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Introduction

China's economy is at a pivotal moment, as it faces both imminent and long-term challenges that may significantly hamper the robust growth it has enjoyed in recent decades. Income inequality, increased debt, an aging population, shrinking labor force, and a slow transition from manufacturing to services risk threatening the country's social and economic stability.

China's continued economic growth is an essential part of the Chinese Dream, President Xi Jinping's vision for the reemergence of China's prominence on the global stage. China once championed laying low and biding its time while it built its strength, but that time has clearly passed. The road to a "prosperous and strong country," as President Xi has said of the Chinese Dream, will likely be a road filled with hurdles.

In this volume of essays PIIIE experts explore various areas of concern for China's economic development. The authors use historical or data-driven analysis to explain what is happening, why it is important for China, and then provide recommendations for policymakers in China and elsewhere.

Nicolas Véron looks at the [global financial regulatory system](#) and China's role in it, and he finds that, given the size of China's banking system (it is now larger than that of the United States or European Union), China has an undersized role in helping set global financial regulations.

Joseph E. Gagnon explores whether [central banks in China and some advanced nations](#) can still be effective at providing stimulus to struggling economies, and assesses whether China can set monetary policy independent of the major advanced economies. He makes the case that China has the right tools to develop monetary policy independent of the United States if it wishes to do so, though some political issues might be in the way.

Jacob Funk Kirkegaard assesses [China's educational track record](#) and finds a surprisingly large number of citizens left behind in the country's improvement in educational attainment. Compared with a variety of other countries, China's track record for citizens' completion of secondary education is extremely poor, especially in rural communities. This does not bode well for the country's interest in developing higher-value-added production and the provision of high-skilled services.

Finally, Edwin M. Truman draws on historical lessons from different [countries' exchange rate regimes](#), especially the US dollar. He offers ten observations on exchange rate policies, explaining how the current system affects China and how China's exchange rate policy affects the rest of the world.

CHAPTER 1

Financial Regulation: The G-20's Missing Chinese Dream

Nicolas Véron

China's recent emergence as a leading global economic and financial powerhouse has implications for all aspects of global governance. Yet, although a growing body of literature has analyzed the consequences for international trade arrangements, the International Monetary Fund (IMF), and multilateral development banks (MDBs), fewer studies have focused on the cluster of institutions that oversee financial regulatory standard setting and policy development at the global level, referred to here as the global financial regulatory system. In spite of significant crisis-induced changes in the past decade, this system has not sufficiently adapted to the new reality of China's prominence, and has instead remained unsustainably centered on incumbent North Atlantic financial systems. This lagging is not in the interest of the incumbents, China, or the world as a whole.

To move toward a better institutional balance, global financial regulatory bodies should increase the presence and prominence of Chinese participants in their governance and operations; China should correspondingly engage more; and institutional innovations should be developed and tested in response to some of the challenges that the global system in its current form is unable to address.

THE GLOBAL FINANCIAL REGULATORY SYSTEM: TAKING STOCK

Institution Building

International financial institutions were an innovation of the second quarter of the 20th century, in particular the Bank for International Settlements (BIS, created in 1930) and International Monetary Fund (IMF, created in 1945). But international arrangements for financial regulation remained minimal until the early 1970s. At that time, and in the context of both incipient internationalization of financial markets and financial turmoil in advanced economies, several international bodies were created. These included the

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Euro-currency Standing Committee of the BIS (1971), now the Committee on the Global Financial System (CGFS); the International Accounting Standards Committee (1973), now the International Financial Reporting Standards (IFRS) Foundation; the Inter-American Regional Association of securities regulatory authorities (1974), expanded in 1983 to become the International Organization of Securities Commissions (IOSCO); the Committee on Banking Regulations and Supervisory Practices at the BIS (1974), now the Basel Committee on Banking Supervision (BCBS); and the Group of Six (1975), now G-7. More specialized bodies were created in the 1980s and 1990s, particularly following the Asian financial crisis of 1997–98, which led to the emergence in 1999 of both the G-20, originally a group of finance ministers and central bank governors, and the Financial Stability Forum (FSF).

Further change and strengthening came in the immediate aftermath of the financial panic of September–October 2008. In November 2008 the G-20 held its first summit meeting of heads of state and government, in Washington, DC, with an agenda that was dominated by financial regulatory issues (Rottier and Véron 2010). The FSF’s membership was subsequently enlarged to include most major emerging economies and non-Western international financial centers, and renamed the Financial Stability Board (FSB) in April 2009 at the G-20’s second summit, in London. At the next G-20 summit, in Pittsburgh in September 2009, the US Treasury Secretary described the FSB and its constituent international financial bodies as a “fourth pillar” of the global economic architecture, complementing the IMF, the World Bank, and the World Trade Organization (WTO).¹ The Washington, London, and Pittsburgh meetings defined an ambitious and, at the global level, unprecedented agenda that is now officially referred to as “G-20 financial regulatory reforms” (FSB 2015b).

In this context, the global financial regulatory system can be defined as being formed by the FSB and its members that have a global (as opposed to national or, in the case of European institutions, regional) remit. In addition to the BCBS, BIS, CGFS, IFRS Foundation,² IMF, IOSCO, and World Bank, the system thus defined includes the BIS Committee on Payments and Market Infrastructures (CPMI), the International Association of Insurance Supervisors (IAIS), and the Organization for Economic Cooperation and Development (OECD). Relevant bodies that are not FSB members but participate in the global system include the Financial Action Task Force on Money Laundering (FATF), Global Legal Entity Identifier Foundation (GLEIF), International Association of Deposit Insurers (IADI), and International Forum of Independent Audit Regulators (IFIAR).³ As [table 1.1](#) illustrates, these bodies vary widely in terms of membership and mandate.

1. “[T]he important thing we did in London...is to add, in effect, a fourth pillar to the architecture of cooperation we established after the second world war. After the second world war, we came together and established the IMF, the World Bank, the GATT which became the WTO. But the Financial Stability Board is, in effect, a fourth pillar of that architecture. And that forum, just for those of you who are not familiar with it, again brings together central banks, finance ministers, supervisors of banks, market regulators like the SEC and the CFTC, the accounting standard setters—brings them together and tries to forge consensus on standards, so we can have, again, common standards applied globally.” Press briefing by US Treasury Secretary Timothy Geithner on the G-20 Meetings, White House, September 24, 2009. Available at www.whitehouse.gov/the-press-office/press-briefing-treasury-secretary-geithner-g20-meetings (accessed on July 24, 2016).

2. Formally the membership of the FSB is held by the International Accounting Standards Board (IASB), which is hosted by the IFRS Foundation.

3. Other potentially relevant organizations, such as the International Auditing and Assurance Standards Board (IAASB) and the International Public Sector Accounting Standards Board (IPSASB), both hosted by the International Federation of Accountants, are not included in the list because their standards have not yet been adopted by a critical mass of jurisdictions. Coordinating committees and other groups that don’t have a permanent secretariat, including the G-20 itself, are also not included.

Table 1.1 The global financial regulatory system

Body	Creation	HQ/ Secretariat	Summarized mandate	Jurisdictions ^a	Members ^b
BIS	1930	Basel	Central banks' cooperation	60	60
IMF	1945	Washington	Financial stability of countries	189	189
World Bank	1945	Washington	Development	189	189
OECD	1948	Paris	Economic sustainability	34	34
CGFS	1971	Basel	Monitoring market developments	22	23
IFRS Foundation	1973	London ^c	Financial accounting standards	not relevant ^d	not relevant ^d
BCBS	1974	Basel	Banking supervisory standards	28	45
IOSCO	1974/83	Madrid	Securities markets regulation	136 ^e	143 ^e
CPMI	1980	Basel	Financial infrastructure standards	24	25
FATF	1989	Paris	Fighting financial crime and terrorism	37	37
IAIS	1994	Basel	Insurance supervisory standards	195	210
FSB	1999	Basel	Financial regulation	25	68
IADI	2002	Basel	Deposit insurance standards	79	80
IFIAR	2006	Tokyo ^f	Audit oversight	51	55
GLEIF	2014	Basel	Legal entity identifiers	not relevant ^d	not relevant ^d

a. Jurisdictions include subsovereign entities (e.g., Guernsey, Hong Kong, US states and territories) and regional groupings (e.g., European Union, Asian Development Bank membership).

b. There is one member per jurisdiction at the BIS, IMF, World Bank, and OECD. In other bodies, some jurisdictions have several members, such as the US Federal Reserve Board and Federal Reserve Bank of New York in the CGFS and CPMI. Global institutions such as the IMF and World Bank are members of bodies such as the FSB and IAIS, but are not counted as separate jurisdictions.

c. The IFRS Foundation is incorporated in the United States (Delaware), but its headquarters is in London.

d. The IFRS Foundation and GLEIF are not organized across jurisdictional lines.

e. Including "ordinary" and "associate" members in the IOSCO categorization.

f. The establishment of a permanent secretariat in Tokyo was announced by IFIAR in late April 2016 and is expected in 2017.

Note: The People's Republic of China is a member of all jurisdiction-based bodies except IADI and IFIAR. Names of bodies are spelled out in text

Source: Bodies' websites, consulted May 2016, and author's calculations. See text for explanation of acronyms.

Impacts of Regulatory Reforms

Seven and a half years after the Washington summit, the success of G-20 financial regulatory reforms is mixed. Assessing financial reforms is always somewhat subjective, as there is no objective way (yet?) to measure financial stability. Furthermore, many of the reforms entail long transition periods and have thus not yet been fully implemented.

That said, there are a number of successes (see GAO 2014, Véron 2014). In particular, the BCBS's Basel III accord of 2010, with new rules for capital, leverage, and liquidity, and complementary reforms such as requirements for additional loss-absorbing capacity at large financial institutions designated by the FSB as global systemically important banks (G-SIBs; see FSB 2015a), have significantly strengthened the prudential framework for large internationally active banks. The BCBS has also developed a pioneering framework

to assess the compliance of laws and regulations adopted by individual jurisdictions with its standards, thus greatly enhancing its authoritativeness.⁴

Other reforms have had questionable impact or failed entirely. One failed reform is the global convergence of financial accounting standards, initially heralded by the G-20 as an important objective but later quietly abandoned after several successive deadlines were missed.⁵ It is too soon to judge the G-20's ambitious reforms of over-the-counter (OTC) derivatives markets, but there appear to have been unforeseen consequences of the G-20-fostered move toward more central clearing, including the possibility of market fragmentation across currency areas, and the concentration of systemic risk in derivatives clearinghouses (e.g., Boissel et al. 2016). Separately, the reporting of OTC derivatives transactions to trade repositories is far from delivering on its promise to help supervisors assess developments of relevance for financial stability (DTCC 2015).

Perhaps unsurprisingly, the success or lack thereof of G-20 financial regulatory reforms is strongly correlated with the strength of the corresponding global institutional framework (Rottier and Véron 2010). In particular, the long-established cooperation of the world's main central banks through the BIS and its various committees has generally resulted in decent effectiveness of reforms within their remit, such as Basel III. By contrast, cooperation among securities regulators is of a more ad hoc nature, and IOSCO has generally found it difficult to agree on strong common standards and ensure their general adoption, as is illustrated by the G-20's failure on financial accounting standards convergence.⁶

One of the reasons for the lopsided design and implementation of OTC derivatives reforms is the awkward overlap of responsibilities in this area between central banks with a financial stability mandate (represented in CPMI) and securities regulators with a market integrity mandate (represented in IOSCO). Some standards have been jointly issued by CPMI and IOSCO (e.g., Principles for Financial Market Infrastructures), but they have often been less specific and/or effective than global standards in other financial regulatory areas.

NORTH ATLANTIC CHARACTERISTICS IN THE GLOBAL FINANCIAL REGULATORY SYSTEM

The panic of September–October 2008 led to a welcome shift of venue for the global coordination of economic and financial policy, from the G-7 to the G-20. This shift was echoed in early 2009 by the enlargement to major emerging economies and non-Western financial centers of the FSB membership and of key BIS committees (BCBS, CGFS, and CPMI).

4. See successive Regulatory Consistency Assessment Programme reports published by the BCBS on its website. Under this program, the People's Republic of China was assessed in 2013 as "compliant," while in 2014 the United States was "largely compliant" and the European Union "materially non-compliant."

5. The People's Republic of China still maintains its own set of accounting standards, and (unlike, e.g., Japan) does not allow the use of IFRS by listed companies as an alternative to its national standards. Local accounting standards in Hong Kong SAR, though not in Macao SAR, are identical to IFRS. The United States allows IFRS as an alternative to its national standards for foreign, but not domestic, issuers. The European Union has endorsed IFRS as domestic law, with the only exception of a limited "carve-out" in the standard for financial instruments. Overall, a majority of the world's sovereign jurisdictions, representing close to half of global GDP, have mandated IFRS for publicly listed companies, but most of the corresponding policy decisions were made in the decade before the first G-20 summit (Pacter 2015 and author's calculations).

