

CURRENCY CONFLICT AND TRADE POLICY

**A NEW
STRATEGY
FOR THE
UNITED STATES**

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Introduction

Tensions over exchange rates have been a recurrent feature of the world economy for at least 80 years. They helped provoke the disastrous trade wars that intensified the Great Depression of the 1930s. They brought about the collapse of the Bretton Woods system of fixed rates in the early 1970s, ushering in an extended period of financial and economic instability.

The Plaza Accord in 1985 was required to correct the largest currency misalignments in modern history, which spawned intense protectionist pressures in the United States that threatened the global trading system. The capital flows associated with record trade imbalances, caused largely by a decade of currency manipulation after 2000, contributed significantly to housing bubbles in deficit economies, the bursting of which sparked both the Great Recession and the euro crisis. Currency manipulation greatly intensified the "China shock" that has eroded political support for globalization and new trade agreements in the United States and elsewhere, destroying the prospects for realization of the Trans-Pacific Partnership (TPP) and threatening to reverse some of the most important trade liberalization of the past.

Policy responses in each of these episodes have been too little and too late. The international rules and institutions, particularly the International Monetary Fund (IMF) and the World Trade Organization (WTO), have faltered badly. National policies, including in the United States, have not fared much better. Each episode has been exceedingly costly—for the world economy, for the United States, and for the credibility of the global monetary and trading systems.

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Currency manipulation went largely into remission in 2014. However, it could resume at any time. Moreover, the political backlash against it and against globalization more broadly, has escalated to levels that are unprecedented in the postwar period. New policies, at both the national and international levels, are essential to deter and remedy future currency conflict.

The Concept of Currency Conflict

Currency conflicts occur when countries seek an advantage in international trade by positioning their currencies at a level lower than justified by fundamental economic forces and market outcomes. They can do so by directly weakening their currencies through excessive (and thus competitive) devaluation of a fixed exchange rate or depreciation of a flexible exchange rate. More subtly, but now more frequently and with similar economic effects, they can block adequate (or any) upward revaluation of a fixed rate or resist market-driven appreciation of a flexible rate, a practice that has come to be called *competitive nonappreciation*. Such “competitive” outcomes are pursued primarily through direct intervention in the foreign exchange markets, which is often labeled “manipulation.” It is sometimes argued that quantitative easing and other manifestations of unconventional monetary policy by the Federal Reserve and central banks of other advanced economies also represent “manipulation,” but those policies are very different from direct intervention and should not be viewed as similar, as described below.

Currency manipulation improves a country’s competitiveness by reducing the prices of its exports and raising the prices of its imports relative to the levels they would reach under market conditions, enabling it to expand exports and substitute domestic production for imports. An increased trade balance increases domestic output and jobs in tradable goods and services sectors. It will create jobs on balance if the economy is not already at full employment and therefore has unused resources that can be activated in those sectors and in others that serve their increased demand.

Countries also seek to run surpluses to build their national reserves (previously gold, now mainly foreign exchange) and to defend themselves against future external shocks. The old doctrine of mercantilism still has adherents, who believe that a nation’s economic, political, and military power are enhanced by running large trade surpluses, particularly in manufactured goods and related services.

Exchange rates matter a great deal for countries’ trade positions and thus their economies. The IMF (2015c) and Cline (2016) show that every 10 percent move in the trade-weighted average of the dollar prompts a shift of about \$300 billion in the US trade balance in the opposite direction (i.e., dollar depreciation of 10 percent leads to a trade balance that is \$300 billion

stronger, and dollar appreciation of 10 percent produces a trade balance that is weaker by a similar amount). Such changes can move US GDP by as much as 1 to 2 percent, depending on the state of the economy and the macroeconomic policy response. As every \$1 billion of trade links to roughly 6,000 jobs, the impact on the economy can be substantial.

From an international perspective, trade and current account *balances* are a zero-sum game—unlike trade and current account *flows*, which are generally a win-win proposition (in the aggregate). Surpluses and deficits across countries must balance out and add to zero (although statistical discrepancies sometimes produce a “global surplus” or “global deficit”). Hence a strengthening of one country’s external balance must be mirrored by a weakening in the balance of one or more other countries. For this reason, when competition takes on extreme or unfair characteristics, “competitive devaluations” can produce serious international conflict and even be described as currency wars. The never-ending search for a level playing field among trading nations must therefore encompass currency issues.

There is nothing inherently good or bad about a trade or current account surplus or deficit of modest magnitude, or maintaining an exchange rate that will sustain one, as explained in chapter 2. However, large and persistent deficits can generate two types of unsustainability. First, they can become difficult to finance. Second, they can adversely affect important sectors of domestic production and employment, which in turn can undermine domestic support for open trade and economic policies. Large and persistent surpluses can generate inflationary pressures and, of particular importance, make it more difficult for deficit countries to correct their imbalances. Both types of imbalances distort the allocation of resources in ways that reduce efficiency and welfare over time in both surplus and deficit countries.

High-income countries have traditionally generated high rates of saving and thus tended to export corresponding amounts of capital and run external surpluses. Poor countries have offered good opportunities for investment. They therefore tend to import capital and run current account deficits to help fund their development. There are major exceptions to this pattern, however, notably contemporary China (which runs surpluses) and the United States (which runs deficits). Currency manipulation by China and other countries is an important reason why this anomaly has persisted, with wide-ranging economic and policy repercussions.

Historical Background

Currency conflict plays a central role in the traditional narrative of the 1930s and its lessons for future generations (Eichengreen 1992, Irwin 2011). All the major countries of the period—especially the United Kingdom, the United

States, France devalued sequentially and substantially in an effort to extricate themselves from the deep recessions of the day. The devaluations against gold ultimately raised prices worldwide and helped lift the world economy, and the abandonment of overvalued pegs freed monetary policy to stimulate economic expansions. In the early stages, however, countries that remained on fixed gold parities suffered from the devaluations of their neighbors. In response, some raised tariffs, which, along with the recessions, cut world trade by a quarter in three years, offsetting much of the benefit of easier monetary policy and prolonging the Great Depression.

The disastrous impact of competitive devaluation and beggar-thy-neighbor policy was a—probably the—central lesson policymakers gleaned from the interwar years. Prevention of a repetition was thus the cardinal goal of the international economic order that was constructed at Bretton Woods for the postwar period. The Articles of Agreement of the IMF explicitly ban competitive devaluation and currency manipulation. The charter of the General Agreement on Tariffs and Trade (GATT), now the WTO, contains a similar proscription of “exchange practices that frustrate the intent” of the agreement. A central purpose of the entire postwar structure was to avoid renewed resort to currency conflict.

Periodic currency conflict nevertheless recurred throughout the postwar years. As the United States began running overall balance-of-payments deficits in the 1960s, requiring sales of US reserves (mainly gold) despite steady current account surpluses, and the United Kingdom ran chronic deficits, countries with growing surpluses—mainly Germany, some other European countries, and increasingly Japan—resisted revaluing their exchange rates as the adjustment process required, becoming early practitioners of competitive nonappreciation. Largely as a result, the United States concluded that it had to abrogate some of the fundamental rules of the system, by terminating the convertibility of dollars into gold for foreign monetary authorities and imposing an across-the-board import surcharge, to enable it to restore equilibrium by negotiating a devaluation of the dollar. Its actions in essence destroyed the original Bretton Woods system of “fixed” exchange rates.

The major players grudgingly agreed to the initial realignment of parities in 1971, although most of them, especially France and Japan, pushed back hard against the US initiative by intervening to keep their own rates from rising further (Volcker and Gyohten 1993)—what is now called manipulation. The second realignment in 1973, and the shift by most major countries to flexible exchange rates, followed the same pattern. There was much grumbling about a “third devaluation of the dollar” after fixed parities were finally abandoned.

What was the problem with gold + what became the problem w/ float?

The widespread adoption of floating exchange rates by the major industrial countries in the 1970s was partly intended, and presumed by many, to preclude future competitive currency behavior by governments by turning the determination of exchange rates over to markets. But markets make major mistakes, too, as they did when they pushed the dollar to absurdly overvalued levels in the middle 1980s, inviting governments to resume their intervention. Moreover, in practice no government was willing to permanently absent itself from influencing a price that was so important for its economy. The United States, one of the most vocal proponents of “letting the market decide,” intervened heavily to shore up a plummeting dollar in 1978–79, to drive down a hugely overvalued dollar in 1985, and to stabilize the dollar when it dropped too rapidly in 1987. In the late 1970s, the Europeans, unhappy over the frequent downward swings of the dollar and related rises in their own currencies, began the movement toward a common internal currency that eventually produced the euro two decades later. Why?

Three chronic problems soon reemerged, keeping alive both the risk and periodically the reality of currency conflict. One was the revealed reluctance of deficit countries to reduce their imbalances by depressing their domestic economies. This tendency was particularly strong in the United States, a large and relatively closed economy in which, because of occasional overheating and the generation of fiscal deficits, such correction would sometimes have been desirable on domestic as well as international grounds. The result was that the United States relied on currency depreciation to achieve adjustment when it became necessary, either because foreign financing threatened to dry up or, more frequently, in response to domestic political reactions. The ensuing outbreaks of protectionism placed its liberal-trade policy and thus the global trading system at risk.

The second problem was the revealed reluctance of surplus countries to undertake any substantial initiatives, including currency appreciation, to correct their imbalances. Deficits, of course, cannot be corrected without parallel reductions of the corresponding surpluses, so surpluses cannot escape the adjustment process. But the locus of the adjustment measures makes a big difference in both economic and political terms. The persistent competitive nonappreciation by surplus countries forced most or all of the adjustment initiative on deficit countries, which often had to restrain their growth (despite their own preferences) and impart a deflationary bias to the world economy.

The United States was able to resist this pressure more easily than other deficit countries because the dominant international role of the dollar channelled capital to the United States and helped finance its deficits. The domestic protectionist pressures triggered by the industrial decline associated with those deficits, however, could demonstrably become an even greater

effect constraint. When it did, the desire of the United States to adjust by weakening the dollar clashed directly with the desire of the surplus countries to avoid strengthening their currencies.

This fundamental asymmetry of the adjustment process became the most glaring shortcoming of the global monetary system. It magnified the importance of the third chronic problem facing the system: the inability of the IMF to promote timely and sustainable correction of international imbalances. The IMF was not very effective during the postwar period of "fixed" exchange rates (really, adjustable pegs) either, but it did then have a clearly defined and authorized role. Once floating began, despite the adoption of amendments to its Articles of Agreement and some elaboration of its operating procedures, the Fund became largely a bystander in managing the nonsystem, as it came widely to be called.

Any cooperation that occurred was worked out mainly informally by the G-5 (for the Plaza and Louvre Accords in the 1980s) and by the G-7 (for the Asian and related crises in the 1990s). These groups have been vigilant, and largely successful, in trying to prevent competitive depreciations.

The largest currency misalignment of this period was by far the massive dollar overvaluation of the 1980s, which was driven by market forces (including rampant speculation) rather than manipulation by officials in surplus countries. It was resolved through cooperative intervention without any charges of currency warfare when the major countries realized that the most likely alternative was an outbreak of trade protection in the United States that would threaten the entire global trade regime (Bergsten and Green 2016).

The "Gs" were less effective in fending off competitive nonappreciations, especially with respect to one of the two chronic surplus countries of the period: Japan. Although its exchange rate did fluctuate widely, and it played by far the largest role in carrying out the Plaza Accord, Japan intervened periodically in the currency markets to keep the yen undervalued, cumulating more than \$300 billion in foreign exchange by 2000 as a result of this activity. The other main surplus country, Germany, did not pile up nearly as high a level of reserves and even ran deficits for a while. But it achieved the equivalent of competitive nonappreciation by subsuming its exchange rate in the euro area and enjoying the weakness of that currency (relative to an independent Deutsche mark) caused by the poor economic performance of other members of the currency union.

While all this was going on at the international level, most members of the European Union—the world's largest economic area—were moving toward creating a currency union. Their chief goal was to avoid changes in exchange rates that would disrupt the level playing field they were developing internally with free trade and eventually the single market—that is,

to prevent currency conflict within the union. The idea almost as old as the original Common Market itself, with the concept for monetary integration dating back to the Werner Plan in 1970. The move intensified after the abandonment of the pegged exchange rates of Bretton Woods in the 1970s and especially the repeated depreciations of the dollar, which created fluctuations among European currencies and generated upward pressure on all of them. The initial European Monetary System, a regime of small and frequent changes in parities, commenced in 1979.

Germany, as the traditional surplus country and paymaster of Europe, played the central role in these developments. It was probably modestly overvalued within the euro at its outset and, partly as a result, paradoxically became the sick man of Europe in the early 2000s. It adopted a strategy of wage suppression and labor market reforms that produced a sizable "internal devaluation" thereafter and, by sharply undermining the competitiveness of its EU partners, sowed the seeds for the later euro crises. At the same time, the weakness of the common currency in global markets—as a result of the weakness of many member countries—enabled Germany to achieve and maintain the world's largest current account surplus without experiencing the subsequent currency appreciation that in pre-euro days had always forced it to accept at least some adjustment (Bergsten 2016). As a member of the euro area, Germany was thus able to benefit from depreciation, or at least nonappreciation, that stemmed from its membership in a currency union that added a subtle but very important new dimension to the problem of currency conflict.

Recent Developments: Renewal of Currency Conflict

Over the past two decades, four major developments have restored the centrality of the currency conflict issue.

Asian Financial Crisis of 1997–98

The Asian financial crisis led virtually every Asian country and some countries in other parts of the world, whether or not they were victims of that crisis, to resolve to build their foreign exchange reserves to far higher levels to shield themselves from any repetition of such an event. They sought to buttress their defenses against future market pressures, which could demonstrably derail even such major economies as Korea and Indonesia, and to their again becoming beholden to the strictures of the IMF, which they detested.

The result was that virtually all Asian countries sought to run very large current account surpluses for a decade or more. They succeeded spec-

tacul China's reserves (including its sovereign wealth fund) eventually peaked at more than \$4 trillion, and a number of much smaller economies, including Hong Kong, Singapore, Korea, and Taiwan, amassed war chests of several hundred billion dollars each. These surpluses were triggered in large part through currency nonappreciation, engineered largely through manipulation, as demonstrated in chapter 4. International imbalances escalated sharply as a result, with the US current account deficit rising to a record \$800 billion (6 percent of GDP) in 2006.

The pursuit of adequate precautionary balances is understandable in a world of high capital mobility and volatile markets. The reserve buildups and consequent current account surpluses during this period climbed much too far, however, producing reserves that were greater than needed to meet even the most extreme possible circumstances. They created global imbalances that contributed to the onset of the financial crisis and Great Recession in 2007–08 and undermined support for open trade and globalization more generally. Currency conflicts had again become a major phenomenon.

Chinese Currency Intervention

The second important development, which overlapped but went far beyond the first, was the enormous and highly contentious intervention by China to keep its currency from rising at all before 2005 and during 2008–10 and by much less than it should have when the authorities were allowing it to appreciate gradually. By the beginning of the new century, China had adopted a development model that relied heavily on integration with the world economy and rapid export growth. This strategy included extremely healthy aspects, such as China's aggressive use of the rules of the WTO to promote controversial reforms at home. But it also produced steady and substantial rises in China's external surplus, which reached an astonishing peak of almost 10 percent of its GDP in 2007.

China's export surge generated enormous pressure on the economies of the United States and other deficit countries, especially on their low-skilled workers and their communities (Autor, Dorn, and Hanson 2016). These pressures from the "China shock" became a major factor in the narrative that undermined support for globalization (especially trade agreements) in the United States and some other countries and may have had a decisive impact on the 2016 US presidential election (Autor et al. 2017).¹

1. Support for leaving the European Union was much stronger in localities in the United Kingdom where industries faced greater competition from Chinese imports (I. Colantone and P. Stanig, "Brexit: Data Shows that Globalization Malaise, and Not Immigration,

The huge buildup of Chinese foreign exchange reserves that resulted from its currency manipulation also produced large flows of capital into the United States that contributed to the easy financial conditions there in the mid-2000s that facilitated the housing bubble and ultimately brought on the financial crisis and Great Recession, as discussed in chapter 4.

China achieved its entire external surplus throughout the "decade of manipulation" through its massive and sustained intervention in the currency markets. It pegged the renminbi to the dollar in 1994 and rode the dollar's appreciation upward until 2002, including by maintaining its peg unchanged through the Asian crisis, then rode the depreciating dollar down substantially against all currencies when its superior productivity growth suggested that the renminbi should have instead been appreciating by several percentage points per year (what Bhalla 2012 calls "standing-still depreciation"). Its intervention averaged more than \$1 billion per day for several years—almost \$2 billion per business day at its peak—keeping the renminbi from rising against the dollar and other currencies despite the soaring current account surplus and sizable inflow of direct investment capital. The United States (especially Congress) and some others complained loudly and increasingly frequently, as described in chapter 5. China let the renminbi rise gradually from 2005 until the outbreak of the Great Recession in 2008 and again from 2010, but its dramatic surpluses and reserve accumulation, driven by its currency manipulation and the inability of the IMF and the United States to do much about it, brought the issue of currency conflict back onto the front burner.

China was by far the most important currency manipulator, but it was hardly the only one. Half a dozen other Asian economies conducted similar policies, significantly contributing to the impact of the group as a whole on global imbalances. A number of oil exporters and a few other countries—notably Switzerland, which became the largest manipulator in 2012—were active as well. Manipulation became a wide-ranging systemic problem of consequential magnitude that revealed the failure of the international rules and institutions to offer an effective response.

China eventually let the renminbi rise substantially, by more than 50 percent on a real trade-weighted basis and about 35 percent against the dollar, to its recent peak in 2015. Largely as a result, its current account surplus dropped to less than 3 percent of GDP in 2015–16. Market pressures on the renminbi reversed course in 2015–16, and China intervened heavily to limit its depreciation, selling more than \$500 billion of its reserves, thus helping rather than hurting the competitiveness of the United

Determined the Vote," *Bocconi Knowledge*, July 12, 2016, www.knowledgeweb.unibocconi.eu/notizia.php?idArt=17195).

State and other deficit countries. But its manipulation throughout the previous decade severely distorted world trade, transferred large amounts of production and employment away from deficit countries, left lasting effects on national competitive positions, and triggered strong antiglobalization politics in some of the advanced economies that continue long after the manipulation itself ceased. The episodes revealed once again the weaknesses of the international monetary system and the instabilities that result.

The surpluses of the oil exporters have dropped as well, as a result of the sharp fall in the price of oil. But surpluses of many other manipulators have remained large or risen further, despite a sharp drop in currency intervention. Private financial flows have boosted the exchange rate of the dollar and allowed former manipulators to maintain their surpluses without intervening. The problem of manipulation has thus become less compelling for the moment—though the problem of imbalances is likely to grow and the domestic backlash in the United States against past manipulation, if anything, has intensified.

Unconventional Monetary Policies

A third, and potentially powerful, source of currency conflict was initiated with the adoption by the United States and United Kingdom, and subsequently by the euro area and Japan, of unconventional monetary policies, especially quantitative easing, in response to the Great Recession. It was, in fact, the upward pressure on Brazil's currency, driven primarily by quantitative easing in the United States, that led its finance minister, Guido Mantega, to inject the term *currency wars* into the contemporary lexicon in 2010 (see Prasad 2014 for a useful review of the history surrounding these events). Some observers have viewed these developments as presaging a new phenomenon of "monetary policy wars" (Taylor 2016).

A number of European political as well as financial leaders expressed considerable unhappiness when the Federal Reserve launched its extensive quantitative easing program, which pushed the dollar down in 2008–09, despite the likely benefits to their own economies from faster US economic growth. Japan engineered a sharp depreciation of the yen with the aggressive quantitative easing mandated by the new Abe government in early 2013. The depreciation was exacerbated by the "oral intervention" with which it anticipated that policy shift around the time of the election in late 2012 (which led the G-7 at its meeting in February 2013 to welcome the quantitative easing but criticize the oral intervention and insist that Japan recommit to avoiding manipulation and competitive depreciation).

The central banks have not exacerbated the currency conflict in any substantial way. Their governments continue to respect their indepen-

dence, but their ventures into the largely uncharted waters of unconventional monetary policies raise the prospect of another possible source of currency conflict. China, with support from Brazil and other emerging-market economies, has threatened to insist on including unconventional monetary policies in any new international process to assess the effects of, and consider sanctions against, currency manipulation. Though the threat is based on faulty analysis, as described in chapter 2, and thus unlikely to lead to restrictions on unconventional monetary policies, US officials cited the fear of future constraints on Federal Reserve policy in justifying their unwillingness to push for new international currency disciplines in, for example, the negotiations over the TPP (some members of Congress also cited these concerns in resisting the efforts of their colleagues to require the administration to seek such disciplines).

Frustration with US Failure to Curtail Currency Manipulation

The fourth key element in renewing the currency debate—and the main driver for new policy action as this book was being completed in early 2017—was the sharp increase in dissatisfaction in the US Congress and the US body politic with the unwillingness of the administrations of George W. Bush and Barack Obama to adopt more effective responses to manipulation, mainly by China and to a lesser extent by Japan and Korea. Dollar overvaluation and the resulting trade deficits have always been major drivers of protectionism in the United States; the risk that such sentiments would prevail motivated the aggressive strategies to weaken the exchange rate in 1971 and especially 1985. In the current period, when the main thrust has been to oppose new trade agreements and perhaps also to roll back previous liberalization, members of both houses and both parties promoted legislation to deal with currency manipulation throughout and indeed well beyond the "decade of manipulation."

These initiatives reached partial fruition in 2015 and 2016, when Congress adopted two important pieces of legislation that President Obama signed. The first, the Trade Promotion Authority bill, instructed US negotiators of the TPP and future free trade agreements (FTAs) to seek to ensure that partner countries avoid currency manipulation. In response, the Obama administration, for the first time with respect to any trade agreement, negotiated a side agreement to the TPP on the currency issue. That agreement recommitted all TPP members to avoid manipulation and added new disclosure requirements on intervention and related policies for some of them.

