



Gyrations in Financial Markets

Stijn Claessens, M. Ayhan Kose, and Marco E. Terrones

Financial cycles tend to be long and deep and often interact in ways that can cause booms or busts

ECONOMIC developments over the past two decades vividly show that gyrations in financial markets have greatly influenced real activity around the world. Following the largest housing bubble in its modern history, Japan experienced a massive asset market crash in the early 1990s, which marked the start of its “Lost Decade.” After prolonged credit booms, many emerging economies in Asia faced deep financial crises in the second half of the 1990s. The equity market booms of the late 1990s in a number of advanced economies ended with simultaneous busts and recessions.

The recent global financial crisis was similar to the earlier episodes. However, the so-called Great Recession was truly seismic, as severe credit crunches and asset price busts led to the deepest global recession since the Great Depression of the 1930s.

The recent crisis has not only been a painful reminder of the importance of financial cycles, but it has also exposed our limited understanding of these episodes. Previous research has been based mostly on historical narratives, rather than a systematic analysis of financial cycles. Consequently, many questions have been left unanswered: What are the main features of cycles in financial mar-

kets? How synchronized are they? And what happens when cycles in different financial markets coincide?

To answer these questions, we applied the traditional methods of business cycle analysis to a comprehensive database of financial cycles in credit, housing, and equity markets (Claessens, Kose, and Terrones, 2011a). Our study reveals a number of facts about financial cycles. First, financial cycles can be protracted and costly episodes. Second, they can feed off each other and worsen, becoming financial crises. Third, they tend to have a significant global component, as they are highly synchronized across countries. Finally, when they take place in tandem in many countries, they often lead to more costly outcomes. These findings, combined with the results of recent research, have important implications for the design of macroeconomic and financial sector policies.

Identifying financial cycles

It is useful to draw some parallels between the phases of cyclical fluctuations in the financial markets we identify and the fluctuations in output associated with business cycles. A complete business cycle has two phases, the *recession phase* (from peak to

trough) and the *expansion phase* (from trough to the next peak). In addition to these two phases, recoveries from recessions have also been widely studied. The recovery phase is the early part of the expansion phase and is usually defined as the time it takes output to return from its low point to the level it reached just before the decline began.

We use a similar approach to defining a financial cycle. We call the recovery phase of a financial cycle the *upturn* and the contraction phase the *downturn*. For the recovery phase, we consider both the time it took to return to the previous peak (say, the high point of housing prices) and how much the financial variable increased within the first year after its trough. We exclude the rest of the expansion phase, which is typically much longer and can be affected by many structural factors (such as the level of financial sector development and institutions).

When studying business cycles, it is clear what variable should be used: an aggregate measure of economic activity such as gross domestic product (GDP). But it is not so clear when analyzing financial cycles, as it is possible to consider many variables. Given that they constitute the core of financial intermediation—the process that matches up savers with borrowers—we concentrate on cycles in three distinct but interdependent market segments: credit, housing, and equities.

Specifically, we focus on credit volume, house prices, and equity prices for 21 advanced economies—members of the Organization for Economic Cooperation and Development—between 1960 and 2007. We exclude from our analysis the years following the recent crisis because a number of financial cycle episodes associated with the crisis are still ongoing. Our credit volume corresponds to aggregate claims on the private sector by deposit-taking banks; house price series refer to various measures of indices of house or land prices, depending on the source country; and equity prices are share price indices weighted with the market value of outstanding shares. We use quarterly data, seasonally adjusted whenever necessary, and in constant (that is, inflation-adjusted) prices.

Booms, busts, and crunches

We also examine the more intense forms of financial cycles—*disruptions and booms*—because large movements in financial variables are often associated with highly volatile fluctuations in economic activity. To identify these, we rank the changes in each variable during downturns and upturns. We then classify an episode as a financial disruption if the change in the variable—say, equity prices—during the downturn falls into the bottom quartile of all changes. We call these disruptions either *crunches* or *busts*, depending on the variable (that is, credit crunch; house or equity price bust). We classify a movement as a boom if the change in the variable during the upturn falls into the top quartile—that is, we have credit, house, and equity price booms.

There were nearly 500 episodes of financial cycles between the first quarter of 1960 and the final quarter of 2007 across the 23 countries and three variables. We identify 114 down-

turns in credit, 114 in house prices (house price data begin in 1970 or later for most countries), and 245 in equity prices. Correspondingly, the sample includes 115 upturns in credit, 114 in house prices, and 251 in equity prices. House price cycles are comparable in number to business cycles over this period, while equity cycles are more frequent because of their highly volatile nature. One-fourth of these episodes are disruptions (crunches or busts) or booms.

Long and deep

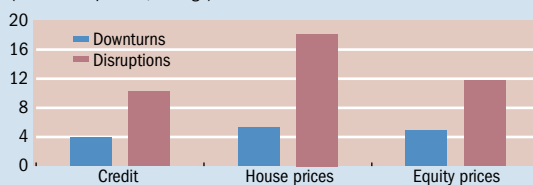
Financial disruptions are often much longer than normal downturns (see Chart 1). The average duration of disruptions ranges between 10 and 18 quarters, with house price busts lasting the longest. House price busts, at 18 quarters or so, last, on average, almost four times longer than garden-variety housing downturns. In contrast, booms in financial markets tend to be shorter than standard upturns. Credit market booms are the shortest, about 4½ quarters, compared with the average duration of other credit upturns of about 9 quarters, while housing booms are often the longest. A boom in housing lasts about 13 quarters.

Financial cycles tend to be intense episodes as measured by their amplitude—that is, the decline in housing prices, equity prices, or credit volume from peak to trough during downturns and the change in each financial variable during the first four quarters of an upturn (see Chart 2). Credit crunches and house price busts are much more dramatic than other credit and house price downturns. Credit crunches are about four times deeper than the average credit downturn, while house price busts are seven times bigger than the average house price downturn. Equity busts are about twice as large. But in absolute terms, the most severe fluctuations take place in equity markets—where prices during a typical boom register about

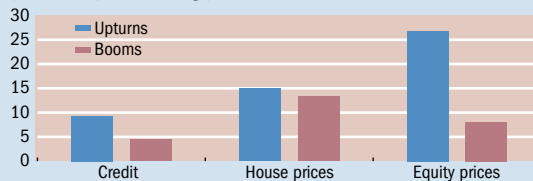
Chart 1

Booms and busts

Disruptions can last a long time . . .
(number of quarters, average)



. . . whereas booms tend to have a shorter life.
(number of quarters, average)



Source: Claessens, Kose, and Terrones (2011a).

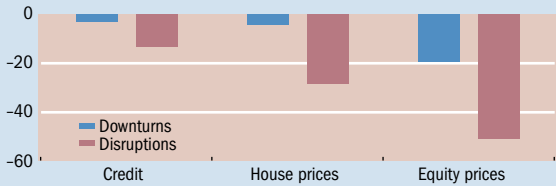
Note: The duration of downturns is the number of quarters between the peak and trough. For upturns it is the time it takes to go from the trough to the peak reached before the downturn. A disruption is one of the worst 25 percent of downturns; a boom is an upturn that is among the best 25 percent of upturns. The data represent averages of nearly 500 financial cycles between 1960 and 2007.

Chart 2

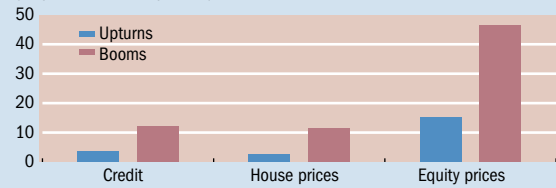
Intense times

The most severe fluctuations occur in equity markets. Housing booms are often less pronounced than housing busts.

(amplitude, median, percent)



(amplitude, median, percent)



Source: Claessens, Kose, and Terrones (2011a).
 Note: The downturns measure the decline from peak to trough; the upturns measure the change during the first year after a trough.

a 45 percent increase and a slightly larger decline during a bust episode. In the case of housing markets, swings are typically more asymmetric across the two phases of the cycle: an increase of 11 percent during booms and a decline of 29 percent during busts.

Reinforcing each other

What is at play when domestic financial markets are in roughly the same phase of the cycle? Is it more than coincidence? To answer this question, we employ a simple timing rule. Specifically, we consider a downturn in one financial variable to be associated with a disruption in another if the downturn starts at the same time or shortly after the disruption in the other variable. We employ a similar approach with upturns.

An association between the movements in two variables, of course, does not necessarily indicate that one caused the other. However, our results show the presence of strong interactions—between credit and housing markets, for example. Credit downturns that overlap with house price busts are longer and deeper than other credit downturns (see Chart 3). Similarly, when credit upturns coincide with episodes of housing booms, they tend to be longer and stronger. For example, a credit upturn becomes 25 percent longer and 40 percent larger when it coincides with a housing boom. This finding is suggestive of the important role that mortgage lending plays in many economies.

Credit cycles appear to behave differently when they coincide with cycles in equity markets. Although credit downturns accompanied by equity price downturns are not significantly longer, they tend to be more severe than others. Interestingly, equity cycles seem to be little affected when they are associated with cycles in other financial markets, probably because of the idiosyncratic nature of factors driving fluctuations in equity markets.

The strong linkages between the credit and asset price cycles we document are consistent with the mechanisms described in various economic models. For example, models featuring the so-called *financial accelerator* mechanism emphasize that there are feedback effects between financial markets and the real economy and among various financial sector segments. These models suggest, for example, that a decline in net worth, induced perhaps by a fall in asset prices, leads borrowers to reduce their credit demand, spending, and investment. This in turn causes the output of goods and services to shrink further in what can become a self-reinforcing cycle of falling output and falling asset prices.

Models that operate on the *supply side of finance* also suggest strong linkages among various segments of financial markets. They focus on the balance sheets of financial intermediaries (such as banks, which take in deposits and make loans) as an indication of their ability to provide credit and other external financing. They stress that conditions in credit markets can influence asset prices (and real activity) and vice versa. For example, when banks increase their leverage by accumulating debt, they tend to extend a larger volume of credit, which in turn can lead to an increase in asset prices. Conversely, a decrease in leverage can prompt a decline in asset prices.

Highly synchronized across countries

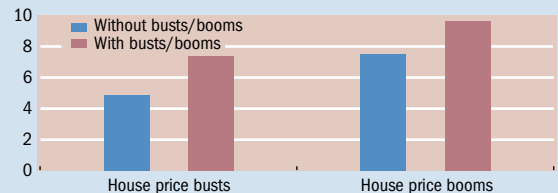
Financial cycles also often occur simultaneously across countries—suggesting that the global nature of the recent crisis is not unusual. We examine the degree of synchronization of cycles using a so-called *concordance index*, which measures the percentage of time two countries are in the same phase of a respective financial cycle.

Chart 3

Reinforcing each other

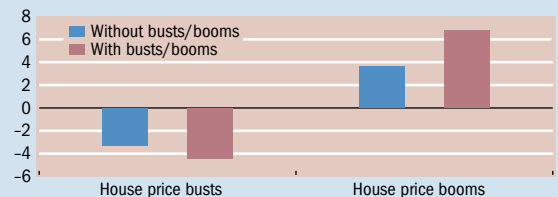
Credit cycles accompanied by housing cycles typically last longer . . .

(credit downturns/upturns, number of quarters, average)



. . . and are stronger.

(credit downturns/upturns, amplitude, percent change, median)



Source: Claessens, Kose, and Terrones (2011a).

Note: The panels display the duration and amplitude of credit downturns/upturns when they are associated with housing busts/booms. A credit downturn is considered accompanied by a housing bust if it starts at the same time or after the housing decline. Similarly a credit upturn is considered accompanied by a housing boom if credit growth starts at the same time or the beginning of the housing climb.

Credit and equity cycles display the highest degree of synchronization across countries (see Chart 4, top panel). These cycles tend to be in the same phase about 75 percent of the time. Although houses are nontradable assets, the extent of synchronization of housing cycles across countries is still high—about 60 percent. This finding partly reflects the important role played by global factors—including the world interest rate, the global business cycle, and commodity prices—in explaining house price movements around the world. The degree of synchronization in the case of housing and equity markets has actually increased over time, probably due to the expansion of cross-border trade and financial flows.

And when financial cycles are highly synchronized across countries, they tend to be more severe (see Chart 4, lower panel). In the case of highly synchronized equity downturns, for example, prices drop by about 30 percent, compared with some 18 percent for other downturns. Similarly, synchronized financial upturns are often more buoyant.

Rethinking cycles and policies

The main lessons from our extensive study of financial cycles are sobering. First, *financial cycles can be long and deep*, especially those in housing and equity markets. Second, *financial cycles accentuate each other* and become magnified during coincident downturns in credit and housing markets. Third, *they are highly synchronized across countries*, and the extent of such synchronization has been increasing over time, possibly because of the forces of globalization. Finally, *globally synchronized downturns tend to*

be associated with more costly episodes, especially in credit and equity cycles.

