain and Portugal gain from the convergence of interest rates? They do, at least in the first instance. But there is no free lunch. The extra capital that flows into those countries comes from a common capital pool, which means that other countries will have to pay a slightly higher interest rate. Moreover, the interest rates that converge are the risk-free rates. Different countries will still pay different rates, depending on their credit quality. The members of the euro have accepted restrictions on their fiscal policy, but it remains to be seen whether they will be honored, and if they are not honored, whether the monetary community can enforce them. Those tests are yet to come.

5. Why Bretton Woods failed

The Bretton Woods system of fixed exchange rates, created in 1944, was designed to bring stability to currency markets. Major currencies were fixed to the US dollar, which meant that other countries essentially adopted US inflation rates. The system broke down in the early 1970s. You have differing ideas about the system's successes and failures.

Milton Friedman: Another example of a similar difference in judgement is with respect to Bob's comment, "I believe that larger countries can have a hard fix without establishing a currency board system or monetary union, and I would say that the Bretton Woods arrangements proved that." Hardly. There were repeated revaluations and devaluations under the Bretton Woods arrangement, and a number of severe international crises involving "larger countries." Had Bretton Woods behaved as well as Bob suggests, it never would have collapsed as it did in the early 1970s.

Robert Mundell: I agree that the Bretton Woods arrangements were not perfect, in large part because countries did not follow the rules of adjustment. The important reserve countries like Britain and the United States automatically sterilized reserve losses, throw-

ing the burden of adjustment onto other countries. But what was wrong with the experience of large countries like Germany and Japan with fixed exchange rates coupled with a monetary policy that kept their balances of payments in equilibrium? Over this period, which included Japan's "sudden economic rise" between 1955 and the 1970s, Japan had the longest period of two-digit growth in its or any other country's history.

Germany had its own "Erhard" miracle. Smaller countries like Italy, Austria and Mexico that had fixed exchange rates lasting over 20 years, enjoyed rapid growth, high employment and the same price stability as the United States. The period from 1950 to 1970 was a great period in the history of most of Western Europe and Japan. The United States, encumbered with punitive tax rates inherited from the war, was less fortunate, yet even so, the period 1950 to 1973 was better than the decade that followed it, despite the Korean and Vietnam Wars.

Some countries did get into trouble. Countries that did not obey the rules of a fixed exchange rate system had problems. Britain disobeyed the rules with its automatic sterilization of any change in reserves and its intermittent flirting with Keynesian policies. Dozens of developing countries

had problems because they tried to use the inflation tax as an instrument for financing economic development. Countries that break the economic laws required for stability should and did have problems. France had big problems in the 1950s, but after 1958 got its balance-of-payments mechanism working again under the influence of Jacques Rueff, General de Gaulle's economic adviser.

The Bretton Woods Arrangements did break down. But why? There were two main reasons. One was that the price of gold, set by President Roosevelt at \$35 per ounce in 1934, had become obsolete, after the inflations of the Second World War, the Korean War and the Vietnam War. All other prices had more than doubled and gold had become undervalued, creating speculation in its favour that led to vast withdrawals by foreign central banks. For political reasons—the two biggest producers were South Africa, with its noxious policy of apartheid, and the Soviet Union, the enemy of the West in the Cold War, along with the fact that US credibility was at stake—the US rejected the Bretton Woods solution provided for in the *IMF Articles of Agreement*, namely a universal reduction in the par value of currencies, putting up the price of gold. So, after losing more than half of its post-war gold stock,

THE CHICAGO SCHOOL IN THE 1960s

Rudi Dornbusch

Chicago in the 60s, no doubt, offered one of the great times in economics; maybe Keynes was the center of a great moment in economics, but the time we had in Chicago is hard to match. Robert Mundell and Milton Friedman were very much at the centre of it, as were George Stigler, Harry G. Johnson, Al Harberger and more. There was the "oral tradition" and there were the "workshops," the formidable feeling for students and faculty alike of a revolution in the mak-

ing. The great issue of the day was just how the economy works and what role government must play, if any, and what role monetary policy must definitely not be allowed to play. This is when Keynes died—actually he was long dead by then but his powerful ideas were fully there and had just animated the great Kennedy-Johnson expansion—and the resulting inflation. Monetarism was born in the midst, and in reaction, to the wave of inflation of the time. This was when "Chicago Boys" were made, a derogatory term at the time but rather a brand name by now. Note Mexico's new finance minister, Francisco Gil Diaz, another Chicago boy trained just in

those special years in the late 60s.

Chicago economics was built on two pillars: price theory and monetary theory. Price theory was about resource allocation, how markets work, how government for good reasons (patronage or capture by business interests) misallocates resources to create rents for themselves or their clientele, how competition tends to be the rule, how ultimately all and everything revolves around incentives and economic responses, from crime and love to corruption and trade restrictions. In Chicago, complex problems had simple answers—easy to understand wrong answers, the enemies would say. >>

when important countries asked to convert dollars into gold, the United States said no, and the gold window was closed.

The closing of the gold window did not have to break up the system. The other countries could have continued to fix their currencies to the dollar. But there was a basic difference between the United States and Europe over the common rate of inflation. Partly to ease the financing of the Vietnam War, the United States wanted—and imposed on the rest of the world—a higher rate of inflation than was optimal for Europe. It was a hard choice for Europe: the Economic Community had, since the Hague Summit in 1969, already set out on its path to monetary union. Going on to flexible exchange rates would sacrifice the valuable convergence with one another their economies had achieved around the fixed dollar. But, in the end, the countries floated, partly because they thought (mistakenly) it would teach the US a lesson.