The second new law, the Trade Facilitation and Trade Enforcement Act of 2015, established new requirements for the implementation of US cur-

policy by future administrations based on clear criteria defining "manipulation" and timelines for responding to it (as described in chapters 4 and 5). The Treasury Department subsequently published its interpretation of the new criteria as a guide to its future policies.

Congress has proposed tougher measures, such as the import surcharge that was prominent in the initial debate on currency manipulation in 2005-07 but dropped thereafter because of its clear violation of US obligations under the WTO. All of the various proposals could be characterized as defensive reactions by the world's largest deficit country to manipulation by China and others. However, the rest of the world could well have viewed adoption of any forceful step by the United States as an escalation of, rather than a legitimate response to, currency conflict, because the US economy was doing relatively well and the dollar remains the world's key currency. Containment of congressional pressure for such steps by the Obama administration prevented a possible ratcheting up of that conflict.

These pressures broadened considerably with the political campaigns of 2016. For the first time in recent US history, trade became a central element in the presidential battle and some congressional contests. Both major presidential candidates, and several of the contenders for each party's nomination, explicitly opposed the TPP (Donald Trump also called for renegotiation of the North American Free Trade Agreement [NAFTA] and the United States-Korea Free Trade Agreement [KORUS]). So did key senatorial candidates, such as Republican Rob Portman of Ohio, a former US Trade Representative who supported the Trade Promotion Authority bill in 2015 but felt compelled to oppose the TPP in 2016 in order to hold his seat. All of these candidates cited the currency issue as an important reason for their skepticism and pledged to address it if elected, with Trump indicating repeatedly that he would "name China as a manipulator on his first day in office" (despite the total reversal in China's intervention policy, as described above, which presumably persuaded him not to fulfill that pledge).

The issue thus became much more politicized in the United States than ever before. Despite the recent remission in manipulation, it will play a major role when the administration and Congress address trade and globalization policy more broadly. President Trump has expressed far greater concern over manipulation than any of his predecessors, publicly indicating an intention to address the issue forcefully. Of all the issues critics of FTAs have cited, none has been mentioned more often than currency manipulation.

Any effort to revisit the TPP, or pursue new bilateral agreements with countries such as Japan or the United Kingdom (post-Brexit), could well seek to include enforceable currency disciplines." During the campaign, both presidential candidates expressed their dissatisfaction with

the absence of such disciplines. Many members of Congress have done so as well and could condition their support for any future agreements on their inclusion. The administration and Congress might also adopt new unilateral US policies, such as countervailing duties and countervailing currency intervention, through which the United States would buy offsetting amounts of the currencies of manipulators to neutralize their impact on exchange rates, described in chapters 5 and 6, to deter and deal more forcefully with currency manipulation. Depending on the nature of those measures and how they are implemented, such action could mark either a sharp escalation of the international currency conflict or a constructive new approach to reduce such conflict in the future.

This book focuses mainly on "currency conflict" and the economic distortions and policy problems that can result from government intervention in currency markets. It also pays some attention to the even broader misalignments of exchange rates and international imbalances, often driven by market forces such as changes in interest rates and underlying economic fundamentals, about which both authors have written extensively (see, for example, Bergsten 1996 and Gagnon 2011). After the "decade of manipulation," during which official intervention played a major role in many of the currency markets, such market-driven movements returned to primacy in 2015-16. Governmental intervention declined sharply, reflecting at least a temporary remission in manipulation and a return of currency misalignments and trade imbalances stemming from the more traditional movers of markets.

Since 2011, and especially in late 2014 and early 2015, the exchange rate of the dollar rose substantially for market-related reasons. Though not booming, the United States has been growing considerably more rapidly than Europe and Japan, the issuers of the other key currencies. The Federal Reserve stopped easing US monetary policy—and indeed began to tighten modestly—in late 2015 and again in late 2016, while the European Central Bank and the Bank of Japan were continuing to expand their quantitative easing programs. China's slowdown and renewed capital flight pushed the dollar up against the renminbi. Safe-haven money periodically flowed into the dollar, still the world's dominant currency, around events such as the Chinese mini-devaluation in August 2015 and the Brexit vote in June 2016.

As a result of this market-driven appreciation, as of early 2017 the dollar was overvalued by 10 percent (Cline 2016) to 20 percent (Bergsten 2016), depending upon whether one wants simply to restrain the US current account balance deficit within 3 percent of GDP or to eliminate it entirely. The overvaluation may push the deficit back toward 5 percent of GDP over the next few years, moving it toward \$1 trillion. These growing misalignments and imbalances have been subtracting about 0.4 percent per year from real US

growing beginning in 2015 and running at least through 2017 (Stockton 2016).

These developments will increase concern, in Congress and elsewhere, about the impact of exchange rates and the trade imbalance on the economy, including via any new trade agreements that might be considered. It was just such market developments in the first half of the 1980s, and the demonstrable risks of congressional reaction via restrictive trade policies, that drove the Reagan administration to abandon its "benign neglect" of the dollar and initiate the Plaza Accord, which pushed the trade-weighted dollar down by 30 percent over the following 18 months. Donald Trump expressed considerable concern about the trade deficit throughout his campaign. Especially as his projected fiscal (and possibly tax and trade) policy could lead to further dollar appreciation, he may need to address the exchange rate himself.

It is remarkable that Congress paid scant attention to the dollar's rise during its debate on TPA in early 2015, just when the sharpest rise was taking place, a response that lies in stark contrast to its very intense focus on the issue in 1984–85. Congress instead focused exclusively on manipulation as an unfair trade practice. It is, of course, possible that the two issues will become conflated in the future, intensifying the likelihood that the United States will adopt new policies in response. With or without this "new" element, it is clear that US domestic politics have embraced the issue of unfair trading practices in general, and currency manipulation in particular, as never before and will push hard for more forceful national policies to address it.

Plan of the Book

This book analyzes the components of currency conflict. It places them in the context of both the global economy and the domestic scene in the United States and proposes new policy measures—at both the national and international levels—that would supplement the international monetary system created at Bretton Woods by effectively deterring and, when necessary, countering manipulation. The plan of the book is as follows.

Chapter 2 provides the basic economics of the issue. It defines trade and current account positions, identifies their immediate and underlying determinants, and traces their interactions with exchange rates. It links macroeconomic policies, especially monetary policies and official financial flows (notably currency intervention), to exchange rates and current accounts and demonstrates that reserve buildups in a number of countries, obtained through currency manipulation, have been key drivers of current account surpluses.

Chapter 3 addresses important normative questions, including current account targets for individual countries and their international compatibility. It documents a fundamental asymmetry of international financial markets, which limit the ability of countries to run up large negative net international investment positions but place no comparable restrictions on large positive net positions. The chapter relates these considerations to currency policies, suggesting where intervention is internationally justified and where it is not.

Chapter 4 describes the "decade of manipulation" (2003–13). It identifies the countries that intervened excessively (i.e., manipulated) and quantifies the size and economic impact of intervention on both the manipulators and, especially, the United States and their main trading partners. It derives new norms that might be adopted in fashioning future rules or understandings governing buildups of foreign exchange reserves and intervention policy, along with alternative policies that would permit past manipulators (especially China and Japan) to achieve their legitimate national goals without creating problems for other countries and the global monetary system.

Manipulation has been largely in remission since 2014. (The primary exceptions are certain financial centers, such as Switzerland and Singapore, for which we propose alternative policies going forward.) But other developments of acute relevance, including the congressional and broader US political debate over currency policy, are clearly not in remission. Chapter 4 examines the recent increases in market-driven exchange rates and current account imbalances, which are not caused by manipulation but raise related questions that may become relevant for currency policy.

Chapter 5 lays out the policy options for addressing the several aspects of the currency problem. It distinguishes between macroeconomic/monetary and trade policy possibilities and contrasts multilateral, plurilateral, and unilateral approaches. It provides detailed analyses of a wide range of specific measures, ranging from the "private diplomacy" of recent US policy through efforts to mobilize international rules and institutions (the IMF and WTO) and perhaps negotiate the inclusion of "enforceable currency disciplines" in trade agreements. It considers the use of fiscal and monetary policy, countervailing currency intervention, reforms of the international monetary system to encourage stabilizing intervention in the foreign exchange markets, the deployment of new capital controls to deter investments in the dollar that push its exchange rate up, and specific trade policy measures, such as countervailing duties and import surcharges.

Chapter 6 summarizes the analytical findings and offers policy recommendations. It concludes that manipulation is the main element of the currency conflict issue that needs policy attention, both to protect affected countries and to fill the most important gap in the international monetary

and .ng systems. The absence of effective policies to address manipulation raises the prospect that the resulting large external deficits in the United States and perhaps other countries, and the application of such illegitimate and unfair policies by major trading countries, may become unsustainable for domestic political reasons and lead to renewed outbreaks of widespread protectionism (or at least an unwillingness to adopt new trade agreements or expand globalization).

The most promising policy alternative is an announcement by the United States, ideally supported by others, that it will henceforth apply countervailing currency intervention against any G-20 countries that meet a clear set of objective criteria (excess reserves, excessive current account surpluses, excessive intervention in the currency markets) to determine “manipulation.” This policy could be carried out under current legislation, although it would be desirable for Congress to authorize it explicitly, as the Senate did in a currency bill it passed in 2011, and provide adequate resources (carrying no budgetary costs) in order to make it fully credible. This proposal focuses on the world’s most important economies. It builds on a commitment to which they have already agreed in numerous G-20 statements. As of early 2017, no G-20 country met these criteria, so there would be no immediate “indictments” under the new policy. If backed by sufficient resources to be fully credible, countervailing currency intervention should deter and indeed end the practice of currency manipulation (and thus never have to be used), indefinitely extending the current remission of that practice.

To help multilateralize the new policy, IMF policies should encourage intervention by surplus countries to strengthen their currencies. Taking major manipulators to the WTO and including currency disciplines in future US trade agreements could supplement countervailing currency intervention. Monetary policy, fiscal policy, and more sweeping trade policies, such as import surcharges, should not be deployed for these purposes. Indeed, doing so could intensify rather than curtail the currency conflict. It is highly likely, however, that unilateral steps by the United States will be necessary to start correcting this major gap in global monetary arrangements and in the economic policy arsenal of the United States itself. The United States should begin taking them as soon as possible.

Key Conceptual Issues

This chapter describes the forces that move the trade balance in the short run and the long run. At the broadest level, a country’s trade balance reflects the difference between saving and investment within its borders.¹ Countries with excess saving have trade surpluses; countries with excess investment (in housing, factories, and infrastructure) have trade deficits. Macroeconomic and financial policies, including exchange rate policy, have important effects on saving and investment and thus on the overall trade balance.

Currency intervention was an important—probably the most important—driver of the record global trade imbalances in the first decade of the 21st century. Other important fundamental influences included business cycles, fiscal policy, demographics, and trend growth rates. In addition, excesses in private financial flows that are not well explained by fundamental influences have often led to large swings in exchange rates and unsustainable imbalances in trade. Because one country’s trade surplus must be associated with trade deficits elsewhere, one country’s policies or financial excesses have important effects on other countries.

1. Saving is defined as income that is not consumed immediately. Investment includes purchases of productive equipment and structures plus housing construction. For the world as a whole, saving equals investment.

and trading systems. The absence of effective policies to address manipulation raises the prospect that the resulting large external deficits in the United States and perhaps other countries, and the application of such illegitimate and unfair policies by major trading countries, may become unsustainable for domestic political reasons and lead to renewed outbreaks of widespread protectionism (or at least an unwillingness to adopt new trade agreements or expand globalization).

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The Trade Balance and the Current Account Balance

In this book we use the terms *trade balance* and *current account balance* almost interchangeably. For most countries, including the United States, the two concepts amount to almost the same thing.

The trade balance is defined as exports of goods and services minus imports of goods and services.² Economic growth is typically measured as growth in the production of goods and services, also known as gross domestic product (GDP). In the economic accounts, GDP is measured as total domestic spending plus exports minus imports. Imports subtract from GDP because they are produced outside a country's borders; an increase in "net exports of goods and services" adds to GDP growth and a decline in them reduces GDP growth. GDP, in turn, is a key driver of employment. Sizeable and prolonged weakening of the trade balance can have a sufficiently negative effect on production and employment for a time to threaten the domestic political sustainability of a country's international economic policies.

The current account balance is the trade balance plus the balance in other transactions that reflect income paid to, or received from, the rest of the world. It is what matters for the financial sustainability of a country's international economic position, because its cumulation over time determines whether a country is a net creditor or a net debtor to the rest of the world.

Trade is by far the largest component of the current account for most countries. Movements in the current account balance are closely correlated with movements in the trade balance. Policies that affect the current account work largely through their effect on trade.

Definitions

The current account is the net balance between all income received from foreigners and all payments made to foreigners. Income or payments may arise from trade (in goods or services), returns on existing investments (dividends and interest), wages earned in a foreign country, or unilateral transfers (charity or remittances to family members).

The other main category of international transactions is the financial account, which includes all purchases and sales of real or financial assets. It includes direct investment by multinational corporations, portfolio in-

2. The goods, or merchandise, trade balance used to receive more attention than the overall trade balance, in part because it was reported earlier and because services were considerably less important than they are now. The US Census Bureau now releases monthly data on trade in goods and services at the same time.

vestment by individuals and financial institutions, and the exportation and repayment of loans.

A surplus in the current account means that domestic residents are receiving more income from foreigners than they are paying to foreigners. A country with a current account surplus is acquiring financial assets in the rest of the world; it has a net financial outflow. In accounting terms, a net financial outflow is a surplus in the financial account.³

In principle, the current account must equal the financial account. In practice, some transactions are not reported or are misreported. A category called "errors and omissions" is created to ensure that the accounts balance.

What Moves the Current Account?

Models of the current account are typically based on its trade components: exports and imports of goods and services. In the standard model of trade, known as the elasticities model, imports respond to the exchange rate and domestic economic activity (GDP) (Armington 1969). Exports respond to the exchange rate and foreign GDP.

A simple model of the current account is given by

$$CA = a - bRER + cGDP^* - dGDP + U$$

where CA denotes the current account; RER denotes the real (inflation-adjusted) exchange rate; GDP^* denotes foreign GDP; U denotes a residual that allows for other factors that affect the current account; and lowercase letters denote model parameters (or elasticities). All of the parameters are positive. An exchange rate appreciation tends to reduce the current account, because it makes domestic goods more expensive to foreigners and foreign goods cheaper for domestic residents. Higher foreign GDP increases the current account, because it increases the buying power of foreign consumers and thus boosts exports. Higher domestic GDP reduces the current account, because it increases the buying power of domestic consumers and thus boosts imports.⁴

The business cycle has an important effect on the current account. A burst of spending (public or private) that pushes up domestic GDP tends

3. In some presentations of the accounts, a financial outflow is negative and the current account and financial account sum to zero. We prefer to present outflows as positive, because it makes the exposition of the relationship between net official flows and current account balances simpler.

4. A more detailed model would differentiate between trend and cycle in GDP. These effects are strongest for cyclical deviations in GDP from trend. The effects of trend GDP are smaller and may depend on other factors, such as the creation of new product varieties (Krugman 1989, Gagnon 2007).

to reduce the current account, and a burst of foreign GDP growth tends to increase the current account. In addition to these direct effects, business cycles may have indirect effects through the exchange rate. A country experiencing a boom typically will have an appreciating exchange rate, which will further depress its current account. However, as shown below, it is possible that the boom may be associated with a currency depreciation, in which case there are opposing influences on the current account and the net effect could go either way.

The other, nontrade, components of the current account tend to be more stable than trade flows, but to some extent they are also affected by the same factors in our simple model. For example, exchange rate appreciation increases the value of domestic payments to foreign workers and investors relative to foreign payments to domestic workers and investors, which pushes down the current account.⁵ These effects on net foreign income operate both directly and indirectly through multinational corporations, whose foreign profits denominated in the domestic currency decline when the domestic currency appreciates relative to foreign currencies. Similarly, exchange rate appreciation increases the value of unilateral transfers to foreigners relative to the value of foreign transfers to domestic residents, pushing down the current account. Higher domestic GDP tends to boost profit payments to foreign owners of domestic capital and unilateral transfers to foreigners, both of which push down the current account.

For simplicity, the model does not include a time dimension. In reality, there is a lag in the response of the current account to these factors, especially the exchange rate. Most studies find that it takes up to two years for most of the effects of a change in the exchange rate to show up in the current account, and some effects take even longer (Goldstein and Khan 1985, Cline 2005). There are three time lags: from the change in the exchange rate to the change in the product price, from the change in the price to the change in orders for the product, and from the change in orders to the change in actual shipments (and entry into the trade data). Different types of goods and services are affected at different speeds, based on whether they are routine or infrequent purchases and how long it takes both domestic and foreign producers to adapt their operations to the new relative prices. For example, a stronger dollar may make it profitable for a foreign producer to sell in the United States for the first time, but building the capacity to produce extra products for export takes time, especially if the product needs design changes to suit the US market.

5. This effect is reduced in the case of countries that borrow in foreign currencies.

Box 2.1 A stylized model of the macroeconomy

Current account $CA = a1 - a2 RER + a3 GDP^* - a4 GDP + U1$
 Financial flows $FF = NPF + NOF$
 Net private flows $NPF = b1 + b2 RER + b3 (R^* - IR) + U2$
 Consumption $C = c1 + c2 GDP + U3$
 Investment $I = d1 - d2 IR + U4$
 GDP identity $GDP = C + I + G + CA$
 BOP (balance of payments) identity $CA = FF$
 Saving $S = GDP - C - G$
 GDP identity implies $S - I = CA$

Endogenous variables: CA (current account), FF (financial flows), NPF (net private flows), C (consumption), I (investment), GDP (output or income), RER (real exchange rate), S (saving).

Policy variables: IR (interest rate), G (government spending), NOF (net official flows).

Exogenous variables: GDP^* , R^* (foreign); $U1$, $U2$, $U3$, $U4$ (shocks) ($U1-U4$ are random shocks and economic forces outside of the model; they are not to be confused with the different measures of the US unemployment rate, sometimes referred to as $U1-U6$).

Parameters: $a1$, $a2$, $a3$, $a4$, $b1$, $b2$, $b3$, $c1$, $c2$, $d1$, $d2$.

Endogenous Interaction between the Exchange Rate and GDP

The simple elasticities model explains how exchange rates and GDP play key roles in determining the current account balance. However, the model reflects only part of the workings of the economy. In a broader model of the overall economy, the current account has important effects on the exchange rate and GDP.

Box 2.1 displays a stylized macroeconomic model that includes our simple elasticities model of the current account as well as feedback from the current account onto exchange rates and GDP. An important addition is international financial flows, which also influence the exchange rate. The current account equation is the simple elasticities model discussed above. The second equation is net international financial flows. Net financial flows reflect the balance between domestic acquisitions of foreign assets and foreign acquisitions of domestic assets. Acquisitions include outright purchases as well as reinvested interest and dividend payments. A net financial outflow occurs when domestic acquisitions of foreign assets exceed foreign acquisitions of domestic assets; in this case financial flows are positive. A net financial inflow occurs when foreign acquisitions of domestic assets exceed domestic acquisitions of foreign assets; in this case

financial flows are negative. Financial flows include both net private flows and net official flows.

An increase in the exchange rate makes foreign assets more attractive relative to domestic assets and thus raises net private flows, both because foreign assets become cheaper in terms of domestic currency and the likelihood of a future decline in the exchange rate (which would raise the future returns on foreign assets relative to domestic assets) increases.⁶ A higher foreign interest rate (IR^*) also raises net private flows, because it raises the return on foreign assets. A higher domestic interest rate (IR) lowers net private flows, because it raises the return on domestic assets. (For simplicity, we assume that inflation is stable over time and equal at home and abroad.)

Net official flows are another direct component of financial flows. They are the net acquisition of foreign currency assets minus the net incurrence of foreign currency liabilities by a country's official, or public, sector.⁷ The main type of net official flows for most countries is foreign exchange intervention. The second most common type of net official flows derives from sovereign wealth funds, which have grown enormously in recent years. Some public pension funds also invest in foreign assets. Foreign currency borrowing by governments is a negative form of net official flows that used to be fairly important for developing economies but has declined over time.

Consumption responds positively to GDP, and investment responds negatively to the domestic interest rate. We could have included an interest rate effect on consumption and a GDP effect on investment, but doing so would have increased the complexity of the model without changing any of its fundamental properties.

The model in box 2.1 is more complex than the simple elasticities model of the current account, but it still omits many underlying factors behind current account balances. These factors ultimately influence the current account through their effects on GDP , IR , and the shocks $U1$ - $U4$. For example, demographic factors such as population aging affect desired saving and can thus be viewed as operating through the shock to consumption ($U3$). A country's long-run potential growth rate affects GDP directly,

6. In a more general model, financial flows would depend on the expected change in the exchange rate. However, if the shocks and policies in this model are assumed to be temporary, no explicit future term on the exchange rate is necessary, because it will return to steady state and thus be incorporated into the constant ($b1$).

7. Unlike the sum of current accounts or net financial flows across countries, net official flows do not necessarily sum to zero across countries, because net official flows are defined only with respect to the public sector of the country in question. Thus Chinese official purchases of US assets (both public and private) give rise to positive net official flows for China but negative net private flows for the United States. Chinese purchases of US Treasury securities are not an official flow for the United States, because they are denominated in US dollars.

but it also affects desired investment and thus may also operate through the shock to investment ($U4$). Fiscal policy may operate directly through government spending, but it may also operate through tax rates, which are not in the model and can be thought of as influencing the shock to consumption ($U3$). Monetary policy operates through the interest rate. Trade policies, such as tariffs and nontariff barriers, may affect the shock to the current account ($U1$) or the parameters in the current account equation ($a1$ - $a4$). Policies that restrict financial flows (capital controls) may affect the shock and parameters of the net private flows equation, $U2$ and $b1$ - $b3$. A key property of the model is that the real exchange rate is free to adjust as needed to maintain equality between the current account and net financial flows.⁸

The model is completed with two accounting identities. The GDP identity is that total spending equals total production. The balance-of-payments identity is that the current account is financed by net financial flows. A current account surplus implies a surplus in net financial flows, which in turn implies rising net claims on foreigners (i.e., a growing net creditor position with respect to the rest of the world). A current account deficit implies falling net claims on foreigners (rising net foreign claims on domestic residents). Current account deficits thus lead to a growing net debtor position.