Economists have long studied the interactions between different types of cycles, and that research has had important policy implications. For example, the extensive study of the linkages between business cycles and inflation cycles has led economists to warn of the risk of higher inflation if monetary policy is lax and the economy is producing more goods and services than its potential. Conversely, they warn of deflation if monetary policy is tight and the level of economic activity is below its potential.

The recent global financial crisis has led to an extensive debate about the formulation of monetary and financial sector policies. This debate has emphasized not just the link between inflation and business cycles, but also the impact of cycles in financial markets on business cycles.

Combined with the results from earlier research (see “When Crises Collide,” *F&D*, December 2008), our findings on financial cycles provide useful input into these ongoing policy debates. In light of the multidimensional interactions between financial and business cycles, the observations we document suggest that close monitoring of cycles in financial markets should be an integral part of macroeconomic surveillance and policy design (Claessens, Kose, Terrones, 2011b). For example, in addition to the linkages between the inflation and business cycles, policymakers might want to take into account the state of cycles in financial markets when they formulate monetary policies.

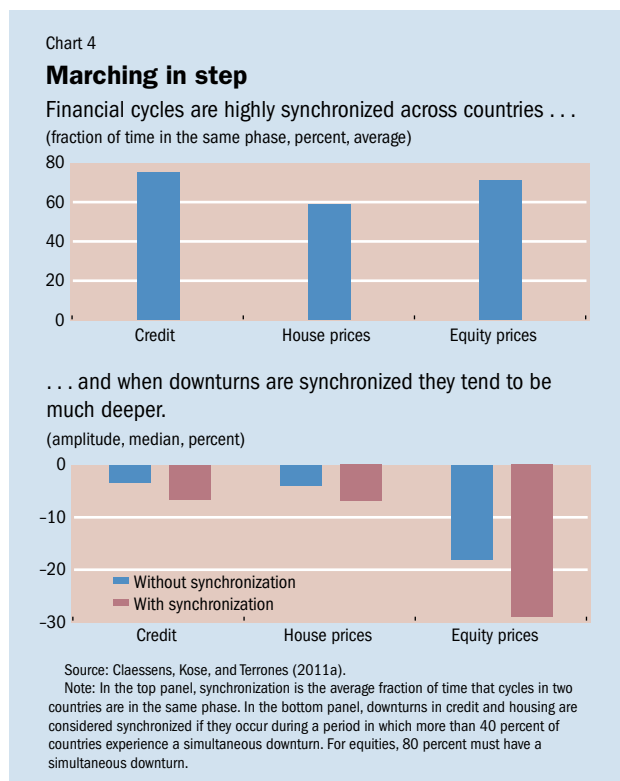
Our analysis also suggests that it is important to account for the interactions among financial cycles when designing regulatory policies to ensure the health of the overall system. For example, if both credit and housing prices rapidly are growing it might be necessary to employ stricter rules and lending standards for mortgage lending as well as larger countercyclical buffers to moderate fluctuations in banks’ capital positions, because cycles in credit and housing markets tend to enhance each other. More generally, the design of macroprudential rules must account for the linkages among cycles in different financial market segments.

Because financial cycles are often synchronized internationally, it is imperative to consider the global aspects of financial regulation and surveillance policies. However, such global policies might need to be adaptive and flexible, because financial systems operate differently in different countries. ■

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- Claessens, Stijn, M. Ayhan Kose, and Marco E. Terrones, 2011a, “Financial Cycles: What? How? When?” forthcoming in NBER International Seminar in Macroeconomics 2010, ed. by Richard Clarida and Francesco Giavazzi.
- , 2011b, “How Do Business and Financial Cycles Interact?” forthcoming IMF Working Paper (Washington: International Monetary Fund).





Investing in Growth

Highway interchange construction in Johannesburg, South Africa.

Serkan Arslanalp, Fabian Bornhorst, and Sanjeev Gupta

Revisiting the debate over whether public investment in infrastructure is productive

POLICYMAKERS in developing countries often point to insufficient infrastructure—inadequate highways, airports, maritime facilities, and the like—as a constraint on their countries’ growth prospects. So it’s not surprising that these policymakers seek ways to find room in their budgets for greater public investment in infrastructure without saddling their country with unsustainable debt.

But they can find this difficult to achieve. For various political reasons, these countries are often unable to cut less productive current spending—for example, on general subsidies for fuel—to increase public investment. They can seek funds from external sources, but may face limits on how much their country can borrow—particularly if it has benefited from debt relief in recent years or if additional borrowing is available only on nonconcessional terms. Moreover, a long legacy of failed public projects in a number of countries further complicates decisions about external borrowing.

But more important than whether a country can expand its public investment in infrastructure is whether it should. Underlying the debate over increasing public capital is the question of the productivity of public investment—whether it aids economic growth. If public investment is productive, it is easier to justify external borrowing to support it. Unfortunately, the results of studies on public investment’s impact on growth are unclear, leading many to conclude that it is unproductive. However,

some recent studies—for example, by the World Bank (2007)—conclude that public spending on infrastructure, education, and health yields positive effects on growth. The report from the Commission on Growth and Development (2008) notes that fast-growing countries are characterized by high public investment, defined as 7 percent of gross domestic product (GDP) or more.

This article revisits this debate and, using estimates of the total amount, or stock, of public capital (be it bridges or highways), it studies the impact on economic growth for 48 advanced and developing economies during 1960–2001. It finds that public investment generally has a positive impact on growth.

Mixed results

Some of the discrepancy in existing findings relates to what is being measured. Many studies look at the investment rate—the percentage of GDP devoted to adding to the capital stock. We find that the more important focus is the rate of growth of the capital stock itself. The discrepancy between the two suggests at least three reasons for the mixed evidence on the relationship between public investment and overall economic growth:

- Public investment and public capital can grow at different rates, depending on the initial level of capital stock. For example, public investment in a given year may not be large enough to replace the depreciated capital stock—the amount of capital “used up,” say by the wear and tear on a highway or a bridge from automobile and truck traffic. One can-

not expect public investment to have a positive impact on growth if it is not big enough to keep the country's capital stock from declining.

- There is a two-way relationship between public investment and growth that makes it difficult to isolate the effect of one on the other: public investment affects growth, but it is also affected by growth. For example, public investment may fall during an economic downturn simply because of a lack of resources, which is typical in many countries.

- Most studies do not take into account that governments face a budget constraint—they must finance higher investment spending either by raising taxes or borrowing or by cutting other spending. Higher taxation to finance public spending could introduce distortions in the economy and offset some of the productivity gains from public investment.

Economic theory suggests that the level of output is determined by the capital *stock* employed in production, rather than the annual investment *flow*. Although the two variables are closely linked, the capital stock—together with other production factors, such as labor and technology—determines an economy's production potential. The investment *flow* in any given period, by contrast, determines how much capital is accumulated and therefore available for production in the subsequent period.

Focus on public capital growth

As a result, we focus on the growth effect of *public capital*—the stock variable that corresponds to public investment. In particular, we developed a production function (see box) that includes inputs of labor, private capital, and public capital to determine the total output of an economy. We modified the production function to allow the productivity of public investment to vary, depending on the initial amount (stock) of public capital. For example, maintaining and/or expanding the existing capital stock may require higher tax rates, which could be distortionary—that is, discourage some good economic activities—and lead to lower growth. In our specification, we indirectly allow for the effect of such financing constraints.

The production function approach

In economic theory, an aggregate production function is a formal depiction of how inputs are transformed into output. In the standard model, the level of output depends on just two inputs, labor and capital, and on the available technology. This relationship is commonly specified as a Cobb-Douglas function, named after the mathematician Charles Cobb and Paul Douglas, an economist, who later became a U.S. senator from the state of Illinois. When tested empirically, the Cobb-Douglas function yields estimates of the responsiveness of output to a variation in inputs. In a first step, we extended this basic specification by dividing capital into private capital (provided by firms) and public capital (such as infrastructure provided by the government) and estimated the importance of the latter on output. In the second step, we allowed the responsiveness of output to public capital to vary with the level of public capital itself and found the relationship depicted in Chart 3.

To test our model, we needed estimates of public and private capital stock. But such estimates are difficult to obtain. Some are available for advanced economies, but there are few for developing economies. In our study, we filled this gap by estimating the public and private capital stock for a group of middle- and low-income countries during 1960–2001 using a methodology proposed by Kamps (2006). Our data set is novel in several ways: it combines capital stock estimates for both advanced and developing economies, differentiates between public and private capital, and applies depreciation rates that vary by time and by the economy's income level to capture the nature of the underlying public and private assets.

Specifically, the value of the capital stock is calculated using the *perpetual inventory* method. In this method, the net capital stock—public and private—is determined by adding gross investment flows from the current period to the depreciated capital stock of the previous period. As a result, the stock data account for the wear and tear on assets. The choice of depreciation rates presents perhaps the biggest challenge to tallying the capital stock data—mainly because country-specific estimates of depreciation rates (how much of the capital stock is used up in a period) are typically not available. Instead of applying a uniform rate to all countries, we differentiate the assumed depreciation by groups of countries reflecting different types of assets typically available in those countries. These assets have different life spans, resulting in different depreciation rates. For example, concrete structures are typically estimated to last longer than assets related to technology, whose investment life may be only a few years. As countries become richer, the share of assets with shorter life spans rises, thereby raising the overall depreciation rate.

The U.S. Bureau of Economic Analysis estimates that overall depreciation rates for public capital in the United States were about 2½ percent per year in 1960 and 4 percent in 2001 (Bureau of Economic Analysis, 2010). We extended this assumption to the public capital stock estimates for all advanced economies in our sample. For middle-income countries, we used a time-varying profile in which the depreciation rate starts at 2½ percent in 1960 and reaches 3½ percent by 2001. We assumed a constant rate of depreciation of 2½ percent for low-income countries throughout the sample period. We confirmed our findings using other plausible depreciation rates.

To construct the capital stock data set we used internationally comparable investment series from the Penn World Tables (PWT—Heston, Summers, and Aten, 2006) combined with the IMF's World Economic Outlook (WEO) database. The PWT provide data on output and investment based on national accounts and adjusted for purchasing power parity. One drawback of the PWT is that they do not break down investment into its public and private components, an essential ingredient for our analysis. For that, we turned to the WEO database, whose data are broken down according to public and private investment. We used this share of public and private investment in total investment to split the PWT investment series into public and private components.

Public investment and capital stock divergence

On average, GDP grew by 3.4 percent in advanced economies and 4.4 percent—1 percentage point more—in developing economies from 1960 to 2000 (see table). Despite the higher growth in developing economies, the average public investment rates in advanced and developing economies were similar during this period. In particular, average public investment was 3.6 percent of GDP for advanced economies and 3.9 percent for developing economies. Although the investment rates were similar, the capital stock itself grew almost twice as fast in developing economies as in advanced economies during 1960–2000, because much of the investment in advanced economies replaced worn-out capital stock. This difference in capital stock accumulation helps explain much of the long-term growth differential across countries.

Chart 1 shows a scatter plot of the average GDP growth, public investment rate, and public capital growth during 1960–2000 for all countries in the sample. It shows that cross-country differences in public capital growth explain much of the difference in long-term GDP growth during this period. In particular, the correlation between average public capital growth and average GDP growth is much higher than between the average public investment rate and GDP growth.

How economies grew

Although developing economies invested only slightly more of their GDP in public capital than did advanced economies, growth of the capital stock was far greater in developing economies.

| | Advanced economies | Developing economies |
|---------------------------------------|--------------------|----------------------|
| Real GDP growth (percent) | 3.4 | 4.4 |
| Public investment (percent of GDP) | 3.6 | 3.9 |
| Public capital stock growth (percent) | 3.3 | 5.7 |

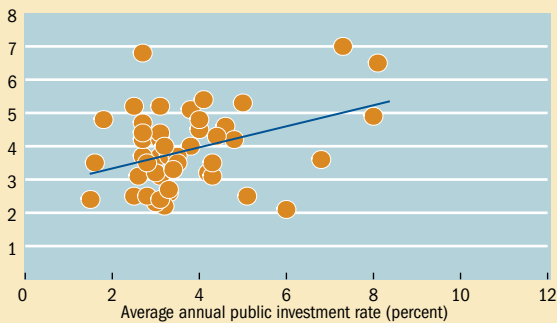
Sources: Heston, Summers, and Aten, 2006; Kamps, 2006; and authors' calculations.

