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Research Summaries

Growth and Structural Reforms

Lone E. Christiansen[1]

As the recovery from the financial crisis firms up, many country authorities will turn their focus from short-term stabilization policies to more structural policies to spur long-term potential growth. This leads to the following questions: Which reforms have the largest and most sustained growth impact? Does the sequencing of reforms matter? This article summarizes recent research on the link between structural reforms and growth, with a particular focus on a paper by Christiansen, Schindler, and Tressel (2009) that examines the joint growth effects of reforms.

The global financial crisis has affected growth in countries of all income levels and has led to substantial output losses that in many cases could be permanent. Even output growth may for some countries remain below pre-crisis growth rates for an extended period of time. As policymakers start to exit from crisis policies,

[1]The author thanks Martin Schindler and Thierry Tressel for helpful comments on this summary article.

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Monetary Policy and Asset Prices

Pau Rabanal

In a highly influential paper, Bernanke and Gertler (1999) started the debate on how monetary policy should react to asset price fluctuations. A decade and two recessions later, it is a good time to take stock of the recent empirical and theoretical advances on this debate. This article discusses three questions: first, what is the evidence on the effects of asset prices (including housing prices) on the macro economy? Second, how can monetary policy mitigate the effects of asset prices fluctuations? And third, what other policy options can be used to prevent and exit a financial and banking crisis like the one suffered during 2007–09.

Policymakers should be concerned about asset price fluctuations because of the effect they have on general macroeconomic goals such as sustainable growth, employment, inflation, and, hence, welfare. Maintaining financial stability is also important because it is a necessary condition for stable growth and job creation. There are several channels through which asset prices affect these variables. First, a rise in asset prices also increases households' financial wealth and a fraction of those capital gains are spent on consumption. A conventional estimate of the wealth effect is that an increase in wealth of $1 leads to an increase in consumption of 5 cents (Lettau and Ludvigson, 2004).

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Growth and Structural Refoms

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structural reforms will come back to the forefront of policy priorities with the purpose of supporting potential output growth and tackling factors that caused the crisis. The large existing and expanding literature that has examined the growth effects of structural reforms, the channels through which structural reforms may promote growth, and the optimal reform sequencing can provide guidance to policy makers on how to design such structural reforms.

Recently, substantial efforts have been put into collecting and creating new datasets of structural reforms in various policy areas. Examples include measures of financial reforms (Abiad and Mody, 2005; Tressel and Detragiache, 2008; Abiad, Detragiache, and Tressel, 2009), capital account reforms (Quinn, 1997; Schindler, 2009), and trade reforms (Sachs and Warner, 1995; Ostry, Prati, and Spilimbergo, 2009). These reform indicators capture a wide array of policy choices. For example, IMF domestic financial reform indicators document the timing of the liberalization of interest rates, the removal of restrictions on aggregate credit and credit allocation, competition policies in banking, reforms to improve the quality of bank supervision and regulation, and policies to liberalize and stimulate the development of securities markets. Other reform indicators focus on cross-border transactions. Examples include capital account reforms that relate to capital transactions of residents and nonresidents, and the use of multiple exchange rates.

The new datasets have provided valuable insights into reform efforts that were undertaken both across countries and over time. As countries reformed their economic systems, domestic financial, capital account, trade, and product market reform indicators have shown an increasing degree of liberalization in all regions and income groups. Low-income and developing countries have substantially reduced the gap with industrialized countries in terms of financial and product market liberalization (Ostry, Prati, and Spilimbergo, 2009).

These new datasets have provided the time and cross-country variation needed to identify the growth effects of domestic financial and capital account reforms. Domestic financial reforms have improved macroeconomic stability by leading to greater resilience to adverse terms of trade and interest rate shocks (Ostry, Prati, and Spilimbergo, 2009). They have also led to a deepening of domestic financial systems in many countries (Tressel and Detragiache, 2008)—a beneficial outcome considering that a higher initial level of financial development has been shown to be positively associated with economic growth (Levine, Loayza, and Beck, 2000; Aghion, Howitt, and Mayer-Foulkes, 2005). Moreover, financial liberalization may lead to a more efficient allocation of capital across firms and industries (Abiad, Oomes, and Ueda, 2008; Tressel, 2008). Capital account liberalization has widened the scope for financial globalization and increased cross-border capital flows (Binici, Hutchison, and Schindler, forthcoming). This has increased the potential for increased access to, and a more efficient allocation of, capital and foreign direct investment, but it has also allowed for more sudden capital flights. In addition, capital inflows may result in real exchange rate appreciation with potential adverse effects on growth, and liberalization of capital account restrictions on residents may have different growth effects than those from removing restrictions on nonresidents. At the same time, meeting institutional thresholds are likely important for reaping the positive effects from capital account liberalization (Dell'Ariccia and others, 2008).

