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# INTERNATIONAL LAW AND THE LIMITS OF MACROECONOMIC COOPERATION

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## ABSTRACT

*The macroeconomic policies of states can produce significant costs and benefits for other states, yet international macroeconomic cooperation has been one of the weakest areas of international law. We ask why states have had such trouble cooperating over macroeconomic issues when they have been relatively successful at cooperation over other economic matters such as international trade. We argue that although the theoretical benefits of macroeconomic cooperation are real, in practice it is difficult to sustain because optimal cooperative policies are often uncertain and time variant, making it exceedingly difficult to craft clear rules for cooperation in many areas. It also is often difficult or impossible to design credible self-enforcement mechanisms. Recent cooperation on bank capital standards, the history of exchange rate cooperation, the European monetary union, and the prospects for broader monetary and fiscal cooperation all are discussed. Finally, we contrast the reasons for successful cooperation on international trade policy.*

## I. INTRODUCTION

Recent events highlight a range of issues raised by uncoordinated national macroeconomic policies. The financial crisis of 2008 can be

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blamed in part on the failure of the Basel agreements to prevent banks in different countries from taking on excessive risk. The Basel agreements, which imposed uniform capital adequacy regulations on banks in different countries, were thought necessary to prevent national regulation from driving banks overseas, but countries failed to develop and implement sufficiently strict international rules. Then, in the midst of the financial crisis, central banks attempted to coordinate their rescues and even interest rate cuts. Large banks conduct operations across borders, thus, a central bank that rescues one bank may end up helping depositors who live in foreign countries, but central banks also may be tempted to undersupply such a public good unless they can cooperate with each other. Reports suggest that cooperation was at best ad hoc and incomplete. Finally, the Eurozone crisis has demonstrated anew what happens when governments fail to coordinate their macroeconomic policies. Here, the failure of European governments and institutions to prevent Greece from borrowing too much, and then their difficulty in coordinating a response to the sovereign debt crisis in Greece and other periphery countries, helped cause and sustain the financial crisis in Europe and plunged much of the continent into a deep recession.

These dramatic events from the last few years are only the latest manifestations of the limits of international macroeconomic cooperation. Countries have tried for decades to control fluctuations in exchange rates in the hope of reducing exchange rate risk faced by firms and stimulating international trade. While there have been some limited successes, countries have failed to find a lasting solution. In the late nineteenth and early twentieth centuries, the gold standard limited currency fluctuations among major trading nations, but countries left the gold standard during the Great Depression.<sup>1</sup> After World War II, western countries established the Bretton Wood system to manage exchange rates, but that system collapsed in 1973.<sup>2</sup> Since then, episodic attempts at ad hoc cooperation to address exchange rates have largely failed.<sup>3</sup> Monetary union in Europe was the most ambitious effort, but is now in disarray.

The failures and partial failures of international macroeconomic

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1. See BARRY EICHENGREEN, *GOLDEN FETTERS: THE GOLD STANDARD AND THE GREAT DEPRESSION, 1919–1939* 4–12, 21–26 (1992) (explaining why the gold standard succeeded and why it was eventually abandoned).

2. See PAUL R. KRUGMAN, MAURICE OBSTFELD & MARC J. MELITZ, *INTERNATIONAL ECONOMICS: THEORY AND POLICY* 518, 526–27 (9th ed. 2012) (outlining the rise and fall of the Bretton Wood system).

3. See, e.g., FREDERIC S. MISHKIN, *THE ECONOMICS OF MONEY, BANKING & FINANCIAL MARKETS* 476–77 (9th ed. 2010) (describing the European Monetary System implemented in 1979).

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cooperation can be contrasted with a major success in international law in a closely related field: international trade. Leaders at the end of World War II saw cooperation over exchange rates and cooperation over trade as parallel elements in a strategy of rebuilding and integrating the west. In the case of trade, countries built the General Agreement on Tariffs and Trade (“GATT”) system and then developed it further into the World Trade Organization (“WTO”), a sophisticated institution for coordinating trade policy and resolving disputes. Over several decades, the members of GATT and the WTO successfully eliminated many major trade barriers, including tariffs on goods. International trade boomed. Yet the Bretton Woods system, which also featured a major international institution in the International Monetary Fund (“IMF”), sputtered out in a few decades. Other forms of macroeconomic cooperation never got off the ground outside Europe.

In this Article, we ask a simple question: why has international cooperation on macroeconomic matters been so much less successful than cooperation on international trade? The answer is not obvious. Lowering trade barriers, controlling currency movements, regulating banks, and the like, are all aspects of modern economic regulation, and there is no a priori reason why the first should be easier than the others.

Our answer is based on the relationship between these goals and the nature of the decentralized cooperation that prevails among states. First, there is a great deal more academic consensus on the benefits of lowering trade barriers than on the benefits of the other activities. Second, the lowering of trade barriers lends itself to rule-based cooperation, while the other forms of cooperation cannot be reduced easily to simple rules. Rule-based cooperation is easier to maintain than cooperation that requires more fluid forms of behavior. Third, international trade cooperation is more amenable to self-enforcement than cooperation on macroeconomic issues.

## II. ECONOMIC FOUNDATIONS OF INTERNATIONAL LEGAL COOPERATION

In line with earlier work, we examine the topic of international macroeconomic cooperation from a rational choice perspective, in which we assume that states have well-defined interests and engage in cooperation to the extent that they can advance those interests and to the extent that cooperation can be made self-enforcing. International law is thus endogenous to the interests of the states rather than an exogenous

force that compels states to act contrary to their interests.<sup>4</sup>

A state's interest, of course, is derived from the interests of its component parts—citizens, interest groups, government institutions, and so forth. Some combination of these interests, we assume, will define the state's conception of "social welfare," and thus the objectives that the state pursues in any given policy area. Economists sometimes posit, for example, that states maximize aggregate national economic welfare, which corresponds roughly to the maximization of national income.<sup>5</sup> By this metric, the well-being of all producer and consumer interests affected by economic activity "counts" equally for policymakers. It is also common to suppose that states maximize a "political" welfare function in which various groups have different degrees of influence.<sup>6</sup> The differences in influence can result because some groups are well organized politically, or because specific groups are viewed as particularly deserving of state assistance (the poor, for example). In still other contexts, states may be imagined to pursue a welfare goal defined in relation to some subsidiary policy goal(s), such as a loss function embodying an inflation target and an output target.<sup>7</sup>

Whatever the welfare objective, it is commonplace in academic literature, and seemingly quite realistic in practice, to assume that states pursue the interests of their own citizens without as much (if any) regard for the well-being of foreigners. Opportunities for international cooperation—and thus for international law—thereby arise if the policies pursued by states acting unilaterally have positive and negative consequences for other states (externalities). When some activity or policy imposes negative externalities on other states (for example, cross border pollution), states acting unilaterally will tend to engage in too much of the activity, and states can benefit by agreeing to abate the negative externality. When an activity or policy imposes positive externalities on other states

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4. For the most recent statement of our approach, see ERIC A. POSNER & ALAN SYKES, *ECONOMIC FOUNDATIONS OF INTERNATIONAL LAW* 12–15 (2013).

5. See, e.g., Harry G. Johnson, *Optimum Tariffs and Retaliation*, 21 *REV. ECON. STUD.* 142, 142–43 (1953) (explaining that countries pursuing a definite social welfare policy by imposing a tariff will gain in one special case, even if other countries retaliate).

6. See, e.g., Kyle Bagwell & Robert W. Staiger, *An Economic Theory of GATT*, 89 *AM. ECON. REV.* 215, 216 (1999) (discussing the influence of political motivations on a government's determination of tariff policies); Gene M. Grossman & Elhanan Helpman, *Protection for Sale*, 84 *AM. ECON. REV.* 833, 848 (1994) (explaining that interest groups make political contributions as a means to influence government policy by creating power incentives for politicians that the groups' policies influence).

7. OLIVIER JEAN BLANCHARD & STANLEY FISCHER, *LECTURES ON MACROECONOMICS* 567–69 (1989).

(such as conservation of biodiversity), states acting unilaterally will tend to engage in too little of the activity, and can benefit by agreeing to increase it.<sup>8</sup>

Cooperation can arise in different ways. The most straightforward is through formal treaties among the affected states. In other areas, states may informally converge on customary behavior that reflects a useful form of cooperation (customary international law).<sup>9</sup> In still other situations, informal promises and handshakes among public officials may be all that is necessary (soft law).<sup>10</sup> As we proceed through the issues in this paper, we will see that each type of “law” has played some role in the macroeconomic arena.

For cooperation of any sort to emerge, however, all cooperating states must benefit from it. The requirement that states be better off by cooperating rather than by opting out and pursuing their best unilateral alternative may be termed the “participation constraint.”<sup>11</sup>

In addition, international cooperation is possible only when it is “self-enforcing.”<sup>12</sup> International law has no third party enforcer akin to a court or sheriff with the ability to seize assets or lock up violators. With rare exceptions, the failure of a state to abide by international law is not unpunished or sanctioned by force. Instead, cooperation is almost always sustained by mutual threats of defection from the regime (or another, linked regime)—an implicit threat that if one state cheats, others will do the same and the benefits of cooperation will be lost.<sup>13</sup>

For cooperation to be sustainable through such self-enforcement strategies, each country must gain more, at each point in time, by continuing to cooperate than by “cheating.” Cooperation, thus, is easier when the long-term benefits of cooperation are greater and the short-term gains from cheating are smaller. Relatedly, cooperation is easier when states value the future relatively highly (they have a low “discount rate”). It is also easier when cheating is detected easily and the rules governing cooperation are clear. It is harder when the rules are vague or complex and cheating may be harder to identify. Finally, cooperation may become unstable because of “shocks”—changes in circumstances that increase the

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8. POSNER & SYKES, *supra* note 4, at 19–20.

9. *Id.* at 50–54.

10. For a lengthy treatment of the role of soft law in international financial regulation, see generally CHRIS BRUMMER, *SOFT LAW AND THE GLOBAL FINANCIAL SYSTEM* (2012).

11. POSNER & SYKES, *supra* note 4, at 21, 52–53.

12. *Id.* at 127.

13. *Id.* at 52–53, 79–80, 127–28.

returns to short term cheating or reduce the benefits of long-term cooperation.<sup>14</sup> We will have much more to say about such matters in later sections.

### III. A SUCCESSFUL COOPERATIVE REGIME: INTERNATIONAL TRADE

#### A. BACKGROUND

The WTO, successor to GATT, has 159 members at this writing.<sup>15</sup> Since the formation of GATT in 1947, international trade in goods and services has exploded, growing considerably more rapidly than global output. From 1948 to 1998, trade in goods increased by 6 percent per year in real terms, while global output increased by 3.9 percent per year.<sup>16</sup> This growth of international commerce is widely attributable to the WTO/GATT system's reduction in barriers to international trade.<sup>17</sup> Average tariff rates on dutiable imports have declined in developed countries, for example, from an average of 40 percent or so at the founding of GATT to 5 percent or less today.<sup>18</sup> Over the same period, the membership of WTO/GATT has grown steadily, as have the scope of the legal commitments undertaken by its members.

With a few minor bumps in the road, the liberalization of trade since the founding of GATT has steadily increased, with each successive negotiating "round" bringing about further tariff cuts and additional liberalization commitments on matters such as nontariff barriers and trade in services. By contrast, the era prior to GATT was characterized by waves of protectionism, such as the Smoot-Hawley Tariff of 1930 in the United States, which substantially raised U.S. tariffs and precipitated a round of

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14. See *id.* at 25 (discussing renegotiation, modification, and efficient breaches in the context of treaties).

15. *Members and Observers*, WORLD TRADE ORG. (Mar. 2, 2013), [http://www.wto.org/english/thewto\\_e/whatis\\_e/tif\\_e/org6\\_e.htm](http://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm).

16. *Growth, Jobs, Development and Better International Relations: How Trade and the Multilateral Trading System Help*, WORLD TRADE ORG., [http://www.wto.org/english/thewto\\_e/minist\\_e/min99\\_e/english/book\\_e/stak\\_e\\_3.htm](http://www.wto.org/english/thewto_e/minist_e/min99_e/english/book_e/stak_e_3.htm) (last visited May 27, 2013).

17. One scholar attempted to show statistically that the law in fact did not cause the reduction in trade barriers, which occurred independently. Andrew K. Rose, *Do We Really Know That the WTO Increases Trade?*, 94 AM. ECON. REV. 98, 98 (2004). However, the scholar's empirical method has been persuasively debunked. Michael Tomz, Judith L. Goldstein & Douglas Rivers, *Do We Really Know that the WTO Increases Trade? Comment*, 97 AM. ECON. REV. 2005, 2016–17 (2007).

18. JOHN H. JACKSON, WILLIAM J. DAVEY & ALAN O. SYKES, JR., *LEGAL PROBLEMS OF INTERNATIONAL ECONOMIC RELATIONS* 5–6 note (5th ed. 2008) (Table 1.1).

stiff retaliatory increases abroad.<sup>19</sup>

By almost any account, therefore, multilateral cooperation on international trade since the founding of GATT has been remarkably successful.<sup>20</sup> In this section, we detail the basic logic of its economic structure, and suggest why international trade is an issue area that is particularly suited to stable international cooperation. It will serve as a nice contrast to the macroeconomic policy areas that we discuss in later sections.

#### B. THE GAINS FROM COOPERATION ON TRADE POLICY

The economic structure of international trade agreements has received a great deal of attention from prominent international economists. Chicago economist Harry Johnson wrote the seminal early paper on this topic, considering the strategic interaction between two countries, each large enough to influence the prices foreign exporters receive for their exports (the “large country” assumption).<sup>21</sup> Johnson posited that each nation maximized its national income and observed that large countries could enhance their national incomes by imposing positive tariffs, taking the behavior of the other nation to be fixed (the Nash equilibrium assumption).<sup>22</sup> In response to a tariff increase, foreign exporters will cut their prices somewhat as demand for their exports weakens. Thus, foreigners absorb part of the tariff, and the tariff revenue thus arises in part at the expense of foreigners, who do not “count” in the national income calculus, and whose income loss, thus, is ignored by a national income maximizing government. Johnson proved that in Nash equilibrium, each nation would charge a positive, optimal tariff.<sup>23</sup> Another way to understand Johnson’s result is that the consumers of any large country collectively have a degree of “monopsony” power over the price of imports. The

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19. *Id.* at 5. See KRUGMAN, OBSTFELD & MELITZ, *supra* note 2, at 516–17 (explaining the Smoot-Hawley Tariff of 1930 and subsequent national protectionism).