6. Choices of mandatory accounting standards are typically, though not universally, within the scope of responsibility of securities market regulators.

Nevertheless, the membership and governance of many of the bodies that form the global financial regulatory system remain deeply unbalanced. There is abundant analysis of this issue with respect to the IMF (e.g., Truman 2015). Similar and sometimes even greater distortions exist in other bodies. For example, even with the 2009 enlargement, the European Union (EU) and its member states represent no fewer than 10 of the 28 jurisdictions represented in the BCBS. Of these, seven are euro area countries whose representation in the committee no longer appears justified, since the European Central Bank (ECB) has been in charge of setting supervisory policy for the euro area since November 2014 as part of the broader EU reform known as banking union.⁷

Similarly, Europeans are comparatively overrepresented on the FSB Steering Committee (FSB 2015d), both among the member jurisdictions (especially those with more than one representative, and with similarly questionable inclusion of euro area national central banks as noted above about the BCBS⁸) and among the global bodies. The latter are represented by 10 individuals including 8 Europeans, 1 American, and 1 Australian—no Asians.⁹

The system's North Atlantic bias is further pronounced, indeed overwhelming, when looking to the bodies' leadership, as opposed to membership. [Table 1.2](#) lists the top positions in the bodies shown in [table 1.1](#), with the chairs of decision-making bodies (such as an executive board) and heads of permanent staff where separate. The far right column requires no comment.

Another distortion inherited from history is the fact that, as [table 1.1](#) indicates, all these bodies are headquartered and mainly based in the North Atlantic region (Basel, Paris, Madrid, London, and Washington), with the only exception of IFIAR's still-to-be-established secretariat in Tokyo.¹⁰

There is thus little question that in terms of its governance and operations, the global financial regulatory system has a North Atlantic bias that has been only partly eroded by initiatives since 2007. A separate question, however, is whether this bias results in regulatory outcomes and decisions that tilt in favor of North Atlantic interests. On this the evidence is far from clear.

While the G-20 has regularly paid lip service to the notion that regulatory outcomes need to be better tailored to the specificities of developing and emerging economies, this aspiration has mostly been rhetorical rather than practical. There is no clear evidence, for example, that Basel III is less beneficial to emerging economies than it is to the European Union or the United States. Moreover, there are cases of successful advocacy by non-Western jurisdictions of special interests in global financial regulatory processes. Examples include the exception made by the IASB from fair value measurement for long-held shares in the IFRS 9 standard on financial instruments accounting, a Japanese request, and the exception made for large banks from emerging economies in the FSB's term sheet for total loss-absorbing capacity (TLAC), a Chinese request (FSB 2015c).

Even so, the extent of the system's North Atlantic bias, more than seven years after the shift from the G-7 to the G-20, remains remarkable. There is no question that the willingness of incumbent participants,

7. The ECB and its banking supervisory arm became full members of the BCBS shortly before this transition, in October 2014.

8. National central banks in the euro area retain policy autonomy in several areas including macroprudential policies, but no longer in either monetary policy or banking supervision.

9. In this calculation, Mark Carney is labelled as from the European Union in his capacity as governor of the Bank of England, even though he is a Canadian national.

10. The BIS has offices in Hong Kong and Mexico City in addition to Basel. The IMF and World Bank have offices in numerous locations worldwide in addition to Washington. The IFRS Foundation has a small office in Tokyo in addition to its main location in London.

Table 1.2 Leadership positions in the global financial regulatory system

Body	Position	Holder	Workload	Nationality	Region
BIS	Board chair	Jens Weidmann	Part time	German	North Atlantic
	General manager	Jaime Caruana	Full time	Spanish	North Atlantic
IMF	Managing director	Christine Lagarde	Full time	French	North Atlantic
World Bank	President	Jim Yong Kim	Full time	American	North Atlantic
OECD	Secretary general	Angel Gurría	Full time	Mexican	North Atlantic
CGFS	Chair	William Dudley	Part time	American	North Atlantic
	Head of secretariat	Kostas Tsatsaronis	Full time	German	North Atlantic
IFRS Foundation	Chair of trustees	Michel Prada	Part time	French	North Atlantic
	IASB chair	Hans Hoogervorst	Full time	Dutch	North Atlantic
BCBS	Chair, GHOS ^a	Mario Draghi	Part time	Italian	North Atlantic
	Chair	Stefan Ingves	Part time	Swedish	North Atlantic
	Secretary general	William Coen	Full time	American	North Atlantic
IOSCO	Board chair	Ashley Ian Alder	Part time	British ^b	North Atlantic
	Secretary general	Paul Andrews	Full time	American	North Atlantic
CPMI	Chair	Benoît Cœuré	Part time	French	North Atlantic
	Head of secretariat	Morten Bech	Full time	Danish	North Atlantic
FATF	President	J. M. Vega-Serrano	Part time	Spanish	North Atlantic
	Executive secretary	David Lewis	Full time	British	North Atlantic
IAIS	Executive committee chair	Victoria Saporta	Part time	British	North Atlantic
	Secretary general	Yoshihiro Kawai	Full time	Japanese	Other
FSB	Chair	Mark Carney	Part time	Canadian	North Atlantic
	Secretary general	Svein Andresen	Full time	Norwegian	North Atlantic
IADI	President	Thomas Hoenig	Part time	American	North Atlantic
	Secretary general	Gail Verley	Full time	American	North Atlantic
IFIAR ^c	Chair	Janine van Diggelen	Part time	Dutch	North Atlantic
GLEIF	Board chair	Gerard Hartsink	Part time	Dutch	North Atlantic
	CEO	Stephan Wolf	Full time	German	North Atlantic

a. GHOS: Group of Governors and Heads of Supervision.

b. Alder heads the Hong Kong Securities and Finance Commission but is a British citizen.

c. The head of IFIAR's future permanent secretariat has not yet been appointed.

Note: Names of bodies are spelled out in text.

Source: Bodies' websites, consulted July 2016. See text for explanation of acronyms.

especially Europeans, to preserve a status quo that they perceive as beneficial to them is one of the reasons for this situation.

But the lack of change is probably not attributable only to resistance from incumbents. Evidence is missing of any strong advocacy for rebalancing from the other stakeholders, especially large emerging economies, many of which—including often China—have acted as status quo participants, either in financial regulatory matters (Walter 2010, He 2015) or more generally (Swaine 2016). Instead, the evidence rather points to China taking global financial regulatory standards “off the shelf” to use them as a lever for domes-

tic financial reform (Kempthorne 2015), a dynamic that somewhat parallels the European Union’s adoption of IFRS in the early 2000s (Véron 2007).

THE GLOBAL FINANCIAL REGULATORY SYSTEM NEEDS A “CHINESE DREAM”

The state of affairs described in the [previous section](#) might be acceptable if the North Atlantic region were expected to dominate the global financial system for the foreseeable future. But this is no longer the case.

Indicators of China’s Financial Growth

The pace of financial development in China has been so rapid in the last few years that, on some indicators, the move of the global system’s center of gravity toward China has already happened. For example, as table 1.3 illustrates, China is now the world’s largest single banking jurisdiction in terms of total assets, ahead of the euro area,¹¹ a fact that few experts would have predicted only a decade ago. This is even more striking when keeping in mind that “shadow banking” assets are mostly omitted from of this calculation.

Table 1.3 Banking systems in comparative perspective, end-2015

Banking system	Total assets (trillions of US dollars)	Domestic assets (trillions of US dollars)	Share of activity abroad (percent)	CR-5 ratio (percent)
China	32.1	30.7	4.3	40.4
Euro area	31.6	25.9	18.0	24.7
United States	16.3	14.8	8.8	40.4

Note: Calculations based on SNL data and ECB (2016b) for the euro area, China Banking Regulatory Commission (CBRC) for China, and the Federal Reserve for the United States. Total assets comprise consolidated assets of domestic banking groups and domestic assets of foreign bank subsidiaries and branches. To calculate the size of the respective banking system (labelled as domestic assets), the foreign assets of domestic banks are deducted. The concentration ratio of the largest five banks (CR-5) in each jurisdiction is based on their domestic assets as a percentage of total domestic assets.

Source: Schoenmaker and Véron (2016).

China’s increasing heft in the global financial system is not limited to banking. Its listed companies’ aggregate market capitalization has become too large to ignore, as is the size of its corporate bond markets.

But China’s financial development should not be seen only from a quantitative standpoint. While capital allocation remains largely policy driven, there have been significant moves toward more market

discipline in recent years, including liberalization of bank deposit rates and the more recent willingness of authorities to tolerate corporate defaults even of state-owned companies.

One also assumes that lessons from the massive government intervention in China’s equity markets around mid-2015 will lead to a more restrained future stance in this area as well, allowing equity prices to be increasingly driven by the interplay of supply and demand. Moreover, it is unlikely that the recent dramatic rise in indicators such as China’s share of global banking assets or of global market capitalization could be entirely reversed by adverse market developments. Even in a scenario of systemic crisis, the evidence from past experience suggests that total banking assets would stop growing but remain broadly at their current high level over an extended period of time.¹²

11. Banking systems are defined here by the geographical scope of banking supervision. Under this definition, the euro area is now a single banking system, although different banking systems coexist in the European Union.

12. Such a “plateauing” pattern was observed, among other cases and with limited variations, in Japan after 1990 and in the euro area, United Kingdom, and United States after 2008.

China's Role in the Global Financial System

China's financial system will very likely be increasingly interconnected with the global financial system. Size is a major driver: even if the Chinese banking system is less open to cross-border activity than those of other jurisdictions (as also illustrated by [table 1.3](#)), its sheer magnitude implies global systemic significance.

But it is not only a matter of size: Chinese banks are increasingly active beyond the mainland, together with nonfinancial companies driven both by individual firm strategies and by policy projects such as the Belt and Road Initiative. And Chinese authorities are gradually lifting restrictions on international investors' access to the country's domestic equity and bond markets.

In effect, international financial integration is gradually linking China with other countries like a financial "Grand Canal"—much as China's own Grand Canal has linked its provinces since ancient times. Like its physical counterpart, it interconnects different economies, fosters interdependencies across territorial boundaries, and increases aggregate wealth, although it can also be a channel for the propagation of shocks.¹³

China is also, increasingly, at the frontier of some aspects of contemporary financial development, ahead of North Atlantic jurisdictions. This is particularly the case for internet finance, several segments of which are more developed in China than in Europe or the United States. Like cross-border financial integration, internet finance illustrates the reality that with financial development comes great wealth creation but also the possibility of increased financial disruption, with risks of fraud, cybersecurity violations, and uncontrolled herd behavior in a market downturn.

For all these reasons, the current fairly peripheral (or at best, discreet) role of China in the global financial regulatory system is increasingly unsustainable. The system needs a "Chinese dream." It should not count only on China's initiatives to increase its own salience in global financial services policy discussions, but should rather be proactive in reforming itself to give China a position and responsibility commensurate with its present and predictable future importance. Not doing so would carry massive risks for all stakeholders, such as being caught unprepared by global risks that involve Chinese financial system participants among others. A lagging approach, encapsulated in the Chinese expression *yu guo ji jie gui* ("catching up with the world"; see He 2015), is arguably insufficient to address this challenge.

Front-loading the rise of China in the global financial regulatory infrastructure is a challenging political proposition, for different reasons in Europe (collectively the most overrepresented incumbent), the United States (given current domestic political dynamics), and perhaps even China itself. But there is little doubt that it would be in the best interests of the North Atlantic jurisdictions as well as of China and the rest of the world.

MAKING THE DREAM COME TRUE

The dream of a global financial regulatory system in which China holds a major position can of course not be fulfilled in a single step. It may entail at least three clusters of initiatives, to be developed and implemented over an extended period of time.

13. The author is indebted to Professor He Liping of Beijing Normal University for the Grand Canal metaphor of cross-border financial integration.

Firstly, the relevant global bodies should reform themselves to increase the presence and prominence of Chinese participants in their workings and operations, specifically in the dimensions of membership, leadership, and location.

In terms of membership, national central banks of the euro area, which in the aftermath of banking union no longer have significant policymaking autonomy, should renounce their individual representation in the Basel Committee for Banking Supervision and in the Financial Stability Board, thus freeing space for a more balanced discussion in a more compact format. Conversely, the FSB should welcome the China Securities Regulatory Commission (CSRC) as a member organization, perhaps together with the US Financial Deposit Insurance Corporation (FDIC). The CSRC should also join as a full member the IFRS Foundation's Monitoring Board, from which it is currently absent¹⁴; and China's quota at the IMF should increase beyond the implementation of the 2010 reform package.

As for leadership, relevant global financial regulatory bodies should promote qualified Chinese officials to succeed the current North Atlantic incumbents (see [table 1.2](#)) when their terms expire, and should actively nurture a growing cadre of Chinese professionals among their staff.

