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The “One Belt and One Road” program is a major strategic measure introduced by China in response to the emerging trends in economic globalization, with the objectives of increasing convergence of interest between the nations (regions) and constructing a new open economic system. It fully respects the main themes (i.e. openness, freedom and collaboration) of the global economy today. Within such a strategic framework, China proposes a new approach to promoting worldwide economic prosperity and to benefiting other regions in terms of driving forward cross-regional economic integration through economic growth in China and Asia.

It also represents China’s new efforts to promote cross-regional collaborations between the country and other Asian nations and even Europe and Africa, with the strategic vision of maintaining global prosperity.

The “One Belt and One Road” strategy testifies to China’s firm stance not to seek exclusive regional economic groupings. Instead, we are committed to an open, win-win strategic solution based on the international “Belt and Road” connecting Asia, Europe and Africa together, guided and supported with the development in key regions and major strategic projects. Going forward during the implementation of the “One Belt and One Road” strategy, we need to adhere to the following six principles.

### Raising Awareness of Strategy by Advocating Ideals

Throughout history, the Silk Road — on land or at sea alike — symbolized openness, inclusiveness, cooperation and peace. It has been the venue for humanist, spiritual, cultural, artistic and technical exchanges.

For the “One Belt and One Road” strategic vision to be accepted by all the countries involved, it is imperative to replace traditional self-centric beliefs with collaborative ideals that value "openness, inclusiveness, mutual benefits, eco-friendliness and sustainable development". These ideals must be easy to understand and readily acceptable and adoptable
by other countries. On the basis of a thorough understanding of these common ideals and values, a consensus needs to be achieved among the nations regarding power, interests and responsibilities. With common interests, they can be bonded into a community of shared interests, destiny and responsibilities.

**Openness, Inclusiveness and Mutual Benefit**

China is both the starting and finishing points of the “One Belt and One Road” program. However, it is much more than a “one-country” show for China, but rather it reflects a common dream for all the countries along the route — a win-win solution for all the countries involved and even the entire world. We proposed — and will implement — the strategy with an open mind striving for win-win results. It is a strategy of openness, inclusiveness and reciprocity, and its success will depend on the support and active involvement of the countries along the Silk Road.

Therefore, we need to play the “China card,” seeking to optimize the benefits for our country from the perspective of China’s national interests as well as global strategic objectives; more importantly, we should take an “international stance”, paying attention to our own interests as well as the common interests shared by all countries.

This means the practical needs of other countries should be taken into full consideration, and their concerns (including those of related world powers) should be handled with respect. This way, conflicts of interest can be resolved through coordination, ultimately enabling China to join hands with other nations in responding to global challenges and sharing development opportunities.

**A Multi-pronged and Balanced Approach**

Given the extensive nature and ambitious objectives of the “One Belt and One Road” strategy and the large number of stakeholders concerned, relevant resources must be effectively integrated and mobilized by adopting a multi-pronged approach encompassing economic, diplomatic, security and cultural initiatives.

A balance needs to be achieved in the following respects: domestic reforms VS. economic opening up — facilitating economic deregulation with domestic reforms, and on the other hand, stepping up the reforms in response to the needs of economic opening up; domestic strategy VS. global strategy — domestic and international markets and resources should be fully tapped, minimizing suspicions from the two sides as well as strategic misjudgment; the central government VS. local governments — while fully respecting local governments as “policy initiators,” the central government, as the “top-level designer,” needs to work out the direction in policymaking and strategic priorities effectively, coordinating various domestic sectors, the military, business, the academia, and provincial, regional and municipal governments; the “One Belt” on land VS. the “One Road” at sea — the two sub-strategies are closely connected and mutually supportive, and effective strategic synergy can be achieved by combining relevant efforts on land and at sea.

**Aiming for Major Breakthroughs Amid Progressive Development**

The “One Belt and One Road” strategy should be implemented with a progressive, step-by-step approach, starting with low-hanging fruits first; in terms of cooperation priorities, the following seven areas merit close attention: transportation infrastructure interoperability, trade and investment, energy resources, finance, ecosystem protection, maritime cooperation, and humanity-related industries including technology, education, culture, healthcare and tourism.

During the initial stages, efforts should be focused on less sensitive areas, striving for fast results especially those achievable within 2015. Location wise, nearby countries and regions should be prioritized over far-flung destinations. Start with countries with which China has close economic ties, and create comprehensive strategic partnerships with these countries first by strengthening bilateral cooperation as the entry point.
For the overland “Belt,” priority should be given to member states of Shanghai Cooperation Organization (e.g. Russia, Kazakhstan, Uzbekistan, Kyrgyzstan and Tajikistan in Central Asia) and Turkmenistan. As for the “Road” at sea, Indonesia, Vietnam, Myanmar and Malaysia in Southeast Asia and Pakistan, Sri Lanka, Bangladesh and India in South Asia should be prioritized as the key countries during the initial introductory phase.

**Market-based Operations with Government Guidance**

As well as allowing the market to play its role as the dominant force, effective execution of the “One Belt and One Road” program calls for strong government guidance and support, as a supplement to market-driven development.

Government guidance is needed mainly in terms of “top design”, macro-level planning, policy incentives, resource investment and advisory services. In addition, the government should set a good example for the private sector, mobilizing the support from political parties, the intelligentsia, the media, nongovernmental organizations, etc.

Promotion of the strategy in China and overseas should be conducted in a low-key, appropriate, practical and prudent fashion to avoid excessive publicity. With due stress on the role of the government, international rules and practices must be fully complied with, giving full play to the market’s decisive role in resource allocation and enterprises’ role as the dominant entities.

Relevant market mechanisms and the profit-driven mechanism should be improved to facilitate the development of key projects guided by principles of commercialization and marketization.

**Launching New Initiatives while Tapping Into Existing Resources**

Within the vast geographies covered by the “One Belt and One Road” strategy, a number of similar plans and strategies had been proposed by different countries during the last several decades, resulting in the accretion of enormous project resources. Effectively utilized, such existing policies and platforms can lead to “fast results”.

Through optimized, scientific planning, we can tap into existing international mechanisms, organizations and cooperation platforms along the route of the “One Belt and One Road,” including Shanghai Cooperation Organization, ASEAN 10+1, 10+3 and 10+6 frameworks, cooperation mechanism in Northeast Asia, the Boao Forum for Asia, China-ASEAN Expo, China-Asia-Europe Expo, China-South Asia Expo, China-Arab Expo and China Western China International Fair.

As well as tapping into existing development resources, we also need to introduce new projects. Efforts should be made to bring the Asian infrastructure investment bank and the Silk Road fund into substantive operation.

Furthermore, we need to fully leverage our growing capabilities in financing and infrastructure construction, further expanding transnational cooperation in Asia and infrastructure projects, thereby making solid financial preparations for the implementation of the “One Belt and One Road” framework through large-scale financial mobilization efforts.

In terms of organizational support, foreign trade and international development cooperation functions spread over different departments may be integrated at the Central level, where a dedicated international development cooperation organization can be set up specifically for this ambitious strategy. It will help reinforce centralized guidance and coordinate China’s economic trade activities in its drive to “go abroad” along the “One Belt and One Road.”
Asia Must Bridge Its Infrastructure Gap

George Magnus, Senior Economic Adviser at UBS Investment Bank

Infrastructure is a hot topic. With much of the global economy, including Asia, the subject of serial downgrades to GDP and trend growth projections, the IMF devoted a special chapter to it in its recent World Economic Outlook. China has announced some fascinating initiatives designed to strengthen infrastructure spending in Asia. The simple argument for more or better infrastructure is that it boosts short-to-medium term demand, and strengthens supply and trend growth over the longer term. Some countries in Asia could do with the former, but all need the latter. The logistics of making it happen, though, should not be under-estimated.

US$8 Trillion of Infrastructure

The Asian Development Bank (ADB) 2010 report on the infrastructure needs of 32 Asian economies estimated Asia’s infrastructure gap at US$8.2 trillion over the period 2010-2020, equivalent to about 4 percent of regional GDP. It identified electricity generation and transportation especially, but also telecommunications, and water and sanitation as the principal areas that needed attention. East and Central Asia accounted for just over three-fifths of needed expenditure, while South Asia accounted for just under 30 percent, reflecting the weights of China and India, respectively. Nevertheless, little progress has been made since the ADB released the report in reversing a trend that began after the Asian crisis of 1997-98, when ubiquitous fiscal consolidation led to infrastructure becoming a principal casualty.

The only exception was China’s stimulus programme, announced as the Great Financial Crisis was unfolding, in which the bulk was financed by banks, and about a third of which comprised infrastructure spending. China’s infrastructure boom unquestionably helped to turbo-charge economic growth locally and regionally between 2008-2012, but since then this too has run out of steam. Residential property investment now looks to be fading on a secular basis, and growth in other forms of infrastructure has been slowing down under the influence of the anti-corruption campaign, more scrutiny over local governments, and financing, debt and cash-flow constraints.

There is little question that Asian countries need to take up the infrastructure challenge. The argument for large, public capital projects, however, is colored by efficiency and governance issues. Efficiency, in which Asia’s global rankings are generally relatively low, is key to the trade-off between economic gains, and costs in the form of higher debt to GDP. The productivity of infrastructure, in other words, is the ultimate arbiter of economic advantage. The ADB pointed out, and others have said subsequently, that Asia’s global ranking in infrastructure quality is poor, save only for the world-class characteristics of facilities in Singapore and Hong Kong. According
to the World Economic Forum’s 2014 Global Competitiveness report of 133 countries, Malaysia ranked at 29, Thailand at 47, China at 48, Indonesia at 61, and India at 85. All other Asian countries were lower still. While economic growth over the last 10-20 years has given a major infrastructure boost to the biggest cities in Asia, there remain substantial numbers of people without proper employment and education, and without access to acceptable sanitation, or adequate drinking water, and electricity.

**Strong Reasons to Get Started**

The call to step up infrastructure spending is underpinned by three big trends. First, weaknesses in infrastructure are becoming an increasing drag on economic growth, especially for middle-income countries, according to recent empirical evidence. This is especially pertinent for East and South East Asia, and India. As traditional growth models, based on exports to the West, or in China’s case, fixed asset investment, have become less effective, deficient infrastructure spending has been identified as a key target for structural reforms designed to provide a new lift to economic growth and productivity.

Second, relentless urbanization across Asia will place huge demands on city infrastructure. The United Nations estimates that Asia’s urban population will grow by 650 million people by 2030, paced by China, India and Indonesia. Other than Malaysia, where the urbanization rate is over 70 percent, China, Indonesia and the Philippines (49-52 per cent), and India, Thailand and Vietnam (31-35 percent), all have an increasingly urgent need for productive infrastructure to help steer economic growth and ensure successful urbanization.

Third, the rapidly ageing population means that Asia is in a hurry because over time, the movement of older workers from their years of peak income and savings into retirement will erode high savings. Governments, moreover, will dis-save to fund the retirement and health demands of ageing populations. The original Tiger economies and China have arrived at this point already, but the rest of the continent may only be 20 years behind. It is not long to build up the financial infrastructure for ageing populations.

Governments, therefore, need to act soon to try and harness high savings by building up pension fund and insurance asset pools. They also need to bring depth and breadth to relatively immature capital, especially bond, markets, and look at ways in which they can co-operate with private companies under public-private partnership arrangements. This speaks
to a domestic policy agenda of financial and banking reforms, in which private finance providers might also overcome the risk, liquidity, regulatory and governance complications that typically overshadow participation in long-term public infrastructure investments.