The breakdown of the Bretton Woods arrangements was therefore caused by 1. the undervaluation of the gold anchor; and 2. a difference between the inflation objectives of the United States and Europe. But the breakdown was by no means necessary. Had the US followed a tighter policy, not allowing its inflation rate

to increase in the late 1960s and early 1970s, or if Europe had been willing to accept a somewhat higher rate of inflation (but not nearly as high as they had after they floated!), the system could have been held together.

Beneath all this was a simmering dispute between Europe and the United States, based on French resentment against the asymmetrical dollar system and the Vietnam War, the inflation tax involved in holding excess dollar reserves, and a power struggle in which Europe was trying to free itself from its “quasi-colonial” status with respect to the United States.

Milton Friedman: In response to my brief comment on Bretton Woods, Bob Mundell granted that “Some countries did get into trouble” and that “The Bretton Woods Arrangements did break down.” However, he ends up saying, “Had the US followed a tighter policy, not allowing its inflation rate to increase in the late 1960s and early 1970s, or if Europe had been willing to accept a somewhat higher rate of inflation (but not nearly as high as they had after they floated!), the system could have been held together.”

His comment reminds me of Gottfried Haberler’s famous response to a similar “if” statement: “If my aunt had wheels, she would be a bus.” Any proposed policy—or past policy—must be judged in terms of how it will in

Mundell Had the US followed a tighter policy, not allowing its inflation rate to increase in the late 1960s and early 1970s, or if Europe had been willing to accept a somewhat higher rate of inflation ... the system could have been held together.

fact operate, not how it might operate under ideal conditions. Bob’s excellent analysis of the breakdown of Bretton Woods shows that the factors that led to its demise were not accidental defects in the policies followed by the various countries, but important political and economic forces.

More important, the countries acted in the way they did, a way that proved fatal to Bretton Woods, in part because of the incentives Bretton Woods itself established. For example, take Bob comments, “Some countries did get into trouble. Countries that did not obey the rules of a fixed exchange rate system had problems. Britain disobeyed the rules with its automatic sterilization of any change in reserves and its intermittent flirting with Keynesian policies. Dozens of developing countries had problems because

The second pillar of the oral tradition was monetary theory, a formidably sophisticated and deep excursion in why there is money, how it works and how it can be destroyed. Anyone who sat through Friedman’s lectures emerged with an altogether profound respect for the proposition that tinkering with the quality of money is profoundly destructive of economic life and, indeed, society. This is where people learnt that stable prices promote long horizons, that monetary instability promotes economic misallocation.

Even though the ideology was patently free market economics, politics was really not to be seen. I might be

contradicted by those who note that during the 1968 campus riots, the department continued lectures as if the outside world had not stopped. I remember vividly demonstrators entering Friedman’s class only to be told that they were interfering with the freedom and choice to learn; moreover, not having registered they were not even free to stay quietly. In hindsight amazingly, the protesters left and our insular clique went on experiencing the quantity theory of money.

Beyond the classes, with a formidably competitive and merciless decimation of class size, one proceeded to the “workshops” where the real action was.

Here students and faculty presented their work in progress and submitted to the unrelenting bombardment of the workshop members. Yes, there were double standards; there was some kindness to students who made their first attempts; there was no mercy at all among the faculty; there was absolutely no mercy for junior professors who were plain beaten up. If they survived, there was nothing more to shock them or throw them off course.

Mundell and Friedman could not have been more different. They continue to be revered by their students but with starkly different memories. Milton one remembers for his >>

Friedman [Bob's] comment reminds me of Gottfried Haberler's famous response to a similar "if" statement: "If my aunt had wheels, she would be a bus." Any proposed policy—or past policy—must be judged in terms of how it will in fact operate, not how it might operate under ideal conditions.

they tried to use the inflation tax as an instrument for financing economic development." Agreed, but these countries were induced to behave as they did because under a fixed exchange rate system, a country that overexpands can benefit by imposing costs on the other members of the system. The initial gain to a country, developing or developed, from expanding its money supply is greater if other countries in the system will accept its currency, at least for a time, at an unchanging rate. Postponing the evil day is a strong incentive to an embattled politician. Bretton Woods carried within it the seeds of its own destruction.

I have long argued that a major

advantage of flexible exchange rates is that they mean that a country will bear fully the benefits and the costs of its own monetary policies. A mistake in monetary policy will not directly affect its trading partners—though, of course, it will affect them indirectly as it reduces the attractiveness of the initial country as a trading partner or locus of investment. This feature is important economically, but it is also important politically, since it reduces the occasion for political conflict.

Bob and my disagreement about the euro is identical with our disagreement about Bretton Woods. The euro encompasses 11 politically independent countries, differing in culture, resources and economic development, and subject to divergent influences. There are bound to develop among them differences about appropriate monetary, fiscal and other policies. Flexible exchange rates offered a way of adjusting to such differences through the market without political conflict. The euro closes that possibility. Bob is confident that other adjustment mechanisms will rapidly develop—greater internal flexibility in prices, regulations, and the like. I hope he is right, but I fear he may not be. If he turns out not to be, the euro will generate more political conflict, not political unity.