And for location, steps should be taken to rebalance the current landscape. These could include the relocation of the FSB's permanent secretariat to a suitable jurisdiction in Asia, such as Hong Kong or Singapore (Véron 2014).

Secondly, greater Chinese engagement is called for. Observers often refer to the age-old precept of *tao guang yang hui* ("hide brilliance, favor obscurity"), but for the global system's common good China's authorities need to be more assertive in their participation in international financial regulatory bodies, including by presenting suitable candidates for leadership positions.

The adoption by China of relevant global standards, including IFRS, should be completed, if not in full then with a much more limited number of exceptions than is currently the case. China should also reform its public auditing policy framework to enable its participation in IFIAR and to allow effective professional cooperation with other jurisdictions' audit oversight authorities. And, of course, China should continue on its path of vigorous domestic financial reform to enhance market discipline in its financial system and more efficient capital allocation in its economy (Posen and Véron 2015).

Thirdly, institutional innovation at the global level is needed to address current financial regulatory challenges. One example of such innovation is the BIS's International Data Hub, which aggregates bank-specific supervisory data on G-SIBs but segregates the information from the rest of the BIS, let alone individual members (FSB 2014).

Global financial bodies also need to develop new ways to collect, handle, and analyze data in order to overcome jurisdictional boundaries and analyze risks and developments in the global financial system in an integrated manner (Issing and Krahn 2009). The obstacles against this are partly practical and technological, but much more significantly a function of governance and politically driven barriers to data sharing.

China must be part of the global conversation on sharing financial data for global financial system monitoring and surveillance, and for this to happen profound changes are necessary in national attitudes

14. The Monitoring Board is not formally part of the IFRS Foundation but oversees its activities including (by voluntary agreement) the appointment of the Foundation's trustees. It currently includes representatives from IOSCO and from authorities in Brazil, the European Union, Japan, the Republic of Korea, and the United States.

and international governance. For example, while banks will continue to be supervised on a jurisdictional basis for the foreseeable future, it is not entirely fanciful to imagine that the public supervision of financial firms that are pure information intermediaries might be established at the global level by suitably treaty-empowered global authorities. Such intermediaries, including credit rating agencies, trade repositories, and audit firms, do not carry a fiscal or quasi-fiscal risk in case of failure, unlike banks, and their public supervision can thus be entirely disconnected from matters of fiscal sovereignty. Indeed, credit rating agencies and trade repositories, though not (yet) audit firms, are now supervised supranationally in the European Union (by the Paris-based European Securities and Markets Authority, established in 2011) in a framework that, unlike banking union, covers all 28 EU member states including (for the time being) the United Kingdom. Lessons from this experience might be usefully pondered by Chinese, American, and other relevant financial policymakers.

CONCLUSION

When introducing this year's Chinese presidency of the G-20, President Xi Jinping wrote that "China will work with all other parties to pull in one direction in the spirit of win-win partnership. We should pool wisdom, form synergy...and jointly advance international economic cooperation" (Xi 2015). Formulating and materializing a "Chinese dream" for global financial regulation would be a prime application of these principles, involving the world's major jurisdictions. As presented above, such an ambition would preserve the bulk of financial regulation and supervision under national sovereignty, bound by the international rule of law. But it would also require vision, courage, and perseverance to put the global financial regulatory system on a sustainable path—one in which China plays a major role.

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CHAPTER 2

Effectiveness and Independence of Monetary Policy in China and Around the World

Joseph E. Gagnon

Many commentators express skepticism about the ability of central banks around the world to provide additional monetary stimulus when and where it may be needed. In advanced economies, the concern is that short-term interest rates cannot go much below zero and that unconventional policies have been pushed as far as they can usefully go. In emerging markets, the concern is that central banks are not able to set monetary policy independently of the policies of the major advanced economies, especially the United States. To what extent do these concerns affect China?

In fact, central banks in advanced economies have plenty of scope to ease further, should they desire to do so. And central banks in emerging market economies are able to set monetary policy independently of the advanced economies should they wish to do so. China has both the scope for easing and the ability to use that scope, at least if it is willing to let its exchange rate float. Moreover, because it has the world's second largest economy, it makes more sense for China to have an independent monetary policy than to maintain a stable exchange rate.

SCOPE FOR MONETARY POLICY EASING

Conventional Policy

The conventional tool of monetary policy is a safe short-term interest rate, typically an overnight interbank rate, a short-term money market rate, or the rate offered by the central bank to domestic banks for short-term deposits. In the advanced economies, these short-term interest rates are currently at record low values, close to or below zero; in China, they are noticeably higher than in the advanced economies, but still low by historical standards, at around 3 percent.¹

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1. One-month interbank rates in the first quarter of 2016 are from Haver Analytics.

For the first time ever, central banks in some advanced economies have pushed key short-term interest rates to levels below zero. The lowest is -1.1 percent on overnight deposits at the Swedish National Bank (Sveriges Riksbank). However, few banks use the overnight deposit facility in Sweden, preferring the 7-day repo facility with a rate of -0.5 percent. In Switzerland, banks do hold significant amounts of deposits at the Swiss National Bank at a rate of -0.75 percent.

These negative rates are being passed through to bond markets, money markets, and wholesale deposits in a manner comparable to movements in policy rates above zero. Declines in negative rates also appear to cause the exchange rate to depreciate in a manner similar to declines in interest rates that are above zero. These observations suggest that negative interest rates operate on the economy in a manner broadly similar to positive interest rates. The main exception seems to be interest rates on retail deposits, which have yet to go below zero in any country that has adopted a negative policy rate. It is not unusual for retail deposit rates to respond only slowly to policy rates, but it is possible that banks are especially reluctant to pass negative rates on to their retail customers. If so, this would somewhat weaken the monetary stimulus from negative rates.

Some observers have expressed concern that negative rates are harmful to bank profits because they squeeze net interest margins (Demertzis and Wolff 2016). There is mild evidence of shrinking net interest margins in banks in countries with very low interest rates, but very little evidence of declining profitability (Claessens, Coleman, and Donnelly 2016). It is possible that banks increase fee income and service charges to offset declining net interest margins.

The main barrier to lowering policy rates further below zero is the existence of cash (paper currency) that is perfectly safe and yields a fixed interest rate of zero. Investors surely are not willing to accept a very large negative rate of return on a deposit or a security when they can hold cash, although so far investors are not switching to cash in countries with negative interest rates.² It may be possible to push policy rates further below zero, almost certainly to -1 percent and possibly to -2 percent, but at some point investors will switch to cash and make further declines useless.

China has a long way to go before these issues become a concern.

Unconventional Policy

Three main types of unconventional policy have been used in recent years.

- Central banks have provided explicit guidance about the likely path of future policy rates, stating that they will remain low for a long time.
- Central banks have bought large quantities of bonds and other securities, also known as quantitative easing (QE).
- Central banks have made long-term loans at very low or even subsidized interest rates, often based on criteria designed to boost total credit in the economy.

Forward guidance worked as expected in many countries, but it is limited to a horizon of two or three years because central banks cannot credibly commit to policy rates at longer horizons. In part this reflects

2. See page 20 of the *Monetary Review* for 2016Q1 by the Danish National Bank, www.nationalbanken.dk. Denmark has had negative interest rates since 2012, longer than any other country, yet there is no evidence of an increase in the ratio of cash holdings to GDP.

uncertainty about future shocks to the economy, but it also reflects the fact that central bank board members have finite terms and cannot bind their successors to a specific policy path.

In advanced economies during and after the Great Recession, QE operated through three channels: (1) reducing risk spreads associated with market panics, (2) reducing expectations of the future short-term policy interest rate, and (3) reducing the term premium in bond yields by reducing the supply of long-term bonds in the market. At this stage, with reasonably well-functioning markets and market expectations of future policy rates in line with—or even lower than—rates suggested by central bank announcements, only the third channel remains potent, giving rise to the perception that QE has a diminishing effect. But the evidence suggests that there is no tendency for the third channel, known as the portfolio balance effect, to diminish.³ Indeed, there are grounds to believe that the portfolio balance effect may be increasing, as additional QE bond purchases remove bonds from investors who are more reluctant to sell them and thus demand ever higher prices (and lower yields). No central bank has pursued QE to an extent that would allow for a test of the “increasing potency” hypothesis.

However, QE bond purchases are likely to be affected by the zero bound problem. Given the existence of cash, the yield on a long-term bond cannot fall very far below zero. This problem does not arise with QE purchases of other assets such as equities and real estate.

Since 2010, an outpouring of research has focused on the financial market effects of QE. The nearly unanimous conclusion is that QE lowers bond yields significantly, even when focus is limited to the portfolio balance effect and not the other channels. [Table 2.1](#) (reproduced from Gagnon 2016), displays results of most available studies on the effects of QE purchases of bonds on government bond yields. The median estimate in [table 2.1](#) suggests that a purchase of long-term bonds equivalent to 10 percent of GDP is expected to reduce the term premium in 10-year bonds by about 50 basis points. Many of these studies and others find that QE purchases also reduce yields on private and foreign bonds, raise equity prices, and depreciate the exchange rate. These are similar to the effects of conventional monetary policy.

It is more difficult to prove any effect of QE on economic growth and inflation. However, macroeconomic models used at many central banks imply that reductions in term premiums and increases in asset prices do have a powerful effect on growth and inflation. Staff at the Federal Reserve estimate that the various rounds of QE in the United States as of 2014 had reduced the unemployment rate by more than 1 percentage point and increased the inflation rate by about ½ percentage point and that these effects were equivalent to the effects of a 250 basis point cut in the short-term policy interest rate (federal funds rate) (Engen, Laubach, and Reifschneider 2015).

[Table 2.2](#) shows that there is plenty of scope for central banks to conduct more QE. The first column is the recent level of central bank assets (none of these banks has begun to reduce QE assets). For the United States, nearly all of these assets reflect QE purchases as short-term assets were sold off. For the euro area and the United Kingdom, about three-quarters of the assets reflect QE operations, including long-term loans to banks. For Japan, about three-fifths of the assets reflect QE purchases. The Bank of Japan has the largest balance sheet (as a share of its economy) among these central banks, but its holdings amount to less than one-quarter of Japanese securities.

3. Some observers have argued that QE cannot push the term premium below zero. However, the term premium has been significantly below zero at times, and there is no theoretical lower bound. For some classes of investors (e.g., life insurance companies, pension funds) long-term bonds may be less risky than short-term bonds and thus can have a lower expected rate of return.

Table 2.1 Estimates of effects of quantitative easing (QE) bond purchases on 10-year yields (purchases normalized to 10 percent of GDP)

Study	Sample	Method	Yield reduction (basis points)
United States			
Greenwood and Vayanos (2008) ^a	1952–2005	time series	82
Gagnon, Raskin, Remache, Sack (2011)	2008–09	event study	78
	1985–2007	time series TP only	44
Krishnamurthy and Vissing-Jorgensen (2011)	2008–09	event study	91
	2010–11	event study	47
Hamilton and Wu (2011)	1990–2007	affine model	47
Swanson (2011)	1961	event study	88
D'Amico and King (2013)	2009–10	micro event study	240
D'Amico, English, Lopez-Salido, Nelson (2012)	2002–08	weekly time series	165
Li and Wei (2012)	1994–2007	affine model of TP	57
Rosa (2012)	2008–10	event study	42
Neely (2012)	2008–09	event study	53
Bauer and Neely (2012)	2008–09	event study	80
Bauer and Rudebusch (2011) ^b	2008–09	event study TP only	44
Christensen and Rudebusch (2012) ^b	2008–09	event study TP only	26
Chadha, Turner, Zampolli (2013)	1990–2008	time series TP only	56
Swanson (2015) ^b	2009–15	yield curve TP only	40
United Kingdom			
Joyce, Lasaosa, Stevens, Tong (2010)	2009	event study	78
	1991–2007	time series	51
Christensen and Rudebusch (2012) ^b	2009–11	event study TP only	34
Churm, Joyce, Kapetanios, Theodoris (2015)	2011–12	international comparison	42
Japan			
Fukunaga, Kato, Koeda (2015)	1992–2014	time series TP only	24
	2013–14	event study	17
Euro area			
Middeldorp (2015) ^c	2013–15	event study	45–132
Altavilla, Carboni, Motto (2015) ^d	2014–15	event study	44
Middeldorp and Wood (2016) ^c	2015	event study	41–104
Sweden			
De Rezende, Kjellberg, Tysklind (2015)	2015	event study	68

TP = term premium

a. Greenwood and Vayanos scaled the effect relative to the size of the Treasury market. The estimate here is based on the ratio of Treasury debt to GDP in 2015.

b. These studies further differentiate between signaling effects and portfolio effects. The reported estimate is for the portfolio effect only.

c. The smaller estimate is for German bonds and the larger for Italian bonds.

d. The estimate is for an average of euro area bonds.