A country's current account balance equals the excess (or deficiency) of its saving net of investment. Saving is production minus private and public consumption. The GDP identity can be rearranged to show that saving minus investment equals the current account.

The only way that domestic residents can acquire more claims on foreigners than foreigners acquire on domestic residents is for the country to run a current account surplus. Conversely, if the total domestic assets foreigners want to buy exceed the total foreign assets domestic residents want to buy, the country must run a current account deficit. Ultimately, the exchange rate is the price that clears the market and keeps the current account equal to net financial flows. Although the current account is by definition equal to net acquisition of foreign assets, the net value of foreign assets can change without any current account surplus or deficit owing to changes in market prices, including in the exchange rate for assets denominated in foreign currency. Thus a country's net international investment position changes from year to year in response to both the current account, which reflects the net flows of asset acquisition, and any valuation changes in the existing stocks of assets and liabilities.

8. Indeed, the volatility of the exchange rate is evident in economies with a flexible exchange rate. For economies with a fixed exchange rate, other variables, such as GDP and prices, have to do more of the adjustment. GDP and prices typically are more volatile when exchange rates are fixed (Gagnon 2011).

When domestic residents want to buy more foreign assets, they bid up the values of foreign currencies (depreciate the exchange rate), which encourages exports and discourages imports, thus creating a current account surplus.⁹ Conversely, when foreigners want to buy more domestic assets, they bid up the value of the domestic currency (appreciate the exchange rate), which discourages exports and encourages imports, thus creating a current account deficit. During the late 1990s, foreigners were attracted to the booming US stock market and sought to disinvest in the crisis economies in Asia and Latin America. They pushed the dollar up, widening the US current account deficit to 4 percent of GDP by 2000. During the early years of the 21st century, Chinese and other monetary authorities intervened directly in the currency markets to hold the dollar up, widening the US deficit to a record 6 percent of GDP by 2006.

Over time, current account imbalances lead to shifts in the allocation of financial assets between countries that may feed back into desired financial flows and the exchange rate. For example, a prolonged current account deficit may satiate the appetites of foreign investors for domestic assets, depreciating the exchange rate and returning the current account toward balance, thereby stabilizing the pattern of asset holding across countries. However, deliberate exchange rate policies sometimes act to frustrate this natural adjustment process. For example, when Swiss investors cut back on foreign investment and foreign investors increased their purchases of Swiss assets, the Swiss National Bank stepped in to offset these private flows, thereby maintaining Switzerland's large current account surplus over the past eight years.

The factors driving financial flows are generally more volatile than the factors driving the current account. It is useful to think of financial flows as the proximate driver of current accounts, operating through exchange rates.

9. The fact that financial flows change more rapidly than trade complicates this process. An incipient desire by some domestic residents to invest in foreign assets initially depreciates the exchange rate by more than necessary in the long run. This overshooting induces other investors, both domestic and foreign, to take offsetting positions in financial assets. At first neither the financial account nor the current account moves, although elements of the financial account may move in offsetting directions. Over time the depreciated exchange rate moves the current account into surplus, allowing the financial account to move into deficit (net outflows).

Factors Underlying the Current Account

Economists have studied the current account equation, or similar treatments of its components (goods imports, services imports, goods exports, etc.), for decades (Goldstein and Khan 1985, Marquez 2002, IMF 2015c).¹⁰ The sizes of the coefficients vary across countries, depending on how exposed they are to international markets and what types of goods and services they produce and consume. Typically, a 10 percent depreciation of the exchange rate raises the current account balance by 1 to 2 percent of GDP after two years or so. The effect on GDP depends on the state of the business cycle. Trend growth typically has little effect on the current account, but domestic growth above trend tends to lower the current account and foreign growth above trend tends to raise the current account.¹¹

The current account equation by itself does not reveal much about the underlying drivers of trade balances, however, because these underlying factors also have important effects on GDP, the exchange rate, and the shocks to the current account equation. The volatility of the exchange rate, as it plays its role of equilibrating trade and financial flows, makes it especially difficult to estimate its direct effect on the current account (parameter a_2 in box 2.1). For example, an import tariff or other trade barrier tends to increase the current account for a given level of the exchange rate and GDP. However, the market outcome may instead be a permanent appreciation of the exchange rate that keeps the current account nearly unchanged. A statistician would observe an increase in the real exchange rate but no change in the current account, thus concluding that $a_2 = 0$ when it does not. Economists call this the “simultaneity problem.”

There is a constant interplay between the current account and the financial account. The exchange rate moves to reflect the balance between these forces. If all the underlying muscle were on the financial side, the current account would move passively in response to the exchange rate, and it would be easy to measure the coefficient a_2 . If all the muscle were on the trade/current account side, financial flows would move passively in re-

10. The feedback between the trade balance and the exchange rate, and the lags in these effects, can make it difficult to get sensible estimates of the direct effect of the exchange rate on the current account. A thorough study by the IMF (2015c) shows that despite the rise of imported inputs in the exports of most countries, there is no evidence of any growing disconnect between exchange rates and trade balances, as some observers have suggested.

11. Countries with high trend growth tend to have lower trade balances, but they do so as much from higher investment demand working through interest rates and exchange rates as from a direct effect of GDP on the trade balance. China and other East Asian economies represent notable exceptions to this general result; in these economies, exchange rate policies (net official flows) play an important role.

sponse to the exchange rate, and it would be easy to measure the coefficient b2. In practice, both set of forces are at work, and it is difficult to separate them out. If economists could readily observe all underlying factors and had a complete and accurate model of how they affect the current account, they could solve the simultaneity problem. But they lack good measures of many factors, including many trade barriers, which may arise for technological or competitive reasons as well as from official policies.

In response to the simultaneity problem, Chinn and Prasad (2003) began a line of research that focuses directly on the underlying policies and exogenous factors (the shocks in box 2.1) that move current account imbalances. This literature recognizes that the same underlying factors affect exchange rates and cyclical movements in GDP. Instead of estimating the simple elasticities model of the current account, this literature regresses current account balances directly on the underlying factors without including exchange rates and GDP. The approach uses data on dozens of countries over many years to maximize the available statistical information.

Early studies of this type did not include exchange rate policy in the explanatory variables. Gagnon (2012, 2013) and IMF (2012a) were the first to include measures of exchange rate policy in the form of net official flows. IMF (2012a) excludes countries with some of the largest net official flows (Persian Gulf oil exporters) and uses an incorrect measure of official flows in some countries with large current account surpluses, such as Norway and Singapore. It finds a statistically significant effect of net official flows on the current account balance, but the size of the effect is implausibly small and limited to countries with low capital mobility.¹²

Gagnon et al. (2017) show that correcting these errors and allowing capital mobility to have a pervasive effect on all coefficients leads to sensible and robust coefficient estimates. Table 2.1 presents results from a regression on 141 countries using available annual data for 1985–2014. The regressions are based on the current account minus investment income, which is subtracted for two reasons. First, an important explanatory variable in regressions of the overall current account is a country's net foreign assets. Countries with positive net foreign assets tend to have positive net investment income, which is part of the current account balance. Excluding net investment income from the regression eliminates the need to include net foreign assets and allows inclusion of a subset of net foreign assets (net official assets) to capture the portfolio balance effect of past official flows. Second, the current account minus net investment income is almost equal to the trade balance, which aligns a bit more closely with the concept of

12. The IMF also used inappropriate instruments to control for endogeneity of net official flows, which biased the coefficient downward (Gagnon 2013).

Table 2.1 What moves the current account balance?

Dependent variable: (Current account – net investment income)/trend GDP		
Variable	Countries with lowest capital mobility	Countries with highest capital mobility
International capital mobility [0–1]	–0.01	0.05**
International financial integration [0–1]	0.01	–0.11**
Per capita GDP relative to United States	0.03	–0.02*
Projected population aging	2.79	1.51
Lagged five-year growth rate	0.04	–0.61**
Net energy exports/trend GDP	0.27**	–0.01
Cyclically adjusted fiscal balance/trend GDP	0.17**	0.54**
Net official flows/trend GDP	0.72**	0.31*
Lagged net official assets/trend GDP	–0.01	0.03**
R ²		0.49
Observations		2,053

* and ** denote coefficients that are statistically significant at the 5 percent and 1 percent levels, respectively, based on the averages of the standard errors in the two underlying regressions.

Note: Table presents averages of coefficients from instrumental variables regressions shown in the middle two columns of table 2 in Gagnon et al. (2017) with the addition of the financial integration variable. The current account is regressed on the variables listed on the left as well as the products of each of those variables and the index of capital mobility. The first column displays the coefficients on the listed variables; the second column displays the sums of the coefficients in the first column and the coefficients on the listed variables times capital mobility. The figures in the first column thus reflect the effects of the listed variables when the capital mobility measure is 0; the figures in the second column reflect the effects of the listed variables when the mobility measure is 1. For countries and years with mobility measures between 0 and 1, the implied effects lie between those of column 1 and column 2. All regressions include a full set of year effects. Instrumental variables for net official flows are the nonreserves portion of net official flows and a dummy variable for external crisis in the previous three years (Laeven and Valencia 2012). Sample includes 141 countries over the period 1985–2014. Many countries are missing data for some years.

Source: Gagnon (2016).

balance, which matters for economic growth and employment (and thus the domestic politics of trade issues).

An important feature of table 2.1 is that the effects of these underlying factors are allowed to vary with the degree of international capital mobility, as measured by an index of legal restrictions on private financial flows across a country's borders (Aizenman, Chinn, and Ito 2015). This measure equals 1 when there are no legal restrictions and 0 when there are important restrictions on all classes of financial flows. However, a value of 0 does not mean there are no private financial flows, and a value of 1 does not mean that flows across borders are as cheap and easy as flows within borders. The

median value of capital mobility across countries is 0.45. About 5 percent of the 2,053 available observations have the minimum value of 0, and 25 percent have the maximum value of 1.

The left side of the table lists the variables that are used to explain current account balances. The first column in table 2.1 displays the estimated effects of these variables in countries and years when the capital mobility measure is 0; the second column displays the estimated effects when the capital mobility measure is 1. In most countries and years, the mobility measure lies between 0 and 1; the estimated effect thus lies between the values shown in the two columns. In many countries capital mobility has risen over time.

The first two explanatory variables in table 2.1 are measures of capital mobility and financial market depth and integration with the rest of the world. The expected signs of the coefficients of these variables are theoretically ambiguous. Demographic and other structural and policy factors determine a country's desired saving and investment rates. It is the difference between savings and investment that drives a country's current account balance. However, openness, depth, and integration of capital markets are critical factors in determining the extent to which these underlying factors are able to influence a country's current account. If private agents are not allowed to borrow or lend across borders, a country will not be able to run a current account in surplus or deficit, even if the underlying factors would call for one. In these financially closed economies, interest rates and other yields on financial assets will differ from those in the rest of the world. Any current account surplus or deficit would have to be financed by the government through official financial flows.

The first coefficient in the first column implies that in countries with the tightest restrictions on capital flows, increasing capital mobility has a tiny and statistically insignificant negative effect on the current account. At some point, however, the effect of removing capital flow restrictions turns positive; by the time all restrictions are removed, the effect is modest but significant, because outflows rise more than inflows.

The second variable is based on the depth of a country's financial market integration with the rest of the world. It is defined as the share of private financial transactions in total cross-border transactions (including exports and imports). It is another measure of the ease of borrowing and lending across a country's borders. The correlation coefficient between the two variables is 0.36. Because it is constructed as a share, financial integration is bounded between 0 and 1.¹³ High integration is associated with a

13. The median value in the estimation sample is 0.10; 95 percent of observations take values less than 0.27.

slightly higher current account when mobility is low. The effect of financial integration declines and becomes significantly negative as capital mobility increases, because capital inflows rise more than capital outflows. For many countries with high capital mobility and high financial integration, the negative effect of financial integration mainly offsets the positive effect of capital mobility, so that the overall effect of these two variables for most countries is small.

The third variable is per capita GDP relative to the US level. This variable has a very small negative effect on the current account under high mobility.¹⁴

The fourth variable is the projected change in the ratio of the population over the age of 64 over the subsequent 10 years. It has an economically important but statistically insignificant positive effect on the current account. A projected increase in the older population 10 years ahead presumably increases desired savings for retirement now and thus increases the current account balance.

The fifth variable is the lagged five-year economic growth rate, which is meant to proxy for trend growth potential. Rapidly growing countries are expected to borrow more, because they have more investment opportunities. They thus have lower current account balances. This effect is especially important when capital markets are more open for external borrowing. Under high mobility, a 1 percentage point increase in trend growth reduces the current account by 0.61 percent of GDP.

Many Asian economies had both high growth rates and large current account surpluses in the 2000s. As shown below, these surpluses were driven by net official flows (foreign exchange intervention), which secured export-led growth. This fact is particularly remarkable given that most rapidly growing economies tend to have current account deficits.

The sixth variable is net energy exports. It has a moderate positive effect under low mobility and no effect under high mobility. Under low capital mobility, a \$1 increase in net energy exports increases the current account by \$0.27.

14. The sign of this coefficient under high capital mobility is the opposite of its expected value, although the magnitude is small. The result may reflect some collinearity between per capita income and the other independent variables, such as aging and trend growth rates.

Tenth variable is the cyclically adjusted fiscal balance.¹⁵ A higher fiscal balance (smaller government budget deficit) is associated with a higher current account balance. As expected, this effect is larger when capital markets are more open. Under high mobility, a \$1 increase in the fiscal balance increases the current account by \$0.54.¹⁶ (We return to the effects of fiscal policy later in this chapter.)

The eighth variable is net official flows (including foreign exchange intervention).¹⁷ For each \$1 of net official flows, the current account increases by \$0.72 under low mobility and by \$0.31 under high mobility. The effect of net official flows is expected to be larger under low mobility because private capital flows are small, leaving official flows as the main factor capable of moving the current account. As capital mobility increases, financial markets are free to arbitrage rates of return across countries closer toward equality.

In so doing, private financial flows undo some—but not all—of the effect of official financial flows. Even in economies with no legal restrictions on capital mobility, the effect of net official flows remains significantly positive.

All of the variables in table 2.1 influence the current account in part through their effect on the exchange rate, but it is net official flows that are most closely associated with official policy toward the exchange rate. These coefficient estimates imply that official flows have a greater effect on the exchange rate when capital mobility is low, reflecting the reduced ability of financial markets to substitute between assets in different currencies. As capital mobility increases, financial markets are able to substitute one currency for another, but even when capital mobility is high, that substitutability is not perfect. In the jargon of finance, international financial markets are not fully efficient.

The regression uses instruments to control for endogeneity of net official flows to exchange rates. The instruments are a dummy variable for financial crises in the previous three years and the part of net official flows that does not arise from foreign exchange reserves. The first instrument captures a higher propensity to build up foreign exchange reserves following a crisis episode. The second reflects official saving or borrowing that

15. In order to remove any endogenous policy response, this variable is the residual of a regression of the fiscal balance on the level and change in the output gap. The output gap is the deviation between real GDP and a centered 11-year moving average of real GDP, using IMF projections for GDP beyond 2015.

16. This result rejects the proposition of Ricardo neutrality, which argues that private saving behavior fully offsets any saving or borrowing by governments.

17. Box 2.2 (on page 37) discusses sterilized versus unsterilized intervention. The vast majority of net official flows in our data are sterilized, as central banks have generally succeeded in controlling inflation. The regression results are not noticeably affected by including a control for monetary policy (and thus unsterilized intervention) in the growth in central bank assets.

is not motivated by exchange rate movements; countries that stabilize their exchange rates use foreign exchange reserves for that purpose.¹⁸ This instrument primarily reflects flows from sovereign wealth funds and official development loans that reflect longer-term saving and investment motives. Although in some cases these flows respond to oil exports, we assume that oil exports are exogenous and control for any effect of oil exports on the current account in our regression to avoid endogeneity bias. Gagnon et al. (2017) show that external saving out of oil revenues is a policy decision that differs markedly across oil exporters and does not reflect an endogenous response to the current account. Indeed, for a given level of oil exports, countries have higher current account balances only when they choose to save the revenues abroad. Oil exporters without significant net official flows (e.g., Angola, Canada, and Nigeria) do not have current account surpluses.

Together these instruments explain a significant amount of the movements in net official flows while excluding movements that might be endogenous reactions to the current account or exchange rate. Moreover, the results are robust to alternative specifications. The net official flows coefficients are little affected by replacing the instruments with a dummy variable for each country or adding a country fixed effect (with the original instruments).¹⁹

The ninth variable reflects the persistent effect of past official flows. For each \$1 of the net stock of official foreign assets (including foreign exchange reserves) the previous year, the current account is little affected under low mobility and increases by \$0.03 under high mobility. Because the lagged stock of net assets is often many times greater than the net flows in a given year, this stock effect is important when mobility is high.

We believe that the coefficient on lagged net assets arises purely from portfolio balance, which relates to the stocks of assets people own. Accumulation by the government of a large stock of foreign exchange (paid for out of domestic currency) puts upward pressure on the value of foreign currency and downward pressure on the value of domestic currency. As long as the government retains the foreign currency assets, private portfolios have less exposure to foreign currencies than they would otherwise have. This ongoing scarcity of foreign currencies keeps them highly valued. Without private capital mobility, the portfolio balance effect cannot operate, which explains why the coefficient on the net asset stock increases with capital mobility.

18. Because China did not have a financial crisis during the sample period and the vast majority of its net official flows were in foreign exchange reserves, it has essentially no effect on the estimated coefficients.

19. Previous research shows that the effect of net official flows on the current account is significant when using other instruments as well (Bayoumi, Gagnon, and Saborowski 2015).

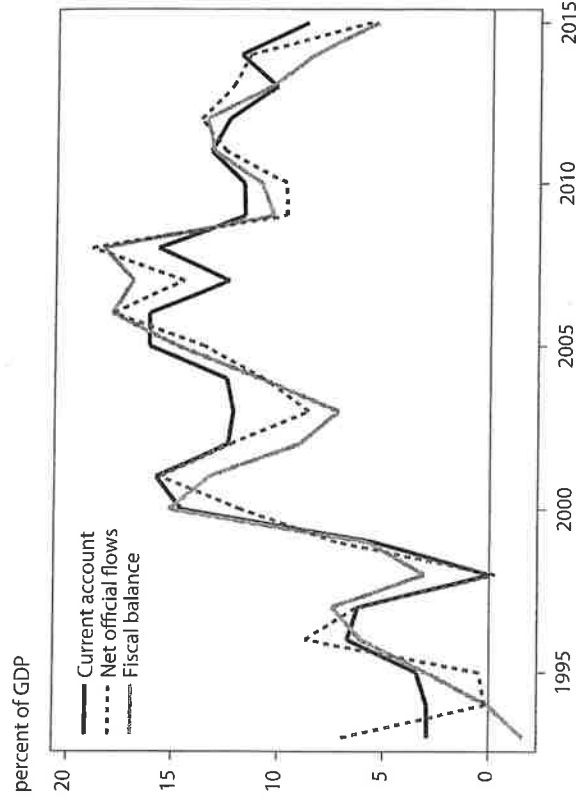
The coefficient on the net official flow combines a portfolio balance component (this year's stock equals last year's stock plus this year's flow) with a direct effect that arises from imperfect capital mobility. As expected, when the mobility of private capital is very low, the coefficient on net official flows is close to 1. As private capital mobility increases, this coefficient decreases (as shown in table 2.1), but it remains positive even at the highest levels of capital mobility. This result suggests that financial markets are not fully efficient, even when allowed by law to operate unfettered.

Gagnon et al. (2017) find that monetary expansion has a small and marginally significant positive effect on the current account when capital mobility is low and that this effect disappears as mobility increases. As they note, there is some question as to whether the estimated monetary effect under low mobility arises spuriously from the effect of financial crises. The results under high mobility are consistent with the view (discussed later in this chapter) that the effect of monetary policy on the current account is ambiguous and relatively small because the exchange rate effect is offset by a domestic spending effect. In light of the small and uncertain effect of monetary policy on the current account, we do not include it here.

An appealing property of the coefficients in table 2.1 is the joint behavior of the coefficients on net official flows and the fiscal balance. The fiscal coefficient captures the effect of government saving in the local currency. The net official flows coefficient captures the effect of government borrowing in the local currency to invest in foreign currency. The sum of these coefficients captures the effect of government saving entirely in foreign currency. With low capital mobility, the sum of these coefficients is 0.89, most of it arising from the net official flows effect. With high capital mobility, the sum is 0.85, most of it arising from the fiscal effect. Regardless of the degree of capital mobility, a government's decision to save entirely in foreign currency has a very large—nearly one-for-one—effect on the current account.

In many countries with large sovereign wealth funds, net official flows and the fiscal balance are nearly identical, implying that governments are saving almost entirely in foreign currency. In Norway, for example, the current account moves closely with net official flows and the fiscal balance, consistent with the sum of the coefficients being close to 1 (figure 2.1). Norway's central bank has successfully targeted inflation and has a floating exchange rate with very little foreign exchange intervention. There is thus little reason to believe that net official flows and the fiscal balance are directly affected by the current account there. Rather, the causality runs entirely from oil exports to net official flows and the fiscal balance and then to the current account.

Figure 2.1 Current account and policy variables in Norway, 1993–2015



Source: Authors' calculations based on data from sources listed in appendix A.