unbelievably baggy brown suits (from East Germany I surmise), his incisive uncompromising mind and a sweet smile going along with "what you really mean to say ...". Bob Mundell, by contrast favored a continental appearance and demeanor, his Canadian background notwithstanding. His mind looked for paradigms and always it was about upstaging received wisdom, challenging dogma, being the *enfant terrible* that he still is. Friedman's workshop was molded on his own principles of rules and responsibilities, no exceptions. Everybody present had to present a paper, no spectators. Everybody had to read the paper ahead of time (i.e. there was a paper) and discussion would pro-

ceed page by page. Friedman ruled, the rest mostly trembled or slurped the biblical pronouncement. The international workshop of Mundell and Harry Johnson was quite the opposite; often there were no papers and even when there was something, Mundell's tendency for going off course to his latest ideas easily penetrated; order was discouraged, speculation was at a premium. Harry Johnson would carve little animals from wood and occasionally pronounce, Mundell was unstoppable and Socratic. He never, never in the time I saw him in Chicago answered any question other than with another question. He always held that what was already on paper was too stale to look at or talk about,

6. The Gold Standard

At various times, both of you have expressed views on gold (or some other commodity base) as a national or global currency standard. What are your current views?

Robert Mundell: The gold and silver standards of the past were means by which countries could share a common currency (or metallic backing for a currency) without political integration. The silver, gold and bimetallic standards gave the world a kind of monetary unity even though the European empires were frequently at loggerheads with one another. And it kept inflation within bounds, completely in contrast with the paper currency inflations of the 20th century.

Silver was gradually eased out of the system (for not very good reasons!) in the 1870s and gold became the dominant monetary metal. What killed the gold standard? Charles Rist, the French economist and central banker, once said that "democracy killed the gold standard." He meant by this that democracy led to drastically inflated expectations of what government could do for people and led to increased government spending and budget deficits that often had to be

what was just in the making was the challenge. That was not easy for the paper presenter. Michael Mussa, probably the most brilliant of the group and today chief economist at the IMF, came close to strangling Mundell (at least in his mind). What did it do for us? The most extraordinary learning experience, questioning established truth, learning to think through a proposition, getting a view of the economy in our head with which to think on our feet.

Mundell and Friedman ran very different schools. For Friedman open economy was a short topic: flexible exchange rates—fully flexible—and free trade. What else was there to say? For Mundell it was, rightly, hard to >>

financed by money creation. This was an important insight, but I believe it does not put the finger on another problem.

The other problem was the change in the power configuration of countries. The gold standard was a decentralized monetary system that could work as long as it was not controlled by a single power. But with the creation of the Federal Reserve System in 1913, a central bank for the economy that was already before the First World War several times larger than any other economy, the future of the gold standard became dependent on the policies of the Federal Reserve System. The United States killed the gold standard. I wrote about this in more detail in my Nobel Prize Lecture published in the *American Economic Review* in June, 2000 [available at <http://www.columbia.edu/~ram15/nobelLecture.html>].

How can gold be used in the current system? If it were stable or could be made stable against commodities, it would once again make a fine universal unit of account and means of payment for the world economy. But I am skeptical that governments would want to reinstate a gold standard or that they would not screw it up if it were reinstated. So I would as an alternative prefer that it became a non-gov-

ernmental unit of account and means of payment for ordinary transactions and the Internet. It would then serve as a check on inflationary governments.

Milton Friedman: My views remain those I expressed in 1962 in *Capitalism and Freedom*: “My conclusion is that an automatic commodity standard is neither a feasible nor a desirable solution to the problem of establishing monetary arrangements for a free society. It is not desirable because it would involve a large cost in the form of resources used to produce the monetary commodity. It is not feasible because the mythology and beliefs required to make it effective do not exist.” (p. 42)

In the 19th century, when gold or silver standards or bimetallic standards were common, governments were spending about 10 per cent of the national income and exerting little control over the economy. The public took for granted that gold or silver was the “real” money and were willing to accept the costs of adjusting to inflows or outflows of gold. The gold standard produced long term relative stability in prices at the cost of a great deal of short term instability.

Whatever may be the verdict on the gold standard for that period, the situation is very different today.

Mundell I am skeptical that governments would want to reinstate a gold standard or that they would not screw it up if it were reinstated. So I would as an alternative prefer that it became a non-governmental unit of account and means of payment for ordinary transactions and the Internet.

Governments are spending 40 per cent or more of the national income and are intervening extensively in the economy. The public now takes it for granted that a central bank, not an amount of gold, is responsible for the quantity of money. No major country would tolerate the discipline of a real, effective gold standard.

For the United States, I have long believed that the policies of government storage of wheat and gold are equally illogical, and that the government should get out of the storage business for both and for other commodities as well. For gold, I have proposed that the government commit itself to auctioning off one-fifth of its stock in each of the next five years.

understand how Friedman could talk about monetary policy in a closed economy as if there were such a thing. As time went on and the world moved to flexible rates, Mundell increasingly favored fixed rates, monetary areas, a world money. He always knew that fashions move in a circle so now his view is back to full chic.

Every so often there was a gladiator event, a workshop where for some reason faculty from different areas got together and got at each other. Mundell vs. Friedman were special events. Friedman obviously admired the sheer creativity of Mundell but would not let him get by, sparks would fly. Mundell recognized Friedman as an icon but understood that he could play the bad

boy with success. I remember the unspeakable from Mundell: “Milton, the trouble with you is you lack common sense”. Both won the argument, we could not choose. But even so, each had their cohort and the cohort would imitate the master in style and speech and mannerisms. It must have been peculiar for anyone looking in, maybe that is why it was called the Chicago School.