Note: Most studies present a range of estimates. This table displays the study's preferred estimate if one exists; if not, it presents the mid-point of the range. Event studies are normalized by purchases of all long-term bonds, not only government bonds. Some of the nonevent studies include nongovernment bond purchases and others do not. "TP only" denotes studies that attempt to estimate the term premium component of movements in bond yields. For event studies, the normalization is based on GDP in the final year of the event.

Source: Gagnon (2016, table 1).

Table 2.2 Scope for additional quantitative easing (QE) purchases (percent of GDP)

Country	Central bank assets	Domestic securities			Equity
		Total	Government	Other bonds	
China	48	141	17	41	83
Euro area	26	234	84	91	59
Japan	77	333	182	45	106
United Kingdom	23	314	97	124	96
United States	25	321	137	53	131

Note: Central bank assets data refer to 2015Q4 except for China, which is 2015Q2 and United Kingdom, which is 2014Q4. Securities data refer to 2015Q3 for the euro area, Japan, and United States, 2015Q2 for China, and 2014Q4 for the United Kingdom. Government securities exclude bonds held in the government sector. Government securities include agency and agency mortgage-backed securities for the United States. Other bonds are based on nonfinancial and financial corporations, including publicly owned corporations. Equity includes only publicly traded shares at market prices.

Sources: Bank for International Settlements, Bank of Japan, European Central Bank, Federal Reserve Board, UK Office of National Statistics, IMF *World Economic Outlook* database, and author's calculations.

As of now, the Bank of Japan is the only central bank to have purchased equities in its QE program, and only a small amount (about 2 percent of GDP). The effects of QE via equities have not been studied, but research suggests that policy-driven purchases of equities should raise equity prices (Shleifer 1986; Goodhart and Lu 2003). The equity market is an attractive market for QE purchases because it is large and liquid. Higher equity prices would encourage both consumption (through a wealth effect) and investment (through a reduction in the cost of capital). Equity purchases should be distributed across the entire market in a neutral fashion; the goal is not to pick winners and losers. Similar considerations should guide purchases of private bonds.

In the United States, the Fed is limited to purchases of government and agency-backed bonds.⁴ In the euro area, issues concerning the distribution of purchases across member countries and the prohibition of direct purchases from governments may place effective limits on the volume of securities that could be purchased. Even with these limiting factors in the euro area and the United States, there is plenty of scope for further purchases. The Bank of England and the Bank of Japan face few legal obstacles to expanding their QE holdings.

Among the central banks with prospective constituent currencies in the International Monetary Fund's special drawing rights (SDR) basket, China's central bank has assets (as a share of GDP) second only to those of Japan's (table 2.2). Most of these assets are China's large foreign exchange reserves. Compared with the other countries in table 2.2, China has a much smaller bond market and thus fewer overall securities that might be purchased in a QE program. Nevertheless, the scope for QE purchases of securities in China is considerable. Moreover, China would also have the option of pursuing monetary ease through direct lending or purchases of securitized loan packages, neither of which is measured in table 2.2.

4. With the approval of the secretary of the Treasury, the Fed could conduct a broad-based program of secured lending to private corporations, which would have many of the same effects as buying corporate bonds. The Fed's purchases of local government bonds are limited to those with maturities under six months.

MONETARY INDEPENDENCE

The Trilemma and Foreign-Currency Debt

The famous trilemma of international finance states that a country can have any two of the following three conditions: (1) independent monetary policy, (2) a stable exchange rate, and (3) open financial markets.⁵ China long had the first two of these conditions and not the third, but lately it has been moving steadily toward open financial markets while acknowledging that its exchange rate will increasingly be determined by market forces.

A commonly expressed concern in recent years is that the trilemma may need to be reconsidered, at least for smaller economies that are integrated in the global financial system. In this view, small open economies are losing the ability to conduct independent monetary policy even if they do not tightly manage their exchange rates (Rey 2015; Lee, Kim, and Kang 2016). This concern reflects a fundamental misinterpretation of the evidence. Financial variables in emerging market economies have become more strongly correlated with global developments, most notably those in the United States. But this correlation does not impede the ability of central banks in small open economies to conduct independent stabilization policy.

The determining factor for useful monetary independence is the extent of borrowing by domestic residents (including the public sector) in foreign currencies. A high level of foreign-currency debt can dramatically limit the scope for independent monetary policy. In particular, when a negative demand shock would call for looser monetary policy, the associated exchange rate depreciation would raise the burden of foreign-currency debt. The higher debt burden is a direct drag on the economy, and if it leads to widespread defaults and a financial panic the consequences can be severe.

Fortunately, China has a low level of foreign-currency debt, even after the modest increase of the past few years. Moreover, foreign-currency debt is not a serious problem to the extent it is taken on by entities that have an equal or greater volume of foreign-currency assets or that have exports denominated in the same currencies.⁶

An Illustrative Comparison: Monetary Independence in Canada

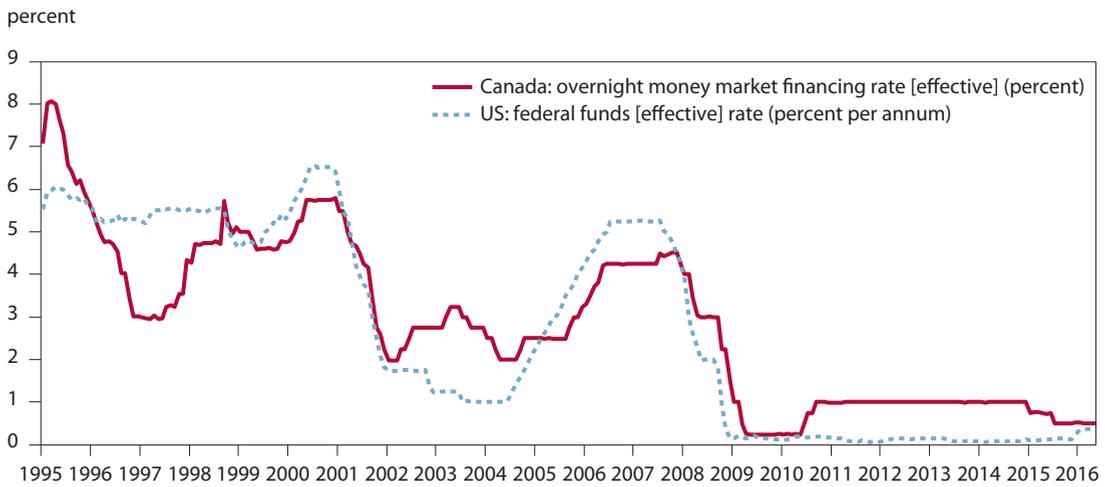
The experience of Canada provides a good illustration of the scope for independent monetary policy in a relatively small open economy. Canada's economy is moderately large by international standards, but it is small in relation to the United States, with which it is very tightly linked. Canadian GDP is less than one-tenth of US GDP and the Canadian dollar is not an international reserve currency. Exports of goods and services constitute more than 30 percent of Canadian GDP. About three-quarters of these exports go to the United States.⁷ Canada's financial markets are fully open, but Canadian residents do not have significant unhedged debts in foreign currency. If Canada can have a monetary policy that is independent of US monetary policy, China surely can as well.

5. Recent research suggests that, rather than losing policy autonomy, countries may have even more autonomy than implied by the trilemma, as even countries with independent monetary policy and open financial markets retain some ability to influence their exchange rates through sterilized foreign exchange intervention (Blanchard, Adler, and de Carvalho Filho 2015; Gagnon et al. 2015).

6. Exporters of primary commodities would do best to hedge their debts with commodity futures contracts or to issue commodity-linked bonds.

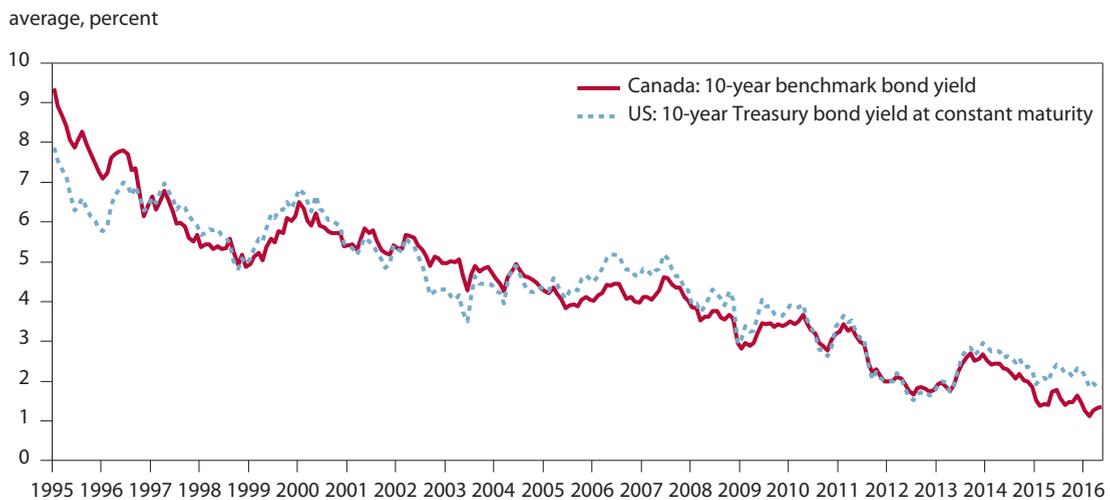
7. This estimate is based on merchandise trade data from the IMF's *Direction of Trade Statistics*. It is likely that a similar proportion applies to services trade.

Figure 2.1 Short-term interest rates in Canada and the United States, 1995–2015



Sources: Bank of Canada; Federal Reserve Board/Haver Analytics.

Figure 2.2 Long-term interest rates in Canada and the United States, 1995–2015

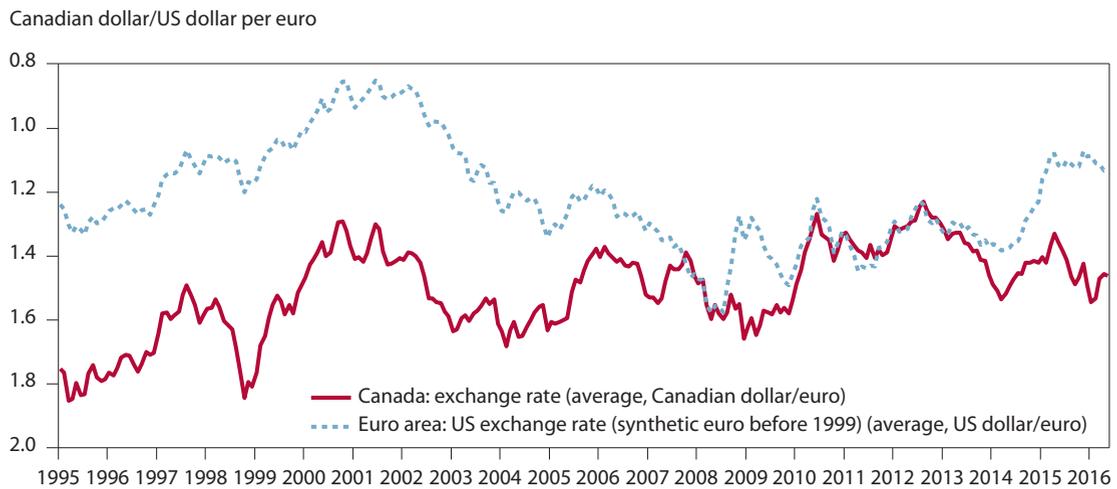


Sources: Bank of Canada; US Treasury/Haver Analytics.

As shown in figure 2.1, there is a strong correlation between Canadian and US monetary policy in terms of the conventional short-term interest rate. But deviations are also quite noticeable. Since 2009, the deviation has been greater than can be seen in figure 2.1 because the United States (the dotted line) conducted several rounds of quantitative easing that had an effect equivalent to a policy rate of as much as 2 or 3 percentage points below zero (Wu and Xia 2015). In 2015, Canada eased policy as the United States tightened.

Figure 2.2 shows the very strong correlation in bond yields between the two countries. It is correlations

Figure 2.3 Canadian and US exchange rates against the euro, 1995–2015



Sources: European Central Bank; Federal Reserve Board/Haver Analytics.

such as this that lie behind the widespread concern about loss of monetary independence. Note that bond yields continued to be highly correlated after 2009, even as monetary policies did not move together. A gap between bond yields did open up in 2015, as the fall in oil prices slowed the Canadian economy more than the US economy.

Figure 2.3 shows that the exchange rates of the two countries have not always moved together, despite a considerable degree of short-run comovement. The Canadian dollar tends to rise against the US dollar when energy prices rise and to fall when energy prices fall. Since 2012, the Canadian dollar has depreciated more than 25 percent against the US dollar.