20. Whether global cooperation can achieve further liberalization, however, is unclear. In recent years, much of the negotiating action has shifted into various preferential trading arrangements such as free trade areas, which are permitted under GATT Article XXIV. As of this writing, protectionist sentiment and actions by countries seem to be gaining ground. See e.g., Pascal Lamy, Director-General, World Trade Org., Speech at Thai Chamber of Commerce, *Lamy Cautions over Protectionism*, WORLD TRADE ORG. (May 30, 2012), [http://www.wto.org/english/news\\_e/sppl\\_e/sppl232\\_e.htm](http://www.wto.org/english/news_e/sppl_e/sppl232_e.htm) (discussing the rise of protectionism); Reuters, *IMF’s Lagarde Urges Caution Over Protectionism*, CHI. TRIB. (July 9, 2012), [http://articles.chicagotribune.com/2012-07-09/business/sns-rt-us-indonesia-lagardebre86903f-20120709\\_1\\_imf-s-lagarde-protectionism-caution](http://articles.chicagotribune.com/2012-07-09/business/sns-rt-us-indonesia-lagardebre86903f-20120709_1_imf-s-lagarde-protectionism-caution) (same).

21. Johnson, *supra* note 5, at 142.

22. Bagwell & Staiger, *supra* note 6, at 226.

23. *Id.*

consumers may be unable to organize privately to exploit this monopsony power, but their government can do so using tariffs.<sup>24</sup>

Johnson further noted, however, that global income declines because of such tariffs (free trade maximizes global income and the exploitation of monopsony power reduces global income). Accordingly, in Johnson's model, the two countries could both benefit from an agreement to eschew tariffs, following which they might split the increase in global income in such a way as to make each better off than before.<sup>25</sup>

More modern theorists have built upon Johnson's insight, while questioning his assumption of national income maximization. Among other things, if governments were all national income maximizers, then trade agreements would provide for free trade, which they do not.<sup>26</sup> Thus, more recent work on trade agreements commonly posits that governments maximize a welfare function that includes "political economy" weights, whereby the incomes of certain groups are given more weight in the welfare calculus.<sup>27</sup> Certain industries and unions may be well organized and influential politically, for example, while other industries and consumers may be poorly organized and less influential. Trade agreements negotiated under these circumstances may well retain pockets of tariffs and other forms of protection from foreign competition.

Nevertheless, the modern political economy theories retain an essential insight of Johnson's work—"large" nations acting unilaterally will ignore the harm imposed on foreign exporters by trade policies that restrict imports and thus reduce the prices received by foreign exporters.<sup>28</sup> This externality is ubiquitous and results from the trade policy actions of any large nation. Because the externality is negative, theory predicts that nations acting unilaterally will be excessively protectionist. International cooperation to liberalize trade is valuable, therefore, and international cooperation through trade agreements will systematically lead to greater liberalization, precisely as we observe in practice.<sup>29</sup>

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24. Johnson, *supra* note 5, at 146, 152–53.

25. If the countries are asymmetric in size, however, side payments might be required to secure the participation of the larger country. *Id.* at 150–51.

26. This proposition assumes the availability of any necessary side payments among asymmetric countries. *Id.* at 142, 146.

27. Grossman & Helpman, *supra* note 6, at 833–35. See Bagwell & Staiger, *supra* note 6, at 216, 221 (also discussing political economy).

28. Bagwell & Staiger, *supra* note 6, at 215–16, 241.

29. *Id.* at 226.

## C. SELF-ENFORCEMENT IN TRADE AGREEMENTS

Negotiations under WTO / GATT auspices involve the exchange of reciprocal tariff concessions. Nations approach each other regarding the markets in which their exporters would like to secure better access. Country A will agree to liberalize its market for, say, computers, in return for a reciprocal concession on, say, textiles. Negotiations in practice cover thousands of products (and now service sectors as well under the General Agreement on Trade in Services (“GATS”)).<sup>30</sup>

As a result of this exchange of concessions, and because of the participation constraint, all of the “large” countries (think of large countries as the countries about whose trade policies other nations care) will both give and receive trade policy concessions. These concessions matter importantly to their own exporters (concessions received) and to foreign exporters (concessions given). This fact immediately suggests the possibility of a self-enforcing regime: should country A cheat on a concession that matters to country B, country B will respond by cheating on a concession that matters to country A.

In the simple two country, two good models popular with economists, only one concession runs in each direction, and each country can adopt the simple strategy of retracting its concession in response to cheating by the other. Because cooperation is jointly valuable, this outcome hurts both countries, and thus cooperation is sustainable unless the short-term gains from cheating become too great, perhaps in response to some political shock.<sup>31</sup>

In the real world with dozens of countries and thousands of goods, the basic logic of self-enforcement remains the same—cheating by one country causes it to lose valuable concessions made to it by others. In fact, the large number of concessions in the WTO / GATT system tends to support sustained cooperation because even if a nation is tempted to cheat on one or two of them, it typically does not want the system to unravel altogether. All nations, thus, have an interest in cabining disputes to protect the broader gains from cooperation on vast numbers of other matters.

The WTO dispute settlement system helps to orchestrate

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30. *Services Trade*, WORLD TRADE ORG., [http://www.wto.org/english/tratop\\_e/serv\\_e/serv\\_e.htm](http://www.wto.org/english/tratop_e/serv_e/serv_e.htm) (last visited May 31, 2013).

31. KYLE BAGWELL & ROBERT STAIGER, *THE ECONOMICS OF THE WORLD TRADING SYSTEM* 95–110 (2002).

cooperation.<sup>32</sup> It has an arbitration-like procedure to identify violations and to calibrate the allowable retaliation in response to any proven violation. The system also has the capacity to resolve disputes over the meaning of the rules, so that disagreements over ambiguous legal obligations do not degenerate into trade wars. Nevertheless, the basic structure is as theory would predict—when a cheater is identified and refuses to cure misconduct, aggrieved nations can suspend commensurate concessions made to the cheater in retaliation.<sup>33</sup> The stability and growth of WTO / GATT membership, and the success of the institution in bringing down global trade barriers, is a testament to the success of this self-enforcing structure.

Other features of the international trade regime have also contributed to the success of cooperation. Trade barriers are in large measure fairly transparent—exporters know if they have to pay a tariff to get their goods across a foreign border and how much they will pay. They can tell when a quota is keeping their goods out of a potential market. One can also write tariff commitments in simple and clear terms—the tariff on widgets shall not exceed 10 percent of their value, for example. Finally, the WTO / GATT system includes some explicit mechanisms to adjust the bargain in response to shocks. Explicit authority for tariff renegotiation is contained in GATT Article XXVIII, for example, and nations may deviate temporarily from tariff commitments if an importing industry is suffering serious injury due to an import surge under GATT Article XIX.<sup>34</sup> Such rules create “pressure valves” that allow strong political demands for deviation from commitments to be addressed without causing cooperation to unravel across the board.

The discussion above has emphasized cooperation under WTO / GATT auspices, but, of course, dozens of other international trade agreements also operate successfully in accordance with similar logic. The United States alone now has a dozen or so free-trade agreements with various nations, the most important being the North American Free Trade Agreement (“NAFTA”). Negotiations toward a larger Trans-Pacific

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32. For empirical analysis of this institution that suggests that it is fairly effective, see CHAD P. BOWN, SELF-ENFORCING TRADE 45–62 (2009); MARC L. BUSCH & ERIC REINHARDT, SWED. INT’L DEV. COOPERATION AGENCY, TRADE BRIEF ON THE WTO DISPUTE SETTLEMENT MECHANISM AND DEVELOPING COUNTRIES I, 4–5 (2004), available at <http://www9.georgetown.edu/faculty/mlb66/SIDA.pdf>.

33. Warren F. Schwartz & Alan O. Sykes, *The Economic Structure of Renegotiation and Dispute Resolution in the World Trade Organization*, 31 J. LEGAL STUD. 179, 188–89 (2002).

34. *Id.* at 185–87; Alan O. Sykes, *Protectionism as a “Safeguard”: A Positive Analysis of the GATT “Escape Clause” with Normative Speculations*, 58 U. CHI. L. REV. 255, 255–56 (1991).

Partnership are now in progress. Almost all other nations also belong to various preferential trading arrangements.

An important dimension of international cooperation under the Articles of Agreement of the IMF is also driven by the gains from international cooperation on trade. Pursuant to IMF Article VIII, section (2)(a), members are not permitted (without permission of the Fund) to impose restrictions on the conversion of domestic to foreign currency<sup>35</sup> when needed to finance “current account” transactions, that is, transactions in goods and services (as opposed to capital transactions such as real estate or stock investments).<sup>36</sup> This provision was also a response to pre-GATT practices by many nations. For example, prior to the creation of the IMF, some nations established multiple exchange rate systems that required domestic currency to be purchased at inflated rates for certain trade transactions, mimicking the effect of a tariff.<sup>37</sup> By ending such practices, IMF Article VIII facilitates trade cooperation by increasing the transparency of trade barriers and making commitments under WTO / GATT auspices more credible.<sup>38</sup> This feature of the IMF system has proven quite successful and robust over time, even as other aspects of IMF cooperation on exchange rates have failed (as we discuss below).

#### IV. A QUASI-SUCCESSFUL REGIME: INTERNATIONAL CAPITAL ADEQUACY REGULATION

##### A. BACKGROUND

The financial crisis that began in 2007 has had a devastating effect on the economies of many major countries. Global GDP fell by 1.9 percent in real terms in 2009, after having grown by 3 percent annually over the previous nine years.<sup>39</sup> In the United States, the unemployment rate reached

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35. Articles of Agreement of the International Monetary Fund art. VIII, § 2(a), July 22, 1944, 59 Stat. 512 (1945) [hereinafter IMF], available at <http://www.imf.org/external/pubs/ft/aa>.

36. KRUGMAN, OBSTFELD & MELITZ, *supra* note 2, at 300–01.

37. To a degree, these practices continued after the formation of the IMF and were a source of numerous disputes. KENNETH W. DAM, THE RULES OF THE GAME: REFORM AND EVOLUTION IN THE INTERNATIONAL MONETARY SYSTEM 131–32 (1982).

38. IMF, *supra* note 35, art. VIII, § 2(a).

39. Tatiana Didier, Constantino Hevia & Sergio L. Schmukler, *How Resilient Were Emerging Economies to the Global Crisis?* 9 (The World Bank, Working Paper No. 5637, 2011), available at [sciie.ucsc.edu/JIMF4/WPSS5637\\_Schmukler.pdf](http://sciie.ucsc.edu/JIMF4/WPSS5637_Schmukler.pdf). For further data on the financial crisis, see generally GEOFFREY GERTZ, JOHANNES F. LINN & LAURENCE CHANDY, BROOKINGS INST., TRACKING THE GLOBAL FINANCIAL CRISIS: AN ANALYSIS OF THE IMF’S WORLD ECONOMIC OUTLOOK (2009), available at [http://www.brookings.edu/reports/2009/05\\_financial\\_crisis\\_linn.aspx](http://www.brookings.edu/reports/2009/05_financial_crisis_linn.aspx).

10.1 percent in 2009, while in the European Union it reached 9.7 percent in 2010.<sup>40</sup> The recovery has also been anemic. The U.S. economy grew by an estimated 2.2 percent in 2012, while Europe has fallen back into recession, in large part because of the sovereign debt crisis.<sup>41</sup>

Economists generally agree that the severe downturn was precipitated by the failure or potential failure of important financial institutions and the resulting tightness (and feared future tightness) in credit markets. The root cause was a dramatic reduction in the value of certain assets held by major banks and other financial institutions, largely in the form of mortgage-backed securities. During the housing market bubble in the United States, many lenders issued mortgages to questionable borrowers whose ability to repay was suspect, often under adjustable rate contracts with unaffordable future payments. They did so in part with the (ex post inaccurate) expectation that housing prices would continue to rise, and that borrowers could simply refinance and use home equity to cover their obligations. In addition, the lenders knew that they would not ultimately hold the mortgages themselves, but that they would be sold off and packaged as mortgage-backed securities to be purchased by other investors. Enormous numbers of these securities were marketed to financial institutions around the world.<sup>42</sup> Foreign holdings of Fannie Mae and Freddie Mac backed securities increased from \$186 billion in 1998 to \$875 billion in 2004, and foreign holdings of asset-backed securities reached \$835 billion at the height of the boom.<sup>43</sup>

When the housing price bubble burst, many houses fell in value just as increased payments under adjustable rate mortgages began to become due.

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40. Suzanne Casaux & Alessandro Turrini, *Post-Crisis Unemployment Developments: US and EU Approaching?*, 13 ECFIN ECON. BRIEF 1, 2 (2011), [http://ec.europa.eu/economy\\_finance/publications/economic\\_briefs/2011/pdf/eb13\\_en.pdf](http://ec.europa.eu/economy_finance/publications/economic_briefs/2011/pdf/eb13_en.pdf).

41. *The World Factbook: Country Comparison::GDP—Real Growth Rate*, CENT. INTELLIGENCE AGENCY, <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2003rank.html> (last visited July 6, 2013). Cf. Edward P. Lazear, *The Worst Economic Recovery in History*, WALL ST. J., Apr. 3, 2012, at A15, available at <http://online.wsj.com/article/SB10001424052702303816504577311470997904292.html> (“Who knows what 2012 will bring, but the current growth rate looks to be about 2 [percent] . . .”).

42. BRUMMER, *supra* note 10, at 211–13 (outlining the 2008 financial crisis). See also KRUGMAN, OBSTFELD & MELITZ, *supra* note 2, at 543 (explaining that the abrupt rise in interest rates in the United States beginning in 2005 left many borrowers unable to sustain their monthly mortgage payments).

43. FIN. CRISIS INQUIRY COMM’N, THE FINANCIAL CRISIS INQUIRY REPORT 104 (2011) [hereinafter INQUIRY REPORT], available at <http://www.gpo.gov/fdsys/pkg/GPO-FCIC/pdf/GPO-FCIC.pdf>; Steven B. Kamin & Laurie Pounder DeMarco, *How Did a Domestic Housing Slump Turn into a Global Financial Crisis?* 8 (Bd. Governors Fed. Reserve Sys., Discussion Paper No. 994, 2010), available at [www.federalreserve.gov/pubs/ifdp/2010/994/ifdp994.pdf](http://www.federalreserve.gov/pubs/ifdp/2010/994/ifdp994.pdf).

Many borrowers defaulted, and the resulting oversupply of housing for sale caused prices to fall even more rapidly. Even though many borrowers remained solvent and continued to service their mortgages, no one knew exactly which mortgage-backed securities were backed by defaulting borrowers, and the value of all of them fell precipitously.<sup>44</sup>

This decline in the value of mortgage-backed securities occurred within a regulatory environment in which banks (and some other financial institutions) are ordinarily required by national regulators to maintain a “capital” cushion to protect depositors against a decline in the value of the bank’s assets. The logic of this “capital adequacy management” is that when the value of assets falls, the bank’s shareholders (and perhaps bondholders) will suffer the loss, and the bank will still have enough money to pay off its liabilities to depositors and certain other creditors.<sup>45</sup> Capital adequacy regulation ensures that the bank’s net worth is sufficiently high that the bank will not become insolvent as a result of moderate shocks to the value of its assets.