While most studies have focused on examining the effect of one reform at a time, Christiansen, Schindler, and Tressel (2009) employ a large dataset that encompasses a long time series as well as a wide cross-country dimension to examine the joint growth effects of reforms.[2] The study includes de jure indicators of financial, trade, and capital account reforms and finds that, among the three areas of reforms, the former is most robustly associated with significant growth effects, and these effects are significant mainly in middle-income countries. Specifically, transition countries have seen very significant growth effects of domestic financial liberalization, while trade reforms may be important for high-income countries. The paper does not find positive growth effects from capital account reforms, but shows that reversals of capital account reforms may deter growth.

Through which channels do reforms spur growth? Christiansen, Schindler, and Tressel (2009) also examine the association between liberalization and aggregate investment and total factor productivity (TFP) growth. In middle- and low-income countries, domestic financial liberalization leads to higher TFP growth, while positive effects on investment are less robust. Hence, the positive growth effects from domestic financial reforms occur through improvements in measured aggregate TFP growth. Furthermore, this finding is

[2]The work on structural reforms in Christiansen, Schindler, and Tressel (2009) was initiated as part of a project on growth and structural reforms in the IMF's Research Department, guided by the late Alessandro Prati. The authors are indebted to him for his encouragement and numerous suggestions on the project.

independent of the available volume of credit in the banking system; hence it is consistent with the hypothesis that financial reforms improve the allocation of credit.

Are the benefits from reforms permanent? To assess whether there are lasting effects of reforms, Christiansen, Schindler, and Tressel (2009) define reform episodes as periods in which there is a positive change in the reform indicator and identify nonlinear effects of reforms by examining the effects of large reforms, defined as an increase in the liberalization variable of more than one standard deviation of the change in the liberalization index. The results point to higher growth for up to six years but insignificant effects at longer horizons. For middle-income countries, domestic financial reforms increase growth by an average 1.2 to 1.4 percentage points at the three- to six-year horizon, but have only level effects in the long run. In addition, positive growth effects from large financial reforms suggest the presence of nonlinearities in the effects of reforms. Although trade reforms are found to have significant and positive effects on growth, lasting up to six years, significant coefficients on the lead of trade reforms—that is, increased growth taking place before trade reforms are initiated—suggest that the positive coefficients on trade reforms may be in part the result of either reverse causality or anticipatory effects. For example, the knowledge that implementation of a large reform will occur may attract investors and thereby lead to stronger growth even before the reform is implemented. Indeed, the paper finds that trade reforms are preceded by faster TFP growth and investment.

Does the sequencing of reforms matter? The sequencing of reforms can be very important for reaping their full benefits, and the institutional environment in particular—including political institutions and the protection of property rights—is likely to influence the effectiveness of economic reforms. Correspondingly, Christiansen, Schindler, and Tressel (2009) find that well-developed property rights are important for reaping the benefits of structural reforms. Specifically, countries with well-developed property rights tend to have positive growth effects of financial and trade reforms at a six-year horizon, while this is not the case for countries with poorly developed property rights. Such complementarity of reforms can help explain the heterogeneity of growth effects of financial and trade reforms among developing countries.

In sum, the existing literature suggests that reforms can have positive growth effects. While the work of Christiansen, Schindler, and Tressel (2009) confirms this, it also suggests that to fully understand and identify the effects of structural reforms, it is necessary to explore the joint effects of reforms in various areas as well as their sequencing. In addition, the finding that the positive effects of reforms are mainly driven by middle-income countries points to the need for further work exploring potential differential effects of various reforms among different income groups.

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Monetary Policy and Asset Prices

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A second channel through which asset prices affect spending is through the relaxation of credit constraints. The relationship between asset prices and borrowing constraints at the firm level is at the core of Bernanke and Gertler's (1999) "financial accelerator" model: increased asset prices improve the balance sheet of firms and reduce their probability of default, thereby reducing risk premia and the cost of external funds. On the household side, increased house prices allow homeowners to borrow against the value of their housing collateral, and hence increase consumption in other goods. Due to the large boom-bust cycles in housing prices that many advanced countries have experienced in the 2000s, and to the increased importance of financial products that allow for mortgage equity withdrawal, this effect has attracted a lot of attention in the recent literature (Mian and Sufi, forthcoming). The impact of house price fluctuations on credit constraints has also been examined using the latest generation of dynamic stochastic general equilibrium (DGSE) models (Iacoviello and Neri, forthcoming; Notarpietro and Darracq-Parriès, 2009).

