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When Sports Help Economies Score



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The Passing of an Iconic Figure at the IMF

IT is with great sadness that we report the death in February of Jacques Polak, whom we profiled in our June 2008 issue of *Finance & Development*. Dr. Polak was an iconic figure at the IMF and was present at the creation of the Fund in 1944.

During the three decades he was a senior IMF official, he played a major role in the development of the international monetary system: its creation in the years immediately following World War II and its recalibration in the early 1970s after the demise of the global fixed exchange rate system. He was instrumental in the development of Special Drawing Rights—the international reserve asset that was utilized as recently as last year to bolster international liquidity during the global financial crisis.

But it was his development of the eponymous Polak Model in 1957 that both Dr. Polak and colleagues agreed was the economist's most important contribution both to economics and to the institution he served for six decades.

The Polak Model explained a country's balance of payments in monetary terms, enabling economists to understand the causes of a country's international economic imbalances. By locating the source of balance of payments problems in domestic credit creation, the model gave the IMF the ability

to prescribe the steps a nation in economic distress should take to correct them.

Dr. Polak, who was 95 when he died, also served as president of the IMF's Per Jacobsson Foundation from 1987 to 1997 and after that maintained an advisory role, coming to the IMF several times a week until late 2007. He will be greatly missed by all of us.

In this issue of *F&D*, we look at why countries vie to host the world's most costly sporting events and, in several articles, look at the continued fallout from the global economic crisis. As usual, we take on a number of hot topics, including housing prices, protectionism, bankers' bonuses, Ponzi schemes, and dollarization. In "Picture This" we look at how hunger is again on the rise in parts of the world and our regular "People in Economics" column profiles Daron Acemoglu, the Turkish-born intellectual who won the American Economic Association's award in 2005 as the most influential U.S. economist under the age of 40.

Jeremy Clift
Editor-in-Chief

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Breacher of the Peace

Simon Willson profiles

Daron Acemoglu

ANIGHT in jail first underscored to Daron Acemoglu the importance of regulation in the market system. The teenaged Acemoglu had been one of several unlicensed learner drivers careening around a deserted highway in Istanbul, Turkey, typically used for practice by such drivers. That day the city police decided to intervene. A swift and unpredictable roundup saw Acemoglu and several other drivers bundled into cells downtown pending a stern dressing down the next morning.

“Without regulations and predictable laws, markets won’t work,” Acemoglu, now older and wiser as Charles P. Kindleberger Professor of Applied Economics at the Massachusetts Institute of Technology (MIT), ruefully admits. A few hours’ perusal of his cell’s cement decor, and the administrative chastisement that followed, left a lasting recognition of the importance of impartially adjudicated rules, even in overtly free markets.

“Every single market we have in the world is regulated, it’s just a question of degree,” Acemoglu reflects while surveying through his office window the bleak and bleached vista of the frozen-over Charles River, which runs through Cambridge, Massachusetts. “When you have some judge who will enforce laws, that’s regulation. This is much more palpable in developing economies, where markets don’t work precisely because the necessary regulations and institutions are missing. Governments are often barriers to the functioning of markets, but



if you really want markets to function you need governments to support them—with law and order, regulation, and public services.”

Early exposure

Acemoglu’s early personal exposure to the processes of law enforcement helped set him on course for a career that has latterly focused on why some states succeed as viable generators of wealth and fulfillment, and why others fail and stay failed. The circuitous route leading to this field of investigation took the Istanbul-born economist from starting out as a student of political science, to broadening his studies to include economics, and then to dropping politics altogether.

At the University of York in northern England in the mid-1980s, Acemoglu concentrated on macroeconomics, but increasingly found that macroeconomic trends were sourced in microeconomics. “If you want to fully understand the wider macro picture—growth, political economy, long-run issues—you have to understand underlying micro principles such as incentives, allocation of resources, technological change, and capital accumulation.”

This awareness and exposition of overlap and interplay between the two major disciplines of economics made Acemoglu a singular hybrid who untidily disturbed a previously settled demarcation. “A lot of what I do is political economy theory, and much of that is essentially application of game theory, so you could say it’s micro, but motivated by bigger-picture questions that macro also prides itself on.”

From York, Acemoglu completed his doctorate at the London School of Economics (LSE), where he occasioned on a “transformative moment” in meeting his longtime collaborator James Robinson, now professor of government at Harvard University. When Acemoglu and Robinson got talking, things happened fast. “We agreed that the key factor in starting economic development is democracy,” Acemoglu reminisces. “But there were no models of how democracy comes about, and the political science literature was no help, so we started working on it as a topic in 1995, and we have been at it ever since.”

Robinson remembers a rumpled, gesticulating figure loudly questioning his methodology from the front row of a group of LSE seminar participants. “I was presenting my research at a seminar in early 1992 and there was a really annoying Ph.D. student right in front of me, continually interrupting and finding fault with my presentation. A group of us went out for dinner afterwards and I ended up seated next to the same irritating character, but we got talking and I found he had some original ideas that he put across very well. That was Daron.”

Acemoglu seems to have systematically embarked on an argumentative auditioning of potential research partners at this time, because another future collaborator, LSE economics professor Steve Pischke, remembers receiving the same treatment. “I was giving a seminar talk at the LSE in 1991, and there was this obnoxious grad student in the front row querying my

methods and demanding additional information,” Pischke recalls. “And Daron had even more to say when we went out for a meal later.”

Pooled research

By early 1993 Acemoglu and Robinson—who was then teaching in Australia—were exchanging ideas on research topics by a newfangled communications medium. “It was the first time I had ever used e-mail,” Robinson recalls. “We started e-mailing our papers to each other, and we suddenly found that we had independently and separately written two almost identical papers on the same subject.” Displaying the true economist’s deep abhorrence of duplication and inefficiency, the two academics started pooling their research.

By the time his work with Robinson had shifted into high gear, Acemoglu had moved to “my first real job,” starting as an assistant professor of economics at MIT in 1993. It did not take long for his characteristically untidy disregard for the established boundaries of his profession to cause a stir in the corridors alongside the Charles River. Fueled by the originality of Robinson’s input, Acemoglu had continued to develop in Cambridge, Massachusetts, the hybrid macro-micro line of research on political economy theory he had first staked out in London.

“When I was up for promotion at MIT my faculty superiors said most of my work was good and interesting and had gotten good feedback. But they also said, ‘You really should stop this work you’re doing on political economy.’ So I hid that part of my work for the next two years, until I got my tenure.” By the time Acemoglu secured a tenured position at MIT in 1998, his political economy approach had become almost mainstream.

Notions of a complacent culture

Acemoglu joined other academic economists in looking inward at the profession (Acemoglu, 2009) for intellectual errors made in its heralding and handling of the global economic and financial crisis that hit in earnest in 2008. He believes three notions, in particular, stifled any sense of alarm.

First was a belief that business cycles had been conquered by a combination of astute policymaking and game-changing technological innovation. In fact, these two forces of evolution had increased economic interconnections to the point of creating potential domino effects among financial institutions, companies, and households.

Second, the institutional foundations of markets had been forgotten, and free markets had been equated with unregulated markets. Few would now argue that market monitoring is sufficient to guard against opportunistic behavior by unregulated, profit-seeking individuals taking risks from which they stand to benefit and others lose.

And third, the reputational capital of long-lived, large organizations was overestimated despite early warnings from the accounting scandals at Enron and WorldCom in the early 2000s. Trust in the self-monitoring capabilities of such organizations has now suffered a death blow, and future punishments for infractions will need to be punished severely and credibly.

Safely ensconced at MIT, Acemoglu in 2005 won the American Economic Association's John Bates Clark Medal, then awarded biennially to the most influential U.S. economist under the age of 40. He worked with Robinson—by then teaching at Berkeley and now at Harvard—on a book, *Economic Origins of Dictatorship and Democracy*, published in 2006. “I was really interested in issues of underdevelopment, so I started reading authors who had all worked on dependency theory about how the world was divided into poor and rich because the poor had been exploited by the rich. And I was fascinated by why Turkey had been poor and undemocratic.”

In *Dictatorship and Democracy*, Acemoglu and Robinson started down a route they are still traveling. They ask why some countries are democracies—where there are regular and free elections and politicians are accountable to citizens—and why other countries are not. They investigate which factors determine whether a country becomes a democracy, and why democracy persists and consolidates in some countries but collapses in others. But, tracing Acemoglu's own career path, the book explains democracy from an economic rather than a political viewpoint, stressing that individual economic incentives determine political attitudes.

The book also highlights the fundamental importance of conflict in the political sphere, paralleling the role of com-

petition in the economic sphere. Different societal groups or social classes have opposing (and usually rent-seeking) interests over political outcomes. These opposing interests translate into entrenched clashes over the form of the political institutions that determine the political outcomes.

Coauthoring the book gave Robinson further insights into the ever-widening scope of Acemoglu's research interests. “Most economists can be defined by their specialty or research focus, but not Daron. There is no category for him—he does everything, and he has a model for just about everything too. I don't know where he finds the energy for all his fields of interest. He is relentless.” Could all that passion and drive ever get in the way of a more contemplative approach? Robinson concedes: “Daron can be obsessed with getting all the details right.”

A paper written early in their collaboration had been submitted to a journal, and the response came in the mail while the two authors were huddled in Robinson's Los Angeles office. Rejection. “I was really downcast and depressed in reading the perfunctory referees' reports, and I was sitting there looking out of the window and wondering where we would go from there,” Robinson recounts. “I turned to Daron and saw that he was already scribbling algebra on scrap paper. ‘I'll just rework the model and we'll submit it somewhere else,’ was his reaction.”

Pischke acknowledges that Acemoglu may have spread his wide interests a little thin early in his career, but insists that his research partner quickly developed the analytical heft to support such voracious curiosity. “He has very wide-ranging interests and knowledge, and he does end up working in several different fields at the same time, but he has the capabilities to pull it off.”

Applied contemplation

Acemoglu's applied contemplation of the economic origins of democracy led, through a series of journal papers, to a second book (Acemoglu, 2008), which looked at the timing and incidence of democracy. *Introduction to Modern Economic Growth*, a textbook of more than 1,000 pages based on the courses he teaches at MIT, moves on a step from the “Why democracy?” he asked in the first book to include—deep in the book—“When democracy?” Again, Acemoglu finds a central economic rationale.

“We have done a lot of empirical work that shows a very clear causal link between inclusive economic institutions—those that encourage participation by a broad cross section of society, enforce property rights, prevent expropriation—and economic growth,” Acemoglu asserts. “The link to growth from democratic political institutions is not as clear.”

Policies and institutions, the textbook states, are central to understanding the growth process over time. The book then uses this theoretical underpinning to explain two key “When democracy?” questions: Why did the world economy not experience sustained economic growth before 1800? And why did economic takeoff start around 1800 and in western Europe?

The textbook contends there was no sustained growth before 1800, first, because no society before that date had invested in human capital, allowed new firms to bring new

Movie mantra

In assembling his view of the causes of and cures for the global financial crisis that started in 2008, Acemoglu found himself echoing and adapting lines from a celebrated movie script. In the 1987 Oliver Stone film *Wall Street*, lead villain Gordon Gekko, played by Michael Douglas, famously intoned: “Greed—for lack of a better word—is good. Greed is right. Greed works. Greed clarifies, cuts through, and captures the essence of the evolutionary spirit.”

In an early analysis of the global crisis (Acemoglu, 2009) Acemoglu states: “A deep and important contribution of the discipline of economics is the insight that greed is neither good nor bad in the abstract. When channeled into profit-maximizing, competitive, and innovative behavior under the auspices of sound laws and regulations, greed can act as the engine of innovation and economic growth. But when unchecked by the appropriate institutions and regulations, it will degenerate into rent-seeking, corruption, and crime.”

Acemoglu saw the movie and did recall the Gekko monologue when he drafted his passage on greed. “Everybody responds to incentives. For the vast majority of people, there is a continuum between ambition and greed, and this is where institutions play a role. Institutions can put a stop to excess by functions such as the regulation of monopolies so that they don't crush the opposition. Greed is only bad if it is channeled into doing bad things. Institutions can channel greed into excellence.”

But Acemoglu cautions that U.S. institutions that used to channel the greed of bankers and financiers into doing good in the 1980s and 1990s have been decommissioned. “We—the economics profession giving advice and the policymakers enacting the laws—dismantled the system that the institutions operated and did not replace it with any kind of checks on the behavior of the financial industry. That's how greed was allowed to be bad.”

technology, and generally unleashed the powers of creative destruction; and second, because all societies before 1800 lived under authoritarian political regimes. And economic takeoff started in western Europe because international trade rose after the discovery of the New World and the opening of new sea routes. The trade uptick boosted commercial activity and vested more economic and political power in a new group of merchants, traders, and industrialists, who then began to operate independently from European monarchies.

Acemoglu acknowledges that economic growth can be generated by authoritarian regimes, but insists that it cannot be sustained. “It did happen for 300 to 400 years, on and off, in ancient Rome, and that’s not a short period of time, but everything happened much more slowly then. And it has happened for the last 20 years—and probably for the next 20—in China, but there will be three obstacles to growth under authoritarian regimes: there are always incentives for such regimes to be even more authoritarian; these regimes tend to use their power to halt Schumpeterian creative destruction, which is key to sustaining growth; and there is always infighting for control of authoritarian regimes, which causes instability and uncertainty.”

Acemoglu and Robinson are already working on their next book, *Why Do Nations Fail?* Following the “Why democracy?” of their first book and the “When democracy?” of Acemoglu’s textbook, the third in what may be informally regarded as a trilogy will likely ask, “What if not democracy?”

Cure could be cause

Acemoglu sees cause for concern that the policies used to address the current global financial crisis may have planted the seeds for the next crisis. “Are we creating the background for the next crisis by the policies we have thrown at the problem? In my opinion, that’s not an insubstantial risk.

“Once the crisis subsides, we’ll be back to business as usual and we won’t do anything about it. Before the crisis the United States had 20 or so large banks accounting for a large proportion of GDP [gross domestic product] and an even bigger part of total corporate profits and total financial sector employee compensation. Now we have five or six institutions playing that role, so it’s a much more monopolized system. U.S. financial institutions saw that the clear narrative behind policies to address the crisis was ‘You are too big to fail.’ Well, they are ‘too big to fail squared’ right now.

“They expected that the U.S. government had the will and the political support to bail them out, one way or another. If you are the chairman of a large bank now, and you have a fiduciary duty to your shareholders to maximize profits, then it is your duty to take maximum advantage of all the things the government may give you in the current regulatory environment.

“If, on the other hand, we had the right regulations, the chairman’s fiduciary duty to his shareholders would be to maximize profits by better financial intermediation, not by more proprietary trading—banks trading on their own behalf and not for clients. It’s difficult to see how an efficient allocation of resources in a capitalist system could be such that a sizable portion of the profits in the U.S. economy are made from proprietary trading instead of financial intermediation or mergers and acquisitions.”

“Dysfunctional societies degenerate into failed states,” asserts Acemoglu, “but we can do something about it. We can build states with infrastructure and law and order in which people are confident and comfortable going into business and relying on public services, but there is no political will to do that. You would not need armies to implement such a scheme—just a functioning bureaucracy to lay down the institutional foundations of markets.”

Reward structure

Acemoglu’s look at failed states will aim to show why some countries reach economic takeoff and some do not. This will partly involve an account of how policies and institutions directly affect whether a society can embark on modern economic growth. These policies and institutions will determine the society’s reward structure and whether investments are profitable; its contract enforcement, law and order, and infrastructure; its market formation and whether more efficient entities can replace those that are less efficient; and its openness to new technologies that may infringe on politically connected incumbents.

The conclusions are likely to revisit the contrast in *Dictatorship and Democracy* between the growth-promoting clusters of institutions nurtured under participatory regimes, and the growth-blocking extractive institutions established under authoritarian regimes.

What wider ambitions might such an ebullient, eclectic, and unpredictable academic still nurture within the confines of an MIT office and adjoining lobby unsteadily stacked with journals, periodicals, reference works, and dog-eared manuscripts? On a personal level, wife Asu is expecting the couple’s first child in May, “so my biggest personal ambition is to turn out to be a decent father.” Outlining his principal professional goal, Acemoglu projects his multifaceted academic interests onto a broader canvas. “There is a need for more interdisciplinary conversation and informed debate on important topics in the social sciences. In the United States, public intellectuals are seen as losers, but in the United Kingdom they take part in national dialogue. I would like to see that here and perhaps be part of it.”

But a return to Turkey will not feature in Acemoglu’s immediate plans. “I can’t go back because I left without doing military service. I’d be arrested if I returned.” The penalty: back to jail. ■

Simon Willson is a Senior Editor on the staff of Finance & Development.

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Prize or

Jeremy Clift

AN ocean away from Table Mountain, the South African plateau that overlooks one of the key sites of the soccer World Cup, Thailand's sports goods manufacturers have been gearing up for the event for months. Thailand is not among the 32 teams that made it to the final rounds of the global competition, the world's biggest sporting festival outside the Olympics. But its manufacturers of sports shoes, balls, and soccer shirts are expecting a world export bonanza—a welcome boost after last year's downturn in the country's textile and clothing exports during the global economic crisis.

"We strongly believe the World Cup will give our exports a shot in the arm, especially garments and sportswear," said Wallop Witanakorn, secretary-general of the Thai Garment Manufacturers Association. "We expect football mania to help lift Thailand's garment

shipments in 2010 and see growth in a range of 10–15 percent."

The World Cup, staged every four years, may be seen by some in Thailand in purely economic terms, but in host country South Africa it is viewed as a pivotal moment for the nation. Since the end of apartheid in 1994, South Africa has regularly hosted major international sporting events, including the rugby World Cup in 1995 and cricket World Cup in 2003. But the soccer World Cup is in a class of its own in terms of global attention and television audience.

This is the first time Africa has hosted the soccer World Cup and its symbolism goes far beyond the immediate pride of hosting the event. Staging the globe's most prestigious football tournament has become intertwined with rebuilding the economy, reducing lingering social divisions and showcasing a new national identity in South Africa.



Penalty

Sports events like the soccer World Cup stimulate trade around the world and spotlight the host country

So it may not matter much that a number of prominent economists who study sports question the value of hosting such mega sporting events as the World Cup and the Olympics. The costs outweigh the economic benefits, they say. In this issue of *F&D* we look at the pluses and minuses of hosting mega sports events as well as the trade boost that can accrue.

A 2008 report from consulting firm Grant Thornton predicted that the monthlong World Cup tournament could inject about \$7.6 billion into South Africa's economy, create or sustain more than 400,000 jobs, and draw close to 490,000 foreign tourists to the country.

President Jacob Zuma extols the economic impact: "The country's transport, energy, telecommunications, and social infrastructure are being upgraded and expanded. This is contributing to economic develop-

ment in the midst of a global recession, while improving conditions for investment."

But some economists are skeptical. They foresee large white elephants, such as stadiums that are little used following the event they were built for, and in general a diversion of funds to the mega event that could be better spent on social projects, such as schools and hospitals.

Nonetheless, at the end of the day it doesn't seem to matter whether the economists or the boosters are right. The desire to host a World Cup or the Olympics seems insatiable. As Simon Kuper and Stefan Szymanski say in their book *Soccernomics*, reviewed on page 56, "hosting doesn't make you rich, but it does make you happy." ■

Jeremy Clift is Editor-in-Chief of Finance & Development.



Is It Worth It?

Hosting the Olympic Games and other mega sporting events is an honor many countries aspire to—but why?

Andrew Zimbalist



WHEN Rio de Janeiro won the bid last October to host the 2016 Summer Games, thousands of jubilant Brazilians danced on Copacabana Beach and the news made headlines around the world. Chicago's failed bid for the same games reportedly cost that city about \$100 million. Why do countries place so much value on hosting the Olympics or similar mega sporting events?

Hosting a large sporting event potentially offers both direct and indirect economic benefits. Direct benefits include capital and infrastructure construction related to the event, long-term benefits such as lower transportation costs thanks to an improved road or rail network, and spending by tourists who travel from out of town to attend the games. Indirect benefits may include advertising effects that showcase the host city or country as a potential tourist destination or business location in the future and an increase in civic pride, local sense of community, and the perceived stature of the host city or country. But there is also a potential downside, resulting from possible cost overruns, poor land use, inadequate planning, and underutilized facilities.

The Olympic Games are much like other large sporting events, such as the World Cup, Super Bowl, or World Series, but they involve many more participants, officials, and fans; require more infrastructure construction; generate many more out-of-town visitors; and generally have a much higher profile.

Potential benefits

Of the direct economic benefits generated by mega sporting events, tourist spending is probably the most highly touted. An average of 5.1 million tickets were sold for the past six Summer Olympic Games, and an average of 1.3 million tickets for the past five Winter Olympics. Even though many of the tickets are sold to local residents, especially for the Summer Games, which typically take place in large metropolitan areas, a sporting event of this size and scope has the potential to attract a

significant number of visitors from outside the host city. Also, since the games are spread over more than two weeks, these visitors may spend considerable time in the host area, generating substantial spending in the lodging and food and beverage sectors. Additional visitors for the games, however, are likely to be at least partially offset by fewer visitors for other purposes (tourism or business), as the latter seek to avoid the higher prices and congestion associated with the Olympics. Further, even if hotel occupancy rates and room prices rise during the games, the extra revenue often leaves the local economy as hotel profits are transferred to the company's home office.

Hosting a mega event like the Olympic Games often requires expansive infrastructure to move the participants, officials, and fans to and from the venues. A majority of past transportation infrastructure construction has been on roads. But host cities and regions have also spent considerable sums on airport construction as well as on the renovation and construction of public transportation systems (Essex and

Hosting the games

Year	Host of Summer Olympics	Host of Winter Olympics
1976	Montreal, Canada	Innsbruck, Austria
1980	Moscow, Soviet Union	Lake Placid, United States
1984	Los Angeles, United States	Sarajevo, Yugoslavia
1988	Seoul, South Korea	Calgary, Canada
1992	Barcelona, Spain	Albertville, France
1996	Atlanta, United States	Lillehammer, Norway
1998		Nagano, Japan
2000	Sydney, Australia	
2002		Salt Lake City, United States
2004	Athens, Greece	
2006		Turin, Italy
2008	Beijing, China	
2010		Vancouver, Canada
2012	London, United Kingdom	
2014		Sochi, Russia
2016	Rio de Janeiro, Brazil	



China marks one-year anniversary of the 2008 Beijing Olympic games.

Chalkley, 2004). The bullet train built for the Nagano Games greatly reduced the travel time between that city and Tokyo.

In less-developed cities, building modern telecommunications capacity also represents a substantial investment. The construction of this infrastructure generates appreciable economic activity in the host community. Many construction workers must be hired and large quantities of construction materials must be purchased and transported.

Beyond the construction period, sports-event-generated infrastructure can provide the host metropolitan area or region with a continuing stream of economic benefits. The venues built for these events can be used for years or decades afterward. More important, upgrades to the transportation infrastructure can provide a significant boost to the local and regional economy, if local businesses are able to make use of the improved transportation infrastructure.

The indirect economic benefits generated by mega sporting events are potentially more important than the direct benefits, but are more difficult to quantify. One possible indirect benefit is the advertising effect of such events. Many Olympic host metropolitan areas and regions view the Olympics as a way to raise their profile on the world stage. In this sense, the intense media coverage before and during the Olympic Games or other big events is a form of advertising, possibly attracting tourists who would not have otherwise considered the city or region, and who may generate significant, broad, and long-lasting economic benefits.

Reality, however, often departs from theory. For instance, one of the goals of the Sydney Games was to generate increased tourism after the games, but Graham Matthews, a former forecaster for the Australian Federal Treasury, stated: “While having the Olympics may have made us feel warm and fuzzy and wonderful, in cold hard terms it’s actually hard in international experience to determine if there has been a positive, lasting impact on tourism from having that brief burst of exposure” (Burton, 2003).

Public awareness of past Olympic host sites in both Europe and North America was the subject of a study by Ritchie and Smith (1991). Based on several thousand telephone interviews carried out over 1986–89, fewer than 10 percent of the North American residents surveyed and fewer than 30 percent of the Europeans could recall that Innsbruck, Austria, was the site of the 1976 Winter Olympic Games. Only 28 percent of the North Americans and 24 percent of the Europeans surveyed remembered that the 1980 Winter Games took place in Lake Placid, New York. Other research showed that the memory of Calgary having hosted the 1988 Winter Games had almost entirely faded by 1991 (Matheson, 2008). And if accompanied by bad weather, pollution, unsavory politics, or terrorist acts, the games may actually damage a location’s reputation.

Other mega sporting events, such as the Super Bowl or the World Cup, experience similar economic dynamics to the Olympics, although construction expenditures are considerably lower. Multivariate econometric studies of the impact of the World Cup have found that hosting this quadrennial international competition brings little or no income or employment benefit to the host venue.

Nonetheless, hosting an event like the Olympic Games or the World Cup can generate significant intangible benefits for the host city or region, whose residents are likely to derive appreciable pride and sense of community from hosting the event. Their homes are the focus of the world’s attention for a brief but intense period. The planning and work required to host the event take significant time and effort—much by volunteers—and engender a considerable local and national sense of accomplishment. These factors are both important and valuable, even though researchers find it difficult to place a dollar value on them.

Potential downside: Uncertainties and heavy costs

In 1976 a watershed event shook up the financing model for the Olympic Games and set them on their current economic course. That year, Montreal hosted the Summer Games. After city officials projected the games would cost \$124 million, Montreal incurred a debt of \$2.8 billion, or about \$10 billion in 2009 dollars, which took three decades to pay off (Burton, 2003).

By the end of the Montreal Games, Moscow had already committed to hosting the 1980 Olympics, but no city wanted to bid for the 1984 Games. After some scrambling, Los Angeles agreed to host the games, but only on the condition that it not incur any financial obligation. With no alternative, the International Olympic Committee (IOC) accepted the condition and Los Angeles was awarded the 1984 Summer Games.