Following a drop in the value of assets, regulators in principle will require banks to increase their capital holdings back to the required level by raising capital or retaining earnings. Banks that are unable to do so may be closed or taken over by their governments (as happened to a number of banks during the financial crisis).

#### B. THE GAINS FROM COOPERATION ON CAPITAL ADEQUACY REQUIREMENTS

The “welfare objectives” implicit in capital adequacy regulation are straightforward—a desire by national authorities to limit undue risk taking by financial institutions and to ensure that banks remain capable of meeting their obligations to depositors. The economic justification for such regulation is a belief that the owners and managers of banks are not monitored adequately by their creditors to ensure that they do not engage in excessive risk taking. An important reason is the widespread institution of deposit insurance, which dulls the incentive of depositors to worry about a prospect of bank insolvency and explains why governments regulate to protect their treasuries. Moreover, even absent deposit insurance, creditors may face a collective action problem in monitoring banks, and the

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44. See INQUIRY REPORT, *supra* note 43, at 222–23 (finding that, although a relatively small percentage of homeowners were actually defaulting, 75 to 90 percent of securities based off mortgages were downgraded to “junk”); KRUGMAN, OBSTFELD & MELITZ, *supra* note 2, at 603.

45. MISHKIN, *supra* note 3, at 237.

temptation to free ride may allow banks excessive leeway to gamble with other people's money—a gamble in which the bank enjoys the upside and others suffer much of the downside.<sup>46</sup>

Capital adequacy regulation originated at the national level. But in the modern economy, capital investment has become more and more mobile internationally. Many developed countries have increasingly relaxed so called “capital controls” on foreign investment, allowing investment capital to flow wherever returns are the highest.<sup>47</sup> The result is a set of significant externality problems with regulation.

First, significant numbers of creditors of domestic financial institutions may well be foreign nationals. As usual, theory suggests that the interest of foreign nationals may not be taken into account adequately by national regulators (at least to the degree that the national government does not insure their interests), which may lead to a tendency toward underregulation when nations act unilaterally.

Second, and probably more important, the regulated entities themselves are backed by mobile capital. If the United States raises capital requirements on major banks in New York, for example, those banks may well have the capacity to move their operations to London. To the degree that political officials value the presence of domestic financial institutions, and those institutions have a credible threat to move their operations abroad in response to stricter regulation, regulators may be further discouraged from imposing appropriate capital requirements.

These problems became increasingly prominent in the 1970s and 1980s, finally resulting in the first Basel Accord (Basel I) in 1988, in which the so called G10 economies agreed on minimum capital requirements to be implemented in their domestic laws.<sup>48</sup> The approach to regulation was modified and broadened to more countries in the Basel II Accord of 2004,<sup>49</sup> which was in the process of being implemented when the financial crisis emerged. Among other things, Basel II added “market discipline,” based on disclosure obligations, to the regulatory arsenal. Subsequent to the financial crisis, yet a third agreement on capital adequacy regulation has been reached—Basel III—which introduces further rules on bank liquidity and leverage.<sup>50</sup>

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46. *See id.* at 255–58 (discussing asymmetric information and financial regulation by governments).

47. GLOBAL POLITICAL ECONOMY 187 (John Ravenhill, ed., 2005).

48. KRUGMAN, OBSTFELD & MELITZ, *supra* note 2, at 600–01.

49. *Id.*

50. The Basel III rules are summarized at *Basel Committee on Banking Supervision Reforms* —

## C. SELF-ENFORCEMENT IN CAPITAL ADEQUACY COOPERATION

The Basel system is weakly institutionalized. Governments established a committee in the 1970s that would become known as the Basel Committee, which consists of the central bankers and financial regulators of its members. The Committee has no legal power. It operates by consensus with the understanding that when it reaches agreements, those agreements will be independently implemented through regulation or national legislation in the member countries.<sup>51</sup>

The complex details of these arrangements need not detain us. We simply offer the Basel accords as an example of a quasi-successful regime of cooperation on macroeconomic-related issues. The regime is partially successful in that it represents a fairly stable (approaching twenty-five years) approach to a well-defined international externality problem attributable to global capital mobility. It responds to the underregulation that theory predicts will arise absent international cooperation by obliging its members to take concrete measures to require increased bank capital, as well as to engage in certain collateral policies that reduce the riskiness of financial institutions, and by allocating supervisory authority over internationally active banks. The rules are in considerable measure precise and clear. Basel III increases the common stock requirement for banks to 4.5 percent of assets, for example.<sup>52</sup> The system is self-enforcing in the sense that significant deviation by national regulators (which we do not anticipate in ordinary times) will produce substantial pressure for regulators elsewhere to deviate. National governments have actually implemented the Basel rules, incorporating them into domestic law and regulatory practice where presumably they have had effects on behavior.<sup>53</sup>

The regime has been quite unsuccessful in certain respects as well—after all, it failed to ward off the recent financial crisis. Basel II failed to result in greater capitalization of banks; indeed, it appears to have enabled large financial institutions to reduce capitalization by a fairly substantial amount.<sup>54</sup>

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*Basel III*, BANK FOR INT'L SETTLEMENTS, <http://www.bis.org/bcbs/basel3/b3summarytable.pdf> (last visited June 8, 2013) [hereinafter *Basel III Rules*]. For historical background of Basel III, see DUNCAN WOOD, *GOVERNING GLOBAL BANKING: THE BASEL COMMITTEE AND THE POLITICS OF FINANCIAL GLOBALISATION* 147–50 (2005).

51. WOOD, *supra* note 50, at 45–46.

52. *Basel III Rules*, *supra* note 50.

53. See WOOD, *supra* note 50, at 99 (discussing the impact of the 1988 Basel Accord on the market); *id.* at 153–57 (surveying the effects of the regime as a whole).

54. Ranjit Lall, *Why Basel II Failed and Why Any Basel III Is Doomed* 7 (Global Econ.

There are three important reasons for the reduction in capital. First, bank regulators operating under Basel I and II simply did not appreciate the systemic risk associated with innovative financial instruments such as mortgage-backed securities. The risk associated with these instruments was far greater than either regulators or market participants realized, and thus the risk posture of many major financial institutions was far more aggressive than the capital adequacy standards in place were designed to address.<sup>55</sup>

Second, a number of scholars believe that Basel was captured by large banks, which manipulated the process in order to ensure that they would be regulated lightly.<sup>56</sup> One of the innovations of Basel II was a rule that permitted banks to use their own models in order to calculate credit risk instead of complying with the default capital adequacy standards, which were quite crude. Only large banks could afford to run those models and take advantage of this rule, and those banks were able to reduce their capitalization while other banks were required to increase capitalization.<sup>57</sup> One scholar traces this rule and related rules to an intense lobbying campaign undertaken by the large banks.<sup>58</sup>

Third, international cooperation in this area has also been hampered by another fundamental problem rooted in the very nature of capital adequacy regulation—a time inconsistency problem. In popular discourse, this problem is also known as the “too big to fail” issue.<sup>59</sup> If the incentives associated with capital adequacy regulation are to perform properly, regulated institutions must believe that the rules will be enforced if the

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Governance, Working Paper No. 2009/52, 2009), available at <http://www.globaleconomicgovernance.org/wp-content/uploads/GEG-Working-paper-Ranjit-Lall.pdf>.

55. INQUIRY REPORT, *supra* note 43, at 20–22, 99–100.

56. *See, e.g.*, Stephany Griffith-Jones & Avinash Persaud, The Political Economy of Basle II and Implications for Emerging Economies 5 (Apr. 4, 2003) (unpublished seminar manuscript), available at <http://www.eclac.cl/noticias/discursos/2/12152/Griffith-Jones-Persaud.pdf> (arguing that the limited regulation of large banks relative to smaller banks is an indication of industry capture); Lall, *supra* note 54, at 11–12 (arguing that financial institutions that were the first movers in counseling the Basel Committee exerted the most influence).

57. INQUIRY REPORT, *supra* note 43, at 171.

58. *Id.* *See also* MAGNUS BERTLING BJERKE, NORWEGIAN INST. OF INT’L AFFAIRS, EXPERTS, BANKS AND POLITICS: WHAT EXPLAINS THE MAKING OF BASEL II? 84, 91–92 (2007), available at <http://www.isn.ethz.ch/isn/Digital-Library/Publications/Detail/?ots591=0c54e3b3-1e9c-be1e-2c24-a6a8c7060233&lng=en&id=48049> (arguing that Basel II was excessively influenced by narrow national interests because of the differing national regulatory regimes); Griffith-Jones & Persaud, *supra* note 56, at 1–2 (arguing that developed countries used the process to take advantage of developing countries by disincentivizing investments in developing nations that would diversify portfolios). For related accounts of the “failure” of Basel, see generally WOOD, *supra* note 50 (arguing that United States weakened regulation to advance interests of U.S. banks).

59. INQUIRY REPORT, *supra* note 43, at 369.

institution finds itself in financial trouble—shareholders will be wiped out, the bank will be closed and liquidated, and so forth. If a financial crisis afflicts an enormous financial institution, however, much less a cluster of them as occurred during the financial crisis, the threat to enforce the rules can lose its credibility. The disruption to the economy from closing large financial institutions may be extensive, producing a crisis of confidence that produces a run on other financial institutions and imperils their liquidity. In addition, the costs to the treasury of closing big institutions and making good on deposit insurance promises can be enormous. The result is that regulators can be dissuaded from enforcing the rules in the event of a systemic crisis, and central banks are pushed inexorably toward supplying financial institutions with the resources to cover their losses (a “bailout”).<sup>60</sup>

If major financial institutions can anticipate this scenario (and they surely can, because it has happened), they will know that in hard times the rules will not be enforced. That will diminish the incentive to avoid excessive risk-taking and undermine the integrity of the regulatory regime.

For these reasons, we suspect that international cooperation under a regime such as Basel III can be expected to work well only in ordinary times when occasionally banks may find themselves in trouble but the system as a whole is not threatened. Its ability to avoid large, systemic crises, by contrast, is more suspect.<sup>61</sup>

Systemic crises might be avoided, to be sure, by imposing such substantial capital requirements that all banks can be insulated from massive unanticipated shocks. The costs of restricting bank activity to this extent may easily exceed the benefits, however, and in any case may not be politically viable. Alternatively, regulators might seek to become more deeply involved in managing bank asset portfolios by placing more restrictions or prohibitions on particular types of risky investments. The ability of regulators to do so in a useful fashion may be doubted, however, particularly in light of the fact that the assets that nearly brought down the financial system in 2007–2008—mortgage-backed securities—were not recognized for the risks they created until it was far too late. Lastly, as some have advocated,<sup>62</sup> the largest banks “too big to fail” might be broken

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60. *Id.* at 352. *See id.* at 57, 228, 369 (providing examples of the costs of potential depository runs).

61. This seems to be the conclusion of a book length examination of the Basel system, which describes the success of the system as “limited”: it has not prevented crises, but it has contributed to international financial stability. WOOD, *supra* note 50, at 4.

62. *See, e.g.*, Safe, Accountable, Fair, and Efficient Banking Act of 2010, S. 3241, 111th Cong. § 3 (2010) (proposing legislation that breaks up banks that are too big to fail), *available at*

up into smaller banks, but the costs of fracturing such large national or global financial institutions may be a significant loss of scale economies and other efficiencies and may again be a political nonstarter.

#### V. A FAILED REGIME: FIXED EXCHANGE RATES (AND THE EUROZONE?)

We now move into more complex areas of macroeconomic policy in which international cooperation has proven a failure despite the presence of important international externalities. As we shall see, the complexity of the policy issues in play is a key reason for the failure of cooperation, although not the only reason. In this section, we consider various historical efforts of the international community to establish a regime of fixed exchange rates. After some background discussion, we consider the gold standard, the Bretton Woods system under the IMF, and the role of currency unions with emphasis on the Eurozone. The next section considers a broader set of issues pertaining to monetary (and fiscal) policy cooperation.

##### A. BACKGROUND ON EXCHANGE RATES

An “exchange rate” is the price at which one national currency may be sold for another. From the perspective of a national of any country, the set of exchange rates on various currencies are simply the prices of foreign monies.

In a world without foreign commerce, exchange rates would be of no interest to anyone; all transactions would be domestic and no one would have any need for foreign money. Once trade in goods, services, and capital assets becomes possible, exchange rates become important. Consider a seller of goods in the United States and a buyer in Europe. The seller would like to exchange goods for dollars, which she can spend in the United States. The buyer, however, will normally only own Euros. So, in order to engage in a transaction, either the buyer will need to exchange euros for dollars and give the seller dollars, or the seller will need to exchange the euros she receives for dollars. Whichever the case, one party will need to exchange local currency for foreign currency. To do so, the party will typically go to an intermediary such as a bank, which owns both types of currency. The intermediary will offer to make an exchange at the prevailing

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<http://www.gpo.gov/fdsys/pkg/BILLS-111s3241is/pdf/BILLS-111s3241is.pdf>; Jonathan R. Macey & James P. Holdcroft, Jr., *Failure is an Option: An Ersatz-Antitrust Approach to Financial Regulation*, 120 YALE L.J. 1368, 1403–05 (2011) (arguing that when a bank becomes too big to fail, it should be broken up).

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exchange rate.

### 1. Market-Determined Exchange Rates

What determines the exchange rate? Consider a simple setting, without any government intervention by assumption, where people in two countries (one European and the other American) trade goods and services across borders, but do not trade capital assets (again by assumption). Europeans will sell goods and services to Americans, for example, only as long as Americans sell goods and services in return that Europeans want to buy, and vice versa. Trade must “balance” in the sense that the value of what the United States imports from Europe equals the value of what the United States exports to Europe.<sup>63</sup> If Europeans start buying more imports than they sell in return, the excess demand for U.S. dollars to make the purchases will cause the dollar to appreciate relative to the Euro, which in turn will cause American exports to become more expensive for Europeans, which will cause Europeans to import less and trade to return to balance. In this simple framework, the dollar-euro exchange rate is the relative price of the two currencies that balances export and import demand and supply.<sup>64</sup>

In turn, any exchange rate movements under these circumstances reflect changes in export and import demand and supply factors. If, for example, prices rise in the United States (maybe a strike or storm reduces the cotton crop), then European demand for the now more expensive goods will decline. Europeans will then demand fewer dollars, and the dollar will depreciate. If Europeans become more enamored with American goods, then they will demand more dollars to buy those goods, and the dollar will appreciate. If American industry becomes more productive, then U.S. goods will become cheaper, Europeans will demand more of them and thus the dollars to buy them, and the dollar will appreciate. If the American government imposes tariffs on European goods, then Americans will demand fewer European goods and the euros to buy them, and the dollar will appreciate, causing American exports to decline as well. And so on.