And then there was the day when Mundell presented to a full-full house his new theory of the policy mix—monetary policy for price stability, fiscal policy for supply-side growth. Suffice it to say that this a very noisy afternoon.

In the Italian city of Siena those born inside the city walls think them-

selves the true Sieneese, born *sulle pietre*, unlike those from the surroundings, born *sulla terra*. Much the same goes for Chicago economists; having vaguely right-wing tendencies does not make for not having been there and being part of a great experience. These were formidable years for economics, they have changed the way our profession today thinks about money and the world economy. Two Nobel laureates later, with independent central banks, flexible exchange rates, low inflation and “new economics” what was done there has helped change the world.

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7. A world currency?

You are both so close—but. The core differences, it seems, may be ultimately political rather than economic. Assuming some form of price stability, the issue is whether a country has political policies in place—regarding capital markets, labour, taxation and regulatory regimes—that will allow it to adapt to economic change and shocks. The Mundell view is that, in the final analysis, countries must and ultimately will see the benefits of adopting internal market-based policy reform under a fixed currency regime. The Friedman view is that, for deep internal political reasons, individual countries cannot be counted on to adhere to proper internal market policies, and so need flexible exchange rates to absorb the shocks of economic change.

Under the Mundell view, then, the logical objective would be a global economy under one world currency. Under the Friedman view, the logical objective would be a global currency system based on competing national currencies.

But the reasons are political rather than economic. Would you agree? And where do you think this issue will be politically and economically in, say, 20 years?

Milton Friedman: I do not agree that the differences between Bob and me are primarily political. We differ in our judgement about the political effects of the Euro, but that is not the main source of our disagreement about floating versus hard-fixed rates worldwide.

Hard-fixed rates reduce transaction costs of international trade and finance and thereby facilitate international trade and investment. However, a country that enters into a hard-fixed rate bears an economic cost. The cost is discarding a means—a flexible exchange rate—of adjusting to external forces that impinge on it differently than on the other country or countries whose currency it shares. Adjusting to such external forces with a hard-fixed rate requires adjustments

in many individual prices and wages that could be avoided if it could change the exchange rate. As I wrote nearly 50 years ago (1953), “If internal prices were as flexible as exchange rates, it would make little economic difference whether adjustments were brought about by changes in exchange rates or by equivalent changes in internal prices. But that condition is clearly not fulfilled. The exchange rate is potentially flexible in the absence of administrative action to freeze it. At least in the modern world, internal prices are highly inflexible [and, if anything, have become more so since that was written]. ... The inflexibility of prices ...

Friedman A country that enters into a hard-fixed rate bears an economic cost. The cost is discarding a means—a flexible exchange rate—of adjusting to external forces that impinge on it differently than on the other country or countries whose currency it shares.

means a distortion of adjustments in response to changes in external conditions. The adjustments take the form primarily of price changes in some sectors, primarily of output changes in others ...

“The argument for flexible exchange rates is, strange to say, very nearly identical with the argument for daylight savings time. Isn’t it absurd to change the clock in summer when exactly the same result could be achieved by having each individual change his habits? All that is required is that everyone decide to come to his office an hour earlier, have lunch an hour earlier, etc. But obviously, it is much simpler to change the clock that guides all than to have each individual change his pattern of reaction to the clock, even though all want to do so. The situation is exactly the same in

the exchange market. It is far simpler to allow one price to change, namely the price of foreign exchange, than to rely upon changes in the multitude of prices that together constitute the internal price structure.” Bob and I agree, I believe, on this abstract statement of benefits and costs of hard-fixed rates. Where we disagree is on the actual magnitude of the benefits and costs.

I suspect that we differ most about cost rather than benefit. “Assuming some form of price stability” begs a key issue. Rough price stability in the euro as a whole has meant 15 to 20 per cent inflation in consumer prices in Ireland. Stable prices in Ireland would have required a 15 to 20 per cent appreciation of an independent Irish Punt vis-a-vis the euro. The hard-fix has instead required extensive nominal price adjustments in addition to the adjustments in relative prices called for by Ireland’s rapid development. Those nominal price adjustments have taken place promptly in some cases, been overdone in others, been long delayed in still others, and so on in infinite variety. The result has been unnecessary distortions in physical magnitudes.

History shows that “some form of price stability” cannot be taken for granted. The periods that can be so described, even for the major nations of the world, are few and far between. We happen to be in a good patch now, but it has lasted not much more than a decade, and came only after the adoption of flexible rates by the major countries. How does a country that hard-fixes its currency to that of another country get any assurance of price stability in the country to which it hitches, let alone of price stability relevant to itself?

For example, In June, 1979 Chile pegged its currency to the US dollar, with every intention of maintaining a hard-fix. In the prior three years, Chile had succeeded in cutting inflation sharply. By linking to the US dollar it hoped to cement the gains that

had already been made and to facilitate further reduction. Unfortunately for Chile, not long after it fixed the exchange rate, the United States adopted a severely restrictive monetary policy in order to stem the inflation of the 1970s. The US inflation peaked in 1980 and then decelerated sharply. The change in policy was accompanied by a major appreciation in the foreign exchange value of the US dollar. The result for Chile was disastrous. Chile was thrown into a major recession, from which it emerged only after it floated the peso in August 1982. Chile paid a heavy price for substituting US monetary policy for its own.

Finally, I believe that 20 years from now, as now, there will be a variety of independent currencies in the world linked by flexible exchange rates. Whether more or fewer will probably depend on how successful the euro proves to be. But it also may depend on a major wild card that we have not considered at all: the Internet and the emergence of one or more varieties of E-money.

