The Economist

# The Mundell-Fleming trilemma
# **Two out of three ain't bad**

## A fixed exchange rate, monetary autonomy and the free flow of capital are incompatible, according to the last in our series of big economic ideas

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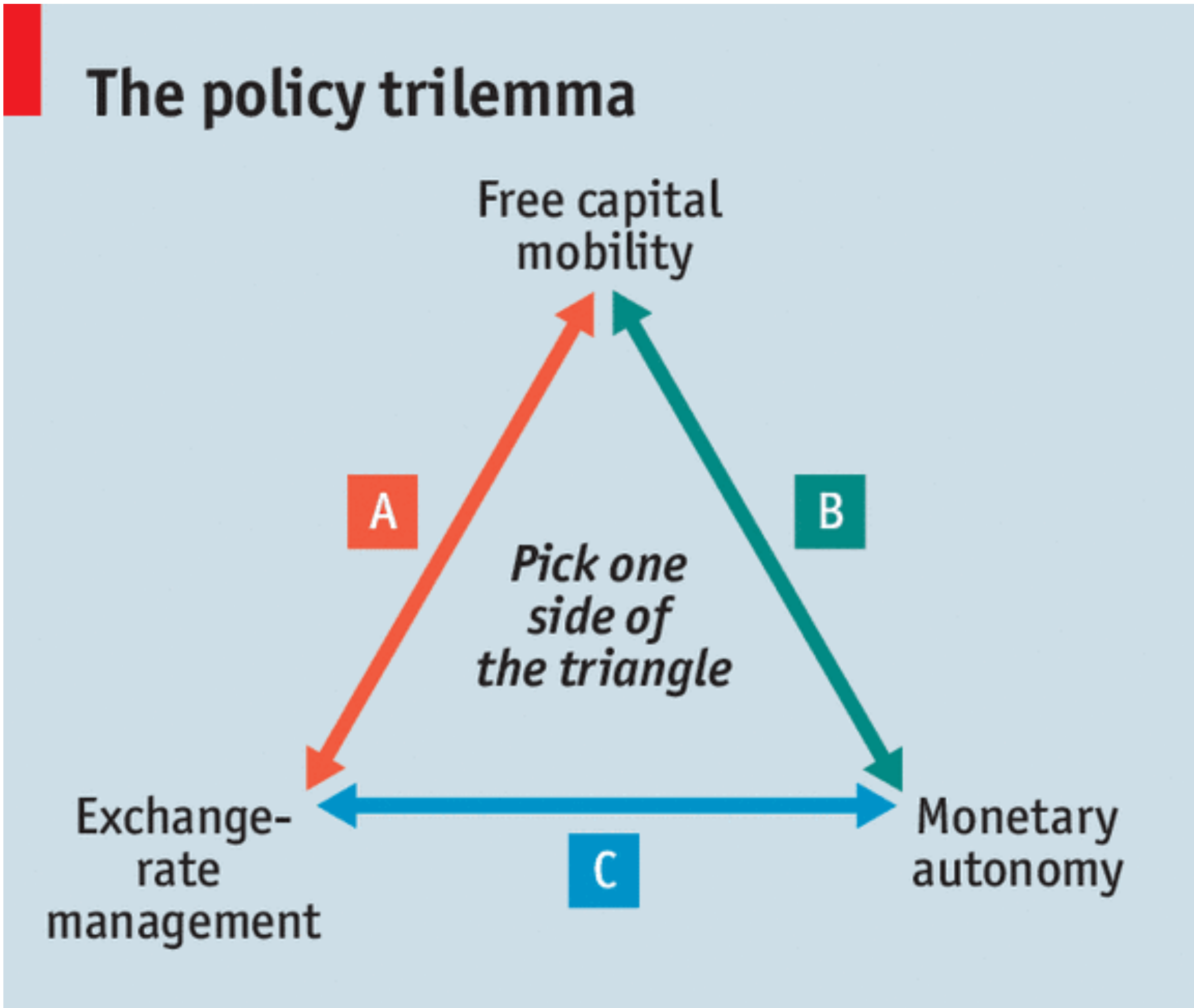
HILLEL THE ELDER, a first-century religious leader, was asked to summarise the Torah while standing on one leg. "That which is hateful to you, do not do to your fellow. That is the whole Torah; the rest is commentary," he replied. Michael Klein, of Tufts University, has written that the insights of international macroeconomics (the study of trade, the balance-of-payments, exchange rates and so on) might be similarly distilled: "Governments face the policy trilemma; the rest is commentary."