In the real world, balanced trade does not necessarily occur because the purchase of goods and services from abroad is not the only possible use

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63. Formal models of balanced trade typically omit exchange rates altogether; instead, they simply require that the value of imports equal the value of exports measured in terms of some numeraire good. AVINASH K. DIXIT & VICTOR NORMAN, *THEORY OF INTERNATIONAL TRADE: A DUAL, GENERAL EQUILIBRIUM APPROACH* 80–82 (1980).

64. With more than two countries, bilateral trade need not balance, but aggregate imports and exports for each country would balance, and equilibrium exchange rates would ensure this market-clearing condition holds in each country. *Id.*

of foreign money. When Europeans start buying more American exports, Americans might take their additional euros and use them not to buy European goods and services, but to buy European capital assets, including European sovereign and corporate bonds, stocks, real estate, and so forth. Such transactions in capital assets afford an alternative use for foreign currency, and so the equilibrium exchange rate (without government intervention) is not the rate that balances trade in goods and services, but that which balances the demand and supply of foreign money, a component of which is associated with capital transactions.

National income accounting distinguishes between the “current account,” which refers to trade in goods and services, and the “capital account,” which refers to investments of various sorts. In our example above, Europe has a current account deficit if it imports more goods and services than it exports, but also has a capital account surplus because Americans use the surplus euros to purchase European capital assets. The exchange rate may remain stable under these circumstances even though trade flows alone are unbalanced.

The willingness of investors to use foreign exchange to buy foreign capital assets depends on the relative rate of return on investment across countries. If the interest rate on bonds in Europe is high relative to that in the United States, then European bonds will be more attractive, other things being equal, and Americans will be more likely to buy them. In valuing European assets, Americans will take account of all the other factors that affect their expected return—for example, future price levels, demand, trade barriers, and productivity. Absent restrictions on international capital flows, exchange rate equilibrium requires that the risk adjusted rate of return on assets denominated in each currency be the same; otherwise, capital flows will chase higher returns until parity is achieved.<sup>65</sup>

## 2. The Exchange Rate with Government Intervention

It is not immediately obvious why governments should wish to intervene in exchange markets. The market is extremely liquid—trillions of dollars of foreign exchange are traded every day. Nothing we have said so far suggests that the market creates negative externalities.

Nonetheless, governments have intervened frequently in foreign exchange markets, and even when they do not consciously “intervene,” their policies may affect exchange rates. The mechanism of direct

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65. KRUGMAN, OBSTFELD & MELITZ, *supra* note 2, at 339–43.

intervention is fairly simple. If a nation wishes to lower the price of its currency, it sells that currency for foreign currencies—the increased supply of its currency will tend to depress the price, just as increased supply into any market with fixed demand will tend to lower prices. A nation that sells its currency and accumulates foreign currency builds up “foreign exchange reserves.” Likewise, if a nation wishes to increase the price of its currency, it reverses the process and sells foreign exchange reserves to buy up its currency. By creating additional demand for its own currency, the nation should cause its currency to appreciate.<sup>66</sup>

When nations intervene for the purpose of altering the exchange rate, they do so for a number of reasons relating to the fact that short-term exchange rates can fluctuate dramatically. One is that firms may be unwilling to engage in foreign trade because of the attendant risk.<sup>67</sup> An American firm that promises to pay €1000 for a widget in one week, may be willing to enter the contract at the current exchange rate, where the dollar cost is, say, \$1200, but not at an exchange rate where the cost could be \$1500 or \$2000 for the €1000 needed to consummate the contract. Even if current exchange rates were unbiased predictors of future rates, so that adverse shifts were no more likely than favorable shifts, risk-averse traders would curtail their trading activity due to this “exchange risk.”

To address the problem of exchange risk, countries have tried at various times to maintain a relatively constant exchange rate through government intervention. A country may do this unilaterally by “pegging” its currency to that of a foreign country, such as the United States.<sup>68</sup> The country attempts to calculate the long-run exchange rate and then use government intervention to counter short-run deviations from it.<sup>69</sup> Alternatively, the government may intervene in currency markets simply to dampen volatility and reduce risk by countering any short-term price swings.

The empirical importance of exchange risk in trade is unclear, but economists doubt that this problem is as serious as it first appears in modern markets due to a large market in derivatives that enables firms to hedge cheaply against exchange rate risk.<sup>70</sup> The firm in the above example can simply enter the forward market and purchase the necessary euros at a determinate rate for delivery on the date when payment under the contract

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66. MISHKIN, *supra* note 3, at 463–68.

67. PETER H. LINDERT, *INTERNATIONAL ECONOMICS* 432 (9th ed. 1991).

68. MISHKIN, *supra* note 3, at 486.

69. For more information on pegging, see *id.* at 486–88.

70. LINDERT, *supra* note 67, at 434.

is required.

A second concern regarding short-term exchange rate fluctuations is that they may send false signals to the market that distort resource allocation.<sup>71</sup> Governments may fear, for example, that speculators will distort the price of its currency relative to some “true” value that reflects long-term market equilibrium.<sup>72</sup> Such behavior might cause investors to invest in the wrong industries—for example, in the export industry of a country whose currency has been forced down artificially, but which will rise to its true value after the investments have been sunk. If governments can perceive the true value of the currency, however, then they can counter these short-term movements away from equilibrium rates and thus prevent the price distortions. This can be true only if the government has better information than the market does and can identify the true value of the exchange rate, which many economists doubt is possible.

Countries may also intervene in foreign exchange markets to increase domestic employment by retarding imports and stimulating exports (through devaluation), a policy that may effectively amount to cheating on trade commitments.<sup>73</sup> If Chile and Peru agree to eliminate tariffs on each other’s exports, then each country will experience growth in its export sector, but import-competing industries will suffer. The import-competing industries will then pressure the governments to help them. If a government decides that it cannot renege on the trade deal, it can at least temporarily produce an effect similar to that of a tariff by devaluing its currency, making imports more expensive in terms of domestic currency. Indeed, such a policy would help its exporters as well by making exports cheaper in terms of foreign currency.<sup>74</sup>

In addition to these reasons for intervention aimed at altering exchange rates, many government policies can affect exchange rates by changing the supply or demand for domestic currency. For example, countries may prefer to keep certain capital assets in domestic hands because of political and national security sensitivities.<sup>75</sup> As an illustration,

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71. RICHARD N. COOPER, *IMF Surveillance over Floating Exchange Rates*, in *THE INTERNATIONAL MONETARY SYSTEM: ESSAYS IN WORLD ECONOMICS* 139, 141–43 (1987) [hereinafter *IMF Surveillance*].

72. LINDERT, *supra* note 67, at 416–20.

73. *IMF Surveillance*, *supra* note 71, at 142.

74. The discussion here assumes that imports are priced in foreign currency and exports in domestic currency, a condition that need not always hold. It also assumes that other prices do not adjust to offset the exchange rate movement, another assumption that may not hold, especially in the long run. We have more to say about such issues below.

75. See, e.g., *The Committee on Foreign Investment in the United States*, U.S. DEP’T OF THE

the United States has refused to allow Chinese and Middle Eastern entities to purchase sensitive installations such as ports.<sup>76</sup> Other countries have also limited foreign investment in marquee firms such as national airlines. When investments are prohibited for such reasons, demand for the domestic currency falls and the currency may depreciate.

Relatedly, some countries limit foreign investment because experience has taught them that foreign investors may withdraw their investments precipitously when problems arise. As the Asian financial crisis of the 1990s showed, the rapid withdrawal of foreign capital can produce a collapse in local currency and asset values, resulting in enormous economic dislocation. One way to control such behavior is to limit the right of foreign investors to convert their currency into and out of domestic currency for the purpose of buying or selling domestic investments, a type of policy known as “capital controls,” which also have obvious exchange rate implications.

Another possibility is that nations may wish to unload foreign reserves that they fear may depreciate in the future. China has accumulated large dollar reserves through the years, for example, and should China fear a future depreciation of the dollar, it might sell them, which would have the effect of increasing the value of its currency relative to the dollar.

Exchange rates also are affected by countercyclical policies. For example, a country’s central bank may use monetary policy in an effort to stimulate its economy. One way to do so is to make loans to banks at low interest rates, enabling banks in turn to make cheaper loans to customers, thus stimulating borrowing and investment. When a central bank loans money to banks, it effectively expands the money supply, which naturally tends to lower the price of its money relative to other things, including foreign currency. Likewise, low interest rates reduce the return on investments in local assets denominated in the local currency, which may lead investors to shift investment toward foreign capital assets. To do so, they must buy foreign currency, which will also cause the value of foreign currency to appreciate.

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TREASURY, <http://www.treasury.gov/resource-center/international/pages/committee-on-foreign-investment-in-us.aspx> (last updated Dec. 20, 2012) (detailing the process by which the Committee on Foreign Investment in the United States reviews transactions that could result in control of a U.S. business by a foreign person and determines the effect of such transactions on national security).

76. See, e.g., Deborah L. Cohen, *Overseas Oversight: Sovereign Investment Boom Keeps Lawyers Busy With More Complex Compliance*, A.B.A. J., Aug. 2008, at 22, 22–24 (detailing U.S. government vetoes of foreign takeovers of telecommunications, oil, and ports companies).

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## B. GAINS FROM COOPERATION ON EXCHANGE RATE MOVEMENTS

Thus far, we have focused on reasons why a government may seek to influence the price of its currency acting unilaterally, and how it may indirectly influence its price through other policies. It is a short step to identify international externalities resulting from policies that directly or indirectly move the exchange rate.

First, short-term exchange rate fluctuations affect foreign actors as well as domestic actors. To the degree that exchange risk is important in trade, one might expect governments to undersupply efforts to reduce it because some of the benefits flow to foreigners. Similarly, to the degree that short-term fluctuations send incorrect signals to markets that distort resource allocation, some of the costs will be borne by foreigners, and once again, we might expect governments to undersupply policies aimed at avoiding exchange rate distortions.

Second and related, to the degree that exchange rates persistently deviate from “equilibrium” values in ways that governments can identify, the actors whose decisions are affected and who bear the costs of subsequent “corrections” in the rates may be foreign investors or trading partners whose sunk investments are imperiled by the return to equilibrium.

Third, and in line with some of the recent criticism of China’s policies to prevent the appreciation of the RMB, any efforts by governments to devalue their currency to stimulate exports and to protect import-competing industries will impose costs on import-competing firms abroad and on foreign exporters. The net effect of such policies on aggregate foreign welfare can be subtle,<sup>77</sup> but there is little doubt that from a political standpoint, foreign nations may complain bitterly about such actions. Indeed, unanticipated devaluations may effectively renege on trade bargains made with other nations, as noted, at least until other prices adjust to compensate.

Such policies may also push competitors toward policy interventions that they would prefer not to undertake. If China maintains an artificially weak RMB relative to the dollar to simulate exports, Brazil may be forced (politically) to do the same with respect to the real, lest its exports to the United States become uncompetitive vis-à-vis Chinese exports. In response to some shock that lowers the value of the dollar, both China and Brazil may sell their own currencies and buy dollars to keep their currency values

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77. See the discussion in Robert W. Staiger & Alan O. Sykes, “Currency Manipulation” and *World Trade*, 9 *WORLD TRADE REV.* 583, 587–89 (2010).

low, causing domestic inflation that may have problematic internal effects.<sup>78</sup>

Fourth, the sorts of policies that indirectly affect exchange rates may also impose costs on foreigners. When countries use investment restrictions and capital controls, foreign investors may suffer reduced investment opportunities. Such effects again require that the potential capital-importing nation be “large,” in the sense that a denial of access to its investment opportunities will reduce the returns that foreign investors can make because they do not have equally good opportunities elsewhere. These costs to foreign investors are neglected when nations unilaterally set their policies regarding foreign investments.

Similarly, countercyclical policies that affect exchange rates can have various externalities. In response to the financial crisis, the United States adopted a loose monetary policy hoping to stimulate the economy, driving interest rates on many investments in the United States to unprecedented low levels. Investors have responded by seeking to invest abroad where interest rates are higher. This flow of investment capital abroad is not always welcome. Various foreign governments have recently complained that the inflow of foreign investment capital is driving up the price of their currencies, forcing them to intervene by selling their currencies to maintain export competitiveness.<sup>79</sup> The result is a concern of inflation. The capital inflows also raise fears of asset bubbles that may eventually collapse and produce serious dislocation.

Various forms of cooperation, in principle, can ameliorate these externalities. Some efforts are targeted at particular, problematic practices. With respect to intervention that might undermine trade commitments, Article XV(4) of GATT provides that members of GATT “shall not, by exchange action, frustrate the intent” of GATT.<sup>80</sup> Likewise, IMF Article IV, section 1(iii) provides that members “shall . . . avoid manipulating exchange rates . . . to gain an unfair competitive advantage over other members.”<sup>81</sup> Neither provision has ever been enforced in a meaningful

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78. Maurice Obstfeld, *The International Monetary System: Living with Asymmetry*, NAT'L BUREAU ECON. RES., at 32–34 (Nov. 24, 2011), <http://conference.nber.org/confer//2011/MECF11/Obstfeld.pdf>. Obstfeld assumes that “sterilization is imperfect.” *Id.* at 34.

79. Ronald I. McKinnon, *Beggar-Thy-Neighbor Interest Rate Policies*, STANFORD.EDU, at 4–5 (Nov. 2010), <http://www.stanford.edu/~mckinnon/papers/Beggar%20thy%20neighbor%20interest%20rate%20policies.pdf>.

80. General Agreement on Tariffs and Trade art. XV, ¶4, Oct. 30, 1947, 61 Stat. 3 [hereinafter GATT], available at [http://www.wto.org/english/docs\\_e/legal\\_e/gatt47\\_01\\_e.htm](http://www.wto.org/english/docs_e/legal_e/gatt47_01_e.htm).

81. IMF, *supra* note 35, art. IV, § 1(iii).

way, but they at least bespeak an awareness of how exchange rate measures can undermine a liberal trading system.

Our focus in this section, however, is on various efforts through the years to address some of the above noted externalities by creating a system of fixed exchange rates. Fixed exchange rates obviously eliminate the problems associated with short-term volatility, and if rates are set properly (and adjusted if necessary) toward the long-term “equilibrium” rate, the costs of sustained deviations from that level and abrupt subsequent adjustments can be avoided. Likewise, fixed exchange rates prevent devaluation for the purposes of undermining trade commitments.