Chart 2 plots the average GDP growth, public investment rate, and public capital stock for advanced and developing economies from 1960 to 2000. It shows that the public investment rate has been on a downward trend since the early 1970s in advanced economies. In contrast, the public investment rate increased significantly in developing countries in the 1970s, although it returned to its earlier levels in the 1980s. Public capital stock, as a percent of GDP, peaked for advanced economies in 1983 and for developing economies in 1985. The peak levels were 60 percent of GDP for advanced economies and 61 percent of GDP for developing economies. The bottom panel of the chart shows the behav-

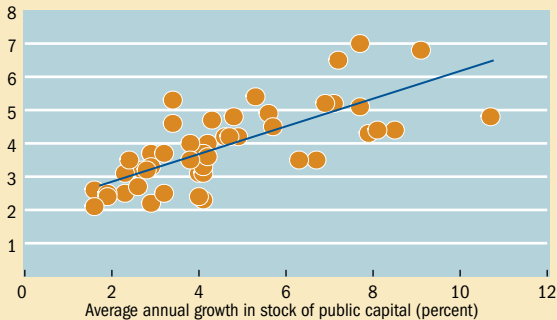
Chart 1

Public investment and growth

There is a weak relationship between real growth and the percentage of GDP invested annually.
(average real GDP growth, percent)



The relationship between growth and the annual capital stock increase is much stronger.
(average real GDP growth, percent)



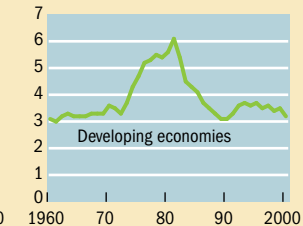
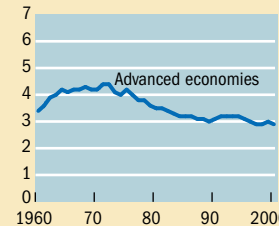
Sources: Heston, Summers, and Aten (2006); Kamps (2006); and authors' calculations.
Note: The data are for 48 advanced and developing countries between 1960 and 2001.

Chart 2

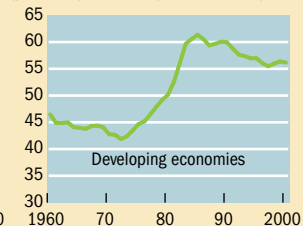
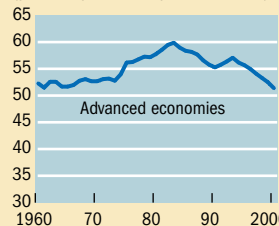
Slowing down

As public investment and the size of the capital stock have declined, so has real GDP growth.

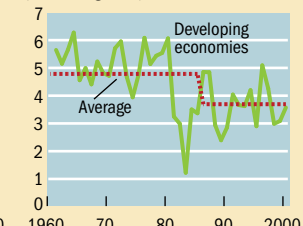
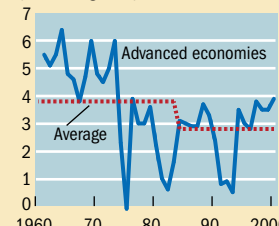
(public investment rate, percent of GDP) (public investment rate, percent of GDP)



(public capital stock, percent of GDP) (public capital stock, percent of GDP)



(real GDP growth) (real GDP growth)



Sources: Heston, Summers, and Aten (2006); Kamps (2006); and authors' calculations.

ior of real GDP growth during this period. In both advanced and developing economies, there was a downward shift in real growth of almost 1 percentage point on average around the time capital stock peaked.

Growth impact of public capital varies

We first tested a production function that relies on investment flows instead of capital stock. As argued above, the *net* capital stock is the key determinant of productivity, and investment flows do not provide any information on the share of investment required to replace depreciating capital stock. Unsurprisingly, then, these models do not demonstrate a relationship between investment flows and growth.

But when we tested a production function that relies on capital stock, we found that public capital has a positive effect on growth. We then found that the growth impact of capital stock varies with the level of public capital in the economy. In countries with public capital stock valued at less than 60 percent of GDP, an additional unit of public capital has the highest impact on growth (Chart 3). The effect diminishes thereafter, and for countries with very high public capital stock the growth effect is close to zero, possibly reflecting the inefficiencies that arise from financing public capital, such as high taxation. These results are robust under a variety of assumptions and with the inclusion or exclusion of outlier countries.

We also explored public capital's growth impact over time intervals. Long-term effects of public capital accumulation on growth may not be captured sufficiently in annual data. For example, some public investment may take more than a year to complete, and even when completed, the payoff may accrue over a longer period. Hence, longer time horizons, such as five-year intervals, may be better suited to capture the lumpiness of investment and lags in its effectiveness. We found that in advanced economies, the effects of public capital on growth, although significant over the short term, diminish over long time horizons. For developing countries, on the other hand, the effect increases as the time horizon

lengthens, and is largest for five-year intervals. These results suggest that some developing countries may not be able to handle significantly higher capital investment immediately because of their limited capacity to absorb investment and/or their slow implementation of investment projects. Furthermore, the results indicate that advanced economies use public investment more as a demand management tool—to counter the business cycle—than do emerging and developing economies, where it is more likely used to boost long-term growth.

Policy implications

Increases in public capital stock are associated with higher growth, especially after controlling for the initial level of public capital. The short-term effects are stronger for advanced economies, the long-term effects stronger for developing economies. These findings help explain why previous studies that focus on the investment rate as the explanatory variable produced mixed results. At the same time, we found that in some countries the positive impact of public capital on output is partially or wholly offset if the initial capital stock in relation to GDP is high. However, these considerations do not seem to matter in countries with relatively low public capital stock.

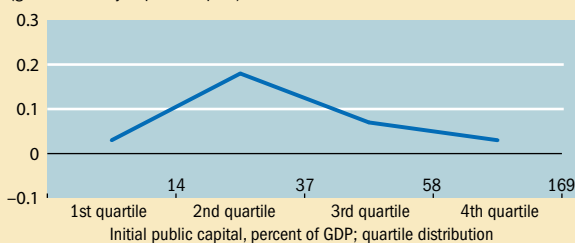
These results suggest two broad policy implications. First, debate over how much additional debt a country can take on has centered on creating room in the budget for higher public investment, but our results show that certain types of constraints—for example, financing—can limit higher capital stock's benefits on growth. Second, developing countries can gain from nonconcessional foreign borrowing to finance new investment; however, the benefits from such investment may accrue only over time. ■

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Chart 3

Growing in tandem

How GDP growth responds to an increase in public capital (growth elasticity) depends on the initial level of public capital. (growth elasticity of public capital)



Source: Authors' calculations.

Note: In the quartile distribution, the first 25 percent (1st quartile) of countries had an initial public capital of 14 percent of GDP or less. In the second quartile it was 15 percent to 37 percent. In the third quartile it was 38 percent to 58 percent and in the fourth quartile it was between 59 percent and 169 percent.

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Up or Down

Some have predicted postcrisis deflation in advanced economies, others high inflation. Worries about either are probably exaggerated.

André Meier

ALTHOUGH the world is recovering from the global financial crisis, that recovery will likely be relatively slow in many advanced economies, with demand for goods and services in the euro area, Japan, and the United States falling short of potential supply for several more years (IMF, 2010).

Many economists and policymakers are concerned that if an economy operates well below capacity for an extended period—with accompanying high unemployment and idle factories—one consequence could be very low growth of prices and wages. Indeed, economic theory suggests that spare capacity will push down inflation rates (disinflation) or even cause overall price levels to fall (deflation). That, in turn, could extend the economic malaise as consumers, anticipating lower prices, postpone spending and borrowers suffer an increasingly heavy real debt burden.

But that is hardly a universal view. In fact, some observers have voiced exactly the opposite concern, predicting a period of sustained high price increases. They argue that any disinflationary effect from spare capacity will be overwhelmed by the inflationary consequences of the policies employed to fight the global recession. In this view, policymakers have sown the seeds of inflation by running high fiscal deficits and adopting unconventional monetary policies. The ongoing debate, then, is not so much over different cyclical assessments—most observers agree that there is still sizable slack in many advanced economies—as over the moderating impact such slack has on inflation.

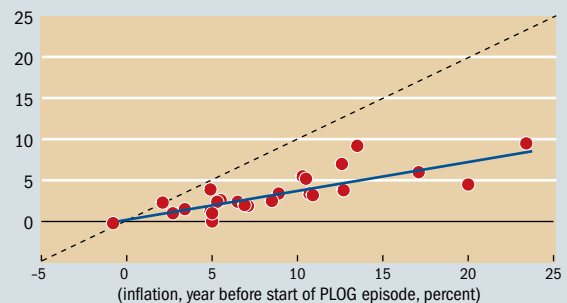
To shed some light on this issue, I studied consumer price index (CPI) inflation dynamics in advanced economies during past periods in which output remained at least 1.5 percent below potential for more than eight consecutive quarters. Those situations are similar to what is thought to have occurred since

Chart 1

Inflation conquered

Inflation declined during almost all of 25 serious recession episodes in advanced economies between 1970 and 2007. The two times inflation rose, it did so from very low rates and the increases were negligible.

(inflation, final year of PLOG episode, percent)



Source: Meier (2010).

Note: A persistent large output gap (PLOG) episode is a period in which output remained at least 1.5 percent below potential for more than eight consecutive quarters. There were 25 PLOG episodes in 14 advanced economies. Inflation is measured by changes in the consumer price index at a seasonally adjusted annual rate.

late 2008 in most advanced economies. Although the historical sample can be only a rough guide to the present, it provides a broad empirical perspective on inflation outcomes during episodes of persistent large output gaps (PLOGs).

Tracing inflation

I analyzed 25 PLOG episodes in 14 advanced economies over the period 1970–2007 using data from the Organization for Economic Cooperation and Development (OECD, 2009). Among the key findings:

- There is a clear and pervasive pattern of disinflation during PLOG episodes, with the rate of inflation falling during the overwhelming majority. Moreover, in the two cases where inflation failed to decline, the increases were negligible and started from exceptionally low rates of inflation (see Chart 1).
- The disinflation appears to be supported by weak labor markets, with high and/or rising unemployment and falling nominal wages and real unit labor costs. This pattern points to the expected relationship between spare capacity and diminished cost pressures facing firms.
- In several cases, falling oil prices further helped the decline in inflation. Nominal exchange rates showed no uniform trend during PLOG episodes, but in economies with appreciating currencies, disinflation tended to be faster. Perhaps surprisingly, the growth rate of broad monetary aggregates (cash and bank deposits) appears unrelated to the strength of disinflation across episodes.

- Overall, the relationship between initial and final inflation rates seems roughly proportional, suggesting that countries with high initial rates of inflation experience greater disinflation in absolute, but not relative, terms. That finding continues to hold when we adjust for the different length of individual PLOG episodes by considering annualized changes in inflation rates.

Differing dynamics

Still, the dynamics differ somewhat across time periods (see Chart 2). During episodes before 1990, which were marked by relatively high initial inflation, disinflation tended to proceed rather steadily throughout the episode. But during the more recent episodes, when initial inflation was more mod-

Inflation generally stopped falling, and instead stabilized or even increased, once it had reached a low positive rate.

erate, most of the disinflation occurred early on, followed by a bottoming-out of inflation at a new lower rate. Indeed, inflation generally stopped falling, and instead stabilized or even increased, once it had reached a low positive rate.

Why might disinflation peter out at low positive rates of inflation rather than evolving into outright deflation? Two explanations, in particular, come to mind.

First, the literature has emphasized *the enhanced credibility of central banks* in preserving price stability in recent years. Such credibility would be apparent not only in low average rates of inflation, but also in a strong anchoring of inflation expectations. If the public trusts the central bank's commitment to price stability, short-term variation in the cost of production should have little effect on general price-setting behavior. The result would be a weaker relationship between output gaps and inflation in general that some studies have documented (for example, Kleibergen and Mavroeidis, 2009).

Second, disinflation might run out of steam at near-zero rates if there are strong *formal or informal barriers to outright wage or price declines*. Such downward rigidities appear to be common in the labor market, where nominal wages do not normally fall even during bad years (for example, Akerlof, Dickens, and Perry, 1996; and Benigno and Ricci, 2010). Labor accounts for the largest share of production costs, so any resistance to nominal cuts in wages may also explain the scarcity of sustained CPI declines in the sample. It apparently takes truly exceptional circumstances—perhaps epitomized by Japan's experience during the past two decades—to turn disinflation into outright deflation.

What does it all mean for today?

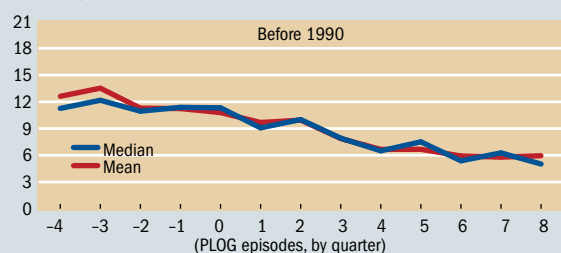
The historical evidence points to a clear disinflationary effect from persistent large output gaps, at least until inflation has declined to very low positive rates. For countries currently facing protracted economic slack, this would suggest limited

Chart 2

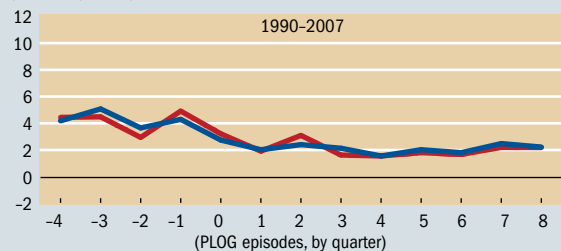
Differing decades

Inflation was relatively high at the beginning of PLOG episodes before 1990, and price increases slowed steadily throughout the episodes. More recently, initial inflation was more moderate, and most disinflation occurred early in the PLOG episode.