Last but not least, the most important consequence of declining asset and house prices during the 2007–09 financial crisis was to impair the capability of the financial sector to effectively provide funds to the rest of the economy. As Adrian and Shin (2008) point out, the importance of broker-dealers with respect to the traditional banking system increased in recent years. As a result, the stock of home mortgages in the United States is now dominated by the holdings in market-based institutions, rather than traditional banks' balance sheets. The effect of the decline of asset and house prices on financial institutions' balance sheets leads to a negative feedback loop between deleveraging, tightened financial conditions, freezing of credit markets, output losses, and further asset price deflation.

Bernanke and Gertler (1999) asserted that monetary policy should not respond to asset price fluctuations, but rather respond only to the consequences of asset price fluctuations on inflation and output. The main argument was that it was difficult to distinguish a speculative bubble from a productivity shock in the initial stages, as they both lead to high growth and increased asset prices. Given this uncertainty it is therefore better to not "lean against the wind." If it turns out that asset prices were driven by a bubble, then the central bank should "clean up the mess" when the bubble bursts. Another argument is that, in order to be able to burst a bubble, the central bank would have to raise interest rates to a level that could be seriously destabilizing for the rest of the economy (Buiter, 2009).

Recent research has suggested that it is possible to improve welfare by including asset price fluctuations or indicators of financial vulnerability in the monetary policy rule. The IMF (2009) and Kannan, Rabanal, and Scott (2009) have examined the role of reacting to excessive credit growth in a model where housing collateral alleviates credit constraints. They find that reacting to nominal credit growth in the Taylor rule improves welfare when the economy is facing a relaxation of credit standards, but that under productivity shocks a standard Taylor rule performs well. Christiano and others (2007) have also found policy improvements in a large- scale DSGE model when the Taylor rule targets nominal credit growth. Introducing credit spreads in the monetary policy rule can help alleviate the effects of tightening conditions in financial markets (Cúrdia and Woodford, 2009).

However, using the benchmark rate of the central bank as a tool to also address financial sector imbalances might be asking too much from monetary policy. Other proposals suggest that monetary policy should be used to just stabilize inflation and output fluctuations, and that regulatory or macroprudential policy should address vulnerabilities in the financial sector. The IMF (2009) examines the role of a macroprudential instrument that allows regulators to affect conditions in the credit markets. Other proposals for macroprudential policy include Gruss and Sgherri (2009), who assume that the regulatory agency can directly affect the loan-to-value ratio and hence counteract the effects of an asset price boom. However, it remains an open question as to how effective these measures are from a quantitative point of view. For example, Spain's banks operate under dynamic provisioning rules, but this did not prevent the Spanish economy from going through a large, credit-fueled, boom-bust cycle in housing prices (Aspachs-Bracons and Rabanal, 2008).

Finally, given the severity of the recent crisis, other papers have looked at policy options when financial activity freezes completely and the economy is trapped in a downward spiral of declining asset prices, sharp deterioration of key financial intermediaries' balance sheets, credit freezes, and widespread panic (a situation that Caballero, forthcoming, calls a "sudden financial arrest"). Within a DSGE modeling framework, Gertler and Karadi (2009) have proposed that the central bank act as an intermediary by lending directly to investors in periods of financial distress when the balance sheet of financial intermediaries is impaired by low asset values. They also show that this type of policy conducted by the central bank is even more powerful when interest rates are at zero, as is currently the case in the United States and Japan.

Bebchuk and Goldstein (2009) note that the recent banking crisis was not a bank run by depositors, but rather a run

by commercial banks on investment projects, despite the injection of massive liquidity into the system. In order to get the economy out of such a credit freeze, the policy options are as follows, in increasing order of effectiveness: lower interest rates, capital injections to banks, direct lending to firms by the government, and finally, the use of government funds to finance investments, but channeled through private firms. The last option is the best one, since it takes advantage of the private sector's expertise in screening the quality of the projects and the public sector's capacity to obtain funding. Benmelech and Bergman (2009) study similar policy options in a model whose main mechanism hinges on a feedback loop between collateral values, lending, and liquidity in the corporate sector. In order to get out of a credit market freeze, the government lends directly to firms and a large-scale operation might be needed to lift asset prices and jumpstart the economy. Caballero (forthcoming) proposes an insurance mechanism that puts a floor price on assets during a financial crisis, which helps stop fire sales of assets and hence a downturn in the economy that leads to a full-blown panic.