Figure 2.4 shows that Canadian core inflation has been about as stable as, and somewhat lower on average than, US core inflation. And figure 2.5 shows that the unemployment rate in Canada has been somewhat more stable, albeit generally higher, than unemployment in the United States.⁸

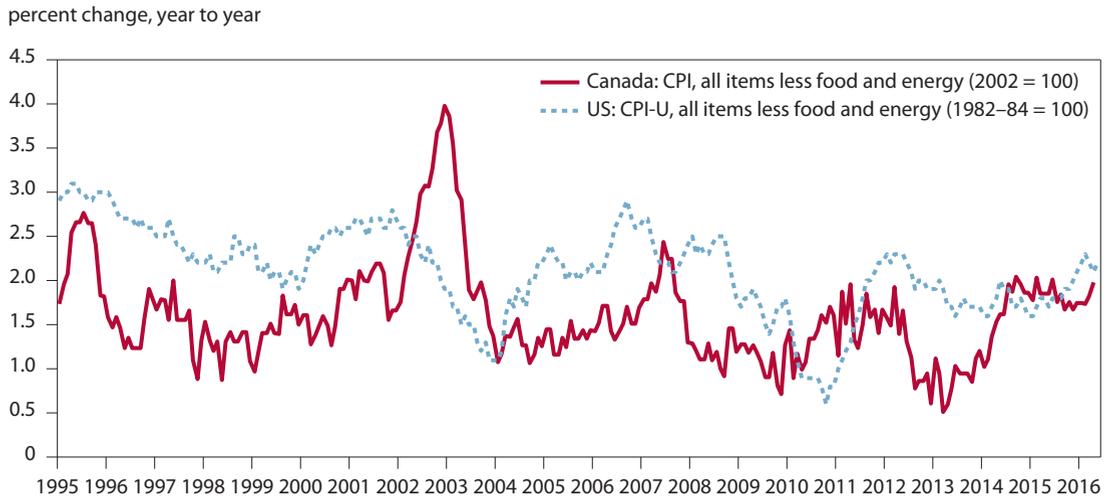
Overall, figures 2.1 through 2.5 draw a picture of two countries with tightly linked economies subject to many common shocks, but with significant differences. The differences arise mainly from the fact that Canada is a net energy exporter and the United States a net energy importer (although energy does not dominate the Canadian economy the way it dominates the Kuwaiti, Saudi, or even Norwegian economies). Mining and oil and gas extraction account for only 8 percent of Canadian GDP, compared to 11 percent in manufacturing.⁹

The high correlation of short- and long-term interest rates between Canada and the United States reflects both global financial shocks and nonglobal shocks that are common to the two closely linked economies. Although the deviations from perfect correlation may seem small, they are large enough to be economically important. This is seen most clearly in the exchange rate, which has undergone very large swings.

8. Average unemployment rates differ across countries owing to differences in labor market institutions and regulations that are not affected by monetary policy.

9. Data are from Haver Analytics for 2015.

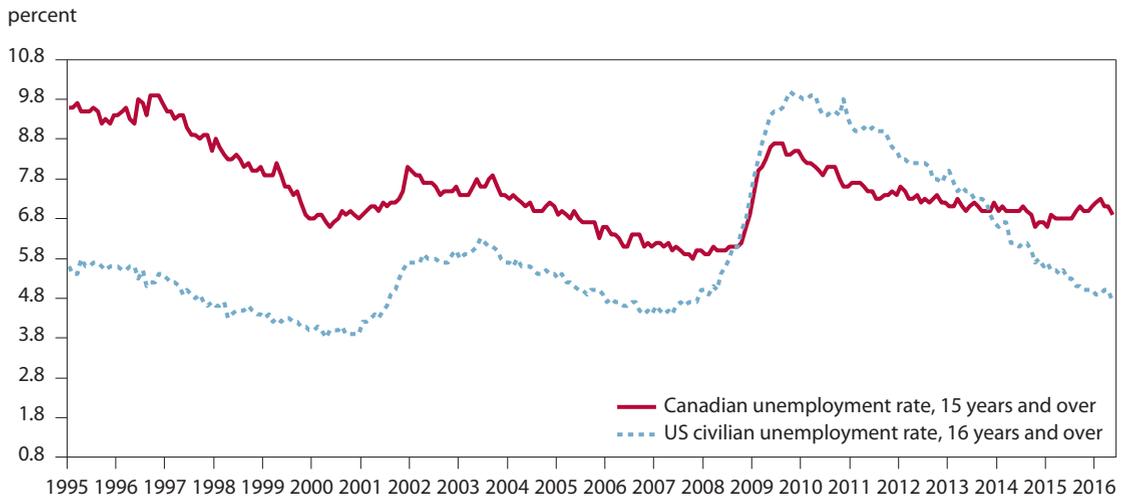
Figure 2.4 Core inflation rates in Canada and the United States, 1995–2015



CPI = consumer price index; CPI-U = consumer price index for all urban consumers

Sources: Statistics Canada; Bureau of Labor Statistics/Haver Analytics.

Figure 2.5 Unemployment rates in Canada and the United States, 1995–2015



Sources: Statistics Canada; Bureau of Labor Statistics/Haver Analytics.

Indeed, given how closely integrated Canadian manufacturers are with the US market, the deviations of 20 to 30 percent in the exchange rate over time are remarkably large.

Whether one views the financial variables as being excessively correlated (bond yields) or insufficiently correlated (exchange rates), it is clear that Canada has enjoyed reasonably good economic outcomes, with low and stable inflation and relatively steady employment. The bottom line is that Canada has enjoyed sufficient monetary independence to achieve good economic outcomes, despite its small size and proximity to the US economic behemoth.

CONCLUSION

China has plenty of scope to ease monetary policy both conventionally and unconventionally. It is not constrained to follow US monetary policy unless it wishes to do so.

As the issuer of an international reserve currency, China inevitably must move to open financial markets. With the world's largest stockpile of foreign exchange reserves, China has considerable scope to continue to manage its exchange rate while opening up its financial markets and maintaining an independent monetary policy. However, at some point in the opening process, China will need to accept greater exchange rate flexibility or risk very large increases or decreases in its foreign exchange reserves.

Because it has the world's second largest economy, it makes more sense for China to have an independent monetary policy than to maintain a stable exchange rate. Exchange rate volatility is less harmful than inappropriate monetary policy (Gagnon 2011). China needs to overcome its fear of floating.

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CHAPTER 3

China's Surprisingly Poor Educational Track Record

Jacob Funk Kirkegaard

The foundation of every state is the education of its youth.
—Diogenes

A generally accepted link exists between a country's human capital development and its long-term economic development and growth prospects. Governments that manage to improve and ensure the educational attainment of their population are best positioned to enjoy high and stable economic growth rates and—if the country is a developing nation—eventually achieve the living standards of advanced economies.¹

China's impressive economic growth in recent decades—and the likelihood that with appropriate market-oriented economic reforms, it will continue to enjoy a relatively high growth rate (Lardy and Borst 2013)—will depend on a dramatic improvement in the educational standards of its workforce. Compared with other emerging markets and certain OECD countries whose long-term status China covets, recent improvement in China's overall educational standards is remarkably poor. A concerted effort by the central government to raise educational standards is urgently needed, particularly for rural areas.

The first section reviews statistical and data collection problems associated with time-series and cross-country comparative educational attainment data. The [second section](#) compares average educational attainment in China with that of other economies, and analyzes the important urban-rural divide in China's education system. The [concluding section](#) elucidates policy implications.

STATISTICAL AND DATA COLLECTION CHALLENGES IN EDUCATIONAL ATTAINMENT DATA

Under scrutiny data on educational attainment reveal statistical and data collection potholes. The most relevant for this analysis are described below.

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1. See, for instance, Shapiro (2005); Elwell (2006); Jorgenson, Ho, and Samuels (2014); and OECD (2015a).

Choice of Educational Attainment Level

For this analysis the focus variable for educational attainment is the percentage of a specific population (defined by age and/or geographic terms) that has completed upper secondary education, or ISCED level 3. As described in OECD (2015b), this level of education encompasses programs referred to as secondary school (stage two/upper grades), senior secondary school, or (senior) high school. This is the educational level attained by more than three quarters of the workforce aged 25 to 64 in all OECD countries in 2014 (OECD 2015b). Widespread attainment of at least upper secondary education can thus be viewed as a necessary, but not sufficient, condition for the achievement of advanced-country standards of living. Persons who did not complete their upper secondary education are not included in the data reviewed here.

Choice of Educational Data Source

To ensure the use of valid and internationally comparable data on educational attainment in large segments of the population, this analysis relies on data collected through regular national census and other nationally representative large population surveys. Such surveys can capture improvements through lifelong learning outside the formalized school systems for young people of workforces' educational attainment.

Educational output data (e.g., number of graduates in a given year) provided by a country's ministry of education or other educational authorities are not reliable. Such data are often inflated by school or local government officials motivated by financial incentives to produce the largest number of graduates possible, and are rarely compatible over an extended period of time. Niny Khor and colleagues (2016), for example, observe a gap between census-based educational attainment data in China and the official statistics published by the Chinese Ministry of Education just as high school–equivalent vocational education and training (VET) courses became subsidized by the central government and were included in the government's national policy targets.²

This analysis relies exclusively on census-based Chinese educational attainment data.

Accounting for Changes in Quality of Educational Attainment over Time

Comparing educational attainment across age cohorts in a given population assumes a consistent qualitative aspect of the education achieved. This is especially important for comparisons across long time intervals—for example, intergenerational comparisons between labor force entrants in their mid-20s (statistically captured in the 25- to 34-year-old cohort) and imminent retirees around age 60 (in the 55- to 64-year-old cohort). Although aspects of a high school education change over a 30-year period, reflecting changes in economic circumstances and social improvements, it is likely that the high school degree continues to provide recipients with roughly comparable skill levels.

2. Countries' education system structures generally reflect idiosyncratic national histories and characteristics. To facilitate the creation of internationally comparable education statistics and indicators, a framework to collect and report data on education programs with a similar level of educational content is required. UNESCO's *International Standard Classification of Education* (ISCED) is the reference classification for organizing education programs and related qualifications by education levels and fields. Upper secondary education (ISCED 3) corresponds to the final stage of secondary education in most OECD countries. Instruction is often more organized along subject-matter lines than at ISCED level 2 and teachers typically need to have a higher level, or more subject-specific, qualifications than at ISCED 2. The entrance age to this level is typically 15 or 16 years. See OECD Statistical Glossary for full definition at <https://stats.oecd.org/glossary/detail.asp?ID=5450>.

Certain societal events, however, may improve or degrade the quality of an education over time. In China, where the quality of high school education has probably improved since the dogmatic prereform Mao years, this is a particularly important consideration. Although there may be a resurgence in Mao-era-like rote learning of political slogans and other ideological content under President Xi Jinping, it is beyond the scope of this paper to attempt to adjust for this possibility, other than to note that it could affect some of the purely quantitative conclusions drawn. This analysis considers a more recently earned Chinese high school degree to be of superior quality to one from, say, the 1970s.

COMPARATIVE ANALYSIS OF CHINESE EDUCATIONAL ATTAINMENT

China's economic growth rate over the past 30-plus years has been remarkable, driven largely by the enormous productivity improvements associated with the shift of large numbers of workers from subsistence farming to the country's urban, industrial, and often globally linked economy. Yet China's world-beating GDP performance has not been matched by a similar improvement in the overall educational attainment of its labor force.