(inflation, percent)



(inflation, percent)



Source: Meier (2010).

Note: A persistent large output gap (PLOG) episode is a period in which output remained at least 1.5 percent below potential for more than eight consecutive quarters. There were 25 PLOG episodes in 14 advanced economies between 1970 and 2007. Inflation is measured by changes in the consumer price index at a seasonally adjusted annual rate. Zero on the horizontal axis represents the start of a PLOG episode.

upside inflation risk. However, such a conclusion must be taken with a bit of caution, mainly for three reasons.

First, historical experience, especially from the 1970s, shows that *real-time assessments of spare capacity may be subject to large revisions down the pike*. Similarly, economists might be overestimating the extent of slack in advanced economies today. It is worth noting, however, that economists are keenly aware of the lessons of the 1970s. For example, typical assessments of spare capacity today allow for the possibility that the global financial crisis not only depressed demand, but also curtailed potential supply.

Inflation expectations have shown no signs of being unhinged by quantitative easing.

Second, stable relationships are scarce in macroeconomics, and even patterns reliably documented in the past might not persist. Those who worry about high inflation today often cite the exceptional policy responses to the recent crisis as a game changer. Indeed, with policy rates essentially at zero, several central banks have resorted to such unconventional policies as quantitative easing—that is, issuing central bank reserves to buy bonds (Meier, 2009). Yet it is important to recognize that there is no mechanical link between these policies and high inflation. The popular argument that more reserve money must cause runaway inflation is at odds with theory, as central banks have several tools to rein in the effect of excess liquidity. It also disregards the experience of Japan, where inflation has stayed close to zero despite massive expansions of reserve money since 2001.

Third, although PLOGs clearly appear to bear down on inflation, they are not the only influence at play. The historical pattern shows, in particular, that changes in oil prices and exchange rates can cause significant fluctuations in overall (so-called headline) inflation rates. Still, to the extent that economic slack keeps wage increases in check, higher import prices per se need not lead to generalized inflation pressure.

The most significant, if low-probability, risk concerns an extreme scenario in which unconventional monetary policy interacts with fears about high public debt to the point of undermining trust in the currency. To alleviate this risk, policymakers in many countries have already laid out plans to reduce public deficits and restore fiscal sustainability. As a result, in the period ahead, fiscal policy appears likely to support, rather than counteract, disinflation in most advanced economies. Meanwhile, inflation expectations have shown no signs of being unhinged by quantitative easing.

Recent inflation trends

With these considerations in mind, it is worth turning to the empirical evidence of the present. Indeed, actual inflation trends through the end of 2010 are not very different from the historical pattern. Applying the same criteria I used for the historical sample, I identified 15 ongoing PLOG episodes

in advanced economies, based on more recent OECD data (OECD, 2010). Most of these episodes started as the global crisis worsened in the last quarter of 2008 and are expected to extend at least through the end of 2011.

Compared with the historical episodes, the decline in output is unusually large this time, although labor markets have held up better in relative terms. In fact, widespread labor hoarding—companies were reluctant to lay off workers despite the sharp downturn—initially drove up average unit labor cost in many countries, even as nominal wage growth started easing. Another striking feature is the roller-coaster ride of oil (and other commodity) prices, which first fell precipitously, but then recovered much of the lost ground. These swings had a considerable impact on headline inflation, including in recent months. Nonetheless, a general decline from precrisis rates is apparent (see Chart 3).

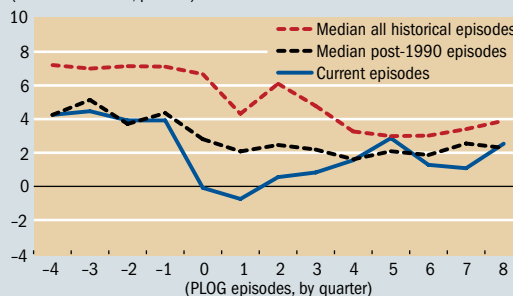
When food and energy prices are stripped from the CPI, the decline in inflation rates appears steadier but relatively modest. Yet this stickiness is actually consistent with the historical pattern. Core inflation started from a relatively low base in the latest PLOG episodes, at just about 2 percent on

Chart 3

Past is prologue

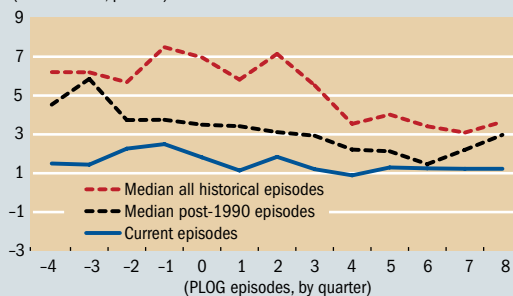
Inflation has behaved more erratically during the 15 ongoing PLOG episodes in advanced economies, reflecting the roller-coaster ride of commodity prices. Still, a general downtrend is apparent.

(headline inflation, percent)



When food and energy prices are stripped out, core inflation shows a steady if modest decline that is consistent with the historical pattern in which disinflation tends to peter out at low positive inflation rates.

(core inflation, percent)



Source: Meier (2010).

Note: A period of a persistent large output gap (PLOG) is one in which output remained at least 1.5 percent below potential for more than eight consecutive quarters. There were 25 PLOG episodes in 14 advanced economies between 1970 and 2007 and there are 15 ongoing. Inflation is measured by changes in the consumer price index at a seasonally adjusted annual rate. Zero on the horizontal axis represents the start of a PLOG episode.

average. Since then, it has generally fallen by about 0.4 percentage point annually (or some 20 percent of the initial annual rate), matching the *relative* pace of disinflation in earlier PLOG episodes. Cross-sectional data confirm, moreover, that the extent of disinflation across countries remains closely correlated with the rise in unemployment.

The bottom line

Historical episodes of persistent large output gaps in advanced economies show a clear pattern of disinflation, supported by weak labor markets and low wage growth. However, declines in inflation appear to become more modest when the initial rate of inflation is already quite low, suggesting some combination of better-anchored inflation expectations and downward nominal rigidities, such as resistance to outright wage cuts. Moreover, fluctuations in oil prices and exchange rates can introduce significant short-term volatility in inflation outturns.

Developments since the beginning of the global financial crisis are consistent with this pattern. Despite large swings in headline rates, underlying inflation in advanced economies has generally declined, with many core measures reaching the very low rates at which disinflation typically petered out during past PLOG episodes. Thus, while upside inflation risks should be limited in countries facing continued economic slack, a slide into outright deflation does not seem very likely either. ■

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Korean medical workers waiting for flu vaccination.

Healing

Health Care Finances

Benedict Clements, David Coady, Baoping Shang, and Justin Tyson

Health care presents a daunting fiscal challenge, but reforms can help manage the growth of spending fairly and efficiently

HEALTH care reform is tricky. Access to affordable health care is of paramount importance, but paying for it can put enormous pressure on government budgets. Fortunately, a number of reform options are available to countries that face those pressures or seek to avoid them in the future.

Experience in advanced economies shows that a combination of tighter budget controls and efficiency-enhancing reforms of health care systems can help preserve access to high-quality health care while keeping public

spending in check. In emerging economies, improving efficiency is also important, but some can afford further increases in public spending. All countries should ensure equitable access to basic health care services and spend more efficiently on public health.

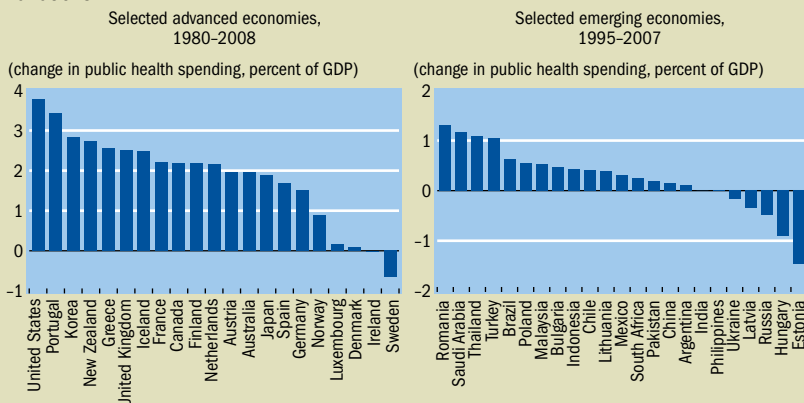
Sharp increases in the past

Total health care spending in advanced and emerging economies rose markedly in recent decades, largely because of aging populations and technological advances. Real per capita health spending has quadrupled in advanced economies since 1970, with two-thirds of this increase a result of public spending. Public health spending rose by 4 percent of gross domestic product (GDP), accounting for half the rise in total government spending. In emerging economies, total health spending over the same period rose, but more moderately—from less than 3 percent of GDP to about 5 percent—with about half the increase attributable to public outlays. The lower ratios in the emerging economies reflect a combination of competing expenditure needs and constrained revenue-raising capacity. Public spending ratios were lower in emerging Asia than in emerging Europe and Latin America, because public insurance

Chart 1

Rising share

Public health spending as a percent of GDP has increased in most countries, but with great variations.



Sources: OECD Health Database; WHO Health Database; Sivard (1974-96); and IMF staff estimates. Note: Only countries for which the data series are complete for the given period are included.



coverage and benefit packages are less extensive in Asia.

The increase in public health spending over recent decades varied substantially across countries (see Chart 1). Among the 21 advanced economies for which data were available, between 1980 and 2008 public health spending increases exceeded 2.5 percent of GDP in 6 countries and were less than 1.5 percent of GDP in another 6. Among the 23 emerging economies, the public health spending ratio increased by

more than 1 percent in 4 countries between 1995 and 2007 and actually fell in 6.

Stressing the system

Public health spending ratios are projected to increase over the next two decades (see Chart 2). For the advanced economies, our projections are based on analysis of country spending trends between 1980 and 2008; for emerging economies, we assumed costs would grow as they had on average between 1995 and 2007. We also incorporated the effect of demographic changes on future health care spending in the projections for both advanced and emerging economies.

Public health spending ratios in advanced economies are projected to continue climbing, rising on average by 3 percent of GDP over the next 20 years. Spending is projected to increase by more than 2 percent of GDP in 14 of the 27 advanced economies, at a time when countries will need to reduce budget deficits and public debt ratios in the wake of the global financial crisis. The outlook is particularly grim in the United States, where public health spending is projected to rise by about 5 percent of GDP over the next 20 years, the highest among advanced economies. And in Europe, public health spending is expected to rise by 2 percent of GDP on average—and more than 3 percent in seven countries.

In emerging economies, public health spending is projected to rise by 1 percent of GDP over the next 20 years, one-third of advanced economies' projected increase. Consistent with past trends, spending is projected to rise by 1½ percent of GDP in both emerging Europe and Latin America; in emerging Asia, increases are expected to be about half that amount, reflecting in part low initial levels of spending in these countries.

Containing public spending

Recent health care reforms in advanced economies are unlikely to alter long-term public health spending trends. In the United States, the Patient Protection and Affordable Care Act of 2010 introduces a sweeping reform that will expand health insurance coverage but is expected to reduce the budget deficit, primarily through increased payroll taxes on individuals and families with relatively high incomes and an

excise tax on generous health care plans. While these reforms can expand access, the envisaged savings on health care spending are small and remain highly uncertain. In Europe, plans to cut government employment and compensation could reduce health care spending in the short term, but their long-term effect is uncertain.

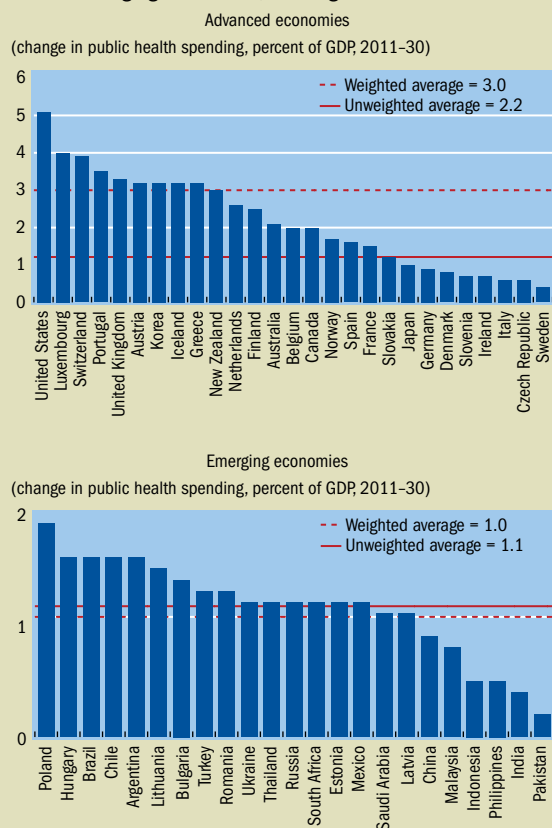
The most promising strategies to contain spending in advanced economies involve a mix of instruments to contain costs and reforms to improve spending efficiency:

- **Budget caps with central oversight** are a powerful tool for restraining expenditures. Among the countries with the lowest public spending increases in the past, Italy, Japan, and Sweden rely more on budget caps. Setting budgets for hospitals and other health care institutions based on reasonable and objective expenditure projections, as opposed to simply reimbursing all spending, can help contain spending growth. Such targets are most effective when applied broadly: partial constraints encourage expenditure increases in areas without caps. For example, if only inpatient hospital spending is limited, expenditures on outpatient clinics may increase.