The timing for reform, moreover, may never be ideal, but it might be especially difficult in an economic environment where growth is slowing, and external pressures from a strong US dollar and weak Japanese Yen are rising. Moreover, high non-financial corporate debt levels in Asia, that have been accumulating for several years, especially in China, Korea, Malaysia and Thailand, suggest additional distractions, including managing process of deleveraging of corporate balance sheets.

**China Steps Up to the Plate**

The recent news that China’s outward direct investment in the first three quarters of 2014 had surpassed inward investment for the first time was not widely publicised. Yet it deserved greater focus because the combination of a new focus on outward direct investment and China’s better publicised initiatives in backing or creating three new institutions could prove important for Asian infrastructure initiatives. In July, China participated with the other BRICS nations in the announcement of the New Development Bank and the Contingent Reserve Arrangement. The former will have an initial capital of US$50 billion, and is designed to provide development capital, including for infrastructure. Here, though, China is one of five equal shareholders.

China’s imprimatur is going to be felt much more keenly in the Asian Infrastructure Investment Bank, which will have a capital base of US$100 billion, half of which China will provide, and which was launched in October 2014 with 21 members (but not South Korea or Australia). It is unquestionably designed as a competitor to the ADB, whose principal and substantial shareholders are the US and Japan. But it could co-operate with it too, and fill a much-needed space in Asia. If it succeeds in attracting private capital, providers of which will want assurances when it comes to governance, expertise, independent oversight, and commercial decision-making, it could complement the ADB, which has acknowledged lending limitations, and tilted towards concessional lending to low income countries.

China’s other major institutional project is geared towards what is formally called the Silk Road Economic Belt, an ambitious strategy to build out the ancient trading routes (by land and sea) that linked East Asia to Europe via Central Asia and the Middle East. China is a key member of the Shanghai Cooperation Organization, comprising also Kazakhstan, Kyrgyzstan, Russia, Tajikistan and Uzbekistan with India, Iran, Pakistan and Afghanistan accorded observer status. According to a Bloomberg report, China’s intention is to create a US$16.3 billion development fund, overseen by its policy banks such as China Development Bank, to finance infrastructure linking Chinese (poorer inland) provinces with, and possibly beyond, markets in Central and South Asia.

**Simple Outweighs Grandiose**

These institutional initiatives give substance to China’s evolving role as a net exporter of direct investment. As suggested, though, there may be formidable constraints in coming years to getting these institutions to live up to very high expectations. Grandiose and colorful investment schemes, especially those that cross borders, need time, political resolve, and the capacity to overcome major obstacles.

In the meantime, though, anything that facilitates infrastructure financing will be welcomed. India springs to mind as a classic Asian example of infrastructure deficiency malaise, where the government is financially constrained. Airports, bridges and highways are undoubtedly important, but basic or less glamorous projects will be far more productive. Prime Minister Narendra Modi has emphasized power generation and efficient energy consumption technologies, and has articulated a new version of previously tried plans to clean up the 2,500 kilometer and heavily polluted Ganges, and bring clean drinking water to citizens. Improved electricity supply and public health will transform India’s economic prospects.
On the side line of the 2014 APEC Summit in Beijing, China and Thailand agreed to cooperate on railway development that will eventually link Kunming to Bangkok and Thailand’s Eastern Seaboard ports, and could go all the way to Singapore in the longer term.

This is not a new idea as improved connectivity in the Greater Mekong Subregion (GMS) has been accepted as a key strategy for GMS development that can benefit all countries concerned. Many roads to improve connectivity in the GMS have already been built, with more under construction and planned. The Kunming to Bangkok rail link along a North-South corridor through Laos will further reduce transport costs along the corridor, particularly for freight traffic, and has the potential to be win-win-win for all the three countries concerned.

For China, high sustained growth over many years have led to rising costs in major manufacturing areas along the Eastern coast. This has reduced China’s competitiveness vis-à-vis her competitors. At the same time income disparities between Eastern coastal provinces and inner provinces are still very high and in some cases rising. For example, in 2013 Yunnan’s per capital GDP was only 42.85 percent that of Guangdong.

The gap has increased since 1990 when Yunnan’s per capital GDP was 49.25 percent that of Guangdong. This can create social tensions and political problems, particularly for a socialist country. If more manufacturing base can be created in inner provinces such as Yunnan, this will help to accelerate development and reduce disparities with the richer coastal provinces. However, logistic costs of exporting from the inner provinces are too high. A North-South rail link to ports in Thailand could help to reduce logistic costs and facilitate growth of manufacturing in Yunnan and other nearby inner provinces, and help reduce provincial income disparities. In addition, China stands to benefit from selling her railway technology to be used in developing the railway corridor.

For Laos, the railway corridor can be developed as an economic corridor to attract new economic activities, either those serving transport activities directly, such as packaging, storage and distribution facilities, or those that become viable given the railway corridor, such as industrial estates and export processing zones. Laos will also benefit from using the railway corridor to add to its existing domestic transport network.

For Thailand, which is already the most advanced economic center of the GMS, logistic improvement from the rail link to Yunnan will generate new trade and investment opportunities. New distribution hubs for Chinese products making use of Thailand as a major distribution center are already being studied. Demand for port services to ship out Chinese products

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Benefit Sharing Key to Effective Connectivity
will increase substantially. The faster growth of the inner provinces of China will increase the demand for products from Thailand, though of course, Chinese products will also have more access to the Thai market.

Another major benefit should be the generation of more economic activities near Thailand’s border areas, such as distribution hubs and export processing zones for products to be sold in China. As the border areas are less developed than areas around Bangkok, this should help to improve, or at least stabilize, income distribution within Thailand, which, like China, has been deteriorating continually for many decades and have created social and economic problems.

A key point about the North-South corridor rail link from Kunming to Bangkok and Thailand’s Eastern Seaboard is that it will have to be a trilateral project involving Laos, China and Thailand. It is also quite clear that China and Thailand will benefit more from using the rail link than Laos. Even though Laos will benefit from increased economic and transport activities resulting from the corridor, Laos is a very small country in terms of either population (about 6.7 million in 2013) or GDP (only about 5.6 percent of Yunnan’s nominal GDP). So the direct benefits to Laos from the rail corridor will be tiny compared to what China and Thailand will be getting.

Laos is a landlocked country. However, Laos views herself as a land-linked country. That is most major corridors linking Laos’s neighbors together need to go through Laos, whether the North-South rail corridor, or East-West corridor linking Thailand and Vietnam. So for most of the corridors, Laos is the main transit country and the issue of appropriate benefit sharing for a transit country becomes very important.

There are differing experiences that one can draw upon from Europe. Both Switzerland and Austria play the role of transit countries for land transport between Germany and Austria. Because Austria belongs to the EU while Switzerland does not the approach to sharing the benefits of the transit corridor is very different. In the Swiss case, Switzerland pays for all the infrastructure investment but charges high tolls to recoup the investment cost. This means that the logistic cost of using the corridor will be high and reduces the effectiveness of the connectivity. Of course, the transit country will be concerned about impacts on the environment, road damage, accidents, congestion etc., and may want to limit the transit use. In the case of Austria, as she is a member of the EU, there are mechanisms for Austria’s EU neighbors to help fund the infrastructure investment and maintenance costs in return for low tolls. EU vehicle and safety standards also help to control environmental impacts, road damage and accidents.

For Laos, the Swiss experience is not applicable. Most importantly, Laos does not have the financial resources to invest in a huge railway project, and for Laos to benefit sufficiently from the rail link, the link needs to go through Vientiane to the Chinese border, a distance of 500 km. or so, meaning a huge investment. So the Austrian model would be more appropriate. However, there is no EU like institution for the GMS, so the three stakeholders, Laos, China and Thailand need to have serious discussions about developing such a rail corridor, the physical design of the project (gauge, tracks, speed, fuel power, environment and safety standards etc.), the funding and sharing mechanism for investment and maintenance, the institutional and business operation models, the fares, etc.

At present, we are no where near such discussions. Bilateral agreement between China and Thailand is not a good sign. Laos needs to be brought into the discussion right at the beginning.

As the land-linked country, if Laos does not go along with the project, then the Thai government’s planned double track of standard gauge rail and electrification from the Bangkok area to Nong Khai will simply end at Nong Khai and be a waste of public money.

So a trilateral project needs to be initiated and mechanisms set up to work out all the fine details. Then there will be some chance that a truly effective North-South rail link from Kunming down to Bangkok and Thailand’s Eastern Seaboard, and possibly on to Singapore, will finally be implemented.
Silk Road Economic Zone, the EEU and China-Russia Cooperation

Li Jianmin, Research Fellow of the Institute of Russian, Eastern European Central Asian Studies, Chinese Academy of Social Sciences

Since it was proposed over one year ago, the “One Belt and One Road” strategy has gone through the conceptual design, framework development and strategic planning stages, and relevant practical cooperation projects are currently underway. The international community has changed its attitude toward and perception of the strategy.

Not a Replacement for Existing Regional System Arrangements

The “One Belt and One Road” framework isn’t intended as a tight-knit integrated cooperation organization and will not break the existing regional system of arrangements.

In terms of the establishment of the Silk Road Economic Zone (SREZ), China needs to properly handle its relations with existing integration organizations and the major powers involved. Within the SREZ there’re currently a large number of regional cooperation organizations with varying economic cooperation programs, including Eurasian Economic Community, Russia, Shanghai Cooperation Organization, Belarus and Kazakhstan Customs Union, Eurasian Economic Union (EEU, newly upgraded in 2015), South Asian Association for Regional Cooperation, Gulf Cooperation Council, League of Arab States and the Black Sea Economic Cooperation Organization. These organizations have similar integration functionalities but cannot replace each other. The SREZ will not be a competitor or substitute for the aforementioned regional organizations. Instead, it will play its role side by side with existing programs.

As a major power in the region, Russia needs to be involved and contribute to the SREZ program. The biggest practical issue is how to engage the Russia-dominated Eurasian Economic Union in promoting regional collaboration.

China-Russia Cooperation Within the SREZ Framework

After the “One Belt and One Road” strategy was proposed by China, Russia officially expressed its interest in collaborating with China in SREZ development on at least three occasions.

To integrate the SREZ program with Eurasian Economic Union requires assistance from existing programs and cooperation platforms. For this purpose, the Shanghai Cooperation Organization should serve as the ideal option.

Thus far, multiple dialogue mechanisms and cooperation platforms have been set up between China and Russia. Of them, only the Shanghai Cooperation Organization is positioned for regional cooperation. The SCO and Eurasian Economic Union share many member states, territories and economic functions in common. Given the existing resources, the SREZ and Eurasian Economic Union may focus their attention on the following areas as the main directions and
prioritize relevant projects.

Interconnection and intercommunication. In 2010-2011, supported by Eurasian Development Bank, Eurasian Economic Community worked out the overall plan for road and railway infrastructure development, stating that 142 projects would be implemented by 2020. As far as interconnection and intercommunication are concerned, domestic projects and transportation development strategies as well as international projects and programs are all facing financing constraints, which cannot be supplied by Eurasian Economic Union internally and requires assistance from international financial institutions and development organizations.

From a broader perspective, the Asia-Europe railway corridor plan was initiated by the Railway Transport Organization in 1996 and is currently in progress. In the future, it plans to create a fully integrated Eurasian continental railway network connecting Trans-Siberian Railway, the new Eurasian Continental Bridge and other railway corridors based on railway networks in Asia, the CIS and Europe as the basic frameworks. This happens to coincide with the transport interconnection goal under the SREZ program. Through rapid development in recent years, the Chinese railway industry pushed forward original and integrated innovations and re-innovations of imported technologies. As a result, remarkable capabilities and extensive experiences have been gained in terms of railway design, construction, equipment manufacturing and operation/management. Moreover, China boasts superior financial strengths, which means that China and Russia may collaborate with each other on multiple levels in interconnection and intercommunication development.