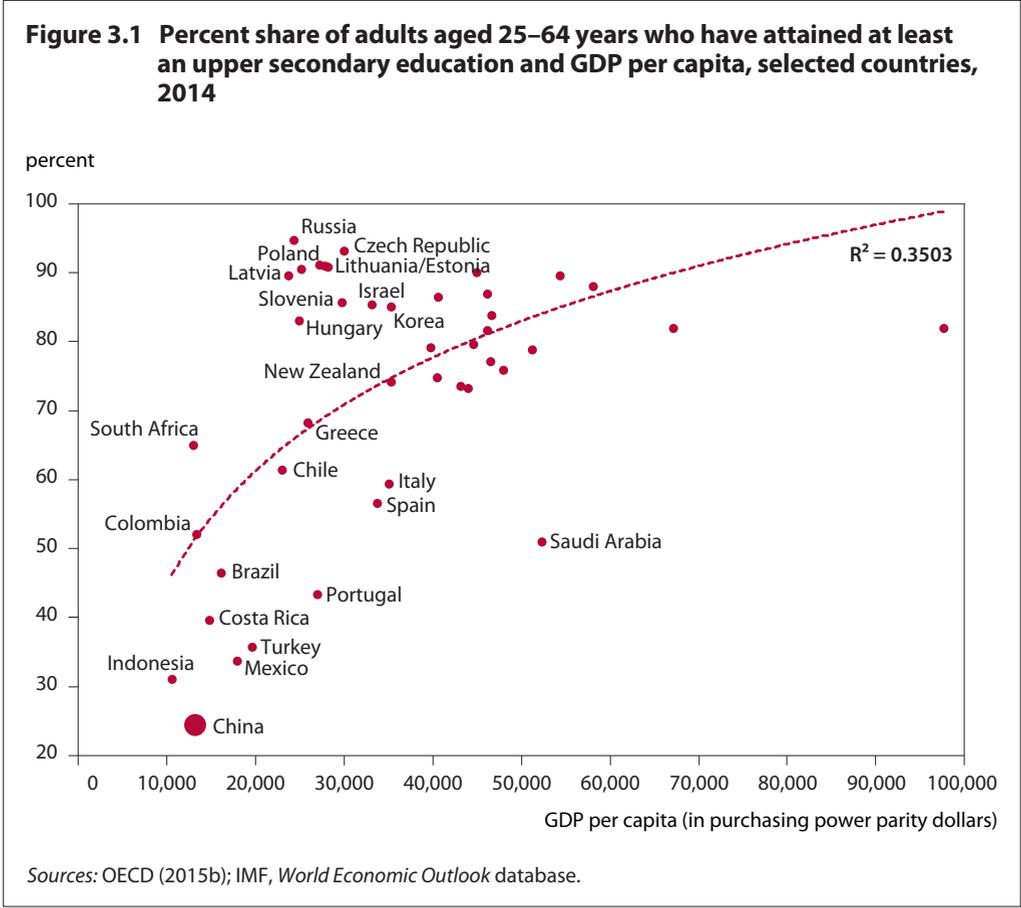
International Comparison

Figure 3.1 illustrates the relationship between upper secondary educational attainment of a country's workforce (ages 25–64) and average per capita income (based on purchasing power parity, PPP). China, at just 24 percent, has the lowest level of educational attainment among a diverse group of OECD and other middle- and lower-middle-income countries. In Indonesia, Colombia, and South Africa, with individual income levels comparable to China's PPP\$13,220 in 2014, average educational levels substantially exceeded those in China, as is also true for middle-income countries such as Brazil, Costa Rica, Mexico, and Turkey.

Figure 3.2 shows that, although Chinese upper secondary educational attainment has improved between the 25–34 and 55–64 age groups, the pace of improvement has remained substantially lower than that of numerous other countries, including other BRICs. Furthermore, this low ranking is despite the fact that the share of Chinese graduating from high school rose 23 percentage points (from 13 percent to 36 percent) from 1980 to 2010. The improvement achieved is simply not enough.

Other countries have shown that it can be done better. During a similar time period, Indonesia and Mexico managed an improvement of 25 percentage points from a higher starting point, and other countries exceeded that increase: Turkey (29), Brazil (32), Colombia (34), Chile (38), and South Africa (39). Indeed, a number of OECD countries like France, Spain, Italy, Ireland, and Portugal saw larger absolute improvements in upper secondary educational attainment than did China over this period. South Korea bested China by almost a factor of two, rising from just over half to virtually universal upper secondary attainment in recent years.

In sum, viewed from an international perspective, the dramatic economic growth and welfare gains in China since the beginning of economic reforms in 1978 have not been matched by educational improvement of the country's workforce.



Comparison of China’s Urban and Rural Populations

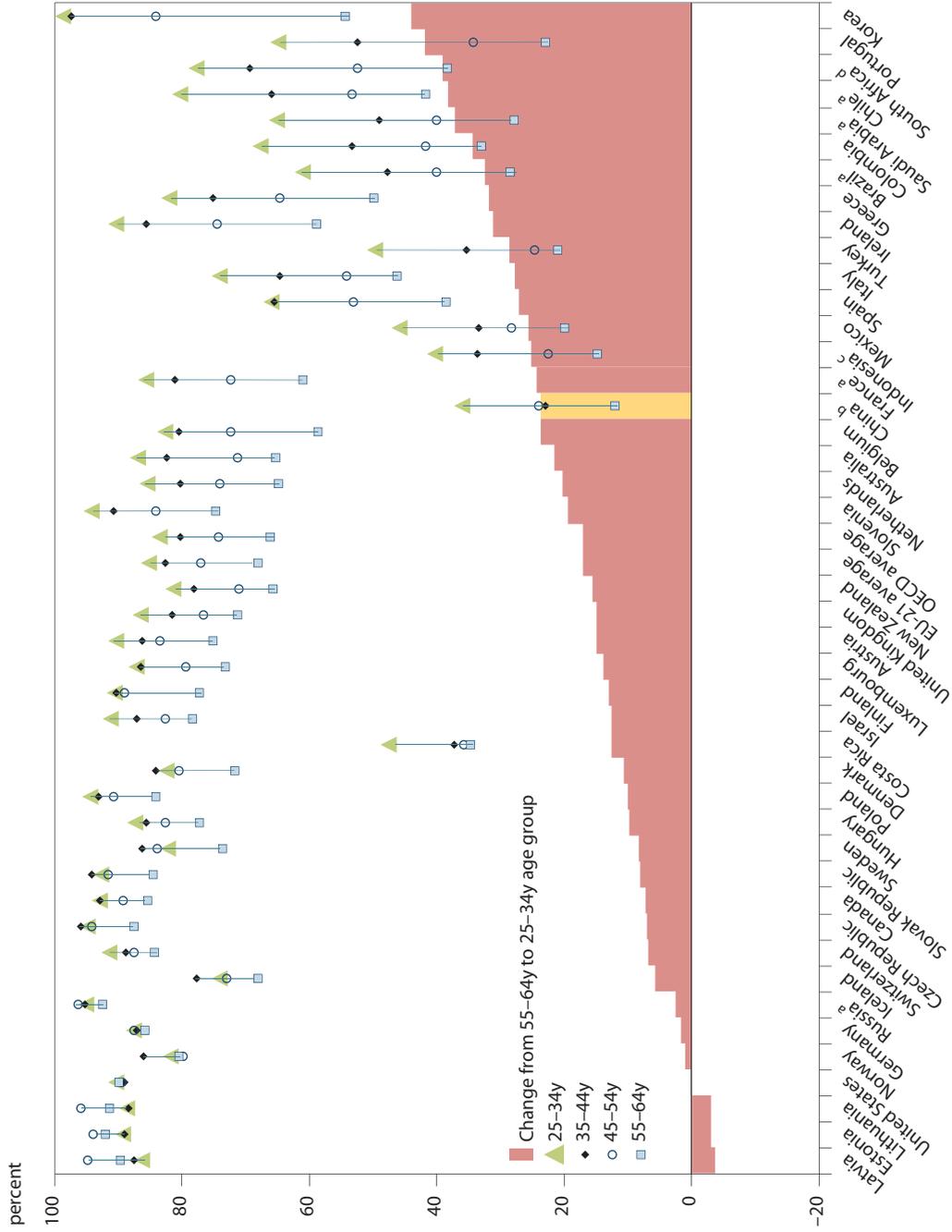
Examination of urban and rural differences in Chinese educational attainment reveals that the country’s poor overall performance can be largely ascribed to a near stagnation at appallingly low levels of education in rural China, as shown in [figure 3.3](#).

The data illustrated in figure 3.3 are from the 2010 sixth Chinese National Population Census, which classifies the population as urban or rural based on residency during the preceding 6 months, irrespective of legal *hukou* status.³ In 2010 China’s population was almost evenly split between urban (50.3 percent) and rural (49.7 percent) residents, although among the youngest (ages 25–34) the urban share is significantly higher.

Even in 2010 only 8 percent of China’s rural workforce had attained an upper secondary education, compared with 37 percent of urban residents. While a relatively high degree of “educational leakage” is to be expected, as those with higher educational attainment in the countryside are more likely to migrate to urban areas and be counted in the census data there, the very low 8 percent rural average and the nearly 30 percentage point urban-rural gap is a spectacular failure of educational policy for a Chinese government that claims to strive for an egalitarian society.

3. *Hukou* is China’s domestic household geographic registration system, which determines where individuals are allowed to live and have access to public schools and other social benefits.

Figure 3.2 Upper secondary educational attainment in selected countries, by age group, 2014



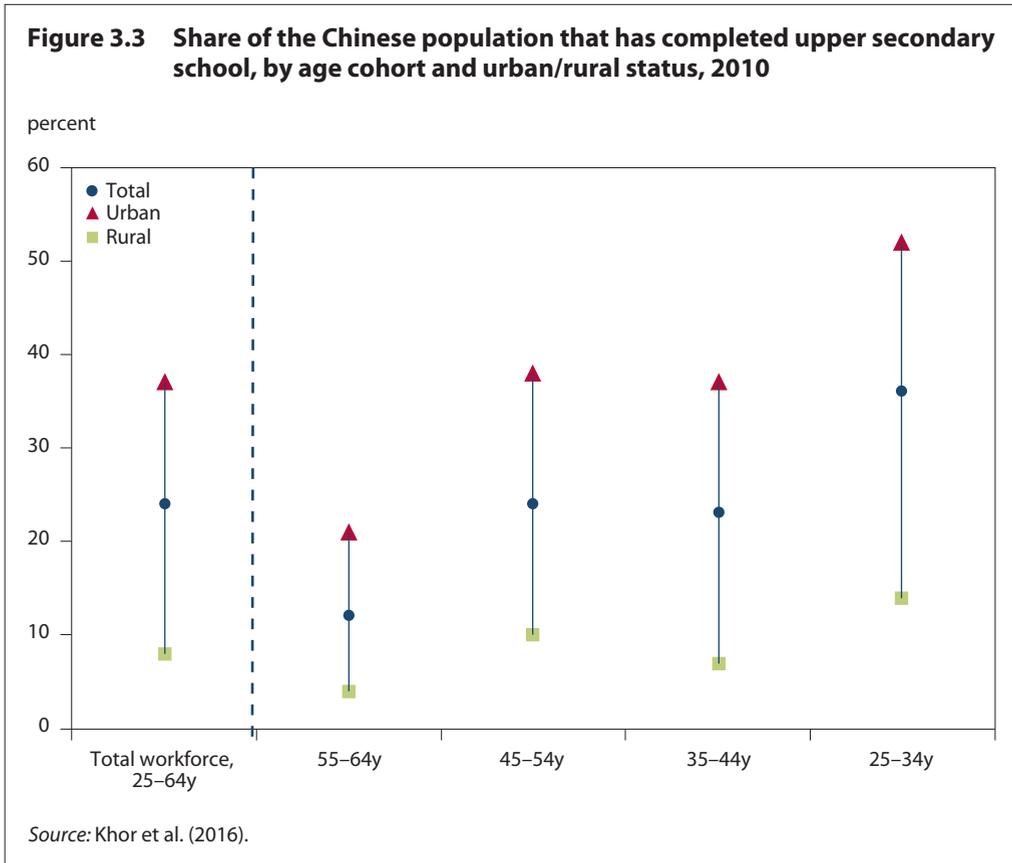
a. Data for 2013.

b. Data for 2010.

c. Data for 2011.

d. Data for 2012.

Source: OECD (2015b).



Breaking down China’s geographic educational attainment gap by 10-year age cohorts reveals how the disparity has grown over time, from 17 percentage points (4 vs. 21 percent) among the 55- to 64-year-olds to 38 percentage points (14 vs. 52 percent) for the 25- to 34-year-old cohort. Again, leakage can be expected to mostly affect younger populations, but the fact that more than 42 percent of China’s 25- to 34-year-olds live in China’s rural areas, and only 14 percent of them have completed high school, is a very poor foundation for either a harmonious society or eventual advanced-economy status.

If China’s educational improvement does not accelerate, the 24 percentage point increase to 36 percent from roughly 1980 to 2010 implies that China as a whole reaches the OECD threshold of 75 percent upper secondary educational attainment only in the late 2050s.⁴ Urban areas in China would reach this threshold in the early 2030s, but rural areas only in the late 22nd century.

Perhaps China will again defy conventional economic wisdom and the experiences of other nations and be able to continue to grow rapidly, even in the face of persistent educational underperformance. But any country aiming to shift toward the production of higher value added goods and a more service-based economy requires skilled labor to generate more output. And a skilled labor force starts with workers who have at least a high school degree.⁵ China will be no exception.

4. Educational leakage effects from increased urbanization cancel each other out when the unit is all of China.

5. See Katz and Krueger (1998); Bresnahan (1999); and Bresnahan, Brynjolfsson, and Hitt (2002).

CONCLUSION

In recent decades China has experienced remarkably high and sustained economic growth rates, but this economic progress has not been matched by comparable improvements in educational attainment. China's upper secondary educational attainment remains below that of many other middle-income countries of comparable income levels in 2014, and far below the level of advanced economies. Moreover, China's educational improvement, as measured by attainment across age cohorts over the past 30 years, has similarly lagged behind that of comparator countries such as Brazil, Indonesia, Mexico, South Africa, and Turkey. In short, China's human capital development in recent decades has been surprisingly poor, particularly in rural areas. In contrast to some smaller countries, China's size naturally rules any meaningful role for immigration policy in altering the broad skill profile of the Chinese workforce. As China intends to move into higher value added manufacturing and service sectors that require higher skills, it must dramatically improve its educational system to avoid the risk of future skill shortages and stunted economic growth.