The Los Angeles Organizing Committee for the Olympic Games (LA OCOG) generated a modest surplus of just over \$300 million and reset the Olympic financial model for less public and more private financing. Los Angeles spent very little on construction, and the chair of the LA OCOG, Peter Ueberroth, was able to raise substantial sums by selling sponsorships to corporations. The relative financial success of the Los Angeles Games led to a new era of international competition among cities to host the games.

Unfortunately, the Los Angeles experience was exceptional. Subsequent host cities found it impossible to procure the same proportion of private support. Several billion dollars in public monies was committed in Seoul (1988), Barcelona (1992), Nagano (1998), Sydney (2000), Athens (2004), and Beijing (2008).

The Barcelona Olympics left the central Spanish government \$4 billion in debt, and the city and provincial governments an additional \$2.1 billion in the red. The Nagano Organizing Committee showed a \$28 million surplus, while the various units of Japanese government were left with an \$11 billion debt (Burton and O'Reilly, 2009). In Athens, public investment exceeded \$10 billion, and in Beijing, more than \$40 billion.

Initially publicized budgets—in the case of the Olympics, that of the OCOG—invariably understate the ultimate cost of staging the games. The OCOG budget covers only the operating costs of hosting the games, including the opening and award ceremonies, transportation of the athletes to the various venues, entertainment, a telecommunications/broadcasting center, and security, among other things. The total cost to the host city also includes construction and upgrading of the competition venues, accommodations for athletes and visitors, facilities for the media, and associated infrastructure. Many of the venues—such as a velodrome for bicycle racing or a bobsled/skeleton/luge run—are especially costly to build because of their specialized nature. Olympic venues require exceptionally large seating capacities: the stadiums hosting the opening and closing ceremonies for the Summer Olympic Games often seat 100,000 or more spectators.

Between the time a host city puts in its bid for an event and the time it takes place, construction costs and land values may increase significantly. Also, early proponents of hosting an event in a particular city find it in their interest to underrepresent the true costs while they seek public endorsement. And as would-be host cities enter into competition with other bidders, there is a natural tendency to match their competitors' proposals and to add bells and whistles to their plans.

Projected budgets are never enough to cover actual costs. Athens initially projected that its games would cost \$1.6 billion, but they ended up costing closer to \$16 billion (including facility and infrastructure costs). Beijing projected costs of \$1.6 billion (the operating cost budget of the Beijing OCOG), but the final price tag was \$40 billion, including facility and infrastructure expenditures such as expansion of the Beijing subway system. The 2014 Winter Games in Sochi, Russia, were initially budgeted at about \$12 billion; the projected cost in late 2009 reached \$33 billion—\$23 billion from public sources (*Sports Business Daily*, 2009).

Interested cities spend up to \$100 million just to conduct their bids to host the Olympics. If the bidding process for the games were perfectly competitive, any expected local economic benefit would be bid away as cities competed with each other to host the games: the city with the highest expected gain could win by bidding just \$1 more than the expected gain to the second-place city, yielding a small benefit to the winning city. But the process is not based on dollar

amounts; rather, cities bid by offering facilities and guaranteeing financing and security. And since September 11, 2001, security costs have been huge: total security costs in Athens in 2004 topped \$1.4 billion, with 40,000 security people employed. Beijing in 2008 reportedly had more than 80,000 security personnel at work.

London expected its 2012 Games to cost less than \$4 billion, but they are now projected to cost \$19 billion (*Sports Business Daily*, 2009). As expenses have escalated, some of the projects have been scaled back—for example, the planned roof over the Olympic stadium has been scratched—but the stadium will still end up costing more than \$850 million, against the initial projection of \$406 million. The government has been unsuccessful in its effort to find a soccer or rugby team to be the facility's anchor tenant after the 2012 Games. This will saddle British taxpayers with the extra burden of millions of dollars annually to keep the facility operating. It is little wonder that London Olympics Minister Tessa Jowell said, "Had we known what we know now, would we have bid for the Olympics? Almost certainly not" (*Sports Business Daily*, 2008, citing the *London Telegraph*).

Some of these expenditures result in an improved, more modern infrastructure for the host city, but others leave the host with white elephants. Many facilities built especially for the games go un- or underutilized after the 16 or 17 days of the competition itself, require tens of millions of dollars a year to maintain, and occupy increasingly scarce real estate. In Turin, for example, the bobsled-run venue cost \$108 million to construct, and Deputy President of the Turin Olympic Organizing Committee Evelina Christillin commented to a *Wall Street Journal* reporter, "I can't tell you a lie. Obviously, the bobsled run is not going to be used for anything else. That's pure cost" (Kahn and Thurow, 2006).

Total revenue from the Summer Olympic Games now averages in the neighborhood of \$4–\$5 billion, and roughly half that for the Winter Games (which also have lower costs thanks to fewer participants, fewer venues, and less construction). Close to half the money earned supports the activities of the international federations, the national Olympic committees, and the IOC itself.

Clearly, if there is an economic benefit from hosting the Olympic Games, it is unlikely to come in the form of improving the budgets of local governments, which raises the question of whether there are broader, longer-term, or less tangible economic gains.

Leveraging the benefits

There is relatively little objective evidence on the economic impact of the Olympic Games and other mega sporting events. Much of the existing evidence has been developed by the host cities or regions—which have a vested interest in justifying the large expenditures on such events—and suffers from a number of flaws.

Estimates of the economic impact of such events derived from published academic research offer more reliable evidence, both because the authors have no personal interest in the economic success of the events and because the peer

review process provides an important check on the methods and assumptions used. These studies present the following picture of the economic impact of hosting the Olympic Games: although a modest number of jobs may be created as a result of hosting the games, there appears to be no detectable effect on income, suggesting that existing workers do not benefit (Hagn and Maennig, 2009; and Matheson, 2009). Moreover, the impact of hosting the games depends on the overall labor market response to the new jobs created by the games and might not be positive (Humphreys and Zimbalist, 2008). The economic impact of hosting the World Cup appears, if anything, to be even smaller (Hagn and Maennig, 2008 and 2009).

If the economic gains are modest, or perhaps nonexistent, what can host cities and regions do to maximize the benefits of hosting events like the Olympic Games? A careful examination of past experience suggests two important ways to do so: first, host cities or regions need to make careful land use decisions and, second, they should maximize postevent use of new and renovated facilities and infrastructure.

Land is increasingly scarce both in the large urban areas that typically host the Summer Games and in the mountainous areas that host the Winter Games. Hosting the Olympic Games requires a significant amount of land for sports facilities, parking, and housing for athletes, media, staff, and spectators.

Unsuccessful games leave behind legacies of seldom- or never-used structures that take up valuable land and are expensive to maintain. For example, in Sydney, Australia, it now costs \$30 million a year to operate the 90,000-seat Olympic stadium. Many of the venues used in the 2004 Athens Games are either vacant or seldom used and occupy valuable land in a crowded urban center. The Beijing Games left a legacy of several expensive buildings, including the elaborate Water Cube swimming facility, which is severely underused. In contrast, successful events, like the Los Angeles Summer Olympics, use existing facilities as much as possible, making good use of scarce urban land. The stadium used for the opening and closing ceremonies in the 1996 Atlanta Games was reconfigured into a baseball stadium immediately

after the games. Olympic planners need to design facilities that will be useful for a long time and that are constructively integrated into the host city or region.

Developing countries gain more

The impact of hosting major sporting events varies according to the level of development in the host city and country. With proper planning, hosting a large event can serve as a catalyst for the construction of modern transportation, communications, and sports infrastructure, which generally benefits less-developed areas more.

Although hosting the Olympics requires a significant outlay of public funds for improvements that could have been made without hosting the games, public policy is often so gridlocked that needed infrastructure investments could be delayed for years or even decades if not for the Olympics. And the IOC does provide some funding to facilitate the completion of desirable projects (Preuss, 2004).

In more developed regions, where land is scarce during the initial bidding and planning period—and destined to become scarcer still over the 7- to 10-year period of Olympic selection and preparation—and labor and resource markets are tight, hosting the games can cause gross misuse of land and provoke wage and resource price pressures, fueling inflation.

Think before you bid

The economic and noneconomic value of hosting a major event like the Olympic Games is complex and likely to vary from one situation to another. Simple conclusions are impossible to draw. The bidders for the next Winter Olympics—Annecy, France; Munich, Germany; and PyeongChang, South Korea—as well as the many cities thinking of bidding for the 2020 Summer Games would do well to steer clear of the inevitable Olympic hype and to take a long, hard, and sober look at their regions' long-term development goals. ■

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The Olympic Trade Effect

Countries that bid for the Olympics are sending a signal that they are ready to open up trade

Andrew K. Rose and Mark M. Spiegel

ECONOMISTS are usually skeptical of arguments about the public provision of infrastructure for sporting events, and rightly so. Agents who endorse the construction of new sports stadiums or the staging of mega sporting events usually do so out of naiveté or self-interest. In practice, these events are expensive, especially for developing countries. The opening ceremonies of the 2008 Beijing Games are estimated to have cost well over \$100 million—while at least 100 million Chinese live on less than \$1 a day.

Rio de Janeiro recently won the right to host the 2016 Olympic Games with a \$15 billion bid, a sum equal to over \$2,000 for each citizen of Rio, even before the expected cost overruns. A substantial part of this money is planned to go toward upgrading the city's transportation system. But if transport investments make sense for a large city with the Olympics looming, don't such investments just plain make sense, without the spur of hosting the Olympics? Should long-term investment decisions really be tied to peak demand that lasts just two and a half weeks? More generally, the motivation for hosting a mega event like the Olympics seems elusive to economists. Plausibly measured direct net economic effects are rarely large and typically negative; noneconomic benefits are difficult to verify. Can funding mega events possibly be a good use of the public treasury? Perhaps: the doubts of professional economists are rarely shared by policymakers and the local population, which is typically enthusiastic about such spectacles. In practice, countries compete fiercely for the right to host mega events. Is it possible that the economics profession is missing something?

The International Olympic Committee (IOC) certainly believes so. The IOC believes visitors will be drawn to host-city venues and products after being exposed to them

through the games. This boils down to a view that hosting the Olympics will promote a nation's exports, especially its tourism. We are dubious of the practical relevance of this argument; any export boost from the Olympics would seem to be both small and transient. We thus began our recent research by examining this theory empirically.

We use a standard "gravity" model of trade, which predicts that trade volumes between two countries will be a function of their distance from each other and a number of other explanatory variables. This model has been widely shown in the literature to explain a large portion of cross-country variation in trade levels. We add a variable to allow for persistent Olympic effects. We find strong evidence of a large positive effect (some 30 percent higher) of the Olympics on exports. Our skepticism therefore seemed unwarranted; the permanent "Olympic trade effect" on exports is large and positive.

In other results reported in our 2009 paper, we show that all trade rises; imports rise just as much as exports. Our



Opening ceremony for Barcelona Olympics, 1992.

results are also subjected to a battery of other sensitivity checks. The Olympic trade effect remains positive and significant throughout. We then look at other mega events, such as the World Cup and world fairs, and find that these also have large positive effects on trade.

Why is hosting a mega event associated with extra trade? Anecdotal evidence suggests that hosting a mega event is linked in practice with trade liberalization. In July 2001, Beijing was awarded the right to host the Games of the XXIX Olympiad. Just two months later, China successfully concluded negotiations with the World Trade Organization (WTO), thus formalizing its commitment to trade liberalization. Nor is this a one-off coincidence. Rome was awarded the 1960 games in 1955, the same year Italy started to move toward currency convertibility, joined the United Nations, and, most important, began the negotiations that led two years later to the Treaty of Rome and the creation of the

We find strong evidence of a large positive effect of the Olympics on exports.

European Economic Community (EEC), predecessor to today's European Union. The Tokyo Games of 1964 coincided with Japanese entry into the International Monetary Fund and the Organization for Economic Cooperation and Development. Barcelona was awarded the 1992 Games in 1986, the same year Spain joined the EEC; the decision to award Korea the 1988 Games coincided with Korea's political liberalization. The correlation extends beyond the Olympics; the 1986 World Cup was held in Mexico, coincident with its trade liberalization and entry into the General Agreement on Tariffs and Trade, the predecessor to the WTO.

So the real explanation of the Olympic trade effect seems to be that countries that liberalize trade simultaneously host mega sporting events like the Olympics. Perhaps hosting a mega event induces trade liberalization thanks to the activity or infrastructure associated with hosting the Olympics. Not so fast. We subject *unsuccessful* bids to host the Olympics to the same methodology that we did successful bids and find that they also have a positive impact on trade, as large as the effect of actually hosting the games.

Given that the act of hosting the games has no measurable effect beyond that experienced by an unsuccessful bidder, we conclude that becoming a serious bidder, either successful or unsuccessful, has a signaling impact. Because these bids are commonly followed by moves toward liberalization, it seems logical that the action of attempting to become a mega event host sends a signal that a country wishes to liberalize trade.

Why should a country wish to send this costly signal? We introduce a model in which sending such a signal generates irreversible extra trade-related investment and, more important, creates a political atmosphere in which backsliding on either the mega event or trade liberalization becomes prohibitively costly. Big trade liberalizations, just like mega events,

are rare and expensive occurrences that are highly visible and have long lead times. But the long-term benefits from trade liberalization can more than compensate for the short-term costs of hosting a mega event, so linking the two in the public's mind seems like a wise strategy. And the costs of hosting a mega event are also typically borne by the sectors of the economy that benefit most from trade liberalization, such as the host city and the national government. This alignment of costs and benefits makes bidding for a mega event an effective signal of liberalization.

Our work ignores a number of mega-event issues. Brazil is hosting the 2016 Olympics, but it's also hosting the almost equally visible soccer World Cup just two years earlier. If countries use a bid for a mega event as a signal that they're opening up to the world, why should anyone want to bid repeatedly for such events? Vancouver hosted the 2010 Winter Games and London will host the 2012 Summer Games. Why should liberal economies ever bid for a mega event? What could the United States have possibly gained from its failed bid for Chicago to host the eighth American Olympiad? Clearly, something else motivates multiple bids from liberalized economies, although the basic argument here could easily be expanded to incorporate multiple bids in an environment where reputation depreciates over time and needs to be reinforced with repeated signaling. In addition, other paths can be used to signal international liberalization. What's so great about hosting a sporting mega event? There's clearly more to the story, and much room for future research. Still, our argument seems intuitive, especially when applied to emerging economies on the verge of establishing themselves as international players. Sochi, Russia, is hosting the 2014 Winter Olympics; the 2010 World Cup is being held in South Africa. For such countries, and perhaps for Brazil, hosting a mega event amounts to a clear declaration that the country is becoming a committed member of the international community. The associated benefits may more than offset the staggering costs of hosting the games.

Liberalization is always difficult; most countries that start down the path never arrive. So when a country is really serious about opening up, it seems natural for it to send a costly signal. Succinctly, when a country wishes to enter the world stage, it can indicate this both to domestic and international constituencies by offering to host a mega event. ■

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A Lucky Start

If life is like cricket, then chance matters a lot in a successful career

Shekhar Aiyar and Rodney Ramcharan

IS landing a good first job a matter of luck or ability? Is the playing field level between somebody who graduates in a boom and somebody who graduates in a recession? And how long-lasting is the impact of a good first job on a person's career? These questions are central to societal notions of fairness. If, for example, software mogul Bill Gates's wealth were solely a matter of luck, then there would be little harm in redistributing it to the less fortunate. But if successful careers reflect only hard work and ability, then high levels of taxation would be both unfair and inefficient.

The labor literature has found that obtaining a good first job yields many long-term career benefits, such as higher lifetime pay and status. If people were assigned first jobs randomly, this would imply a large role for luck in determining long-term career outcomes. But people are not assigned first jobs randomly. Those perceived to have high ability are likely to receive good initial job placements, and, to the extent that these perceptions are correct, are also likely to have successful careers. Because intrinsic ability is hard for the economist to observe, identifying the extent to which luck matters in labor markets is difficult.

Sports, and in particular, international test cricket—a contest between two national teams that stretches over five days—provides an ideal, if novel, context in which to study the relative importance of luck in career outcomes. Performance is observable and easily measured. The stakes are high, positions in national teams scarce, and success yields large payoffs. Moreover, in the case of test cricket, performance depends not only on ability, but also on familiarity with local geographic and atmospheric conditions, which vary widely and systematically across the nations that play test matches. We used data on all test cricketers who debuted between 1950 and 1985 to isolate intrinsic ability from luck for those playing their first test series. We did so by examining information on whether the debut series was played at home or abroad—which is unlikely to be influenced by the debutant and is largely a matter of luck.

Home sweet home

We find that playing at home has a large and significant beneficial impact on a cricketer's performance in his debut test series and that his first-series performance has a major impact



Cricket test match between South Africa and Australia in Cape Town.

on his career productivity. For batsmen, playing at home raises the debut series batting average by an enormous 33 percent. For bowlers, the defensive players who throw the ball to the batsmen, a home debut lowers the bowling average by about 18 percent—that is, the bowler allows 18 percent fewer runs for each batsman he faces (see box).

Why does the location of the debut series matter so much? To some extent it is simply the home-field advantage that accrues to the home team in any sport, but it is more than the home-crowd effect. Geographical and atmospheric factors play an important role as well. In cricket, the bowler releases the ball from a dead run and bounces it in front of the batsman, in an area called the pitch. Pitch conditions can favor one type of bowling over another, prevailing levels of humidity can influence how much the ball swings away from the batsman in the air, and sun and rain can determine the state of both the pitch and outfield.

England is renowned for aiding swing bowling, whereas the ball bounces higher on Australian pitches. Pitches in the Indian subcontinent are known to deteriorate in the latter stages of a test match and thus to aid slow bowling. Because players from any given nation are much better acquainted with their domestic conditions, the home advantage is powerful. Moreover, the advantage is likely to be greater the less exposed the person has been to international cricket. Debutants—who have spent their career to date playing domestic cricket—tend to be entirely unfamiliar with conditions abroad.

The persistent importance of good fortune

Debut performance is an excellent predictor of career outcomes. For both batsmen and bowlers, a good debut average is strongly linked with a good career average, defined in the case of batsmen as the average number of runs scored during

each “at bat,” and for bowlers, the average number of runs conceded for each batsman dismissed from play. The relationship holds not just for the full sample of players, but also for every test-playing nation individually.

A good debut performance depends on both intrinsic ability and luck. Since we are interested only in the career impact of luck, we employ a two-stage technique, called *instrumental variables*, to eliminate the influence of ability. In the first stage we study the relationship between players’ debut averages and the location of their debut. Because debut location is a matter of luck, the portion of the debut performance explained by location is then used in the second stage as an explanatory variable for career averages. This two-stage procedure isolates the impact of luck on career outcomes. If luck is *not* persistent, we should find that the debut average is unrelated to the career average. In fact we find that the relationship continues to be strongly significant, although, as expected, the magnitude of the relationship diminishes. The bottom line is that not only does luck—in the form of friendly conditions at home—influence debut performance, this impact does not disappear as a player’s international career progresses.

Importantly, our econometric strategy depends on a test cricketer’s debut location being *exogenous*, that is, unrelated to intrinsic ability. In the broader labor market that is often not the case—and seemingly exogenous initial conditions could be related to ability. For example, think of the specific stage of the business cycle as an initial condition. At first blush this may seem unrelated to the ability of a job market entrant. But a high-ability individual could defer entry into the job market during a recession by staying in school. In test cricket by contrast, it is unheard of for a cricketer to turn down a chance to play for the national team because the match is abroad. The available places on the national team are too few, the competition for available places too fierce, and the difference in compensation between domestic and test cricket too stark for such behavior to be plausible. Thus debut location is unlikely to be related to ability. It is because initial conditions are exogenous—rare in other labor markets—that test cricket is such an attractive vehicle for examining the impact of luck on career outcomes.

Why luck persists

Why is luck so persistent? The literature advances at least two possible explanations, both of which have exact analogues

Debutant, superstar

The 33 percent boost in batting average and the 18 percent reduction in bowling average that a debutant gets from starting at home represent roughly the difference in performance between a superstar and a journeyman.

For example, the great Indian opening batsman Sunil Gavaskar’s batting average was about a third higher than that of competent contemporaries such as Keith Fletcher or Larry Gomes. Legendary Australian bowler Dennis Lillee’s average was about 15 percent lower than that of his supporting bowler, Max Walker.

in our sample. First, those who perform well in their debut series—the analogue to a good initial job placement—may accumulate certain skills as a result, and these skills may bear fruit over the remainder of their career. For example, batsmen may acquire more confidence and better technique the more time they spend in their debut facing high-quality international bowlers without getting out. Those traits would continue to benefit them in future series. We call this the *human capital hypothesis*. Second, those responsible for selecting the national team may fail to make allowance for differences in debut location when deciding whom to retain and whom to drop from the test team, thereby penalizing those who debuted abroad. We call this *signal bias*. Note that the human capital hypothesis and signal bias can coexist.

We use data on which players were dropped and which retained to construct a simple model of the selection decision following a player’s debut series. We find evidence for the human capital hypothesis for both batsmen and bowlers: doing well on debut builds useful skills. Similarly, we find that selectors are prone to signal bias for both batsmen and bowlers. But signal bias is much stronger for bowlers than for batsmen. Selection committees penalize both batsmen and bowlers for debuting abroad, but they penalize bowlers disproportionately, perhaps because compared with poor batting performance, poor bowling performance is more likely to cause a team to lose, and is penalized more harshly.

Thanks to a lucky start

It would be wrong to generalize from this study to all other labor markets, but it does seem that luck plays a major role in shaping a successful debut performance, even though ability and hard work may augment that initial good fortune. Our results are therefore likely to disappoint purists from both camps—those who view success as a function solely of luck or ability. But we should add that the market for test cricketers differs from other labor markets in ways that should *reduce* the role of luck, not increase it. Consider that for those who select the test team, player performance is easily measurable, and differences in conditions in different countries are well known. In addition, the effort required for meticulous screening is presumably very low compared with the importance of getting the decision right. Nonetheless, selection committees appear to systematically penalize both bowlers and batsmen for the misfortune of debuting abroad—and systematically penalize bowlers more than batsmen. It would therefore seem likely that similar biases are widespread among employers of all kinds, for whom performance metrics are more ambiguous, differences in initial conditions harder to judge, and the decision itself unlikely to be second-guessed by millions of opinionated fans around the globe. ■

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Housing Prices:

Prakash Loungani

From a historical perspective, it is not the trend but the volatility in housing prices that is distinctive

IN 1625, Pieter Frantz built a house in Amsterdam's new Herengracht neighborhood. As the Dutch Republic rose to global power in the 1620s—with Amsterdam developing the world's first major stock market as well as commodities and futures markets—the price of the house doubled in less than a decade. Over the succeeding three centuries, the price of Frantz's house was knocked down by wars, recessions, and financial crises and rose again in their aftermaths (Shorto, 2006). When the house changed hands in the 1980s, its real value, that is after inflation, had only doubled over the course of 350 years—offering a very modest rate of return on the investment.

Indeed, viewed over the long course of history, the distinctive feature of house prices in Herengracht has been not the trend but the cycles (see Chart 1): innovations and good times raised the price for years at a time and—seemingly just when the conviction had taken root that this time would be different—shocks came along to knock prices back down.

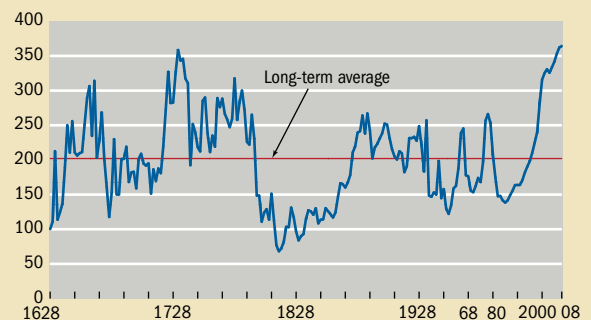
Starting in the late 1990s, prices of houses in Herengracht, and more generally in Amsterdam, doubled

in value in 10 years, only to begin another sharp decline. This recent run-up and correction in prices in Amsterdam was part of a global boom and bust in house prices. House prices soared in the United States, fueled by innovations in housing finance. They also rose in Ireland, coinciding with a historic growth surge; in Spain and Australia, buoyed by immigration; and in Iceland as part of a boom induced by a tremendous expansion in the country's financial sector. In 2006, house prices started to fall, first in the United States and then elsewhere (see Chart 2).

Chart 1
The long view

Between 1628 and 2008 house prices in the Herengracht neighborhood rose and fell, but on average the real price doubled.

(1628 = 100)



Source: Eicholtz, Piet M.A., 1997, "The Long Run House Price Index: The Herengracht Index, 1628-1973," *Real Estate Economics*, updated to 2008 by Eicholtz.



The Herengracht, Amsterdam, Pieter Frasz's neighborhood.

More Room to Fall?

This boom-bust cycle is commonly seen as a major contributor to the global financial crisis, itself generally recognized as the most dangerous economic threat the world has faced since the Great Depression. Understanding the causes of house price cycles and how to moderate them is important for the maintenance of macroeconomic stability, both at the national and global levels.

What do we know about the incidence and amplitude (price swings from peak to trough and vice versa) of house price cycles in countries across the globe? What are the driving forces behind these cycles? And what does this analysis tell us about the future of house prices?

The house price cycle

The upturn in house prices in 18 advanced economies¹ that started in the mid-1990s and continued for a decade eclipsed that of earlier cycles. The downturn that began three years ago continues.

Cycle	Upturn		Downturn	
	Duration	Price swing ²	Duration	Price swing ³
1970–mid-1990s	21 quarters	+40 percent	18 quarters	-22 percent
Mid-1990s–present	41 quarters	+114 percent	13 quarters	-15 percent

Source: Igan and Loungani (forthcoming).

¹The 18 countries are Australia, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Korea, the Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, the United Kingdom, and the United States.