Robert Mundell: It would be difficult to sum up in a few words the basic differences between Milton and myself on the issue of fixed and flexible exchange rates. But it is too facile to say that they are political. I see differences between us concerning: 1. the mechanism and ease of adjust-

Friedman History shows that ... price stability cannot be taken for granted. The periods that can be so described, even for the major nations of the world, are few and far between. We happen to be in a good patch now, but it has lasted not much more than a decade, and came only after the adoption of flexible rates by the major countries.

ment between regions with a common currency, or between countries with (hard) fixed exchange rates; 2. the effectiveness of the exchange rate as a cushion against internal or external shocks; and 3. the relevance and importance of the size configuration of countries in the world.

Rather than focusing entirely on the differences between Milton and myself, I would like to emphasize, in the short space available, some general points:

1. The exchange rate is not an effective cushion against real shocks. For example, a change in the terms of trade (e.g., a rise in the price of oil), a loss of export markets or a technological change cannot be offset by exchange rate changes. At its best, a flexible exchange rate can insulate a country against foreign inflation or deflation.

2. Exchange rate flexibility is no substitute for price flexibility. Efficient markets require thousands of flexible prices and the exchange rate provides only one price. Moreover, the exchange rate is no help for individual regions within a single country.

4. The time zone analogy is a seductive half-truth. If wages and prices get out of line, it is argued, it is easier to accept the *fait accompli* and restore international competitiveness by changing the exchange rate than it is to lower wages and prices, just as it is easier to shift to daylight-saving time than it is to make people adjust their habits by an hour. But the analogy has a fatal flaw. The change in the exchange rate will introduce expectations of future changes and set in motion further wage and price movements that start the country down the slippery slope of inflation. The physical universe is very different: Setting the clocks back does not change the position of the sun!

5. Devaluation is not a good tool for increasing employment. The argument depends on money illusion and starts a country down the slippery slope of monetary instability. Devaluation raises the price level and

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lowers real wages, potentially increasing demand for labor. But if unions demand compensation for price increases, as they will if they have no money illusion, or apply an automatic cost-of-living adjustment, or have anticipated the devaluation and raised wages in advance, real wage rates would be unchanged and the policy fails. Even in the best of circumstances, the adjustment works by raising prices and undermining monetary stability.

6. Currency areas (zones of fixed exchange rates or common currencies) result in common rates of inflation defined in terms of a common basket of goods, modified only slightly for changes in the prices of domestic goods when one area grows at a different pace than the other areas. The US currency area has roughly the same inflation rate in all parts of the country, and so does (or will when the adjustment process is complete) the euro area. Exceptional growth in one area can give rise to increases in nominal (and real) wages as well as increases in land prices but this necessary real adjustment, which is currently taking place in Ireland, should not be identified with inflation.

7. Countries seeking to reduce their inflation rate by monetary restriction should not neglect exchange rate policy. Tight money typically leads to capital inflows and an overvalued currency that builds up a "one-way option" for speculators that leads inevitably to a major crisis when the overvaluation has to be corrected. The



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Milton Friedman

longer the process goes on the more overvalued the currency and the higher interest rates have to be. Canada got into this difficulty in 1988-92, and Mexico seems to be heading in that direction today.

8. A large currency area is a better cushion against shocks than a small currency area, just as a large lake can absorb the impact of a meteor better than a small pond. The euro (assuming sound monetary policy), will be a much more stable currency area than any of its component national currencies. Similarly, at equal inflation rates, the US dollar is a more effective currency than the Canadian dollar or the Mexican peso, and a North American monetary union, whether based on the US dollar or a new unit (such as Herbert Grubel's plan for an "amero"), would be a more stable unit than any of the national currencies alone. On this argument, the ideal currency area would be one comprising the entire world.

9. Adjustment between regions of a common-currency area is painless and apparently effortless because it starts to take place as soon as a problem arises and it is implemented smoothly and efficiently until adjustment has been completed. Exactly the same ease of adjustment is possible between areas with firmly-fixed exchange rates. If, for example, Canada formed a monetary union with the United States, or dollarized, or fixed its dollar firmly and irrevocably to the US dollar, the two countries

would share the same inflation rate and adjustment between Canada and the United States would be just as easy as it is between California or Puerto Rico or Panama and the United States

10. Trade between areas with a common currency or a firmly-fixed exchange rate is higher than that between areas separated by flexible exchange rates because exchange rate uncertainty imposes a cost of trade much like a tariff. If the fifty states of the United States had separate currencies connected by flexible exchange rates, the real income of the United States would plummet. By the same token, if Canada and the United States shared a stable common currency or an irrevocably fixed exchange rate, Canada's real income would soar, closing a large part of the gap between the two countries' GDP per capita.

11. When a country firmly fixes its currency to a large and stable monetary leader (such as the dollar or euro areas) it gets a rudder for its monetary policy, a stable rate of inflation, and discipline for its fiscal policy (budget deficits are anathema to fixed exchange rates). In addition it gets the bonus of being a member of a large currency area that is a better cushion against shocks.

12. The inefficiency of flexible rates is underlined by the volatility of exchange rates between the three largest currency areas. The dollar, euro and yen areas have each achieved stability of their price levels, but have been subject to extreme volatility, largely due to currency speculation that exceeds \$1.5 trillion a day! This extreme volatility has prompted calls for "Tobin taxes" to reduce the crass waste associated with all this unnecessary hedge-fund activity. But the Europeans have pointed the way to a much better alternative, eliminating exchange rate volatility altogether by fixing exchange rates. Since the locking of the eleven euro area currencies, speculative capital movements have completely disappeared!