The data reviewed in this chapter do not cover the high school graduation rates for Chinese aged 15–17 and 25 in 2010. It is possible that accelerated improvement in China's upper secondary educational attainment has already begun and will be visible in the data collected in the next national census, in 2020.

In some ways, China may have been a victim of its own success. The pull effects of its sustained economic boom and rapidly rising wage levels appear to have led too many young people to leave education too early to acquire the skills needed to sustain them (and Chinese economic growth rates) throughout their lifetimes. As Chinese economic expansion shifts toward more skill-intensive growth, those without a secondary education will be less able to find jobs.

As illustrated by the experiences of other Asian tiger economies and more recently some of Europe's real estate and construction bubble economies, government policies aimed at keeping youth in school even during economic booms have long-lasting effects. It is very clear from [figures 3.1](#) and [3.2](#) that even during South Korea's long economic boom the country dramatically improved its education attainment. In Spain, on the other hand, educational levels are stagnating near the bottom of the European range, in large part because of the high numbers of mostly male high school dropouts during the country's long construction bubble from the early 1990s to 2008.

In periods of rapidly rising short-term opportunity costs of staying in school—as in China over the past 30-plus years—it is particularly important that adequate government resources be allocated to ensure that the upper secondary education system is appealing and accessible to young people. Otherwise, in the longer run a vicious circle develops, as too many drop out of school too soon and the low-skilled jobs that may have been plentiful at the (boom) time of such a fateful decision disappear, leaving those without upper secondary skills to struggle.

The Chinese government and society appear to have failed to keep enough of the country's young people in school during the recent decades of economic growth. This is likely to have long-term scarring effects, as public underinvestment in human capital and individual acquisition of needed skills are difficult to undo. People's "lower than otherwise would have been the case" skill levels cannot easily be restructured.

Skill shortages at the upper secondary level will make it harder for China to move into the production of higher value added goods and services, lead to increased income inequality and geographic wealth diversity, and complicate the transition to a widespread consumption-based economy. Only an immediate and very large government investment to improve Chinese education, especially in rural areas, seems likely to

salvage Xi Jinping's Chinese Dream for his countrymen. The reform or abolition of China's *hukou* system, which prevents the children of many rural migrant workers from attending school near their parents' urban workplaces or residences, appears to be another urgent policy priority for Beijing, if China's services and consumption based future is to be salvaged.

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CHAPTER 4

Reflections on Exchange Rate Policies and Financial Markets

Edwin M. Truman

Jeffrey A. Frankel (1999) famously titled an essay “No Single Currency Regime Is Right for All Countries or at All Times.” He was right. He might have said for “any country for all time.” Countries struggle to find the right regime for their currency and are never completely satisfied. One reason is that the economic environment is always in a state of flux.

Exchange rates are important economic variables that have broad implications for the performance of the real economy, including inflation, as well as for financial conditions and stability. They are also uniquely international variables with at least two countries directly involved and numerous other economies indirectly affected by exchange rate movements and associated policy choices.

In the following reflections, I sketch out the history of exchange rate policies over the past half century with the intention of establishing some basic lessons for China and other major economies today.

A LOOK AT HISTORY

Attitudes and policies toward exchange rates have changed over the past 70 years and even the past 20 years. In the immediate post–World War II period, the challenge was to restore normal trading relations and facilitate the clearance of payments and receipts on current account transactions. The exchange rate regime agreed at Bretton Woods, New Hampshire, in 1944 established fixed exchange rates with the presumption that they would be adjusted only under conditions of what the Articles of Agreement called “fundamental disequilibrium.” The motivation was to prevent the use of the beggar-thy-neighbor exchange rate policies that exacerbated the Great Depression of the 1930s. The presumption was that private capital flows would be either nonexistent or tightly controlled. Most advanced countries, with the exception of the United States, initially tightly limited cross-border financial flows. Official flows largely dominated the international financial accounts until the late 1950s when the Europeans embraced current account convertibility for their currencies.

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Post-Bretton Woods Adaptation

Historians can debate whether the US decision to close the official gold window on August 15, 1971, was triggered by a run on the US gold stock, necessitated by the Nixon administration's policy of domestic economic stimulus that was likely to bring the dwindling US gold stock under further pressure, or the consequence of an unsustainable expansion in private, cross-board financial flows.

The fact that the Committee of Twenty (C-20) was unable to agree on a replacement system based on stable but adjustable par values supports the view that the breakdown of the Bretton Woods system was inevitable. The official sector had let private capital flows out of the bottle and had neither the capacity nor the desire to try to put them back.

Indeed, the C-20 convened a Technical Group on Disequilibrating Capital Flows (IMF 1974) that did not consider banning private capital flows or requiring that countries return to tight regulations on such flows. Its members considered the possibility of developing a code of conduct of general principles and rules modelled on the Code of Liberalization of Capital Movements of the Organization for Economic Cooperation and Development (OECD), but concluded it would be difficult to apply such a framework to all countries. They also noted that some countries were using capital controls, now known as measures to “manage” capital flows, but even at that time many in the group expressed skepticism about the sustained effectiveness of such measures. In the subsequent 40 years, net and, in particular, gross capital flows have increased and often swamped exchange rate regimes.

It was some time after the move to generalized floating of the major currencies before even the largest countries with the most sophisticated and well-developed capital markets were comfortable allowing financial flows to push around their exchange rates. The Europeans used a sequence of schemes to tie their currencies together. Almost 20 years ago, a subset of those countries abandoned their national currencies in favor of the euro. But the euro project is under stress today largely because of the behavior of financial flows in the eurozone as well as the fact that the participating countries gave up control over not only their monetary policies but also their exchange rate policies.

During the 1970s few countries allowed their currencies to float at all freely. The emerging-market and developing countries generally pegged their currencies to an international currency. Foreign-exchange market intervention was frequent and exchange rate movements that would be considered minor today often triggered individual and collective responses by the advanced countries.

Two concerns motivated these operations: potential current account adjustments (or lack of adjustment) and inflation. The former concern persists today; the latter has largely disappeared. It is now understood that exchange rate depreciation need not give rise to inflation as long as the central bank follows an appropriately disciplined monetary policy, preferably one that anchors inflation expectations.¹

Attempts at Exchange Rate Management

During the 1970s and 1980s the authorities in most countries focused on nominal, bilateral exchange rates. US authorities also tended to fixate on bilateral exchange rates, in particular against the Deutsche mark and later the Japanese yen. Many economists thought this myopia was inappropriate. It was better to focus

1. The US dollar's weakness in 1977-79 was a particularly telling episode in which for too long the Federal Reserve attributed rising US inflation to weakness in the dollar as well as other nonmonetary factors; see Truman (2016a).

on indexes of nominal or real effective exchange rates. The staff of the Federal Reserve Board (FRB) developed an index of the weighted average foreign exchange value of the US dollar in terms of the currencies of the other G-10 countries to use in measuring what had been achieved from the dollar's devaluation at the Smithsonian in 1971.² After the move to (limited) generalized floating among the major currencies in March 1973, the FRB staff used such indexes for policy analyses, though they have been subject to several compositional and methodological adjustments.³ It is no accident that many countries have their own indexes now, including most recently China, which I applaud.

The profound weakness of the US dollar in the late 1970s occasioned several international rescue operations that were focused primarily on bilateral US dollar exchange rates with the Deutsche mark and the Swiss franc.⁴ Those efforts failed to arrest the dollar's weakness. But the dollar later soared following the successful attack on US inflation (begun in October 1979), two US recessions, and high real and nominal interest rates on dollar-denominated assets that continued into the early 1980s. The dollar reached a peak in early 1985, accompanied by a widening US current account deficit that was 2.7 percent of GDP that year and in 1987 reached 3.3 percent of GDP.

A rising chorus favoring US trade protection, along with increasing concerns about a hard landing for the US and global economies should the dollar decline abruptly, led to the Plaza Accord in September 1985. The finance ministers and central bank governors agreed, "Some further orderly appreciation of the main non-dollar currencies against the dollar is desirable."⁵ A small amount of coordinated intervention followed that statement.

The authorities got more appreciation of the nondollar currencies than they wanted. This led to the Louvre Accord in February 1987 and a brief experiment with target zones for the three major currencies at the time: the US dollar, Deutsche mark, and Japanese yen. The Louvre Accord was backed by an impressive amount of coordinated exchange market intervention, but failed in its goal of keeping the dollar near the rates that prevailed in February 1987.

The last significant bout of coordinated exchange market operations associated with the major currencies as a group involved the dollar again in 1994–95. In July 1994 US Treasury Under Secretary Lawrence Summers declared that a "stronger dollar" was in the interest of the US and global economy and financial system. In early 1995 then Secretary Robert Rubin enunciated the policy posture that a "strong US dollar was in the national interest" (Truman 2016a, 2016b), a position that has continued under Presidents Bush and Obama. Coordinated intervention by the US, German, and Japanese authorities followed until August 1995 when the dollar's decline stopped.

2. The Smithsonian agreement in December 1971 reestablished fixed exchange rates among the major currencies following the US closing of its gold window, but the agreement broke down 15 months later.

3. Today the nominal and price-adjusted indexes are published, still with a base of March 1973 = 100, for the major currencies (the successor to the G-10 index), a broader group of currencies, and US trading partners that are not issuers of the major currencies. See www.federalreserve.gov/releases/h10/summary/default.htm and Truman (2016a).

4. In 1978–79, the US Treasury issued foreign currency-denominated liabilities (Carter bonds) in the mark and the franc, but not in the yen, to augment resources for US exchange market intervention in those currencies.

5. Note the quaint reference not to the US dollar but to the nondollar currencies. Note also the phrase "further orderly" inserted in the G-5 communiqué to signal that a hard landing was not desired (Plaza Accord, www.g8.utoronto.ca/finance/fm850922.htm [accessed on August 8, 2016]). See Truman (2016b) for further discussion of the Plaza-Louvre period of international policy coordination.

In the wake of the Asian financial crisis of 1997–98, which led most of the affected countries to abandon their semi-fixed exchange rate policies, some policymakers and academics had a brief flirtation with a bipolar approach to exchange rate regimes and policy, adopting a corner solution of either a free float or a hard peg (Stanley Fischer 2001). The latter might involve a fully functioning currency board or dollarization. In fact Ecuador and El Salvador embraced dollarization soon thereafter and several small European countries euroized. But the fad largely faded, at least for economies of any size, in part as a consequence of the spectacular disintegration of the Argentine quasi-currency board arrangement in 2001.⁶ John Williamson (2000) deplored the idea that emerging market and developing countries should abandon the middle ground of exchange rate management. He again advocated and has continued to advocate (Williamson 2015) more disciplined approaches to exchange rate management and the process of external adjustment.

The US dollar's recovery starting in the mid-1990s extended until a peak in early 2002 that was accompanied by a US current account deficit of 4.2 percent of GDP. Although the deficit continued to widen, reaching 5.8 percent in 2006, and the dollar did decline somewhat, there was no significant foreign exchange market intervention by the G-7 authorities, with the exception of Japan, which operated heavily in 2003 and early 2004 to resist the yen's appreciation.⁷

Recent Policy Developments

The G-7 authorities have not renounced the tool of exchange market intervention. Indeed, in February 2013 the finance ministers and central bank governors ritualistically declared that

We are agreed that excessive volatility and disorderly movements in exchange rates can have adverse implications for economic and financial stability. We will continue to consult closely on exchange markets and cooperate as appropriate.⁸

The four-sentence ad hoc Statement by G-7 Finance Ministers and Central Bank Governors on February 12, 2013, was significant not for the familiar language in the two sentences quoted above but because of this statement:

We reaffirm that our fiscal and monetary policies have been and will remain oriented toward meeting our respective domestic objectives using domestic instruments, and that we will not target exchange rates.

This language was motivated by concerns that the new government of Japanese prime minister Shinzō Abe would not only target depreciation of the yen but use purchases of foreign currency assets to do so.

6. One could think of the euro area as a hard peg arrangement.

7. The Swiss policy of placing a ceiling on the franc's appreciation against the euro from September 2011 until January 2015 might be viewed as another exception in terms of intervention operations by the issuer of a major currency, but the Swiss policy was unilateral and tolerated by other advanced countries, as were the Japanese operations.

8. The February 12, 2013, statement by the G-7 Finance Ministers and Central Bank Governors is available at www.g8.utoronto.ca/finance/fm130212.htm (accessed on April 20, 2016).