Table 2.1 does not address dynamic adjustment or lags. Although the effect of intervention on the exchange rate is expected to be essentially simultaneous, the effect of the exchange rate on trade and the current account is generally believed to take place gradually, over a period of about two years. In the annual data, some of the effect of intervention ought to show up in the same year as the intervention, but some ought to occur in the following year and a small amount might even linger into a third year. The residuals of the regression in table 2.1 suggest that such dynamics may be important, but we were unable to model them successfully, because they appear to differ across country and across independent variables (the first-order autocorrelation of the residuals in table 2.1 is about 0.7). The coefficients are best interpreted as capturing the long-run effect of intervention and other factors, not the immediate effect.

Economic Policies and the Current Account Balance

Monetary Policy

Monetary policy has two opposing effects on the trade balance. First, lower interest rates make domestic assets less attractive to foreigners, thus pushing down the exchange rate. A depreciated exchange rate boosts exports and

damp imports, increasing the current account. This effect is known as the *expenditure-switching effect*. Second, lower interest rates encourage more domestic investment and consumption, increasing GDP. Higher GDP boosts imports and reduces the current account. This effect is known as the *expenditure-augmenting effect*. The expenditure-switching and expenditure-augmenting effects push the current account in opposite directions.

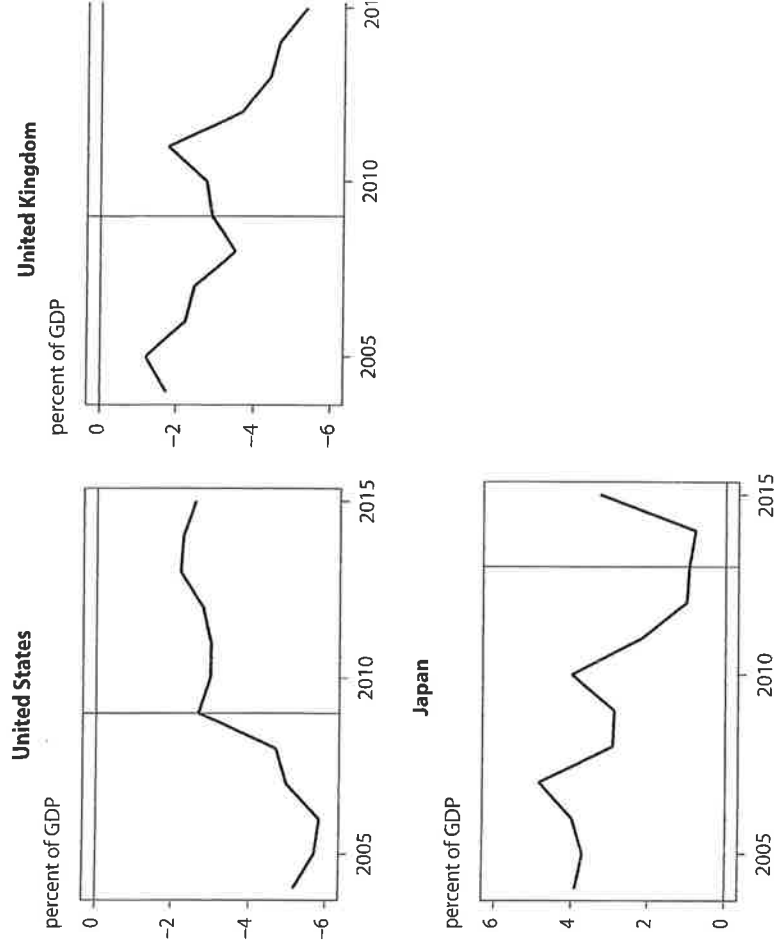
Macroeconomic models disagree on which effect is stronger, but whether the net effect of monetary policy on the current account is positive or negative, it is typically small. In the Federal Reserve's FRB/US model of the US economy, an increase in the US short-term interest rate of 1 percentage point causes the US current account to rise by only 0.03 percent of GDP after two years.

In the regression of table 2.1, only the exogenous component of policy can be included as an explanatory variable. We were unable to construct useful measures of exogenous, or cyclically adjusted, interest rates to include in the regression. As an alternative, Gagnon et al. (2017) use the cyclically adjusted change in central bank domestic assets. This measure has the appealing property that it captures the unconventional monetary policy known as quantitative easing, which the United States and some other major advanced economies adopted in recent years. Gagnon et al. find that this measure of monetary policy has no effect on the current account in countries with high capital mobility, which includes the countries that adopted quantitative easing.

Figure 2.2 displays the behavior of current account balances in the United States and the United Kingdom, which adopted quantitative easing policies beginning in 2009, and Japan, which adopted quantitative easing in 2013 (implementation of significant quantitative easing in the euro area is too recent to have had any effect on the data). The deep recession narrowed the US current account deficit in 2009; the collapse of US import demand transmitted that recession to its major trading partners. This narrowing occurred too early to have been plausibly caused by quantitative easing, which started only in 2009. After 2009 the current account balance was steady for several years; lately the deficit has begun widen. The UK balance has trended downward since the adoption of quantitative easing in 2009. In Japan quantitative easing had little initial effect on the current account balance. The increase in 2015 mainly reflects the global fall in the prices of oil and other commodities that are major components of Japanese imports.

In its analysis of the effects of quantitative easing in the United States on other countries, the IMF (2011b) finds little effect on current account balances and a moderate positive effect on GDP in other countries. Perhaps most important, it finds no evidence that quantitative easing operates differently from conventional monetary policy. The effect on foreign GDP

Figure 2.2 Current accounts in major quantitative easing economies, 2004–15



Note: Vertical lines denote the launch dates of quantitative easing policies. Data are from sources listed in appendix A.

arises because lower bond yields in the United States led to lower bond yields and higher stock prices in other countries, which boosted their domestic spending. To a large extent, these spillovers reflect a policy decision in other countries to follow US monetary policy, in part to reduce the appreciation of their exchange rates.

This episode highlights how difficult it can be to disentangle the effects of individual policies on the global economy. Too many other factors, including how policymakers in other countries react, are at play. In many cases policymakers may overrespond to upward pressure on their currencies. The effect of US quantitative easing on exchange rates is highly salient in many foreign countries, whereas the effect on US consumption, investment, and imports is less obvious.

Fiscal policy operates through taxes and government spending. More expansionary fiscal policy (lower taxes or higher spending) pushes up GDP, increases imports, and thus reduces the current account. Tighter fiscal policy has the opposite effects. In the Fed's FRB/US model, an increase in government spending sufficient to lower the fiscal balance by 1 percent of GDP reduces the current account by 0.3 percent of GDP after two years. This simulation assumes no monetary response, but the effect on the current account is broadly similar if monetary policy tightens in response to fiscal loosening, because monetary policy has only a small effect on the current account. In the IMF's Flexible System of Global Models, a permanent reduction in the fiscal balance of Japan equal to 1 percent of GDP lowers the current account by 0.5 percent of GDP after two years (Andrle et al. 2015).

The effect of fiscal policy on the current account in the FRB/US model is slightly less than that implied by the fiscal coefficient in table 2.1 for a country with highly mobile capital. The effect in the IMF model for Japan is essentially identical to that implied by table 2.1, whereas the spillover of fiscal policy for a country with median capital mobility is 0.3 percent of GDP for each percentage point increase in the fiscal balance.²⁰

Official Financial Flows

The largest component of official financial flows for most countries is foreign exchange intervention, which consists of official purchases or sales of foreign currency intended to affect the exchange rate. Financial flows are typically the most important drivers of the exchange rate and the current account. Foreign exchange intervention is a financial flow conducted by the public sector. It is part of a broader category of official financial flows, which includes external public borrowing and investment by sovereign wealth funds. As discussed in box 2.2, most official flows are conducted independently of monetary policy and thus have no direct impact on monetary policy.

The results in table 2.1 document the important effect of net official financial flows on current account balances. Other recent studies support this result. They confirm that official purchases of foreign exchange tend to depreciate a country's exchange rate, relative to what it would otherwise have been, consistent with a positive effect on the current account balance of a magnitude comparable to that shown in table 2.1 (Adler, Lisack, and Mano 2015; Blanchard, Adler, and de Carvalho Filho 2015; Saborowski and Nedeljkovic 2017).

20. The capital mobility variable equals 1 for Japan and the United States.

Box 2.2 Sterilized and unsterilized intervention

Most intervention is "sterilized," meaning that the central bank takes steps to insulate domestic monetary conditions, typically short-term interest rates, from any effect of intervention. Most central banks use the short-term interest rate as their monetary policy instrument; sterilization of foreign exchange transactions is thus automatic.

Other types of official flows tend to be conducted by agencies other than central banks. Because these agencies typically obtain the funds for their net official outflows from sources other than money creation, these flows are effectively a form of sterilized intervention.

Unsterilized intervention implies a sustained expansion of the monetary base to purchase the reserves. This expansion drives down domestic interest rates. Unsterilized intervention can be viewed as a combination of sterilized intervention and a loosening of monetary policy. Unless otherwise specified, our discussion of the effects of intervention and other official flows is based on the assumption that these flows are sterilized.

Under the assumption (widely but not universally held) that monetary policy has a small and ambiguous effect on the current account (because of opposing exchange rate and domestic spending effects), the effect of unsterilized intervention on the current account should be roughly similar to the effect of sterilized intervention. Sterilized intervention operates entirely through the exchange rate and thus unambiguously increases the trade balance.

Over time unsterilized intervention (loose monetary policy) leads to higher inflation. Given that central banks in the advanced economies and most emerging-market economies have achieved low and stable inflation for many years, monetary policy appears to have been focused on domestic stabilization and thus has not been excessively loose. In these circumstances foreign exchange intervention cannot be viewed as having been unsterilized in the long run.

These relatively recent results on the effects of foreign exchange intervention are only beginning to come to the attention of academic economists and policymakers. The conventional wisdom within the profession has long been that intervention has only a small and temporary effect on exchange rates and thus little effect on current accounts. This view reflects the results of studies in the 1990s that found small effects of intervention that were often not statistically significant (Edison 1993, Dominguez 2003). However, the interventions covered by these studies were much smaller than those after 2000, and their effects are difficult to distinguish from random variation in the data. The apparent success of the Plaza Accord probably reflects the change in market expectations about future policies and the possibility of future intervention rather than the actual intervention conducted, which was rather small. The much larger interventions since 2000 provide much more statistical information, or signals, which stand out among the noise.

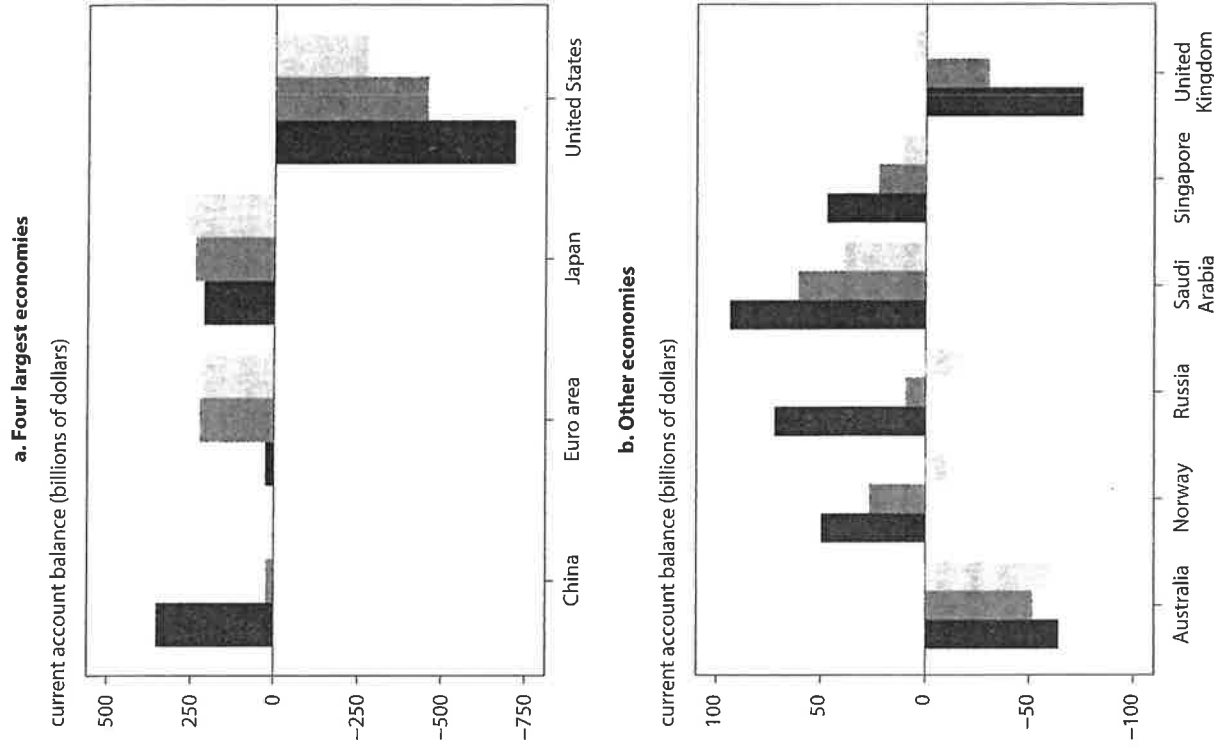
Why they are determined to fix the exchange rate, as China was during the 2000s, policymakers must choose between using interest rates or net official flows to achieve that objective. As long as the exchange rate is fixed, interest rates or net official flows respond endogenously to shocks to the current account and net private flows. The regression of table 2.1 uses instruments to remove the effects of this endogeneity. In particular, China, which has the world's foremost tightly managed exchange rate policy, has essentially no influence on the regression coefficients. The interpretation of the coefficients for a country like China is that if the exchange rate had been allowed to float before 2015 and net official flows had been reduced, the exchange rate would have appreciated and the current account would have declined. For commodity-intensive countries with fixed exchange rates, such as Saudi Arabia, the effects of domestic spending on imports are very large. A decision not to send money abroad as official flows but instead to spend it domestically directly increases imports and reduces the current account, even with a fixed exchange rate.

Official financial flows and fiscal balances constitute two of the most important policy factors behind the large current account imbalances of the first decade of the 21st century. Panel A of figure 2.3 displays the current account balances of the four largest economies and panel B displays the current accounts of other countries with large surpluses or deficits. The dark bars are the actual current account balances in 2007, the year of peak imbalances. For the world as a whole, net official flows in 2007 equaled 2.5 percent of world GDP; total net official stocks equaled 14 percent of world GDP; and total fiscal deficits equaled 0.6 percent of world GDP. One way to show the effect of policy differences across countries is to calculate what current account balances would have been if all countries had had official flows, official stocks, and fiscal balances equal to the world average in 2007. This exercise is motivated by the symmetry of current account balances, which add up to zero across all countries; differences in underlying economic factors and policies thus drive imbalances.

The medium grey bars display the current accounts that would be predicted if all countries had equal net official flows and stocks of net official assets as a percent of GDP, based on the coefficients in table 2.1.²¹ The light grey bars display the current accounts that would be predicted if all coun-

21. Because the countries with small official flows tend to have more open capital markets, the direct effect of raising their official flows on their current account balances is somewhat smaller than the direct effect of reducing official flows for countries with large official flows. To maintain the global current account identity, we allocated half the aggregate discrepancy between rising and falling current accounts in proportion to nominal GDP and half in proportion to the reported currency denomination of foreign exchange reserves as of 2010 (IMF Currency Composition of Official Foreign Exchange Reserves database).

Figure 2.3 Actual and hypothetical current account balances, 2007



Source: Authors' calculations based on data from sources listed in appendix A.

tries have equal fiscal deficits (as percent of GDP) in addition to equal official flows and stocks.²²

For China a reduction in net official flows and stocks to the global average would have reduced the current account surplus from \$350 billion to \$20 billion. For the United States, an increase in net official flows and stocks to the global average would have reduced the deficit by about \$235 billion.²³ Because the euro area and Japan had very low net official flows in 2007, raising them to the global average would have increased their current accounts by about \$180 billion and \$25 billion, respectively. For the next-largest deficit countries, the United Kingdom and Australia, moving to average net official flows and stock would have reduced their deficits. For most of the next-largest surplus countries—Saudi Arabia, Russia, Norway, and Singapore—moving to average net official flows and stocks would have reduced their surpluses. The main exception is Switzerland (not shown), which had the sixth-largest surplus in 2007 but did not have large official flows that year and would have seen little change.

Figure 2.3, panel A, indicates that the fiscal deficit contributed about \$190 billion to the US current account deficit in 2007. Both China and the euro area had fiscal balances close to the world average in 2007, so there was little impact on their current accounts. In contrast, Japan had a modestly above-average fiscal deficit that year; its current account surplus would have been even larger if the fiscal balance had been at the world average. The fiscal deficit contributed significantly to the UK current account deficit. Fiscal surpluses contributed importantly to the Saudi, Russian, Norwegian, and Singaporean current account surpluses. If Norway and Russia had had net official flows and fiscal balances at the world average in 2007, their surpluses would have turned into small deficits.

Capital Flow Measures

Restrictions on capital mobility range from outright prohibitions or quotas on purchases of specific assets to taxes on certain categories of transactions. Once anathema in discussions of sound economic policy, capital flow measures have achieved a measure of respectability in recent years. Staff at the IMF have described how such measures may be useful in limited and specific circumstances (IMF 2012b, Ostry et al. 2011).

22. We allocated the small additional discrepancy between rising and falling current account balances from fiscal adjustment across countries in proportion to nominal GDP.

23. Historically, the United States has had very small net official flows. One interpretation of this alternative scenario with significant US net official flows is that it might reflect a US policy of countervailing currency intervention, discussed in chapters 5 and 6.

The results of table 2.1 suggest that overall openness to capital flows, as measured by both legal restrictions on mobility and observed financial integration, has a small and ambiguous effect on the current account. However, openness to capital flows works primarily through changes in the effects of other factors on the current account, hence the differences between the coefficients on the right and left sides of table 2.1. A fiscal deficit or a demographic difference has less impact on the current account when capital mobility is low. Overall, restrictions on capital mobility tend to reduce current account surpluses in countries that have surpluses and to reduce deficits in countries that have deficits. Capital flow restrictions thus keep current account balances closer to zero.

In principle, it is possible to design capital flow measures to discourage inflows without discouraging outflows or vice versa. In practice, such asymmetric measures are rare and their effects not well known. Examples may include the variable tax rate imposed on capital inflows by Brazil or the holding periods on capital inflows once imposed by Chile.

Tariffs and Trade Barriers

In the popular imagination, tariffs and other import restrictions have an important effect on the trade balance and thus on the current account balance. Most economists, however, believe that such policies mainly affect the exchange rate, with little effect on the current account, except in countries with a fixed exchange rate. Even with a fixed exchange rate, the effects are mainly temporary, as we explain in the next subsection.

Consider a permanent increase in an import tariff. The increase makes imports more expensive for consumers and drives the current account up, other things equal. However, if a tariff change does not affect private financial flows—as economists typically assume—the exchange rate appreciates to offset some of the price increase in imports, making exports more expensive to foreigners. The combined effect of the tariffs and exchange rate change is to reduce imports and exports equally; there is no net effect on the current account balance.

In practice, the assumption of no effect on financial flows may not hold. If investors interpret a tariff increase as a signal of bad future economic policies, financial inflows may fall, preventing the exchange rate from appreciating and thus allowing the current account balance to rise. If, however, some investors decide to build factories to avoid the trade barriers, as many argue Japanese auto manufacturers did in Europe and the United States in the 1980s after they accepted “voluntary export restraints” on their sales to those markets, the tariffs may cause net financial inflows to increase. If they do, the current account balance will actually fall—the

opposite result of what was intended! Another possibility is that a tariff increase is a signal that a country's leaders are serious about reducing its trade deficit. The tariff may be an opening gambit to negotiating a devaluation of the exchange rate, as happened with the Nixon tariff of 1971.

Bayoumi, Gagnon, and Saborowski (2015) review the recent literature on the determinants of current account balances. None of the studies they review attributes any role for tariffs or other trade policies in explaining the current account.

Figure 2.4 displays the correlation between the current account balance and the tariff rate across countries, using data for 2003–14. The figure reveals a negative effect: A higher tariff is associated with a lower current account balance. For example, Brazil had an average tariff of 13 percent and an average current account deficit of 1 percent of GDP. Singapore had an average tariff of less than 1 percent and an average current account surplus of 21 percent of GDP. To the extent that countries with current account deficits raise tariffs in a fruitless effort to restore balance, this negative relationship may reflect reverse causality.