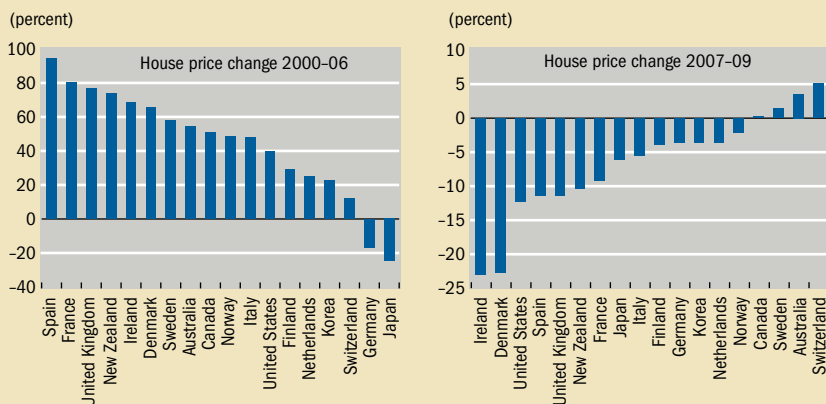
²Real prices, from trough to peak.

³Real prices, from peak to trough.

Chart 2

Up until it is not

During 2000–06 housing prices in most advanced economies rose. The decline since 2007 has been just as widespread.



Source: Organization for Economic Cooperation and Development.

Facts about housing cycles

Establishing the turning points in a series of economic data—“dating” cycles—is more reliable the farther back in time the series extends. House price data going back to the 1600s, such as for the Herengracht neighborhood in Amsterdam, are the exception and not the rule. But for many members of the Organization for Economic Cooperation and Development (OECD), national house price data do extend back to 1970, which is long enough to permit reliable dating of house price cycles.

Between 1970 and the mid-1990s, the average upturn in house prices in 18 OECD economies lasted

Housing prices: Fundamentals or bubbles?

Robert Shiller is well known for predicting the U.S. stock market crash of 2000–01 (see *F&D*, September 2008). In 2003, he warned that U.S. house prices too contained a “bubble”; that is, they had risen far beyond what was warranted by fundamental driving forces such as income growth, interest rates, demographic change, and building costs. Shiller showed that the ratio of house prices to both rents and incomes was the highest it had been in a century.

Shiller thinks that such bubbles form because expectations of asset prices are often formed by *stories* and social perceptions of reality and by excessive confidence in positive outcomes. Corrupt and antisocial behavior by some can act to magnify the bubble. In the context of U.S. housing markets, Shiller argues, people became attached to the perception that house prices never fall or that this time would be different. The marketing of mortgage loans to people with manifest inability to repay and the repackaging of such loans into marketable securities served to magnify the consequences of these false perceptions.

In contrast, Yeshiva University economist James Kahn, in work done with coauthor Robert Rich at the Federal Reserve Bank of New York, asserts that the surge in U.S. house prices can be explained by economic fundamentals, particularly expectations of income growth. Kahn’s work suggests that the surge in house prices from the mid-1990s to 2007 was based on a belief that productivity growth would lead to continued growth in incomes. The dynamic reversed in 2007 when productivity growth was perceived to have slowed, thereby stifling the housing boom and the viability of mortgages predicated on sustained increases in house prices. Though U.S. productivity growth had begun to decelerate in 2004, the perception of that deceleration caught up with reality only in 2007, according to Kahn.

Kahn also argues that because of the relatively inelastic nature of the housing supply, house prices can grow faster than incomes in periods of above-average economic growth and fall sharply when growth slows. The resulting amplification of price responses to underlying changes in the fundamental determinants manifests itself very much like the bubble-and-bust scenario that recently took place.

just over five years, during which real (inflation-adjusted) prices increased an average of 40 percent (see table). The subsequent downturn typically lasted four and a half years, and prices fell about half as much as they rose during the upturn.

The past offers a prism through which to view the present house price cycle, which started sometime between the mid-1990s and early 2000s for most countries. The upturn in this most recent cycle lasted twice as long on average as those in the past (41 quarters compared with 21 quarters) and was more pronounced, with prices rising nearly three times as much. The ongoing downturn is approaching the duration of past downturns, and the fall in house prices thus far is nearing the amplitude of past downturns. But because prices rose much more sharply than in earlier upturns, their decline might eclipse those observed in the past.

Driving forces behind house price cycles

Why do house prices go through the cycles shown in the table? Both long-run relationships and short-run forces are at work.

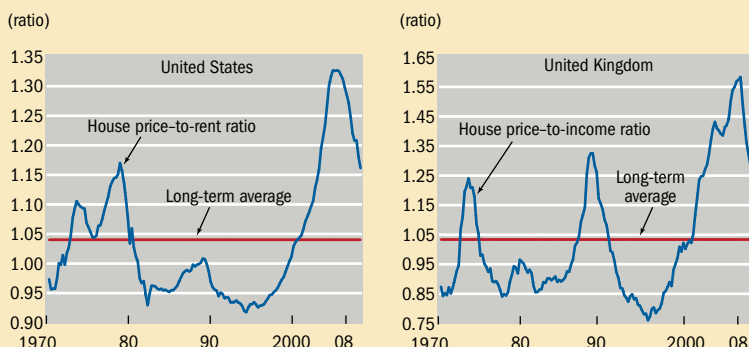
Long-run relationships: Economic theory asserts that house prices, rents, and incomes should move in tandem over the long run. Why? Consider house prices and rents first. Buying and renting are alternate ways of meeting the need for shelter. In the long run, therefore, house prices and rents cannot get out of sync. Were that to happen, people would switch between buying and renting, bringing about adjustments both in prices and rents to bring them back in line. Likewise, in the long run, the price of houses cannot stray too far from people’s ability to afford them—that is, from their income.

Take, for example, these long-run relationships in the United States and the United Kingdom (see Chart 3). The

Chart 3

Joined at the gables

In the United States and the United Kingdom, as in many countries, rents and incomes move with house prices.

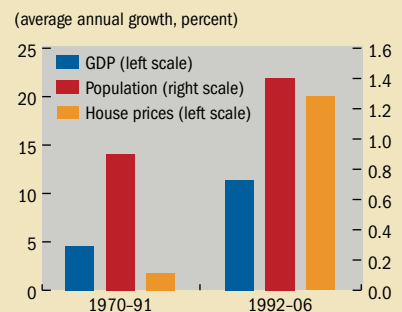


Source: Organization for Economic Cooperation and Development.

Chart 4

Propelling house prices

Strong income and population growth can give a mighty push to real house prices as happened in Ireland after 1992.

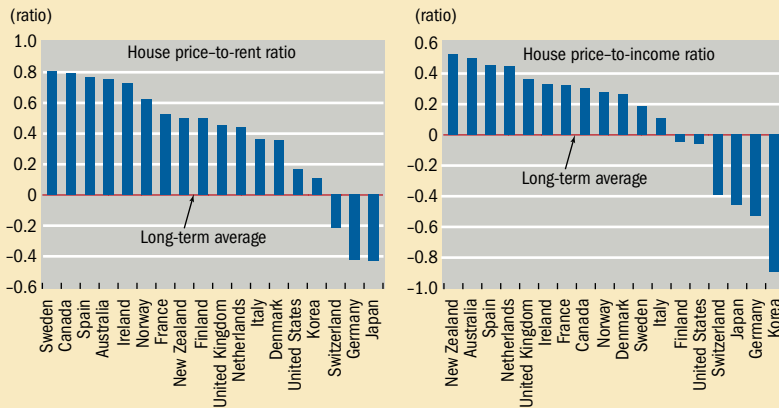


Sources: Author’s calculations based on IMF and Organization for Economic Cooperation and Development data.

Chart 5

How low can they go?

Despite sizable declines, the ratio of house prices to rents and incomes remains above long-term averages in most advanced economies.



Source: Organization for Economic Cooperation and Development.
 Note: Long-term average represents 1970–2000. Current ratios are as of end-2009.

ratio of house prices to rents in the United States reverted to its long-run average four times between 1970 and the early 2000s. House prices increased far more than rents in the 1970s, but between 1980 and 2000 the price-to-rent ratio fell to a little below its long-run average. Between 2000 and 2006, the ratio of house prices to rents rose dramatically above the long-run average and has been moving back toward it since

One reason house prices go up so rapidly is that the supply of housing cannot be adjusted quickly.

then. Thus by this metric too, as with past cycles' amplitude, there may be more correction yet to come. In the United Kingdom it is a similar story for the ratio of house prices to income. Between 1970 and 2000, the ratio hovered around its long-run average, albeit with a couple of sharp swings away from it. Since 2006, the ratio has begun descending toward its long-run average, although it still remains well above it.

Short-run determinants: Whereas the long-run relationships act as an anchor, in the short run house prices do drift away, often quite strongly and for long periods. Strong demand momentum leads to increases in house prices, and often the increase is more than can be explained fully by the underlying driving forces. Ireland is a good illustration (see Chart 4). During 1992–2006 Ireland enjoyed robust income growth of more than 10 percent a year, more than twice the average of the preceding two decades. Population growth also picked up after 1992. The rise in house prices was more than commensurate with these factors—prices increased nearly 20 percent a year between 1992 and 2006, 10 times the rate of the previous two decades.

One reason house prices go up so rapidly is that the supply of housing cannot be adjusted quickly. Another reason lies in the interaction of housing and financial markets. Because houses serve as collateral, an increase in house prices can have a feedback effect: once collateral values increase, banks are willing to lend even more to households, which feeds the house price boom. This feedback effect can arise regardless of what caused house prices to go up in the first place—demand momentum, government policies such as low interest rates, or institutional changes that increase the availability of mortgage credit.

Moreover, fundamental driving forces do not fully explain all price movements in all countries at all times. As Yale University economist Robert Shiller and others assert, house prices

may be determined by psychological and sociological factors; these factors may also amplify the response of house prices to fundamentals (see box).

More room to fall?

Though there are some signs of stabilization, the global correction in housing markets continued through 2009. House prices in the OECD economies fell on average about 5 percent in real terms between the fourth quarter of 2007 and the third quarter of 2009.

How low can prices go? There are a number of factors to consider.

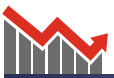
First, house prices in most countries still remain well above the levels observed at the beginning of the upturn in the early 2000s. Second, house prices remain above rents and incomes, which, as discussed above, often serve as long-run anchors for prices. Chart 5 shows how much farther the ratio of house prices to rents and incomes would have to fall in each country to bring it down to its long-run average. Third, econometric models show that house prices increased during 2000–06 to a greater degree than can be explained by either short-run driving forces or long-run relationships: the corrections thus far have not erased all of the excesses generated by the house price increases.

That leads to an uncomfortable conclusion: house prices in many countries still have room to fall. ■

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Avoiding Protectionism

Cargo at Maersk Terminal, Long Beach, California.

Christian Henn and Brad McDonald

So far the world has resisted widespread resort to trade measures, but the hardest part may be yet to come

RECESSIONS and their aftermath have been breeding grounds for protectionist pressures. When economic output falls and joblessness rises, the notion that somehow foreign trade is at fault is seductive. The temptation grows to export unemployment by blocking imports and subsidizing domestic industries—even though evidence shows that such policies are counterproductive.

The Great Depression of the 1930s spawned serious protectionist actions that exacerbated and extended the economic and social chaos around the world.

The recent global financial crisis is generally considered the worst economic calamity since the 1930s. Financial markets froze. Output plummeted, especially in the advanced economies. World trade shriveled in the final months of 2008. World leaders, though, averred that they had learned the lessons of the Great Depression and vowed to resist protectionist pressures. Have they succeeded? And even if the world has so far withstood the pressure, are these concerns behind us?

The great trade collapse

Trade normally declines more sharply than overall economic activity in a downturn. But the sudden 17 percent contraction in world trade volume between October 2008 and January 2009 initially seemed out of line with a comparatively small decline in inflation-

adjusted gross domestic product (GDP) during the same period—which reached 2 percent among major advanced economies (see Chart 1). The severity of the trade collapse does not appear to be the result of any significant resort to protectionism, however. Instead, it appears to be the result of a globally synchronized decline in overall demand that had a particularly strong effect on international commerce because of three major characteristics of trade flows in recent years.

First, trade in durable goods and other postponable purchases—which comprise

Chart 1

Out of line

Relative to declines in output and industrial production, the drop in world trade in the final months of 2008 was far steeper than in previous recessions.

(September 2008 = 100)



Sources: CPB Netherlands Bureau for Economic Policy Analysis, and IMF, *World Economic Outlook*.

Note: Real GDP is a simple average of the GDPs of the United States, the euro area, and Japan, seasonally adjusted.

a disproportionately large share of trade—collapsed most sharply. Financial turmoil led credit markets to seize up. The spike in uncertainty in financial markets caused consumers (already shaken by the loss of wealth in the housing and stock market downturns) to delay purchases of durable items, such as electronic products and cars, on an unprecedented scale. Firms shelved investment plans in response to lower consumer demand and higher capital costs, reducing demand for capital goods. Capital goods and consumer durables make up most of global merchandise trade (see Chart 2)—but a much smaller share of world GDP, which is composed largely of services and nondurables. This asymmetry may explain half or more of the collapse in trade (Levchenko, Lewis, and Tesar, 2009; Baldwin, 2009).

Second, because of extensive global supply chains, components are traded a number of times before the final good is produced. Downturns magnify these supply chain effects: postponable goods have more extensive supply chains, and in a downturn firms curtail their intermediate input orders both to reduce output and to cut inventories (Freund, 2009). Just-in-time production techniques have allowed firms to maintain lower inventories, but they propagate demand shocks more rapidly. This inventory-adjustment role can shed light on the abruptness of the trade collapse in late 2008 and early 2009—after which trade leveled off quickly. Countries most integrated in global supply chains experienced the most abrupt decline in trade. Japan’s exports, for example, contracted by a third over this period.

Third, increased reliance on trade finance may have contributed to trade contraction. Global supply chains mean that firms need longer-term financing for their working capital, given that products take more time to reach the end consumer. And because of these longer supply chains, bank-intermediated trade financing, which creates assurances between importers and exporters, has become more important. At least in the early stages of the crisis, the higher costs and declining availability of trade finance had a negative impact, especially in emerging market economies (Dorsey, 2009).

Trade has begun to recover, but the durability of that recovery is not yet assured. World export volumes increased by about 10 percent between May and November 2009 (see Chart 3). Global supply chains seem to be playing a key role in the rebound: the regions most integrated in these chains, such as east Asia, have experienced the strongest recovery in trade. However, advanced economy imports have slowed down since September (see Chart 4). Sustaining open markets will be especially important to underpin trade and to support a broad-based recovery.

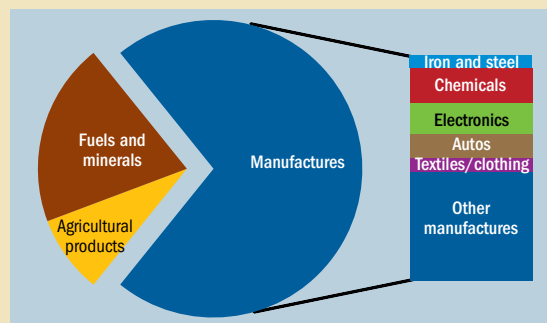
Protectionism appears muted

One factor little apparent in the abrupt contraction in goods and services trade during 2008–09 was protectionism. From almost any perspective, there has been relatively little protectionist activity since the onset of the crisis. The World Trade Organization (WTO) estimates that less than 1 percent of global trade has been subjected to new protectionist measures

Chart 2

Postponable purchases

Consumer durable items and capital goods make up a large portion of world trade.



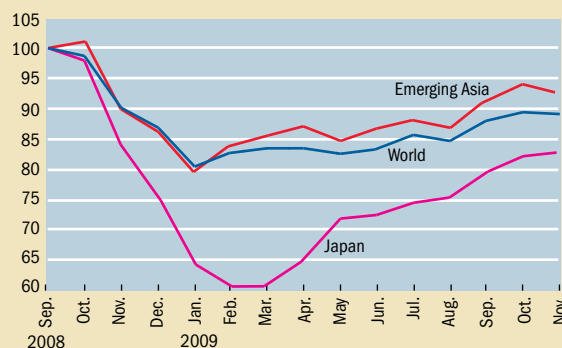
Source: World Trade Organization, *International Trade Statistics*.
Note: Data are for 2007.

Chart 3

Hit hardest

Countries most integrated in the global supply chain have experienced the fastest recovery.

(export volume, September 2008 = 100)



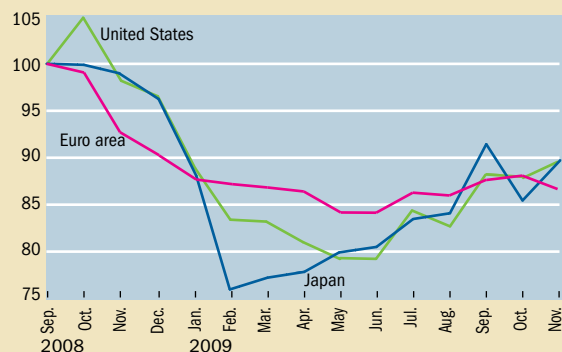
Source: CPB Netherlands Bureau for Economic Policy Analysis.

Chart 4

Sluggish again

After rebounding in early 2009, import growth in advanced economies began to slow in September.

(import levels, September 2008 = 100)



Source: CPB Netherlands Bureau for Economic Policy Analysis.

since the crisis began (WTO, 2009). Although several countries have raised tariffs on some (mostly narrow) product categories, only a few countries have imposed more widespread increases. Many developing countries have eschewed tariff increases despite WTO tariff ceilings that provide ample room for them to raise their applied tariff rates—demonstrating, perhaps, an awareness of the importance of open markets to their own economic performance as well as to global recovery.

Trade measures adopted in response to the crisis may nonetheless have tilted the playing field in some markets. Government bailouts and increased subsidies may have deflected pressure for more damaging measures, but have tended to favor domestic enterprises, particularly in the financial and manufacturing sectors. Expanded government procurement preferences for domestic firms also disadvantaged competitors—and diminished the impact of stimulus measures on global growth. Other subtle responses to the crisis include nontariff barriers such as restrictive import licensing and more cumbersome customs procedures, and the apparent intensification of product standards and regulations. Finally, as trade recovered, industries began to file petitions for antidumping measures at a greater rate in the second half of 2009 (Bown, 2009).

Experience of the 1930s

Policymakers have done well to recall the experience of the Great Depression. In 1929, the U.S. Congress had begun work on a substantial tariff increase even before the stock market crash. The enactment of the Smoot-Hawley Tariff Act in June 1930—despite strong objections from many economists—provoked deep resentment and some retaliation globally. A League of Nations conference convened in 1930 to avert a cycle of protectionism broke down. In 1931 there was an accelerated deterioration in global trade and a “chaotic scramble to protect domestic markets and safeguard the balance of

payments” (Eichengreen and Irwin, 2009). Major countries undertook substantial currency devaluations, imposed exchange restrictions, or sharply tightened import tariffs and introduced import quotas. Lacking an independent monetary policy, countries that kept their currencies fixed against gold were more likely to restrict trade, particularly once partner countries devalued their own currencies.

Global trade volume fell by 25 percent between 1929 and 1933, with nearly half of this decline attributable to higher trade barriers. In the United States, the new tariff raised the average rate on dutiable imports from an already high 40 percent to 47 percent. A larger effect, however, came through the interaction of deflation and the use of “specific” tariffs. Irwin (1998) concluded that increases in the effective tariff (both from Smoot-Hawley and deflation) accounted for a 12 to 20 percentage point decline in U.S. imports between 1930 and 1932.

Although protectionism did not cause the Great Depression, higher trade barriers exacerbated it and—most important—worked to choke off recovery. Global output returned to its precrisis levels by 1938, but with a trade-to-GDP ratio some 20 percent below that of 1929. Even though the layers of restrictions were peeled away from 1934 onward, in some cases it took decades to reverse the missteps of 1930–32.

A repeat avoided so far

The recent crisis in its severity could well have ignited a flurry of protectionist measures. There are several reasons it has not.

- Economists and policymakers highlighted very early how a resort to protectionism could deepen and prolong the crisis. In particular, the high-level attention by leaders of the Group of 20 advanced and emerging economies and extensive monitoring by the WTO have kept policymakers alert to these risks (see box).

- Multilateral institutions such as the WTO and the IMF have provided transparency and ensured an awareness of the adverse effects of protectionist actions on others. Multilateral rules have established expectations of the types of policy responses considered responsible.

- A strong and early response by governments to boost spending, loosen monetary policy, and prop up the financial sector helped soften and shorten the crisis. Indirect or direct support to businesses may have helped reduce demand for outright protectionism.

- Some 99 percent of import tariffs are now specified in *ad valorem*, or percentage of value, terms, which means that declining import prices resulted in smaller tariff payments (WTO, 2008). This contrasts with the 1930s, when many tariffs were in *specific* terms, meaning that when prices of imported goods declined, the tariff as a percentage of value rose.

- Extensive global supply networks and foreign direct investment influence the political economy of trade policy. Domestic firms operating foreign plants or relying extensively on imported inputs have a strong interest in maintaining open trade policies, which helps counterbalance protectionist sentiment.

Atop the political agenda

The heightened awareness of political leaders of the risks of protectionism was evident early in the crisis. Leaders of the Group of 20 (G-20) advanced and emerging economies pledged in November 2008 to “refrain from raising new barriers to investment or to trade in goods and services, imposing new export restrictions, or implementing” measures to stimulate exports that are inconsistent with World Trade Organization (WTO) rules.

In April 2009, G-20 leaders extended this pledge through 2010 and asked the WTO and other institutions to monitor their countries’ adherence to this pledge. This request provided further impetus to continue the activities begun by the WTO in October 2008. WTO monitoring reports have provided critical insight into the nature and extent of trade policy responses to the crisis. The G-20 response has been supplemented by activities undertaken in other international institutions, individual governments, and unofficial entities such as the independent Centre for Economic Policy Research’s Global Trade Alert.

What the future holds

Although there has so far been less recourse to protectionism than initially feared, pressures remain. Indeed, with unemployment still at its highest levels in years in advanced economies, pressures may even increase in 2010. The costs of a protectionist trap—both as a risk to the recovery and as a drag on global growth for years to come—would be enough to issue the usual call against complacency. But there are additional reasons to be concerned.

Because trade has begun to grow more quickly than has overall activity, the return of imports toward their precrisis market share could stir protectionist demands.

Job losses during 2008–09 occurred at a time of declining imports, when trade was contracting much more than overall economic activity. As the market share of imports was falling, foreign-made goods were not typically blamed for job losses. Nor did targeting imports appeal to those concerned with stemming job losses. But, because trade has begun to grow more quickly than has overall activity, the return of imports toward their precrisis market share could stir protectionist demands—particularly where unemployment remains high and in sectors that are slow to recover.

There are other reasons protectionist sentiment may grow. In the past, *multilateral or bilateral current account deficits* have commonly been used as an argument to restrict trade. Although the recent trade contraction resulted in a narrowing of external imbalances, the extent to which these may reemerge is not yet clear. When *fiscal, monetary, and financial sector stimulus measures* are withdrawn, affected firms and industries may begin to call for trade protection. Higher commodity prices bring a risk that some countries will impose taxes or restrictions on their commodity exports—a risk that was demonstrated during the 2007–08 food price crisis. Finally, in some emerging markets a *surge in capital inflows* has brought significant currency appreciation. Regardless of the appropriateness of the new exchange rate, this can strain the competitive position of exporters and of the import-competing domestic sector and generate pressure for import protection and export support.

The folly of protectionism

Further restricting trade would be a poor policy response to the situation the world faces. Moreover, the difficulty in removing measures once they are imposed means protectionist actions taken now could retard economic growth for years. Fortunately, policymakers have recognized the potential for trade measures to interfere with the economic recovery. Too

many restrictions may have been imposed, but their application has been relatively narrow. Still, protectionist pressures may intensify in 2010 because unemployment is likely to remain high and imports will bounce back.

In the near future there are three key issues that bear on international trade developments:

Enhanced monitoring of trade policy actions has influenced policy for the better. Clearly identifying discriminatory policies—without overstating their frequency or effects—has been an effective deterrent. There is room for more of this activity.

The possibility of backdoor or “murky” protectionism remains. The risks may materialize not as a customs tariff, but as public procurement policies, product standards, customs procedures, or other actions whose protectionist effects are less transparent.

Concluding the WTO Doha Round of multilateral trade negotiations would help ensure that markets remain open, allowing trade to play its role in the economic recovery and to support strong growth for years to come. Securing tariffs at lower levels, reducing the potential for trade-distorting farm subsidies, enhancing trade policy transparency, and tightening multilateral rules in such trade-related areas as food aid and fishery subsidies would reduce the risk of future trade conflicts and strengthen global economic relations. ■

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Challenge of the Century

Climate change is about market failure on a global scale; it must be resolved together with debt and global economic imbalances

Alex Bowen, Mattia Romani, and Nicholas Stern

THREE issues confront the global economy: massive government debt, a wide divergence between countries that save and those that consume, and the need for a lower-carbon economy. All three issues are linked, and must be dealt with together. Some solutions may reinforce each other; others may be at odds. The IMF is well positioned to play a major role.

Challenges

First, in light of the recent global financial crisis and downturn in growth, governments across the world have been boosting spending to underpin their financial systems and provide fiscal stimulus; at the same time tax revenues have been falling. These governments now face rising public debt and must show debt holders they have credible strategies for medium-term deficit reduction. As the IMF's Carlo Cottarelli and José Viñals argue, this poses a public finance challenge, given that advanced economies' ratios of debt to gross domestic product (GDP) are expected to rise by more than half, from 75 to 115 percent, during 2008–14 in the absence of further action (*F&D*, December 2009). That challenge is unlikely to be resolved for at least a decade.

Second, substantial macroeconomic imbalances—particularly global saving-investment and capital account imbalances—continue to characterize the global economy. These imbalances threaten the prospects for a recovery in global growth to the rates seen earlier in the new millennium, with debtor countries attempting to rein in current account deficits but with creditor countries failing to boost domestic demand growth sufficiently. If the imbalances are resolved abruptly, however, the stability of financial systems and investment and trade flows could be badly damaged once again. Political pressure as a result of high unemployment may itself work to inhibit trade. Reducing these imbalances should be a determined, clear, but gradual process.