Electricity cooperation. Eurasian Economic Union has decided to inaugurate the EEU unified power market in 2019. Today, grid interconnection between nations and main regions is the general trend in the global power system. Interconnected synchronous networks offer considerable benefits: (1) improved energy efficiency and reduced operating costs realized through secure development and utilization of large capacity power units, large hydropower and nuclear power facilities and renewable resources; (2) reduction in system spare capacity and savings of power generation capacity through complementary power swap; (3) large-scale energy resource allocation optimization facilitating the expansion of the competitive energy power market; (4) improved overall grid efficiency, security and reliability. China now has one of the most advanced national grid in the world in terms of network size, voltage class, UHV technology, extensive resource allocation capability and smart grid construction. May 20, 2014, the State Grid Corporation of China and OAO Rosseti (the national power company of Russia) signed a strategic cooperation agreement, where long-term technical exchanges and mutually beneficial collaborations were planned between the two parties in areas such as UHV AC and DC, smart grid technology research and applications, power transmission construction and renovation and the feasibility of building the Eurasian power bridge. In the future, if China can be admitted to the EEU unified power market program, the transnational power network will supply power to China as well as to Afghanistan and Iran, which are located near the SREZ and suffering from power shortage. This offers promising cooperation prospects and would be conducive to promoting coordinated development of the regional economy.

Agricultural cooperation. In accordance with regulations of Eurasian Economic Union, once established, the union will implement uniform agricultural policies to ensure balanced development of agricultural and food products in line with market demand, providing conditions for fair competition in terms of joint agricultural market admission criteria, etc. unifying conditions for agricultural and food product circulation, and safeguarding the member states’ interests in domestic and international markets. In addition, the union will also work out unified food policies to coordinate relevant measures ranging from crop farming, food market intervention and grain reserves to pricing, national agricultural support and export incentives. Russia, Belarus and Kazakhstan boast superior resources for agricultural development.
and leapfrog growth was achieved in the countries in the last decade. Russia currently stands as the third largest barley and wheat exporter in the world; Kazakhstan is a major exporter of flour; and Belarus possesses high agricultural productivity. All three countries have classified agriculture as a new growth driver. As a major crop producer and consumer, China is going through acceleration in the industrialization and urbanization processes. As a result, we’re challenged with severe shortages of farmland, water and basic resources for agricultural production and deteriorating agricultural environmental pollution. Strategically, the Chinese agricultural industry should “go abroad” to play an active role in global division of labor, and continuously expand the market for its own survival and growth in line with the general trends of global economic development. Agriculture will prove an important area for the integration of China’s Silk Road Economic Zone with Eurasian Economic Union. As well as increasing cooperation in agricultural trade, China and the EEU can collaborate on agricultural industrialization, organic agriculture development, agricultural machinery trade, food transport, etc. All these areas present promising potential for fruitful cooperation. The ongoing sanctions imposed by the West on Russia revolving the Ukraine crisis open up a window of opportunities for China to expand fruit, vegetable and pork exports to Russia. On top of such short-term opportunities, both countries should take active actions to lay a solid foundation for long-term collaboration in the future.

Financial cooperation. China has already developed a sound basis for financial cooperation with EEU member states. China signed the currency swap agreement with Belarus, Kazakhstan and Russia in 2009, 2011 and 2014 respectively. While currency swap isn’t directly relevant to RMB internationalization, it creates an entry point to pushing forward the RMB internationalization process. Currency swap deals considerably reduce financing and exchange costs for the signatories, benefiting their foreign trade enterprises with tangible savings. Thus far, significant progresses have been achieved between China and Russia on the fronts of local currency trade settlement and China UnionPay-based settlement. Given the quasi-Cold War between Russia and the U.S. resulting from the crisis in Ukraine, Russia is determined to exit the USD-dominated system. In a joint statement signed on 20 May 2014, China and Russia expressly pledged to push forward bilateral financial cooperation. Such efforts involve increasing direct local currency settlement in Sino-Russian trade, investment and loans to protect both countries from the effects of fluctuations in the exchange rates of major international currencies. Vneshtorgbank signed an agreement with Bank of China, planning to development partnership in multiple areas including Ruble and RMB clearing, investment banking, inter-bank loans, trade finance and capital market transactions.

Financial cooperation will act as a catalyst for integrating the SREZ with the EEU going forward. It should be promoted as follows: (i) actively push forward bilateral local currency settlement and develop multilateral settlement systems between China and Eurasian Economic Union as time becomes ripe; (ii) gradually expand the size of currency swap with EEU member states; (iii) actively explore new capital operation models based on joint capital contribution and a mutual-benefit mechanism; (4) facilitate steady opening of the financial market and set up a cross-border financial service network; pragmatically strengthen international financial governance and regulation, improving financial policy coordination.

Looking ahead, the success of the SREZ framework requires prolonged collaborative efforts of all countries and regions along the route. In the case of Sino-Russian cooperation, the two countries should make concerted constructive efforts through mutual cooperation based on an accurate assessment of the situation. Through close collaboration under the immense SREZ framework, mutual understanding between the two peoples can be deepened, thereby enhancing and consolidating the standard of bilateral cooperation activities. As well, China and Russia may well raise their status in global affairs through joint development endeavors over the vast territories covered by the Silk Road Economic Zone program.
Reinvigorating Maritime Links between Indonesia, China and Asia-Pacific

Soegeng Rahardjo, Ambassador of the Republic of Indonesia to the People’s Republic of China

The maritime connections between Indonesia, China and the rest of Asia can be traced back to historical accounts centuries old. Among others are the writings of renowned Tang Dynasty Monk, Yi Jing, who sailed the South China Sea, the Malacca Strait, and the Indian Ocean; from Guangzhou, to the capital of Sriwijaya Kingdom, and then to Nalanda, in ancient Magadha. For many, these travel stories not only described the learning and spread of Buddhism in the region, but also provided us with a narrative of the long-existing ties among the peoples of Indonesia and China.

And when discussing the historical maritime connections between China and Indonesia, it is hard not to also talk about the seven voyages of the famous Ming Dynasty admiral, Zheng He. On each of his voyages to the Western Seas, Zheng He stopped over and toured the Indonesian archipelago, spending time to learn local traditions and introducing the locals to Chinese culture. Stories of these friendly exchanges are very popular in Indonesia. Moreover, in a country with the largest Muslim population in the world, Zheng He is also known for his contributions in spreading Islam to the Indonesian people.

Therefore, it should not come as a surprise that scholars would propose a model for regional maritime cooperation based on such historical accounts. As they say, history tends to repeat itself, and what better way to gaze into the mirror ball then by designing our future on the basis of past experiences.

The surprise, however, comes when a state leader draws on ancient historical readings to base his country’s foreign policy approach and propose a new perspective on international cooperation. And this was achieved by Chinese President Xi Jinping in 2013, when he put forward the idea to establish the Modern Silk Road Economic Belt and the 21st Century Maritime Silk Road, which has since become known as the "One Belt, One Road" initiative.

On his first trip to Southeast Asia following his appointment as Chinese President, President Xi delivered an important speech in Jakarta. The occasion was indeed historical, as President Xi became the first ever foreign leader to address Indonesia’s Parliament. At the same time, the substance of his speech was equally historical. President Xi highlighted Southeast Asia’s role as an important hub along the ancient maritime Silk Road, thus proposing the need to "vigorously develop maritime partnership in a joint effort to build the Maritime Silk Road of the 21st Century".

President Xi’s Jakarta speech complemented the one he had made a month earlier in Kazakhstan, where he had expounded on the reviving of the ancient silk route across the Asian continent. These two speeches became the basis for China’s present strive to develop international cooperation within the framework "One Belt, One Road".
Trade along the ancient Silk Road across the Asian continent was significant in influencing the development of many civilizations. It opened political and economic interactions, facilitated trade, and provided the means to exchange cultures and connect peoples. This can also be said of the ancient maritime silk road. Indeed, introducing the concept of a new maritime silk road in the largest Southeast Asian country was fitting, as China and the sub-region has over the years steadily developed close cooperation in various fields.

Connectivity is an important factor in developing a maritime silk road cooperation in Asia. As our economies become more interlinked, connectivity provides the basis for better flow of goods, people and services. This would spur business activities stemming from easy access, regional production network, and bringing products and services closer to consumers. In the end, our hope is that our efforts in decreasing high cost economy would make Asia more competitive and cohesive.

Maritime connectivity will also improve balanced growth and narrow development gap among the many countries in Asia. Herein lies the significance of ensuring that the maritime silk road cooperation must evolve into a win-win situation for both developed and developing countries in the region. In this regard, there is need for more intensive investment cooperation, especially in infrastructure development, as this would foster economic growth and development. These efforts cannot be carried out single-handedly by a particular country.

Indonesia welcomes President Xi’s proposal as a contributing step towards a more connected, more prosperous, and more peaceful region. As the world’s largest archipelagic state, strategically located between the Pacific and Indian Oceans, Indonesia would have much to offer in efforts to concretely realize President Xi’s vision of maritime connectivity.

Today, Indonesia is a trillion dollar economy. One that is sustained by a democracy that is well-consolidated and a growing middle class. Indonesia is also blessed with abundant natural resources and a productive workforce. This makes Indonesia a potential haven for investment. As predicted by McKinsey, Indonesia’s business opportunity will increase up to 1.8 trillion US dollars in 2030. We are continuing to create a better business and investment environment by, among others, undertaking major bureaucratic reforms and strengthening government institutions.

But Indonesia has its own set of challenges. Indonesia is made up of more than 17,000 islands, stretching almost three times the distance between Macao and Beijing. While Indonesia may be a tropical paradise, it can also be challenging for logistics, transportation, and energy distribution. This highlights the importance of strengthening Indonesia’s infrastructure. Not only for the purpose of enhancing connectivity among our islands and cities, but also in ensuring that Indonesia’s growing prosperity is enjoyed in all corners of the country.

Located at the cross-roads of the world’s most active sea lanes, connectivity is significant in ensuring Indonesia’s economic development. Newly-elected Indonesian President Joko Widodo shares President Xi’s enthusiasm for developing regional cooperation through maritime connectivity, having proposed the need for Indonesia to become the world’s maritime axis.

Building on the goals of the previous administration to accelerate development, President Joko Widodo, launched the Global Maritime Nexus vision, which will expand inter-island connectivity and upgrade port infrastructures in Indonesia. In this regard, Indonesia plans to develop 24 deep seaports in the next five years and create a "sea toll" connecting Sabang in Aceh to Merauke in Papua. As a result, they will cut freight cost up 50 percent, provide easier access to remote areas, improve local economies and distribute economic growth throughout Indonesia.

Indeed, the main beneficiary of greater investment in infrastructure and connectivity would be Indonesia. Cooperation in developing infrastructure projects such as roads, railroads, ports, airports, power plants, and telecommunication will accelerate the internal and external connectivity. At
the same time, because of Indonesia's geographical position and sheer size, we believe that better infrastructure in Indonesia would contribute positively towards stronger connectivity in Southeast Asia and in the greater Asia Pacific region as a whole.

The growth of the Indonesia-China partnership is bound to enhance the prosperity of China's 1.3 billion people and Indonesia's 240 million people. That is over 23 percent of the world's population. This should then raise a sense of common and shared responsibility for our two countries to also establish an Asia-Pacific region that is more stable, more peaceful, and more prosperous.