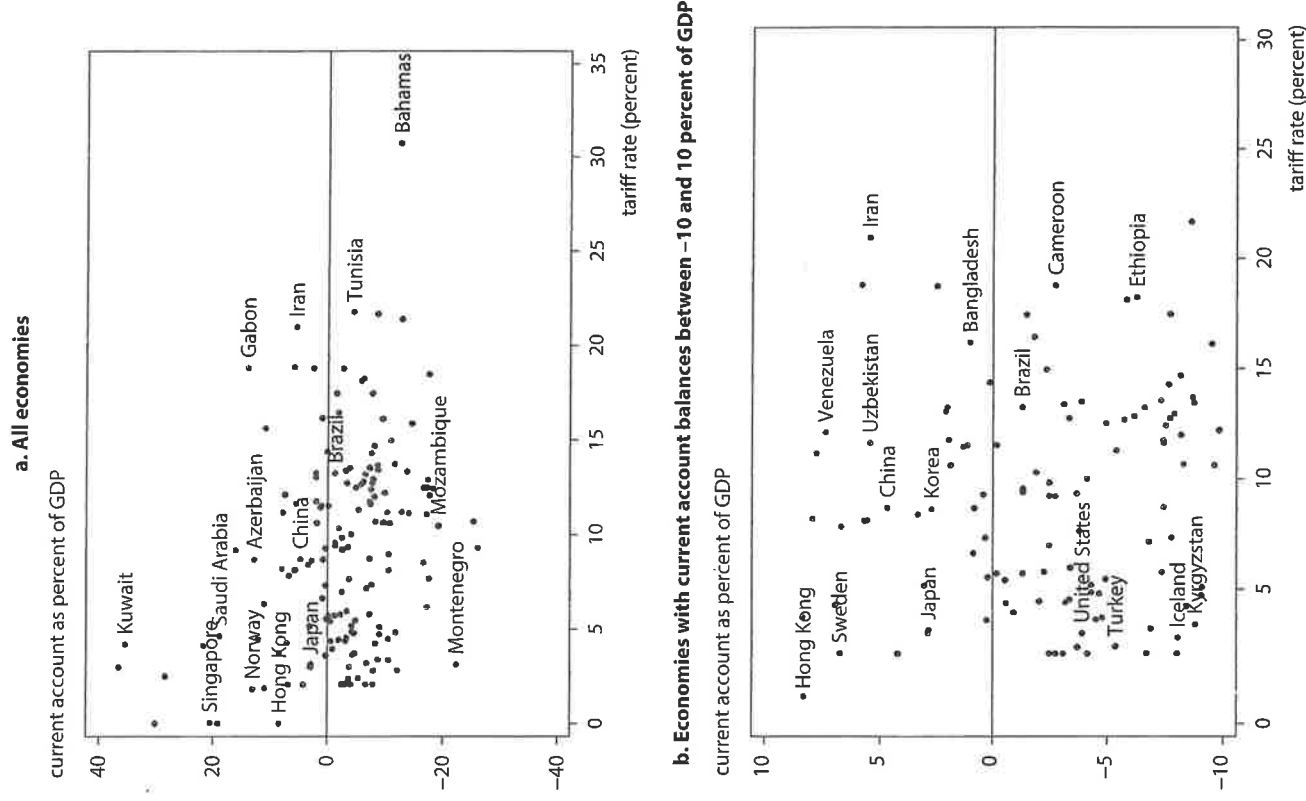
To explore further, we added measures of average tariffs to the regression in table 2.1. By controlling for various important underlying factors behind current account imbalances, the regression framework may be able to identify a positive effect of tariffs that is not apparent in the simple correlation of figure 2.4.

The effective tariff (total tariff revenue divided by total imports) has a small and statistically insignificant coefficient. The simple average tariff (the tariff rate averaged across all import categories with equal weights) has a larger and marginally significant effect.²⁴ An across-the-board tariff increase of 10 percentage points—equivalent to the Nixon surcharge of 1971²⁵—is estimated to raise the current account by 0.1 to 0.3 percent of GDP, depending on which regression coefficient is used. This effect is fairly small for such a large policy change (for comparison, a 10 percent depreciation of the exchange rate typically is estimated to raise the current account balance by 1 to 2 percent of GDP—about 10 times as much). The fact that the estimated tariff effect is not robust to including a complete set of country fixed effects raises the possibility that tariffs are spuriously correlated with some other factor that differs across countries in a way that is stable over time. Countries that generally have higher tariffs also have slightly higher current account balances, after controlling for other effects, but there is no evidence

24. Separate regressions were run for each tariff measure. The *t*-statistic on the simple tariff coefficient is 2, significant at the 5 percent level but not the 1 percent level.

25. The Nixon tariff did not cover nondurable imports, such as petroleum and most services.

Figure 2.4 Correlation between average current account balances and tariff rates, 2003–14



Note: Tariff rate is unweighted average across import categories.

Source: Authors' calculations based on data from sources listed in appendix A.

that a large increase in tariffs leads to a change in current accounts in any predictable direction.

Trade policy does have important effects. Tariffs on specific goods reduce imports of those goods. But tariffs also affect exchange rates in ways that tend to offset any effect on the overall balance of trade.

The entire postwar global economic order has been premised on achieving the maximum flow of international trade, based on the view that doing so will enhance global economic welfare and minimize the risk of political conflict. Barriers to trade have been relegated to the end of the queue as potential adjustment devices. Free trade has become a nearly universal norm of the international system that, if not always observed in practice, has strongly deterred any sizable deviations, even at times of acute distress, such as the Great Recession. It is a model for the type of new international norm that we would like to propagate against currency manipulation.

Exchange Rate Regimes

Up to now we have assumed that the exchange rate is flexible. A country may, however, try to stabilize its exchange rate by using either its interest rate or its net official flows. Both policy tools operate through financial flows. An extreme example of a fixed exchange rate regime is a currency union, in which a country subordinates its monetary policy to the control of an areawide central bank. Box 2.3 describes recent developments in the world's foremost currency union, the euro area, and their implications for current account balances both inside and outside of the euro area.

When faced with upward pressure on the exchange rate, the central bank may lower interest rates to make domestic assets less attractive to foreigners. Interest rate policy thus operates through private financial flows. Alternatively, the central bank may intervene by buying foreign currency and selling domestic currency, a net official outflow.

When the exchange rate is fixed, trade policies do have effects on the current account. For example, raising an import tariff when the exchange rate is fixed makes imports more expensive without affecting the competitiveness of exports (except to the extent that exports include imported content). The current account therefore rises. To maintain the fixed exchange rate with a higher current account, the central bank could reduce interest rates to encourage private financial outflows to increase. However, lower interest rates would exacerbate any overheating of GDP already caused by the rise in the trade balance. Over time higher GDP would put upward pressure on prices, including the prices of exports. Higher prices raise the real exchange rate, despite the peg of the nominal exchange rate. Our simple model does not include this inflationary effect, but it is the real

Box 2.3 Germany and the euro area

Germany had the world's second-largest current account surplus in 2015, at \$284 billion (China was first, at \$331 billion). Many observers have criticized the policies that drive Germany's surplus.¹ But Germany has very small net official flows (even after including reserves at the European Central Bank). Moreover, it does not make sense to look at the members of the euro area separately in any analysis of current account adjustment, because they share a single currency and exchange rate movements thus affect them all equally. In the regression of table 2.1, the euro area is treated as a single economic unit.

During most of the "decade of manipulation," the euro area current account was close to balance. It reflected a large surplus in Germany, however, and large deficits in peripheral countries like Italy, Spain, Greece, and Ireland. To a large extent, Germany was financing a housing boom in the periphery that was brought on by the equalization of interest rates after the establishment of the euro in 1999. Periphery borrowers responded to lower interest rates by taking on more mortgage debt. During the years of the boom, price levels in the periphery drifted up relative to those in Germany, helping create the trade imbalances that were necessitated by the financing flows.

The collapse of housing bubbles and the global financial crisis pushed the euro area into a recession in which the periphery was hit hardest. Financial market pressures and the fiscal rules of the euro area prevented the periphery from responding aggressively with looser fiscal policy. Monetary policy, which has been too tight for the area as a whole, could not be applied differentially within the union. The result has been a massive and prolonged slowdown in the periphery, which is being forced to adjust through gradual deflation to restore its competitiveness, rather than a sharp depreciation, as in pre-euro days. Of course, preventing such a resort to depreciation was a key motivation for Germany to form a monetary union with its neighbors.

The ongoing recession in the peripheral countries has brought their current account deficits to an end with little effect on Germany's surplus, which has grown entirely from its trade outside the euro area. As a result, the current account balance of the euro area has risen to a large surplus, roughly 80 percent of which is accounted for by Germany.

As a wealthy, aging, and slow-growing economy, the euro area would normally be expected to run a modest current account surplus. But the surplus is also boosted by insufficiently stimulative macroeconomic policy, particularly fiscal policy. A more centralized and activist fiscal policy would be the best option for both euro area citizens and the rest of the world, for which the rising euro area surplus is a drag on aggregate demand at a time of weak economic growth. The euro area has essentially no net official flows, so official exchange rate policy is not a factor in its surplus.

1. James Politi, "Jack Lew to Press Germany to Boost Domestic Demand," *Financial Times*, January 5, 2014; and Martin Wolf, "Germany Is the Eurozone's Biggest Problem," *Financial Times*, May 10, 2016.

5

Policy Options

A wide array of policy options is available to respond to currency manipulation and thus to seek to deter currency conflict. The choices among them rest on several key conceptual distinctions. This chapter briefly addresses them and then turns to an appraisal of the specific alternatives.

Macroeconomic/Monetary versus Trade Policy

The first key distinction is whether such responses should be conducted through measures that affect all of an affected country's transactions with a manipulating country, or through trade policy and other steps that apply only to imports or a subset thereof from such a country. The former could include at least four types of measures: fiscal policy, aggregate monetary policy, intervention in the foreign exchange markets, and capital controls to limit or tax a manipulator's access to domestic currency or investments in domestic markets. The latter could include import surcharges, countervailing duties, antidumping duties, and the inclusion of currency provisions in multilateral, regional or bilateral free trade agreements (FTAs). Export subsidies are also a theoretical possibility but generally require budget outlays and have very little practical appeal.

Different authorities manage different policies. In the United States, the administration and Congress handle fiscal policy, the Federal Reserve handles monetary policy, the Treasury and the Fed handle currency intervention, and the Treasury handles capital controls.

Macroeconomic policy measures are useful to stabilize domestic output and employment. They are unlikely to target foreign currency manipulators,

especially in a large and relatively closed economy like the United States. Financial measures are much more likely than trade measures to be effective in countering the impact of, and thus deterring, currency manipulation, as they affect all trade flows between manipulating and affected countries, both exports and imports, whereas most trade policy measures address only imports. Currency intervention operates directly and very precisely via the exchange markets themselves. Capital controls operate indirectly but precisely via the financial flows generated by intervention. Hence financial measures are to be preferred.

Multilateral versus Unilateral Action

A second key distinction is whether the policy response would be multilateral, unilateral, or somewhere in between (plurilateral, including regional). Multilateral approaches involve invoking the rules, procedures, and mechanisms of the relevant international institutions, primarily the International Monetary Fund (IMF) and the World Trade Organization (WTO). Under the unilateral option, the aggrieved country adopts macroeconomic/monetary and/or trade policy measures on its own. An intermediate strategy would be plurilateral, using groups such as the G-7, the G-20, or an FTA or creating new groups specifically to deal with the currency question (such as the stillborn Trans-Pacific Partnership (TPP) Macroeconomic Group or any new coalition that might be formed on manipulation itself).

There is probably a rough correlation between the degree of international participation in a policy to counter currency manipulation and the extent of cooperation, as opposed to coercion, among countries embedded in it, suggesting that multilateral or plurilateral options are preferable to unilateral steps in foreign policy terms. That correlation is by no means perfect, however. The Plaza Accord, which achieved a dramatic realignment of exchange rates and a successful adjustment of current account balances in the second half of the 1980s, was probably the high-water mark of postwar international cooperation on these issues. It was implemented collegially by the G-5, but it originated as a unilateral US initiative, under the acute threat of congressional protectionism, that was not based on any agreed upon rules or institutional arrangements (Bergsten and Green 2016). At the other extreme, US efforts to foster implementation of the IMF rules on manipulation in the mid-2000s left bruised feelings in China, and perhaps elsewhere; any initiative to take it to the WTO would undoubtedly have had similar effects (Blustein 2012).

Table 5.1 shows a matrix of policy options. Countervailing currency intervention is an across-the-board measure implemented unilaterally (though perhaps with plurilateral or multilateral approval, as discussed

Table 5.1 The policy matrix

Approach	Macro/monetary policy	Trade policy
Multilateral	Invocation of IMF rules Reform of international monetary system (e.g., reference rates)	Imposition of import surcharges (WTO Article XV (4)) Imposition of countervailing duties (WTO Subsidy Code)
Plurilateral	Use of G-7 or G-20 (e.g., in the Plaza Accord)	Currency provisions in free trade agreements (e.g., TPP Macroeconomic Group)
Unilateral	Use of fiscal policy Use of monetary policy Defensive intervention Countervailing currency intervention Imposition of capital controls	Import surcharges Countervailing duties [Subject to retaliation if not ultimately approved by WTO]

IMF = International Monetary Fund; WTO = World Trade Organization; TPP = Trans-Pacific Partnership

below). Import surcharges and countervailing duties are trade policy measures that could be applied either multilaterally, under the aegis of the WTO, or unilaterally (though they would then be subject to retaliation if not ultimately approved by the WTO). Inevitable tradeoffs will affect the choices of specific measures.

Markets to the Rescue?

Could markets drive correction of currency misalignments caused by official manipulation, obviating the need for a policy response by governments? They might do so by triggering economic forces that offset the impact of the manipulation itself or compel the manipulator to cease manipulating. Either is conceptually possible, and each has occurred to a degree.

A country that suppresses its exchange rate for a prolonged period will suffer inflationary pressures from the resultant currency undervaluation unless it takes steps to contract macroeconomic policy. Any increased inflation that results will lead to an appreciation of the country's real exchange rate, thus reversing to some extent the initial competitive nonappreciation of the nominal rate.

Currency manipulation also encourages an inflow of private capital to the undervalued currency. The inflow may become immense for countries that permit free capital movements, forcing the authorities to engage in even more intervention, particularly when macroeconomic policies succeed in holding down inflationary pressure. Huge reserve buildups from manipulation can also trigger extensive domestic criticism as a misallocation of national resources, especially for developing countries with large alternative investment opportunities.

The largest manipulators in recent years, China and Switzerland, have experienced these effects to some degree. China limits capital inflows (and outflows), so it has been able to keep macro policy sufficiently restrictive to avoid price inflation even with a large buildup of reserves. Nevertheless, the reserve buildup was large enough to engender domestic opposition that presumably contributed to the decisions over the course of the decade to let the renminbi appreciate substantially in both trade-weighted and dollar terms (see the discussion of China in chapter 4). By contrast, Switzerland, with its smaller economy and near absence of capital controls, was swamped with safe-haven inflows and had to abandon the ceiling it had maintained for the Swiss franc for three years, despite the renewed appreciation that resulted (see the section on Switzerland in chapter 4). Nevertheless, Swiss intervention continues to support a very large current account surplus, with foreign exchange reserves roughly equal to its total GDP (and still rising).

Three lessons might be drawn from these episodes for the efficacy of the “market option” to remedy currency manipulation. First, small and relatively open economies are more susceptible to market pressures; large, relatively closed economies—which are more likely to have systemically important effects—can resist them longer. Second, resistance can be sustained especially by countries that are prepared to deploy extensive capital controls. Third, at best this option will play out over an extended period of time, with a great deal of economic impact taking place in the meanwhile.

Market pressures usually help push in the direction of the needed outcome, as they have in the cases of both China and Switzerland. However, they cannot be counted on to achieve a definitive resolution—certainly not in a timely and low-cost manner (for either the manipulator or the affected countries). The uncertain prospect of a market-based correction would not deter manipulation, the objective in seeking a comprehensive and effective resolution of this practice. Other policy alternatives therefore need to be explored.

Specific Alternatives

This section describes and analyzes 10 potential policy responses to manipulation, primarily for the United States:

1. private diplomacy,
2. mobilization of the IMF,
3. reform of the IMF,
4. mobilization of the WTO,
5. inclusion of currency issues in FTAs,
6. changes in fiscal policy,
7. changes in monetary policy,
8. use of countervailing currency intervention,
9. imposition of capital controls, and
10. imposition of unilateral import controls (countervailing duties and surcharges).

The first alternative describes recent US policy. The next four options would be conducted through multilateral channels. The last five are unilateral.

Private Diplomacy

Private diplomacy has been the preferred US currency policy. It has encompassed (1) a steady drumbeat of pressure on China throughout the “decade of manipulation”; (2) occasional entreaties to other countries, especially Japan in late 2012 and early 2013 and Korea when its surpluses rose sharply in recent years; and (3) consistent efforts to produce statements by the major international consultative groups, especially the G-7 and G-20, to reiterate and strengthen where possible the commitments of their members to avoid manipulation after a futile effort to mobilize the IMF in 2006–08.

In 2015 the strategy added the issuance of a Joint Declaration of the Macroeconomic Policy Authorities of Trans-Pacific Partnership Countries as a currency side agreement to the TPP, and through it the creation of a TPI Macroeconomic Group that was to meet at least annually once the TPP came into effect. All these efforts were most vigorous when the Obama administration wanted to demonstrate to Congress that it was addressing the currency issue seriously, especially as the trade policy debate heated up and headed toward floor votes in 2015–16. The Obama administration ultimately embraced cooperation with Congress to craft new and modestly tougher currency legislation that was included in the Trade Facilitation and Trade Enforcement Act of 2015.

The most contentious issue throughout the decade was whether the secretary of the Treasury should publicly designate China a currency manipulator, as called for under the Trade Act of 1988. Many private studies (e.g., Goldstein 2004, Goldstein and Lardy 2008) and Treasury's own analyses in its semiannual foreign exchange reports clearly showed that China was manipulating. Treasury argued, however, that it would have to demonstrate that China *intended* its actions to achieve competitive gains and that it could not do so. Even with such a designation, in any event, the secretary of the Treasury would have been required by law only to enter into negotiations to correct the problem, which successive administrations were pursuing anyway.

Both the Bush 43 and Obama administrations chose private diplomacy over tougher options, even during the period of maximum intervention by China and others. They argued that diplomacy was more likely than public confrontation to induce China to cease or at least reduce its manipulation because of Chinese aversion to any appearance of capitulation to foreign pressure. With the onset of the financial crisis and Great Recession in 2008, they also needed Chinese cooperation to rescue the world economy and gave lower priority to the currency issue. These tactical views were reinforced by broader US strategic considerations, which sought to avoid escalating the currency conflict and thereby risking needed Chinese cooperation with respect to North Korea, Iran, and other priority geopolitical issues. The administrations also argued that designation of China as a manipulator, by acknowledging the problem but probably doing little about it, could stimulate rather than quiet protectionism in Congress. They feared that taking tangible steps to weaken the dollar, by strengthening the renminbi, could lead to excessive and uncomfortable dollar depreciation and even undermine the currency's international role, which they viewed as a major benefit to the United States.

The approach was partly successful. China began to let the renminbi appreciate gradually in 2005 and, after halting its appreciation during the Great Recession, again in 2010. The cumulative appreciation reached 35 percent against the dollar at its recent peak in 2015, and China's current account surplus dropped sharply from its record high of 10 percent of GDP in 2007 to less than 3 percent in 2014–15 (see figure 4.3). Other potential major manipulators, notably Japan and Korea, know that the United States is watching them closely and may have been deterred from new intervention as a result.

The other possible payoff from recent policy, about which one can only speculate, is that it may have succeeded in spawning new behavioral norms to reject manipulation in at least some major economies. Manipulation

has largely gone into remission over the past couple of years, as described in chapter 4, primarily because of changes in the direction of market pressures as the dollar has strengthened against virtually all currencies. China has totally reversed its intervention policy. It has experienced large capital outflows and depreciation of the renminbi, defending its currency against even more sizable declines by selling dollars. Other economies have not experienced such abrupt turnarounds, but only a few, relatively smaller, ones have continued to intervene (as indicated in table 4.5).

It is thus conceivable, though by no means certain, that the cumulative impact of US pressure and repeated statements from the G-7, G-20, and other international groups has sufficiently discredited manipulation that the practice will not be resumed widely even when market pressures shift again, as they surely will. The circumstantial evidence is stronger for the G-7 than for the G-20, because the Japanese government has resisted intervening even when it was under strong domestic pressure to do so in 2013 and 2016. The jury remains out on this crucial question, but it should be noted as a possible payoff from the policy responses, mainly by the United States, during the “decade of manipulation.”

The only major deviation from private diplomacy was the periodic public congressional criticism of China (and to a much lesser extent Japan and still less so Korea). Treasury relied on Congressional participation in the traditional “good cop, bad cop” routine for what little leverage it had with China; that pressure appears to have had a greater impact than the administration's negotiating efforts per se. The initiations of renminbi appreciation in 2005 and 2010, and especially the acceleration in the pace of those appreciations in 2007–08 and 2011–12, correlate closely with the likelihood of congressional action; Congress seriously considered currency bills for the first time during 2007–08 and each house of Congress passed such a bill in 2011–12.¹

Chinese actions, in contrast to Chinese rhetoric, thus seemed to be responsive to rather than resistant to meaningful external pressure. Previous manipulators also clearly responded to indications of congressional concern (sometimes reinforced by administration threats, mainly regarding trade policy). Japanese governments, for example, even sought “foreign pressure” (*gaitsū*) to promote their own policy reforms. European governments, which were not actively manipulating, were acutely aware of the protectionist tendencies in Congress when they agreed to let their exchange rates appreciate in the wake of the Plaza Accord.

1. Possible IMF action was also a factor in 2007–08, as described in the next section.

Though the United States probably does not have as much international clout now as it had in those earlier periods, and China is a very different partner. But the pattern also seems to conform to contemporary Chinese behavior on other issues. For example, there is some evidence that China curtailed its commercial cyberespionage activities in 2015–16 after the Obama administration threatened to adopt sanctions against China.

The chief advantage of the private diplomacy option is its minimization of political conflicts with the manipulators themselves, with other countries whose support the United States would want to seek to help counter manipulation, and especially with domestic interest groups that oppose tougher action. Most of the US business community, including virtually all of the large multinational firms engaged in China, for example, steadily and strongly opposed the public designation of China as a manipulator under US law, let alone anything tougher; they clearly did not want to roil the Chinese government and risk retaliation against their own operations. This approach also permits the United States to continue reaping the benefits of an overvalued dollar, including cheaper imports and lower interest rates, as outlined in chapter 4.

The chief disadvantage of private diplomacy is that it enabled China and other manipulators, many of which were explicitly mirroring China's behavior, to get away with massive manipulation for a decade, shifting several hundreds of billions of dollars' worth of annual production away from the United States and other affected countries. During the Great Recession, when unemployment was very high, it contributed to the loss of millions of jobs. It accelerated and intensified the "China shock" to the US economy that Autor, Dorn, and Hanson (2016) analyzed years later (but that was not widely understood when it was occurring).² Most of the huge Chinese reserve buildup that resulted from the intervention was invested in dollar assets, easing US debt service but flooding the economy with liquidity that contributed to the financial conditions and housing bubble that brought on the financial crisis and the Great Recession, substantially compounding the direct impact of the imbalances on production and jobs.