Chart 2

Under pressure

Public health care spending is projected to rise by 3 percent of GDP in advanced economies, and by 1 percent of GDP in emerging economies, with regional variations.



Sources: OECD Health Database; WHO Health Database; Sivard (1974–96); and IMF staff estimates.

- **Public management and coordination of health care services** help control health care costs by screening out unnecessary services. For example, gatekeeping, through which a primary care physician manages a patient's health care services and coordinates referrals to specialists, is widely considered crucial to constraining the growth of costly hospital treatment. Countries with low spending growth that make extensive use of gatekeeping include Denmark and Italy.

- **Local and state government involvement in key health resource decisions** can help tailor services to local conditions, increasing spending efficiency. It can also help control

The large inefficiencies in spending in many countries suggest there is much room to contain cost increases without compromising health.

growth in expenditures when coupled with increased responsibility, so that local governments bear the cost of health care inefficiencies or overruns. Canada and Sweden have combined extensive local government involvement with low-cost growth.

- **The use of market mechanisms** in the health care system—increasing patient choice of insurers, allowing greater competition between insurers and providers, and relying on more private services—can help reduce costs by improving the efficiency of the health care system. Germany and Japan score relatively high in this area and have enjoyed low spending growth in the past. Moving away from simple reimbursement of provider costs toward more sophisticated management and contracting systems that include built-in incentives for providers to minimize waste and improve services also enhances spending efficiency. Examples of such contracting reforms include payment for health services based on “diagnostic related groups,” which specify treatment protocols for a given set of medical conditions and provide an associated price schedule. These have been used with relative success in Germany and Italy.

- **Reforms that increase the share of costs borne by patients**, through either higher copayments or expanded private insurance, have also been successful in containing the growth of public health spending. Australia, Canada, and France rely heavily on private insurance for services not covered by the public package. In all countries, cost-sharing policies raise concerns about fairness and must be accompanied by measures to ensure that the poor and chronically ill retain access to basic health services.

- **Restricting the supply of health inputs or outputs**—for example, by rationing high-technology equipment—can, to some extent, reduce the growth of public health spending. Canada and France rely on such controls and are among the countries with low spending growth. But supplier responses can erode direct price controls on medical inputs or outputs (such as drugs or wages of health care providers): for

example, primary care providers may direct patients to more expensive hospital care in response to price or quantity controls. In practice, therefore, price controls have often proved ineffective in containing health care costs. And while giving users more information about the quality and price of particular health care services may increase the quality of medical services, it has not helped contain spending.

Potential impact

We used various techniques, including case studies and regression analysis, to examine the potential for health care reforms to contain rising costs. The case studies provide country-specific examples of successful reforms, and regression analysis helped quantify the impact.

Our analysis shows that such reforms could significantly reduce the fiscal burden of health care over the next 20 years (see Chart 3). We assume countries that now score below the mean on the health system characteristics that reduce spending—such as the use of budget caps—are raised to the mean. The results suggest that the introduction of market mechanisms can be powerful, yielding savings of about ½ percent of GDP. Improving public management and coordination can reduce spending by only a slightly lower amount. The analysis also underscores the importance of tighter budget controls and greater central oversight, which can reduce spending by ¼ percent of GDP. Finally, the simulated impacts of demand-side reforms, such as the use of cost sharing, are small but not negligible. The relative importance and desirability of each of these reforms will vary across countries, depending on their current health care system.

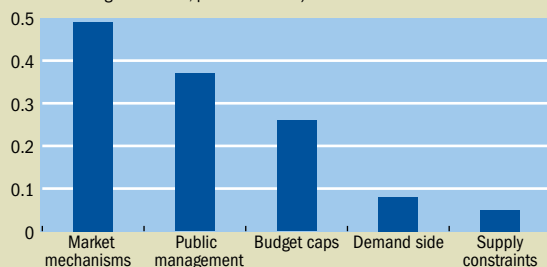
The impact on people's health will of course be an important consideration as policymakers grapple with the challenges of health care reform. Fortunately, most of the promising strategies we describe above can increase the health care system's responsiveness to patients' needs while taming spending. The large inefficiencies in spending in many countries suggest there is much room to contain cost increases without compromising health.

Chart 3

Taming the beast

Health care reforms could help offset projected expenditure increases.

(decrease in projected healthcare spending relative to baseline in 2030 as a result of given reform, percent of GDP)



Sources: OECD Health Database; and IMF staff estimates.
Note: Unweighted averages of the impact of reforms.

Health care reform requires continuous monitoring and refinement based on current data about the behavior of providers and patients, if costs are to be contained over the long term. Successful cost-cutting calls for continuous tweaking and reformulation of reform initiatives as players adapt to the new rules of the game and find ways around them. Reforms' effectiveness must be watched carefully to ensure that providers, insurers, and patients are responding as expected to cost-cutting incentives.

Complementary policies

Greater emphasis on preventive care could also help slow the growth of health care spending. Health is affected by factors other than public health spending, including individuals' income and personal habits. Governments can play an important role in promoting good health habits by encouraging people to stop smoking, use alcohol in moderation, eat better, exercise more, and drive carefully. Market mechanisms can also have an impact. For example, linking cost sharing or insurance premiums to obligatory regular check-ups can reinforce preventive care and help contain spending.

While the estimated impact of the proposed reforms is substantial, it may not be enough to stabilize ratios of public spending to GDP, especially in countries where large spending increases are projected. In that case, additional efforts (beyond a movement to the mean performance on these health system characteristics) would be needed to stabilize public spending ratios, including spending cuts in other, non-health-care, areas or increases in revenue.

Diverse challenges in emerging economies

Emerging economies, where average life expectancy is lower and infant mortality higher, face different public health spending challenges than advanced economies. Emerging economies can learn valuable lessons from the experience of advanced economies, and should aim to expand their health care systems while avoiding the inefficiencies and resulting high costs that plague many advanced economies.

In emerging Europe, spending is relatively high by emerging economy standards, because of nearly universal coverage and, as in advanced economies, a pattern of diseases that is expensive to treat (such as diabetes and heart disease). In most countries in emerging Europe, overall health is relatively poor compared with advanced economies, and funds to improve health are limited. These countries will need to rely more on efficiency-enhancing reforms to improve health outcomes.

Emerging economies in Asia and Latin America have less-extensive health coverage than emerging Europe, but more scope to expand spending. To ensure coverage for as many people as possible, at an affordable cost, public health systems should focus first on providing the most essential health services. There should be greater emphasis on preventive and primary care, which will require a change in financial incentives for health care providers. And governments should allocate a larger share of their health care spending to infectious disease control and better care in poor rural areas.

Some of the experiences of the advanced economies as they expanded health care coverage offer important lessons for emerging economies. In particular, Taiwan Province of China and Korea undertook important reforms to better align incentives for health providers, promote primary and preventive care, and improve public management and coordination. Taiwan Province of China, for example, introduced a fee-for-outcome program, with physicians receiving bonus payments based on clinical outcomes.

In emerging economies, expanding basic services to a broader segment of the population is the best recipe for improving health in a fiscally sustainable manner.

Social insurance systems can help contain the fiscal burden of health spending by linking eligibility for health benefits with contributions. But in many emerging economies there is a large informal labor market whose workers may not be making social insurance contributions. So if the goal is to expand coverage in emerging economies, tax-financed provision of universal basic health care (such as in Thailand) may be the best starting point.

Social insurance-based systems could be expanded in countries where the informal labor market figures less prominently and revenue administration is of high quality. Chile's experience suggests that health care financing can be sustained by a combination of mandatory contributions in the formal labor market, individual cost-sharing through copayments, and supplementary government budget financing (especially when subsidies are necessary and in the public interest).

Health care reform will continue to be a key fiscal policy challenge for policymakers in advanced and emerging economies alike. The lessons of the past suggest that a judicious mix of reforms can help contain spending growth in advanced economies while preserving equity and efficiency. In emerging economies, expanding basic services to a broader segment of the population is the best recipe for improving health in a fiscally sustainable manner. ■

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What Are Financial Services?

How consumers and businesses acquire financial goods such as loans and insurance

Irena Asmundson

IN the aftermath of the global crisis, there has been a call for tighter regulation of financial services. But what is a financial service?

Among the things money can buy, there is a distinction between a good (something tangible that lasts, whether for a long or short time) and a service (a task that someone performs for you). A financial service is not the financial good itself—say a mortgage loan to buy a house or a car insurance policy—but something that is best described as the process of acquiring the financial good. In other words, it involves the transaction required to obtain the financial good. The financial sector covers many different types of transactions in such areas as real estate, consumer finance, banking, and insurance. It also covers a broad spectrum of investment funding, including securities (see box).

But distinctions within the financial sector are not neat. For example, someone who works in the real estate industry, such as a mortgage broker, might provide a service by helping customers find a house loan with a maturity and interest rate structure that suits their circumstances. But those customers could also borrow on their credit cards or from a commercial bank. A commercial bank takes deposits from customers and lends out the money to generate higher returns than it pays for those deposits. An investment bank helps firms raise money. Insurance companies take in premiums from customers who buy policies against the risk that a covered event—such as an automobile accident or a house fire—will happen.

Intermediation

At its heart, the financial sector intermediates. It channels money from savers to borrowers, and it matches people who want to lower risk with those willing to take on that risk. People saving for retirement, for example, might benefit from intermediation. The higher the return future retirees earn on their money, the less they need to save to achieve their target retirement income and account for inflation. To earn that return requires lending to someone who will pay for the use of the money (interest). Lending and collecting payments are complicated and risky, and savers often don't have the expertise or time to do so. Finding an intermediary can be a better route.

Some savers deposit their savings in a commercial bank, one of the oldest types of financial service providers. A commercial bank takes in deposits from a variety of sources and pays interest to the depositors. The bank earns the money to pay that interest by lending to individuals or businesses. The loans could be to a person trying to buy a house, to a business making an investment or needing cash to meet a payroll, or to a government.

The bank provides a variety of services as part of its daily business. The service to depositors is the care the bank takes in gauging the appropriate interest rate to charge on loans and the assurance that deposits can be withdrawn at any time. The service to the mortgage borrower is the ability to buy a house and pay for it over time. The same goes for businesses and governments, which can go to the bank to meet any number of financial needs. The bank's payment for providing these services is the difference between the interest rates it charges for the loans and the amount it must pay depositors.

Another type of intermediation is insurance. People could save to cover unexpected expenses just as they save for retirement. But retirement is a more likely possibility than events such as sickness and auto accidents. People who want to cover such risks are generally better off buying an insurance policy that pays out in the event of a covered event. The insurance intermediary pools the payments (called premiums) of policy buyers and assumes the risk of paying those who get sick or have an accident from the premiums plus whatever money the company can earn by investing them.

Providers of financial services, then, help channel cash from savers to borrowers and redistribute risk. They can add value for the investor by aggregating savers' money, monitoring investments, and pooling risk to keep it manageable for individual members. In many cases the intermediation includes both risk and money. Banks, after all, take on the risk that borrowers won't repay, allowing depositors to shed that risk. By having lots of borrowers, they are not crippled if one or two don't pay. And insurance companies pool cash that is then used to pay policy holders whose risk is realized. People could handle many financial services themselves, but it can be more cost effective to pay someone else to do it.

Cost of services

How people pay for financial services can vary widely, and the costs are not always transparent. For relatively simple transactions, compensation can be on a flat-rate basis (say, \$100 in return for filing an application). Charges can also be fixed (\$20 an hour to process loan payments), based on a commission (say, 1 percent of the value of the mortgage sold), or based on profits (the difference between loan and deposit rates, for example). The incentives are different for each type of compensation, and whether they are appropriate depends on the situation.

Regulation

Financial services are crucial to the functioning of an economy. Without them, individuals with money to save might have trouble finding those who need to borrow, and vice versa. And without financial services, people would be so intent on saving to cover risk that they might not buy very many goods and services.

Moreover, even relatively simple financial goods can be complex, and there are often long lags between the purchase of a service and the date the provider has to deliver the service. The market for services depends a great deal on trust. Customers (both savers and borrowers) must have confidence in the advice and information they are receiving. For

What do they do?

These are some of the foremost among the myriad financial services.