Therefore, it is not mere coincidence; the Chinese dream of a maritime silk road and the Indonesian dream of a maritime axis are complementary, and therefore, demand more intense cooperation between the two countries and peoples.

Indonesia is also working closely with other countries in Southeast Asia, by implementing the Master Plan on ASEAN Connectivity. Our common goals are as follows: improved physical connectivity, better institutional connectivity and deeper people-to-people connectivity. This is an enormous and ambitious effort. Yet, with commitment, dedication, and hard work, it is an effort that is well within our reach. Moreover, ASEAN hopes that its efforts would be supported by dialogue partners around the region, including China.

The silk road cooperation proposed by China should not only complement efforts presently being carried out by ASEAN. It should also further reinforce China's commitment to support the ASEAN countries' implementation of the Master Plan on ASEAN Connectivity. And for Indonesia's purposes, our hope is that such noble efforts would not only focus on land connectivity from China down to Singapore, but also along the region's busy and strategic waterways.

As a rising power, China is actively developing programs that could benefit neighboring countries and the region. It is obvious that China's economic development has and will continue to bring opportunities to its neighbors. At the same time, many lessons could also be learned from the rest of the region, especially in maintaining China's image as a friendly neighbor among the Asia-Pacific countries.

For cooperation to take place, a conducive political and security environment must be continually promoted in the region's waters.

From our experience, peace and stability in Southeast Asia region has in turn induced positive economic atmosphere creating a vibrant economic condition for more than 600 million people in the region. For that reason, we should continue to attach great importance and effectively to create a conducive political and security environment.

The concept of a modern maritime silk road should be concrete in its implementation. Together, through continued dialogue and cooperation, we should strive to translate this concept into real projects by establishing a web of trade links and strengthening connectivity. Against this backdrop, it is understandable how many countries in the region welcome President Xi Ji's proposal.

The hope is that this would contribute positively towards further fostering a sense of community, a shared identity, and an integration of interests in the Asian region. The 21st Century is often labeled as the Asian Century. The economic achievements of many Asian countries have captured the imagination of the world. As the engine of global growth, it is not far-fetched to claim that the Asia-Pacific is turning into the axis on which the world revolves. Nevertheless, we must not be complacent. We also should take targeted measures to support economic growth, stability and resilience in the Asia-Pacific.

The Asia-Pacific must take decisive actions to reinforce confidence and strengthen the region's growth potential. In this regard, countries must be able to anticipate and withstand any economic turbulence, and become a more resilient region. Through continued dialogue and cooperation in implementing of the initiative of modern maritime silk road and the ancient silk route, we should shape the strategic landscape of our region through a long-term commitment that will accelerate our physical, institutional, and people-to-people connectivity.
Achieving Trade Cooperation in the Asia-Pacific Region

Carlos Gutierrez, Co-Chair of Albright Stonebridge Group; former Secretary of the U.S. Department of Commerce

The rapid rise of the economies that make up the Asia Pacific is one of the 21st century’s most exciting global development trends. The shift of the world’s economic growth engine to the Asia Pacific region makes achieving a new set of “21st century” trade agreements one of this decade’s most important tasks. Meaningful trade and investment liberalization in the Asia Pacific region would unleash enormous untapped economic potential and could drive structural reform, economic growth, innovation, and sustainable development the world over.

Given the potential economic and social benefits of such new trade frameworks, it is important that the region’s two largest economies, the United States and China, work towards harmonizing and integrating the many regional trade agreements currently in various stages of negotiation, including the TPP, RCEP, and FTAAP. Taken together, these trade deals, negotiated over many years, have the potential to build on one another in a complementary fashion to create a comprehensive, high-standard regional trade architecture in the Asia Pacific. Conversely, if TPP and RCEP were to harden into separate and competing trade blocs, this would not only hamper U.S.-China economic cooperation, but would undermine the region’s growth potential by increasing the complexity and costs for businesses seeking to do business across the entire Asia-Pacific.

Furthermore, the growing importance and complexity of bilateral economic ties between the U.S. and China necessitate that the two economies pursue corresponding mechanisms to advance their economic ties, such as the Bilateral Investment Treaty (BIT) currently under negotiation. A stronger bilateral economic relationship between the Asia Pacific’s two top economies can help lay the foundation for stronger regional economic ties in the future.

Building a “Community of Common Destiny”

For 14 years, the Boao Forum for Asia (BFA) has been the leading venue for leaders to discuss ways to strengthen cooperation and promote economic growth. This year’s official theme, on building a “Community of Common Destiny” in Asia, is particularly well-timed. Following a period of rapid development, Asia’s economy has begun to enter, to borrow a phrase from Chinese President Xi Jinping, a “new normal” phase of slower, more sustainable economic growth. In addition to ongoing economic transitions throughout the region, the global economic environment has also become more challenging, as many of the region’s key developing and emerging market trading partners are continuing to grapple with the after-effects of the global financial crisis. In light of these global headwinds, the countries of the Asia Pacific have
even more incentive to pursue trade and investment liberalization initiatives to spur regional economic growth. Ambitious regional economic cooperation initiatives not only advance regional trade flows, but also facilitate cooperation in many other important areas critical to releasing the region’s vast economic potential, including developing energy and natural resources, advancing sustainable development and structural reform, promoting infrastructure investment, and spurring innovation.

Cooperation to achieve meaningful trade and investment liberalization and jumpstart economic growth is a critical facet of building a “Community of Common Destiny” in the Asia-Pacific. During my time as CEO of the Kellogg Company and as U.S. Secretary of Commerce, I advocated for international cooperation to lower barriers to trade and investment and for greater global harmonization of rules and regulations. High-standard, ambitious free trade agreements (FTAs) lay the foundation for a more open, fair, and transparent environment for business and can help participating economies implement needed economic reforms. By enhancing competition, promoting international partnerships, encouraging transparency, and tapping the potential of new industries and sectors, FTAs benefit workers, farmers, businesses, and consumers. FTAs are win-win: with cooperation, each of our economies can unlock untapped potential for dynamic, shared growth.

Boosting Growth Through Regional Trade Liberalization

Economies throughout the Asia Pacific region are in the process of negotiating new FTAs. Chief among these are the highly-ambitious Trans-Pacific Partnership (TPP), with participation of the United States and eleven other Asia-Pacific economies, and the Regional Comprehensive Economic Partnership (RCEP), the proposed 16 party trade agreement including the 10 members of ASEAN plus Australia, China, Japan, India, New Zealand, and South Korea.
Both the TPP and RCEP, as well as a range of other regional trade initiatives, could serve as important building blocks for an eventual Free Trade Area of the Asia Pacific (FTAAP).

Once concluded, the 12-country TPP grouping will represent nearly 40 percent of global GDP and one third of global trade. The TPP will be a comprehensive, high-standard trade agreement that will reduce almost all tariffs, open up agricultural trade, and put into place a new set of cutting-edge, 21st century trade rules, including strengthened intellectual property protections and harmonized disciplines for state-owned industries, e-commerce, and cross-border investment. In addition to unleashing an estimated US$300 billion in global annual economic benefit by 2025, the TPP will set the gold standard for environmental and labor protections in the Asia Pacific, improving the lives of the nearly 500 million people living in the grouping and providing specific protections for disadvantaged communities.

U.S. Trade Representative Michael Froman has said the TPP “is the major focus of our economic pillar of the rebalance to the Asia Pacific” and demonstrates the United States’ unwavering commitment to providing leadership and improving lives in the Asia Pacific. Conditions appear favorable for the completion of TPP negotiations in 2015. The shift of the U.S. Senate from Democratic to Republican Party control is likely to benefit the Obama Administration’s efforts to conclude TPP, as the Republicans have indicated a willingness to cooperate with the President on trade issues. Additionally, while sticking points remain, all negotiating parties seem to have come to the realization that now is the time to press forward to a successful conclusion of the negotiations.

The other major regional trade initiative, RCEP, appears to have been moving a bit more slowly. Although the participants in RCEP had explicitly called for the agreement to include significant flexibility to provide differential treatment for participants of at different levels of development, the diversity of the RCEP participants, among other factors, has proven to be quite challenging to date. It is unclear whether it will be possible to complete RCEP negotiations by the end of 2015, the target agreed to by participants.

The FTAAP is an important, long-term aspirational goal, which could help deliver on the APEC promise of “free and open trade and investment” in the Asia Pacific. The FTAAP is envisioned as a comprehensive agreement, built on ongoing regional undertakings, to address “next generation” trade and investment issues. In a keynote speech to the BFA last April, Premier Li Keqiang urged the launch of a feasibility study on FTAAP, which he said would “maximize the benefits of trade and investment in the Asia-Pacific.” Last November in Beijing, at the APEC Economic Leaders’ Meeting, leaders agreed to a “Beijing Roadmap” study of issues relating to the realization of FTAAP, to be presented to Leaders by the end of 2016, and acknowledged the need to use current regional trade initiatives as building blocks for a future FTAAP. One important consideration in thinking about the FTAAP is the need to ensure it meets the highest standards available in other regional and bilateral trade agreements.

Through its leadership of the TPP, the United States strives to make a meaningful contribution to regional integration and expanding trade in the Asia Pacific. The hoped-for 2015 conclusion of the TPP would certainly position it as a solid starting point for the norms, standards, and disciplines to be covered in the FTAAP. Moreover, the TPP has an open accession clause, providing a set path for new economies to join in the future; already a number of other economies, including the Philippines, Thailand, Laos, and Indonesia have indicated an interest in membership, while China has said it is studying the TPP. A wider TPP membership would make it a natural stepping stone to FTAAP. A Peterson Institute study, published in 2012, estimates that a high standard FTAAP could boost global GDP by as much as 1.9 percent. The TPP provides just such high standards.

Ultimately, the FTAAP can serve as a tool by which to integrate what will inevitably be a range of ongoing regional undertakings in the Asia Pacific.
of different rules and regulations under the TPP, RCEP, and other regional FTAs. Only through such integration, at the highest level of discipline, can the economies of the Asia Pacific effectively collaborate to build a lasting, modern trade architecture and thus unleash, to the greatest extent possible, the vast stores of economic potential throughout the region.

Deepening U.S.-China Cooperation
To achieve the vision of the FTAAP, the region’s two largest economies, the United States and China, will have to show leadership and work together. Fortunately, the last several months have demonstrated that the U.S. and China, despite many challenges, are capable of taking concrete actions to deepen cooperation, manage and resolve difficult issues, and by so doing, strengthen bilateral ties. President Obama’s summit with President Xi following the APEC Leaders’ Meeting generated important outcomes, including bilateral agreements on climate change, military cooperation, and the Information Technology Agreement (ITA) negotiations. Last December’s U.S.-China Joint Commission on Commerce and Trade (JCCT) meetings delivered additional positive outcomes on critical trade issues. Stronger bilateral ties, forged through consistent working level meetings and summit diplomacy, will prove indispensable to further promoting trade relations in the Asia Pacific.

The U.S.-China BIT negotiations, a top priority for both governments, will also set the stage for further meaningful cooperation on economic integration. President Xi has repeatedly referred to the importance of the BIT both for U.S.-China economic ties, as well as to support Chinese domestic reforms. President Obama, too, has indicated the priority he attaches to these negotiations. There has been significant progress on the disciplines laid out in the core text of the BIT, and both countries have committed to submit their lists of sectors to be excluded from the market access obligations that will be required under the BIT, the so-called “negative list,” early this year. A high-quality BIT would send a powerful signal that the United States and China are capable of working together to conclude meaningful market opening agreements.