Ultimately, most of the policy proposals since the recent crisis suggest that monetary policy should not target asset prices in the boom part of the cycle, and that stronger regulatory frameworks would help (Bernanke, 2010). However, when asset prices collapse, policymakers should act forcefully to avoid negative feedback loops between the financial sector and real activity.

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Lawrence Christiano; Northwestern University; 4/12/10–4/29/11

Kevin Clinton; 4/29/10–4/29/11

Peter DeVries; 5/3/10–5/28/10

Charles Freedman; Carleton University; 4/30/10–4/29/11

Marcella Lucchetta; 3/11/10–9/10/10

Peter Montiel; Williams College; 5/17/10–5/21/10

Peter Pedroni; Williams College; 5/17/10–5/21/10

Chris Rodrigo; 2/27/10–12/31/10

Q&A Seven Questions about the Consequences of Financial Liberalization

Kenichi Ueda

A number of countries have liberalized their financial systems since the early 1980s. They ceased to control deposit and loan rates, stopped directing bank credits to specific firms, eased restrictions on opening of new branches and the entry of new banks, privatized state-owned banks, and allowed foreigners to trade securities and foreign banks to establish subsidiaries. How have these measures affected economic outcomes? The evidence on growth has been mixed. However, there have been bona fide gains for productive firms, which were able to access finance with ease, and for ordinary consumers, who were able to smooth consumption over time.

Question 1: Has financial liberalization brought economic growth?

This is a difficult question to answer because empirical evidence is inconclusive. On the one hand, some studies show that financial liberalization brought higher growth (Jayaratne and Strahan, 1996). On the other, some argue that financial liberalization led to crises in many countries (Stiglitz, 2000). These observations are not surprising, since both higher growth and higher volatility may have occurred simultaneously (Ranciere, Tornell, and Westermann, 2006). Even if one takes a closer look at specific financial variables, evidence is mixed: for example, savings do not increase after financial liberalization (Bandiera and others, 2000).

It is important to remember that financial liberalization is a different concept than financial deepening. The former is a government policy, something exogenous to economic agents, while the latter is usually measured by the size of financial assets (e.g., credit to GDP or M2 over GDP) and a result of people's choice given the policy. The impact of financial deepening on growth is often positive.

Question 2: Should one expect higher growth rates after financial liberalization?

Not necessarily. The mixed findings on the effects of financial liberalization are not inconsistent with economic theory. Indeed, theoretical predictions are mixed as well. So it seems unwise to evaluate the success of a financial liberalization program based on its effect on growth in savings, investment, and GDP.

For example, the removal of interest rate ceilings is supposed to lead to higher interest rates, in turn leading to higher savings (and higher investment if the capital account is not fully liberalized). A higher deposit rate may attract more deposits—this is called the substitution effect between today's and tomorrow's consumption. However, a higher deposit rate also increases tomorrow's income so that a smaller sum of deposits may be required to support the target level of tomorrow's consumption—this is called the income effect. Unfortunately, the relative impact of the income and substitution effects is theoretically unknown.

Question 3: Do crises happen only after financial liberalization?

No. Financial crises can also happen under heavily regulated financial systems, especially when countries employ an unsustainable mix of policies. For example, nominal deposit rate control with high inflation can translate into negative real deposit rates, which can then suppress savings, leading to large withdrawals of deposits, as was the case with Thailand in the early 1980s.

Moreover, crises can occur if the financial system is not liberalized in an orderly fashion. For example, to start allowing corporate bond issues, but only for AAA rated companies, while maintaining deposit and loan rate controls would deteriorate the quality of banks' asset portfolios. On the liability side, the size of deposits would be unchanged due to the controlled deposit rate as before. On the asset side, however, loans to AAA rated firms would have to be replaced by loans to new client firms that typically have lower credit scores. A bubble can emerge for sudden availability of cheap funding for firms with low credit scores. If this bubble bursts, it can create a wave of nonperforming loans. This example describes the experience of the Japanese financial system in the late 1980s to early 1990s (Hoshi and Kashyap, 2000).

Question 4: How does the financial system affect firms?