Interestingly, however, efforts to create fixed exchange rates on a global scale have failed. We now consider those efforts and the reasons for their lack of success.

### C. THE FAILURE OF SELF-ENFORCING COOPERATION ON FIXED EXCHANGE RATES

We now address two significant efforts to maintain fixed exchange rates. The first involved the “gold standard” of the early 1900s. This system waxed and waned, and eventually collapsed around the time of the Great Depression. Then, following World War II, a modified version of the gold standard was devised under the auspices of the IMF. That arrangement, too, collapsed in the early 1970s, leaving behind the modern system of floating rates that persists today.

#### 1. The Gold Standard

In the late nineteenth and early twentieth centuries, most major countries adhered to the gold standard. Under the gold standard, every country promised to redeem its currency for gold. In the United States, for example, a person could redeem a dollar for one twentieth of an ounce of gold from the U.S. Treasury. In Great Britain, a pound was redeemable for a quarter of an ounce of gold. Thus, a person who owned a pound could convert it into five dollars by exchanging the pound for gold and the gold for dollars. In this way, the gold standard created a system of “fixed exchange rate[s].”<sup>82</sup>

Countries were not bound by international law to adhere to the gold standard. The standard emerged in a decentralized fashion as more and more countries saw advantages in committing themselves to redeem their

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82. MISHKIN, *supra* note 3, at 470.

currencies in gold, although policymakers saw the advantages of gold convertibility for international trade and investment as early as 1867 and agreed to move in that direction.<sup>83</sup> Probably the most important argument for using the gold standard is that it introduced monetary stability, preventing countries from simply printing currency and causing inflation. If the currency is linked to gold and a government issues too much currency (promoting inflation), the holders of money will wish to redeem it for gold. Aware of this prospect, monetary authorities exercise restraint in the issuance of currency. The money supply then increases or decreases with the supply of gold reserves, which was thought to be relatively stable. Many governments were attracted to the gold standard for this reason alone, a domestic benefit from the gold standard that did not depend on any international cooperation.

A further advantage of the gold standard, however, was that when many countries adopted it, a fixed exchange rate was established, which eliminated or greatly reduced problems associated with exchange rate fluctuations. Thus, the gold standard can be seen as a form of informal international cooperation over exchange rates.

Modern scholarship suggests, however, that the supposed advantages of the gold standard were exaggerated greatly.<sup>84</sup> For one thing, governments were free to leave the gold standard or (more commonly) to devalue their currency by announcing that they would redeem it for smaller amounts of gold than in the past. Thus, the gold standard did not really bind governments, and it did not create as much exchange rate stability as people often think. In fact, periods of competitive devaluations were observed, in which multiple nations sought to take advantage of the way that devaluation can stimulate exports and reduce imports.

In addition, there is a disadvantage in linking the national money supply to gold reserves. Over the long term, the money supply should increase at roughly the same rate that the economy grows, so that people will have sufficient money to engage in the greater number of transactions. However, the supply of gold does not depend on the size of the world economy, let alone the size of any particular country's economy, but varies depending on the technology of gold extraction and the happenstance of gold discovery. Under the gold standard, the production of gold varied

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83. Barry Eichengreen, *International Policy Coordination: The Long View*, NAT'L BUREAU ECON. RES., at 6 (Sept. 2011), available at <http://www.nber.org/chapters/c12578.pdf>.

84. *Id.* at 15–16; Richard N. Cooper, *The Gold Standard: Historical Facts and Future Prospects*, 1982 BROOKINGS PAPERS ON ECON. ACTIVITY 1, 36–37 (1982).

greatly over time leading to periods of inflation and deflation.<sup>85</sup> The gold standard thus does not really lead to price stability—the value of money in terms of a quantity of gold is stable, but if the price of gold fluctuates relative to other things, the value of money in terms of other things fluctuates as well.

A further possible disadvantage of the gold standard is that it prevents governments from using monetary policy for countercyclical purposes—a common policy in practice, albeit one that is controversial among some economists. A standard policy prescription during a recession is for the central bank to lower interest rates to stimulate borrowing and investment.<sup>86</sup> To lower interest rates, central banks may loan money to banks more cheaply, or use money to buy up government bonds, raising their prices and reducing effective yields in the economy. Both sorts of policies increase the money supply, and can only be undertaken with a gold-backed money (without jeopardizing gold reserves) if the government concurrently acquires more gold, which may not be possible. Many countries were on the gold standard at the start of the Great Depression. For this reason, they could not lower interest rates without jeopardizing their gold reserves. Today, many economists who believe in the efficacy of countercyclical monetary policy blame the gold standard for contributing to the severity of the economic downturn.

Not only did the gold standard interfere with expansionary monetary policies during economic downturns, but it led to some unfortunate externalities resulting from the strategic interaction among central banks. Imagine that the world consists of two countries, both on the gold standard.<sup>87</sup> Each country has a central bank that wishes to preserve some flexibility to lower interest rates in the event of an economic downturn. Each also knows that increased demand for its gold reserves will result for the reasons noted above. Thus, to build up its stock of reserves in anticipation of possible economic downturns, each central bank may wish to increase interest rates to make investment in their country more attractive. Such a policy attracts foreign investment, and foreigners will be led to trade gold for domestic currency to engage in investment. However, if both central banks follow this policy, they may end up with higher interest rates, which may tend to reduce economic growth, while accomplishing little to attract foreign investment, thus, doing little to

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85. Cooper, *supra* note 84, at 23 (Figure 4).

86. KRUGMAN, OBSTFELD & MELITZ, *supra* note 2, at 488.

87. This example is inspired by Marc Flandreau, *Central Bank Cooperation in Historical Perspective: A Sceptical View*, 50 *ECON. HIS. REV.* 735, 739–40 (1997).

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increase their gold reserves. To avoid this unfortunate outcome, the central banks must cooperate, and the cooperation must go beyond simply sticking to the gold standard; they must also cooperate by agreeing not to compete excessively for gold. This may be quite difficult to do, and such cooperation was apparently not very successful in practice.<sup>88</sup>

Two key lessons emerge from the history of the gold standard. First, with the benefit of hindsight it is not clear that it served states' interests to maintain fixed exchange rates through the gold standard. The benefits of fixed exchange rates (such as exchange rate stability) may not have exceeded the costs—the reduced flexibility for addressing economic crises, and so forth. The gold standard had the virtue of being simple and clear, but in the end may have proven oversimple and inadequately tailored to changing conditions. A more sophisticated form of cooperation, allowing flexibility to deviate from the gold standard when justified, but not otherwise, might have been possible in principle, but did not emerge in practice.

Second, the gold standard was not self-enforcing. At first sight, it seems like a simple coordination game: every country benefits by adhering to the same standard, and no country does better by leaving that standard once other countries have joined it. That view is too sanguine. When countries experience economic shocks, it is not necessarily in their interest to stay on the gold standard. Likewise, although nominally adhering to a gold standard, countries could still engage in unilateral devaluation and did so at times. Countries harmed by a decision to abandon the standard or to devalue it had no retaliatory response that was sufficient to discourage such conduct. At most, they could devalue or abandon the gold standard themselves, which would sacrifice whatever benefits it might have yielded (such as domestic monetary discipline) and would not do much to “punish” the country that initially deviated. The theoretically optimal form of retaliation against a single deviator whose action harms multiple countries is a joint response, but a joint response is itself subject to a collective action problem, which countries were unable to overcome.

## 2. Bretton Woods

During World War II, the allied powers met in Bretton Woods, New Hampshire to discuss the post-War economic order. Two new institutions were conceived—the World Bank and the IMF—with the latter tasked to

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88. According to Flandreau, central banks were quite unsuccessful at this type of cooperation. *Id.* at 760.

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administer a new system of fixed exchange rates. Under this system, the United States—by far the largest economy in the world—agreed to exchange dollars for gold at the rate of \$35 per ounce. Other countries purchased dollars in order to establish their foreign currency reserves and agreed to peg their currency to the dollar. Thus, if the market price of their currency rose above the exchange rate, a foreign country's central bank would sell their currency in return for dollars, which would force the value of their currency back down to the official exchange rate. If the market price of their currency fell below the exchange rate, the central bank would do the opposite.<sup>89</sup>

The IMF was to play a supervisory role and to serve as a lender to countries that ran short of foreign exchange reserves. Countries initially set their exchange rate after negotiations with the IMF; their exchange rate would reflect what the country and IMF agreed (or hoped) was the long-term market rate, which could differ from the actual rate at any given time. Once the exchange rate had been set, the central bank of each country (other than the United States) was obliged to use dollars to buy its currency and to sell its currency for dollars in order to maintain the exchange rate. The U.S. government was obliged to maintain the dollar exchange rate with gold, which meant that it had to agree to redeem dollars for gold at \$35 an ounce.<sup>90</sup>

Countries that could not maintain the value of their currencies were permitted to devalue their currencies with the permission of the IMF. The idea was to permit “orderly” variations in exchange rates consistent with their long-term value and to avoid short-term fluctuations. Thus, IMF supervision in principle would prevent countries from manipulating their exchange rates (for example, to promote exports or otherwise to cheat on trade agreements), while allowing them to adjust their exchange rates to keep them in line with the fundamentals, such as relative productivity. The IMF possessed a single carrot (or stick, depending on one's perspective). It could lend money to countries that agreed to abide by its rules if they experienced balance of payments difficulties due to an outflow of foreign exchange reserves. Often, the IMF would condition such loans on changes in government policies to abate the balance of payments problem, such as tighter monetary and fiscal policies to support the value of the domestic currency (so called IMF conditionality).<sup>91</sup>

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89. For a discussion of the Bretton Woods system, see DAM, *supra* note 37, 175–85.

90. MISHKIN, *supra* note 3, at 470–71.

91. For a debate on the virtues of “IMF conditionality” see KRUGMAN, OBSTFELD & MELITZ, *supra* note 2, at 650.

The Bretton Woods system collapsed in 1971. The main reason for its failure lay with the central role of the United States. Unlike other countries, the United States could not devalue the dollar; it was required to trade dollars for a fixed quantity of gold. As other countries recovered from World War II, their productivity increased at a faster rate than the productivity of the U.S. economy, and thus, as required by the long-term model of the exchange rate, the U.S. dollar should have depreciated. Meanwhile, the United States had pursued inflationary monetary policy, which further reduced the value of the dollar. As a result, the market value of gold rose dramatically above \$35 per ounce. An effort was made to maintain a two-tier gold market, in which the price of gold for private use rose much above \$35 per ounce, and only central banks could redeem U.S. dollars for gold.<sup>92</sup> That too proved unsustainable as the amount of U.S. currency in foreign hands eventually exceeded U.S. gold reserves, creating a “confidence problem.”<sup>93</sup> Central banks elsewhere became wary of holding more dollars, as they would have to do to prevent their currencies from appreciating. It became clear that the demand on U.S. gold reserves would exceed U.S. ability to meet it, and in 1971 President Nixon “closed the gold window”<sup>94</sup> and ended the ability of foreign central banks to redeem dollars for gold.<sup>95</sup>

Part of the problem also lay in the fact that as the United States pursued inflationary policies, other nations were forced to intervene by selling their currencies to maintain their pegs to the dollar. This policy expanded their own money supplies and produced undesirable inflation in their own economies.<sup>96</sup>

Accordingly, the system quickly unraveled. Foreign central banks no longer had any incentive to maintain their pegs to the dollar, and most major economic powers gravitated toward allowing their exchange rates to float in the market, albeit with periodic intervention to counter swings in exchange rates that they deemed undesirable—a system of “managed float.” Currently, most of the major currencies float in this fashion, although a few major economic powers (notably China) have tried to maintain a dollar peg.

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92. LINDERT, *supra* note 67, at 411.

93. Michael D. Bordo & Barry Eichengreen, *The Rise and Fall of a Barbarous Relic: The Role of Gold in the International Monetary System* (Nat'l Bureau of Econ. Res., Working Paper No. 6436, 1998), available at <http://www.nber.org/papers/w6436> (abstract).

94. THE GOLD STANDARD AND RELATED REGIMES: COLLECTED ESSAYS 16 (Michael D. Bordo ed., 1999).

95. LINDERT, *supra* note 67, at 411.

96. KRUGMAN, OBSTFELD & MELITZ, *supra* note 2, at 526–27.

The lessons of the Bretton Woods system are similar to those of the gold standard years. Indeed, Bretton Woods was at bottom a modified gold standard. To the degree that it worked, the system created price stability and reduced exchange rate fluctuations, particularly in the short term, but this benefit came at the cost of constraining the monetary policies of central banks in ways that became objectionable, and pressures to devalue arose just as in the days of the gold standard. Likewise, divergence in factors such as rates of growth in productivity across countries caused the fixed exchange rates established under IMF auspices to diverge from long-term market equilibrium values. In principle, the system was supposed to allow nations flexibility to adjust exchange rates under IMF supervision, but in practice, devaluations were politically controversial and destabilizing. If the IMF was to prevent countries from “manipulating” their currencies while permitting them to “adjust” them in response to structural changes, clear rules were needed for distinguishing one from the other. It is questionable whether the IMF had the capacity to distinguish these types of behavior.

Likewise, the system simply was not self-enforcing. Countries with more efficient economies and more restrictive monetary policies could sell their currencies to maintain their pegs, accumulating gold-backed dollars without bearing much cost to sustain the system. Countries with less efficient economies, by contrast, or more expansionary monetary policies, faced pressures to devalue and a potential shortage of foreign exchange reserves (or gold in the case of the United States). Eventually, these countries found it less costly to opt out of the system rather than bear its costs. Put simply, changing circumstances put nations in violation of their participation constraints, and other nations had no viable way to prevent them from defecting.

#### D. MONETARY UNION AND THE EUROZONE

Monetary union takes place when sovereign states give up their national currencies and accept a single supranational currency controlled by a supranational central bank. The noteworthy example of a major monetary union in modern times is the European Monetary Union established by the Maastricht Treaty.<sup>97</sup> The monetary union began officially in 1999 with the creation of the euro and the establishment of the European Central Bank.

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97. See *Economic and Monetary Union*, EUR. COMM'N, [http://ec.europa.eu/economy\\_finance/euro/emu/index\\_en.htm](http://ec.europa.eu/economy_finance/euro/emu/index_en.htm) (last updated May 23, 2012) (describing “economic integration” and economic governance under economic and monetary union).

Its founding eleven members were joined subsequently by six others. The other ten members of the European Union either did not qualify under the rules for joining the Eurozone or opted out of it.