Third, the world needs to move to a low-carbon economy. Business as usual is likely to lead to a concentration of greenhouse gases (GHGs) that would entail temperatures not seen for tens of millions of years, with drastic

consequences. Annual GHG emissions are now at about 47 billion metric tons of carbon dioxide equivalent. For a 50 percent chance of keeping the global temperature rise (relative to the mid-19th century) to 2°C—a long-standing, internationally accepted objective for avoiding dangerous climate change—emissions would need to fall to about 44 billion metric tons by 2020, well below 35 billion metric tons by 2030, and well below 20 billion metric tons by 2050. If the world economy grows by 2 or 3 percent a year over the next 40 years (that is, triples), emissions per unit of output would have to fall by a factor of about 8. That is a radical transformation by any standard, requiring almost complete decarbonization of electricity production by 2050. Strong and sustained investment in emission reduction and carefully designed policies will be needed to correct the market failure caused by greenhouse gas emission externalities. This transformation will take several decades, but the next 10 years are crucial. They will determine the path of technology and infrastructure, particularly for energy, and there is a risk of locking in carbon-intensive long-lasting capital assets. Delaying action is dangerous, because emission flows build into increased concentrations of GHGs, which are hard to reduce.

Synergy

Understanding the interplay among these three challenges is crucial: failing to meet any of them would be extremely costly. Some synergies are of particular importance.

In the short and medium terms, pricing carbon, through a carbon market or taxation, can generate much-needed revenue and ease public deficits. Further, low-carbon-infrastructure investment during a global slowdown has the advantage of drawing on underused resources, reducing the risk of crowding out other important investments.

In the longer term, a decarbonized energy system would mean a large reduction in imports of fossil fuels, with a positive impact on the trade balances of net-fossil-fuel importers with current account deficits. It would also make economies more resilient to drastic changes in fossil fuel prices, reducing pressures for energy subsidies. And there

are further likely advantages of low-carbon growth associated with a cleaner, quieter, safer, and more biodiverse world.

Moving to a low-carbon economy will offer significant investment opportunities. The right incentives and credible long-term policy frameworks should stimulate private investment in these technologies, reducing some of the imbalance between planned savings and investment—particularly in fast-growing countries with high private saving rates, where there is strong need for productivity-enhancing domestic investment.

The technological change required to transform our economies has started and is likely to unleash a period of great innovation—if potential innovators believe in governments' long-term commitment to sensible climate-change policies. Market failings that hinder innovation must be removed quickly. Low-carbon technology could change our economy as much as, or more than, the steam engine, electricity, or information technology. As in the past, substantial spillover effects of technological advances stand to boost the economy, driving a response to the challenges highlighted above.

Tension

But there is also tension among these three challenges and associated policies.

A low-carbon economy may mean higher relative prices for emission-intensive products and their substitutes, some dislocation and scrapping, and slightly slower real income growth for a while. And some low-carbon technology may impede productivity, at least initially. This could threaten public support for climate-change policies, given the impact of the global recession on real incomes and consumer confidence. Using revenue from green taxes to reduce other tax burdens could compensate somewhat, but this approach has limitations, given the need to reduce public debt, stimulate research and development spending, and (in rich countries) increase financial flows to poor countries to help them with climate-change adaptation and emission reduction. But if policy effectively exploits opportunities to improve energy productivity, the energy bill for the economy could quickly decrease, despite higher energy prices.

Net-fossil-fuel exporters' reaction to the transition will matter greatly. By reducing prices they could undermine the transition, making alternative technologies relatively more expensive. By increasing prices and maximizing short-term revenue, they may put excessive pressure on companies' and governments' budgets in energy-importing countries, aggravating the already weak positions of the latter, increasing net planned savings, and slowing down the global economy. Strong carbon-pricing policies can help counterbalance these problems.

Stimulating private investment would help correct one of the imbalances, but if moving to a low-carbon economy requires greater provision of public goods such as energy- and transportation-related infrastructure and early-stage research and development, it may put further pressure on public sector budgets and crowd out other investments. Innovative methods of finance and risk sharing may be required for large, lumpy investments in infrastructure, especially while

the ability of banking systems around the world to undertake financial intermediation remains impaired. Similarly innovative methods will be necessary to support developing countries in their transition.

The role of the IMF

The synergy and tension are at the heart of the IMF's capabilities. There is a tight link between managing short-term risks and opportunities and promoting sustainable long-term growth and financial stability. The IMF is well placed to play a critical role, particularly through the following actions.

- **Support governments** in analyzing and designing policies to address market failings that can hinder the transition to a low-carbon economy.

- **Support policies** aimed at capturing the synergy between low-carbon investments and adjusting the global savings-investment imbalance.

- **Monitor and manage the risks** associated with the tensions highlighted earlier, to ensure that policy objectives around the three challenges—managing public finance in the wake of the financial crisis, adjusting global imbalances, and transitioning to a low-carbon economy—are pursued and advanced over the next decade.

- **Help generate alternative sources of finance** for climate change to support countries in their low-carbon strategies without harming their ability to manage their public finances.

- **Work with other international financial institutions** and the United Nations to help build international collaboration through shared understanding of the synergy and tension and support international and innovative methods of taxation, finance, and risk sharing.

In this context the proposed IMF Green Fund is very welcome. It will support adaptation to climate change and the transition to low-carbon technologies using innovative financial instruments that look more attractive to governments under pressure to reduce their deficits. And it will reassure developing countries that the new sources of finance are additional to general development assistance.

Climate change is about market failure on a global scale. The challenge is to manage a delicate and crucial transition to a renewed period of wealth and stability for the world's economy. Failure could fundamentally undermine the battle against world poverty. It is the international public policy and public finance challenge of the century. ■

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Opaque Trades

Randall Dodd

Not all financial innovations increase efficiency. Here are three with questionable effects

THREE innovations in electronic trading of stocks and options have been in the headlines recently: high-frequency trading, flash trades, and dark pools. Technical improvements such as these are usually assumed to raise efficiency, but these innovations challenge such assumptions and may pose some public interest concerns because of their effect on stability.

Studying market microstructures illuminates the processes through which prices are determined. Markets often appear to be magic black boxes. Supply and demand go into the box and an invisible hand pulls out the price—much like a magician producing a rabbit from a hat. But important things happen inside those boxes. In the case of electronic trading of securities and derivatives, the microstructure inside the box includes the mechanisms for submitting buy and sell orders (that is, bid and offer quotes) into a market, viewing of those quotes by market participants, and executing trades by matching orders to buy and sell. If this is done in an immediate and transparent manner that enables all market participants to see and trade at the same prices, then reality approaches the ideal of the efficient-market hypothesis. When markets become segmented and informational advantages are built into market mechanisms, efficiency is impaired and fairness undermined.

This article explores these financial policy issues to explain how they impact pricing efficiency at the market microstructure level and to discuss how corrective regulation can improve efficiency.

High-frequency trading, flash trading, and dark pools all have their origin in two key marketplace innovations—*electronic trading* and the closely related *alternative trading systems* (ATS). Electronic trading has quickly

come to dominate traditional trading, both on exchanges and in over-the-counter markets. Computer systems automatically match buy and sell orders that were themselves submitted through computers. Floor trading at stock and derivatives exchanges has been eliminated in all but the largest and most prominent markets, such as the New York Stock Exchange (NYSE), and even in those markets floor trading coexists with electronic trading. ATS are computer-automated order-matching systems that offer exchange-like trading opportunities at lower costs but are often subject to lower disclosure requirements and different trading rules.

High-frequency trading

High-frequency trading (HFT), also called black box trading, uses high-speed computers governed by algorithms (or instructions to the computer) to analyze data, identify investment opportunities, and manage order flow to the markets. An HFT firm can submit a thousand orders a minute to an exchange and just as quickly cancel them and submit different ones. An estimated 90 percent of orders submitted by high-frequency traders are canceled. For example, if a share has a \$9.90 bid price (to buy) and a \$10 offer price (to sell), an HFT firm might seek a small but low-risk profit by raising the bid to \$9.91 and lowering the offer to \$9.99 (an 8-cent spread) if the algorithm deems that these changes will have a sufficiently high probability of triggering immediate trades. If these improved quotes indeed result in immediate trades, the HFT firm gains the 8-cent bid-ask spread on each share traded in this manner. The risk is that only one leg of the deal will be executed immediately, with a delay in fulfilling the other leg after a change in market prices that results in a loss. If the HFT firm buys at \$9.91



but finds no takers for the offer at \$9.99, and the market prices drop below \$9.91, the HFT firm has a short-term loss.

HFT amounts to big money. The TABB Group, a financial markets research firm, estimates that profits from HFT were \$21 billion in 2008—not an easy year for financial markets. The top broker-dealers, such as Goldman Sachs; top hedge funds, such as Citadel; and independent firms, such as GETGO, invest heavily in supercomputers and in software designed for the business. The considerable cost explains the high-profile legal cases filed last summer after Goldman Sachs charged a former employee with stealing the computer code to its trading algorithm. Competition for lucrative HFT business is so fierce that firms pay to locate their computers as close as possible to those of the exchanges and ATS to minimize “latency,” or delays in communication. Some pay to locate at the same place as the order-matching engines. A microsecond delay in submitting an order can mean the difference between being at the front of the line—and executing the trade—and being back in the queue with an unfulfilled executable order. The gain on each trade may be small—Rosenblatt Securities estimates that the average revenue for HFT in equities is between \$0.001 and \$0.002 a share—but the volume is enormous, and some exchanges and ATS pay rebates to the HFT firm for generating the volume. HFT firms received \$3.7 billion in such rebates in 2008. Today, HFT generates an estimated 73 percent of the total trading volume on U.S. stock markets and about 20 percent at options exchanges.

There are public interest concerns with HFT. Some critics contend that the extremely rapid pace of this trading results in larger and more sudden changes in market prices in response to significant events and news. These concerns are similar to those raised following the 1987 stock market crash, when attention became focused on program trading that automatically generated sell orders in stock index futures trading on the Chicago Mercantile Exchange whenever the price of the related stocks on the NYSE dropped.

Another concern is that HFT makes the playing field less competitive, putting dealers (also known as market makers or specialists) at a disadvantage compared with the rest of the market (known as customers). The orders submitted to the market by customers have priority over those submit-

ted by dealers. This priority is grounded in the mandate that markets exist primarily for customers; the role of dealers is to step in only when needed to provide trading liquidity or to maintain a two-sided market of bid and offer quotes. The problem is that sometimes HFT orders function in the same way as market makers by providing liquidity and a tight bid-ask spread, but high-frequency traders can withdraw from a market that is too volatile or trading too slowly. In this way, they take business from dealers during normal times when there are normal risks and leave dealers with the obligation to make markets when it is more risky and less profitable—especially during a disorderly market.

Flash trading

A standard stock trade consists of an order to buy (or sell), either at the prevailing (market) price or at some predetermined (limit) price. The order is submitted to an exchange (or ATS), where it is automatically matched with a standing offer or an incoming order to sell. The sell order that is matched to the original buy order may come from another exchange or ATS that is part of the national market system. In any case, all the orders—and any transactions that result from those orders—are public and can be observed equally by all market participants.

That’s not so with a flash trade, which occurs when an incoming order to one ATS or exchange is revealed (flashed) for a fraction of a second before being sent to the national market system. If a trader at the venue that received the flash can match the best bid or offer in the system, then the trader can pick up that order before the rest of the market can see it. The result is a flash trade. The NYSE used to allow its designated dealers, called specialists, to benefit from an advance look at incoming orders, but the exchange has ended the practice in favor of giving all market participants equal access to all price quotes.

Flash trades are an important part of the business model for some exchanges. The NYSE banned the practice because it is inconsistent with the exchange’s level-playing-field policy. However some of the ATS compete toe-to-toe with the established exchanges for trading volume, and they have adopted the use of flash trades to pull trading business away from the exchanges.

There are several public interest concerns with flash trading. Flash trades allow a privileged market segment to trade ahead of the rest of the market or trade with earlier order-flow information than the overall market has. This violates the principle of market fairness—which is enshrined, for example, in U.S. regulations—and the efficiency it generates. It also discourages market makers from posting quotes that expose them to risk without guaranteeing them trading priority. Although a fraction of a second may not seem like much, it is a long time given that decision making and order routing in electronic exchanges and trading systems operate in microseconds.

Dark pools

Dark pools are electronic trading systems used by broker-dealers, institutional investors, and hedge funds to negotiate large securities transactions outside formal exchange trading rules—including the rules that require that bid and offer quotes be broadcast to the entire market. Instead, using dark pools, participants can narrowcast (to a restricted audience) an “indication of interest” to buy or sell a specific quantity of securities at a set price or a price to be determined. For example, a dark pool participant might indicate interest in buying 40,000 shares of IBM at the 2 p.m. or at the closing price that day. In this way the dark pool participant can arrange a large purchase with less risk of pushing up the price by doing so.

There are other ways to handle large purchases or sales. One is to break the transaction into many smaller ones and trade them on the open market in a manner that does not signal the full scale of the investment decision. This method carries with it the risk that a large purchase or sale will move the price. Another option is to conduct a “block trade,” which is negotiated bilaterally off the exchanges but reported immediately to the exchange to minimize the loss of transparency. The standard process for negotiating a block trade is more work, and the process is less liquid too.

Dark pools—which are owned by exchanges, broker-dealers, or independently—use a more efficient electronic trading platform to negotiate large deals and do not require a firm to identify itself or the prices at which it is willing to trade. Transactions made through dark pools are recorded as over-the-counter, not exchange, transactions, and the size, price, and time of consummation are not publicly disclosed.

Trading in dark pools allows firms to make large trades without the risk that their large order will move the market price away from their preferred price. In open trading, firms expose their orders—that is, they disclose them to the public when they are displayed through exchanges. When large orders are exposed, market participants could react by raising their offers or lowering their bids. HFT has accelerated the speed at which the market price responds to new orders.

There are several public interest concerns with dark pools as well. One is that the trading volume, as well as the disclosure of bid and ask quotes, is cloaked from the price discovery process that occurs on exchanges and related ATS. This activity also fragments the market and allows those participating in dark pools to observe “intent,” which does not show up as

quotes on the public markets. This creates differential access to relevant market information. It robs the public-market system of the full depth of the market’s willingness to buy or sell. Moreover, trading in dark pools circumvents surveillance authorities that monitor trading activity.

Tilting the balance

Technical innovations, especially in the area of electronic trading (that is, data processing), can offer powerful means of raising productivity. But the changes brought about by such innovations can also make former institutional rules and market arrangements obsolete. The new ways of conducting business may profoundly change the balance of market power and tilt the playing field. HFT is also a contest of man versus machine. Although by itself it does not create asym-

Technical innovations, especially in the area of electronic trading (that is, data processing), can offer powerful means of raising productivity.

metry or an uneven playing field—and it does add to market liquidity—HFT seems to put the pace of human deliberation at a disadvantage. HFT can reduce the benefits of stop orders for regular investors who employ them as a means of managing their risk. It can turn an error, such as a mistaken large sell order, into a systemically disruptive event by almost instantaneously triggering other automatic responses to the initial mistake. The interaction of competing HFT programs may have unforeseeable consequences.

Flash trades create privileged access to certain information for a segment of the market and create disincentives for dealers to quote and quote aggressively. Flash orders generate only private benefit to the ATS that seek to take trading volume from other venues. Dark pool trading arises from a deliberate effort to avoid the transparency of exposing bids and offer quotes to the public marketplace.

Regulatory authorities, some of which were welcoming these innovations a few years ago, are now subjecting them to scrutiny. The U.S. Securities and Exchange Commission is proposing rules to prohibit flash trades and subject dark pool trading to higher disclosure requirements. The U.S. Commodity Futures Trading Commission has reported that it is continuing to study these trading developments and is considering the proper regulatory response to ensure that all investors have fair access to markets and that stability is not threatened. ■

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Differential *Impact*

*Pelin Berkmen, Gaston Gelos, Robert Rennhack,
and James P. Walsh*

THE global financial crisis that originated in the advanced economies dealt a blow to growth in the rest of the world during 2008–09. Some countries, however, fared better than others. Did their stronger performance reflect differences in trade or financial openness, underlying vulnerabilities to external forces, or the strength of their economic policies, which helped insulate them from global shocks?

To examine why some countries did better than others, we focused on revisions in gross domestic product (GDP) growth forecasts before and after the crisis for a sample of 40 emerging market countries and for a larger sample of 126 developing countries (which included emerging markets). We then assessed the importance of a wide range of factors that could explain differences in the size of these forecast revisions. Using forecast changes allows us to bypass many otherwise difficult issues—for example, to control for differences in growth rates that are the result of differences in levels of

development or cyclical positions, or for other factors unrelated to the impact of the crisis. In addition, it allows us to incorporate the expected short-term effects of policies. We used private analysts' projections from *Consensus Forecasts* (Consensus Economics) to calculate the change in the growth forecast for 2009 between January–June 2009 and January–June 2008. We also used changes in growth forecasts from the IMF's *World Economic Outlook* (WEO).

Growth forecast revisions for 2009 range from –18 percent to –1.5 percent, with the largest growth collapse occurring in eastern European and central Asian countries; the effects in Latin America were much more contained (see Chart 1). Our analysis suggests that countries with more leveraged domestic financial systems and more rapid growth in lending to the private sector tended to suffer larger downward revisions to their growth outlook. Exchange rate flexibility clearly helped buffer the impact of the shock, as countries with pegged exchange rate regimes fared significantly worse.

Why some countries were hit harder than others during the global crisis

How the crisis may have spread

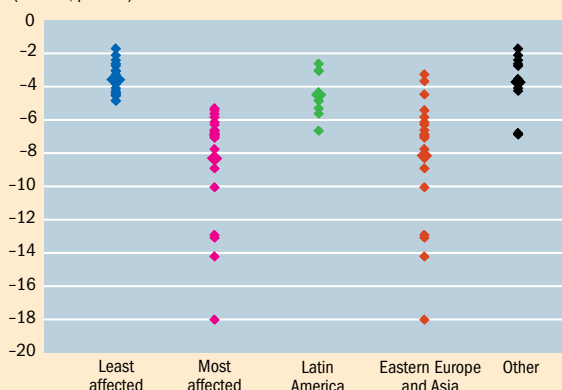
There are a number of ways the crisis may have spread from advanced economies to the rest of the world, including directly through *trade linkages* and *financial linkages*. Moreover countries with *vulnerabilities*—such as high current account deficits, high indebtedness, low reserves, or strong credit growth—may have been more likely to feel the effects of a global recession. Conversely, countries with effective *policies*—such as flexible exchange rates, a strong fiscal position, or a credible institutional framework—should have withstood the crisis better.

Chart 1

Revised down

The global recession caused forecasters to change their growth projections for most countries. Latin America fared far better than eastern Europe and central Asia.

(revision, percent)



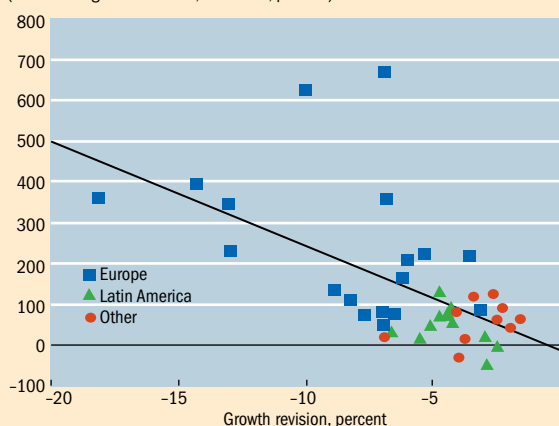
Source: Authors' calculations based on Consensus Economics.

Chart 2

Credit surges

Countries with fast credit growth on balance faced much more pronounced revisions in their output forecasts than did countries with smaller increases in credit.

(cumulative growth in credit, 2005–07, percent)



Sources: Authors' calculations based on Consensus Economics; and IMF, *International Financial Statistics*.

For the 40 emerging markets, *financial factors* appear to have been key in determining the size of the growth revision. In particular, countries that experienced strong credit booms were more vulnerable to the slowdown: leverage, measured as the credit-to-deposit ratio, and cumulative credit growth turn out to be significant explanatory variables across various specifications. The results suggest that, if the countries in the most leveraged quartile of the sample (with average leverage of 185 percent of GDP) had had the same leverage ratios as the countries in the least leveraged quartile (83 percent), their growth revisions would have been, on average, 4.1 percentage points smaller. The effect is only slightly smaller with credit growth: if the quarter of countries with the fastest cumulative credit growth (averaging almost 350 percent) had had the same credit growth as the countries in the slowest credit growth quartile (with average growth of only 14 percent), their growth revisions would have been 3.3 percentage points smaller (see Chart 2).

Countries with *more flexible exchange rates* tended to experience smaller growth revisions. For the most part, downward growth revisions for countries with pegged exchange rates were larger (on average, in excess of 2 percentage points) compared with countries with more flexible exchange rates.

The *stock of international foreign exchange reserves*—measured in numerous ways, such as share of GDP, exports, or short-term debt—did not have a statistically significant effect on the growth revisions. This result is similar to that found by Blanchard (2009). This may reflect the possibility that the value of international reserves diminishes sharply once they grow above a level considered sufficient to guard against risks. In fact, several of the countries with the largest growth revisions, particularly in central and eastern Europe, had levels of international reserves similar to those in some of the less affected countries in Europe and Latin America.

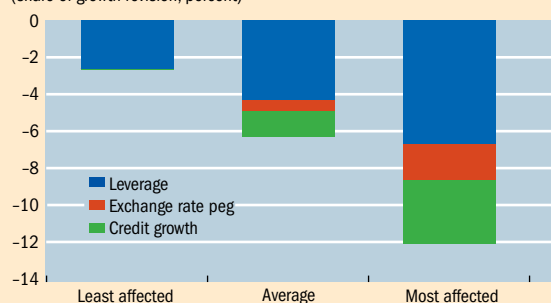
On *fiscal policy*, although the evidence is somewhat less strong, there is some indication that the primary fiscal gap (the difference between the actual primary balance and one consistent with keeping public debt constant as a share of

Chart 3

Borrowing is the issue

Leverage explains virtually all the growth revisions in the least-affected countries, two-thirds for the average country, and about half for the worst off.

(share of growth revision, percent)



Source: Authors' calculations.

GDP) is positively associated with better growth performance. This corresponds with the notion that countries with prudent fiscal policies prior to the global crisis were less prone to confidence crises and were in a better position to adopt stimulus measures during the slowdown.

Trade linkages

We also used the WEO forecast data set (which has a wider coverage than *Consensus Forecasts*) to examine growth revisions for 126 developing economies (including emerging markets) to explore whether other channels, such as trade linkages, mattered for a broader set of countries.

Trade finance, which declined sharply at the end of 2008, was a financial channel that affected nearly all economies.

Interestingly, the trade channel appears to matter in this sample, although not for emerging markets. Although the degree of trade openness does not appear to be decisive, the composition of trade does make a significant difference. In particular, the share of commodities (both food and overall) in total exports is associated with smaller downward growth revisions. The share of manufacturing products in total exports is correlated with worse growth performance for all developing countries, a relationship already noted in the IMF's *Regional Economic Outlook: Asia and Pacific* (2009). This is consistent with the notion that countries exporting manufacturing goods to advanced economies seem to have been hit hard by the decline in demand from these markets, while countries exporting food appear to have fared better.

More generally, the results are in line with the notion that the transmission of shocks to countries with lower financial linkages to the world (such as low-income economies) tend to occur predominantly through trade, whereas the financial channel is more relevant for countries with close financial ties to the advanced economies, where the crisis originated. Clearly trade finance, which declined sharply at the end of 2008, was a financial channel that affected nearly all economies—advanced, emerging market, and developing.

Policy lessons

For the emerging market countries, the main avenue of transmission of the shock appears to have been financial channels, particularly through rapid credit growth and high leverage, with damage aggravated by pegged exchange rates. Leverage explains virtually all the growth revision for the least affected countries in the sample, roughly two-thirds of the revision for the average country, and slightly more than half the revision for the countries most affected by the crisis (see Chart 3). Credit growth explains a significant share of the growth revision for the average country as well as those most affected. None of the least affected countries in the sample had a pegged exchange

rate; such limited exchange rate flexibility explains a substantial share of the growth revision of the most affected countries. There is also some evidence that trade linkages played a role in the transmission of the crisis, especially among developing countries not considered emerging markets.

This early attempt to explain why some developing countries and emerging markets fared better than others suggests some—preliminary—policy lessons:

- Exchange rate flexibility is crucial to dampen the impact of large shocks.
- Prudential regulation and supervision need to aim at preventing vulnerability buildups particularly associated with credit booms, such as excessive bank leverage.
- There is some—weaker—support for the notion that a solid fiscal position during good times creates some buffers that allow countries to conduct countercyclical fiscal policies during shocks, such as those brought about by the global crisis.

The results here are preliminary. More research will be needed for a more detailed understanding of the effect of policy responses and other institutional and structural factors on the duration of recessions in each country and the speed and size of the recovery in growth. ■

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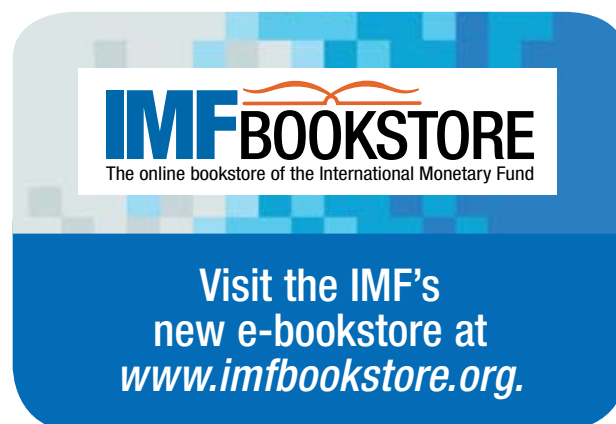
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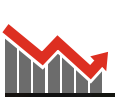
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Their Cup Spilleth Over

The U.S. and U.K. financial market crises had a spillover effect on the rest of the world, which explains the synchronized global slowdown

Australian wheat prepared for export.