The more subtle, but perhaps most costly, disadvantage of this option has been its role in the erosion of domestic political support for globalization and open trade policies in general, and new trade agreements (most notably the TPP) in particular, in the United States. Much of Congress lost confidence in the administration's ability and willingness to defend US eco-

2. Goldstein and Lardy (2008) identified the renminbi as undervalued by about 30 percent at the time and calculated that elimination of its misalignment, along with parallel adjustments by other Asian manipulators, would reduce the US current account deficit by \$100 billion to \$200 billion per year.

conomic interests in the face of massive, prolonged, and beyond all doubt a violation of those interests and of accepted international norms. They therefore linked their requested approval of both Trade Promotion Authority in 2015 and the TPP to more forceful action on currency and threatened to derail both initiatives unless such action was taken. (Collateral damage was done as well to congressional confidence in economic institutions, especially the IMF, which also failed in this case.) The political campaigns of 2015–16 indicated that this erosion of support had spread to both major parties and the public; the election of Donald Trump at least partly reflected his ability to cite currency manipulation as a failure of previous policy—and, much more broadly, the wide acceptance of the notion of a "China shock."

This congressional backlash produced three tangible results. First, the negotiating objectives of the Trade Promotion Authority bill required members of the TPP and future US trade agreements to "avoid manipulating exchange rates" (though not necessarily through those agreements themselves). Second, in partial response, in late 2015 the administration negotiated the Joint Declaration of the Macroeconomic Policy Authorities of Trans-Pacific Partnership Countries, which reaffirmed their policy commitments under the IMF Articles to avoid competitive devaluation and manipulation, committed them to increased transparency and disclosure of their reserves and intervention data, and scheduled annual meetings to discuss and report publicly on those issues.³ Third, Congress passed the Trade Facilitation and Trade Enforcement Act of 2015. It requires the administration to undertake "enhanced engagement" on the currency issue with "major trading partners" that meet a set of objective criteria: a significant bilateral trade surplus with the United States, a material global current account surplus, and persistent one-sided intervention in the currency markets. It supplements the traditional focus on publicly designating "manipulators" (and thus obviates the need to judge the intent of the countries involved). The law requires the administration to take at least one of a set of specified (though quite modest) remedial actions against countries that fail to correct their situation in a year: (1) denial of Overseas Private Investment Corporation (OPIC) programs and US government procurement (except for members of the Government Procurement Agreement in the WTO), (2) an effort to stimulate special IMF consultations with the country, and (3) the "taking into account" of its currency policy in deciding whether to include it in a future US trade agreement. Recent US currency policy might

3. A major gap in disclosure was the lack of specific mention of official foreign currency assets not designated as reserves, such as sovereign wealth funds and public pension assets. In any event, the Declaration became null and void with the demise of the TPP itself due to the US withdrawal declared by President Trump in early 2017.

thus described as “private diplomacy with a few teeth,” but unless the hypothesized possible shift in cultural norms on the issue is much stronger than can yet be reliably counted on, it remains wholly inadequate to deter future resumption of widespread manipulation if major countries decide they want to resume that practice.

Donald Trump’s repeated campaign pledges “to label China as a currency manipulator on day one of his administration” implied a sharp reversal of the private diplomacy of the past, though they had not been realized as of March 2017. But this hawkish stance on trade policy and globalization more broadly, especially with respect to China, could still herald a much stronger line on currency as well as other international economic issues. His focus on unilateral and bilateral approaches also probably reduces the prospect for new multilateral initiatives, including the initiatives listed below.

The election of Donald Trump was at least partially the result of his strong and skeptical views on trade and globalization. Currency issues are, of course, only a part of that picture, but it is noteworthy that of all the criticisms launched at the TPP and other FTAs by their critics, including private sector groups such as labor unions and Democratic candidates Hillary Clinton and Bernie Sanders, none was more prominent than currency manipulation. Currency manipulation was also the main target of congressional opponents of the TPP from both parties, some of whom asserted that they had “killed the TPP” even before the election. Past policy on currency manipulation had thus apparently become unsustainable in domestic political terms, even while it remained wholly sustainable in external financial terms. This opposition—along with other objections to traditional international economic policies—threatens to trigger a sea change in US engagement with the rest of the world.⁴

Mobilization of the International Monetary Fund

The one recent departure from the policy of relying on private diplomacy was the Bush administration’s effort in 2006–08 to “take China to court” under the rules and procedures of the IMF. China was clearly violating its IMF commitments to avoid competitive devaluation and currency manipulation. But the IMF is a highly political body, so the United States had to persuade both its executive board (representing its member countries and thus subject to strong pressures from a powerful member like China) and

its management (which was reluctant to proceed for similar reasons). After intense effort over a prolonged period, by mid-2008 the United States succeeded in indicting China. The Lehman crisis and the onset of the Great Recession then completely changed the focus of US and IMF policy, however, which suddenly emphasized the need for cooperation from China to prevent a new global depression. The currency issue was dropped and never picked up again (Blustein 2012).

Even had the United States succeeded in its effort, however, the IMF has no policy instruments to enforce its rules. The outcome that was sought, with prolonged and strenuous effort, was simply a “special consultation” with China by the Fund’s managing director to discuss the problem and seek possible solutions. To be sure, the “naming and shaming” of China would have escalated, and it is possible that an official Fund declaration of renminbi undervaluation might have paved the way for trade sanctions in the WTO (see below) if the United States had pursued that additional step and been able to win widespread support in Geneva. China hence strongly opposed the US initiative. But the impact would have been uncertain, and probably limited, even if the initiative had succeeded.⁵

The direct advantage of mobilizing the IMF is, of course, that the multilateral nature of the institution and its rules would confer global legitimacy on any effort to indict a currency manipulator and go far to justify it in terms of public as well as official opinion around the world. Moreover, an IMF determination of undervaluation is an essential step en route to multilateral trade actions, so this option would have to be included in any serious new initiative in that direction.

It would be highly desirable for the Fund to work closely with the WTO to link the Fund’s expertise and authority in identifying currency problems with the WTO’s ability to impose sanctions to promote enforcement of its (and the Fund’s) rules. The WTO must rely on IMF guidance on the existence and extent of currency manipulation as a basis for any actions it might take, under its own rules, against manipulators. If they worked actively and constructively together, the two institutions would constitute a powerful force in implementing the rules of both. But they have resisted minimal cooperation, let alone proactive collaboration, and the WTO has deferred totally to the IMF on these issues. We turn shortly to an assessment of the WTO policy options as a basis for considering a new IMF-WTO alliance.

4. In the annual Stavros Niarchos Foundation Lecture at the Peterson Institute for International Economics in May 2013, C. Fred Bergsten warned that failure to resolve these issues preemptively could lead to a repetition of the unilateral and protectionist currency and trade initiatives of President Nixon and Secretary of the Treasury John Connally in 1971. That scenario may now be unfolding.

5. Morris Goldstein (2006) took a more optimistic view of the effectiveness of IMF special consultations when he urged the IMF to embrace its role as umpire of the exchange rate system.

There are several disadvantages to the IMF system, however, starting with the lack of teeth in the IMF itself and thus the need for complementary actions, in the WTO and/or unilaterally, if tangible results are to be achieved. In addition, any serious effort in the IMF is bound to take considerable time, as demonstrated in 2006–08. Hence any strategy that relied on the IMF would take significantly longer to implement than most unilateral actions. Failure at the Fund would tend to discredit the entire effort and make it more difficult to pursue other options. In addition, failure on this issue would discredit the Fund more broadly (as it has already done), weakening its ability to continue to conduct policies in other issue areas where it can be much more effective.

Reform of the International Monetary Fund

Currency manipulation, especially by China, has become a leading threat to the world trading system because of the large imbalances it has spawned and (especially) the backlash against open trade it has generated in the United States and elsewhere. To address the problem, there is a glaring need to shore up the basic rules of the international monetary system, especially the IMF itself as the guardian and manager of an open and cooperative global economic order.

The Fund was created largely to prevent a replication of the currency wars of the 1930s, which could easily recur today, especially in light of the unilateral tendencies of the Trump administration. It has failed to do so. Reform of the IMF is needed to fill the gaps left by the architects of the postwar period. The United States should make a renewed push for such reform, whether or not the current remission of manipulation turns out to be lasting or temporary.

Three actions would give the IMF meaningful powers on this issue. First, the United States and other countries that have been injured by currency manipulation, or are simply displeased with such a huge systemic gap, could withhold their support from future candidates for managing director who did not pledge to make a major effort to remedy this shortcoming in Fund policy (countries that oppose such changes in policy could, of course, support other candidates, leading to a stalemate). It is stunning that the United States has apparently never raised such a key issue in this context. It should do so in the future.

Second, the Fund should be able to counteract currency manipulation in the same way that the WTO can counteract unfair trade practices, through direct retaliation by its members. We propose below the institution of countervailing currency intervention, under which affected countries would offset the intervention of manipulators by buying equal amounts

Table 5.2 A reference rate system

Stock of official assets	Current account above norm	Current account below norm
More than adequate	Foreign exchange purchases not allowed	No restrictions
	Foreign exchange sales encouraged	
Less than adequate	No restrictions	Foreign exchange sales not allowed
		Foreign exchange purchases encouraged

of the currencies the manipulators are selling, thereby neutralizing the manipulation and presumably deterring the practice. Such a policy could be implemented unilaterally, mainly by the United States, as will almost certainly be necessary to get it launched. The IMF could eventually authorize the practice, however, bestowing on it all the advantages (though also the disadvantages) of multilateral determination and implementation. Such a step would restore a central role for the Fund on this major issue, on which it has been largely bypassed since the breakdown of “fixed” exchange rates in the early 1970s because of its revealed impotence.

Third, the IMF could authorize (or, in its strongest form, instruct) member countries to push their currencies toward equilibrium levels and to retaliate (*inter alia* via countervailing currency intervention) against efforts by other countries to push (or keep) their currencies away from such levels. Building on the guidelines for reserve holdings and current account norms developed in chapters 3 and 4, the reference rate matrix shown in table 5.2 governing purchases and sales of foreign exchange reserves could provide the foundation for a new international monetary regime.

The minimum principle would be that countries be banned from conducting currency policies that maintain or increase a deviation of the current account balance from its norm. Surplus countries whose reserves are already adequate, for example, would be forbidden from opposing appreciation of their exchange rates by buying foreign currencies, and other countries could directly counter any such actions. Countries would be encouraged—but at least at first not required—to adopt currency policies that actively push the current account toward its norm; surplus countries would be encouraged to buy their own currencies by selling excess reserves (as Japan and several European countries did to implement the Plaza Accord and as China has been doing since 2015).

The norms for current accounts should be established and regularly reviewed by the IMF in consultation with member countries, as discussed

in chapter 3. In setting these norms, the IMF should not simply ratify existing levels of imbalances without strong justification, as its efforts to date have frequently tended to do. The spirit of this policy matrix can be traced back to Ethier and Bloomfield (1975), who proposed that countries not be allowed to intervene in foreign exchange markets to push their currencies away from agreed reference rates. In our matrix, the reference rates would be expected to deliver the targeted current account norms over the medium term.

The policy matrix has a long historical pedigree. Bergsten and Williamson (1983) and Williamson and Miller (1987) developed proposals for target zones that embodied a commitment to maintain specific ranges for exchange rates. This line of research influenced the Plaza Accord (1985) and the Louvre Accord (1987) (Bergsten 2016). The Plaza Accord included a joint agreement that it was appropriate to sell official US dollar assets to bring down the dollar's exchange value and thus move the US current account toward balance. The Louvre Accord effectively declared that the dollar had fallen far enough and that the United States and others should purchase dollar assets to counter further depreciation.

However, the fear that any commitment on exchange rates would eventually force policymakers to choose between moving the focus of monetary and fiscal policy away from stabilizing employment and inflation, and abandoning the agreed commitment and causing financial turbulence, prevented the target zone idea from lasting very long or being adopted more generally. Moreover, despite the relative success of both Plaza and Louvre, there was widespread skepticism about both the ability to agree on desirable exchange rates and the potency of sterilized intervention as a tool to achieve target rates. The major economies were not willing to commit to even a broad and adjustable range for exchange rates, let alone a narrow and permanent band.

Faced with these powerful objections, Williamson (2007, updated 2016) retreated to Ethier and Bloomfield's original reference rate proposal, except that he made explicit the link between reference rates and sustainable current account balances. The key difference between the reference rate and target zone approaches is that under the reference rate approach, countries would not be required to defend any limits on the exchange rate; the reference rates would merely indicate levels or ranges for the exchange rate beyond which foreign exchange intervention in a certain direction would be prohibited and intervention in the opposite direction encouraged. Gagnon (2011) endorsed this version of the reference rate proposal in a study that otherwise extolled the benefits of flexible exchange rates.

Mobilization of the World Trade Organization

A second set of multilateral options would entail taking manipulators to the trade "court" of the WTO. Doing so would necessitate engaging the IMF, because the charter of the WTO requires it to seek guidance from the Fund as to whether the currency of an accused member is undervalued. An approach to the Fund need not involve a parallel, or subsequent, approach to the WTO, but an appeal to the WTO does require a parallel, or prior, entreaty to the Fund.

There are two potential components of the WTO for addressing currency manipulation. The more sweeping is Article XV (4), which bans member countries from taking "exchange action" to "frustrate the intent of the provisions of the Agreement." The United States, and perhaps other affected members, could charge that manipulators were doing so through their currency practices. The provision has never been implemented, but its invocation would presumably lead to WTO authorization for members to apply across-the-board import controls, most likely surcharges, in whatever amounts were determined to be needed to offset the indicated undervaluation. The indictment itself would probably persuade the manipulator(s) in question to cease intervening. If it did not, the United States and others could follow through by applying surcharges to implement the remedy.

The other, much narrower WTO option is to start bringing specific cases against currency manipulation as a "prohibited export subsidy" under Article 3 of its Agreement on Subsidies and Countervailing Measures (ASCM) and then apply countervailing duties if the cases prevailed. A variant on this theme, addressed below, is for the United States to simply start unilaterally applying countervailing duties against manipulation in domestic cases, recognizing that the target countries might argue that the United States itself was violating the ASCM and then take it to the WTO. The difference between the two approaches is the sequencing between the unilateral and multilateral phases of the cases, perhaps along with some claim to "moral high ground" for whichever country (or group of countries) instituted the multilateral phase to emphasize its desire to play by agreed international rules.

Economic logic supports both WTO options, although they would not offset the effects of manipulation as effectively and efficiently as would financial policy measures that would apply much more broadly. The WTO was given powers of enforcement on currency issues that were denied to the Fund (but were to be invoked on those issues only with the explicit guidance of the Fund). Article XV (4) should thus be usable against manipulation. Deliberate currency undervaluation as a result of manipulation has a similar impact in reducing the price of exports as taxes, credits, or other

subsidies that are routinely addressed as unfair trade practices in countervailing duty cases.

Unfortunately, the legal framework of the WTO is full of arcane technicalities that do not always reflect economic verities.⁶ Neither of the relevant articles has ever been tested, and the US government has hesitated to bring a case under either, fearing that a loss would undermine its case against manipulation (and might well provoke an anti-WTO backlash, including in Congress). For example, Article XV (4) requires the “exchange action” in question to “frustrate the intent of provisions of the Agreement,” but it lists no specific measures of frustration. Prohibited subsidies must entail a “financial contribution” and support for “specific” industries or enterprises rather than the economy as a whole, so even invocation of the ASCM could be difficult.⁷

In addition, as noted above, the highly political executive board of the IMF might be unwilling to indict a member country, especially a powerful one like China, for manipulation and for “frustrating the intent.” It might, however, be possible for the WTO to seek the required “IMF guidance” from the IMF’s management and staff rather than its executive board. Management and staff cannot be oblivious to political considerations, but their judgments would presumably be more technocratic and based on empirical evidence than the judgments of the executive board (as they were when they publicly announced in 2007 that the renminbi was “fundamentally undervalued”). The Fund followed this route in 1997 when it informed the WTO that India could no longer justify its widespread import quotas on balance-of-payments grounds (WTO 1999).⁸

The multilateral trade route is desirable in principle but likely to be difficult in practice. It is unavoidable, however, if the United States (or any other country) adopts trade policy measures against manipulators that expose it to international challenge by the targeted countries. The question thus becomes whether the United States would want to preempt the likely challenge by initiating an appeal to the international institution itself, as the Bush administration did in the IMF against China in 2006–08 and as Brazil tried to do by raising the issue of the trade impact of manipulation in the WTO in 2010.

6. In a conversation with C. Fred Bergsten, a top EU trade official warned: “Do not try to bring economics into the GATT [now the WTO]. You will kill it.”

7. See de Lima-Campos and Gaviira (2012) for a contrary interpretation.

8. This decision helped the government of India overcome domestic opposition to the economic reforms that it wanted to carry out at that time.

For precisely these reasons, the United States should make a major effort to multilateralize any initiative it takes on these issues, as we argue in the next chapter. Such an effort would be greatly facilitated if the mandates of the IMF and WTO, with at least the tacit support of other key members as well as the United States, were willing to forge an alliance to provide effective multilateral machinery to address the issue of manipulation. Such an alliance would enable them to complete the Bretton Woods framework by creating, for the first time, a credible systemic response to the risk of currency conflict.

Inclusion of Currency Issues in Future Trade Agreements

The other main multilateral option is the inclusion of currency issues in future trade agreements.⁹ Most such agreements are bilateral or megaregional, but new topics that are initially addressed in bilateral or regional contexts frequently find their way into subsequent global accords (labor and environmental issues are a case in point over the past two decades) (box 5.1).

Such inclusion was the main goal of advocates of stronger US action on currency during the very active trade policy debate in Congress in 2015–16. Unusual bicameral and bipartisan majorities wrote to President Obama and his top officials as early as 2013 to urge the inclusion of enforceable currency disciplines in the TPP and all future US trade agreements. The basic objective was to deter manipulation by partner countries and ensure a level playing field by committing all partners to accept retaliation if they resorted to the practice.

The Obama administration rejected the proposal by arguing that the TPP negotiations had advanced too far to add another major issue and that in any event their consultations indicated that other participating countries opposed the idea and that even raising it could blow up the negotiations.¹⁰ The Senate Finance Committee and the full Senate narrowly defeated proposed amendments to the Trade Promotion Authority bill that would have forced the administration to accept the proposal. The issue was continually raised during the political campaigns in 2016, however, and the election of

9. This section draws extensively on Bergsten (2014).

10. It is impossible to assess the validity of this contention, because the TPP partner countries knew that the US administration, especially the Treasury Department, which was handling this issue, did not want to include currency in the trade agreements. They may well have simply been telling US officials what they knew they wanted to hear. The administration also argued that any such disciplines could be turned against the use of quantitative easing by the Federal Reserve, a contention we reject in chapter 2.

Box 5.1 Adding currency to trade agreements

There are striking parallels between the current proposals to add the currency issue to trade agreements and efforts, over the past two decades or so, to add labor and environmental issues to such agreements (and perhaps the protection of intellectual property rights even earlier). These “trade and” debates have been at the forefront of much of the controversy over trade and globalization more broadly, in both the United States and around the world, dating back at least to the congressional battle over NAFTA in the early 1990s. They have become a central part of the discussion of trade policy at all levels: unilateral, regional, and bilateral.

The objectives of the exercises have been very similar, based on commitments that FTA participants had already made in the respective issue areas. Advocates of imbedding labor rights in FTAs have sought the adoption of enforcement provisions to ensure that participants in those agreements fully apply the standards already agreed to in the International Labour Organization. Environmentalists want commitments to faithful implementation of multilateral environmental agreements.

Contemporary currency proposals would aim to discipline countries that failed to uphold their IMF and other obligations to avoid manipulation and competitive depreciation (or nonappreciation). In each of these cases, the key action proposal is to include the “new” issue within the coverage of the dispute settlement mechanism of the FTA to enhance the prospect that its agreed norms will be implemented in practice—though with continuing debates over what trade, or other, remedies are most appropriate to address violations if and when they occur.

The obstacles to action in different issue areas have also been similar. Some actors, especially in the trade policy community, have questioned the appropriateness or even the feasibility of linking labor, the environment, and now currency to trade, despite the obvious relationships that have become clear as the respective debates have proceeded. The United States has to give up some of its other goals for the agreement in question, or accept additional demands from others, in order to win acceptance of chapters on the new issue. Different government agencies and officials, at both the national and international level, are responsible for the different topics. New types of linkages, both substantive and institutional, have been required to implement these relationships.

Inclusion of labor and environmental standards in FTAs has occurred in an evolutionary manner over the past two decades. Each was initially proposed and promoted by the United States, with respective administrations responding with more (generally Democratic) or less (generally Republican) enthusiasm to political (notably congressional) pressures that threatened to derail their overall trade policy strategies in the absence of successful negotiations but against a gradually evolving consensus that has now become widespread. Most other countries, especially poorer countries fearing attacks on their development strategies, tended to resist the US entreaties at first but,

Box 5.1 Adding currency to trade agreements (continued)

over time, not only came to terms with the United States but began to include similar (if usually weaker) provisions in their own trade agreements (e.g., see Bergsten, Hufbauer, and Miner 2014 on China's FTAs). Labor and environment provisions, or even full chapters, have now become standard components of most of the plethora of trade agreements being negotiated around the world by countries of every region and at all levels of development.

Currency issues are likely to undergo a similar evolution. The substantive cost, and therefore political backlash, of currency manipulation during the recent past is probably far greater than the parallel impact of labor and environmental problems in earlier periods, so it can be both hoped and expected that the “trade and currency” linkage will move more quickly than its predecessors. The comprehensive blueprint for such linkage outlined in this chapter will nevertheless probably find its way into trade agreements incrementally rather than all at once.