A monetary union creates several potentially significant benefits for its members.<sup>98</sup> First, because a common currency exists, commercial actors no longer need to exchange currencies. The cost of such exchanges is eliminated, and cross border transactions become cheaper.

Second, monetary union eliminates exchange rate risk, simply because everyone uses the same money. Indeed, monetary union is just a particularly rigid type of fixed exchange rate regime in which central banks forfeit any opportunity to devalue.

Third, to the extent that there are gains from international monetary policy cooperation, as discussed earlier, a monetary union facilitates that cooperation. Because there is a single central bank that controls the money supply, that central bank can in theory “internalize the externalities” within the union from monetary policy and avoid the possible issues that arise when policies are chosen noncooperatively by members of the union. Note, however, that the central bank cannot tailor policy separately to the needs of individual members, a limitation that we will discuss shortly.

Fourth, there are possible political benefits from monetary union. Indeed, in many accounts of European monetary integration, the political benefits played a more important role in motivating policymakers than did the economic benefits. In Europe, many policymakers believed that monetary integration would help strengthen the long-term process of European integration by further binding member states together and establishing shared institutions.<sup>99</sup> Political integration would strengthen the stability of Europe, helping to avoid a recurrence of the wars of the first half of the twentieth century and enable Europe to act in a more unified way in international relations.

But monetary union also imposes costs on states. The chief cost is that it disables states from pursuing independent monetary policies.<sup>100</sup> Recall that many economists and virtually all central banks support countercyclical monetary policy. To use a current example, Greece is mired in a profound economic slump, while Germany has been enjoying modest economic growth. If each country had its own central bank, then the Greek

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98. For a further discussion on potential significant benefits, see KRUGMAN, OBSTFELD & MELITZ, *supra* note 2, at 559–60, 566–72.

99. *Id.* at 564.

100. *Id.* at 568–70.

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central bank could expand the money supply, while the German central bank could keep the lid on inflation. With monetary union, the European central bank cannot choose the optimal monetary policy for each country separately because there is only one money supply. Instead, the European central bank must balance the interests of Germany and Greece, as well as those of the other Eurozone countries, and choose a monetary policy that is optimal for the union as a whole.

The balance of these costs and benefits depends on the setting, and is the topic of the theory of optimal currency unions associated with Robert Mundell.<sup>101</sup> Mundell identifies four factors that determine whether a group of states should create a currency union, all of which relate to the possibility that economic conditions within the union may be more or less variable across members.<sup>102</sup>

First, a currency union is more likely to be jointly beneficial if the member states' economies are sufficiently similar, so that they are generally subject to the same macroeconomic shocks and experience a common business cycle. Then, the common monetary policy in the union can respond to events that affect the members of the union more or less uniformly. For example, two states that depend heavily on oil revenues will be subject to much the same shocks—an increase in demand when other countries experience economic growth or war breaks out in the Middle East, a decrease in demand when new sources of oil are discovered in foreign countries. These countries might make plausible candidates for monetary union, but it would be inadvisable to add a country that suffers significant economic downturns when the price of oil rises.

Second (and third), monetary union is more likely to be jointly beneficial when capital and labor are mobile between members of the union. Both of these factors are related to the problem of unsynchronized macroeconomic shocks. If a recession strikes one state, but unemployed workers can quickly move to the other state, the negative effect of the shock is less than it would otherwise be. The same point can be made about capital mobility. Another way of putting this point is that if labor mobility and capital mobility are high, then unsynchronized shocks are less likely to occur in the first place, or their effects will be more limited. Thus, it is less important for the member states to be able to pursue separate

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101. Robert A. Mundell, *A Theory of Optimum Currency Areas*, 51 AM. ECON. REV. 657, 663–64 (1961).

102. *Id.* at 663. Although Mundell identifies seven factors, we have condensed these into four factors.

countercyclical monetary policies.

Fourth, monetary union is more likely to be jointly beneficial when the states have a coordinated tax and fiscal policy that allows transfers to be made from one part of the union to another. If one state suffers a downturn while the other enjoys a boom then the second state can stimulate the economy of the first (or otherwise ameliorate the effects of the downturn) by making transfers to the citizens of the other state. More generally, if the states jointly tax the citizens of both states and implement a common welfare system, then a downturn in one state will automatically cause transfers from the booming state (whose citizens will pay higher taxes on their rising incomes) to the depressed state (whose unemployed citizens will receive transfers). Fiscal unification to this degree is possible only when the populations in both states agree to it. This may be difficult because people tend to believe that they are not responsible for the economic well-being of citizens of foreign states or because people in wealthier states fear that a common fiscal policy will result in transfers of their wealth to people in poorer states.

On the basis of these considerations, many economists criticized European monetary integration back in the 1990s,<sup>103</sup> and that criticism has proven to be perspicacious. The critics pointed out that European countries had very different economies and so would be likely to suffer different macroeconomic shocks, that labor (but not capital) mobility was low because of cultural barriers, and that the European Union (and the subset of Eurozone states) lacked common fiscal institutions and hence could not easily make transfers across members. European policymakers apparently believed that these problems were either minimal or could be overcome through further integration, which would be stimulated in part by monetary integration. One idea was that a common currency would provide symbolic support for political integration and, thus, help stimulate European solidarity, which could then provide the political basis for fiscal integration. That, however, has not happened.

The European experience can be compared with the “dollar-zone” established over a century ago in the United States, where one might also have worried that there was too much macroeconomic variation across states to justify a common currency.<sup>104</sup> One difference between the United

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103. See Martin Feldstein, *The Political Economy of the European Economic and Monetary Union: Political Sources of an Economic Liability*, 11 J. ECON. PERSP. 23, 32–33 (arguing that the gains from European monetary union would be small and might be negative from a global perspective).

104. Paul Krugman, *Can Europe Be Saved?*, N.Y. TIMES (Jan 12, 2011), <http://www.nytimes.com/2011/01/16/magazine/16Europe-t.html?pagewanted=print>.

States and Europe, however, is that in the United States both capital and labor mobility is high because of a combination of constitutional guarantees and a common language and culture. Moreover, fiscal integration exists in the United States at the federal level. When a macroeconomic shock hits one region in the United States, the existing tax-and-transfer system ensures that money flows from the other regions to the affected region. No similar institution exists in Europe.<sup>105</sup>

The current crisis in the Eurozone began as a sovereign debt crisis, but the sovereign debt problem and monetary integration are closely related. The Maastricht Treaty required member states to satisfy certain macroeconomic standards—such as low inflation and low debt- and deficit-to-GDP ratios.<sup>106</sup> It also included a no bailout clause.<sup>107</sup> The idea apparently was to persuade creditors (and voters in wealthier countries) that more creditworthy countries like Germany would not have to bail out weaker countries like Greece, and to reduce the weakness of the weaker countries by compelling them to comply with sound macroeconomic policies. Virtually all countries violated the macroeconomic standards from the beginning, however, including Germany and France. Greece borrowed vastly in excess of its capacity to repay. Creditors and bond rating agencies treated Greece as creditworthy nevertheless, possibly because they believed that Greece was not deviating too far from the standards and were fooled by Greece's mendacious financial reporting; Germany would bail out Greece if it defaulted; Greece's economy would grow rapidly enough to absorb its growing debt obligations; or possibly some combination of these reasons.

When it became clear in the spring of 2010 that Greece would not be able to repay its debts, creditors refused to lend anymore except at interest rates that Greece could not afford. Other Eurozone members refused to bail out Greece. As this became clear, the crisis spread to Ireland, Spain, Portugal, and Italy. The reasons for the weakness of these countries varied—in some of them, the government borrowed too much; in others, the banks borrowed too much and governments were on the hook for bank

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105. For more discussion on this topic, see C.A.E. Goodhart, *Global Macroeconomic and Financial Supervision: Where Next?*, NAT'L BUREAU ECON. RES. 10–11, available at <http://www.nber.org/chapters/c12599.pdf> (last visited Aug. 5, 2013).

106. KRUGMAN, OBSTFELD & MELTZ, *supra* note 2, at 564.

107. See Diane Niedernhoefer, *German Court to Hear Euro Bailout Challenge July 5*, REUTERS (June 9, 2011, 12:43 PM), <http://www.reuters.com/article/2011/06/09/eurozone-germany-idUSLDE7581ZN20110609>. The no bailout clause is contained in Article 103 of the European Community Treaty. Treaty Establishing the European Community Title VI, art. 103, Eur. Union, July 29, 1992, O.J. 192E103, available at <http://eur-lex.europa.eu/en/treaties/dat/11992M/htm/11992M.html>.

debt. In any event, it appeared that these countries too might default, and that they, like Greece, would not be bailed out, with the result that creditors demanded high interest rates for new debt. A further exacerbating factor is that many banks in these countries owned Greek debt; if Greece defaulted, then these banks might default, requiring bailouts from national governments, putting further pressure on their finances. Thus, a real fear of contagion arose, extending even to Germany and France. Later in 2010, the Eurozone countries set up a European Financial Stability Facility with the authority to make loans to countries subject to the contagion, including Greece.<sup>108</sup> Subsequent efforts in this vein have staved off financial collapse for the time being, although at this writing, the situation is very much in flux.

The European sovereign debt crisis could have happened without monetary integration, but integration exacerbated it in three ways. First, as noted, creditors treated the peripheral countries as more creditworthy than they really were, possibly because they believed that other Eurozone countries would bail them out if they defaulted. This resulted in excessive borrowing by those countries. Second, governments of the core states apparently encouraged their national central banks to purchase the debt of peripheral states, creating an artificial subsidy for that debt. Third, precisely because the peripheral countries could not use monetary policy to stimulate their economies and avoid defaulting on their debt, the common currency put them in a more difficult economic position than they would otherwise face.

What will happen going forward? If optimum currency theory is taken seriously, then breakup of the Eurozone seems to be the most likely outcome, with countries either returning to their original currencies or the creation of smaller currency unions (such as a “[n]euro” for northern countries).<sup>109</sup> Breakup would be logistically difficult, as well as expensive, and—in the view of European leaders—politically disastrous. Thus, the question is whether Europeans will be willing to incur the cost of an inefficient currency union in order to maintain its political benefits. That question is difficult to answer.

Another possibility is institutional reform, so that the costs associated

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108. KRUGMAN, OBSTFELD & MELTIZ, *supra* note 2, at 580–81.

109. See Jerry Bowyer, Op-Ed., *Euro, Neuro and Nero: Plausible Outcomes for a Continental Crack-Up*, FORBES (Nov. 30, 2011, 5:13 PM), <http://www.forbes.com/sites/jerrybowyer/2011/11/30/euro-neuro-and-nero-plausible-outcomes-for-a-continental-crack-up/> (detailing the possibility that Northern European countries will create a smaller currency union and exclude the Southern European countries).

with a suboptimal currency union can be minimized. Two major reforms have been discussed. The first is a strengthening of macroeconomic constraints on member countries, so that the Greek experience will never be repeated. The problem with this approach is that the constraints must be enforced, and the usual sanction—expulsion from the monetary union—is not credible because of the overriding desire to maintain the union. Indeed, the problem with the Maastricht Treaty was not that the macroeconomic criteria were too weak; the problem was that they were not enforced.<sup>110</sup> Once again, the difficulty in fashioning a viable self-enforcement mechanism lies at the heart of the problem.

The second reform is further political integration. If European states could agree to fiscal union, so European citizens pay taxes to a European institution, which in turn makes transfers back to them, then fiscal policy could be used to offset some of the negative effects of monetary union when shocks are not common but hit particular states. The problem with this proposal is massive political resistance to fiscal union among voters in wealthy countries, who fear that the institution will simply transfer wealth from them to people in poor countries.<sup>111</sup>

The European experience provides an important lesson about the limits of international law. Macroeconomic policy creates externalities, and in theory countries can advance their self-interest by engaging in international cooperation. Uncertainty about optimal policy and the difficulty of implementing self-enforcement mechanisms in a volatile environment have undermined most efforts to cooperate. Until the European experiment, countries approached international monetary cooperation in a cautious spirit, in general adopting ad hoc arrangements that could be abandoned quickly. The European Monetary Union went to the opposite extreme by establishing a rigid treaty-based system that could not handle large adverse macroeconomic shocks and their political consequences. Once again, successful international cooperation on macroeconomic affairs has proven elusive.

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110. The Maastricht criteria also were problematic because they constrained only public debt, not private debt, when private debt could become a public responsibility, as occurred in Ireland and other countries. See Goodhart, *supra* note 105, at 7.

111. As of this writing, Europeans, in principle, have agreed on a partial integration, focusing on debt sharing and banking regulation, but the details, which may prove to be obstacles, have not been worked out. See e.g., Ralitsa Kovacheva, *Is it Time For Common European Taxes?*, EUINSIDE (Aug. 16, 2010, 11:05 AM), <http://www.euinside.eu/en/news/is-it-time-for-common-european-taxes> (describing the debate over the proposed common European tax).

E. FLOATING EXCHANGE RATES AND CURRENCY MANIPULATION (THE CHINA PROBLEM)

As noted, after the collapse of the Bretton Woods system, most major economies let their currencies float, while other economies pegged their currencies to (usually) their major trading partner. The system is governed by Article IV, section 1, of the IMF agreement:

Recognizing that the essential purpose of the international monetary system is to provide a framework that facilitates the exchange of goods, services, and capital among countries, and that sustains sound economic growth, and that a principal objective is the continuing development of the orderly underlying conditions that are necessary for financial and economic stability, each member undertakes to collaborate with the Fund and other members to assure orderly exchange arrangements and to promote a stable system of exchange rates. In particular, each member shall:

- (i) endeavor to direct its economic and financial policies toward the objective of fostering orderly economic growth with reasonable price stability, with due regard to its circumstances;
- (ii) seek to promote stability by fostering orderly underlying economic and financial conditions and a monetary system that does not tend to produce erratic disruptions;
- (iii) avoid manipulating exchange rates or the international monetary system in order to prevent effective balance of payments adjustment or to gain an unfair competitive advantage over other members; and
- (iv) follow exchange policies compatible with the undertakings under this Section.<sup>112</sup>

In practice, the IMF provides advice to countries about exchange rate policies (known as “surveillance”), encouraging them to obey these principles. It has never adjudicated a country to be in violation of this article. Still, it is worthwhile to ask what function the IMF might serve in addressing externalities from exchange rate policies in the post Bretton Woods environment. Two goals are identified: (1) maintaining “stability,” and (2) preventing “manipulation.” But what do these mean, and are they viable goals?

1. Stability

Exchange rate stability is, as we have seen, a value. A country that

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112. IMF, *supra* note 35, art. IV, § 1.