There is no need for sweeping

exchange rate changes between areas that have the same degree of price stability, and a monetary union of the "G-3" would have the merit of producing both what Keynes called internal balance (price stability) and external balance (exchange rate stability), at the same time.

13. Fluctuations in the yen-dollar and euro-dollar rates pose grave problems for the smaller currency areas and constitute the major source of instability in the international monetary system. The appreciation of the dollar against the yen between April 1995 and June 1998 was largely responsible for the so-called "Asian crisis," and fluctuations in the euro-dollar rate have helped to undermine the stability of the transition countries. A monetary union of the G-3 countries, while appearing to be a long shot, could be an anchor around which stable international monetary system could be rebuilt.

14. The viability of a world of flexible exchange rates depends critically on the size configuration of countries in the world. There are now 178 members of the International Monetary Fund. If these countries were all the same size, flexible rates would have resulted in monetary chaos. In such a case the need for a universal unit of account—whether gold or an IMF currency—would be obvious. What saved the system from chaos was that the dollar, the currency of the superpower, filled the vacu-

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um and could take on the functions of international unit of account and medium of exchange.

15. Despite the success of the US economy as motor for the world economy in the past two decades—spurred on as it was by the supply-side tax revolution in the 1980s, and the IT revolution of the 1990s—the dollar’s role as stand-in for a world currency weakens the long-run financial position of the United States. Since floating began in the early 1970s, the United States has moved from being the world’s largest creditor to the world’s largest debtor. The US net debtor position, currently increasing at the rate of more than \$400 billion a year (the amount of the US current account deficit), will eventually undermine the dollar and its usefulness as a world currency. The euro may be able to take up the slack in the intermediate run, but in the long run, there is no viable alternative to a world currency.

16. Without exception, all the great classical economists favored fixed exchange rates anchored to gold, and abhorred the idea of inconvertible currencies and flexible exchange rates. Their great worry was that paper currencies, unchecked by convertibility, would lead to deficit finance and inflationary monetary policies, a worry that well proved to be justified a century later.

The idea of flexible exchange rates was championed by economists from Britain and the United States, the monetary leaders, respectively, of the 19th and 20th centuries. I am thinking here of Keynes (who was on both sides of the question) and James Meade in Britain, and Irving Fisher and of course Milton Friedman in the United States. But it was one thing for the large anchor economies to have flexible exchange rates and quite a different thing for the smaller economies, for whom a world of flexible exchange rates was equivalent to chaos. The United States can afford to neglect its exchange rate, but any other economy, including the euro area, does so at its own peril.

17. I think Milton and I agree that most of the smaller developing countries are better off with currencies firmly anchored to a stable large country. Because that way they will get a better monetary policy and connections to the capital market of the large country. Milton believes, however, that the large countries are better off with inflation targeting, while I believe they also are better off with firmly fixed exchange rates if an agreement between them could be reached. Milton is skeptical of the possibility of agreement between large countries on exchange rates while I think that self-interest will drive countries eventually to a more efficient cooperative solution.

18. My approach is more internationalist than Milton’s. I reject as economically wasteful a system of 178 national currencies floating against one another. I would prefer to see fixed exchange rates between the three dominant currency areas and to use a fixed dollar-euro-yen unit as a platform from which to launch, under the auspices of the Board of Governors of the International Monetary Fund, a world currency.

19. The idea of a world currency is by no means a new idea. A world currency of some sort has indeed existed for most of the past 2,500 years. Two thousand years ago, in the age of Caesar Augustus, it was the Roman aureus. A thousand years ago it was the gold bezant. A hundred years ago it was the gold sovereign. Less than thirty years ago it was the 1944 gold dollar. The world has been without a universal currency for only a tiny fraction of its history.

In the run-up to the Bretton Woods conference in 1944, both the British and American plans for post-war international monetary arrangements contained provisions for a world currency. The British plan, largely written by Keynes, proposed “bancor” as the name for the world currency; the American plan, largely written by Harry Dexter White, proposed “unitas” as the world currency.

Mundell A world currency of some sort has existed for most of the past 2,500 years. Two thousand years ago, in the age of Caesar Augustus, it was the Roman aureus... A hundred years ago it was the gold sovereign. Less than thirty years ago it was the 1944 gold dollar. The world has been without a universal currency for only a tiny fraction of its history.

But as negotiations proceeded, the Americans dropped the idea of a world currency and refused to discuss the matter further. The Americans were afraid that the world currency would compete with or detract from the dollar. It is ironic because it could have saved the dollar. This failure to create a world currency at Bretton Woods was one of the reasons the Bretton Woods fixed-exchange rate system broke down.

A few economists have recently recognized the merits of and need for a world currency. Whether that can be achieved or not in the near future will depend on politics as well as economics. But it is nevertheless a project that would restore a needed coherence to the international monetary system, give the International Monetary Fund a function that would help it to promote stability, and be a catalyst for international harmony. As Paul Volcker has put it, “A global economy needs a global currency.”

Milton Friedman: I have long believed, to paraphrase Clemenceau’s famous remark about war, that money is far too serious to be left to central bankers. Is it tolerable in a democracy to have so much power concentrated in a body free from any kind of direct, effective political control? On those grounds, national central banks, whether called independent or not,



Photo courtesy *National Post*

Robert Mundell

are always subject to ultimate political control. That is the fundamental reason why the monetary area has historically been coterminous with the political area. The euro is unique in its multi-country character. I believe that is a basic flaw, and is likely sooner or later to convert economic differences into unresolvable political differences.