Insurance and related services

- *Direct insurers* pool payments (premiums) from those seeking to cover risk and make payments to those who experience a covered personal or business-related event, such as an automobile accident or the sinking of a ship.

- *Reinsurers*, which can be companies or wealthy individuals, agree, for a price, to cover some of the risks assumed by a direct insurer.

- *Insurance intermediaries*, such as agencies and brokers, match up those seeking to pay to cover risk with those willing to assume it for a price.

Banks and other financial service providers

- *Accept deposits and repayable funds and make loans:* Providers pay those who give them money, which they in turn lend or invest with the goal of making a profit on the difference between what they pay depositors and the amount they receive from borrowers.

- *Administer payment systems:* Providers make it possible to transfer funds from payers to recipients and facilitate transactions and settlement of accounts through credit and debit cards, bank drafts such as checks, and electronic funds transfer.

- *Trade:* Providers help companies buy and sell securities, foreign exchange, and derivatives.

- *Issue securities:* Providers help borrowers raise funds by selling shares in businesses or issuing bonds.

- *Manage assets:* Providers offer advice or invest funds on behalf of clients, who pay for their expertise.

example, purchasers of life insurance count on the insurance company being around when they die. They expect there will be enough money to pay the designated beneficiaries and that the insurance company won't cheat the heirs.

The importance of financial services to the economy and the need to foster trust among providers and consumers are among the reasons governments oversee the provision of many financial services. This oversight involves licensing, regulation, and supervision, which vary by country. In the United States, there are a number of agencies—some state, some federal—that supervise and regulate different parts of the market. In the United Kingdom, the Financial Services Authority oversees the entire financial sector, from banks to insurance companies.

Financial sector supervisors enforce rules and license financial service providers. Supervision can include regular reporting and examination of accounts and providers, inspections, and investigation of complaints. It can also include enforcement of consumer protection laws, such as limits on credit card interest rates and checking account overdraft charges. However, the recent sudden growth in the financial sector, especially as a result of new financial instruments, can tax the ability of regulators and supervisors to rein in risk. Regulations and enforcement efforts cannot always prevent failures—regulations may not cover new activities, and wrongdoing sometimes escapes enforcement. Because of these failures, supervisors often have the authority to take over a financial institution when necessary.

The role of mortgage-backed securities in the recent crisis is an example of new financial instruments leading to unexpected consequences. In this case, financial firms looking for steady income streams bought mortgages from the originating banks and then allocated payments to various bonds, which paid according to the mortgages' underlying performance. Banks benefited by selling the mortgages in return for more cash to make additional loans, but because the loan makers did not keep the loans, their incentive to check borrowers' creditworthiness eroded. The mortgages were riskier than the financial firms that bought them anticipated, and the bonds did not pay as much as expected. Borrowers were more likely to default because of their lower income, which reduced the amount bondholders took in—both of which hurt gross domestic product growth. Mortgage-backed securities were initially intended to help mitigate risk (and could have done so under the right circumstances), but they ended up increasing it.

Productive uses

Financial services help put money to productive use. Instead of stashing money under their mattresses, consumers can give their savings to intermediaries who might invest them in the next great technology or allow someone to buy a house. The mechanisms that intermediate these flows can be complicated, and most countries rely on regulation to protect borrowers and lenders and help preserve the trust that underpins all financial services. ■

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Free Governments, Good Policies

Voter line in Transkei during South Africa's first post-apartheid election in 1994.

Paola Giuliano, Prachi Mishra, and Antonio Spilimbergo

Economic reforms may scare politicians, but democracy and economic liberalization generally go hand in hand

THE global financial crisis has underscored the need for countries to undertake structural reforms to increase income and make their economies more stable. By removing impediments to growth, properly implemented structural reforms—such as trade liberalization, privatization, and regulation of monopolies—increase potential output and in the long term benefit everybody.

Even so, structural reforms often affect powerful interests and can be difficult to implement. As Luxembourg Prime Minister Jean-Claude Juncker noted: “We all know what to do, but we don’t know how to get reelected once we have done it” (*The Economist*, 2007). Why is that the case? Are some institutional settings more conducive than others to reforms? Certainly one of the oldest, and still unanswered, questions in

economics and political science is whether political freedom is an essential ingredient—or an impediment—to structural reforms. There are good theoretical arguments and numerous examples to support all positions on this question.

Those who believe less democratic regimes are good for economic liberalization can cite the important reforms undertaken in Chile under the virtual dictatorship of Augusto Pinochet in the 1970s and ’80s and in South Korea under the autocratic rule of Park Chung-hee in the 1960s and ’70s. Many contemporary industrialized countries were not democracies when they took off. In east Asia, for example, a great deal of development took place under undemocratic regimes.

Theoretically, there are also compelling reasons autocratic regimes may favor economic reforms and growth. A fully demo-



cratic regime can fall prey to interest groups that put their goals before society's general well-being. Sometimes, capitalists entrenched in their rent-seeking positions are the main opponents of economic reforms. In a newly independent country, it may take a "benevolent dictator" to shelter institutions, prevent the government from falling captive to interest groups, and allow the state to function efficiently. In particular, interest groups can block reforms if there is uncertainty about the distribution of benefits (Fernandez and Rodrik, 1991). Democracy can also lead to excessive private and public consumption and insufficient investment (Huntington, 1968), whereas dictatorial regimes can increase the domestic saving rate through financial repression. Wages are typically higher under democracy (Rodrik, 1999). Several countries, including those of the former Soviet Union and many in east Asia, increased savings, and ultimately achieved high economic growth, thanks to a repressive political system and an attendant highly regulated financial system.

Do these historical examples and the theoretical arguments make a compelling case against democracy's role in economic reform? No. Strong theoretical arguments and solid empirical evidence support the contention that democracy often accompanies economic reforms. These are some of the theoretical arguments:

- Dictators' preferences can change over time. Because those preference changes cannot be constrained by law, dictators cannot credibly commit to reforms (McGuire and Olson, 1996).
- Autocratic rulers tend to be predatory, disrupting economic activity and making reform efforts meaningless.
- Autocratic regimes have an interest in postponing reforms and restricting rent-generating activities to their supporters. Democratic rulers, conversely, are generally more sensitive to the interests of the public and are more willing to implement reforms that break up monopolies in favor of the public interest.
- Secured property rights, as guaranteed by a democracy, are key to economic development.

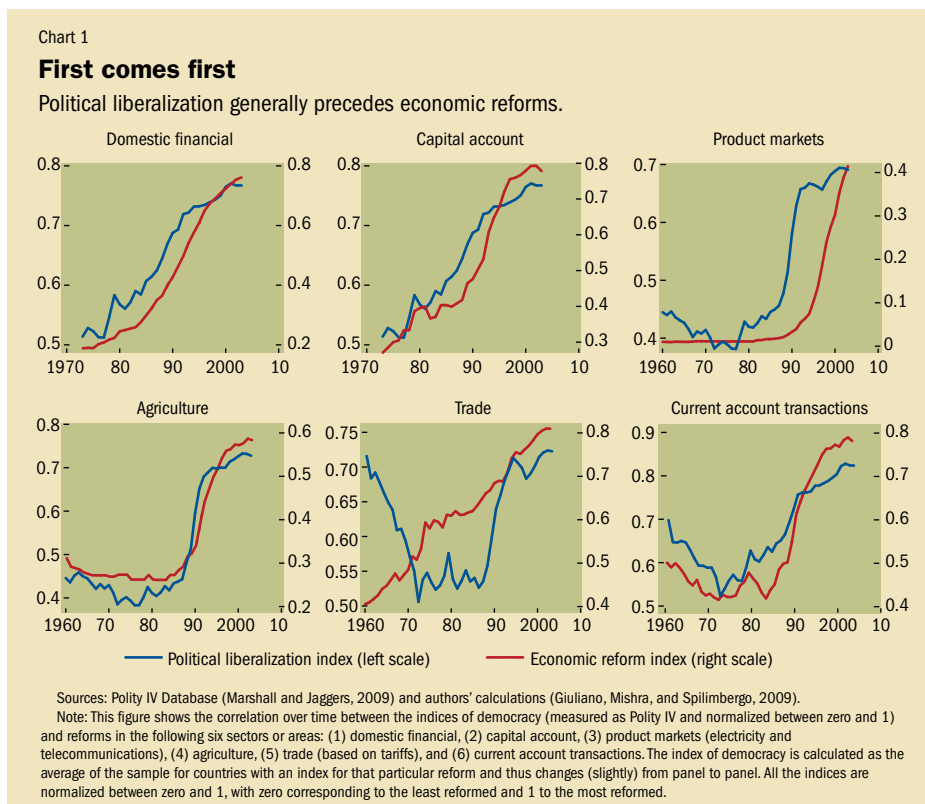
There is also much empirical evidence that reforms and democracy go hand in hand. The correlation between democracy and economic reforms is very strong both across time and countries. Chart 1 shows the correlation between indices of political freedom and indices of reform over time. The indices of political freedom are based on criteria established by the Polity IV database (Marshall

and Jagers, 2009)—with zero the most authoritarian and 1 the most democratic. Reforms are measured over time in six areas—domestic financial, capital account, product markets (electricity and telecommunications), agriculture, trade, and current account transactions (see box). Again, the index ranges from zero to 1, with zero corresponding to the least reformed and 1 to the most reformed. Reforms in all six areas show a strong correlation to democracy, with democracy usually preceding the deregulation process. Chart 2 shows this strong correlation for a cross section of countries.

The correlation between democracy and economic reforms is very strong.

Countries that are more democratic are also more reformed, but correlation does not indicate that democracy is necessarily the cause of economic reform. The relationship could be the other way around, or both democracy and economic reforms could be driven by a common third factor. The question of democracy's effect on economic reform is largely unanswered.

To determine whether democracy is the cause of reform, we used a novel data set that covers almost 150 countries and 6 sectors and spans more than 40 years (Giuliano, Mishra, and Spilimbergo, 2009). We found that improvement in democratic institutions (as measured by Polity IV) correlates significantly with the adoption of economic reforms. Moving from an autocratic regime to a complete democracy is associ-



The structural reform data set

Our analysis is based on a new and extensive data set, compiled by the IMF's Research Department that describes the degree of regulation in 150 industrial and developing countries (see Ostry, Prati, and Spilimbergo, 2009). Six reform indicators cover both the financial and real sectors. Financial sector indicators include reforms pertaining to domestic financial markets and the external capital account; real sector structural reform indicators include measures of product and agricultural markets, trade, and current account reforms. Each indicator contains subindices that summarize dimensions of the regulatory environment in each sector. The subindices are aggregated into indices and constructed so that all measures of reform fall between zero and 1, with higher values representing greater liberalization.

ated with a 25 percent increase in the index of reform. We also found no feedback effect—that is, economic liberalization does not spark political liberalization. This finding will disappoint those who believe that economic engagement with autocracies will spark political change.

How do we square the finding that democracy is good for reform with Juncker's observation that voters tend to punish politicians who implement reforms? It turns out that the evidence does not support Juncker's worries. Buti, Turrini, and van den Noord (2008) report that politicians who implement reforms do not lose subsequent elections, especially in countries with a high level of financial development. The same is true for the political consequences of large budget deficit

reductions. Alesina, Carloni, and Lecce (2010)—in a 1975–2008 sample of 19 Organization for Economic Cooperation and Development countries—find no evidence of governments systematically voted out of office after quick reductions of budget deficits.

The bottom line is that democracy is good for structural reforms, but the reverse is not true—economic liberalization introduced by autocracies does not cause a move to democracy. Moreover, there is no foundation for politicians' fear that voters will punish policymakers who implement financial sector reforms or reduce fiscal deficits. ■

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Chart 2

Marching in tandem

The more democratic the country, the more likely it is to be economically reformed.



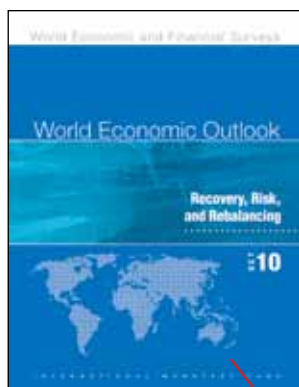
Sources: Polity IV Database (Marshall and Jagers, 2009) and authors' calculations (Giuliano, Mishra, and Spilimbergo, 2009).

Note: This chart shows the correlation in the year 2000 between indexes of democracy measured by the Polity IV database (0 is least democratic, 1 the most reformed) and indexes of economic reform (0 is the least reformed, 1 is the most reformed) in six economic sectors.