There are other positive steps both countries can take to improve regional cooperation on economic initiatives. China’s expanding commitment to spurring on regional economic growth, demonstrated by Xi Jinping’s new economic “Silk Road” and the Asian Infrastructure Investment Bank (AIIB) initiatives, could potentially make a meaningful contribution to regional development. The Asian Development Bank (ABD) has estimated that Asia’s infrastructure funding gap will be about US$8 trillion between 2010 and 2020. China’s new initiatives can leverage China’s available cash and proven track record in building infrastructure to address the needs of its regional partners. If these new institutions are complementary to existing institutions, such as the IMF and World Bank, and do not undermine the high standards and protections those institutions embody, the AIIB and New Silk Road would demonstrate China’s commitment to making significant contributions to global development, trade, and investment. It is also worth considering ways that the U.S. and China can work together on these initiatives to ensure they are sources of cooperation, not competition, in U.S.-China relations.

I believe the U.S.-China relationship is the world’s most important bilateral relationship. This is true across a range of issues, but particularly so when it comes to building a resilient, 21st century trade architecture to drive economic growth in the Asia Pacific. While I am convinced that the TPP will provide an important first step on the road to regional trade and investment liberalization, it also will be very important for China and the United States to work together to implement a long-term strategic vision to achieve comprehensive regional economic integration at a high level of discipline. I commend the Boao Forum for providing a platform by which stakeholders across the region can discuss and further promote these critically important trade issues.
Exiting Unconventional Monetary Policies

Hon Peter Costello AC, Chairman of the Future Fund; Former Treasurer, Commonwealth of Australia

From the 1980s through to the financial crisis of 2008, Central Banks focussed on setting a short term benchmark, or policy interest rate, as a way of influencing long term interest rates in an economy. The Central Bank would announce its target for the key benchmark and, if necessary, move in the market to achieve that outcome. The benchmark, or policy rate, anchored other rates which were usually set as a margin or spread above that base.

The policy rate would be moved up or down according to macro-economic objectives which would be specified as part of an institutional framework usually set by government. The objectives could include things such as price stability or full employment. Policy would usually be tightened or loosened in incremental steps. This allowed monetary policy to be calibrated to responses as they occurred in the real economy.

From the 1990s many Central Banks began to target an explicit inflation objective. The policy rate was set with the objective of achieving the Central Bank’s objectives over the medium term — perhaps a two or three year horizon. Often the policy rate tracked quite closely Taylor Rule specifications whereby the rate responded to deviations in inflation from target and output from its potential. The policy rate would usually be positive in real terms, that is, it would typically be above current and projected inflation rates. Because this was the system that came into effect after the collapse of Bretton Woods fixed exchange rate system and prevailed through to the end of the 20th Century (and a little beyond) most of us came to regard this as “normal” monetary policy.

Unconventional Policies

More than six years on from the financial crisis of 2008, policy settings are still very far from that kind of “normal”. A whole series of “unconventional” policies have been undertaken. Policy rates have in many cases been taken down to zero and in some cases into negative territory, something that few of us expected back in the days when things were “normal”.

For much of the period Taylor Rule formulations pointed to the need to generate materially negative policy rates. Rather than take policy rates well below zero, with the broad range of challenges that entails, Central Banks began to focus on other measures. In several countries this meant greatly expanding the balance sheet of the Central Bank. That balance sheet expansion continues in some areas — a process referred to as quantitative easing, or “QE”. Central Banks have bought longer-dated financial instruments in an attempt to shape expectations and put downward pressure on discount rates, thereby encouraging investors to buy riskier assets or to “move out along the risk curve”.

QE has often gone hand in hand with credit easing, including the relaxation of collateral
standards, meaning that assets on central bank balance sheets are riskier than was the case previously. Central Banks have also paid greater attention to their communications strategies, with “forward guidance” about the future policy stance playing a much more important role in shaping market expectations. This process, begun by the Federal Reserve in the United States, has been also undertaken by the Bank of Japan and now the European Central Bank. Although it has been adopted by all the major developed economies, most of us would still describe it as “unconventional”.

These policies have not only eased monetary conditions. One of the consequences, intended or otherwise, is that they have exerted downward pressure on exchange rates.

The Current Economic Outlook

These unconventional policies followed in the wake of the crisis in major financial institutions, and the fallout from that crisis, which commenced in 2008. There was a sharp drop in output in many major developed economies.

The global economy has been gradually recovering since. Even though the degree of policy support has been unprecedented, growth has still been subdued compared with prior experience. Growth has also typically undershot expectations. It has been striking how consistently establishment and consensus macroeconomic forecasts have been downgraded. Invariably, it seems, some “headwind” or combination of headwinds has cropped up to derail expectations. Curiously, the headwinds have been different over time. They have variously included concerns about the “fiscal cliff” in the United States, Euro area stability, the ability of economies to cope with rising rates, inventory cycles, a slowdown in China, disease and even the weather.

Not surprisingly, as time has passed, economists have gradually downgraded their estimates of potential growth in the major developed economies. Outside immediate challenges there are also the longer term structural changes that are coming into play in the developed economies like the slowing in population and workforce growth.

But, it is not only growth that has been subdued. Inflation has consistently surprised on the downside. That seems a far cry from the early days of QE when there was considerable concern in some quarters about the risks of rapidly rising inflation and bond yields. On the contrary, despite the aggressive monetary easing, inflation at the global level has trended down. And more worryingly, some recent measures of inflation expectations, such as market forward implied inflation, have also moved down after having previously remained reasonably well anchored.

The challenges stemming from recent developments, the combination of sluggish growth, lower inflation and extremely accommodative monetary policy have been accompanied by declining long-term interest rates, extending what has been a multi-decade downtrend. Lower rates have provided a boost to asset prices. But that boost comes at the cost of lowering prospective returns - something that adds to the challenges faced by pension funds and insurance companies that seek to provide retirement incomes for ageing populations.

Problems Stemming From Unconventional Policies

The boost to asset prices raises the question of whether asset bubbles are now emerging again. The crisis of 2008 was directly related to an unsustainable build up in housing prices. Banks may now be better capitalized, but the scope for additional policy accommodation in the future is much less given how low policy rates are and how much easing has already occurred. One of the substantive outcomes of the 2008 crisis is the extent to which the Government levered up its own balance sheet in support of deleveraging by the financial sector. Those countries that used public money to underwrite private institutions are now much more exposed than they were seven years ago. In future we may see a distinct lack of political willingness to rescue private sector institutions again, not the least because governments contemplating such action will have much greater
fiscal constraints.

Higher asset prices can pose additional problems even in the absence of bubbles. The gains from higher asset prices accrue naturally enough to the owners who are, generally, those better off in a society. This has tended to increase wealth inequality within many countries, something that has become more of a political concern given the muted income gains (and in some cases declines) for all but the highest paid workers. While income inequality at a global level has been declining in many places it has been increasing at the intra-national level.

The income and wealth inequality issues are compounded by the support that low rates provide for the affordability of capital. While capital deepening might ordinarily be expected to boost labour productivity there are few signs that is actually happening or that workers are capturing the benefits. Rather there are risks that low rates make capital cheap relative to labour, with adverse implications for employment.

Low rates also have implications for longer-term growth. When funding costs are abnormally low unproductive businesses can stay in business. That is not only detrimental to those that can make better use of capital, it is also detrimental to longer-term growth prospects. In some instances, where households and governments are seeking to reduce debt, the excessive supply of goods and services will also put downward pressure on prices.

One apparent bright spot is that global imbalances look to have declined. Some of the very large current account deficits that previously existed have all but disappeared. However, this is not all good news. The decline in current account deficits in the “European periphery” countries has come at a very high cost in terms of lost growth and very high unemployment.

Current account deficits naturally contract during deep recessions. What is more important, however, is what the current account deficits might be if countries were to return to full employment. On that score it is not clear that “full employment current account” positions have changed very much.

There are also internal imbalances as noted above, with growing income and wealth inequality. The rise in asset prices can also contribute to growing intergenerational imbalances. Baby boomers have been the big beneficiaries of rising asset prices and generous entitlements, while the succeeding generations face affordability challenges, poorer income prospects and much higher per capita levels of Government debt.

Debt, of course features very prominently in this whole story. The global financial crisis was at its heart a credit crisis. The over-indebted private sector and the over-levered business sector scrambled to de-lever. Governments in advanced countries stepped in to mitigate the damaging effects of this process by ensuring that banks were recapitalized and by taking on debt, sometimes to make direct capital injections into banks and in most cases to engage in fiscal stimulus. While policy actions succeeded in stabilizing financial markets and stopping the haemorrhaging associated with the debt-deleveraging process, it is hard to escape the suspicion that the debt loads, or the borrowing from the future that they represent, continue to exert a depressing effect on nominal growth.

We should bear in mind that, despite the apparent ongoing efforts of public and private sector participants to de-lever, overall debt levels continue to increase. The often cited most recent Geneva report, “Deleveraging, What Deleveraging?” estimated that global debt levels as a percentage of global GDP have increased by 35 percentage points since 2007. That increase has largely comprised increases in public sector debt in advanced economies and increases in private sector debt in emerging economies.

Putting all that together the picture is of a low growth, low inflation, low rate, and low return/high asset price world with high and increasing levels of debt. The state of the world is quite a distance away from the old “normal”. And the response to events to date has reduced the flexibility that will be open to policy makers when they have to deal with future challenges.
Lessons From the Old Normal

Many observers and commentators will point to the financial crisis and the misdeeds of financial intermediaries as the immediate cause of this state of affairs and note that recoveries from financial crises, particularly ones as widespread as this, do take a considerable time. Looking back, trend growth rates had been declining for some time in the advanced economies, as had nominal and real interest rates. At the same time rising asset prices and strong credit growth had, in the United States in particular, helped households plug the gap between desired expenditure and available income. Global imbalances were marked, but perhaps most visible via the size of current account imbalances.

While commentators will point to the contrast between United States current account deficits and China’s current account surplus, the biggest imbalances on a relative basis were within the Euro area, with Germany running large current account surpluses and southern European countries such as Spain and Greece running disturbingly high deficits. That might not matter in a single country, but as we all know it matters very much when there is no political, fiscal and banking union.

Most commentators now agree that leading up to the events of 2008 rates were lower than they should have been. There were many reasons advanced to justify the settings at the time. Principally the view was that since monetary policy targeted inflation, in the absence of inflationary pressures there was no need for tightening. Monetary policy was not targeted at asset bubbles. It was targeted at inflation.

Further justification for not raising rates was provided by a succession of shocks — the Asian crisis in 1997, the Russian crisis of 1998 and the LTCM collapse. After policy rates were gradually increased, the “tech wreck” of the early 2000s led to loosening again. The interest rate response to shocks tended to be asymmetric — aggressive cuts on the downside, with less aggressive hikes on the upside.

When real interest rates fall below real growth rates there is a danger that economies move into a state of inter-temporal disequilibrium and dynamic inefficiency. BIS analysis shows that real interest rates in advanced economies did fall below real growth rates for almost the entire period between the second half of the 1990s through to the present. Those low rates effectively brought forward consumption and investment from the future.

As former Bank of England Governor Mervyn King has noted, the future eventually becomes today and then yesterday and even more stimulus is required to bring forward more spending. The net effect is that real yields need to keep going lower and lower to avoid a day of reckoning. And of course in the absence of inflation it becomes more and more difficult to generate lower and lower real yields.

Exiting unconventional monetary policy is a much more delicate matter than entering it.

How Do We Get Back to Normal Monetary Policy?

Conventional wisdom is that an economy can move back to normal — or more likely a normal based on somewhat lower potential growth - when financial systems have been repaired, any necessary deleveraging has taken place, output gaps have been closed and growth is at potential with prospective inflation in line with targets. Of course achieving that outcome is more easily said than done.