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maintains exchange rate stability confers a benefit both on its citizens and on foreigners by reducing exchange rate risk. Exchange rate stability, however, is only one value among many. Indeed, economists have observed that policymakers face a tradeoff between exchange rate stability, monetary policy autonomy, and freedom of financial flows, and can satisfy only two of these values at the same time. If a country opts for exchange rate stability and freedom of financial flows, then (unless it is a very large country) its monetary policy will be determined in part by the choices of foreign states. If a country chooses monetary policy autonomy and freedom of financial flows, then it must permit its exchange rate to float.<sup>113</sup>

The problem for the IMF is that monetary policy autonomy and freedom of financial flows are just as important for the economic well-being of a country as exchange rate stability is. Indeed, they may be more important. If states want to attract foreign investment, then they must allow capital to move across their borders. If states want to use monetary policy to counter economic downturns, then they need control over monetary policy. The optimal mix of these instruments surely varies from state to state.

Accordingly, any simple rule requiring states to maintain a “stable” exchange rate is likely to be unacceptable because in many cases it would require states to forego policies that they deem important—that was a core problem with fixed exchange rates as we have seen. Despite the goal of “stability,” states in fact desire to retain considerable flexibility. How is such flexibility to be governed so as to avoid substantial externalities? A rule that required states to choose the “optimal” mix of policy instruments would clearly be unworkable; it would require so many state contingent elements that it would be impossible to craft. No one really knows what the optimal mix of policy instruments is, and those who think they know will find large numbers of people who disagree. For this reason, the IMF goal of stability is difficult to implement as a legal matter, just as the effort to maintain fixed exchange rates during the Bretton Woods years ultimately proved a failure. IMF staff can jawbone national governments about stability as part of the surveillance process, and will no doubt continue to do so, but because clear rules about what is required cannot be devised, national authorities will retain the discretion to promote the degree of stability that they believe serves the national interest, even if the global interest is not always well served.

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113. KRUGMAN, OBSTFELD & MELITZ, *supra* note 2, at 509–10 (describing the policy “trilemma”).

## 2. Manipulation<sup>114</sup>

The goal of avoiding “manipulation” is focused on trade policy. Under IMF Article IV, members are obliged not to intervene in exchange markets for the purpose of securing an “unfair competitive advantage” in international trade.<sup>115</sup> The fear is that a nation may artificially depress its exchange rate in order to make its exports cheaper and imports more expensive.

In recent years, accusations of manipulation have focused particularly on China. For many years, China has maintained a rough peg between its currency (RMB) and the dollar. To prevent the RMB from appreciating, it has intervened by selling RMB and buying dollars, to the point that it has now accumulated over \$2 trillion in foreign exchange reserves. Over the same period, China has often run trade surpluses with major trading partners, particularly the United States and Europe.<sup>116</sup>

From an economic standpoint, the rule against “manipulation” may be questioned, as its effects on other nations are unclear at best. In the long run, exchange rate devaluations will have no “real” effect on economic activity because other prices will adjust to offset—a consequence of what economists term the long-run neutrality of money. By analogy, if the United States government were to fiat that every dollar suddenly becomes two dollars, the eventual equilibrium would involve all prices in dollars doubling, so that in real terms nothing had changed. In the short run, things are more complicated, but still subtle. For example, if goods are priced in the currency of the country in which they are manufactured, and an unanticipated reduction in the value of that currency occurs, then exports become cheaper in foreign currency and imports become more expensive in domestic currency. This phenomenon raises the national income of trading partners (in economic parlance, their “terms of trade” improve because what they sell becomes more expensive and what they buy becomes cheaper), while reducing the exporting country’s national income (for the opposite reason). It is not obvious why trading partners should complain about policies that increase their national incomes.<sup>117</sup>

Nevertheless, such short-run effects may beget adverse political reactions abroad from exporting firms and import-competing firms. Such political considerations perhaps explain the genesis of IMF Article IV.

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114. This section draws heavily on Staiger & Sykes, *supra* note 77.

115. *Id.* at 589.

116. *Id.* at 588–89.

117. *Id.* at 605–06.

Likewise, Article XV(4) of the General Agreement on Tariffs and Trade provides that members “shall not, by exchange action, frustrate the intent of the provisions of this Agreement.”<sup>118</sup> These provisions plainly evidence a concern that currency practices may undermine certain rules of the international trading system, including limits on tariffs and export subsidies.

Despite extensive intervention by many countries into exchange markets through the years, no country has been adjudicated to be in violation of either the IMF prohibition on manipulation or the GATT prohibition on measures that frustrate its intent. It also seems unlikely that any country will be found to have violated these rules in the future. It is instructive to ask why. The answer, as one of us has argued in another paper coauthored with Robert Staiger,<sup>119</sup> is that clear rules to distinguish manipulation from other, acceptable forms of exchange market intervention are simply too difficult to fashion.<sup>120</sup>

Under IMF law, “before a[ ] . . . member may be found to have engaged in illegal currency manipulation to affect the balance of trade, it must have deliberately affected the exchange rate to a degree sufficient to cause ‘fundamental misalignment,’ and must have done so for the ‘purpose’ of increasing net exports.”<sup>121</sup> Regarding the purpose of its policies, members’ representations are given “the benefit of any reasonable doubt.”<sup>122</sup>

Putting aside the misalignment concept, which need not detain us here, it is exceedingly difficult to divine the purpose behind government policies. To take the example of China, Chinese officials deny that they are manipulating the exchange rate to increase net exports. Alternative accounts of their motivations, entitled to “the benefit of any reasonable doubt” as noted above, are supported by the work of some prominent academics. Ronald McKinnon, a well-known monetary economist, for example, has argued that China’s policies have controlled inflation within the Chinese economy effectively and stimulated economic growth.<sup>123</sup> This

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118. GATT, *supra* note 80, art. XV, ¶ 4.

119. Staiger & Sykes, *supra* note 77, at 589–93.

120. For a related discussion on the difficulty of regulation, see Claus D. Zimmerman, Note, *Exchange Rate Misalignment and International Law*, 105 AM. J. INT’L L. 423, 472–75 (2011).

121. Staiger & Sykes, *supra* note 77, at 591.

122. Zimmerman, *supra* note 122, at 431–32, 436 (quoting Decision No. 13919-(07/51), annex, ¶ 3 (June 15, 2007), in 36 Selected Decisions and Selected Documents of the International Monetary Fund 33, 43 (2011), available at [http://www.imf.org/external/pubs/ft/sd/index.asp?decision=13919-\(07/51\)](http://www.imf.org/external/pubs/ft/sd/index.asp?decision=13919-(07/51))).

123. Ronald McKinnon, *China’s Exchange Rate Policy and Fiscal Expansion*, STANFORD INST.

argument may well satisfy the reasonable doubt standard that the IMF itself embraces.<sup>124</sup>

The core problem here again lies in the impossibility of crafting a legal rule that turns on verifiable information. Nations engage in monetary policies, including exchange market intervention, for a host of reasons, many considered benign and a proper exercise of national sovereignty. To protect the ability of IMF members to pursue such policies, the IMF seeks to sort cases based on the intent of the monetary authorities. Intent, however, is unascertainable as a legal matter, and the rules accordingly have no real force.

If the IMF offers little hope in this area, what about the WTO? GATT Article XV(4) states that members “shall not, by exchange action, frustrate the intent of the provisions of this Agreement.”<sup>125</sup> Nothing in Article XV or elsewhere in GATT provides guidance, however, as to what sorts of exchange practices would be acceptable. Likewise, Article XV(4) has never been interpreted by the WTO / GATT dispute system, and no case law exists on the question of what exchange practices would violate the GATT.

A policy that runs throughout Article XV, however, is deference to IMF rules. For example, Article XV(9)(a) states that “[n]othing in this Agreement shall preclude . . . the use by a contracting party of exchange controls or exchange restrictions in accordance with the Articles of Agreement of the International Monetary Fund.”<sup>126</sup> A threshold question, therefore, is whether an “exchange action” can frustrate the intent of GATT if it is not a violation of IMF law. This question is critical in light of the fact that the IMF would have great difficulty adjudicating China’s policies to be currency manipulation for reasons given above, and because the WTO would almost certainly defer to the IMF on this issue if it is deemed legally relevant.

But perhaps a violation of GATT Article XV(4) does not, as a legal matter, require a violation of IMF law. Can the WTO plausibly adjudicate a violation of Article XV(4) without IMF support? Nations undertake macroeconomic policies all the time that have the potential to influence trade (including, historically, some dramatic currency devaluations). Current U.S. monetary policy, for example, has lowered interest rates and placed downward pressure on the dollar to a degree that may well have had

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FOR ECON. POL’Y RES. (Mar. 2009), [http://www.stanford.edu/~mckinnon/briefs/policybrief\\_mar09.pdf](http://www.stanford.edu/~mckinnon/briefs/policybrief_mar09.pdf).

124. Staiger & Sykes, *supra* note 77, at 591–92.

125. GATT, *supra* note 80, art. XV, ¶ 4.

126. *Id.* art. XV, ¶ 9(a).

significant trade impact. Such general macroeconomic policies have never even been challenged, let alone condemned, in the WTO / GATT system. If the WTO dispute process were now to rule that certain macroeconomic policies affecting trade are illegal, it would open a Pandora's box with enormous potential for political strife and tension within the system. It, thus, seems unlikely that the WTO would find a violation of Article XV(4) in an exchange practice that was permissible under the applicable law of the IMF.

Thus, the WTO suffers the same essential problem as the IMF when it confronts allegations that exchange measures "frustrate the intent" of GATT. It is exceedingly difficult to distinguish legitimate monetary policies from inappropriate ones. The vagueness of the standard under GATT Article XV(4) and the fact that it has never been the subject of adjudication in the now 65 year history of the GATT system, reflects the difficult and perhaps insurmountable challenges of devising any sort of clear principle for identifying problematic practices.

#### VI. A REGIME NOT (OR BARELY) TRIED: MACROECONOMIC STIMULUS COOPERATION

Countries that pursue monetary policy that maximizes their national interest will, under plausible assumptions, choose monetary actions that harm (or benefit) other countries.<sup>127</sup> Cooperation may mitigate this problem, but as we will see, international cooperation with respect to monetary policy is extremely difficult.

Although economists disagree a great deal about optimal monetary policy, there is not much doubt that monetary policy can produce inflation or deflation. When a central bank prints money, more money chases a constant supply of goods and services, and so the value of money relative to those goods and services declines. Conversely, deflation takes place if the central bank withdraws enough money from the economy.<sup>128</sup>

If economists generally agree that central banks can influence the money supply and hence the price level, they agree much less on whether central banks can do so in a manner that effectively advances social goals.

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127. See generally Giancarlo Corsetti & Gernot J. Müller, *Rethinking Multilateral Policy Cooperation in the XXI Century: What Do We Know About Cross-Border Effects of Fiscal Policy?*, (Aug. 2011) (unpublished conference manuscript), available at [http://conference.nber.org/confer/2011/MECF11/Corsetti\\_Mueller.pdf](http://conference.nber.org/confer/2011/MECF11/Corsetti_Mueller.pdf) (describing theory and evidence on cross-border effects of fiscal policy).

128. KRUGMAN, OBSTFELD & MELITZ, *supra* note 2, at 372.

The most common position, and one that is reflected in the policies of most central banks, is that central banks can smooth out the business cycle by pursuing countercyclical monetary policy. Simplifying greatly, the theory is as follows. During economic recessions, people are afraid to spend money because they do not know whether they will be employed for long; and businesses are reluctant to invest money because they do not think that people will buy their goods. As a result, businesses fire employees, who then are unable to buy goods, which further reduces demand in a downward spiral. The central bank can help end a recession by increasing the money supply. The reason is that as money becomes more plentiful, the cost of borrowing money will decline,<sup>129</sup> and businesses will be more willing to borrow money in order to invest. That means that they will hire workers, who will then have enough money to buy things; the workers will also be more willing to borrow in order to buy things, which will also result in businesses having more money to invest. In short, by reducing the cost of credit or money, the central bank increases aggregate demand, which creates more economic activity.

Once good times return, however, the central bank must put on the brakes and reduce (or stop increasing) the money supply. Once the economy reaches full capacity, easy credit will not result in the hiring of additional workers or the buying of additional goods and services. Instead, the ratio of money to the value of goods and services increases, producing inflation. Inflation generally interferes with economic activity by making prices unpredictable, thereby creating risk, and by harming actors who are not hedged effectively against it.<sup>130</sup> A central bank reduces the money supply to limit inflation.

The efficacy of such countercyclical policies has been somewhat controversial through the years. Early “rational expectations” critiques suggested that economic actors would anticipate the inflationary effects of any increase in the money supply, so that wages and prices would increase and monetary stimulus would have no real effects (again, the long run neutrality of money scenario).<sup>131</sup> Other economists responded that price flexibility is limited, in some cases due to contracts that lock in existing prices, so that monetary policy can have real effects in the short term.<sup>132</sup>

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129. *Id.* at 362.

130. BLANCHARD & FISCHER, *supra* note 7, at 568–69.

131. *Id.* at 573–75.

132. *E.g.*, Stanley Fischer, *Long-Term Contracts, Rational Expectations and the Optimal Money Supply Rule*, 85 J. POL. ECON. 191, 191 (1977); John B. Taylor, *Aggregate Dynamics and Staggered Contracts*, 88 J. POL. ECON. 1, 21 (1980).

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That view currently predominates, and the current tendency among most important central banks, as far as we know, is to pursue countercyclical monetary policy. Nonetheless, what is good for a particular country is not necessarily good for all countries, as we will now show.

To illustrate, assume that a central bank can affect price levels by controlling the money supply. Imagine that two countries face an economic downturn, and believe that it is in their interest to expand the money supply—that is, they conclude that the benefit of increased employment exceeds the cost of possible future inflation. The two countries are Home and Foreign, and each can choose two monetary policies—“somewhat expansionary” and “very expansionary.”<sup>133</sup> An expansionary monetary policy reduces Home’s unemployment rate, while creating a risk of inflation. The policy might also influence economic outcomes in Foreign, but the effect could be complex. One potential effect is that stimulus in Home will increase demand in Home for Foreign’s products, thus benefiting Foreign’s economy. Another potential effect is that stimulus in Home will cause Foreign’s currency to increase in value relative to Home’s currency by causing inflation in Home. This could hurt Foreign’s export sector and—indirectly, by causing unemployment in that sector and thus potentially a decline of aggregate demand—the entire economy. It could also cause asset bubbles in Foreign. As interest rates fall in Home, investors will shift their investments to Foreign, bidding up asset prices in a manner that may not be sustainable over time.