Trung Bui and Tamim Bayoumi

THE recent global crisis—the deepest and most widespread since the 1930s by any measure—has refocused attention on spillovers across countries. Did the size and nature of financial problems lead to a synchronized global downturn? Put another way, if we had anticipated the large U.S. (and U.K.) financial meltdown before the crisis, would we have predicted a synchronized global slowdown? There are good reasons to answer this question with a firm “yes.”

Identifying spillovers

Understanding international business cycles has always been tricky. We know that recessions and recoveries across countries are linked, especially with the U.S. cycle. But it is not easy to distinguish whether global shocks (such as oil price hikes) drive the U.S. business cycle or U.S. shocks (monetary policy and the like) drive global developments. The conventional wisdom that “when the U.S. economy sneezes, the rest of the world catches a cold” implies a line of causation from the United States to the rest of the global economy that has been difficult to verify statistically.

Moreover, deciphering the global web of business cycle linkages requires careful analysis of the relative importance of key trade, financial market, and commodity price links. In the past two decades, global trade volume has tripled, and the volume of cross-border financial flows has increased more than ninefold. But economists have generally not been good at distinguishing these different (and possibly interrelated) channels. The recent crisis clearly started in the U.S. financial sector. Are financial interrelationships so important that they dominate conventional trade channels across the major advanced economy regions?

A recent article (Bayoumi and Bui, 2010), extended the work of Bayoumi and Swiston (2009) to study spillovers of real gross domestic product (GDP) growth among the most advanced economic regions—the United States, the euro area, Japan, and the United Kingdom. Since we also wanted to model global shocks, we included an aggregate of smaller industrial countries with a wide range of structures and geographic locations, whose behavior might plausibly be thought to reflect global shocks. This work uses data from the early 1970s through late 2007 to identify the size of spillovers across these major regions and the channels that drive them. Regrettably, the starting date precludes using data for many emerging markets—including China. In addition, the euro area as such was formed only in the late 1990s, although the core continental European countries continued their long process of economic integration throughout the sample period.

We use an innovative methodology to identify the direction of causation by assessing how changes in the severity of between-country shocks over time correspond with more or fewer links between countries (Rigobon, 2003). Roughly put, if, say, U.S. shocks become larger than Japanese shocks at the same time U.S. growth becomes more closely linked with Japanese growth, it is assumed that most of the spillovers flow from the United States to Japan—the logic being that bigger U.S. shocks lead to higher observed correlations. Using a range of plausible changes in countries’ behavior allows us to estimate the degree of uncertainty associated with the detected direction of causation. By contrast, the traditional approach to this question must make assumptions about the direction of causation, rather than estimating such links from the data. Our results suggest that

the crude assumptions made about the direction of causation in the traditional approach are rejected by the data. In addition, we can decompose the sources of cross-country spillovers into different channels by using variables that represent the possible channels for the cycle (the contribution of exports to U.S., euro area, and Japanese growth to measure trade links; changes in equity prices, bond yields, and short-term interest rates across these same regions to measure financial links; and oil and non-oil commodity prices for commodity links).

International spillovers: Which way and how big?

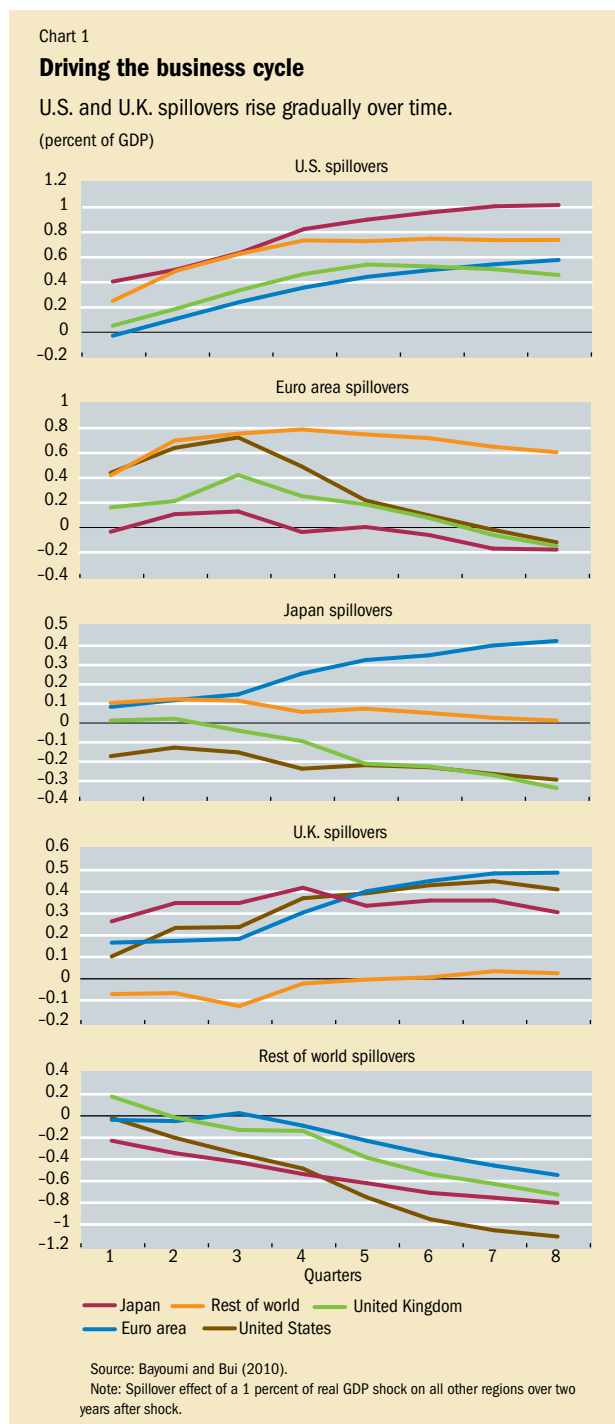
We calculated the size of spillovers on other regions resulting from a shock of 1 percent of real GDP in the United States, the euro area, Japan, the United Kingdom, and the rest of the world (see Chart 1). The first panel in the chart, which shows the impact on the other regions of a 1 percent of U.S. real GDP shock, suggests that U.S. shocks cause significant short-term spillovers that build gradually over time. After two years, such a shock raises real GDP in other regions by 0.4–1 percentage point, which represents significant spillover, given that the United States trades less internationally than do other countries. The spillovers are generally statistically significant even when the uncertainty associated with the direction of causation between regions is taken into account.

In contrast, euro area spillovers tend to start at a similar size to those of the United States but diminish and become insignificant (the rest-of-the-world group is an exception, to which we shall return). Japanese spillovers to the other regions are generally weak and insignificant, which is broadly consistent with the minimal impact on global growth of Japan’s “lost decade” of the 1990s. The remaining two regions show significant and rising spillovers over time, but of opposite signs. A positive shock to U.K. real GDP raises output elsewhere over time (except to the rest of the world). Intriguingly, the impact on the (much larger) euro area economy rises steadily over time. Hence, although the direction of short-term spillovers tends to be from the euro area to the United Kingdom, in the long term the opposite is true. Finally, higher output in the rest of the world tends to lead to lower activity in the other major regions.

Is there an intuitive explanation for this pattern of results? We believe there is. Note that the two regions with major financial centers produce positive spillovers that rise gradually over time. These are larger for the United States, which plays a greater role in global financial markets and has a bigger economy than the United Kingdom (indeed, given its highly internationalized financial system, much of the U.K. shock may well reflect global financial market conditions). By contrast, spillovers in the euro area, whose linkages with the other regions are largely based on trade, diminish over time; Japan, which is less open to trade than the euro area and has a limited presence as a financial center, has small spillovers.

Spillovers from the rest of the world (which includes several commodity producers, such as Australia, Canada,

and New Zealand) seem to reflect mainly commodity price shocks. This would explain why positive shocks to real GDP in the rest of the world have negative spillovers elsewhere. It also explains why positive spillovers from the other regions to the rest of the world correspond roughly to those regions’ size in the world economy and hence their importance in commodity demand: spillovers are largest for the United States and the euro area, but negligible for the United Kingdom. In short, U.S. and U.K. financial shocks, together

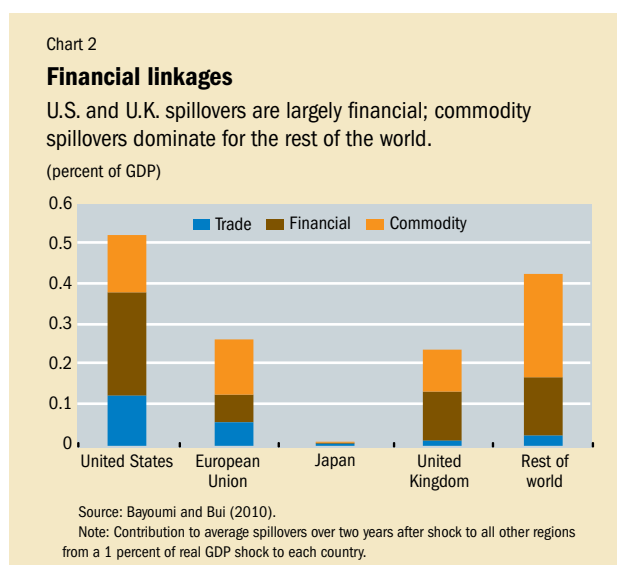


with commodity market surprises, seem to drive the global business cycle, with the euro area and Japan playing relatively minor roles.

We examine the plausibility of this interpretation of the international business cycle in two ways. First, we see how it explains the “Great Moderation”—the pervasive fall in macroeconomic volatility across a wide range of advanced economies—that occurred in the 1980s. Examining the results for the first and second halves of our sample, we find that the decrease in the size of U.S. and U.K. shocks is much larger than for the other areas (indeed, shocks in Japan increase over time). These results suggest that the Great Moderation reflected primarily smaller shocks in the two economies with major financial centers and that this provided a more stable environment for the rest of the world.

Where spillovers come from

Our second test is to examine more directly the sources of spillovers to see if they correspond to our assumptions that the United States and the United Kingdom have relatively large financial linkages and that the rest of the world has relatively large commodity linkages. The results from this analysis are shown in Chart 2. The size of each bar represents the average size of spillovers (over two years) for each region—about one-half percent for the United States, four-tenths for the rest of the world, somewhat less for the euro area and the United Kingdom, and negligible for Japan. The euro area is a useful reference point because it has a relatively even split among financial, trade, and commodity spillovers. By contrast, in the United States and (in particular) the United Kingdom, financial market factors dominate; for the rest of the world, commodity factors lead. The identification of these links uses a completely separate approach from the one that estimates the size of spillovers, which provides important corroboration for our initial hypothesis that U.S. and U.K. spillovers are largely financial, but in the rest of the world they take place mainly through commodity markets.



Explaining the current crisis

Our findings help explain the global nature of the boom over the 2000s and the severity of the ensuing global downturn. A series of positive shocks in the U.S. and U.K./global markets drove a global financial boom whose spillovers boosted growth in all major advanced economies. But that boom sowed the seeds of its own destruction, including through a synchronized set of commodity price hikes. When the finan-

Financial shocks emanating from the United States and the United Kingdom have a major impact on the rest of the global economy.

cial excesses in the U.S. housing market started to deflate in late 2007, followed soon after by the U.K. housing market and global financial strains, these shocks eventually pulled down the advanced economies despite massive monetary and fiscal intervention. This confirms our premise that financial linkages are important and that financial shocks emanating from the United States and the United Kingdom have a major impact on the rest of the global economy.

That said, we freely admit that we cannot account for all the phenomena seen during the crisis. The recession’s exceptional synchronization owed much to the financial panic that followed the bankruptcy of U.S. investment bank Lehman Brothers and the resulting sudden stop in spending on highly traded consumer durables and investment goods, which led in turn to short but sharp trade spillovers (Kose, Otrok, and Prasad, 2010). But consistent with our results regarding the short-term impact of trade shocks on activity, the emerging markets that were linked to the advanced economies primarily through trade are indeed bouncing back rapidly; recovery in the advanced economies, with their more extensive financial links, is proving much slower and more painful. ■

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A Tale of Two Regions

Foreign-bank lending to emerging markets during the global crisis differed from continent to continent

Jorge Ivan Canales-Krijlenko, Brahim Coulibaly, and Herman Kamil

LENDING by foreign banks is an important part of international capital flows to emerging markets and a defining feature of financial globalization. In the years preceding the recent global crisis, foreign-bank lending to emerging economies expanded rapidly—whether directly from foreign-bank headquarters (cross border) or through affiliates operating in host countries. In many countries, especially in Latin America and emerging Europe, lending by foreign banks became a significant source of funding for households and corporations. Although it had its pros and cons, on balance the presence of foreign-owned banks was generally believed to have enhanced competition and aided overall financial stability.

During the global credit crunch, however, foreign banks were potential vehicles for spreading the crisis from advanced economies to emerging markets. In particular, the international credit crunch raised concerns that, as had happened in previous crises, these bank flows would come to a sudden stop, disrupting macroeconomic stability and undermining economic recovery efforts.

Yet this tale unfolded differently in Latin America than it did in emerging Europe. In Latin America there was no sud-

den stop. Foreign-bank lending continued to grow, albeit at a more modest pace. By end-September 2009, total outstanding claims by foreign banks in Latin America had increased slightly compared with end-September 2008, when the Wall Street investment firm Lehman Brothers collapsed and sent world financial markets into turmoil. This contrasts with the behavior of foreign-bank-lending growth to emerging Europe, which declined sharply with the onset of the global credit crunch in mid-2007 and turned negative by early 2009 (see Chart 1). What can explain the different behavior in foreign-bank lending between these two regions?

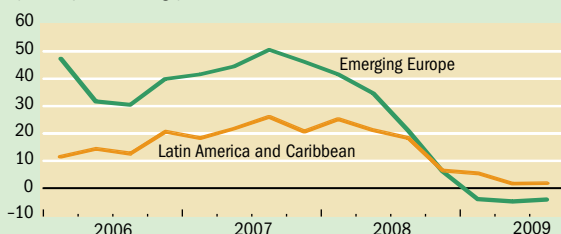
A key difference is the role foreign banks played in sustaining rapid domestic credit growth during the precrisis period. In emerging Europe, globally operating banks from western Europe (mostly from Austria, Belgium, Italy, and Sweden) fueled a credit boom in most countries. These banks transferred large amounts of capital to their subsidiaries, which in turn lent these funds domestically (see Chart 2). As a result of the aggressive expansion strategy of western banks, most of the domestic banking systems in emerging Europe became dominated by global banks—in a number of countries their market share skyrocketed to over 90 percent. In Latin America, on the

Chart 1

How lending behaved

During the crisis, foreign-bank lending to emerging Europe declined sharply, whereas such lending to Latin America held up better.

(annual percent change)



Sources: Bank for International Settlements; IMF, *International Financial Statistics*; and authors' calculations.

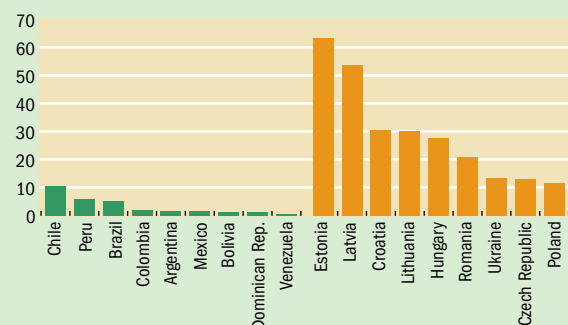
Note: Lending is adjusted for exchange rate changes. It includes both cross-border lending and lending by foreign-owned affiliates.

Chart 2

Lending on

In emerging Europe, foreign-owned banks were largely vehicles for lending internationally sourced funds.

(cross-border lending to the domestic banking sector, percent of GDP)



Source: Authors' calculations.

other hand, the pace of foreign banks' credit growth was more moderate, and subsidiaries' lending was much less reliant on external funding from parent banks in advanced economies (most of which were from Spain, the United Kingdom, and the United States). At the same time, the degree of foreign ownership of the banking sector was in general lower, although in some countries, particularly Mexico and El Salvador, there was a large presence of foreign-bank affiliates.

By the time the financial crisis erupted, emerging Europe was experiencing greater financial vulnerability than Latin America.

By the time the financial crisis erupted, emerging Europe was experiencing greater financial vulnerability than Latin America. Across emerging Europe, credit had grown at a faster pace, external debt was higher, and current account balances were showing large deficits. When the credit boom went bust after the collapse of Lehman Brothers, economic activity in emerging Europe was hit harder than in any other emerging market region, leading to severe recessions. The slowdown in private credit likely reflected declines in both credit demand and credit supply. Thus, the different dynamics of foreign banks' lending to emerging Europe (faster credit expansion followed by a deeper crunch) could be seen as part of a broader story of wider financial swings in emerging Europe than in Latin America.

Differences in foreign-bank strategies

The faster credit deceleration in emerging Europe than in Latin America could also be rooted in the different business models and expansion strategies of international banking groups in both regions. Two differences are worth highlighting (see IMF, 2009).

In Latin America, local affiliates were funded primarily through domestic deposits (which were relatively stable during the crisis), rather than through loans or capital transfers from parent banks. Lending by foreign banks' local affiliates in Latin America was thus less vulnerable to sudden withdrawal of short-term external funding and contagion from the international liquidity squeeze, and continued to expand even amid the global turmoil. In emerging Europe, on the other hand, lending by foreign-owned banks depended to a great extent on parent banks in western Europe, which experienced significant financial stress and faced tight interbank liquidity conditions during the crisis. This prompted a cutback in funding to local affiliates, which in turn reduced lending in host markets.

The currency makeup of foreign-bank lending appears to be different as well. In Latin America, 60 percent of foreign-bank lending is denominated in local currency. Domestic financial dollarization is low in most of the large Latin

American countries and has been systematically declining in the more dollarized ones over the past decade. In emerging Europe, 60 percent of foreign-bank lending is denominated in foreign currency. Given that local subsidiaries relied on foreign-currency funding from abroad and needed to keep their assets and liabilities currency-matched, foreign banks lent mostly in euros rather than in local currency. Lending denominated in foreign currency has additional risks stemming from swings in exchange rates. For example, domestic-currency depreciation could push up the cost of borrowing or increase expected defaults when borrowers have currency mismatches, leading to a stronger credit retrenchment.

Empirical evidence suggests that these two factors may have been at play during the recent global crisis. Kamil and Rai (2010) explore in detail the importance of funding sources and the loans' currency denomination in terms of the resilience of foreign-bank lending to external shocks across Latin American countries. They also assess the effects of three factors that shaped the recent global financial turmoil—tight interbank liquidity, mounting pressure on major banks' capital positions in advanced economies, and more restrictive lending standards in developed economies' banking systems. After controlling for other elements that drive foreign-bank financing, the authors found that the propagation of these global financial shocks was significantly more muted in Latin American countries, where foreign banks funded themselves through domestic deposits rather than through parent banks or wholesale markets, and where much of the lending was denominated in local currency.

Mitigating volatility

Recent experience of foreign-bank lending to Latin America and emerging Europe suggests a few tentative lessons for mitigating volatility and is relevant to policy discussions of the costs and benefits of opening the domestic banking sector to foreign competition. Foreign-bank lending funded by domestic deposits and denominated in local currency is likely to be more resistant to external financial shocks and indeed, in Latin America, acted as a firewall against the transmission of global financial shocks. This is a plausible explanation for why Latin American countries have not been hit as hard as other emerging markets by global deleveraging and the pull-back in foreign-bank lending. ■

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Perils of Ponzis

Regulators need to stop Ponzi schemes before they gain momentum, especially in developing countries

Hunter Monroe, Ana Carvajal, and Catherine Pattillo

ONE hundred and fifty years after Charles Dickens wrote in *Little Dorritt* about London investors succumbing to the fraudulent investment schemes of Mr. Merdle's bank, trusting victims are still tempted by such get-rich-quick swindles.

Ponzi schemes, which lure investors by paying high returns from other investors' money, thrive even in developed countries. The sophisticated regulatory framework in the United States did not prevent the rapid growth and collapse of Bernard Madoff's \$65 million scheme in late 2008 or the subsequent collapse of several others during the global financial crisis.

But the impact of Ponzi schemes has been greater in countries with weaker regulatory frameworks. This unfortunate pattern is illustrated by the case of Albania in 1996, when riots resulted in the fall of the government and even deaths, and by more recent cases. For instance, Jamaican schemes caused losses as high as 12½ percent of GDP and spread to a number of other Caribbean jurisdictions. The collapse of schemes in Colombia, which had taken in an estimated US\$1 billion, was followed by riots and violent protests in 13 cities, and the government was forced to declare a state of emergency. A scheme in Lesotho lost the money of about 100,000 investors, many of them poor and highly vulnerable. The damage these schemes can inflict requires a determined regulatory response to shut them down at an early stage, before they gain momentum. Regulators and receivers allege that these and the other operations mentioned below are Ponzi schemes, although in many of these instances court cases are still pending.

What are Ponzi schemes?

Ponzi schemes—named after Boston con man Charles Ponzi, who perpetrated a fraudulent investment scheme that collapsed in 1920—are a type of investment fraud in which returns

are paid to investors out of the money paid in by subsequent investors rather than from genuine profits generated by an investment or business activity. These schemes generally lure investors by offering higher returns than any legitimate business activity could plausibly sustain. Ponzi schemes usually have to attract new investments at an exponentially growing rate to sustain payments to existing investors, and inevitably collapse when the new investment needed exceeds the ability to lure further contributors. At that point, most investors lose their money, although early investors—including the scheme's founders—may have realized high returns or extracted windfall rents if they cashed out soon enough.

The "business opportunity" advertised to lure investors can vary widely in nature. For instance, a Jamaican scheme (OLINT) claimed to undertake foreign exchange trading, a company in Lesotho (MKM Burial Society) selling prepaid burials began to offer investment products, and a Colombian scheme (Group DMG) sold prepaid debit cards. Schemes often specifically target individuals from a group or community sharing a common affinity, such as ethnicity, religion, or profession, hoping to exploit mutual bonds of trust. Schemes have lured investors of all levels of income and wealth.

Selected investment schemes

Ponzi schemes hit developing countries hard.

Country	Name(s)	Year of collapse	Amount invested/lost	
			(U.S. dollars)	(percent of GDP ¹)
Antigua and Barbuda	Stanford Financial Group	2009	8 billion	n.a. ²
Grenada	SGL Holdings	2008	30 million	5
Jamaica	OLINT, Cash Plus, World Wise, LewFam, for example	2008	1 billion	12.5
United States	Madoff Investment Securities	2008	65 billion	0.5
Colombia	DRFE, DMG, for example	2008	1 billion	0.4
Lesotho	MKM Burial Society	2007	42 million	3
Albania	VEFA, Gjallica, Kamberi, for example	1997	1.7 billion	79

Sources: Newspaper accounts; IMF staff estimates; and for Jamaica, Caribbean Policy Research Institute (2008).

¹All references are to home country GDP, although some schemes also attracted nonresident investors.

²Antiguan investors were not permitted to invest in this offshore institution.

Many scheme operators managed to extend their operations through ostentatious charitable contributions, significant political contributions, and lavish demonstrations of their own or their scheme's wealth. For instance, a Ponzi scheme in Jamaica (Cash Plus) sponsored the national soccer league in 2007, Allen Stanford sponsored an international cricket tournament, and the founder of Group DMG in Colombia owned a private jet and fleet of cars. Prior to collapse, operators may be regarded as pillars of their communities—the founder of OLINT in Jamaica was selected as business personality of the year by a business newspaper.

Economic and financial damage

Ponzi schemes inevitably inflict financial damage on most of their investors and divert savings from productive investment. If left unchecked, they can grow exponentially and cause broader economic and institutional damage as well, undermining confidence in financial institutions and regulatory authorities and creating fiscal costs if bailouts occur. They can even lead to political and social instability when they collapse.

The most dramatic case was in Albania. When several schemes collapsed there in 1996, there was uncontained rioting, the government fell, the country descended into anarchy, and, by some estimates, about 2,000 people were killed.

Recent schemes have varied widely in size (see table), which may reflect a variety of factors, but the speed and effectiveness of the regulatory response is clearly crucial. The data are rough estimates, because establishing even basic facts such as amounts invested or lost and numbers of investors or accounts involved is difficult in light of the inaccuracy or lack of financial statements, absence of regulation, and disappearance of funds, records, and principals. But clearly, a wide range of countries in a variety of circumstances have seen the emergence of large-scale Ponzi schemes.

Such examples demonstrate the importance of a rapid policy response. However, authorities have faced difficulties in dealing with recent schemes in Colombia, Lesotho, and a number of Caribbean countries—Jamaica, Grenada, Antigua and Barbuda, and St. Vincent and the Grenadines (Carvajal and others, 2009). Controlling and closing down schemes is often difficult, for a variety of reasons. In many cases, neither the perpetrators nor the schemes themselves are licensed or regulated. And in many countries regulators lack the appropriate enforcement tools, such as the ability to freeze assets, to shut down schemes at an early stage. Some schemes have also successfully delayed enforcement actions through court challenges.

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Once a scheme becomes large, government authorities may become increasingly reluctant to trigger its collapse, because if they do—curtailing its ability to meet cash flow obligations—subscribers could blame the government's intervention rather than the scheme's inherent flaws. Conversely, when the schemes collapse by themselves, experience shows that governments may face criticism for failing to act more promptly.

Key regulatory actions

Prompt and decisive regulatory action is required to prevent Ponzi schemes from taking root and spreading. Regulators must be prepared to work on several fronts.

Investigate schemes. Ponzi schemes, especially those perpetrated through unregulated entities, are usually not easy to detect, because many of them operate in an opaque—even secretive—way, requesting confidentiality from investors. Regulatory agencies should increase efforts to detect Ponzi schemes by developing effective investigative tools, including red flags that point to investment fraud, tools to facilitate research on the Internet as well as through other mass media, and mechanisms to receive and act on complaints from the public.

Seek emergency relief. Completing a full investigation to bring civil, administrative, or criminal charges can take a long time, during which scheme operators or investors' money may disappear. Once a regulator has reasonable evidence of the existence of a fraud perpetrated via a Ponzi scheme, it should immediately seek emergency restraining orders, such as freezing assets, to protect investors' interests while the investigation continues.