Donald Trump strongly suggests that it is likely to reappear whenever the United States pursues new trade agreements.

In response to continuing pressure on the issue, the Obama administration negotiated a Joint Declaration of the Macroeconomic Policy Authorities of Trans-Pacific Partnership Countries that was separate from the TPP but announced at the same time as the TPP in November 2015. It also worked with Congress to pass new legislation, the Bennet Amendment to the Trade Facilitation and Trade Enforcement Act of 2015, which strengthened US currency policy. The commitments under the declaration were not legally binding and there was no dispute settlement mechanism. If member countries had wanted to strengthen the compact, perhaps in response to renewed entreaties from the United States had the TPP come up for Congressional approval, they could have done so either by folding the side agreement into the TPP and thus subjecting it to the basic dispute settlement mechanism or converting the side agreement into a binding contract with its own dispute settlement mechanism. The latter would probably have been more feasible, because the arrangement could then have been managed by the parties' monetary authorities rather than their trade officials. (The side agreement died when President Trump abandoned the TPP in January 2017.)

Trade agreements have avoided the currency issue for two reasons. First, trade agreements aim primarily at expanding the level of trade, whereas exchange rates aim at trade balances. Most economists see trade balances as primarily a reflection of savings-investment differences and broader economic fundamentals that are best addressed through monetary, fiscal,

and other macroeconomic policies. By contrast, the level and composition of trade are seen as structural and microeconomic, reflecting the resource endowments and comparative advantages of national economies. Tariffs, quotas, and other trade policy measures are thus seen as appropriate tools for addressing the level and composition of trade flows. Trade agreements are explicitly or implicitly premised on the principle of reciprocity in reducing tariffs, subsidies, and other distortions and are not intended to adjust trade imbalances.

Timing has also played a major role in this traditional differentiation. Trade imbalances, and the currency misalignments that can produce them, have been seen as transitory developments that will self-correct (by markets under flexible exchange rates) or be corrected (by governmental policies under fixed exchange rates) within relatively short periods. Trade agreements, by contrast, are intended to permanently alter economic relations between participating countries.

Problems can arise when trade imbalances persist, however. The United States, for example, has run sizable current account deficits for almost all of the past 35 years, and China has run sizable surpluses since the early 2000s. The guidelines for IMF surveillance of countries' exchange rate policies inveigh against "protracted" intervention in the currency markets, because it can prolong imbalances beyond their normal short-run horizons.

The second, institutional, issue is that currency and trade policy are generally managed by different authorities. Finance ministries and central banks (which are often independent from governments) are usually responsible for exchange rates, and trade or commerce or foreign ministries handle trade policy. At the international level, the IMF is responsible for exchange rates, and the WTO covers trade. Turf conflicts between these actors have frequently prevented a coordinated response to issues that link currency and trade, both within and among countries.

The United States has tried to coordinate trade policy and international monetary policy on occasion over the years. In 1971 President Nixon imposed a temporary import surcharge to help negotiate devaluation of the overvalued dollar, a step taken under pressure from Congress (Destler 2005). In 1985 Secretary of the Treasury James A. Baker III, also responding to congressional anxieties about trade deficits, negotiated the Plaza Accord to weaken the overvalued dollar and strengthen the European currencies and Japanese yen.

Lack of coordination is much more common, however. The IMF and GATT/WTO have frequently discussed better coordination and set up mechanisms to promote it but without much effect. The IMF staff vetoed inclusion of currency considerations in China's protocol of accession to the WTO on the grounds that such a provision was within the jurisdiction of

the Fund rather than the WTO (IMF 2009), an under-the-table decision that had profound effects in light of the major role that currency manipulation played in the subsequent explosion of Chinese exports and trade surpluses.

These substantive and institutional considerations have traditionally led the manipulation issue to be addressed by monetary officials and the IMF rather than by trade officials and trade agreements, including the WTO. The United States pursued this approach, primarily with respect to China, for most of the past decade. However, monetary efforts lost much of their credibility, and Treasury Secretary Jacob Lew acknowledged in 2015 that a trade agreement has to be built on firm commitment to market-determined exchange rates. This "monetary issue" played a major role in the widespread rejection of the TPP and opposition to trade agreements more broadly. There is thus a strong case for incorporating manipulation in future trade agreements, as advocated widely in Congress.

Most FTAs, including those negotiated by the United States, include chapters on specific topics. The TPP, which the United States hoped would become the template for future agreements, had 30 chapters. A currency chapter or parallel side agreement could include three components: a statement of objectives, criteria for defining and pursuing those objectives, and policy responses to foster their implementation. These elements should, where possible, conform to existing international agreements, notably the Articles of Agreement of the IMF and the charter of the WTO.

The objectives of the currency chapter could be drawn from the IMF Articles, as are the objectives of both the currency chapter of the Trade Facilitation and Trade Enforcement Act of 2015 and the Joint Declaration of the TPP Monetary Authorities. IMF members have accepted obligations to "avoid manipulating the exchange rate or the international monetary system in order to prevent effective balance-of-payments adjustment or to gain unfair competitive advantage over other members" (Article IV, Section 1 (iii)). The Fund is supposed to maintain surveillance over exchange rate policies and discuss "protracted large-scale intervention in one direction in the exchange markets" with errant members. The Articles also call on member countries to "take into account in their intervention policies the interests of other members, including those of the countries in whose currencies they intervene." These precepts could provide the foundation for specifying the goals of a currency component of an FTA and could even be incorporated by reference, although they embody the vexing issue of intent by conditioning their proscriptions on the purposes for which the manipulation is alleged to have been undertaken.

The G-7 (Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States) has also adopted a commitment to consult within the

group I...e undertaking intervention activities, and members have largely adhered to that agreement. G-20 communiqués have pledged that members “will not target our exchange rates for competitive purposes,” though some of them have ignored that stricture (while denying that their targeting is done for competitive purposes). Such nonbinding pledges could be incorporated into trade agreements, if binding commitments are not possible, but would fall far short of what is needed.

The methodology for pursuing the agreed objectives should start with commitments to provide data on the relevant variables, per agreed IMF conventions in most cases, as in the TPP Declaration. These commitments should cover reserve levels, including those outside official monetary reserves (notably in sovereign wealth funds); intervention; the currency composition of official reserves; and currencies of intervention.

Determining the existence and extent of currency misalignment, especially as a possible trigger for remedial action, has proven enormously difficult intellectually and politically. Numerous conceptual approaches to defining and measuring currency “misalignment” have been attempted. The IMF uses three different measures, which often produce very different results. Most official discussions, and even many academic efforts, have floundered at this initial level.

FTAs should thus ignore the determination of “misalignment” per se in favor of objective indicators, as the Trade Facilitation and Trade Enforcement Act of 2015 does. The goal would be to prevent a country from running large and persistent external surpluses that result from efforts to depress the value of its exchange rate in the currency markets. Only three variables need to be identified: the levels of reserves (to determine if they are “excessive”), the size of the current account surpluses, and the extent of intervention (or changes in reserve levels as a proxy, if actual intervention figures are not available on a timely basis) (see chapter 4).

A key concept is “intervention.” Substantial direct purchases of foreign exchange with domestic currency should be a central criterion for triggering a currency provision in an FTA. Participating countries should fully disclose their intervention activities, though some reporting could remain confidential if necessary during a transition period.

More complex questions surround “oral” and indirect intervention. Oral intervention—that is, calls for market exchange rates to be adjusted unaccompanied by any new policy—can be obvious or extremely subtle. It can have powerful effects, at least in the short run. If the new rules limiting direct intervention are credible, however, oral intervention would be less effective, because no policy follow-up would be permissible.

Indirect intervention could include a wide range of policies, such as capital controls on inflows and/or outflows and macroprudential financial

regulations (and particularly the timing of their installation...and removal). It would be extremely difficult to define such measures with sufficient precision, however, because many steps seen as indirect intervention could be defended as having much broader purposes. Macroeconomic policies, including quantitative easing and fiscal policies, for example, should not be included, as discussed in chapter 2. All international rules and norms, including those of the IMF, the G-7, and the G-20, explicitly recognize this distinction and exonerate quantitative easing policies from any responsibility for currency manipulation. Some countries may keep raising the issue, but their objections should not deter these new policy initiatives.

Particularly in the case of measures with indirect effects on exchange rates, intent can be an important consideration. Were the steps undertaken to influence exchange rates, or were such influences solely a byproduct of some other primary purpose (as in the case of quantitative easing)? The requirement to demonstrate intent to devalue competitively under current IMF doctrine has enabled countries to defend clearly manipulative actions in the knowledge that no mechanisms exist to override their assertions. This problem underscores the need for objective indicators, such as reserve increases and direct intervention, along with current account surpluses, as triggers for action.

As for the decision-making process through which these concepts would be implemented, traditional practice in both the WTO and existing FTAs provides clear guideposts:

- An aggrieved country requests consultation with the alleged violator of the rules, and a major effort is made to reach a mutually satisfactory voluntary solution.
- Failing agreement in the consultations within 90 days (or some other tight time limit), a panel with the relevant expertise is chosen (from a contingent list) to recommend a solution within another tight time limit (another 90 days).
- A country found to have violated the rules and failed to accept the recommended solution within another tight time limit is subject to the penalty phase, in which a separate compliance panel (perhaps comprising the same experts) authorizes countermeasures.
- That panel monitors the situation, taking into account the expected lagged effects of previous exchange rate changes in eliminating the excessive current account surpluses, and calls for termination of retaliation when the cause of the problem (those surpluses or the manipulation) ceases.

The central question is what enforcement mechanisms could be included to make the agreement work and ensure its credibility; the absence of such mechanisms has been a cardinal flaw of the IMF system throughout its existence and a chief source of congressional criticism. Five types of measures are possible: withdrawal of concessions made in the FTA itself, imposition of import surcharges, imposition of countervailing duties, monetary penalties (fines), and countervailing currency intervention. Gradation of each measure is possible, with modest penalties subsequently adjusted in accordance with the seriousness or extent of the violation.

The usual technique for withdrawing concessions in an FTA is the “snapback clause,” under which tariffs are returned to the pre-FTA level (usually the most favored nation [MFN] rate) for “breach of the agreement.” Snapbacks are typically applied on a product-specific basis, to counter violations in a particular sector, but they could be installed across the board in the case of currency violations. It would also be possible to apply the snapback concept to concessions other than tariffs, as in a current WTO case in which Brazil has been authorized to withdraw some of its commitments regarding intellectual property rights if the United States continues to violate the dispute settlement panel’s ruling on its cotton subsidies. The original concessions would be restored when the problem was corrected.

More extensive retaliation can be envisaged, including the imposition of countervailing duties if currency manipulation is deemed a countervailing subsidy like any other. Given the modest level of most MFN tariffs in both the United States and many potential FTA partners, import surcharges could be authorized as well. Monetary penalties—like the ones NAFTA imposes for violation of its labor and environmental disciplines and through which the United States has compensated Brazil for US violation of WTO agricultural agreements in the cotton sector—could be added to the arsenal of potential measures.

A key problem with each of these options is the difficulty of calculating the amount of the currency undervaluation to provide a basis for determining the magnitude of the permitted retaliation. Because such calculations are fraught with both intellectual uncertainty and political sensitivity, they should be avoided if possible. The snapback approach should be used as the chief trade policy response to manipulation under an FTA.

This also means, however, that it would be highly desirable to add a monetary policy tool that would fight fire with fire. Such an approach would also overcome the problem that trade policy remedies like snapbacks curb only imports whereas currency manipulation also suppresses the aggrieved country’s exports (to global markets as well as to the manipulating country itself). An aggrieved country should be authorized to purchase the currency of the manipulating country in order to neutralize the impact of

that country’s own intervention in the foreign exchange markets upon a finding by the dispute settlement panel that manipulation was taking place. A clear indication by the United States that it was prepared to act on such authorizations should deter most if not all future manipulation efforts.

The US Treasury and the Federal Reserve could carry out such countervailing currency intervention (described in detail below) under current legislative authorities. Specific authorization for such a policy was also included (as “remedial currency intervention”) in the currency bill passed by the Senate (but not taken up by the House) in 2011. Including such a provision in FTAs would be a straightforward and effective response to currency manipulation by parties to the FTAs. Lodging implementation of this key sanction in finance ministries and central banks should assuage most of the institutional concerns that normally make it difficult to address the problem through trade agreements.

We recommend that, as the centerpiece of its new currency policy, the United States announce that it will henceforth apply countervailing currency intervention unilaterally against any systemically important (i.e., G-20) country that violates the three criteria just indicated: excessive reserves, excessive current account surpluses, and persistent one-sided intervention in the foreign exchange markets. Such a threat should deter all, or virtually all, major manipulation in the future.

The United States should also seek to include countervailing currency intervention in its future FTAs, for three reasons:

- It could then use the instrument against countries that are outside the G-20 and thus of less systemic importance, as part of the *quid pro quo* for granting them additional access to the US market via the FTA.
- Including them would put the US administration in a much stronger position with Congress in seeking its approval for any new agreement, which may be necessary to restore an active US trade policy.
- As parties to both the initial agreement to authorize countervailing currency intervention and the dispute settlement mechanism under which it would be implemented, the partners in the FTA would be given significant voice in determining US currency policy, which would otherwise be carried out on a purely unilateral basis.

This part of the argument deserves elaboration. Our FTA proposal is premised on a new US readiness to apply countervailing currency intervention unilaterally when necessary to counter foreign manipulation by other major world economies (including China, Japan, and Korea). This readiness would have the consequence, however, of leaving uncovered smaller countries—some of which, such as Malaysia and Singapore, are not so small and have been active manipulators in the past. It would be hard to justify

not covering countries that were about to receive new access to the US market, such as partners in pending FTAs. But they should have a role in determining both the list of remedies that would be applied to future cases of manipulation and the decision-making process that would apply those remedies in specific cases.

It might prove impossible to agree on binding and comprehensive rules subject to an effective dispute settlement mechanism and consequent sanctions. Compromises might be needed on such matters as the ambition of the rules, the degree to which they become legal commitments, the rigor of the dispute settlement mechanism, and the severity of the sanctions against offenders. Tradeoffs among such variables are likely in any FTA negotiations.

The most plausible wiggle room lies in the ambitiousness of the criteria that would trigger action. The term *excessive*, as applied to levels of reserves and intervention as well as current account surpluses, could be set high enough that only the most egregious violators would be caught.

Another possible avenue of compromise relates to the interaction of the obligations binding the participants and the methodology through which they are implemented. Countries wishing to limit their risk of exposure will want to trade off “soft” obligations against “hard” dispute settlement provisions or vice versa. For example, the indicators of violations of the agreed currency obligations could become “presumptions” or even “illustrations,” including in side agreements, rather than legally binding commitments. The adjudicatory panels could be limited to recommendations to a politically constructed final arbiter rather than binding protocols, as is the case with dispute settlement mechanisms in some existing FTAs. It is perfectly plausible to set up and finely tune a separate dispute settlement mechanism for the currency chapter (or side agreement) as part of the overall negotiation of the issue.

Trade policy responses to the currency problem are decidedly inferior to monetary policy responses. Inclusion of currency issues in FTAs could not be the centerpiece of a new US currency policy, if only because even the broadest possible US trade agreements include only a subset of US trading partners and exclude some of the most important previous manipulators. Including them could, however, bring a degree of international participation into the policy framework, and might be essential to winning domestic political support for any future FTAs that include the United States.

Changes in Fiscal Policy

Fiscal policy has a large impact on current account positions when financial markets are fully open (see table 2.1). It is properly targeted at much broader

economic objectives than countering currency manipulation (growth, full employment, intergenerational equity), however. If the US current account deficit again became a major concern in the context of an overheating economy, there would be a case for considering fiscal tightening. But the US economy is not likely to reach such a position in the next few years, unless the Trump administration goes overboard with its plans for large tax cuts, infrastructure investment, and increases in defense spending.

Changes in Monetary Policy

Monetary policy is usually the main driver of exchange rates in the short run. Some countries deploy it at least occasionally for that purpose. However, changes in monetary policy do not have much net impact on current account balances (the target variable), because their effects on domestic spending and imports largely or even fully offset their currency impact. Monetary policy is therefore not an efficient tool for achieving external adjustment. Moreover, at least in the large industrial countries, monetary policy predominantly targets aggregate economic objectives, notably price stability but also (in some countries) full employment and growth.

The exchange rate is a channel of monetary policy impact; indeed, the Federal Reserve held back its intended normalization of US monetary policy throughout much of 2016 in large part because of the strength of the dollar. In the United States and other large, relatively closed economies (including the euro area, Japan, and probably China), however, the exchange rate is secondary to normal domestic channels. Moreover, the independence of the Fed means that monetary policy could not be part of any US administration's effort to wage or respond to currency conflict and should not be viewed as such around the world.

Monetary policy should not seek to achieve current account or exchange rate objectives.¹¹ It would not be desirable for it to do so, even if the administration could persuade the Federal Reserve to join a comprehensive currency strategy. Using monetary policy in this way would almost certainly spawn enormous criticism of the United States and trigger or escalate, rather than help counter, concerns about “currency wars.”¹²

11. The Federal Reserve is traditionally an equal partner with the Treasury Department in providing resources for the conduct of foreign exchange intervention by the United States and is the operating agent in carrying out such intervention. As indicated in the next section, however, US intervention is always sterilized, so this function in no way compromises the independence of the Federal Reserve in conducting monetary policy.

12. The Federal Reserve raised its discount rate by a full percentage point, which was unprecedented at the time, as part of the dollar defense program unveiled by the Carter administra-

Countervailing currency intervention is a simple concept. The European Central Bank, for example, could buy as many Swiss francs against euros as the Swiss National Bank sold against euros. Doing so would neutralize any impact of the Swiss intervention on the exchange rate between the two currencies. Execution of such a policy, or probably even an indication that it would be executed, should deter the Swiss National Bank from attempting to influence the rate. Any countervailing intervention that had to be carried out would be sterilized by the countervailing central bank to avoid disrupting its monetary policy.

Retaliation against currency manipulation would be based on the criteria outlined above or the slightly modified set of criteria contained in the Trade Facilitation and Trade Enforcement Act of 2015. Such retaliation would be far superior to the usual alternative of emulation. Countries in Asia, such as Malaysia and Thailand, frequently felt compelled to intervene against the dollar along with China to avoid losing competitive position to it. Countries elsewhere that were adversely affected by China's competitive undervaluation, such as Brazil, felt compelled to buy dollars to keep their currencies from rising (and to take other defensive actions, including imposing capital inflow controls and new import restrictions). One result was further appreciation (or nondepreciation) of the dollar and thus additional adverse effects on the competitive position of the United States. It would be far better for these countries, and for the system as a whole, if the initial currency manipulation were instead countered directly. Instead of emulating China by buying dollars to hold their currencies down, Brazil and Malaysia would be better advised to counter China's policy of holding the renminbi down by buying renminbi to push it up.

Most of China's own intervention takes place against the dollar, however. Moreover, the cross-currency real-renminbi and ringgit-renminbi markets are thin, and smaller countries would be hesitant to respond to China in this manner in any event. It would be far more efficient systematically, and far more realistic in both market and political terms, for the United States to carry out the bulk of the countervailing currency intervention, ideally with some parallel efforts by the European Central Bank and perhaps Japan.

Countervailing import duties are a standard tool of trade policy for countering export subsidies. Countervailing currency intervention would be a parallel instrument on the monetary side. During the Tokyo Round

tion in late 1978. Other countries universally applauded the move, which many of them had called for to fight inflation in the United States.

of the GATT, an Agreement on Subsidies and Countervailing Measures (ASCM) was negotiated to provide multilateral rules for the implementation of countervailing duties. The IMF should encourage countries to carry out countervailing currency intervention under clear procedural safeguards like the WTO rules on countervailing duties. Even without agreed IMF action, countervailing currency intervention by the United States would be multilateralized de facto, because countries against which it counterintervened could charge it with competitive undervaluation under the existing IMF Articles if they thought they could make that case (the charge would be very difficult to sustain as long as the US intervention was countervailing against a country that violated the objective criteria).

Countervailing currency intervention raises five practical questions. First, are there enough assets denominated in the currency of the manipulating country to enable the aggrieved country to fully offset the manipulation? The answer is unambiguously positive in the case of manipulators that have large and open financial markets of their own, which excludes a few smaller economies but now includes all the major manipulators.

Until recently, China forbade foreign purchases of its bonds and foreign deposits in its banks except by special arrangements. It now allows the issuance of renminbi bonds in Hong Kong and has fully opened its domestic bond market. The obligations accepted by China to win inclusion of the renminbi in the Special Drawing Rights (SDR) basket at the IMF strongly suggest that this liberalization will continue. Countervailing currency intervention thus can now have the full desired impact in directly influencing any resumption of China's currency manipulation.¹³

Second, would the aggrieved countries be taking an unacceptable financial risk by buying currencies of the manipulators? By definition they would be buying currencies they thought were substantially undervalued, so they should make a hefty profit (as the United States would have had it bought renminbi in line with our recommendation at the peak of its undervaluation in the mid-2000s, as described in box 5.2). In addition, the securities of most manipulator economies pay higher interest rates than those in the United States now and for the foreseeable future. The currency countervailers could, of course, miscalculate, or the situation of the current manipulator could change over time. Moreover, one cannot rule out the

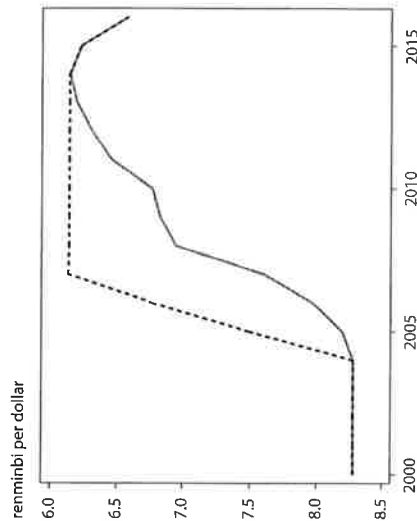
13. Substantial countervailing currency intervention against China might provoke China to reimpose restrictions on bond purchases. Capital controls are available to all countries, and there is evidence that China tightened its limits on outflows during 2016 to counter capital flight and downward pressure on the renminbi, as discussed in the next section. But such a step would be awkward, to say the least, given China's strong push to make the renminbi an international reserve currency.