The collective focus on exchange rate management subsequently shifted to the G-20 finance ministers and central bank governors. On February 16, 2013 (only a few days after the G-7 statement), the G-20 members issued the following statement (italics added to show divergence from the G-7 statement):

We reiterate that excess volatility *of financial flows* and disorderly movements in exchange rates have adverse implications for economic and financial stability. We will refrain from competitive devaluation. We will not target our exchange rates *for competitive purposes*, will resist all forms of protectionism and keep our markets open.⁹

Most recently at meetings in Shanghai and Washington, the G-20 finance ministers and central bank governors further expanded their declaration of intentions in this area (italics added):

We will consult closely on exchange matters. We reaffirm our previous exchange rate commitments, including that we will refrain from competitive devaluations and we will not target our exchange rates for competitive purposes. We will resist all forms of protectionism. *We will carefully calibrate and communicate our macroeconomic and structural policy actions to reduce policy uncertainty, minimize negative spillovers and promote transparency.*¹⁰

The first italicized sentence brings the G-20 into line with the G-7 in terms of a commitment to consult. In due course more will be learned about the form and substance of that consultation, which no doubt is already under way.

The second italicized sentence introduces two elements not found in the G-7 statements: the importance of spillovers on exchange rates from other policies, which presumably refers to monetary policies in particular, and the importance of transparency about all policies. These elements are indicative of the link between exchange rates and monetary and financial variables in the thinking of policymakers today.

A final recent development is the agreement among the prospective participants in the Trans-Pacific Partnership (TPP) on their Joint Declaration of the Macroeconomic Policy Authorities of Trans-Pacific Partnership Countries released November 5, 2015.¹¹ The declaration is clear that no participant will undertake additional exchange rate obligations beyond those in the IMF Articles of Agreement. However, on the assumption that the TPP and the associated Declaration come into effect, the participants may be subject to a higher degree of peer pressure with respect to their exchange rate obligations and will have committed themselves to increased transparency about exchange market and reserve management operations (see Bergsten and Schott 2016).

9. Communiqué of Meeting of G-20 Finance Ministers and Central Bank Governors, Moscow, February 16, 2013, available at www.g20.utoronto.ca/2013/2013-0216-finance.html (accessed on April 20, 2016).

10. Communiqué: G20 Finance Ministers and Central Bank Governors Meeting, Shanghai, February 27, 2016, available at www.g20.utoronto.ca/2016/160227-finance-en.html; and Communiqué: G20 Finance Ministers and Central Bank Governors Meeting, Washington, April 16, 2016, available at www.g20.utoronto.ca/2016/160415-finance.html (accessed on April 20, 2016). I interpret the word “including” to encompass not only what is said here but to incorporate commitments in previous G-20 communiqués “to move toward more market-determined exchange rate systems and exchange rate flexibility to reflect underlying fundamentals, and avoid persistent exchange rate misalignments.” Communiqué: G20 Finance Ministers and Central Bank Governors, Ankara, September 5, 2015, available at www.g20.utoronto.ca/2015/150905-finance.html (accessed on April 20, 2016).

11. The document is available at www.treasury.gov/initiatives/Pages/joint-declaration.aspx (accessed on April 20, 2016).

IMPLICATIONS FOR EXCHANGE RATE POLICIES AND PRACTICES

As I have outlined, exchange rate policies and practices have evolved substantially over the past 50 years for the advanced economies as well as for many emerging-market economies, in particular those that are members of the G-20 and/or potential participants in the TPP. I offer ten observations on the current situation.

1. Flexibility in exchange rate regimes is practiced, accepted, and tolerated much more than it was 50, 30, or even 20 years ago.

One important reason is that there is no such thing as a fixed or stable exchange rate today. In particular, large countries such as China, with multiple trade and financial partners in the global economy, are affected by many bilateral exchange rates with their own economies, as illustrated in figure 4.1. The exchange rate between the renminbi (RMB) and the US dollar has been quite stable or predictable until recently. But China's effective exchange rate (BIS series) has been quite volatile, reflecting the fact that the dollar has fluctuated against other important currencies and those currencies' idiosyncratic weights relative to the RMB.

One consequence of this fact, and of many countries' unpleasant experiences with fixed exchange rates, is that the fear of floating may not have completely disappeared, although the neurosis is under greater control.



2. The increasing scale of and scope for capital flows is one reason that greater exchange rate flexibility is more widely tolerated today.

Nevertheless, with respect to capital flows, some observers in advanced countries and governments believe that the official sector can and should know the origins and destinations of every dollar, renminbi, yen, and euro that crosses national borders, ascertain whether the flows are positive or negative for the domestic economy (perhaps equilibrating or disequilibrating in the language of the C-20), and on that basis approve

or disapprove each transaction or set of transactions, using controls. My impression is that this view is held in China by many officials, but not by many economists. It has contributed to the country's off-and-on official attitude toward capital account liberalization and the attempt to monitor flows whether private or official. This throwback view is not realistic. It also is not consistent with commitments to more market-determined exchange rate systems by most other members of the G-20.

3. Exchange rates, in particular real effective exchange rates, continue to be important economic variables for all countries.

In the wake of substantial movements in real effective exchange rates for the US dollar, euro, yen, and sterling over the past several years, once again some observers have expressed skepticism about the impact of exchange rate changes on countries' economies and current account positions. Such skepticism is heard twice every exchange rate cycle: once as a country's exchange rate reaches its near-term peak and later as it reaches its near-term trough. Economists try to determine whether the exchange rate channel to the real economy has been damaged or damped; inevitably, they reach a negative conclusion. For example, IMF staff concluded that "there is little evidence of a general trend toward disconnect between exchange rates and total exports and imports" (IMF 2015, 105).

For the United States, the 10 percent real effective appreciation of the US dollar from June 2014 to June 2015 contributed to a contraction of US real exports of goods and services of 0.6 percent over the four quarters of 2015 compared with an average expansion of 3.2 percent over the previous two years. During 2015, real net exports subtracted half a percentage point from the growth of real GDP compared with only 0.1 percentage point on average over the previous two years. These trends have continued in 2016.

4. Movements of nominal exchange rates continue to have direct effects on headline inflation rates.

Whereas in the 1970s policymakers thought that exchange rate depreciation caused inflation, they have learned that macroeconomic policies, principally monetary policy, can and should offset the second-round effects of exchange rates on inflation. On the other hand, in the context of nominal interest rates already at the zero bound, exchange rate appreciation complicates the challenges of dealing with the threat of deflation.

5. Exchange rates are important variables not only for the real economy but also for national and global financial systems.

In the mid-1990s the feedback effects from exchange rate movements to the prices of US financial assets strongly influenced US official thinking about the dollar. Such effects provided the context in which Chairman Alan Greenspan expressed concern about the dollar's weakness in July 1994 and Larry Summers the next day called for a stronger dollar. The same is true today.

Of course, the effects go the other direction from prices of financial assets, in particular those most influenced by monetary policies, to exchange rates. On the other hand, the simple assumption of uncovered interest rate parity, which economists like to use to close their models of open economies, often does not hold in the short run.

For example, the nominal foreign exchange value of the dollar was 5 percent lower on April 29, 2016, than it was on December 16, 2015, before the Federal Open Market Committee (FOMC) announced the increase in its target for the federal funds rate. In the context of generally lower rates on longer-term assets, the slight widening (e.g., comparing 10-year US treasury bonds and German bunds) favored US dollar assets. Moreover, much of the dollar's weakness predated the FOMC's indication on March 19 that the cu-

mulative increase in the funds rate during 2016 is likely to be less than suggested by the famous dot chart in December. More was going on than exchange rate adjustments aligned with uncovered interest rate parity.

6. The increasingly open global financial system along with the disproportionate scope and scale of actual and potential financial flows have combined to put more focus on financial policies and in particular monetary policies and their influence on exchange rates and other variables of national and international interest.

The challenge is that monetary policy mandates focus on domestic economies, but those policies influence financial conditions elsewhere, directly and indirectly, and spill back onto domestic conditions. Hence, recent G-20 statements include references to spillover effects and the need for clear communication by the authorities via public as well as official channels.

The Federal Reserve acknowledged this reality two years ago, when Chair Janet Yellen participated in the July 2014 China-US Strategic and Economic Dialogue. The Joint Fact Sheet (US Treasury 2014) on the meeting states: “The Federal Reserve is sensitive to the effects of its policies on the international financial system. A key goal of the Federal Reserve is to maintain financial stability both domestically and internationally.” I note that no other central bank has made such a statement. Time will tell how this tension between national policies and global responsibilities and consequences plays out.

7. The coordinated intervention tool has been used infrequently by the advanced economies over the past 20 years.¹²

One reason is the limited effectiveness of sterilized foreign exchange market intervention to tightly and actively manage exchange rates involving financially open economies. I make this observation notwithstanding the fact that with the advent of central bank policies of large-scale asset purchases (also known as quantitative easing), the portfolio balance approach to assessing the effectiveness of exchange market intervention has enjoyed a revival (see Adler, Lisack, and Mano 2015; Bayoumi, Gagnon, and Saborowski 2015). My reasoning is that the scale of sterilized intervention implied by these studies is beyond the comfort level of most authorities.

Gustavo Adler, Noemie Lisack, and Rui Mano (2015) find as a point estimate that 1 percent of GDP of sterilized intervention is needed to achieve an effect of 2 percent on the exchange rates with a half-life of less than 2 years. This result implies, for example, that if the US monetary authorities had wanted to resist the 5 percent depreciation of the dollar between mid-December 2015 and the end of April 2016, sales of \$450 billion dollars of foreign currency, which they do not hold, would have been required. But it would also be problematic for the authorities of the appreciating currencies to accumulate US dollars on that scale. In principle, the assets would have to be invested in dollar-denominated assets forever. In time, citizens would question the social return on those investments.

Although for the advanced economies sterilized foreign exchange market intervention to tightly manage exchange rates for prolonged periods is not practical today, the tool has not been and should not be discarded. Exchange market intervention can still be useful as a signal to exchange market participants that their collective judgment may be misguided. A good example was the intervention on March 18, 2011, to resist the inexplicable rise in the Japanese yen in the wake of the Tohoku earthquake. The success of that effort was based on the fact that it was coordinated among the G-7 countries and was of sufficient scale to be noticed. Both coordination and scale are important in thinking about exchange market operations in the future.

12. Japan and Switzerland are exceptions to this generalization, with mixed results.

8. Returning to the fact that no single currency regime is right for all countries or at all times, a corollary is that the costs of adjusting or modifying certain exchange rate regimes can be larger than those associated with adjusting other exchange rate regimes.

China and the global financial system have learned this lesson painfully over the past year as the Chinese authorities made adjustments to their exchange rate policies that were accompanied by volatility in foreign exchange and financial markets that was disproportionate to the underlying policy changes.

The best time to unpeg a pegged currency is when there is no pressure to do so, but the authorities will have no incentive to do so. Consider the case of the currencies of oil-exporting countries that are pegged to the dollar. Many economists have long advocated introducing a degree of flexibility in their exchange rate policies as a countercyclical policy, following the example of Canada and Australia. Recently there has been speculation about whether the peg for the Saudi riyal will hold.

When a currency is under upward pressure, the economic costs of abandoning or loosening the peg may be somewhat more manageable. However, in the case of an abrupt abandonment of a peg or heavily managed exchange rate and a large subsequent adjustment, the hit to real net exports is likely to be significant.

A gradual loosening, on the other hand, is likely to be associated with significant financial costs. The monetary authorities probably will have to acquire foreign currencies on a large scale. They will experience at least paper losses on those holdings on top of likely fiscal costs associated with the need to sterilize their purchases of foreign exchange through the sale of domestic assets carrying higher interest rates. The experience of China over the past decade is illustrative of this case.

If a peg or a heavily managed exchange rate is abandoned or modified when the currency is under downward pressure, the resulting depreciation is likely to be large. And the effects on the real economy, including via adverse balance sheet effects, are likely to be significant and difficult to control or offset, as was seen during the Asian financial crises.

9. The experience of China over the past year is also illustrative of the essential importance of clarity and transparency about a country's exchange rate policies. The Chinese authorities' relaxation of some controls on capital flows, revision of some regulations governing RMB exchange markets, and lack of clear communication about the resulting changes in China's exchange rate regime have had negative effects not only on financial markets in China but on other markets as well.

It is for this reason that the commitments by the G-20 monetary authorities to "consult closely on exchange matters" are important. Equally important are the G-20 commitments and those by the potential TPP participants to promote transparency not only ex ante about their policy intentions but also ex post about their policy actions and unintended consequences.

10. International monetary cooperation on exchange rates has evolved toward establishing "prevention norms," as was done at meetings of the G-20 finance ministers and central bank governors in Shanghai and Washington. These norms are intended to prevent countries from adopting beggar-thy-neighbor exchange rate policies. Time will tell the extent to which countries successfully adhere to these norms.

If they do, the international financial architecture will have come full circle back to the motivation behind the establishment of the Bretton Woods exchange rate regime.

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