Let us thus assume that when Home chooses a somewhat expansionary policy, it benefits Foreign, and when it chooses a very expansionary policy, it harms Foreign. The same is true in the opposite direction. Thus, the optimal outcome for both countries is reached when both countries choose the somewhat expansionary monetary policy. It may be in Home’s interest, however, to switch from a somewhat to very expansionary monetary policy because, for Home, the gains (in terms of further reduction in unemployment) exceed the losses (inflation), while Home has no incentive to take into account the costs for Foreign. Foreign has the same incentives, and thus in the absence of cooperation, both Home and Foreign may choose the suboptimal very expansionary monetary policy.

Can Home and Foreign cooperate in order to avoid the jointly inferior

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133. *But cf.* KRUGMAN, OBSTFELD & MELITZ, *supra* note 2, at 554–56 (using a model that considers the opposite policy scenario—that countries choose among restrictive monetary policies to combat inflation).

outcome? There are two major problems. The first is the fundamental policy uncertainty—both at the level of theory and in terms of practical application. Economists cannot agree on monetary policy, and even if they could, there is even less agreement in particular contexts as to how the central bank should affect the money supply. Thus, countries may refuse to cooperate simply because they disagree about what should be done.

A second problem is the familiar difficulty of creating a self-enforcing agreement. Even if states can agree that (in our example) a somewhat expansionary monetary policy is jointly optimal, while a very expansionary monetary policy is not jointly optimal, they may not be able to reach a self-enforcing agreement that limits them to optimal actions. The reason is that retaliation may involve actions that are costly to the retaliator and not credible. In our example, suppose that Foreign is surprised by Home's very expansionary monetary policy, and that its only retaliatory option is to engage in the same policy next period. By that time, however, economic circumstances may have changed and an expansionary policy may no longer be in its self-interest.

Going beyond our example, the two-country assumption masks an enormous amount of real-world complexity. Monetary policies no doubt have important externalities, but they run in many directions among the important economies of the world—Europe, the United States, Japan, China, and so on. The task of orchestrating useful cooperation in this setting—where central banks face a divergence of circumstances and a divergence of views on optimal policies—is truly daunting.

As a consequence, about the most one can expect is occasional ad hoc cooperation among a subset of central banks confronting an immediate short-term problem.<sup>134</sup> Central banks famously were unable to cooperate in response to the Great Depression, when, at least in theory, they might have agreed to pump liquidity into the international financial system, but distrust in a hostile international environment and disagreement about policy undermined negotiations.<sup>135</sup> In subsequent years, efforts at cooperation centered around management of exchange rates rather than coordinated responses to global downturns. Possibly the most successful examples of cooperation among national financial authorities were the responses to sovereign debt crises in Mexico in 1994–1995, and Asia in 1997–1998,

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134. Eichengreen, *supra* note 83, at 1; Flandreau, *supra* note 87, at 761. For a relatively optimistic account that argues that cooperation has increased, albeit fitfully, see Richard N. Cooper, *Almost a Century of Central Bank Cooperation* 14–15 (Bank for Int'l Settlements, Working Paper No. 198, 2006), available at <http://www.bis.org/publ/work198.pdf>.

135. EICHENGREEN, *supra* note 1, at 12.

where western countries launched rescues through the IMF.<sup>136</sup> After the September 11, 2001 attack, the Fed opened foreign exchange swap lines with a number of foreign central banks, which enabled those banks to borrow U.S. currency from the Fed, and then relend this money to banks located in their jurisdiction that provided loans in U.S. currency.<sup>137</sup> This approach, which may have prevented a global downturn through injection of liquidity internationally, was essentially a unilateral move. Foreign central banks accepted the loans so that they could support local banks that took deposits in U.S. dollars, not as a part of a coordinated response to international macroeconomic conditions. Over the next several years, under the auspices of the G20 and the IMF, countries attempted to address global economic “imbalances” (chiefly, the worry that U.S. current account deficit would eventually result in a sharp devaluation of the dollar, causing a global recession), but made little progress.<sup>138</sup>

The financial crisis that began in 2007 posed a considerable challenge to central bank cooperation.<sup>139</sup> The central bank response began as early as November of that year, when G20 ministers announced that central bank governors recognized the global downturn and would cooperate in addressing it; subsequently, the central banks of the top developing countries announced that they would jointly pump liquidity into their national economies.<sup>140</sup> The Fed opened foreign exchange swap lines with foreign central banks, to ensure that U.S. currency would be available for foreign loans. The European and Swiss central banks, and other central banks, did so as well for their own currencies.<sup>141</sup> Subsequently, the central banks coordinated in cutting interest rates.<sup>142</sup> Countries failed to coordinate their fiscal policies, however. Some commentators argue that the Fed loosened monetary policy without taking into account the negative effects on other countries, and “there is no disputing that the inability at the Seoul G20 summit in November 2010 to agree on what constituted mutually-beneficial adjustments in monetary and fiscal policies left potential gains

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136. Eichengreen, *supra* note 83, at 23–24.

137. Douglas W. Arner, Michael A. Panton & Paul Lejot, *Central Banks and Central Bank Cooperation in the Global Financial System*, 23 PAC. MCGEORGE GLOBAL BUS. & DEV. L.J. 1, 21, 29 (2010).

138. Eichengreen, *supra* note 83, at 28.

139. For a useful account of the causes of, and reactions to the 2007 financial crisis, see BRUMMER, *supra* note 10, at 210–65.

140. Eichengreen, *supra* note 83, at 28–29.

141. William A. Allen & Richhild Moessner, *Central Bank Co-operation and International Liquidity in the Financial Crisis of 2008–9* 26 (Bank for Int'l Settlements, Working Paper No. 310, 2010), available at <http://www.bis.org/publ/work310.pdf>.

142. *Id.* at 36.

from policy coordination on the table.”<sup>143</sup>

The success of the swap operations probably was due to the very narrow form of cooperation they entailed: a loan from one central bank to another, where the Fed gains from the injection of liquidity, and the recipient gains through the support for its local banks. There is no short-term cost from this type of cooperation and virtually no credit risk.<sup>144</sup> The broader and more controversial forms of cooperation involving coordinated monetary and fiscal policies had much more limited success.

## VII. EXPLANATIONS

We have discussed four areas of international economic cooperation: (1) trade; (2) banking regulation; (3) exchange rate regulation; and (4) monetary stimulus cooperation. We have measured cooperation in two ways: the extent to which cooperation has been institutionalized in international rules, international agencies, and domestic law; and the extent to which cooperation has had positive economic outcomes. Trade cooperation can be counted a success: it has been heavily institutionalized and it seems to have contributed to the growth of international trade. Banking regulation can be counted a partial success. Banking regulation is not heavily institutionalized at the international level, but the Basel rules have been incorporated into domestic law and probably contributed to international financial stability in good times. These rules, however, could not prevent financial disaster. Exchange rate regulation has largely failed. It was institutionalized during the Bretton Woods era, but subject to a great deal of ad hoc adjustment, it had limited impact on international exchange rates, which were later allowed to float. Finally, central banks have largely failed to coordinate efforts to stimulate economies during downturns, and national governments have not even attempted fiscal cooperation, with very limited exceptions.

What accounts for this pattern? With such a small number of data points, one can only speculate, but we will hazard the following explanation. First, cooperation becomes possible as the expected gain from cooperation increases. This point may seem too obvious to be worth making, but international macroeconomic cooperation illustrates a twist, emphasizing the word “expected.” The expected gain from cooperation is a function partly of policy uncertainty. When optimal policy is uncertain, the gains must be discounted; in addition, there is option value in playing wait-

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143. EICHENGREEN, *supra* note 83, at 29.

144. Arner, Panton & Lejot, *supra* note 137, at 35.

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and-see, or taking modest rather than aggressive measures. The benefits, costs, and risks of international trade have been largely understood by economists since the early nineteenth century. Thus, the gains from international trade cooperation could be easily predicted. By contrast, economists disagree a great deal more about exchange rate policy, banking regulation, and stimulus; the empirical effects of these actions are harder to predict.

Second, cooperation becomes possible at an international level when the behavior of interest is susceptible to rule-based regulation. Cooperation is possible only when countries can monitor each other and retaliate in response to violations, and monitoring is very difficult at the international level. Thus, it is necessary for violations to be clearly defined, which is possible only if clear rules distinguish permissible and forbidden behavior. It turns out that some forms of cooperative behavior can be more easily governed by rules than other forms can.

Consider first international trade. For certain types of behavior, violations can be easily defined and punished. If states agree that the tariff on certain goods will be no greater than X, then violation occurs when the tariff is higher than X. Because the exporter must pay the tariff, its existence cannot be disputed. There are harder cases, to be sure. Whether a pollution control law is an impermissible trade barrier or a legitimate method for reducing pollution can turn on complex evidentiary questions, but the analytic inquiry is relatively straightforward. Even if this area of trade law can be subject to abuse, the reduction of tariff barriers is a clear example of success. International law in this way enables states to obtain some cooperative benefits even if a portion of the theoretically possible cooperative surplus lies beyond their reach.

Banking regulation provides an instructive comparison. The Basel I system created a system of crude rules that could be mechanically applied. It established a minimum ratio of capital to assets. It required banks to calculate their assets by placing them into one of four risk-weighted baskets and multiplying their value by 0, 0.2, 0.5, or 1, depending on the level of risk. Off balance sheet items were subject to a similar risk conversion process. Capital was carefully defined, and then mechanical rules were used to determine the extent to which different types of capital (common equity, different types of preferred such as cumulative and noncumulative, subordinated debt, and so forth) could be used for the numerator of the capital adequacy ratio. Thus, banking agencies in different countries using this method would likely obtain very similar results.

The algorithm, however, was too crude. A loan to a highly creditworthy municipality and a loan to a less creditworthy municipality received the same weight because all loans to municipalities were put in the same basket. A bank with good management was treated the same as a bank with bad management. A bank that reduced its risk exposure by buying derivatives would receive no credit.<sup>145</sup> The Basel Committee responded with the significantly more complex Basel II rules. Basel II permitted banks to use their own models to calculate the risk of default; regulators may approve or reject those models but it is not clear that other countries can evaluate the regulators' decisions. Basel II also required regulators to evaluate banks' market risk and operational risk in addition to credit risk—and not only that, but also systemic risk, reputational risk, pension risk, strategic risk, and many other types of risk. Under Basel I, the analysis of a bank could produce a single number—the leverage ratio—that could be compared to a simple rule—the leverage limit. Under Basel II, the analysis of a bank produced all kinds of numbers reflecting different types of risks, and no clear way to aggregate them. The additional complexity unavoidably required regulators to rely more on judgment, which makes cross-country monitoring more difficult. Basel III, created in response to the failure of Basel II to prevent the financial crisis, is even more complex.

In this case, reliance on simple rules turns out to be impossible. They result in banks being either excessively risky or excessively constrained. Under the more complex system, it may be too difficult for countries to determine whether the regulators of other countries are complying or not. However, it is too soon to tell whether Basel III will succeed or fail.

Exchange rate risk provides another setting. One might believe that management of exchange rate would be similar to management of trade. In both cases, countries must make a tradeoff and embody it in a system of rules. In the case of trade, countries trade off the interests of exporters and import-competing firms (and possibly consumers) and agree to tariffs and trade barriers that are mutually beneficial. Once these rules are in place, states monitor each other for compliance.

Then why has exchange rate cooperation been so difficult? A key reason is that exchange rates are in fact rather difficult to govern through rule-based regulation. Any agreement on specific exchange rates quickly

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145. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-07-253, RISK-BASED CAPITAL: BANK REGULATORS NEED TO IMPROVE TRANSPARENCY AND OVERCOME IMPEDIMENTS TO FINALIZING THE PROPOSED BASEL II FRAMEWORK 15–16 (2007), available at <http://www.gao.gov/products/GAO-07-253>.

becomes outdated as macroeconomic shocks lead some nations to run short on reserves and wish to devalue their currency. A system is needed that permits states to change exchange rates to respond to these shocks while prohibiting them from doing so for “manipulative” reasons—for example, to stimulate exports at the expense of other states. No mechanical formula for distinguishing valid and invalid exchange rate policy has been discovered, however, and so distinguishing violations is very difficult.<sup>146</sup> Likewise, under Bretton Woods, the IMF was given supervisory authority, but little enforcement power, no doubt because countries could not commit themselves to trusting an agency with discretionary authority.

Finally, cooperation must be self-enforcing. Nations must have a credible threat to retaliate against cheating that is sufficient to discourage cheating in the first place, at least under ordinary circumstances. In international trade, self-enforcement works because the threat to withdraw prior trade concessions in response to cheating is perfectly credible, at least for large countries. Political officials can benefit from such retaliation and show no reluctance to use it when it is authorized. In the other systems we have studied, however, retaliatory threats are inadequate to sustain cooperation in many scenarios. If banking regulators in country A are unwilling to liquidate failing banks in a crisis, for example, the prospect that foreign regulators may behave similarly can be insufficient to change their minds—here, due to shocks, nations are better off by deviating and seeing cooperation unravel than they are by complying. The same problem afflicts exchange rate cooperation when a nation comes under intense pressure to devalue.

Put differently, shocks to the international trade system historically tend to be small and sufficiently industry specific that no member can benefit by opting out of cooperation altogether. Even when the temptation to deviate on a particular issue arises, the value of cooperation on many other issues remains and participation in the system is stable.

Cooperation in the trade area also benefits from the fact that retaliation can be targeted directly at the violator. If Europe cheats on a commitment to the United States, the United States can respond with a discriminatory tariff on important European exports to the United States. If Japan cheats on an exchange rate commitment by devaluing the yen, the United States

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146. Compare with Barry Eichengreen’s discussion of the dispute over whether quantitative easing was currency manipulation, as alleged by foreign countries. Barry Eichengreen, *Mr. Bernanke Goes to War*, NAT’L INT. (Dec. 16, 2010), <http://nationalinterest.org/article/mr-bernanke-goes-war-4573>.

could respond with measures to devalue the dollar, but those measures would affect many other nations (and currencies). In this scenario, only a coordinated response involving all major currencies other than the yen can move the world toward the status quo ante, but such coordinated responses may be much more difficult to orchestrate. Similar problems can arise with banking regulation and other types of monetary policy coordination.

### VIII. CONCLUSION

Our Article might seem excessively pessimistic, but that would be a misinterpretation of it. If it had been written in 1940, it would have been regarded as excessively optimistic. We suspect that from 1945 to the present, countries have exploited all or nearly all the gains from international macroeconomic cooperation that are possible under the sort of rules-based system that can be the subject of international law. Particularly from 1990 to 2001, international conditions were about as favorable as they have ever been for international cooperation, so it is predictable that countries would have exploited whatever gains were available. Further gains can be obtained only through the merger of states, so that central banks and other financial regulators could exercise discretionary authority over a larger population. That is what the Europeans tried, with mixed results, probably because the European economies are not sufficiently integrated and European populations lack sufficient solidarity.