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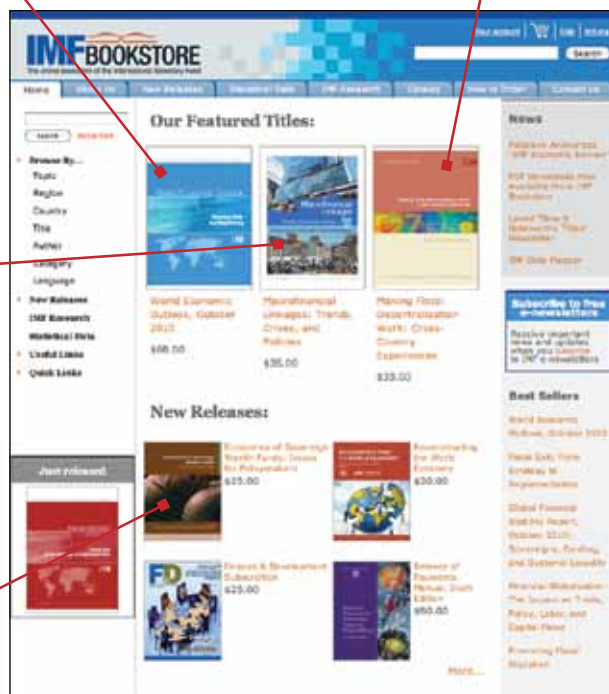
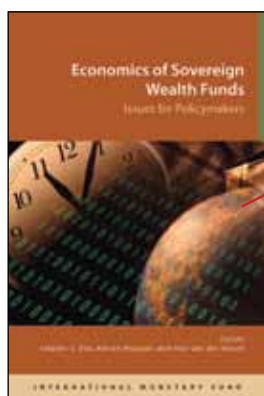
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Veterans of the System

Ideas for strengthening the international monetary system

A GROUP of former senior policymakers and global luminaries were intent on seeing something good rise from the ashes of the global financial crisis. The crisis was an opportunity to advance the reform agenda and, according to former IMF Managing Director Michel Camdessus, secure the international monetary system against similar future crises and distribute the potential benefits of globalization more equitably.

Together with Alexandre Lamfalussy and Tommaso Padoa-Schioppa (who passed away in late 2010), Camdessus convened the high-level group behind the Palais-Royal Initiative. Camdessus spoke to F&D about the group's report on reform of the international monetary system, which was released in February.

F&D: What is the idea of the Palais-Royal Initiative?

CAMDESSUS: The global financial crisis led those with some experience of international cooperation to think twice about what's going on and, in particular, to ask if and to what degree the international monetary system—or non-system—was the origin of the crisis. If so, the crisis could be an opportunity to put in place a system that is able to avoid a similar event in the future and ensure that the potential benefits of globalization become durable and more equitably distributed.

All these questions were in our minds. And, when I say “we,” I speak about many of the veterans of the system. We were excited to see that the Group of Twenty (G-20) had put reform



of the system back on its agenda this year, after having concentrated in the previous years on other aspects of the crisis.

The idea came to a few of us that we should put our experience of previous crises at the disposal of those who are now in charge. We decided to see if, together, we could come to a common understanding of the problem—the key weaknesses of the system and that it allows formidable imbalances to continue developing—and what could be done to establish more solidity, discipline in the system.

We established a group of 18 persons and distributed among ourselves the task of producing papers. We asked for informal support from the IMF, Bank for International Settlements (BIS), central banks, and others. We put all these papers on the table on the occasion of our meetings in the Palais Royal in Paris—for which the initiative is named—and we put in writing a set of proposals. I had the honor of bringing our initial report to the president of the G-20, [French] President Nicolas Sarkozy, on January 21.

The origin of this initiative is totally private. It does not commit any country: our credibility as individuals is the only thing at stake. We hope our report will be a source of inspiration and show that when you sit together—and here we have 15 countries represented in the group—in a real spirit of cooperation, then you can create the basis for more cooperative coordination of economic policies.

F&D: Why are the reforms already initiated—including by the G-20—not enough to address risks in the international monetary system?

CAMDESSUS: We value very much the work that has been developed so far, but we must go several extra miles if we want to be sure the system is made safer. There are still many risks that are not answered sufficiently by what has been done so far, and several ideas have been considered and, for the time being, rejected. As private individuals, we thought it would be worth revisiting a few of those ideas that have so far been left aside.

Box 1

Members of the Palais-Royal Initiative

The group was convened by Michel Camdessus, former IMF Managing Director; Alexandre Lamfalussy, former General Manager, Bank for International Settlements (BIS); and the late Tommaso Padoa-Schioppa, former Minister of Finance, Italy. Other members include Sergey Aleksashenko, former Deputy Governor, Central Bank of Russia; Hamad Al Sayari, former Governor, Saudi Arabian Monetary Agency; Jack T. Boorman, former senior IMF official; Andrew Crockett, former BIS General Manager; Guillermo de la Dehesa, former State Secretary of Economy and Finance, Spain; Arminio Fraga, former Governor, Central Bank of Brazil; Toyoo Gyohten, former Vice Finance Minister, Japan; Xiaolian Hu, Vice President of China Society of Finance and Banking; André Icard, former BIS Deputy General Manager; Horst Köhler, former IMF Managing Director; Guillermo Ortiz, former Governor, Banco de México; Maria Ramos, former Treasury Director General, South Africa; Y. Venugopal Reddy, former Governor, Reserve Bank of India; Edwin M. Truman, former Assistant Secretary, U.S. Treasury; and Paul A. Volcker, former U.S. Federal Reserve Board Chairman.

We don't want to see the world economy retreating into a fragmented economic system, vulnerable to protectionist pressures. We don't want the move toward an open and competitive global market to be at risk as it is now. We also know that the years immediately following a crisis are fraught with dangers. The comprehensive measures adopted by the G-20 will deliver positive effects only after several years due to the inevitable delays in implementation.

And you have other risks. The strong, but resistible, temptation to return to business as usual. We see it in the banking industry, but also in international institutions. There is also the risk that the changes adopted are too small and too late, leaving the system vulnerable to unexpected crises and not allowing globalization to deliver all its potential and positive contribution to a better world.

Nobody believes that these risks would gently disappear by muddling through. Without completing bold changes, this could leave us with a more unstable world. So we cannot rest on our laurels.

F&D: Why might the recommended IMF reforms—including some that have been suggested in the past—have more traction today?

CAMDESSUS: The question is whether they are necessary or not. Not to have adopted them has contributed at least partly to the mess in which we are. We were wrong in postponing these changes or to water down many suggestions. Now we know what has been the cost of procrastination and hesitations. Now it's time for change. Now or never.

F&D: What IMF reforms should have the highest priority?

CAMDESSUS: It is a package of measures. You cannot say, "Here you have something which is important, let's do that

and then we'll see." No. A bold overhaul of the system is needed. We must recognize that the IMF has new and powerful partners emerging who will want full-fledged responsibilities in the system.

We need a much broader scope of surveillance by the IMF, not only the current account and monetary dimensions, but the full monetary and financial sphere. The ultimate goal is to have better surveillance and more efficient prevention of crises, and an IMF with stronger instruments for doing its job. In that regard, we propose new obligations for IMF member countries, and that is described in full detail in the report.

I believe that it's time now—it should have been done earlier—to merge the G-20 ministers of finance and the IMFC [International Monetary and Financial Committee] within the Council as is provided for in the IMF's Articles of Agreement.

All these reforms must go hand in hand and be adopted soon. The next crisis may not be far away if we don't move.

F&D: How would the proposed new global governance structure change the system?

CAMDESSUS: Well, I don't see many changes. First, creation of the Council, as I mentioned earlier, is long overdue. Second, we suggest that the G-20 organize itself with a system of constituencies. This would allow each country to be actively part of the system, to be consulted prior to meetings, and to receive direct reports from members of the G-20 about the decision-taking at the supreme level.

F&D: You suggest an expanded role for the IMF's Special Drawing Right (SDR). What was the group's thinking?

CAMDESSUS: It's interesting to observe that this group, which has taken very diverse positions in the past on the future of the SDR, recognizes that it has demonstrated it could be a useful instrument—even more useful in the next few years and, possibly, even more important in a longer-term perspective. You could see a kind of revival of the SDR if you give the IMF a status akin to lender of last resort.

F&D: The report calls for improved measurement and monitoring of changes in global liquidity. How can this be done in a way that will stand the test of time?

CAMDESSUS: I believe this should have been done earlier, and I regret not taking the initiative when I was in the IMF. The tradition was that there was a distribution of tasks between the BIS and IMF; as the issue has become so central, we only suggest that the IMF and BIS work closely together to this end. We are certain that what these two institutions will do jointly will stand the test of time.

Now, we must have proper surveillance of global liquidity. IMF and BIS staff will have to work together to define properly what we are talking about—which definition of liquidity we must adopt, what kind of data we must collect, and then how to analyze the data. Together they must track much more closely developments in the global economy and be able to play the alert role, which is indispensable. ■

Box 2

Key suggestions in the report

The Palais-Royal Initiative's more detailed February report included 18 suggestions, with several focusing on surveillance and cooperation and governance of the international monetary system.

On *surveillance and cooperation*, the IMF should develop and adopt "norms" for members' policies, including globally consistent exchange rate norms. Persistent breaches of a norm or norms would trigger a consultation and, if needed, remedial action. For systemically important countries whose policies do not appear to meet the norms, compliance should be assessed by a relevant body within the IMF. Each country would be expected to refrain from policies that push or keep its exchange rate away from its norm. Macroprudential policies in systemically relevant economies should take into account the need for broadly appropriate global liquidity conditions.

Governance of the international monetary system should be based on a single three-level structure, with all countries represented through a system of constituencies. This could include a global advisory committee of eminent independent individuals.

Playing Catch-up



Michael Spence

The Next Convergence

The Future of Economic Growth in a Multispeed World

Farrar, Straus & Giroux, New York, May 2011, 320 pp., \$27.00 (paper).

We may be standing on the hinges of economic history. If so, we will be witnesses to an extraordinary event,

one that has happened only twice since the beginning of mankind. For thousands of years, living standards displayed no truly long-term trends, nor any great variation from country to country. Then, in the 1700s, came the first sudden swing in the course of economic history. The Industrial Revolution propelled a remarkable and sustained rise in living standards, first in Britain, then elsewhere. But this transformation occurred only in a few places, essentially in Europe, nations of European descent, and Japan. The rest of the world, more than four-fifths of humanity, remained mired in the agricultural past. By 1950, the world was a profoundly unequal place.

Then the course of history suddenly swung again. After 1950, some countries, mainly in Asia, that had been lagging behind started growing at unprecedented rates, about 7 percent per year, enabling them to start closing the gap with the advanced economies.

More recently, the two most populous countries—China and India—began to grow at rates close to 10 percent. If these trends continue, we will witness, in our lifetimes, a third historical swing: a renewed convergence of living standards. What was once the privilege of a favored few will become commonplace for many. This potentially epochal process is the subject of Michael Spence's remarkable new book, *The Next Convergence*.

The basic arithmetic behind convergence is simple. It is known as the rule of 72. This rule says that you can calculate the number of years it will take to double living standards by dividing 72 by the average growth rate. So if a country is growing at 10 percent, its standard of living will double in about 7 years. This means that if a country starts off with per capita income of \$500, and grows by about 10 percent a year, incomes can reach \$16,000 in just about 35 years. A few years after that,

Easy Money

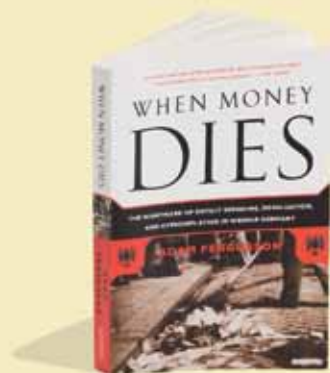
Adam Ferguson

When Money Dies

The Nightmare of Deficit Spending, Devaluation, and Hyperinflation in Weimar Germany

PublicAffairs, New York, 2010, 288 pp., \$14.95 (paper)

When *Money Dies* is not a new book, but a reprint. Although it first appeared in the United Kingdom in 1975, it has only recently been published in the United States. This relatively obscure volume achieved something of a cult status among financiers after reports that Warren Buffett, the billionaire investor, advised a Dutch financier to read the book as an illustration of what could happen today if European governments attempted to spend their way out of the downturn. Whether the exchange between the two men really took place or not, the rumor helped push the asking price of secondhand copies of the



book over \$1,000. A U.S. publisher responded by rushing out a paperback version.

So the book has now gained a degree of topicality as governments use “quantitative easing” as a tool to stimulate the economy following the recent financial crises. It recounts the dire effects of hyperinflation in Germany in the early 1920s when the German central bank—the Reichsbank—financed the public deficit by simply printing more money. This, despite the fact that the country had already experienced one

bout of inflation after World War I.

The author, Adam Ferguson—a one-time advisor to U.K. Chancellor of the Exchequer, or Finance Minister, Geoffrey Howe—writes powerfully of the corrosive effect of inflation as he describes the seeds of the hyperinflation that would grip Germany following World War I.

“Inflation aggravated every evil, ruined every chance of national revival or individual success, and eventually produced precisely the conditions in which extremists of Right and Left could raise the mob against the State, set class against class, race against race, family against family, husband against wife, trade against trade, town against country. It undermined national resolution when simple want or need might have bolstered it. Partly because of its unfairly discriminatory nature, it brought out the worst in everybody—industrialist and worker, farmer and peasant, banker and shopkeeper, politician and civil servant, housewife, soldier, merchant, trades-

incomes will be at advanced economy levels. Provided, of course, the country continues to grow at the same pace.