Bring charges. Financial regulators should employ the civil or administrative remedies at their disposal while also submitting files to the criminal authorities. In Jamaica, cease and desist orders against OLINT were not followed by criminal charges, which delayed the closure of the scheme. Regulators should stand ready to help the authorities build a criminal case, or have the power to bring charges themselves. Civil or administrative remedies differ from criminal remedies with regard to both the authority responsible for their prosecution and imposition and the burden of proof required and gravity of the sanction.

Coordinate and cooperate. A Ponzi scheme may constitute a violation under several financial laws, which can be pursued by more than one regulator. Close dialogue with the criminal authorities can lead to more effective enforcement. Financial regulators need effective mechanisms for the exchange of information and cooperation on curbing unregulated schemes. The multilateral memorandum of understanding of the International Organization of Securities Commissions is becoming one important such tool.

Keep the public informed. Broad financial literacy programs can help stop unregulated schemes. In addition, it is crucial that regulators keep the public informed, through general warnings regarding the methods used to defraud investors and the need to question potential investments' financial viability and invest only through licensed entities; notices and lists of individuals or entities that hold or do not hold a license to

carry out financial activities; and a database of actions taken against specific individuals and entities. A Web posting by the St. Kitts and Nevis financial regulator that the Jamaican OLINT scheme was not authorized to operate there appears to have prevented that scheme from taking root.

Preconditions for early response

Country experience has shown that regulators are more likely to be proactive and act quickly and decisively when the following conditions are present; in their absence regulatory responses come, at best, with significant delay.

Broad authority to investigate and prosecute unregulated schemes. The experience of many developing countries suggests that gaps in regulations and in the legal and regulatory framework governing enforcement of financial laws have been a key factor in financial regulators' inadequate response to Ponzi schemes. Four elements are important: clear provisions to prosecute the schemes; broad investigative authority, especially to "follow the money" by accessing banking information; authority to seek or impose civil or administrative remedies, such as financial penalties or withdrawal of a license to operate, as well as criminal sanctions; and authority to take emergency action, such as freezing assets.

Independence of financial regulators. In many of the cases studied, there was no political—or even popular—support for regulatory action to stop the schemes. For instance, a junior government minister in Jamaica described a raid on OLINT as a "Gestapo-like invasion," which was a "vulgar abuse of state power." Financial regulators need sufficient independence to act without additional approval from the government, even if the schemes have the tacit support of members of the government. And the regulatory framework must protect staff and commissioners against lawsuits arising from the execution of their duties.

Broad authority to cooperate and exchange information with other financial regulators. Ponzi schemes may operate across many jurisdictions: OLINT had offices in Jamaica, was headquartered in Panama and later in the Turks and Caicos Islands, and solicited investors in the United States and, through subschemes, in Grenada, Dominica, and St. Lucia. The lack of authority to exchange confidential information, in particular banking information, and to provide assistance to foreign regulators has hindered the investigation and prosecution of Ponzi schemes in many developing and emerging markets. Some regulators also face problems in exchanging confidential information with other local regulators.

Adequate resources for enforcement. In countries just beginning to tackle the problem of Ponzi schemes, a lack of experienced personnel impedes prompt action. Training can help bridge this gap, as can the development of internal manuals on conducting investigations and an organizational structure capable of dealing with the investigation and handling of cases.

Specialization and speedy disposition by the courts. Because many decisions a financial regulator takes to stop a Ponzi scheme are subject to judicial approval or review, it is critical that judges have the necessary expertise and are able to give

priority to financial matters, in particular those involving emergency action. For example, OLINT was able to continue operating for several years while the courts resolved challenges to the regulator's cease and desist order and a commercial bank's attempt to close the scheme's bank accounts. The bank's action was appealed to the level of the Privy Council in the United Kingdom, Jamaica's final court of appeal.

Developing countries more vulnerable

Case histories demonstrate that Ponzi schemes can occur in any financial market, industrialized or developing. Although the business opportunities these schemes claim to offer and their legal operating structures are diverse, their promoters employ similar techniques to make their pitch, identify target groups, get publicity, and build credibility.

Regulators in most industrialized countries have a wide range of enforcement tools at their disposal, including the ability to freeze assets as soon as a scheme is discovered, and the judiciary has supported such measures. As a result, although large and long-lasting schemes can emerge in industrialized countries, as the Madoff case reminds us, they are more likely to be stopped in these countries soon after discovery.

That has not been the case for some developing countries. The lack of a strong regulatory response, along with underdeveloped formal financial institutions, has allowed Ponzi schemes to develop and continue operating even after many red flags have been raised, and is a reflection of a broader problem: the challenge of developing credible enforcement programs. Many regulators in developing countries lack the necessary enforcement tools, resources, and—sometimes—political independence to cope with financial misconduct, including the operation of Ponzi schemes. In a global financial market, regulators must be able to exchange information and cooperate with one another. This has proven critical in combating unregulated schemes, given their demonstrated ability to relocate from one jurisdiction to another. But for many developing country regulators, legal limitations mean such cooperation is still beyond their reach.

Ponzi schemes are a concern around the world, but especially in countries whose relatively less developed regulatory frameworks may be unable to contain their exponential growth. The key lesson is to act early before schemes gain momentum and imperil unsuspecting investors. ■

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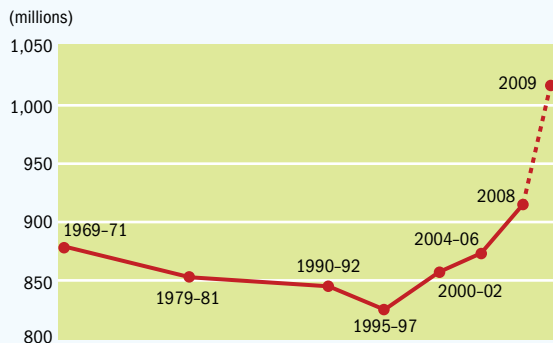
Carvajal, Ana, Hunter Monroe, Catherine Pattillo, and Brian Wynter, 2009, "Ponzi Schemes in the Caribbean," IMF Working Paper 09/95 (Washington: International Monetary Fund).

Hunger on the

Number of hungry people tops one billion

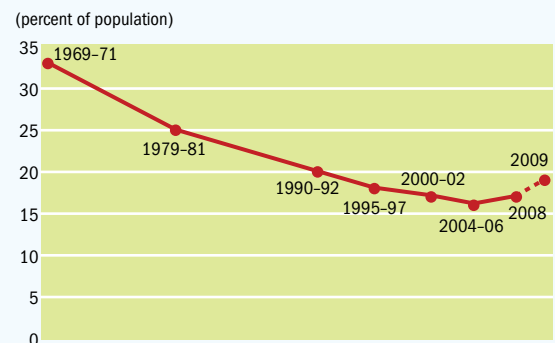
World hunger spiked sharply in 2009, significantly worsening an already disappointing trend in global food security since 1996. The combination of food and economic crises has pushed the number of hungry people worldwide to historic levels. The Food and Agriculture Organization of the United Nations (FAO) estimates that 1.02 billion people were undernourished in 2009—about 100 million more than in 2008. As a result, reaching the World Food Summit target and the Millennium Development Goal for hunger reduction looks increasingly out of reach.

Combined food and economic crises drove the number of hungry people above one billion in 2009



Note: 2009 figure is an estimate.

The proportion of undernourished people has risen to almost 20 percent

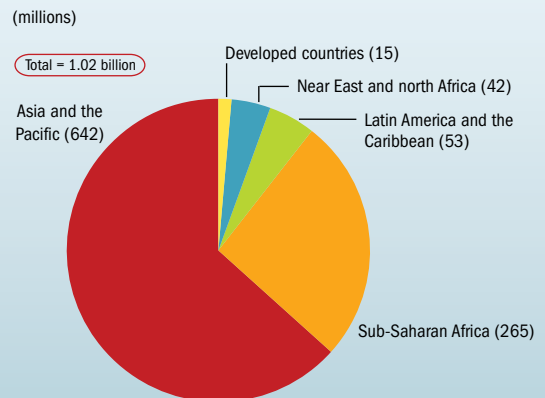


Note: 2009 figure is an estimate.

Hunger affects all regions of the world. Asia and the Pacific, the world's most populous region, has the highest number of hungry people. However, hunger is most prevalent in sub-Saharan Africa, where about one-third of the population is undernourished.



Nearly all of the world's undernourished live in developing countries



Prepared by David Dawe and Denis Drechsler. Text and charts based on 'The State of Food Insecurity in the World,' published by the FAO in 2009. The report is available at www.fao.org/publications/en

Rise



Poor harvests

are not to blame. The FAO estimates that total cereal production in 2009 was only slightly below the record high set in 2008. Instead, the increase in hunger is mainly a result of poor people's inability to afford the food that is produced. Many drew down savings during the food price crisis and have now lost jobs as a result of the global economic crisis.

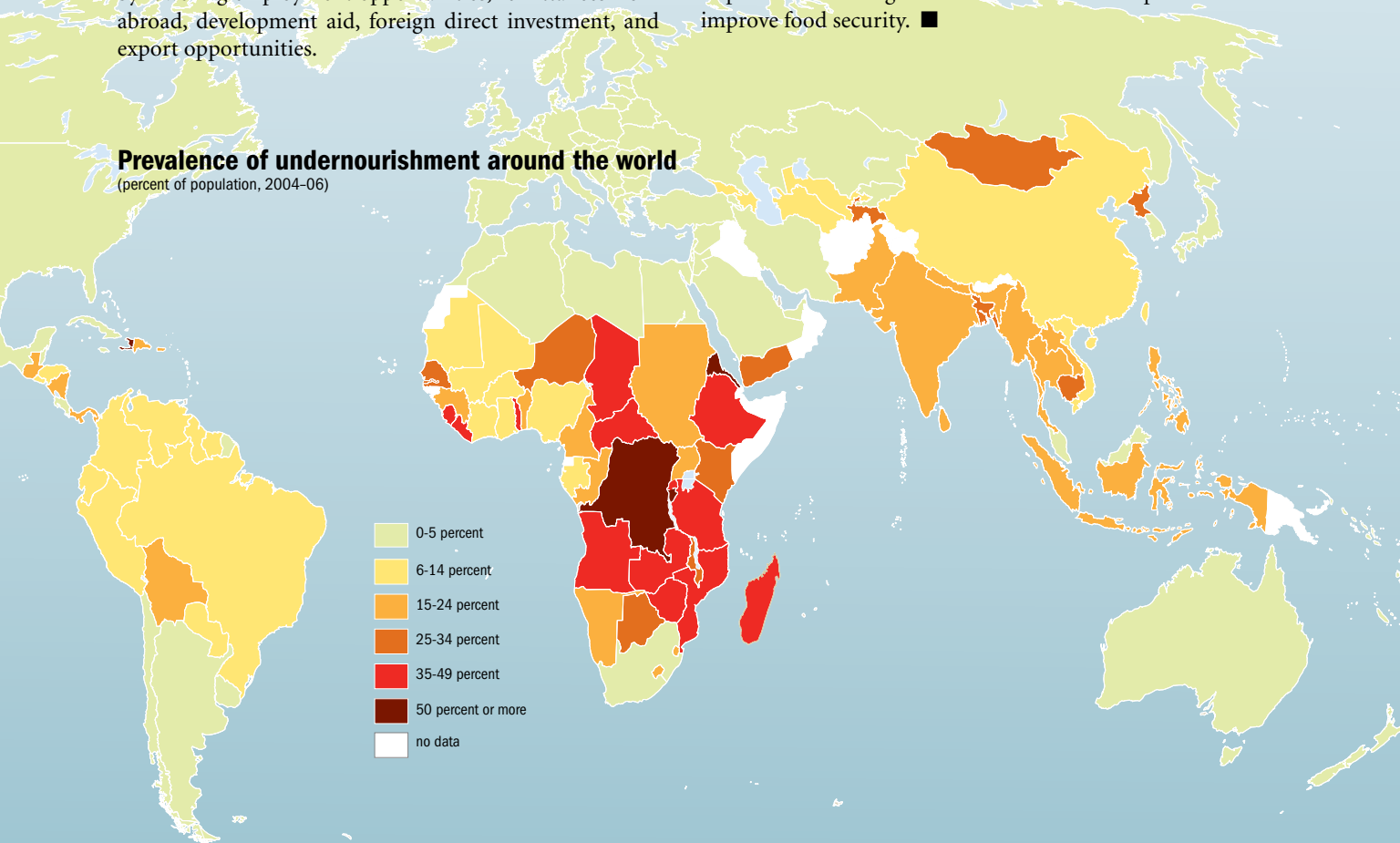
Food prices increased considerably in developing countries during the 2006–08 world food crisis and were still high when the economic crisis started. Domestic prices of staple foods were typically 17 percent higher at the end of 2008 than two years earlier, after adjusting for inflation. This seriously hurt the purchasing power of poor consumers, who often spend 40 percent of their income on staple foods.

Thus, the global economic crisis hit developing countries at a very bad time. It further reduced access to food by lowering employment opportunities, remittances from abroad, development aid, foreign direct investment, and export opportunities.

How can hunger be eliminated? Improving world food security calls for both measures for immediate relief and more fundamental structural changes. In the short term, safety nets and social protection programs must be improved to reach those most in need.

In the medium and long term, the structural solution to hunger lies in increasing agricultural productivity to increase incomes and produce food at lower cost, especially in poor countries. The importance of longer-term measures is evidenced by the unacceptably high number of people who did not get enough to eat before the crises and are likely to remain hungry even after the food and economic crises have passed. In addition, these measures must be coupled with better governance and institutions at all levels. For example, at the global level, the reformed Committee on World Food Security marks an important step toward building coherence in actions and policies to improve food security. ■

Prevalence of undernourishment around the world
(percent of population, 2004–06)





Should Bankers Get Their Bonuses?

Steven N. Kaplan

BANKERS' bonus season has arrived. This year opposition is stronger than ever given the number of high-paying firms bailed out with taxpayer dollars during the crisis. So why should bankers get their bonuses?

Opponents of bonuses make three arguments. First, bankers are overpaid, particularly given the hardships Main Street faces. Second, bonuses are undeserved because many banks would have earned less or failed to survive without government intervention. Third, large bonuses encouraged bank executives to take excessive risks, contributing greatly to the financial crisis. The anger is understandable, but none of these arguments stands up to scrutiny.

Bankers are well paid, but their high pay is not unique. Pay has increased markedly over the past 30 years for many—investment bankers, investors (hedge fund, private equity, and public money managers), top corporate executives, consultants, entertainers, top athletes, and lawyers. Changes in technology, scale, and globalization have allowed these professionals to leverage their skills. Top investors can now manage far more money than they could three decades ago, bankers and lawyers work on larger deals, and top professional athletes reach larger audiences. Whether fair or moral, their high pay is largely market driven as companies compete for talent.

Deserving bankers

Some critics claim bankers would have no alternative if they were not paid as they are, or did not receive the bonuses they do. The critics are naïve. The best bankers have other options. Star deal makers can go to boutique investment houses and hedge funds or become nonbank money managers. Many already have. A top Citigroup trader, Matthew Carpenter, left in early February for hedge fund Moore Capital, following in the footsteps of another top trader, Andrew Hall.

The greater the reduction in, and restrictions on, pay at large banks, the greater will be the exodus of top talent over time. Some might applaud such a development, but it would weaken the largest financial institutions. The government bailout (and continued subsidization) of some banks does not change banks' need to pay market prices for their talent or risk losing it. The public also is hurt by a less-well-managed banking system (consider the problems pay issues have created for AIG, Fannie Mae, and Freddie Mac).

True, some portion of bank profits this year is a result of government intervention, but the banks paid for that intervention. Most have now repaid the Troubled Asset Relief Program (TARP) money received from the government, and the United States has profited from the "investments." Those who think the return is not enough should

criticize the U.S. government for cutting a bad deal rather than the bankers for doing their jobs and making money.

Some banks were effectively forced to take TARP money. They are now being asked to hurt their business and employees (by not paying bonuses) after repaying the government money they did not want or need.

Professional sports provide a good analogy. Say a soccer team has a terrible year because its star goalie had a bad season. But its star forward led the league in scoring. Does this mean the team should not pay the forward generously to ensure he stays with the team? And, if the team has a fantastic season the following year, does that mean players should not be paid because of the bad record the year before? Of course not. Such practices would be detrimental, if not suicidal.

Beyond the bonus furor

Large bonuses were not a primary cause of the financial crisis. Bear Stearns and Lehman Brothers were more aggressive than their peers in encouraging employees to defer bonuses or invest them in company stock rather than take cash up front. Stock ownership and bonus deferral did not save those firms. Bank executives lost hundreds of millions of dollars on the stock they owned because of bad decisions they made. Many lost their jobs.

Rather, the crisis was caused by loose monetary policy, a global capital glut, excessively leveraged investment banks, mandates from Congress to provide mortgages to people unable to afford them, flawed ratings from the rating agencies, and up-front incentives for mortgage brokers. Consistent with this, the crisis spread to financial institutions in many countries with very different pay practices.

Instead of fixating on compensation and bonuses, critics should focus on more sensible capital requirements. An effective solution would impose higher and procyclical equity capital requirements on banks, combined with a requirement to raise contingent long-term debt—debt that converts into equity in a crisis. These debt investors, not the government, would have bailed out the banks. The financial crisis would have been substantially smaller, if it had occurred at all.

The anger toward bankers is understandable, but eliminating or restricting their bonuses will damage the financial sector while doing little to stop any future financial crisis. ■

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Bonuses?

Bonuses and the “Doom Cycle”

Simon Johnson

BANKERS' bonuses are a high-profile symptom of a much larger and deeper problem—the ability and willingness of the largest players in our financial system to take reckless risks.

We have let a “doomsday cycle” take over our economic system. (Andrew Haldane, of the Bank of England, has identified a similar “doom loop.”) This cycle has several distinct stages. At the start, creditors and depositors provide banks with cheap funding. If things go very wrong, they expect central banks and fiscal authorities will bail them out.

Banks such as Citigroup and Goldman Sachs—and many others in this past cycle—used the funds to take large risks, providing dividends to shareholders and bonuses to management and staff. Through direct subsidies (such as deposit insurance) and indirect support (such as the prospect of central bank bailouts), we encourage our banking system to ignore large, socially harmful “tail risks”—risks that involve a small chance of calamitous collapse. Banks can walk away and let the state clean up. Some bankers and policymakers even do well during the collapse they helped to create.

Mind-boggling failure

Regulators and supervisors are supposed to prevent this dangerous risk taking. But banks wield substantial political and financial power, and the system has become remarkably complex, so eventually regulators become compromised. The extent of regulatory failure ahead of the current crisis is mind-boggling. Prominent banks, including Northern Rock in the United Kingdom, Lehman Brothers in the United States, and Deutsche Bank in Germany, convinced regulators that they could hold small amounts of capital against large and risky asset portfolios. The whole banking system built up many trillions of dollars in exposures to derivatives. This meant that when one large bank or quasi bank failed, it was able to bring down the whole system.

Given the inability of our political and social systems to handle the hardship that would follow economic collapse, we rely on our central banks to cut interest rates and direct credits to save the loss makers. While the faces change, each central bank and government operates similarly. This time, it was Federal Reserve Board Chairman Ben Bernanke and Treasury Secretary Tim Geithner (president of the New York Federal Reserve Bank in the run-up to the crisis) who oversaw policy as the bubble was inflating—and are now designing our “rescue.”

When the bailout is done, we start all over again. This has been the pattern in many developed countries since the mid-1970s—a date that coincides with significant macroeconomic and regulatory change, including the end of the Bretton Woods fixed exchange rate systems, reduced capital controls in rich countries, and the beginning of 20 years of regulatory easing.

The real danger is that as this cycle continues, the scale of the problem is getting bigger. If each cycle requires greater and greater public intervention, we will surely eventually collapse.

The best route to creating a safer system includes very large and robust capital requirements, which are legislated and difficult to circumvent or revise. If we triple core capital at major banks to 15 to 25 percent of assets—putting capital-asset ratios back where they were in the United States before the formation of the Federal Reserve in 1913—and err on the side of requiring too much capital for derivatives and other complicated financial structures, we will create a much safer system with less scope for gaming the rules.

Less likely to gamble

Once shareholders have a serious amount of funds at risk, relative to the winnings they would make from gambling, they will be less likely to gamble and are more likely to keep dangerous compensation schemes under control. This will make the job of regulators far easier and give our current regulatory system a chance to work.

We also need to ensure that individuals who are part of any failed system expect large losses when their gambles fail and public money is required to bail out the system. Even though many executives at bailed-out institutions lost large amounts of money, they remain very wealthy.

Other bankers obviously won big from the crisis. U.K. Chancellor Alistair Darling appointed Win Bischoff, a top executive at Citigroup in the run-up to its spectacular failure, to be chairman of Lloyds. Vikram Pandit sold his hedge fund to Citigroup, which then wrote off most of the cost as a loss; nevertheless, Pandit was soon named Citigroup CEO. Jamie Dimon and Lloyd Blankfein, CEOs at JPMorgan Chase & Co. and Goldman Sachs, respectively, are outright winners, even though each of their banks also received federal bailouts and they agreed to limit their bonuses for 2009. Goldman Sachs was lucky to gain access to the Fed's “discount window,” so averting potential collapse.

We must stop sending the message to our bankers that they can win big on the rise and also survive (or do well financially) on the downside. This requires legislation that recoups past earnings and bonuses from employees of banks that require bailouts. ■

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What Is Inflation?

Ceyda Oner

IT may be one of the most familiar words in economics. Inflation has plunged countries into long periods of instability. Central bankers often aspire to be known as “inflation hawks.” Politicians have won elections with promises to combat inflation, only to lose power after failing to do so. Inflation was even declared Public Enemy No. 1 in the United States—by President Gerald Ford in 1974. What, then, is inflation, and why is it so important?

Inflation is the rate of increase in prices over a given period of time. Inflation is typically a broad measure, such as the overall increase in prices or the increase in the cost of living in a country. But it can also be more narrowly calculated—for certain goods, such as food, or for services, such as a haircut, for example. Whatever the context, inflation represents how much more expensive the relevant set of goods and/or services has become over a certain period, most commonly a year.

Measuring inflation

Consumers’ cost of living depends on the prices of many goods and services and the share of each in the household budget. To measure the average consumer’s cost of living, government agencies conduct household surveys to identify a basket of commonly purchased items and track over time the cost of purchasing this basket. (Housing expenses, including rent and mortgages, constitute the largest component of the consumer basket in the United States.) The cost of this basket at a given time expressed relative to a base year is the *consumer price index* (CPI), and the percentage change in the CPI over a certain period is *consumer price inflation*, the most widely used measure of inflation. (For example, if the base year CPI is 100 and the current CPI is 110, inflation is 10 percent over the period.)

Core consumer inflation focuses on the underlying and persistent trends in inflation by excluding prices set by the government and the more volatile prices of products, such as food and energy, most affected by seasonal factors or temporary supply conditions. Core inflation is also watched closely by policymakers. Calculation of an overall inflation rate—for a country, say, and not just for

consumers—requires an index with broader coverage, such as the *gross domestic product (GDP) deflator*.

The CPI basket is mostly kept constant over time for consistency, but is tweaked occasionally to reflect changing consumption patterns—for example, to include new hi-tech goods and to replace items no longer widely purchased. Because it shows how, on average, prices change over time for everything produced in an economy, the contents of the GDP deflator vary each year and are more current than the mostly fixed CPI basket. On the other hand, the deflator includes non-consumer items (such as military spending) and is therefore not a good measure of the cost of living.

The good and the bad

To the extent that households’ *nominal* income, which they receive in current money, does not increase as much as prices, they are worse off, because they can afford to purchase less. In other words, their *purchasing power* or *real*—inflation-adjusted—income falls. Real income is a proxy for the standard of living. When real incomes are rising, so is the standard of living, and vice versa.

In reality, prices change at different paces. Some, such as the prices of traded commodities, change every day; others, such as wages established by contracts, take longer to adjust (or are “sticky,” in economic parlance). In an inflationary environment, unevenly rising prices inevitably reduce the purchasing power of some consumers, and this erosion of real income is the single biggest cost of inflation.

Inflation can also distort purchasing power over time for recipients and payers of fixed interest rates. Take pensioners who receive a fixed 5 percent yearly increase to their pension. If inflation is higher than 5 percent, a pensioner’s purchasing power falls. On the other hand, a borrower who pays a fixed-rate mortgage of 5 percent would benefit from 5 percent inflation, because the *real interest rate* (the nominal rate minus the inflation rate) would be zero; servicing this debt would be even easier if inflation were higher, as long as the borrower’s income keeps up with inflation. The lender’s real income, of course, suffers. To the extent that inflation is not factored into *nominal interest rates*, some gain and some lose purchasing power.

Indeed, many countries have grappled with high inflation—and in some cases *hyperinflation*, 1,000 percent or more a year. In 2008, Zimbabwe experienced one of the worst cases of hyperinflation ever, with estimated annual inflation at one point of 500 billion percent. Such high levels of inflation have been disastrous, and countries have had to take difficult and painful policy measures to bring inflation back to reasonable levels, sometimes by giving up their national currency, as Zimbabwe has.

Although high inflation hurts an economy, *deflation*, or falling prices, is not desirable either. When prices are falling, consumers delay making purchases if they can, anticipating lower prices in the future. For the economy this means less economic activity, less income generated by producers, and lower economic growth. Japan is one country with a long period of nearly no economic growth, largely because of deflation. Preventing deflation during the global financial crisis that began in 2007 is one of the reasons the U.S. Federal Reserve and other central banks around the world have kept interest rates low for a prolonged period and have instituted other monetary policies to ensure financial systems have plenty of liquidity. Today global inflation is at one of its lowest levels since the early 1960s, partly because of the financial crisis.

Policymakers must find the right balance between boosting demand and growth when needed without overstimulating the economy and causing inflation.