Although the effects of financial liberalization on growth are inconclusive, theories suggest unambiguous effects of a better functioning financial system on efficiency in allocating capital. Indeed, a number of studies argue that financial frictions make capital allocation inefficient: productive firms

do not obtain enough capital, while unproductive ones may obtain too much.

Question 5: What are the effects of financial liberalization on firms?

Under efficient allocation, the expected marginal products of capital are equal to the prevailing interest rate and thus the same among firms. However, the marginal products of capital may vary among firms, especially when firms are faced with different interest rates under interest rate controls or when preferential treatment or discrimination in obtaining credit under a directed credit scheme. Financial liberalization results in capital being allocated in a transparent fashion. Therefore, it is expected to reduce the artificial dispersions of marginal products of capital. Abiad, Oomes, and Ueda (2008) investigate the movements in the dispersion of marginal products of capital. In their sample of five developing countries, the authors find that financial liberalization is especially beneficial for productive firms that have difficulties accessing finance.

Question 6: How does the financial system affect consumers?

Consumers prefer having a stable rather than a rocky consumption pattern over time. A stable consumption pattern can be maintained by adjusting savings and loans. When income is high, consumers save; when income is low, they dissave or borrow.

The idiosyncratic income risk (e.g., variation of each household's income) is known to be much higher than aggregate fluctuations (e.g., fluctuations in GDP growth). Therefore, ensuring the idiosyncratic income risk substantially improves consumers' welfare. With a better functioning financial system, the spread between the deposit and loan rates gets smaller, enabling consumers to more easily smooth consumption.

Question 7: What are the effects of financial liberalization on consumers?

Financial liberalization makes a financial system more efficient. Greater efficiency translates into lower fees, for example, so financial services become more accessible to consumers. The important question, then, is how large are the efficiency gains from financial liberalization.

Based on a canonical growth model with financial deepening and liberalization, Townsend and Ueda (forthcoming) find large benefits of financial liberalization for consumers. They first gauge the degree of de facto financial liberalization over time in a case study on Thailand. They then simulate counterfactual economies without financial liberalization and compare the implied consumption paths of consumers against those based on actual data. They measure the impact using a typical utility function asking how much extra annual consumption could compensate consumers who hypothetically live in an economy with no financial liberalization. This is a standard exercise of welfare gains/costs in macroeconomics. They find that financial liberalization produces large significant welfare gains—nearly 30 percent worth of average consumption annually.

The welfare gains may vary across countries and over time. The welfare gains may be high for a country like Thailand, a typical developing country where financial access is not yet fully established. However, the beneficial impact of financial liberalization for consumers should not be much smaller than Townsend and Ueda's estimates in advanced countries, where a larger fraction of population utilizes the financial services.

Insurance against future income risk may bring higher growth, as it enables entrepreneurs to seek higher-risk and higher-return projects. However, it may decrease the need for precautionary savings and result in lower rates of investment and GDP growth. The overall effect on growth is theoretically ambiguous. Townsend and Ueda (forthcoming) report that financial liberalization hardly increases GDP growth, in line with previous regression studies; yet they also find that welfare gains from financial liberalization are always sizable.

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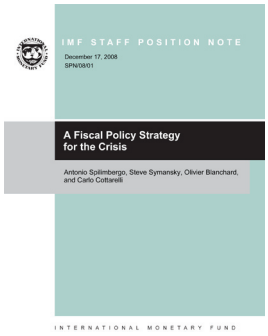
The International Monetary Fund will hold the Eleventh Jacques Polak Annual Research Conference at its headquarters in Washington on November 4–5, 2010. The theme of the conference is "Macroeconomic and Financial Policies after the Crisis," and presentations are expected on lessons from the crisis on the conduct of macroeconomic and financial policies, as well as on short and long-run policy challenges for industrial and developing economies.

The conference is intended to provide a forum for discussing innovative research in economics undertaken by both IMF staff and outside economists, and to facilitate the exchange of views among researchers and policymakers. Anil Kashyap of the University of Chicago Booth School of Business will deliver the Mundell-Fleming lecture.

The Program Committee has invited submissions of papers on such topics as exit strategies from expansionary policies; asset prices and monetary policy; cyclical fiscal policy; international policy coordination; reform of financial architecture; responses to international financial flows in emerging markets; implications of real-financial linkages; and political economy aspects

Further information on the conference program will be posted on the IMF website at *www.imf.org.* Further information may also be obtained through the conference e-mail address at *ARC2010@imf.org.*



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