It would be optimal to use the time that has been bought by accommodative policies to embark on a series of internationally coordinated policy actions that enhance productivity and potential growth so as to maximise the chance for the global economy to grow its way out of current difficulties. Those efforts may well have to be global given that any individual country may find it difficult to normalize if the rest of the world cannot. Efforts to boost infrastructure spending in the advanced countries could be a part of that effort. So would efforts to enhance market mechanisms. Those policies would go hand in hand with coordinated rebalancing efforts and efforts to free up global trade. Those efforts would, over time, see the US and the United Kingdom saving more, China moving to rebalance its economy to one driven less by investment and more by consumption.
A Euro area that looked more like a single country would also help. That would entail much greater political, fiscal and banking sector integration. It would also require more practical labour market flexibility. And it would also mean some combination of expansionary fiscal policy in Germany, likely via transfers to deficit countries, a willingness to accept higher inflation, a weaker euro, and wealth losses and sovereignty concessions on the part of the southern countries.

China has been a big part of the success story in the aftermath of the events of 2008. Not only did it manage to continue growth and avoid the excess of financial dislocation experienced by other major economies, its growth was an important part of stabilizing the region and beyond. Of course, China itself realizes it still faces great challenges as it rebalances its economy from investment to consumption and deals with debt vulnerability in its own financial system.

The United States, the first major country to engage in QE, has ended its program of bond purchases. It has gradually tweaked its guidance, transitioning from references to rates being on hold for a “considerable period”, to one where the Fed could be “patient” in beginning to normalise rates, to one where the decision on rates is more data dependent. Even though market participants have been led to expect a hike, the first actual hike itself will be very significant. It will be a sign that the Federal Reserve believes that things are getting back to normal, although there will still be uncertainty about the sustainability of rate hikes given previous false starts. Nevertheless, by telegraphing the movement well in advance the Federal Reserve is doing its best to avoid any shock or disorderly fall-out.

In Japan the process of QE is well advanced. There is a realization that it alone will not arrest what has now been a very long downturn. The third arrow of reform, as the Japanese authorities themselves have indicated, is essential to prosperity. And structural reform runs into political constraints which make it a difficult process and in many respects much harder to achieve than monetary policy objectives.

QE in Europe is at a much earlier stage. So far the response has been positive. Of course Europe faces much greater challenges with the Sovereign debt and currency union issues faced by some of its smaller members, with Greece the focus at present.

While QE has been successful in stabilizing these major centers it does have a significant cost as described above. In particular with Central Bank balance sheets stretched much further, those Banks will be more constrained in their flexibility to deal with crises in the future. The solution to the problems of the present has come at quite a heavy cost to the future. And there will be challenges in the future.

Few would believe there have been such significant structural changes as to render future financial crises obsolete or entirely avoidable. There have been significant strides in financial regulation coming out of the work of the Financial Stability Board. But these are responses to the problems of the last decade. The next decade will bring its own problems.

One of the significant effects of QE has been, whether by design or otherwise, to put downward pressure on exchange rates. Obviously not every country can devalue at the same time. The alignment of real effective exchange rates to more historical levels based on economic fundamentals would be another sign that things are beginning to normalize.

The United States Federal Reserve which led the world into unconventional monetary policy will, hopefully, lead the exit in a successful way. It has been careful and patient. We cannot say a successful exit has been accomplished, but we can say it is working in line with forward guidance. It is unlikely that we will ever go back to the “normal” normal. The new normal will not be like that. It will be more subdued. It will be fragile and susceptible to shocks. With less firepower at their disposal policy makers will need to be pro-active in anticipating and managing risk. Preventative action to avoid a crisis is much preferable to the policy response required to respond after the event.
Needless to say, economic reforms have contributed decisively to the remarkable economic growth of our country. Between 1978 and 2014, China’s foreign trade grew from US$20.6 billion to US$4.3 trillion, with its ranking jumping from 32nd to 1st in the world. Its contribution to global exports rose from 0.7 percent to over 12 percent, making it the largest trading partner with more than 120 nations; Foreign investment in China increased from less than US$200 million to nearly US$120 billion, accounting for 4 percent of the global total. With existing foreign investment projects currently totaling ~US$1.1 trillion, China remained the No. 1 foreign investment destination of all developing economies for 23 consecutive years; China’s outbound investment rose from practically zero to over US$100 billion, ranking it the third largest investor in the world. With a total of nearly US$770 billion of existing investments overseas, the country is well on track to grow into a net capital exporter and has sent more than 7mn people overseas as expatriate labor; China’s massive foreign exchange reserves currently stand at almost US$4 trillion, and we’re starting to worry about excessive foreign reserves rather than encouraging foreign exchange earnings through exports. The country’s position as a major world trade power has been consistently consolidated.

Economic opening has played a critical role in our dramatic development over the past several decades. An open economy went a long way toward improving China’s overall competitiveness on the global markets, and foreign trade contributed around 1/5 of total economic growth, with foreign companies accounting for around 1/4 of the national industrial added value and 1/3 national tax revenue, as well as generating over 100mn new jobs. The opening economy improved the living standard of the Chinese people, served to ease the energy bottleneck on growth, bridged the technical gap between China and the West, facilitated ideological liberation and systemic reforms, gave us a global vision with increased awareness of the rule of law, and ultimately enhanced China’s position and influence in the world.

Forging Ahead with Economic Openness

The Chinese civilization is a secular one. Compared with religious societies, the Chinese culture is characterized, first and foremost, by a greater degree of openness and tolerance. The Chinese history reveals: an open policy drives the society forward, while seclusion only leads to backwardness. The Han and Tang Dynasties were the height of feudalism in China when the Silk Road was also most developed both on land and at sea; on the contrary, the Ming and Qing Dynasties were a period of seclusion, and the Chinese nation was on the verge of collapse.

From 1978 onward, China opened up to the
outside world. We realized that the working class in capitalist countries didn’t need to be emancipated and became awakened to the huge gaps between us and developed economies in the world; we also became aware of the varying types of market economies in the UK, US and Continental Europe, Japan and South Korea, etc; we also realized that democracy wasn’t a panacea and cannot be copied mechanically in China — instead, we must work out a unique model of our own based on the actual conditions, development stage and social system of our country; in addition to China, Persian, Arab and Indian civilizations were all seeking to develop themselves through modernization. The way to modern civilization isn’t a linear process and may be achieved via different routes.

Theories of “the end of history” were untenable and even absurd, and a nation would invariably drop behind if it fails to learn from history and more advanced countries based on a thorough understanding of human civilization. This means that different civilizations should learn from each other through constant exchanges. Therefore, China must open up its doors to the outside world, working out its own growth model unique to the Chinese civilization that preserves our cultural heritage as well as accommodating the country’s development in the modern time.

The opening up of China’s economy followed a successive course of development, and our understanding of economic reforms deepened through the dynamics of our reform practices. As the largest developing socialist country, China didn’t have any existing growth model to follow. Despite the challenges, we groped our way through the reforms with bold innovations and a firm grasp on the latest developments in the country. Always adapting themselves to emerging trends, China’s leaderships persevered with the open-up policy and continued to extend economic reforms irrespective of the ever-changing political situation in China and overseas, even at the risk of being accused of betraying the country.

As a result, the open-up policy has been consistently and steadily implemented with visionary planning. Collective leadership in China has gone through a succession of government transitions, and each government showed great resolution first in overcoming ideological barriers to break the deadlock of Sino-US relations, and then in strategizing the open-up policy, rolling out a series of major measures including the four special economic zones and Pudong development. They pioneered economic reforms and never backed down even in the face of the collapse of the Soviet Union.

Later on, economic opening was institutionalized with China’s entry into the WTO in 2001 after arduous talks over 15 years, all thanks to the courage and wisdom of the Chinese government. Today, the government is stepping up the Doha talks, implementing the “One Belt and One Road” strategy, and pushing forward high-standard free-trade zone development and investment agreements between China, the U.S. and Europe. A new round of economic opening up is underway, and an open economy of a higher level is gradually taking shape.

Seizing Opportunities Presented by Economic Globalization

In modern times, China secluded itself behind closed doors and missed several opportunities of industrialization. During the last 36 years though, the Chinese government adapted itself to the latest development trends and China became an important participant and advocate of economic globalization, which also made it a key contributor as well as one of the main beneficiaries of the economic globalization process. Leveraging on our comparative and late-mover advantages, we successfully grasped opportunities arising from the technological revolution and industrial restructuring in the world through active involvement in international division of labor, from cross-industry labor division to transnational collaboration at the intra-industry/company/product level, from vertical division to a horizontal one. Through this process, China became a leading competitor in terms of attracting international capital and advanced technology, benefitting greatly
as one of the main destinations for worldwide industry “relocation”. During the early stages of economic opening, our development was focused on processing trade and labor-intensive industries and China became the “factory of the world”, taking advantage of our abundant labor resources, a vast domestic market and contributions made by overseas Chinese communities. As economic globalization deepened in the 21st century, we began to attract high-end industries such as advanced product R&D, manufacturing and service outsourcing relocated from overseas markets, leveraging on increased capital supplies, industry supporting capabilities and a fully developed infrastructure network, allowing China to integrate into the global economic system more thoroughly.

The Chinese government kept adapting the opening strategy to the latest trends in China and overseas and succeeded in prolonging the window of opportunity for strategic development and seized the initiative in economic globalization. In the early 1990s, we adopted a strategy focusing on product quality and market diversification to achieve a shift in export growth from extensive expansion toward intensive development, and from export earnings toward a profitability and efficiency oriented new model, where the priority was to improve the quality of Chinese products and foster competitive Chinese brands. Subsequently, programs of “tech-led trade and mega trade” were inaugurated to facilitate foreign trade, foreign investment, outbound investment and foreign aids. They were followed by the introduction of the “going abroad”, “win-win opening” and free-trade zone strategies striving for harmonious development in the world. China has been assertive in driving the open-up process, drawing on the experiences of export-oriented models in East Asia, as well as learning the lessons of Latin American countries in overprotecting domestic industries in a drive to substitute foreign imports. We opted for a two-pronged approach combining import substitution with an export orientation — the former required the development of an independent, complete industrial system, while the latter aimed to integrate China into the international markets, acquiring the ability to fight against international competition and optimizing the open-up strategy.

Facilitating Positive Interactions Between Openness and Reform

China has always guided its economic open-up efforts with well-defined and targeted objectives with a focus on the needs of domestic development, aiming to bolster positive interactions between domestic and international operations. In addition to effective exploitation of the massive domestic market, we managed to forge our way into the global market building up on our competitiveness developed through domestic operations. Through adept explorations of key global resources and opportunities on the international markets, Chinese companies competed against major multinational corporations. Huawei and several other Chinese enterprises achieved 70 percent multinationalization and the number of China’s Fortune 500 companies has increased to over 90. China is in the midst of a transition toward a major power in international trade. By creating new advantages in global competition, we strive to reach the two “corners” of the Smiling Curve at the high end of the global value chain, steering economic growth toward a model driven by domestic development. Active efforts will also be made to strike a balance between domestic and international demand, exports and imports, and foreign investment and outbound investment as well as in international payments, building up on our ability in utilizing the “two markets” (i.e. domestic and global markets), and domestic and global resources and trading rules.