Bob views the prospect of a single world money with enthusiasm. I view it as a monstrosity—on a par with my reaction to world government, for that is what a common currency amounts to for one aspect of economic activity. As a citizen of the United States, I find it bad enough that we have developed monetary arrangements under which so much power has been vested in a small group of unelected individuals, subject only indirectly to political control. I find it far worse to vest so much power in individuals chosen by international negotiation, individuals who are not accountable in any meaningful way at the ballot box.

Gold was able to serve as a pseudo world money in the 19th and early 20th century precisely because it was impersonal and not subject to the control of a political authority. It was

a commodity purchased and sold in the market whose rate of exchange with other goods and services was determined by demand and supply. Individual nations chose to fix the price of gold in terms of their national currencies. However, each nation retained the right to separate its national currency from gold and most nations found the occasional need to do so. The euro—and Bob's idea of a world money—involves discarding that possibility. The dream of a United States of Europe underlies the acceptance of that limitation for the members of the euro. However unlikely to become reality, it is at least an understandable dream, given the cultural links among the European countries. If it were ever achieved, it would restore the coincidence of the monetary and political areas.

There is no similar possibility on a world scale. The gold standard, in its hey-day, did not eliminate the conflict between external stability of exchange rates and internal stability of price level. Exchange rates were stable for long periods, but those periods were characterized by much internal economic instability in prices and economic activity. The post-war period of flexible exchange rates has displayed much more instability of exchange rates, but that has been consistent with—indeed, I would say, has contributed to—rapid growth in world trade, free flow of capital investment, and far greater internal economic stability than before World War I or between the two wars.

More than 150 years ago, John Stuart Mill wrote "There cannot ... be a more insignificant thing, in the economy of a society, than money; except in the character of a contrivance for sparing time and labour. It is a machine for doing quickly and commodiously, what would be done, though less quickly and commodiously, without it: and like many other kinds of machinery, it only causes a distinct and independent influence of its own when it gets out of order."

Competition has a role to play in

money as in other areas. Multiple currency areas provide competition and the opportunity for experimentation. The euro is an example of the benefits of competition. It enables us to observe, on a less than world scale, how a multi-country managed currency will operate. Surely, Bob is somewhat premature in declaring it a success before it is even fully operational. Let us see how it works before rushing into any broader arrangements.

Robert Mundell Milton attributed to me a view I have never had and have, on the contrary, explicitly rejected. He said I favoured a single world currency. Emphasis on the "single." I have never said that, and could not say that. In fact, I have written elsewhere that a single world currency would be unstable; it would break up. I myself could have written Milton's attack on a single world paper currency run by international bureaucrats!

I am afraid people don't understand the distinction between a parallel currency and a single currency. Back in Italy now, I told my wife, Valerie, that I would have to write a response to Milton's last comment on the grounds that he attributed to me a belief in a single world currency, whereas I have advocated a world currency. Her comment sums up my dilemma: "What's the difference?"

A single world paper currency is even worse than Milton said. If there were such a thing, every country

Friedman I have long believed, to paraphrase Clemenceau's famous remark about war, that money is far too serious to be left to central bankers. Is it tolerable in a democracy to have so much power concentrated in a body free from any kind of direct, effective political control?

would want to gain seigniorage by producing its own national currency, or have its banks do the same. This is what happened in the twilight of the gold standard. In 1900, there were only 21 central banks. Now we have about 190. The central bank movement started when, as a result of inflationary war policies, gold became unstable. The US price level was at 100 in 1914, 200 in 1920 and 140 in 1921, and gold and the dollar were correspondingly unstable. Countries in the rest of the world then thought they could do better with central bank management, and we had a rash of new central banks pushed on Latin America by Edwin Kemmerer of Princeton University. The end result of the central bank movement was that paper currencies replaced gold, and most central banks became instruments of permanent inflation.

If you created a world paper currency, central banks would have an incentive to replace the world currency with national paper, to gain seigniorage and power. It would therefore break up, unless it could be imposed with drastic prohibitions on the creation of national currencies. This would be incompatible with sovereignty or democracy. In other words, a single world currency would only work in an imperium or a monetary dictatorship.

The British and American plans at Bretton Woods proposed a world currency, but not a single world currency. In my 1968 "Plan for a World Currency," I proposed a world currency, but not a single world currency. In my ideal system, there would be a world currency but countries would use their home currency for domestic purposes.

So we agree on the impossibility or undesirability of a world currency. But I am not sanguine at all that Milton will be in any more agreement with me on my non-single-currency plan!

Just as it is good to have a world language in which everyone can converse, so it is useful to have a world

currency for international transactions. But I would never propose abolishing all national languages in favour of esperanto or English, nor would I propose scrapping all national currencies in favour of the dollar or world currency.

My ideal and equilibrium solution would be a world currency (but not a single world currency) in which each country would produce its own unit that exchanges at par with the world unit. We could call it the international dollar or, to avoid the parochial national connotation, the intor, a contraction of "international" and the French word for gold. Everything would be priced in terms of intors, and a committee—in my view, say, a G3 open market committee designated by the Board of Governors of the International Monetary Fund—would determine how many intors produced each year would be consistent with price stability. Every country would fix its currency to the intor following currency-board system principles. Ideally, countries would redefine their national units so that, for example, one Canadian intor (an intor with the head of the Queen or a maple leaf on it) was equal to one intor. Both intors and Canadian intors would be allowed to circulate in Canada, and the proportion of the Canadian paper-dollar demand that is supplied by Canadian intors (canintors?) would be no more than 75 per cent. The loss of seigniorage would therefore not be much, and in any case, Canada would get a rebate from the international institution.