The policy trilemma, also known as the impossible or inconsistent trinity, says a country must choose between free capital mobility, exchange-rate management and monetary autonomy (the three corners of the triangle in the diagram). Only two of the three are possible. A country that wants to fix the value of its currency and have an interest-rate policy that is free from outside influence (side C of the triangle) cannot allow capital to flow freely across its borders. If the exchange rate is fixed but the country is open to cross-border capital flows, it cannot have an independent monetary policy (side A). And if a country chooses free capital mobility and wants monetary autonomy, it has to allow its currency to float (side B).

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To understand the trilemma, imagine a country that fixes its exchange rate against the US dollar and is also open to foreign capital. If its central bank sets interest rates above those set by the Federal Reserve, foreign capital in search of higher returns would flood in. These inflows would raise demand for the local currency; eventually the peg with the dollar would break. If interest rates are kept below those in America, capital would leave the country and the currency would fall.

Where barriers to capital flow are undesirable or futile, the trilemma boils down to a choice: between a floating exchange rate and control of monetary policy; or a fixed exchange rate and monetary bondage. Rich countries have typically chosen the former, but the countries that have adopted the euro have embraced the latter. The sacrifice of monetary-policy autonomy that the single currency entailed was plain even before its launch in 1999.

In the run up, aspiring members pegged their currencies to the Deutschmark. Since capital moves freely within Europe, the trilemma obliged would-be members to follow the monetary policy of Germany, the regional power. The head of the Dutch central bank, Wim Duisenberg (who subsequently became the first president of the European Central Bank), earned the nickname "Mr Fifteen Minutes" because of how quickly he copied the interest-rate changes made by the Bundesbank.

This monetary serfdom is tolerable for the Netherlands because its commerce is closely tied to Germany and business conditions rise and fall in tandem in both countries. For economies less closely aligned to Germany's business cycle, such as Spain and Greece, the cost of losing monetary independence has been much higher: interest rates that were too low during the boom, and no option to devalue their way out of trouble once crisis hit.

As with many big economic ideas, the trilemma has a complicated heritage. For a generation of economics students, it was an important outgrowth of the so-called Mundell-Fleming model, which incorporated the impact of capital flows into a more general treatment of interest rates, exchange-rate policy, trade and stability.

The model was named in recognition of research papers published in the early 1960s by Robert Mundell, a brilliant young Canadian trade theorist, and Marcus Fleming, a British economist at the IMF. Building on his earlier research, Mr Mundell showed in a paper in 1963 that monetary policy becomes ineffective where there is full capital mobility and a fixed exchange rate. Fleming's paper had a similar result.

If the world of economics remained unshaken, it was because capital flows were small at the time. Rich-world currencies were pegged to the dollar under a system of fixed exchange rates agreed at Bretton Woods, New Hampshire, in 1944. It was only after this arrangement broke down in the 1970s that the trilemma gained great policy relevance.

Perhaps the first mention of the Mundell-Fleming model was in 1976 by Rudiger Dornbusch of the Massachusetts Institute of Technology. Dornbusch's "overshooting" model sought to explain why the newish regime of floating exchange rates had proved so volatile. It was Dornbusch who helped popularise the Mundell-Fleming model through his bestselling textbooks (written with Stanley Fischer, now vice-chairman of the Federal Reserve) and his influence on doctoral students, such as Paul Krugman and Maurice Obstfeld. The use of the term "policy trilemma", as applied to international macroeconomics, was coined in a paper published in 1997 by Mr Obstfeld, who is now chief economist of the IMF, and Alan Taylor, now of the University of California, Davis.

But to fully understand the providence—and the significance—of the trilemma, you need to go back further. In "A Treatise on Money", published in 1930, John Maynard Keynes pointed to an inevitable tension in a monetary order in which capital can move in search of the highest return:

*This then is the dilemma of an international monetary system—to preserve the advantages of the stability of local currencies of the various members of the system in terms of the* *international standard, and to preserve at the same time an adequate local autonomy for each member over its domestic rate of interest and its volume of foreign lending.*

This is the first distillation of the policy trilemma, even if the fact of capital mobility is taken as a given. Keynes was acutely aware of it when, in the early 1940s, he set down his thoughts on how global trade might be rebuilt after the war. Keynes believed a system of fixed exchange rates was beneficial for trade. The problem with the interwar gold standard, he argued, was that it was not self-regulating. If large trade imbalances built up, as they did in the late 1920s, deficit countries were forced to respond to the resulting outflow of gold. They did so by raising interest rates, to curb demand for imports, and by cutting wages to restore export competitiveness. This led only to unemployment, as wages did not fall obligingly when gold (and thus money) was in scarce supply. The system might adjust more readily if surplus countries stepped up their spending on imports. But they were not required to do so.