During the last 36 years, economic reformation and opening have been closely interconnected, progressing hand in hand through mutual reliance and facilitation. Each time the country launched a major economic opening program, it was always followed by a full-scale reformation. Preceding systemic reforms, economic opening has played a leading role in transforming people’s conception, management style and model and innovating
administrative systems. The system of foreign related economic activities in China went through a series of radical changes, shifting foreign trade from approval-based administration to a registration-based system, from strict approvals required for foreign investment to an industry orientation, and from restrictive management of outbound investment to increasing investment facilitation. Following its entry into the WTO, China stepped up its efforts to adapt domestic rules and regulations to international practices, continuously improved the “software” facilities for economic opening, and allowed the market to play an increasingly decisive role in economic activities, etc. These efforts effectively contributed to the development of a socialist market economy in the country; local governments were incentivized to exert themselves in economic opening by taking effective actions within a well-defined remit, exploring various means of combining government guidance with market-oriented development. At present, China’s reform program has entered the “deep water zone”. Sixty tasks were set out during the 3rd Plenary Session of the 18th Central Committee to deepen relevant reforms. As shown in comparative studies, approximately 70 percent of them can be achieved by further opening up the economic system — once again, economic opening will act as the driving force behind systemic reforms.

**Increasing China’s Rule-making Power**

Fair play is the trademark of modern civilization. To achieve the rule of law in China, the common people and government officials alike need to be aware of the importance of fair play, and “hidden rules” and arbitrary decision-making must be avoided. It is imperative to work out a set of modernized rules to smooth out China’s transition from an agricultural society to an industrialized economy, and from a planned economic system to one driven by market development. During the cold war period, countries in the world were “obsessed” about the establishment of a “new order” for the global economy, whereas economic globalization requires uniformed market rules throughout the world. Our biggest concern today is to ensure fair play with existing international rules. The shift from “new order” to “fair play with existing rules” marks a fundamental change in our attitude toward common international practices. Our aim now is to accept, adapt to and improve existing rules, i.e. integrating domestic rules with international practices and at the same time localizing them with “Chinese characteristics”, thereby ensuring our autonomy and independence in rulemaking.

It is economic opening that enabled us to participate in, contribute to and lead the international rulemaking process, rather than simply playing the part of an observer implementing those rules. We used to be the main beneficiaries from existing rules, and will also remain so in the future. A large number of domestic rules and regulations were amended as part of China’s entry into the WTO. We bargained with foreign companies and haggled over intellectual property rights with Western powers. Our rule consciousness has been enhanced by actively applying dispute settlement mechanisms, laying a solid foundation for introducing the rule of law in our country. The successful establishment of the BRICS development bank, the Asian infrastructure investment bank, the Silk Road fund and the Asia Pacific free-trade zone indicates that China is starting to become an international rule maker. To acquire the rulemaking power is to seize the initiative in economic development. We’ll continue to take part in global governance and build up on our international influence, seizing the initiative in reconstructing international rules. By proactively further opening the Chinese economy, we’ll be able to gain the initiative in reforms, economic development, innovation and international competition.

**Building Openness on the Basis of National Security**

Economic opening has a double impact on security: our increased financial capabilities as a result of an open economy will reinforce national security, but at the same time the resulting exposure to external influence will entail additional security...
risks. Will our national security be maintained after the introduction of an open economy? The answer to this lies in our ability to work out effective and appropriate measures. We have adopted a progressive and prudent approach to economic reform, without copying Western standards. Negative factors have been effectively filtered out during economic opening, with a focus on coordinating between economic opening measures, progress and acceptance. With an open-minded attitude to economic security, we managed to accelerate the opening process to improve our strengths and competitiveness. On the other hand, excessive impact from external factors were successfully avoided taking into account the status quo of the development of domestic industries.

Economic opening in China was conducted according to a progressive, tiered road map: special economic zones, economic and technological development zones and free-trade zones were first piloted before they were implemented on a nationwide scale drawing on experiences gained through pilot operations. Similarly, the domestic market was opened up in a progressive fashion, with transitional period set out for sensitive industries, safeguarded with antitrust and security reviews. Trade conflicts were resolved through negotiation wherever possible to avoid trade wars or reciprocal retaliation, thereby effectively ensuring industry security. Foreign investments are mostly conducted through direct investment to keep commercial loans in check, and the capital market was opened up prudently to maintain the stability of exchange rates. Hence, financial risks have been kept under control. In particular, the Chinese government responded successfully during the Asian and global financial crises in 1997 and 2008 by introducing proactive macroeconomic regulation measures and rolling out stimulus packages, making China the only country to maintain rapid economic growth despite the financial downturn worldwide.

**Adhering to Common Growth and Peaceful Development**

Throughout its long history over the past 5,000 years, China used to be the center of human civilization and also endured great suffering in modern times.

We’re confident to revive the Chinese nation and return to the height of world civilization. “Harmony” has always remained at the core of traditional Chinese culture. We believe in achieving “harmony amid diversity” and “world harmony”.

These ideals in ancient Chinese philosophies may help the West understand our harmony-based outlook on development. The rise of China requires a peaceful international environment, and world peace is partially reliant on the support of China. An opening economy in China will boost trade and cultural exchanges in the world, which are critical to ensuring world peace and harmony.

**Pursuing common growth and win-win development, and narrowing the gap between southern and northern regions.** These have been the guiding principles in our handling of international trade activities.

Growing imports to China have helped boost demand on the international markets; Chinese products are widely known for their high quality and competitive pricing and have benefited a vast number of consumers overseas; with its outbound investments totaling over US$1 trillion, China benefited the development of overseas economies in terms of sharing the “dividends” of China’s economic growth; we invest over US$100 billion every year abroad and therefore boosted economic growth and employment in all the destination nations, in keeping with our commitment to promoting common development with all trading partners.

With the introduction of the “One Belt and One Road” strategy, China called on all countries involved to create transnational communities bonded by common interests and responsibilities, inspired by win-win results.

Peaceful development and world harmony will be the path to sustainable development going forward. They will offer China an optimum international environment for economic growth, as well as accelerating the revival of the Chinese nation.
In Asia, we have witnessed a similar development. China experienced almost three decades of unprecedented growth since reforming its economy and opening to foreign trade in the late 1970s.

However, the majority of international observers expects China’s growth path to flatten a bit — at least. This may well happen and would not really be a surprise. For it is much easier to catch up than to maintain these growth rates after reaching a medium range per-capita income as Dwight Perkins has shown earlier in Boao Review.

Although China will still remain a top growing economy, it may make sense to be prepared to the challenges related to a growth slowdown upfront. One way to do so is to analyze other countries’ experiences. One candidate for such a comparison is Germany after the 1960s, which despite some notable differences to China, has also at least three common characteristics, namely fast growth over a longer period, an undervalued currency and an aging population. In addition, the growth experience not only in Germany was instrumental for peace in Europe. Therefore, there are lessons that China can learn from the German post WWII experience.

To start with growth, West-Germany grew very fast after in the twenty years the economic and monetary reforms of June 1948. The average real GDP growth rate of the 1950s and 1960s were 8.0 per cent and 4.5 per cent respectively. Since then, average growth rates per decade have hovered between 1.3 per cent and 2.8 per cent. The slowdown of growth is accompanied by rising unemployment and an increasingly active welfare state. Today, unemployment is as high as 3 million people, and it appears to be the bottom line, our NAIRU. This is a constant problem, since the unemployed persons are generally the least productive and lose skills over time. The challenge to integrate them into the labor market has not been met yet in Germany, the debate about it being fierce and long-lasting.

The second special German feature is a substantially undervalued currency, the D-Mark, introduced in 1948 and part of the Bretton-Woods-System until the late 1960s. This undervaluation has enhanced the emergence of a very strong second, manufacturing, sector. It fostered an export-led growth. Since then, the German economy has been permanently biased towards industries. In some years, this has led to the fear that structural change is too slow (the sick man of Europe), but recently it enabled the German economy to overcome the worldwide financial and economic crisis quite quickly and sustainably. Nevertheless, it cannot be denied that this economic structure gave rise to powerful vested interests demanding protectionist measures, in particular resulting in high subsidies. Germany’s economy today still suffers from these payments,
which are very difficult to reduce.

The third and probably most problematic German characteristic is an aging population. This has several implications, the first being a likely decline in innovative power and dynamism. Next, the old-age-protection system is under threat. A pay-as-you-go-system is not sustainable unless the fees the working cohort has to pay are ever-rising. A capital-funded regime is difficult to maintain under low interest rates as observed in Europe these days. One — however quite risky — way of dealing with the latter is to save a high share of GDP and to invest part of these savings abroad, which the German population does. The third related problem is that elder people would rather need well established service sector to find jobs. So the industry bias may constitute difficulties for an aging workforce to be employed productively. The challenge is to adjust the educational system in a way that life-long learning is possible and becomes the rule for each individual.

What does this imply for China and its future path of development?

First, a growth slowdown is surely inevitable for China. The closer a country moves to the economic and technological frontier, the more difficult it gets to realize high growth rates. This also implies that structural change will cost more jobs in the future, which leads to two conclusions: first, there is an increasing need for social policy. The challenge is to build a welfare state without creating entitlements with negative incentive for individual initiatives (this is one of the fundamental contemporary problems in continental Europe). It is necessary but difficult to limit welfare policies to exactly those citizens who are in need and cannot help themselves. Second, there will be more pressure from vested interests. This is already difficult to prevent in relatively pure market economies. In a country with overlapping political and economic spheres, this problem may become even more severe and eternal, leading to a repressed structural change with many successful rent-seekers. Growth may then be slowing further down, as Mancur Olson has so convincingly predicted in “Rise and Decline of Nations”. The challenge here is to keep vested interests at bay, which surely requires to further pursue the fight of corruption and fraud the government has started successfully.

A related problem evolves out of an undervalued currency, the second commonality between China today and Germany in the past. Economic growth is biased towards industries, which over time may be threatened by other emerging economies. Protectionist responses offer an easy way-out, only to create future problems of repressed structural change: an ever increasing need for social policy and more pressure from vested interests. The same mix of measures is adequate.

An aging population requires a special policy mix based on education, innovation policy and a proper capital market regulation. The latter has been lacking for many in China, leading to pressure to export the rather high domestic Chinese savings. Together with an undervalued currency, huge capital exports drive also goods exports and thus reinforce the bias towards industries. Thus, the need for a growing and productive service sector is straightforward. In addition, the Chinese capital market needs to be attractive for large Chinese savings.

So the challenge is no less than to master the transition into the age of post-industrialization in a situation of slowing economic growth and an aging population. Germany has met this challenge with a mixed record. First, structural change works, interestingly not least due to the Euro, which has been revaluing for quite some time, forcing German companies to raise productivity. A well-organized capital market helps to master structural change. Second, social policy is not concentrated on those in real need. Therefore, reforms are necessary and inevitable. Finally, old-age-protection for the baby-boomers is not safe yet; reforms in this field are also overdue.

This article argues that by analyzing carefully the reasons behind the mixed track record, China may be able to avoid some problems related to naturally declining growth rates and to allow for a smooth transition.
Investment Opportunities Abound in China

John Zhao, Chief Executive Officer, Hony Capital

As the world’s second largest economy and fastest-growing consumer market, China in transformation needs to bring in high-quality products, brands, resources and management to serve its domestic market and consumers. After growing in size in the past three decades by virtue of the country’s vast domestic market, more and more Chinese enterprises need to make their foray into the global market and truly grow in strength by way of mergers and acquisitions.

It is between this “going global” and “bringing in” that historic opportunities lie for China to further integrate into the global economy. Sparring with strong opponents on the world stage is the only way for Chinese enterprises to truly grow in strength, and it is also the key to enhancing the inherent vitality of the Chinese economy by its capital strength.

China is Still the Preferred Investment Destination

For more than a year, the Chinese economy has been facing a dual challenge. There is the real challenge is that it is slowing down as rapid growth becomes a thing of the past, and from an investment point of view, there is also the challenge in terms of mindset — the global investment community seems to think that China is no longer the attractive investment destination that it used to be in the past decade.