Most economists now believe that low, stable, and—most important—predictable inflation is good for an economy. If inflation is low and predictable, it is easier to capture it in price-adjustment contracts and interest rates, reducing its distortionary impact. Moreover, knowing that prices will be slightly higher in the future gives consumers an incentive to make purchases sooner, which boosts economic activity. Many central bankers have made their primary policy objective maintaining low and stable inflation, a policy called *inflation targeting* (see “Inflation Targeting Turns 20,” in this issue).

What creates inflation?

Long-lasting episodes of high inflation are often the result of lax monetary policy. If the money supply grows too big relative to the size of an economy, the unit value of the currency diminishes; in other words, its purchasing power falls and prices rise. This relationship between the money supply and the size of the economy is called the *quantity theory of money*, and is one of the oldest hypotheses in economics.

Pressures on the supply or demand side of the economy can also be inflationary. *Supply shocks* that disrupt production, such as natural disasters, or raise production costs, such

as high oil prices, can reduce overall supply and lead to “cost-push” inflation, in which the impetus for price increases comes from a disruption to supply. The food and fuel inflation of 2008 was such a case for the global economy—sharply rising food and fuel prices were transmitted from country to country by trade. Conversely, *demand shocks*, such as a stock market rally, or *expansionary policies*, such as when a central bank lowers interest rates or a government raises spending, can temporarily boost overall demand and economic growth. If, however, this increase in demand exceeds an economy’s production capacity, the resulting strain on resources is reflected in “demand-pull” inflation. Policymakers must find the right balance between boosting demand and growth when needed without overstimulating the economy and causing inflation.

Expectations also play a key role in determining inflation. If people or firms anticipate higher prices, they build these expectations into wage negotiations and contractual price adjustments (such as automatic rent increases). This behavior partly determines the next period’s inflation; once the contracts are exercised and wages or prices rise as agreed, expectations have become self-fulfilling. And to the extent that people base their expectations on the recent past, inflation will follow similar patterns over time, resulting in inflation *inertia*.

How policymakers deal with inflation

The right set of *anti-inflation policies*, those aimed at reducing inflation, depends on the causes of inflation. If the economy has overheated, central banks—if they are committed to ensuring price stability—can implement *contractionary* policies that rein in aggregate demand, usually by raising interest rates. Some central bankers have chosen, with varying degrees of success, to impose monetary discipline by *fixing the exchange rate*—tying its currency to another currency and, therefore, its monetary policy to that of the country to which it is linked. However, when inflation is driven by global rather than domestic developments, such policies may not help. In 2008, when inflation rose across the globe on the back of high food and fuel prices, many countries allowed the high global prices to pass through to the domestic economy. In some cases the government may directly set prices (as some did in 2008 to prevent high food and fuel prices from passing through). Such *administrative price-setting* measures usually result in the government’s accrual of large subsidy bills to compensate producers for lost income.

Central bankers are increasingly relying on their ability to influence *inflation expectations* as an inflation-reduction tool. Policymakers announce their intention to keep economic activity low temporarily to bring down inflation, hoping to influence expectations and contracts’ built-in inflation component. The more credibility central banks have, the greater the influence of their pronouncements on inflation expectations. ■

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Inflation Targeting Turns 20

Scott Roger

TWO decades ago, New Zealand adopted a new approach to monetary policy, based on achieving a specific target for inflation. What made this approach new was the explicit public commitment to controlling inflation as the primary policy objective and the emphasis on policy transparency and accountability.

Today 26 countries use inflation targeting, about half of them emerging market or low-income economies (see table). Moreover, a number of central banks in more advanced economies—including the European Central Bank, the U.S. Federal Reserve, the Bank of Japan, and the Swiss National Bank—have adopted many of the main elements of inflation targeting, and several others are in the process of moving toward it.

This article examines how inflation targeters have performed over the past 20 years—including during the commodity price shocks of 2006–08 and the global financial crisis that began in 2007. The article also highlights some especially important issues inflation targeters are likely to face in the next few years.

A growing number of countries are making a specific inflation rate the primary goal of monetary policy, with success

The inflation-targeting framework

From the outset, inflation-targeting frameworks have included four main elements (Mishkin, 2004; and Heenan, Peter, and Roger, 2006):

- an explicit central bank mandate to pursue price stability as the primary objective of monetary policy and a high degree of operational autonomy;
- explicit quantitative targets for inflation;
- central bank accountability for performance in achieving the inflation objective, mainly through high-transparency requirements for policy strategy and implementation; and
- a policy approach based on a forward-looking assessment of inflation pressures, taking into account a wide array of information.

These elements reflect both theory and experience that suggest central banks cannot consistently pursue and achieve multiple goals, such as low inflation and low unemployment, with only one basic instrument—the policy interest rate (for example, the federal funds rate in the United States or the bank rate in the United Kingdom). These elements also recognize that over the long term monetary policy can influence nominal but not real (inflation-adjusted) variables; high inflation harms growth and the equitable distribution of income; and expectations and credibility significantly influence the effectiveness of monetary policy.

With experience, and as the inflation-targeting framework has been adopted by emerging market economies, it has tended to evolve in two particularly important respects. First, there has been a *progressive increase in policy transparency and communication* as the key means of providing public

accountability, which underpins the operational independence of central banks and helps anchor inflation expectations. The main ways central banks communicate their targets include inflation or monetary policy reports two to four times a year, public statements following policy meetings, and, sometimes, publication of the minutes of policymaking meetings. Senior central bank officials also testify before legislatures. In general, central banks have become increasingly active in a much broader range of public communication activities than in the past.

Second, central banks have generally pursued a flexible form of inflation targeting. Rather than focusing on achieving the inflation target at all times, the approach has emphasized achieving the target over the medium term—typically over a two- to three-year horizon. This allows policy to address other objectives—notably, smoothing output—over the short term. The central bank’s ability to be flexible, however, depends on keeping medium-term inflation expectations well anchored. And this depends, at least in part, on its track record in keeping inflation under control.

What about the alternatives?

A natural question is whether macroeconomic performance under inflation targeting has been as good as or better than under alternative policy approaches, such as targeting money growth, exchange rate pegs, or “eclectic” frameworks with multiple objectives. Because it is not possible to compare di-

rectly one country’s performance under two different policy regimes over the same period, comparisons have to be made between similar countries with different approaches.

Charts 1 and 2 compare inflation and output performance in inflation-targeting countries before and after they adopted inflation targeting with non-inflation-targeting countries over the same period. For inflation-targeting countries, the median inflation targeting adoption date was the beginning of 2001, so the comparison periods for non-inflation-targeting countries are set at 1991–2000 and 2001–09.

Inflation targeters

There are 26 countries that use inflation targeting, fixing the consumer price index as their monetary policy goal. Three other countries—Finland, the Slovak Republic, and Spain—adopted inflation targeting, but abandoned it when they began to use the euro as their currency.

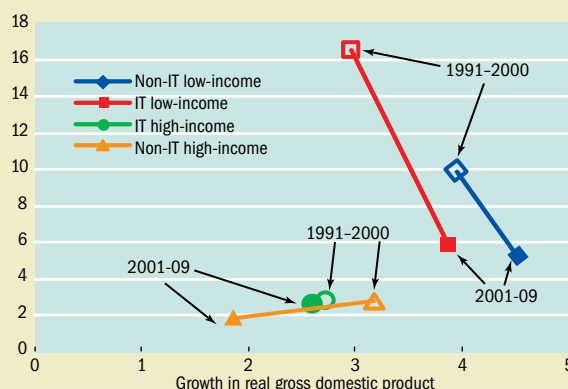
Country	Inflation targeting adoption date	Inflation rate at adoption date	2009 average inflation rate	Target inflation rate
New Zealand	1990	3.3	0.8	1 - 3
Canada	1991	6.9	0.3	2 +/- 1
United Kingdom	1992	4.0	2.2	2 +/- 1
Sweden	1993	1.8	-0.3	2 +/- 1
Australia	1993	2.0	1.9	2 - 3
Czech Republic	1997	6.8	1.0	3 +/- 1
Israel	1997	8.1	3.3	2 +/- 1
Poland	1998	10.6	3.8	2.5 +/- 1
Brazil	1999	3.3	4.9	4.5 +/- 2
Chile	1999	3.2	1.5	3 +/- 1
Colombia	1999	9.3	4.2	2 - 4
South Africa	2000	2.6	7.1	3 - 6
Thailand	2000	0.8	-0.9	0.5 - 3
Korea	2001	2.9	2.8	3 +/- 1
Mexico	2001	9.0	5.3	3 +/- 1
Iceland	2001	4.1	12.0	2.5 +/- 1.5
Norway	2001	3.6	2.2	2.5 +/- 1
Hungary	2001	10.8	4.2	3 +/- 1
Peru	2002	-0.1	2.9	2 +/- 1
Philippines	2002	4.5	1.6	4.5 +/- 1
Guatemala	2005	9.2	1.8	5 +/- 1
Indonesia	2005	7.4	4.6	4 - 6
Romania	2005	9.3	5.6	3.5 +/- 1
Turkey	2006	7.7	6.3	6.5 +/- 1
Serbia	2006	10.8	7.8	4 - 8
Ghana	2007	10.5	19.3	14.5 +/- 1

Source: Author’s compilation.

Chart 1
Inflation and growth performance

Although inflation and growth rates improved in most countries between the periods 1991–2000 and 2001–09, inflation-targeting (IT) countries improved more.

(consumer price inflation, percent)



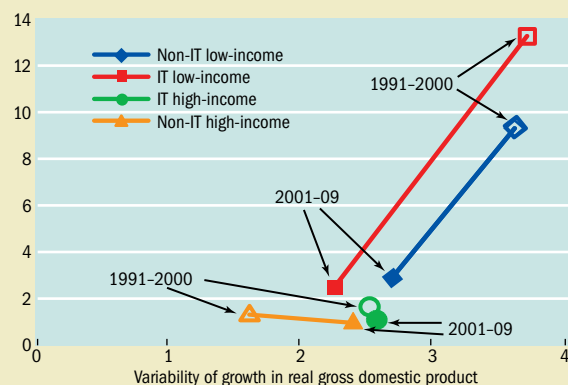
Source: Author’s calculations.

Note: Hollow symbols represent period 1991–2000; filled-in symbols represent period 2001–09. The straight lines represent direction of movement between the periods for the four groups of countries.

Chart 2
Output and inflation smooth

Swings in both inflation and growth were less volatile in the period 2001–09 than in 1991–2000, but the decline was greater in inflation-targeting (IT) countries.

(inflation variability, percent)



Source: Author’s calculations.

Note: Hollow symbols represent period 1991–2000; filled-in symbols represent period 2001–09. The straight lines represent direction of movement of variability between the periods for the four groups of countries.

The evidence shows the following:

- Both inflation-targeting and non-inflation-targeting low-income economies experienced major reductions in inflation rates and improvements in average growth rates. Although the non-inflation-targeting countries continued to have lower inflation and higher growth than the inflation-targeting countries, those that adopted inflation targeting saw larger improvements in performance.
- Both inflation-targeting and non-inflation-targeting low-income economies also experienced large reductions in the volatility of inflation and output, with the countries that adopted inflation targeting registering bigger declines, especially in inflation volatility.
- Among high-income economies, inflation-targeting countries showed little change in performance, on average, between the two periods, whereas the non-inflation-targeting countries typically experienced a decline in growth. Similarly, inflation-targeting countries saw little change in output or inflation volatility between the two periods, but the non-inflation-targeting countries experienced greater output volatility.

Of course, adoption of inflation targeting may not fully explain the improvement in relative performance, since many countries adopting inflation targeting did so as part of broader structural and policy reforms. Nonetheless, more detailed studies also generally suggest that when otherwise similar emerging market economies are compared over the same time periods, key economic macroeconomic variables such as inflation and output performed better in countries that adopted inflation targeting compared with those that did not. For example, a study in the IMF's September 2005 *World Economic Outlook* found adoption of inflation targeting to be associated with a 4.8 percentage point reduction in average inflation relative to other monetary policy regimes between 1990 and 2004. Inflation targeting was also associated with a 3.6 percentage point reduction in the variability of inflation relative to other strategies.

The resilience of inflation targeting

Of particular relevance, in the wake of the global commodity price spikes and financial shocks of the past three years, is whether inflation targeting is more resilient to shocks than are other policy frameworks. Throughout most of the period since inflation targeting was widely adopted, global macroeconomic conditions were benign compared with earlier periods. As a result, there was limited evidence that the inflation-targeting approach could absorb major shocks.

Inflation-targeting countries appear to have done better than others in minimizing the inflationary impact of the 2007 surge in commodity prices (Habermeier and others, 2009). That price shock led to a rise in inflation and declines in growth in most countries between 2006 and 2008. Among low-income economies, however, non-inflation-targeting countries experienced bigger increases in inflation than inflation-targeting countries, although their gross domestic product growth rates fell by similar amounts. Among high-income economies, inflation-targeting countries had a smaller growth decline than non-inflation-targeting countries and slightly less of an increase in inflation.

These results are consistent with the notion that inflation expectations are better anchored in countries that adopt inflation targeting and that authorities in those countries place a greater emphasis on keeping inflation from surging. But more detailed analysis will be needed to disentangle these effects from other influences on growth and inflation before any solid conclusions can be reached.

The global financial crisis that began in mid-2007 is still unfolding, so it is premature to judge whether inflation targeters have coped better than others with the worst global economic and financial downturn since the Great Depression. To be sure, several inflation-targeting countries have been among the hardest hit by the crisis, and some have entered into IMF-supported programs—including Hungary, Iceland, Romania, and Serbia. However, it is not clear that inflation targeting made these countries more susceptible to crises or that their downturns are more severe than in comparable countries with other policy approaches.

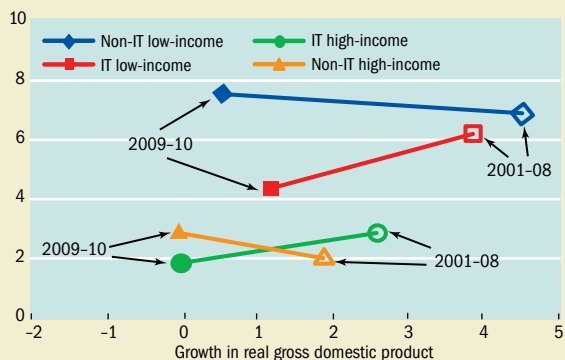
Macroeconomic forecasts suggest that inflation-targeting economies may be less adversely affected by the financial crisis (see Chart 3). According to *Consensus Forecasts* (Consensus Economics) in January 2010, average growth for all countries during 2009–10 is expected to fall well below the typical growth experienced during 2001–08. Among emerging market economies, however, non-inflation-targeting countries are generally expected to experience a larger decline than inflation-targeting countries in growth relative to precrisis averages. Among the high-income economies, the opposite is expected, with a bigger decline in growth among inflation-targeting than non-inflation-targeting countries. All inflation-targeting countries are expected to experience a decline in inflation. By contrast, inflation is expected to rise above precrisis levels in non-inflation-targeting countries.

Chart 3

Buffering the financial crisis

Macroeconomic forecasts suggest that inflation-targeting economies are less adversely affected by the global economic crisis than other countries.

(consumer price inflation, percent)



Source: Consensus Economics, *Consensus Forecasts*, January 2010.

Note: Hollow symbols represent actual performance in the period 2001–08. Filled-in symbols represent forecasts for period 2009–10. The straight lines represent direction of the change between actual performance and forecasts for the four groups of countries.

The future of inflation targeting

The evidence indicates that inflation targeting has worked well in a broad range of countries and circumstances. In this context, the concerns expressed by several major central banks about a recent proposal by IMF Chief Economist Olivier Blanchard to raise inflation targets, as a way to give central banks more room to lower interest rates in severe downturns, suggest that key features of inflation targeting will remain intact. But the framework is bound to evolve as lessons are drawn from experience with inflation targeting, particularly as it is adapted to the needs of developing countries. Two issues stand out in particular.

- For many open economies that have adopted or are considering adopting inflation targeting, there is debate over the appropriate role of the exchange rate in an inflation-targeting framework.
- For all central banks, including inflation targeters, there is the question of how to reconcile their monetary policy responsibilities and objectives with their responsibility to promote and maintain the stability of the financial system.

The conventional wisdom has been that inflation-targeting central banks should react to exchange rate movements only insofar as they affect the outlook for inflation and output—depreciation of the currency may, for example, make exports cheaper, stimulating output, but at the same time exacerbate inflation—rather than systematically dampening exchange rate changes. More recent analysis, however, suggests that systematic leaning against exchange rate movements may be warranted in some circumstances. For example, in economies with high foreign currency debt, exchange rate movements will have strong effects on debtors' financial balance sheet positions. So dampening exchange rate changes may help stabilize output and inflation (Morón and Winkelried, 2005; and Roger, Restrepo, and Garcia, 2009). The challenge for policymakers is to ensure that the exchange rate remains subordinate to the inflation objective and that dampening exchange rate movements does not undermine the credibility of the inflation-targeting framework.

The global financial crisis is also forcing a reassessment of the relationship between monetary policy and policies aimed at financial stability. In particular, a question arises analogous to that of the role of the exchange rate: should monetary policy respond directly to potential risks to financial stability—such as rapid increases in credit, property prices, or stock market values—or only insofar as these affect the outlook for inflation and growth?

At a minimum, the crisis has highlighted the need to pay greater attention to the interaction between the real economy of goods and services and the financial economy. The workhorse macroeconomic models central banks use in monetary policy analysis and forecasting lack substantial representation of the financial sector, the determination of key asset prices such as equity and property prices, and the interaction between the financial sector and household and corporate sector behavior. Nor do the models take account of interactions within the financial sector. Fixing such weaknesses will not be easy, but

will be important if financial developments are to be better integrated into policy analysis and forecasting.

A key issue is whether central banks should use monetary policy, in addition to prudential policies, to react directly and systematically to financial stability indicators such as house prices. As with their response to exchange rate movements, this might be beneficial in some circumstances but not others and, by adding to the central bank's objectives, could undermine the credibility of their commitment to the inflation target. Research is needed in this area, including determining the appropriate financial indicators to take into account and how the central bank should respond to them.

Another possibility is to extend the inflation-targeting horizon to take into account the longer-term inflation risks associated with asset price cycles (Borio and Lowe, 2002). An advantage of this approach is that it would be less mechanical than responding directly to asset prices or other financial stability indicators. Still, there are practical challenges. In particular, a lengthening of the forecast horizon would also require improving central banks' medium- to long-term forecasting capabilities. In addition, there would be issues to sort out in terms of the appropriate timing of actions to counter development of asset price bubbles (Bean, 2004). Stronger policy communication would also be needed to ensure continued credibility of the central bank's long-term commitment to low and stable inflation. ■

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Learning from the Past

Countries of the Gulf Cooperation Council confronted the global financial crisis from a position of strength

Construction of skyscrapers in Dubai.

May Khamis and Abdelhak Senhadji

THE countries of the Arabian Peninsula are familiar with the vagaries of oil markets. Flush with petroleum revenues in the 1970s, when oil prices recorded a long period of prosperity, the nations in the Gulf Cooperation Council (GCC) experienced high levels of government spending, only to face harsh budget realities when oil prices plummeted.

With the most recent crisis, oil prices declined precipitously from their peak of \$144 a barrel in mid-2008 to \$34 in December of that year, owing largely to the fall in demand worldwide. But this time, the six governments of the GCC (see box) saved a significant portion of their oil revenue from the 2003–08 oil boom, accumulating reserves and amassing large sovereign wealth funds. They spent prudently, investing

in physical infrastructure and human capital. Some countries paid down debt (see Chart 1)—Saudi Arabia, for example, reduced its debt to 13 percent of GDP by the end of 2008, from more than 100 percent a decade earlier.

As a result, GCC governments were able to contain the impact of the worst global economic crisis in decades, although the recent turmoil has revealed some financial sector vulnerabilities in the region.

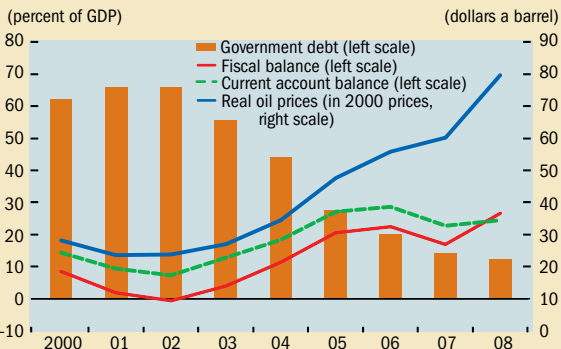
Emerging imbalances

The oil price boom led to strong fiscal and external balance surpluses in the GCC countries. These surpluses provided the fiscal space necessary, at least for a while, to address the region's twin challenges of promoting economic diversifica-

Chart 1

Benefiting from the boom

The oil price boom from 2003 to 2008 strengthened fiscal and external balances in GCC countries.



Sources: National authorities; and IMF staff estimates.

The Gulf Cooperation Council

The Gulf Cooperation Council (GCC) was established in 1981 by Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates to enhance their economic and financial integration. Its total population—including expatriates—is estimated at about 38 million, with a GDP of \$1.1 trillion in 2008. Oil accounts for about 50 percent of the region's GDP and 80 percent of fiscal and export revenues. The region plays a major role in oil markets, accounting for about 50 percent of Organization of Petroleum Exporting Countries (OPEC) production and 70 percent of OPEC's spare production capacity, with 58 percent from Saudi Arabia alone. The currencies of all GCC countries except Kuwait are pegged to the U.S. dollar. The region is home to some of the largest and oldest sovereign wealth funds, with assets under management estimated to be between \$600 billion and \$1 trillion at end-2008, excluding more than \$500 billion in official reserves.

tion and reducing unemployment while preserving oil wealth for future generations.

But the boom also generated domestic imbalances that began to unravel with the onset of the global credit squeeze—abundant liquidity fueled credit growth, inflation, and asset price increases in a context of limited countervailing policy tools in view of the peg to the U.S. dollar. The boom was also associated with higher financial and corporate sector leverage (see Chart 2). Balance sheet vulnerabilities became visible with the onset of the global credit squeeze, particularly in the United Arab Emirates (U.A.E.), Kuwait, and Bahrain, given their linkages with global equity markets, growing dependence on foreign lending, and exposure to real estate and construction lending (see Chart 3).

Swift response

As global deleveraging took hold and oil prices and production dipped, the GCC's external and fiscal surpluses declined markedly, credit default swap (CDS) spreads on sovereign debt widened, and stock and real estate markets plunged (see table). The U.A.E. real estate market was hit hard as the monthly value of real estate transactions tumbled from their peak of close to \$3 billion in May 2008 to a mere \$250 million by November 2009. External funding for the financial and corporate sectors tightened: of an estimated \$2.5 trillion in projects in the works at end-2008, about \$575 billion had been suspended by end-2009.

Still, banks remained profitable and were able to absorb losses, largely because capital adequacy ratios in most countries were high going into the crisis. A few nonbank financial institutions and business groups did default, but without systemic consequences—in part because governments took swift action to ensure stability.

To offset the shocks, governments used their strong international reserve positions to maintain high spending

and introduce exceptional financial measures. In addition to liquidity injections by central banks and governments, Kuwait, Saudi Arabia, and the U.A.E. provided deposit guarantees. Moreover, Qatar and the U.A.E. injected capital amounting to up to 2 percent and 7.3 percent of GDP, respectively. Kuwait passed a financial stability law that provided substantial financial sector guarantees and set up stock

Reeling from the crisis

During the global recession, financial markets demanded a higher risk premium on GCC sovereign debt and equity, and real estate prices dropped in the Gulf countries.

	CDS spreads (basis points)			Stock market change (percent)		
	Minimum level during period	Maximum level during period	Maximum increase during period	Change over period	Maximum drop during period	Change over period
Impact of crisis prior to the Dubai events ¹						
Bahrain	92	716	624	79	-50	-50
Kuwait	n.a.	n.a.	n.a.	n.a.	-59	-55
Oman	252	483	231	274	-65	-45
Qatar	43	379	335	49	-66	-40
Saudi Arabia	30	333	303	74	-58	-34
Dubai	114	944	830	200	-75	-63
Abu Dhabi	42	446	404	55	-58	-43
Impact of Dubai events ²						
Bahrain	172	260	88	6	-2	2
Kuwait	n.a.	n.a.	n.a.	n.a.	-2	4
Oman	275	277	3	-30	-7	0
Qatar	94	120	26	-1	-9	-7
Saudi Arabia	74	107	34	9	-5	1
Dubai	317	634	316	123	-27	-22
Abu Dhabi	100	175	75	38	-15	-9

Sources: Markit, Bloomberg, and IMF staff estimates.

Note: A credit default swap (CDS) is a derivative contract that promises a payout if a credit event such as a default occurs. It is similar to an insurance policy. The CDS spread is the difference in basis points (a basis point is 1/100th of a percentage point) between a reference rate (such as on a U.S. Treasury Security) and the CDS rate. The spread is, in essence, an insurance premium, and as risk perceptions rise, so do premiums (spreads).

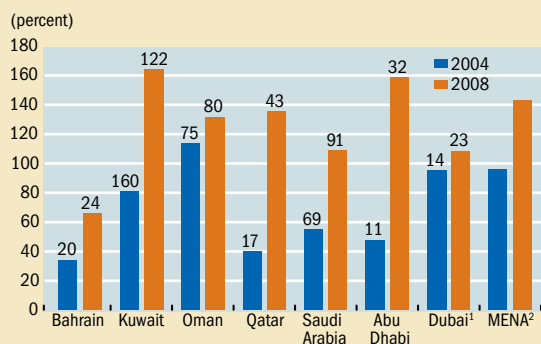
¹June 1, 2008–November 22, 2009.

²November 23, 2009–January 21, 2010.

Chart 2

Borrowing soars

Some GCC companies' debt-to-equity ratios more than doubled between 2004 and 2008.



Sources: Zawya; and IMF staff estimates.

Note: Numbers on top of bars indicate number of companies.

¹Ratio for Dubai does not include unlisted government-related entities (GRES).