Such a world currency would not be obligatory, but a voluntary choice. Maintaining convertibility would require monetary and fiscal discipline. Countries that could not cut the muster might well decide to opt out and suffer the consequences of higher interest rates and monetary instability. Others that wanted a tighter monetary policy and a lower rate of inflation (e.g., Switzerland, Japan?) might decide to go on floating, as might Canada, where the Canadian dollar is looked upon as a badge of independ-

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ence. But for the bulk of the world, it would be a great step forward.

Now comes the issue of gold. Milton has argued strongly that the United States should auction off its gold supplies. Other economists have recommended the IMF auction off its gold and give away the proceeds to poor countries. But I have always been opposed to this.

From the US point of view, it makes sense, in my mind, to keep some reserves against contingencies, in a crisis. Gold is by far the most convenient reserve to hold, it is the cheapest commodity to store (relative to its value) and it gives the US a stake in the disposition of gold in the future international monetary system. But if other Americans felt the same way and wanted to get rid of the 250 million ounces of gold now held by the United States, it would provide a good opening for a reform of the international monetary system.

The unwanted gold could be transferred to an international authority in exchange for deposits of, or paper notes of, intors. The rest of the world could go on the intor standard, and the United States would have a stock of intors (about US\$75-billion worth, pricing gold at US\$300 an ounce) that it could hold or invest in other things. The acquisition of one-quarter of the world's monetary gold

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to back the international currency would be a great booster of confidence in the intor, and at the same time relieve the United States of its burden in holding so much gold.

Milton could make the same case for the European Union. It now holds

more than 400 million ounces of gold. Unlike Americans, however, Europeans have identified gold with power, and would be reluctant to scrap their gold for fear that power to influence the international monetary system would decline. Nevertheless, most Europeans think the European System of Central Banks holds too much gold, and it might easily be possible to pry another 100 million ounces from the coffers of the central banks.

For the rest of it, the International Central Bank (ICB) would exchange intors for convertible currencies, part of which it could invest in Treasury bills or bonds to provide the income to cover the expenses of running the

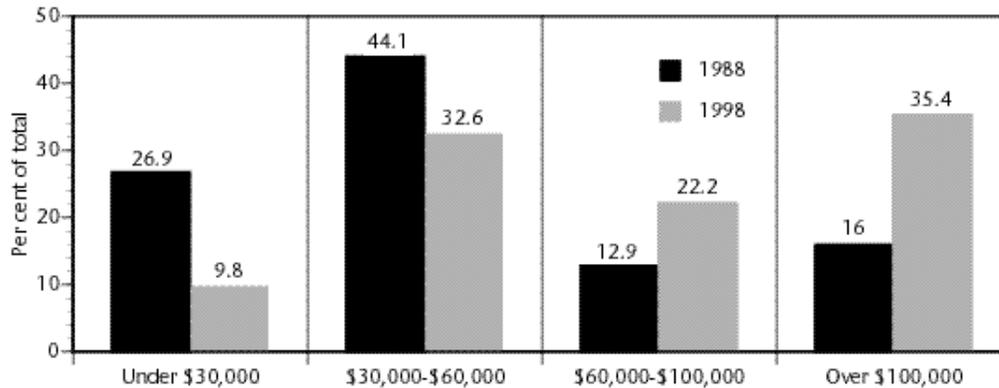
central bank. Unlike the IMF, which is cluttered with reserves of inconvertible currencies, the ICB and the intor would be entirely backed by gold and the best currencies in the world.

All this sounds unrealistic now, but I see an externality out there that is bound to be filled one way or another, and I myself think this is the most efficient way to exploit it, consistent with the political realities of the world as we know it.

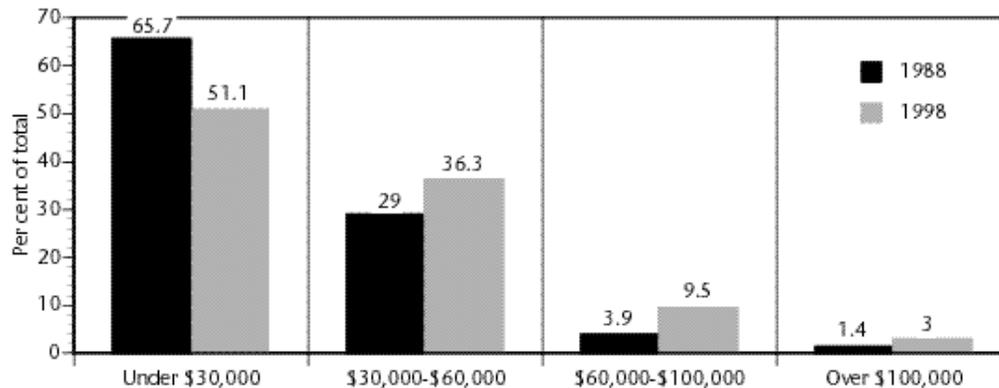
Gold will no longer be at the centre of the system as it was before 1914, but I am convinced it has a role to serve in the new century. It can build confidence in international exchange that does not exist in the case of national paper currencies.

The hardy few

Taxes paid by income group



Taxpayers by income group



Source: David Perry, *Canadian Tax Highlights*.