Box 5.2 Would countervailing currency intervention by the United States against China in 2005 have made sense?

Suppose that the United States had announced—and, if necessary, implemented—a credible policy of countervailing currency intervention in 2005, when China announced that it would let the renminbi appreciate gradually but simultaneously intensified its heavy intervention to keep the renminbi from rising very much. Would China have been deterred, in whole or in part? What would have happened to the renminbi? Would the operation have been profitable for the United States?

A credible US announcement of countervailing currency intervention would probably have deterred China from seeking to maintain its substantial undervaluation, which contemporary estimates placed at 30 to 40 percent (Goldstein 2004; Goldstein and Lardy 2008). Those estimates are validated by the actual appreciation of 35 percent that took the renminbi to its recent peak in mid-2015. The Chinese might have argued, however, that a rapid one-time appreciation of 30 to 40 percent would have been too disruptive for their economy and might even have thrown it into recession; it is thus plausible that they would have been “permitted” to “lean against the wind” to pro-rate the actual correction to something like 10 percent annually for three years.

Figure B5.2.1 Historical and hypothetical Chinese exchange rates, 2000–16



Note: The solid line is actual exchange rate and dotted line is hypothetical exchange rate.

Sources: IMF, *World Economic Outlook* database; and authors' calculations.

Alternatively, suppose that China had proceeded undeterred and intervened in the amounts actually recorded for at least two or three years. Had the United States undertaken countervailing currency intervention equal to half of China's historical intervention for three years, the renminbi would have appreciated smoothly, reaching its 2014 peak in 2007 and remaining at that level through 2014 (figure B5.2.1). This policy would have prevented the large increase in

Box 5.2 Would countervailing currency intervention by the United States against China in 2005 have made sense? (continued)

China's current account surplus in 2006 and 2007, accelerated its decline thereafter, and reduced the US current account deficit by a substantial fraction of the change in China's surplus.

Over the three years from 2005 through 2007, the United States would have purchased \$582 billion worth of renminbi, financed by Treasury issuance of short-term debt at the US money market interest rate, with the proceeds invested in short-term Chinese government debt at the Chinese money market interest rate. By the end of 2016, the accumulated principal and interest on the countervailing currency intervention assets would have equaled \$864 billion at the November 2016 renminbi exchange rate and the accumulated principal and interest on the associated liabilities would have equaled \$636 billion, for a net profit of \$227 billion.

possibility that China would regard countervailing currency intervention by the United States as a provocative act against which it would retaliate financially (or even default), although such a possibility is unlikely.¹⁴

Third, would the use of dollars to buy the foreign currencies targeted by the countervailing currency intervention have any adverse impact on the US budget? The purchases would presumably be shared by the Treasury and the Federal Reserve, as has traditionally been the case with currency intervention. The Treasury would use the Exchange Stabilization Fund (ESF), whose authority would clearly permit it to conduct such intervention. ESF expenditures would not be treated as a budget outlay, because they would be matched by an equal volume of new assets (the foreign currencies that would be purchased). Although the higher interest rate earned on most foreign assets relative to Treasury's cost of borrowing might seem to make a positive contribution to the budget, established rules apply a zero budgetary effect to any exchange rate exposure associated with an asset swap.¹⁵ The Fed itself is not subject to budget limits.

14. The history of the United States on this issue is instructive. During the 1960s, when the United States was desperately trying to allay foreign fears of dollar devaluation, it offered large volumes of Roosa bonds (named after the undersecretary of the Treasury at that time), through which it tried to convince surplus countries not to convert their dollars into gold by guaranteeing the value of those dollars in terms of the holders' own currencies. After the substantial dollar devaluations of the 1970s, the United States eventually took large losses on the redemption of those bonds. Had it instead sought dollar depreciation by buying those currencies, it would have made large profits.

15. See, for example, the Congressional Budget Office's treatment of US holdings of SDRs at the IMF (CBO 2016).

Countervailing currency intervention could proceed with the existing ESF of about \$100 billion and presumably a matching \$100 billion from the Fed.¹⁶ It would be desirable to augment these amounts to ensure the credibility of the new policy, however, and any larger operation would require congressional action to authorize additional ESF borrowing. Market sources should be consulted to assess the level of resources that should be obtained by the authorities for these purposes. We suspect that it would run on the order of \$1 trillion, so the ESF should seek borrowing authority of \$500 billion and the Fed should be asked to provide an equal amount. Any borrowing actually required by the ESF to conduct large-scale intervention would count against the debt ceiling but not against budget authority; hence it would not add to the budget deficit.

Fourth, against whom might countervailing currency intervention be deployed? The analysis in chapter 4 shows that 20 surplus economies intervened to limit the appreciation of their currencies during the “decade of manipulation.” Should the United States seek to counter all economies that might implement such policies in the future?

The goal of US currency policy in general, and countervailing currency intervention in particular, should be to deter manipulation by systemically important countries. Smaller economies that do not have far-reaching international effects are not an important concern. Moreover, many of the smaller manipulators conducted those policies at least partly to defend themselves against the larger manipulators and would probably desist if the latter did so.

Hence we recommend that any future US policy of countervailing currency intervention be limited to members of the G-20, a reasonable proxy for systemic importance (along with members of US FTAs per section above). Doing so would exclude some economies that have manipulated significantly in the past (including Hong Kong, Malaysia, Taiwan, and Switzerland), but none of them has had important systemic effects, and the first three were influenced by China’s behavior. The United States could always broaden the scope if any of them began to loom large in terms of economic impact and political concerns in this country.¹⁷

16. The ESF can swap the foreign exchange it acquires to the Fed to acquire dollars to temporarily finance further operations (Henning 2008).

17. The Trade Facilitation and Trade Enforcement Act of 2015 also limits the applicability of its currency sanctions by requiring that target countries be “major trading partners of the United States,” which the Treasury Department interpreted in 2016 to mean economies with which the United States had bilateral trade (exports plus imports) of more than \$55 billion. This group includes only a dozen economies—a smaller and slightly different list from the G-20.

Fifth, how much actual countervailing currency intervention might be required if competitive intervention by other countries were to resume on anything like the scale of the “decade of manipulation”? Our best guess is that the number is approximately zero if the ESF had enough borrowing authority to be fully credible. If the United States made clear that it could and would respond in kind to any competitive nonappreciation, no matter how large, it seems highly unlikely that even the largest potential manipulators would proceed, especially in light of the new Trade Facilitation and Trade Enforcement Act of 2015 authorities (ideally augmented, as suggested below) and the lurking threat of further action (including by Congress) on trade policy. If they did, private investors would presumably move against them along with, or even in anticipation of, official US counterintervention, helping limit the resources the US authorities would have to deploy. The United States might have to fire off a few salvos to demonstrate its resolve and establish its credibility, but far-reaching tests seem improbable. The best deterrent is one that never needs to be used; countervailing currency intervention quite likely falls into that category if threatened intervention is large enough that no one dares test it.

Large-scale countervailing currency intervention by the United States would shatter the longstanding conventional view of the dollar as the unique and passive “*n*th currency” in the global system. It need not reduce the attractiveness of the dollar for international invoicing and investing, however, as long as the Federal Reserve maintains its credibility in ensuring domestic price stability.

Countervailing currency intervention would in fact be a logical extension of actions the United States has taken for many decades when it concluded that dollar overvaluation had become too costly. It broke the link with gold and applied an import surcharge in 1971. It pushed very hard to get its chief allies to adopt the locomotive strategy at the Bonn summit of 1978. It initiated the Plaza Agreement in 1985. It pushed Japan hard throughout the early 1990s and China over the past decade to permit substantial appreciation of their currencies. It bought yen in 1998 and euros in 2000 when it was clear that these currencies had become too weak.¹⁸

Adoption of countervailing currency intervention would be a further, and more orderly, step in that direction. To allay concerns that the United States was going unilateral, however, it should simultaneously propose changes in the practices of the IMF that would explicitly encourage the practice. It should not wait for those changes to be adopted, however, before announcing the new policy and deploying it as needed.

18. A useful history of US intervention can be found in Bordo, Humpage, and Schwartz (2015).

An alternative tactic would be to simply start conducting such intervention without any announcement. The “just do it” option would have the advantage of leaving the administration more flexibility in carrying out the policy, which might be especially valuable if Congress did not provide the additional borrowing authority needed for the ESF to become fully credible. However, the traditional (and proper) US focus on transparency, plus the need for full congressional buy-in if the policy is to work in the long run, argue for the more straightforward and powerful technique of preparing and then announcing the policy, as discussed in chapter 6.

Imposition of Capital Controls

Another option is to restrict or tax purchases of US assets by currency manipulators. This tool could be used against any manipulator. It would avoid the risk engendered by countervailing currency intervention of holding sovereign bonds and other assets in countries with uncertain future policy regimes. This option would provide only partial deterrence, however, because manipulators could intervene in a currency other than the dollar (especially the euro) and/or invest the proceeds of that intervention in another currency. The dollar’s dominant role in international financial markets, however, makes it hard for a large manipulator to avoid investing in dollar assets altogether.

Under the International Emergency Economic Powers Act (IEEPA), the president of the United States has broad authority to restrict foreign ownership of US assets in cases of “unusual and extraordinary threat, which has its source in whole or substantial part outside the United States, to the economy of the United States.” These powers have been used to good effect against terrorist organizations and the countries that sponsor them, such as Iran. US and foreign financial institutions are required to assist in enforcement of such restrictions by ensuring that targeted governments and institutions do not hide behind third parties.

A variant of this approach would be to remove the exemption on withholding taxes for US financial assets owned by the governments or government-controlled entities of currency manipulators (Gagnon and Hufbauer 2011). Alternatively, the United States could impose a transaction tax or a “market access charge” on new purchases of US assets by currency manipulators, as Brazil does on purchases of certain assets by all foreign residents.¹⁹ For countries with which it has a tax treaty, including China, the United States might have to provide advance notice, and Congress might

have to change some elements of the tax code. These requirements make these policy options less flexible than some other options, but they could still send a strong signal to manipulators, although in a world of multiple reserve currencies manipulators, particularly smaller manipulators, could avoid the dollar.

Some observers argue that it is not in the interest of the US government to restrict or tax purchases of US bonds, because doing so could raise the market-clearing rate of interest on them, perhaps in a disruptive manner. This argument ignores the role of the Federal Reserve in setting interest rates as needed to keep the US economy growing steadily with low inflation. The primary effect of restricting or taxing foreign purchases of US assets would be to reduce the value of the dollar in terms of foreign currency—precisely what is desired to counter manipulation. Should the boost to the US economy from a cheaper dollar threaten to raise inflation above its desired rate, the Fed would need to raise interest rates, but such an outcome would be encouraging. It is possible that the Fed would not calibrate its response appropriately, but this risk is present in Fed responses to all economic developments. The more important cost is probably that the invocation of capital controls by the United States could throw financial business to other currencies and countries.

Currency manipulation is the official purchase of another country’s financial assets. Any action that stops currency manipulation will reduce foreign government purchases of US financial assets, including US Treasury securities. For several months from mid-2011 through early 2012, and again since the middle of 2015, China ceased its net purchases of US Treasury securities and became a net seller. There was no discernible effect on US interest rates.

Capital controls run counter to traditional US principles and policy, especially the untrammelled international use of the dollar, although weak versions of them (the interest equalization tax, voluntary limits on short-term outflows) were deployed to defend the dollar in the 1960s. A major cost of selective capital controls targeted at manipulators is the administrative cost of enforcing them, including costs borne by US and foreign financial institutions. A major drawback is the fact that controls cannot be turned on and off quickly. Countervailing currency intervention is a much more flexible and direct approach to countering manipulation.

Imposition of Unilateral Import Controls

The financial policy options for responding to currency manipulation are nondistortionary across sectors, consistent with international law, and much more effective than the trade policy options. If those strategies are

19. For a discussion of the market access charge, see John Hansen, “How the MAC Would Help Restore American Manufacturing,” at abcdnow.blogspot.com, May 25, 2016.

deemed undesirable or infeasible, however, trade policy alternatives may need to be considered. Trade policy measures could also be useful supplements to the preferred financial alternatives.

We have already considered the multilateral route for adopting trade policy responses to currency manipulation by mobilizing the WTO (along with the IMF, which would also have to be involved in such a strategy) to authorize import surcharges or countervailing duties. Here we elaborate on two trade policy devices that the United States could use unilaterally.

Exchange rates that are undervalued artificially make exports less expensive and imports more expensive than they would otherwise be. They thus represent a subsidy to exporters and to firms that compete with imports. When an exchange rate is undervalued because of intervention by a foreign government rather than market forces, countervailing intervention is justified. Indeed, the "theory of the second best" suggests that intervention by government B is *required* to counter intervention by government A to achieve an outcome as nearly equivalent as possible to a market result unfettered by governmental involvement.

Unfortunately, legal structures do not always accurately reflect economic principles, at both the national and international levels. The US Commerce Department, for example, has traditionally taken the view that its authorizing statute does not permit it to treat currency misalignments as subsidies subject to countervailing duties, even if they are clearly the result of currency manipulation. The ASCM contains a series of criteria that, although they have never been tested for currency misalignments, might or (more likely, according to Hufbauer, Wong, and Sheth 2006) might not pass muster.

Both legal structures could be tested and might prove more responsive than conventionally believed. In addition, the United States could immediately change its domestic situation. A president or secretary of commerce could simply reinterpret current law and authorize countervailing duties against currency manipulation, defending that revised interpretation in both domestic and international (WTO) court against the inevitable challenges.²⁰

Congress could also amend current trade law to specifically authorize such action. Such was the central thrust of a bill that passed the House of Representatives in 2010, a bill that passed the Senate in 2011, and the Schumer Amendment that was included in the Senate version of the Trade

20. Some proposals would apply countervailing duties against all exports that benefit from undervalued currencies, whether that undervaluation was caused by manipulation by a country's authorities or by market forces. Their use should be limited to the former case since market forces do not represent a government subsidy.

Facilitation and Trade Enforcement Act of 2015 (the "customs bill") but dropped in the conference committee with the House.

Countervailing duties offer a sector-specific, microeconomic response to the across-the-board, macroeconomic problem of currency manipulation. Countervailing duties now in force in the United States cover only \$39 billion of imports, a tiny share of total imports of about \$3 trillion, although many countervailing duties completely block imports, so it is impossible to gauge their full impact. Coverage would probably remain modest even if manipulation became an eligible criterion, because, as with any countervailing duties, petitioning firms or industries would have to demonstrate that they were injured by the imports and incur the sizable cost of bringing a case. (The US government can also self-initiate cases.) Moreover, the countervailing duty process has on occasion been captured by rent-seeking industries with clever lawyers. Hence they are less than an ideal solution (Bown 2016).

Countervailing duties would offer a remedy to industries and firms that were most adversely affected by manipulation (and could prove that they were injured as a result). Their adoption, ideally by other importing countries as well as the United States, would send a signal that manipulation would no longer be costless to the perpetrators' economies and their relations with key trading partners. Such duties could constitute one part of a comprehensive policy package that sought to persuade manipulators to cease and desist.

A much larger trade response would be the imposition of import surcharges covering all or most imports against countries deemed to be currency manipulators. Such measures would still apply to only half the trade account, however; they would have no direct bearing on US exports to those countries or to US exports to third countries that are adversely affected by the currency manipulation.

The United States applied a surcharge of 10 percent on its durable imports (about half of total imports) for four months in 1971, as part of the "New Economic Policy" announced by President Nixon in August of that year that imposed wage-price controls and ended the convertibility of dollars into gold for foreign monetary authorities.²¹ Secretary of the Treasury John Connally reportedly wanted to leave the surcharge in place for at least another year, through the elections of 1972, because it was so popular domestically, but its goal and main benefit were to prod the Europeans and Japan to agree to the initial postwar devaluation of the dollar. Such an ag-

21. Temporary import surcharges were also adopted by Canada in 1962, the United Kingdom in 1964–66, and France (very briefly) in 1968.

gressive measure would have the similar purpose today of inducing manipulators to cease manipulating and let their currencies appreciate.

There appears to be ample domestic legal authority for a president to apply an import surcharge (Hufbauer 2016). After the Nixon surcharge in 1971, Congress included in the Trade Act of 1974 authority for imposition of a surcharge of up to 15 percent for a maximum of 150 days. After that period, the president could invoke Section 201 of the Act as a basis for retaliation against a currency manipulator. In extremis he or she could also use the powers provided by IEEPA or even the Trading with the Enemy Act of 1917.

Import surcharges are legal under the international rules of the WTO, but only for a country that has a major balance-of-payments problem, as certified by the IMF. The United States has run persistent current account deficits for more than 30 years, but the dollar has appreciated steadily since 2011, indicating that the overall balance of payments is strong. It is highly doubtful that the IMF would deem the United States eligible to apply an import surcharge under the WTO.

In addition, under WTO rules any such surcharge must be applied equally against all of a country's trading partners, as the United States largely did in 1971, on the cardinal nondiscrimination principle of the global trading system; there is no provision for applying a surcharge against an individual country or group of countries. Targeted countries would clearly be within their rights to retaliate against the United States (and any other surcharge appliers), and at least some, including China, could be expected to do so. This option would thus escalate both the "currency war" and "trade war" rhetoric and reality and would be especially risky as long as the world economy and international economic cooperation remain fragile.

An import surcharge might become legal if the United States and any allies could demonstrate that currency manipulators were violating their own obligations under Article XV (4) of the WTO not to "by exchange action, frustrate the intent of the provisions of the Agreement." The coalition could attempt to seize the moral high ground on the issue by taking manipulators to the WTO at the same time they applied any unilateral controls (or await its decision before applying any retaliatory across-the-board trade actions).

Quantitatively, these trade policy options range from very modest (countervailing duties on a case-by-case basis) to potentially quite substantial (across-the-board import surcharges). Procedurally, they range from reactive (countervailing action and import surcharges) to preventative (chapters in new trade compacts). Legally, they could be implemented unilaterally with full recognition that they are incompatible with international law (import surcharges against specific currency violators); imple-

mented unilaterally but based on the premise that they are justifiable under WTO rules (surcharges under an Article XV case); or positioned for possible future implementation by writing new international rules (in new trade agreements or by amending the current WTO provisions on countervailing duties under the ASCM). Combinations of these alternative approaches are also possible, especially over longer periods.

In sum, trade policy can play a supportive role in fashioning a strategy to address both the immediate economic and political, and the structural systemic, dimensions of the currency manipulation problem. Multilateral remedies are highly preferable to unilateral actions. Hence we recommend that the United States and its allies bring WTO cases against future manipulators. Winning the cases would strengthen their hands enormously in prosecuting all other remedies and would, in a second WTO step, determine permissible remedial action, adding to the arsenal of policy instruments available to them. Losing the cases would dramatize the need for reform of the WTO rules and place the issue on the agenda for either a future round or a stand-alone negotiation. Whatever the outcome, the United States (and its coalition) would have made every effort to use the existing rules and institutions and thus have demonstrated its fealty to the international system as well as to the pursuit of US national interests.

Efforts should also be made to include the manipulation issue in future trade agreements at all levels (multilateral, regional, and bilateral). Pursuit of these avenues would have the desirable side effect of breaking down the institutional barriers between monetary and trade policies, which would be beneficial in dealing with future issues when the two need to be related more effectively. Import surcharges should be eschewed, because of their flagrant violation of the international rules, unless authorized by the WTO under a successful appeal to Article XV.

Conclusion

The status quo produces a gaping hole at the heart of the global economic order in its failure to effectively address currency manipulation, the contemporary manifestation of the age-old problem of currency conflict. The bifurcation between the monetary and trading systems that so greatly exacerbates the problem must be overcome. The economic costs of inaction on this issue are extremely high, especially during a prolonged period of slow growth and high unemployment like the recent Great Recession. The domestic political reaction to these failures demonstrably contributes importantly to the backlash against open trade, and globalization more broadly, threatening an open US foreign economic policy and thus the global trading system.

Having considered the policy options, we turn finally to a summary of the main conclusions of our analysis and to a series of action recommendations. Our goal, as indicated at the outset, is to deter the risk of future currency conflict and the domestic political impact of continuing failure to address it effectively. We believe that goal is achievable and will now set out our proposals for doing so.

Conclusions and Recommendations

The Currency Problem

The threat of currency conflict represents a substantial risk to the world economy and to the United States. For most of the first 15 years of the 21st century, a number of countries, mostly but not solely emerging-market economies led by China, intervened excessively in the foreign exchange markets, by an average of more than \$600 billion annually to limit the rise of their currencies. This competitive nonappreciation produced substantial undervaluation of their exchange rates, greatly strengthening their competitive positions and generating large current account surpluses despite their rapid growth and its usual association with current account deficits. This manipulation shifted an annual average of \$300 billion of production to their own economies from the rest of the world, especially from the United States and Europe but also from a wide range of other countries—what Bhalla (2012) calls “stolen growth.” During and after the Great Recession, when macroeconomic policy was unable or unwilling to achieve full employment in the major advanced economies and some others, currency manipulation cost them several million jobs, including more than 1 million in the United States alone.

The currency conflicts of the early 21st century exposed two sources of unsustainability at the heart of the world economy. The first was the sharp rise in current account imbalances, which reached levels far in excess of any previously recorded. The surplus of China rose to almost 10 percent of its GDP, and the surpluses of other manipulators were even larger in cumulative dollar terms. The deficit of the United States escalated to a record 6