Instead he proposed an alternative scheme, which became the basis of Britain's negotiating position at Bretton Woods. An international clearing bank (ICB) would settle the balance of transactions that gave rise to trade surpluses or deficits. Each country in the scheme would have an overdraft facility at the ICB, proportionate to its trade. This would afford deficit countries a buffer against the painful adjustments required under the gold standard. There would be penalties for overly lax countries: overdrafts would incur interest on a rising scale, for instance. Keynes's scheme would also penalise countries for hoarding by taxing big surpluses. Keynes could not secure support for such "creditor adjustment". America opposed the idea for the same reason Germany resists it today: it was a country with a big surplus on its balance of trade. But his proposal for an international clearing bank with overdraft facilities did lay the ground for the IMF.

Fleming and Mundell wrote their papers while working at the IMF in the context of the post-war monetary order that Keynes had helped shape. Fleming had been in contact with Keynes in the 1940s while he worked in the British civil service. For his part, Mr Mundell drew his inspiration from home.

In the decades after the second world war, an environment of rapid capital mobility was hard for economists to imagine. Cross-border capital flows were limited in part by regulation but also by the caution of investors. Canada was an exception. Capital moved freely across its border with America in part because damming such flows was impractical but also because US investors saw little danger in parking money next door. A consequence was that Canada could not peg its currency to the dollar without losing control of its monetary policy. So the Canadian dollar was allowed to float from 1950 until 1962.

A Canadian, such as Mr Mundell, was better placed to imagine the trade-offs other countries would face once capital began to move freely across borders and currencies were unfixed. When Mr Mundell won the Nobel prize in economics in 1999, Mr Krugman hailed it as a "Canadian Nobel". There was more to this observation than mere drollery. It is striking how many academics working in this area have been Canadian. Apart from Mr Mundell, Ronald McKinnon, Harry Gordon Johnson and Jacob Viner have made big contributions.


But some of the most influential recent work on the trilemma has been done by a Frenchwoman. In a series of papers, Hélène Rey, of the London Business School, has argued that a country that is open to capital flows and that allows its currency to float does not necessarily enjoy full monetary autonomy.

Ms Rey's analysis starts with the observation that the prices of risky assets, such as shares or high-yield bonds, tend to move in lockstep with the availability of bank credit and the weight of global capital flows. These co-movements, for Ms Rey, are a reflection of a "global financial cycle" driven by shifts in investors' appetite for risk. That in turn is heavily influenced by changes in the monetary policy of the Federal Reserve, which owes its power to the scale of borrowing in dollars by businesses and householders worldwide. When the Fed lowers its interest rate, it makes it cheap to borrow in dollars. That drives up global asset prices and thus boosts the value of collateral against which loans can be secured. Global credit conditions are relaxed.

Conversely, in a recent study Ms Rey finds that an unexpected decision by the Fed to raise its main interest rate soon leads to a rise in mortgage spreads not only in America, but also in Canada, Britain and New Zealand. In other words, the Fed's monetary policy shapes credit conditions in rich countries that have both flexible exchange rates and central banks that set their own monetary policy.

## Rey of sunshine

A crude reading of this result is that the policy trilemma is really a dilemma: a choice between staying open to cross-border capital or having control of local financial conditions.

In fact, Ms Rey's conclusion is more subtle: floating currencies do not adjust to capital flows in a way that leaves domestic monetary conditions unsullied, as the trilemma implies. So if a country is to retain its monetary-policy autonomy, it must employ additional "macroprudential" tools, such as selective capital controls or additional bank-capital requirements to curb excessive credit growth.

What is clear from Ms Rey's work is that the power of global capital flows means the autonomy of a country with a floating currency is far more limited than the trilemma implies. That said, a flexible exchange rate is not anything like as limiting as a fixed exchange rate. In a crisis, everything is suborned to maintaining a peg—until it breaks. A domestic interest-rate policy may be less powerful in the face of a global financial cycle that takes its cue from the Fed. But it is better than not having it at all, even if it is the economic-policy equivalent of standing on one leg.