In fact, that proviso is a big one. For growth is a mysterious process. Only 13 countries have managed to grow at even 7 percent on average for a 25-year period. And of those lucky

Growth is a mysterious process [and] catch-up is far from inevitable.

13, only half have continued on to advanced economy levels. In other words, catch-up is far from inevitable.

For that reason, Spence eschews speculation about what a converged world would look like. Instead, he focuses on a more practical matter: what countries need to do to get there.

What are the keys to success? No one truly knows. But economists have some ideas—particularly, Spence. Not only is he a Nobel laureate, but he has thought long and hard about these issues in his capacity as Chairman of the Commission on Growth and Development, launched in part by the World Bank. The current book is the fruit of those years of research and thinking.

Spence argues that poor countries grow through two primary mechanisms. First, they acquire knowledge from rich countries. Second, they specialize in producing goods that are demanded by other countries, so that they can sidestep limited domestic purchasing power and the divergence between what locals demand and what the country is good at producing. Put simply, success requires that countries educate their populations and integrate into the global economy.

Spence makes one further key point. Too many countries, he points

out, find a successful formula, such as labor-intensive exports, and then try to stick with it, most notably by preventing their exchange rates from appreciating. But sustained growth requires structural change, with labor-intensive manufacturing giving way to advanced manufacturing and services as skills and income rise.

The Next Convergence considers a range of such issues, including the structural problems of China and India and doubts about appropriate economic models in the wake of the 2008 global crisis. In all of these cases, Spence explains complex issues in remarkably clear and concise language. His concision and range occasionally come at the expense of the richness and variety of growth experiences. But you will not find a better introduction to today's most critical global economic debates.

Josh Felman
Assistant Director
IMF Research Department

man, miner, moneylender, pensioner, doctor, trade union leader, student, tourist—especially the tourist.”

Despite the burden of war reparations, in the face of opposition from increasingly powerful right-wing political parties in the country, the government of the Weimar Republic—established in 1919—dared not raise taxes against heavy industry and other manufacturers who had profited from the war. As a result, in Germany, only 14 percent of war expenditure was financed by taxes compared with 30 percent in Great Britain. The rest was financed by loans or directly by the Reichsbank.

As a consequence, the Weimar Republic inherited an enormous public debt on which it was forced to pay high rates and huge amounts of interest. Despite other difficulties and obligations, the Weimar Republic continued to finance a part of its annual deficits directly with the help of the Reichsbank. German inflation then ran out of control completely when French

troops occupied the “Ruhrgebiet” region. A general strike ensued and the German government responded by agreeing to pay the salaries of the workers. Without any understanding of the consequences, the Reichsbank’s president decided to finance this commitment by allowing the Reichsbank to print all the paper money “needed” by the enterprises and the people. Inflation rapidly led to hyperinflation, accompanied by a massive devaluation of the Reichsmark and astronomical rises in the price of goods.

The author draws on first-hand accounts to describe the devastating affects of the ever-deeper economic spiral and its social impact: “Frau von Pustau explained that one house was sold because the couple living there had had both sons killed in the war, had no one to care for them, had had their life savings devalued, and so had gassed themselves. ‘Our times,’ she went on, ‘made us cynical.’”

Fergusson’s book depicts the desperation and helplessness felt by large

swathes of the population and the difficult political situation in Germany that drove the Reichsbank’s decisions, but the author fails to discuss in any detail the relationship between inflation and the devaluation of the Reichsmark. Nor does he offer any theoretical explanation for the traumatic events that took place in Germany, including the conditions under which the printing of money leads to high, accelerating, or hyper-inflation.

The book contains many data references, but there are no tables or figures to back up these facts and so readers are likely to find it difficult to fill in this gap for themselves. Also missing is any weighing of the pros and cons of moderate inflation against the available alternatives. It is a powerful historical account, but the book is of limited use in helping us draw lessons for our current situation.

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The Trials of Counterfeiting a Cow

Ben Tarnoff

Moneymakers

The Wicked Lives and Surprising Adventures of Three Notorious Counterfeiters

The Penguin Press, New York, 2011, 370 pp., \$27.95 (cloth).

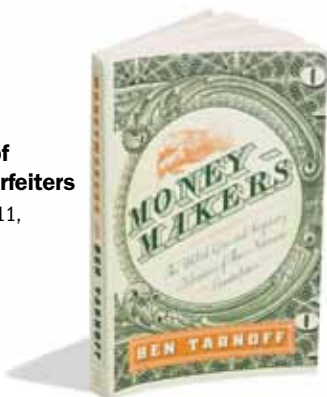
Sometime later this spring, those lucky enough to have fairly well

furnished wallets will start to acquire from their ATMs or their paymasters a brand-new kind of hundred dollar bill. These new notes had initially been due to enter circulation in February, but so complex is their design; so sophisticated their dog's breakfast of watermarks, metal strips, and color-changing intaglios; and so unpredictable the behavior of the paper on which everything is printed (test versions apparently creased badly under the harsh impress of the printing rollers) that it will now be several more weeks before our pockets and billfolds are graced with them.

The U.S. government has said sorry, but has intimated that all should in fact have faith in the delay, since if those in Washington find these new bills so agonizingly tricky to print, then surely the legions of fakers out there will find them even more difficult to forge.

And such, of course, is the eternally expressed hope of the Fed and other central banks: that our worldwide system of money, fashioned only from inherently valueless pieces of paper, doesn't utterly collapse because of the ceaseless efforts of the equally worldwide community of counterfeiters.

Such a risk has been recognized for 300 years and more—maybe longer, since it was the Chinese, inevitably, who first used paper money well over a thousand years ago. We in the stripling West have employed notes of exchange—worthless in themselves, but ultimately backed by an all-too-fragile public faith—for only a mod-



est three centuries (the Swedes being the first, in the late 1660s). Until then, the entities we used generally possessed inherent value, and fakery of them was both well-nigh impossible and ultimately pointless. For who would ever wish to try to fake a cow (the word “pecuniary,” with its roots in the Latin word for cattle, tells of a time when cows were indeed negotiable instruments, in Italy), or copy a camel or a cowrie shell, or forge a woodpecker scalp or a brick of tea—or even an ingot of gold, if perhaps by the magic of alchemy? All manner of things of value have been employed as mediums of exchange, and though most of them have proved inconvenient to trade or store or lug about, they did, by and large, have the signal advantage of being exceptionally difficult to copy.

Not so with paper, though. Everything changed in the Americas once the Massachusetts Bay Colony began to print its own money in the late 1690s—for, as Ben Tarnoff makes clear in this most entertaining romp through the anarchic monetary universe of early America, within moments of the first appearance of printed bills, entrepreneurs with an abundance of artistic ability, a moiety of cunning and chutzpah, and a willingness to take the considerable risk of jail, exile, or death began copying or forging them as a means to easy riches.

Tarnoff first came across the three counterfeiters on which he has chosen to focus two years ago, while he was working on the “Money” issue of the admirable new journal *Lapham's Quarterly*. They were the relatively obscure pair of Owen Sullivan in colonial New England and David Lewis in early 19th century Pennsylvania, and the heroically infamous patriot Samuel Upham, who forged Confederate bills from his perfume shop in downtown

Philadelphia. Tarnoff tells each of their stories with clarity and brio—stories of printing presses hidden in caves, of gunfights in darkened bars, of posse chases through mountain ranges and across snow-covered cornfields. There are tales of embezzlement, derring-do, and chicanery on the one hand and, on the other, fascinating accounts of the growing authority and acumen of those bank agents and the Secret Service investigators who then tried, and usually ultimately succeeded, in tracking the miscreants down.

But there is a great deal more. Besides also explaining very well the philosophical complexities behind the meaning of value in money—making his book as instructive as it is entertaining—Tarnoff turns out also to be a past master of the diverting tangent and brilliantly adept at creating atmosphere and suspense. One can almost see the screenplay here, can feel the hot breath of the interest from such as the Coen brothers, can imagine just who (Steve Buscemi? Jeff Bridges?) might most suitably play the villains.

For in truth, all three of his men turn out to be the most amiable of rogues, to be somewhat lovable Robin Hoods—the kinds of figures who, even two centuries on, win our sympathy. After all, they were merely trying to hoodwink the very bankers who have been hoodwinking the rest of us for far too long.

Given our current view of the financial community, the publication of Tarnoff's most amusing book could scarcely have been better timed. And so, when Washington has solved its printing problems, it is probably well worth handing over one of these fancy new one hundred dollar bills for a copy of the book. Take good care, however, to examine very closely the quality of the paper money that you are handed back in change. It has no worth. It could also—if you appreciate the difference—turn out to be quite worthless.

Simon Winchester

Author of several books, including Atlantic and the forthcoming The Alice Behind Wonderland

Branching Out



Access to basic financial services in low-income countries is growing

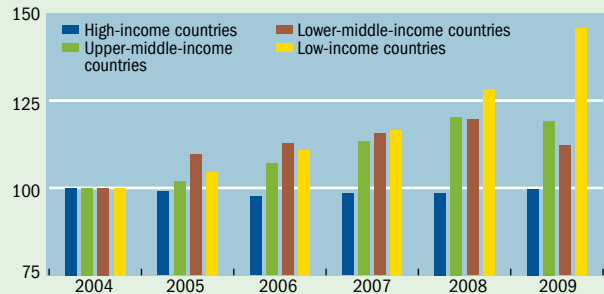
THE vast majority of the adult population in advanced economies has access to basic financial services—deposit accounts via bank branches and automated teller machines (ATMs). In contrast, the availability of such financial services in developing economies (that is, low-income, lower-middle-income, and upper-middle-income countries) is much more limited. This more limited access to financial services impedes economic growth and development. However, over the past five years financial services have been expanding in the developing world.

According to the IMF’s new Financial Access Survey, as of 2009, high-income countries had an average of 85 ATMs and 45 bank branches per 100,000 adults, compared with an average of just 3 ATMs and 6 bank branches per 100,000 adults in low-income countries. Although the gap remains large, the survey shows that access to financial services in developing countries is making strong and steady progress.

middle-income countries outpaced that of brick-and-mortar branches from 2004 to 2009. This trend illustrates the shift in technological changes that allow increased access to financial services at low cost.

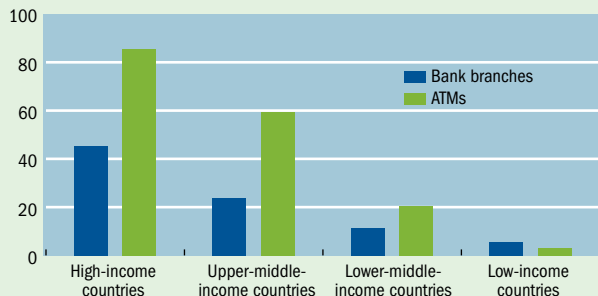
In recent years, the number of brick-and-mortar bank branches in low-income countries has risen.

(Bank branches per 100,000 adults, cumulative growth, 2004=100)



The financial access gap between the developing world and the developed world remains large.

(Number per 100,000 adults, 2009)

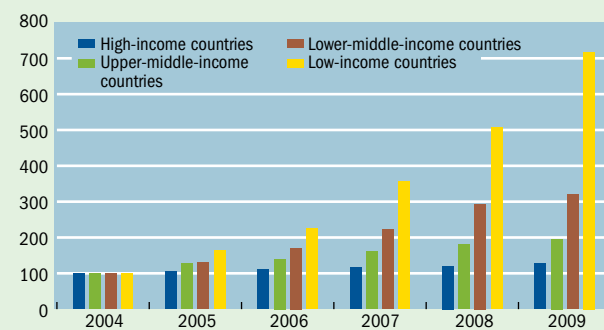


In low-income countries, the average number of bank branches per 100,000 adults increased by about 45 percent between 2004 and 2009; over the same period, bank branches in advanced economies experienced minimal growth. Furthermore, the average number of ATMs per 100,000 adults in low-income countries grew sevenfold between 2004 and 2009, whereas in high-income countries the number increased by about 28 percent during this period.

Given the low access levels in developing countries, each new ATM or bank branch has a strong impact. Technological advances have played a big role in these developments. The numbers show that the growth rate of ATMs in low- and

The availability of ATMs in low-income countries has increased significantly, outpacing that of bank branches.

(ATMs per 100,000 adults, cumulative growth, 2004=100)



About the database

The data are from the IMF’s Financial Access Survey, which was launched June 30, 2010. The survey collects annual data on access to basic consumer financial services for 138 countries from 2004 to 2009, including the number of depositors and borrowers, the volume of outstanding deposits and loans, and other related indicators. The database is available at fas.imf.org and will be updated June 30, 2011, with the results of the 2011 survey.

Prepared by Atsushi Oshima and James A. Chan of the IMF’s Statistics Department.

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