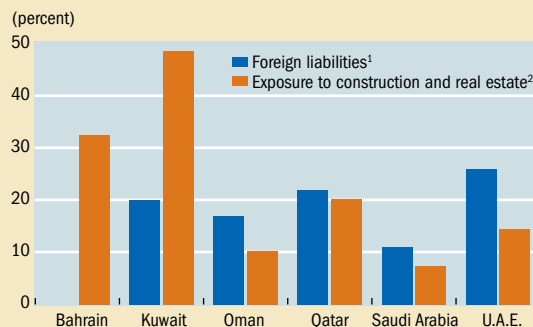
Listed GRES included in the ratio are DP World, Dubai Financial, Emaar, and Tamweel.

²MENA = Middle East and north Africa. Number of companies not available.

Chart 3

Bank vulnerabilities have increased

Sizable foreign borrowing and exposure to real estate and construction lending contributed to balance sheet weaknesses at banks in some Gulf countries.



Sources: Zawya; and IMF staff estimates.

¹Bank foreign liabilities at their peak in 2008 as a share of total liabilities; unavailable for Bahrain.

²As a share of total lending, 2008.

market stabilization funds for up to 3.0 percent of GDP via various government entities. Qatar purchased up to 6 percent of GDP of banks' equity and real estate assets. As part of a \$400 billion investment plan over five years, Saudi Arabia implemented a stimulus package that was the largest (as a share of GDP) of any of the so-called Group of 20 advanced and emerging economies. These measures helped stabilize the GCC financial systems and sustain growth, had positive spillovers for neighboring countries, and contributed to reviving global demand.

Dubai hit by the credit crunch

The region appeared to be weathering the global economic crisis well. But pressures on highly leveraged quasi-sovereign entities in Dubai culminated in November 2009 when Dubai World, a government-owned holding company, announced that it would seek a debt standstill—in other words, negotiate an agreement with its creditors to modify the original credit terms and avoid foreclosure proceedings.

These developments were the result of a series of events: Dubai government-related entities had borrowed extensively in 2004–08 to fund a major push into commercial and residential property. The significant increase in leverage led to a real estate bubble, which burst in mid-2008.

The government of Abu Dhabi, which as the largest of the seven emirates owns more than 95 percent of the U.A.E.'s oil reserves, came to Dubai's rescue on December 14, providing a loan to cover some of Dubai World's debt obligations, including about \$4.2 billion in Islamic bonds (*sukuk*) of its real estate subsidiary Nakheel, which matured on the same date. The intervention helped calm markets, but uncertainties remain as the government of Dubai develops a strategy to put its corporate sector on a viable path.

As a result of the developments in Dubai, temporary pressures on the region's equity markets have reemerged, and CDS spreads on the Dubai government and entities have increased. (CDS spreads for the rest of the region have been only marginally affected.) Dubai's difficulties may affect the rest of the region in other ways. For instance, markets are likely to take a less sanguine view of quasi-sovereign and private risk, which may increase the cost of borrowing and reduce access to international capital markets for some GCC entities.

What's ahead

While the GCC's short-term economic outlook is clouded by the global crisis and by recent developments in Dubai, the region's medium-term outlook remains broadly positive, supported by rising commodity prices. Non-oil GDP growth is estimated to have been about 2.8 percent in 2009, and the rebound in overall growth in 2010 is expected to be stronger than in advanced economies.

Still, there is much work ahead for GCC policymakers. The immediate priority is the cleanup of bank balance sheets (that is, continued upfront recognition of losses and immediate bank recapitalization) and the restructuring of the nonbanking sector in some countries. Stress testing and periodic reviews of banks' asset quality will help determine

whether the level of capital support is sufficient. Where possible, recapitalization should be based on private sector investments to minimize moral hazard, and the authorities should reverse public sector injections as soon as market conditions allow it.

The authorities should also facilitate the restructuring of nonbank institutions—particularly in Kuwait and the U.A.E—by supporting systemic and viable entities while ensuring a smooth exit of nonviable ones. Clear communication by the authorities would help implementation, ease investor uncertainty, and reduce speculation and market volatility.

Over the medium term, improving corporate governance and transparency will be paramount in view of heightened lender risk aversion, which has put pressure on GCC conglomerates and government-related entities to do a better job of disclosure.

The region's authorities should also consider the following measures:

- a fiscal policy supported by an adequate set of macroprudential tools aimed at dampening the transmission of the oil cycle to the economy, given the limitations of monetary policy because of the peg to the U.S. dollar;
- regulations to promote prudent loan-loss provisioning—as seen with Saudi Arabia, which has already been implementing countercyclical provisioning policies—and capital buffers over the business cycle;
- active enforcement of reserve requirements and prudential limits on banks to tackle any resumption of speculative inflows and overheating pressures;
- a capital gains tax on property and equity transactions;
- avoidance of excessive corporate sector leverage and monitoring of spillover risks from offshore financial centers; and
- the development of local and regional debt markets to diversify financing channels away from banks.

To reach the longer-term goal of diversifying their economies, GCC governments should focus on facilitating private sector activity. To that end, improving the regulatory environment and eliminating red tape are key. Not only would diversification generate employment, it would also help the region achieve the fundamental goal of reducing its dependence on oil. ■

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Cassandra Speaks Again

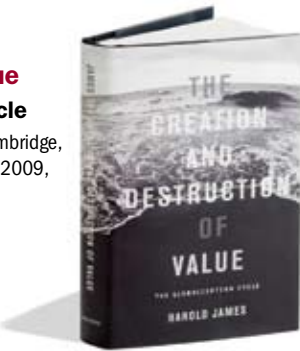
Harold James

The Creation and Destruction of Value The Globalization Cycle

Harvard University Press, Cambridge, Massachusetts and London, 2009, 484 pp., \$35 (cloth).

Harold James is the Cassandra of global capitalism. In his 2001 book, *The End of Globalization*, he chronicled how and why every historic effort to globalize trade and finance, from the 16th to the 20th centuries, ultimately failed. Globalization increased world welfare, but many groups were hurt or threatened by it, and a backlash overwhelmed those who had gained. The obvious implication was that the great globalization of the 1980s and 1990s was also doomed to collapse.

Like the Cassandra we know from Aeschylus, James was right, and he was ignored. As financial flows escalated explosively throughout the 1990s and the early years of the millennium, the gains were not shared as widely as they could have been, and glaring income disparities appeared and worsened. Grossly inadequate regulation of large financial institutions enabled risk taking to get out of hand without any timely or effective reaction. Official resistance to allowing any linkage between expansion of trade and finance and protection of labor standards or the natural environment, or to forcing any effective opening of industrial-country markets to imports from poor countries, induced a violent backlash against globalization. Nonetheless, the forces of progress pushed ahead undaunted. What would stop unfettered global finance from continuing to expand? This reviewer was not alone in concluding that the modern “international financial architecture . . . has proved capable of adapting to dramatic and often rapid changes in the global economy” (Boughton, 2002). In light of the financial meltdown of 2007–08 and



the economic collapse of 2008–09, that optimism seems less persuasive.

In this new book, James does not set out to brag about his prescience. His ambition is much larger: to take Joseph Schumpeter’s concept of “creative destruction”—the fundamental driving force of capitalism—and turn it inside out to explain why globalization

always fails. Schumpeter’s insight was that economic progress is driven by “industrial mutation . . . that incessantly revolutionizes the economic structure *from within*, incessantly destroying the old one, incessantly creating a new one” (Schumpeter, 1950—emphasis in the original). James’s insight is that creative destruction undermines the very values on which progress depends. Innovation and growth depend on finance, which inevitably and periodically explodes into financial crisis and economic collapse. At that point, “banks, businesses, and even individuals no longer trust each other . . . as monetary and ideal values are shaken.”

James develops this theme in six compact chapters. First, he summarizes the historical case he made in greater depth in his earlier book for a perpetual “globalization cycle,” most recently manifested in the collapse of the past two years. Second, he argues that our “Great Recession” has similarities to the Great Depression of the 1930s, but its roots look more like 1931 (global contagion) than 1929 (irrational financial markets). Third, he recounts in painful detail how this recession began, focusing on two “weekends that made history” in 2008: the rescue of Bear Stearns in March and the decision not to rescue Lehman Brothers in September. The latter decision was intended to demonstrate that bailouts were not inevitable. The effect was to destroy all confidence in financial stability and all trust in financial institutions and markets.

In the fourth chapter, James turns to solutions and draws the controversial conclusion that reregulation of finance is not the answer. Although the “conventional response to financial disorder is a demand for more regulation . . . , better answers . . . have always lain paradoxically in further technical change.” Specifically, he places his faith in “transparency and the spread of financial knowledge” to enable us to be the masters, not the slaves, of global finance.

Equally controversial is Chapter 5, which argues, among other things, that a run on the U.S. dollar, which China will likely initiate sooner or later, is “not as far-fetched as it may seem.” Although the mainstream view among macroeconomists is that China shares global interest in a stable dollar and a stable system, James reminds us that benign economic scenarios do not always drive history.

The beauty of James’s erudition and his skill as one of the leading financial historians of his generation emerge most clearly in the final chapter, “Uncertainty of Values,” where he argues convincingly for the connection between the destruction of monetary values and of knowledge about those values and the undermining of ideals, faith, and trust. “Indeed, the failure of a corporate ethic brought down the model of financial globalization.”

What does Cassandra warn us of now? To begin anew, we must first regain trust and find “communities of virtue.” Finding them will not be easy and will take time, and when we succeed, the reward will be only to resume the globalization cycle once more.

James Boughton
IMF Historian

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“Advanced” Economies No More

Carmen M. Reinhart and
Kenneth S. Rogoff

This Time Is Different Eight Centuries of Financial Folly

Princeton University Press,
Princeton and Oxford, 2009,
463 pp., \$35 (cloth).



In 2005, the Bank for International Settlements remarked dryly: “Growing domestic and international debt has created the conditions for global economic and financial crises.” A year later, Anne Pettifor predicted in *The Coming First World Debt Crisis* that the “so-called First World will be mired in the levels of debt that have wreaked such havoc on the economies of so-called Third World economies since the 1980s.”

In a sea of irrational exuberance, forgotten history, and widespread greed, these and a handful of other lonely voices were right—as the world learned at great cost.

Carmen Reinhart and Kenneth Rogoff spent a good part of the past decade studying sovereign defaults. They have assembled an extraordinary amount of data spanning eight centuries—covering banking crises, defaults on domestic and external debt, currency crashes, and inflation in 66 countries. Reinhart and Rogoff present a sobering reminder that financial crises are a serial phenomenon—caused in no small part by the seductive “this-time-is-different syndrome,” the prevalent belief that to us, here and now, old economic laws of motion no longer apply. Their ambitious quantitative history of financial crises draws out sweeping parallels between financial crises, across times and continents; and between inflating away domestic debt, currency debasements, and defaults on external debt. These defaults are rarely a binary affair: partial and protracted defaults are common. Even though the tools may have changed, it is rare for governments to fully repay their debts.

Most “large reductions in external debt among emerging markets have been achieved via restructuring or default.”

After establishing a typology of financial crises, the authors turn their attention to sovereign external debt crises. They explain the basic economic theory of sovereign debt and set out the features that distinguish sovereign from corporate debt. Gunboat diplomacy is said to fail a cost-benefit test. But there is no mention that forcible collection efforts are also illegal under international law.

Reinhart and Rogoff define external debt as “the total liabilities of a country with foreign creditors.” Domestic debt refers to all “debt liabilities of a government that are issued under and subject to national jurisdiction, regardless of the nationality of the creditor and the currency denomination of the debt.” Under these definitions, a sovereign bond issued domestically and owed to a foreign creditor would count as *both* external and domestic debt. This overlap illustrates the increasingly fluid boundary between external and domestic debt and the need for greater clarity in the definitions.

Reinhart and Rogoff then shine the spotlight on the forgotten history of domestic debt. Particularly interesting are findings that the modern bias toward short-term debt is a product of the “inflation fatigue” of the 1970s and 1980s; domestic defaults occur typically only in more severe macroeconomic conditions than external defaults; and countries with sufficient domestic savings may use domestic debt as a substitute for external borrowing. The authors underscore that inflation is a form of de facto default on domestic debt, particularly if that inflation is coupled with financial repression. They explain why high levels of domestic debt may result in defaults at seemingly sustainable levels of external debt.

They debunk the widespread belief that growth allows countries to escape from high levels of debt. Graduating from the club of serial defaults takes a lot of time, and the dropout rate is high. Banking crises, an “equal-opportunity menace” for developing and advanced economies alike, occur with surprising frequency, especially in the world’s financial centers. And the rate of recidivism is even higher. A central finding is that modern banking crises increase real government debt by 86 percent on average—mostly indirectly, from lowered economic output and reduced tax revenues—which generally exceeds the cost of bailouts by an order of magnitude. The “true legacy of banking crises is greater public indebtedness,” which has been “a defining characteristic of the aftermath of banking crises for over a century.”

The authors cast doubt on the innocuous character of mounting U.S. debt prior to the current global economic crisis. In 2004–05, they note, the United States “was soaking up more than two out of every three” dollars saved by all the surplus countries in the world. History repeated itself. Once again, the belief that the United States differed from the rest of the world prevailed—handing its government, consumers, and corporations a blank check to borrow as if there would be no day of reckoning.

Reinhart and Rogoff marshal evidence that points to converging features of financial crises in developing and advanced economies. But they rule out as “hyperbole” the logical conclusion that the advanced economies soon will be indistinguishable financially from developing economies. In their view, the United States remains “a highly sophisticated global financial center.” Simon Johnson persuasively argued in *The Atlantic Monthly* last year that the United States is too close for comfort to an emerging market country. The old categorization into advanced and emerging economies is unlikely to survive the current crisis.

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Extreme Measures for Dire Poverty

R. Glenn Hubbard and William Duggan

The Aid Trap

Hard Truths about Ending Poverty

Columbia University Press, New York, 2009, 198 pp., \$22.95 (cloth).

In *The Aid Trap*, authors R. Glenn Hubbard and William Duggan, both of Columbia University's Business School, put forth a radical solution for ending extreme poverty. The authors believe that the current systems of development aid and the nonprofit sector in emerging economies keep the poor poor and that the only sustainable means for eliminating extreme poverty is a thriving business sector.

Traditionally, aid to developing economies is described as taking one of two forms: top-down or bottom-up. The authors of *The Aid Trap* find fault with both approaches. Top-down aid is often delivered to governments and siphoned off by corrupt leaders and bureaucrats.

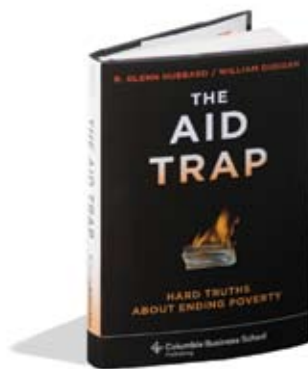
Bottom-up aid crowds out market-driven businesses by providing free but unsustainable services that create dependency. The authors cite the Millennium Development Goals and related "village development projects" as the current favorite but ultimately doomed fad of bottom-up aid distribution.

The authors praise the pro-business and wildly popular micro-lending boom; yet even microloans, they believe, have limitations. Microbusinesses typically remain micro, often because their growth is curtailed by governments that fear business-driven prosperity will cause foreign aid to dry up.

Hubbard and Duggan propose an alternative approach based on the Marshall Plan, which successfully revived the decimated business sector in western Europe following World War II. Hubbard and Duggan's modern-day Marshall Plan for developing countries would provide loans to local businesses whose governments agree to reform their business-suppressing policies. These loans would be repaid to local gov-

ernments, which would reinvest them in infrastructure that further supports business development. Growth of the business sector would generate income taxes needed to fund critical social services such as health care and education.

The authors rightfully refer to their plan as "strong medicine" for both developing and rich nations. Developing countries would have to opt in or forgo aid of any kind except for basic humanitarian assistance. Wealthy nations would have to adopt policies that support free and fair trade, which could eliminate, for instance, subsidies for some U.S. farmers who are producing surplus crops sent as food aid to poor countries.



In the short term, local businesses are favored over stronger foreign-owned businesses. Ultimately, however, poor nations develop thriving business sectors, which permits once-stronger foreign-owned businesses to return to their markets.

The plan, in theory, works. But herein lies the rub: no plan that requires even short-term but broad-based sacrifice across both wealthy and poor nations is ever likely to see the light of day in its pure form.

The authors open their book with the current worldwide economic crisis as an example of the power of the business sector to restore economic stability. "We see a global consensus among prosperous nations that a thriving business sector is the source of their prosperity. They know that their local businesses are the only hope to have enough good-paying jobs for

the majority of their people into the future. These nations are taking massive government action, not to replace the business sector but to revive it."

The problem with citing recent events in the global economy as evidence of how business can eliminate poverty is that it fails to acknowledge that the business sector also created the current economic crisis, which resulted in the elimination of millions of jobs worldwide.

No, business is not a panacea. Nor are bottom-up village development projects. Certainly, top-down aid that lines the pockets of the few rather than creating opportunity for the masses is not the answer.

Ultimately, the answer is as complicated as society and humanity itself. The end of extreme poverty will come when the mass of individual citizens around the world who desire and demand an end to the inhumanity of extreme poverty reaches the proverbial tipping point. Then, and only then, will extreme poverty be addressed with a broad-based, multipronged approach that meets the unique needs of individual developing countries, villages, and even families.

No single grand plan will end poverty. It will happen in ripples, in fits and starts, and over a fair amount of time. It will resemble parts of the Marshall Plan, the Millennium Development Goals, and top-down and bottom-up aid—which all contribute crucial pieces to the remedy: pro-business policies, universal access to education and health care, mass distribution of humanitarian aid and prevention and treatment of rampant diseases, and microenterprises free to grow large in an open, pro-business marketplace.

Still, I applaud Hubbard and Duggan's audacity. They dare to look at society's largest challenge—extreme poverty—and create a real template for change. That is a tremendous contribution to the solution.

Wendy Smith

Author, Give a Little: How Your Small Donations Can Transform Our World

Fair Game

Simon Kuper and Stefan Szymanski

Soccernomics

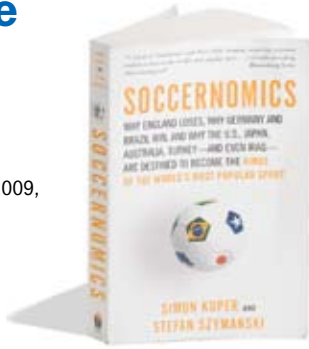
Nation Books, New York, 2009, 336 pp., \$14.95 (paper).

Are you getting ready for the soccer World Cup in South

Africa this summer? Did you know that a nation's income, population, and soccer experience are the main determinants of a team's survival of the first round of the World Cup? Don't rush off and check where your favorite national team stands. These three factors explain only 25 percent of the variation in goal differences; the remaining 75 percent is unexplained random noise or sheer luck—all courtesy of the power of econometrics.

This and many other surprising facts about the world of soccer are discussed in *Soccernomics*, by *Financial Times* writer Simon Kuper and Stefan Szymanski, a leading sports economist. They weave academic analysis and anecdotes from individual players, managers, and teams across the world into a highly readable and entertaining book about the most popular sport in the world. It would have been more fun in undergraduate economics to learn game theory through penalty kicks or regression analysis through soccer examples.

What do large financial institutions such as Lehman Brothers and soccer clubs have in common, and how do they differ? Both are subject to moral hazard (risky behavior is not penalized), because they are usually bailed out. Alas this not always the case—as the example of Lehman Brothers recently showed—but, surprisingly, soccer clubs seldom disappear. Yes, some clubs might go bankrupt (for example, Fiorentina, Leeds United), but according to Kuper and Szymanski, soccer clubs are among the most stable businesses



around. Even the few that are not bailed out often reappear with a new name, money, and the same fans and swiftly move up the ranks to the highest league again (Fiorentina, for example). Although banks make enormous profits in good times, soccer clubs are in general unprofitable. The authors find no correlation between league

position and profit. Yet, interestingly, soccer players' salaries explain almost all the variation in English Premier League positions. But the next time your favorite English team announces a multimillion-pound "transfer deal of the year," don't get too excited: spectacular transfers do not necessarily correlate with the team's subsequent league position in the standing.

We also learn that hosting the World Cup or European Cup reduces suicides in European countries, Norway is apparently the most enthusiastic soccer country in Europe, Iraq is among the best overperformers in world soccer, and 50 percent of British ticket holders don't take up their seats the next season. While bank customers usually stick with their bank unless there's a bank run, soccer fans don't seem to be very loyal. In addition, hosting large sports tournaments doesn't yield any profits or many economic benefits, but it does increase people's happiness—a finding drawn from the influential field of happiness economics. So even though South Africa is likely to lose money on the forthcoming World Cup, it might be a happier nation this fall—not to mention all the other participating African countries that could reap empowerment, pride, and happiness from the South Africa-hosted World Cup.

What are some of the limitations of the book? The empirical evidence is at times overly focused on England. Economists tend to be a skeptical species (except maybe when it came to rational expectations or efficient markets), so more evidence from other

countries would certainly help generalize some of the findings. Also, in general, the explanation of why poor countries do worse at sports—poor nutrition, exposure to disease, lack of networking, and organizational issues—is compelling. But it does not explain why African countries

Hosting large sports tournaments doesn't yield any profits or many economic benefits, but it does increase people's happiness.

do so well in the FIFA Under-17 and Under-20 soccer World Cups. Nigeria is the most successful U-17 team besides Brazil, with three titles, and the current U-20 world champion is Ghana.

One question for globalizers is when countries such as China and India will make their mark in the soccer world. Brazil, one of their cousins in the so-called BRIC countries—Brazil, Russia, India, and China—has the best national soccer team in the world; the other, Russia, made it to the European Cup semifinals two years ago.

Finally, a word of caution to any soccer manager with a large budget: don't buy the stars from the World Cup in South Africa. They tend to be overvalued. Buy players in their early twenties and players whose personal problems you can solve (both tend to be undervalued).

Soccernomics is highly recommended not only for soccer fans but for anyone who is interested in how economics tools apply to the wonderful world of soccer.

Heiko Hesse

Economist, IMF; former professional soccer player for Borussia Dortmund; and featured in the German documentaries

Die Champions and the forthcoming HalbZeit

Dollarization Declines in Latin America



Latin Americans are placing more value in their own currencies

LATIN AMERICAN countries are among the most dollarized in the world. While the extent of dollarization—when foreign currency is used in place of the local currency—varies widely among countries in the region, in most cases the ratio of foreign currency deposits to total bank deposits (one very common measure of dollarization) exceeded 30 percent at the end of 2009, and was sometimes much higher. Latin America is not alone in this respect: other emerging economies, such as the former Soviet Union countries and southeastern European countries also show a high degree of dollarization, ranging from 30 percent to 70 percent.

But some Latin American countries have managed to achieve a significant reduction in dollarization over the past 10 years, particularly countries with very high dollarization in 2001. The most prominent examples are Bolivia, Paraguay, and Peru, where the share of foreign currency deposits fell from 93 to 53 percent, 66 to 38 percent, and 76 to 56 percent, respectively. While this downward trend has slowed recently, with the interruption associated with the global financial crisis, dollarization levels in these countries remain well below those prevailing as of 2001. This tendency to dedollarize represents an increasing preference for holding the national currency, which may be linked to the improved

What is dollarization?

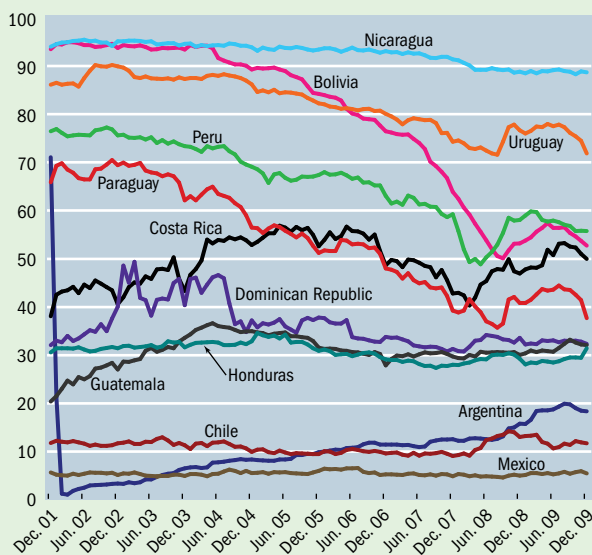
Cocirculation—also commonly known as dollarization—results when a foreign currency, often the U.S. dollar, is used as a means of payment and store of value in parallel with the national currency. Several factors may affect the degree of dollarization of an economy. One factor is a country's legal framework. Some countries, for example, do not allow banks to take deposits in foreign currency. Conversely, others have adopted, de jure or de facto, a foreign currency as legal tender. Another factor is inflation. Residents of countries with high and variable inflation may prefer doing business in a foreign currency whose value is more stable. The interest rate differential between instruments denominated in national and foreign currency also influences the preferences of the public, together with expectation of future exchange rate movements.

confidence that comes with the elimination of high inflation and the implementation of sounder economic and financial policies.

Dollarization has not been declining steadily in all Latin American countries. In Chile and Mexico, dollarization was already relatively low at the beginning of the decade and has remained fairly stable. In Argentina, dollarization fell to near zero with the policy of deposit “pesification” at the beginning of the decade, but subsequently has increased. In some countries of Central America, dollarization showed more fluctuation over the decade, without a clear trend.

The degree of dollarization has declined in Latin America over the past decade

(percent of foreign currency deposits to total bank deposits)



About the database

The data are derived from the standardized report forms (SRFs) currently used by 114 countries to report monetary data to the IMF's Statistics Department. The SRF's uniform presentation across countries according to instrument, currency, and sector, allows for high-quality cross-country analysis. They can be accessed via International Financial Statistics Online at www.imfstatistics.org/imf. Excluded from this analysis are Brazil, Colombia, and Venezuela, which do not allow accounts in foreign currency, and Ecuador, El Salvador, and Panama, which are fully dollarized economies. Foreign currency deposits refer to deposits in the domestic banking system and include deposits indexed to a foreign currency.

Prepared by José M. Cartas of the IMF's Statistics Department.

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