However, as a buyout fund manager focusing on China, we believe that the crux lies in recognizing two unprecedented transformations as the Chinese economy experiences the “new normal” — the transformation of China from a capital-importing country to a capital-exporting country, and its transformation from a "world factory" to a "world market" with the upgrading of consumption in the country and growth of its middle-income population.

It is in this “new normal” that the true golden era for investing in China has begun. Chinese enterprises and capital are facing a major opportunity — with the end of extensive economic growth, investment opportunities that focus on innovation, quality, branding and the combination of capital and elements are opportunities that are truly sustainable and viable. They are also investment opportunities that can truly be accepted and favored both at home and abroad. We now have the opportunity to give play to the "China advantage", go down the "Chinese path" and tell the "China story". This will allow excellent Chinese enterprises to shine in the world as well as bring in prominent multinational companies to better serve the Chinese market.

From "World Factory" to "World Market"

Benefitting from globalization, China has achieved rapid economic growth in the past three
decades. At the same time, it has also made great contributions to the world economy by attracting international companies with its low cost and abundant resources and becoming a "world factory" as these companies manufactured cheap products on its soil.

Today, China has become the world’s fastest growing and most attractive consumer market. International companies are attaching greater importance to China not only because of its cheap labor, but also because of its attractive market. The transformation from a "world factory" to a "world market" has begun, and the speed of transformation is so fast that the world, including China, will need a "catch-up" process over the next decade — previously a "world factory" that was busy churning out inexpensive products to mainly cater to consumers in the United States and Europe, China now turns to serving domestic consumers. There is demand from Chinese consumers for top-notch brands, technologies and products, and not just cheap products. For example, China may be a major cell phone and automobile producer but Apple phones are still highly sought after by the Chinese consumer and imported cars abound in the country. I believe all these will become local products, local services and personalized services in the future, but in the meantime, all parties involved will need to take a "brush-up course".

In fact, foreign companies that offer top-notch brands, products, technologies and services are already attuned to the vast potential of the Chinese market, and such a transformation is fully consistent with China's shift from a production and export-oriented economy to one centered around services and domestic demand.

At Hony Capital, our own practice also attests to such a transformation trend. In 2008, we teamed with Zoomlion, a leading manufacturer of construction machinery in China, to acquire Milan-based CIFA, a well-established manufacturer in the equipment manufacturing industry. In 2010, we invested in Biosensors, the world’s leading manufacturer of cardiac stents. In 2014, we invested in a Hollywood film and television production company, a cloud-based technology company in Silicon Valley and a well-known pizza restaurant chain in the UK. All these have a common investment theme: Chinese funds go global and turn Chinese enterprises into the shareholders of foreign companies; outstanding services and products offered by foreign companies are introduced to China, with their Chinese capital managers helping them to become better Chinese companies.

As an investor based on the Chinese market, Hony Capital has always set cross-border investment as an important strategic direction. However, unlike cross-border investment as defined by our foreign counterparts, the type of cross-border investment that we pursue is one that sets China as the base. It leverages the experience that we have accumulated for more than a decade as a "China expert" and relies on the general trend of China's economic transformation, seeking continuous innovation in terms of "going global" and "bringing in".

In the case of PizzaExpress, it is a UK company with more than 50 years of history. It has more than 500 restaurants worldwide, of which, more than 430 are in the UK and it has just begun to test the water in China. Our plan for the restaurant chain was different from our foreign counterparts when we first laid eyes on it. With the backing of the Chinese market, we are more confident and have greater courage and a more specific investment theme, i.e. to continue to steady the chain’s UK market while strengthening and expanding it in the Chinese market. We seek to help this mature UK enterprise gain the "China advantage" and we believe it will be a "delectable and attractive" investment.

There is also STX — our investment in Hollywood. This is the first foray by a Chinese equity investment institution in a core American cultural industry. We firmly believe that the movie market in China will soon outgrow that in the US, while the US will remain the center of the global entertainment industry for a long time to come. Building a bridge between the two will marry the demand in the Chinese market and the art, leading ideas and fine
management that Hollywood has accumulated over the past century. Telling the real "China Story" through a major Hollywood production would be a new display of the Chinese culture through its capital strength.

In this instance, as countries around the world undergo a transformation and adapt to the new normal, we believe that China’s influence on and contribution to the world will be through the export of products and contribution of resources. They will be in the fields of finance and culture, and even social governance and reform, contributing to the reform and restructuring experience. In this scenario, "capital that offers resources at the same time" can be expected to be the interpretation of a better understanding between China and the world, thereby highlighting the unique strength of the Chinese capital.

**From a Capital-importing Country to a Capital-exporting Country**

With China’s transformation from a capital-importing country to a capital-exporting country, changes are also occurring in the manner with which Chinese enterprises integrate with the world. In addition to directly “going global”, I believe that the allocation of Chinese capital in the global real economy will be the key to enhancing the overall competitiveness and influence of the Chinese economy.

Firstly, acquisition of advanced foreign companies through equity investment, thereby allowing top-notch technologies, brands, management philosophies and international talent to further serve the Chinese market and create Chinese enterprises with global competitiveness, will meet the need to enhance the inherent vitality of the Chinese economy. Many Chinese enterprises have made it to the list of top 500 companies in the world but mostly by virtue of their monopoly positions. Large in size but not strength, they lack competitiveness in the global arena. There is a need to create truly competitive Chinese enterprises with the help of capital, so as to inject robust vitality in the economy.

Secondly, China may possess sizeable foreign exchange reserves and many Chinese enterprises do wield strong financial might. However, failure to diversify these reserves and financial resources through different assets can pose significant capital risk. Hence, paths also need to be opened up from the perspective of broadening investment categories and reducing asset risk. We cannot rely on buying US Treasury bonds alone. Chinese capital needs to be invested in the global real economy so as to tap global scientific and technological progress and corporate development and in turn truly benefit from globalization.

Free movement of capital with policy support is necessary for the allocation of Chinese capital in the global real economy. From Hony’s experience, the Shanghai Pilot Free-Trade Zone is extremely important for enhancing the competitiveness of Chinese enterprises. In 2014, following the introduction of a policy promoting cross-border investment in the FTZ, Hony acquired a stake in PPTV, making it the first successful cross-border FTZ equity investment. The process has made us keenly aware of the dramatic improvement of the operational efficiency of Chinese enterprises, especially in the global market, amidst transformation of government functions. This allows Chinese enterprises to stand at the same starting line as their international counterparts and compete in the same arena.

An even more exciting development is that the State Department of China announced late last year that, with the exception of a handful of special cases, prior application for approval shall no longer be required for overseas investment by Chinese enterprises. This means that 99 percent of projects that would have been required to apply for approval will now only need to be filed with the authorities after they have been undertaken. Two-way free flow of capital in the field of equity investment in this new environment will greatly enhance the global competitiveness of Chinese capital and the country’s real economy. This is the true "tuyere" that can propel outstanding Chinese enterprises to great heights in the global arena.
Development Trends in the Reconstitution of International Trade Rules

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China became the world's largest goods trading nation in 2013 for the first time. In 2014, its share of international trade continued to increase, further consolidating its position as a major trading nation. At the same time, China became the top recipient of foreign investment while investment abroad gathered pace.

China has increasingly become the "big guy" in the world economy and global trade. Any country, as long as it plays a role in international trade, is subject to constraints and adjustments by a certain set of rules.

A major spillover effect of large economies is participating in the rules, leading the rules and perfecting the rules, providing international public goods, and bearing international responsibility.

Along with the WTO drafting of the post-Bali work program and the Doha Development Round moving back on track, the steady advancement of the US-led "TPP and TTIP," extensive consultation as regards multilateral agreements on trade in services, and the reform of the international investment treaty system being put on the agenda, the picture for reconstructing and reconstituting international trade rules is being gradually revealed.

On the whole, the current reconstitution of international trade rules exhibits the following characteristics:

First, the reconstitution of international trade rules accompanies the safeguarding and reform of international economic order. Since the 2008 international financial crisis, an adjustment in the direction of global economic governance reform has taken place, and the G20 summit ensued. However, to fully assess the permanence of the struggle for international order, one is also required to check that the direction of the reform in the international system will not change. The essence of the reconstitution of international trade rules is the multi-dimensional wrestle between major emerging nations such as BRICS and traditional developed countries. The prize is the power to dominate the drafting of international trade rules.

Next, the time for reconstituting international trade rules has arrived. Under the Bretton Woods system, traditional international trade rules exhibit a "multilateral" characteristic. Both the GATT and WTO played a key role in being the main channels of multilateral trade rules.

On the one hand, multilateral trade rules are fragmented; the process of multilateral negotiations has been hesitant and its functions have weakened. On the other hand, functions of rules associated with the "hard method" for resolving trade disputes, as well as trade deliberations, policy bulletins and other "soft methods" are strengthening. According to the WTO accession office, in the 20 years since the founding of the WTO, 34 members have joined,
and more than 3,400 negotiations concerning reconstitution of international trade rules have been carried out, with another close to 30 rule negotiations still on the waiting list. Reconstitution of international trade rules only exists in an on-going state, never in a state of completion.

In the area of international investment, changes in investment rules are also occurring. The crux of reforming the international investment system is gradually turning from entering into bilateral treaties to entering into regional treaties, which has a systematic impact on the international investment agreement system. This helps the integration of existing treaties, but also triggers more differences as a result of overlaps with existing international investment agreements including multilateral first level protocols. The number of international investment treaties entered into by each country has been rising gradually each year (as of end-2014, there were a total of approximately 3,268 international investment treaties in the world, of which 27 were new investment treaties added in 2014, equivalent to one new treaty every two weeks). The number of investors included in these types of treaties and the number of appeals filed under the state dispute resolution mechanism have been rising gradually every year as well. This has made reforming the investment dispute resolution system all the more urgent.

It is worth noting that the number of investment disputes has exceeded the number of trade disputes. In 2013, there were 56 international investment arbitrations, with an accumulative total of 568. In contrast, as of end-2013, WTO only saw 474 trade disputes.

In addition, more countries have begun to enter into international investment treaties which carry a number of new provisions. These provisions aim to readjust the rights and obligations of countries and investors, and to ensure that the goals of the international investment treaties and other public policies are aligned.

Inclusive growth and sustainable development will be placed at the center of international investment decisions. Every country is faced with the predicament of how to draft and implement a new generation international investment policy that is able to drive inclusive growth and sustainable development through leveraging foreign direct investment.

Third, the reconstitution of international foreign trade uses economic strength as support and undertaking obligations as prerequisite. Currently, in the process of formulating and reforming international trade rules, developed countries in Europe and the US play a dominant role. Although clashes between the White House and the Congress within US internal politics have been criticized as causing low efficiency, the US has completed substantive negotiations to expand the scope of the Information Technology Agreement with China, and has reached a consensus with India as regards implementing WTO’s Trade Facilitation Agreement. This fully demonstrates the dominant role and leadership effect that the US have in international trade rule negotiations. To be sure, the US also bears a number of international obligations, providing numerous international public goods.

Fourth, old and new international trade rules impact one another. Market accession, rules negotiation, trade deliberations, dispute resolution and other old international trade rules are the bedrock of multilateral trade systems. Most countries are beneficiaries. Even the US, after having dominated ultra-large free trade negotiations, will not easily abandon the multilateral trade system, and remains its staunch defender.

Meanwhile, there are many unreasonable and unjust areas in the old international trade rules which have to be reformed. Elsewhere, digital economies, climate change, investment protection, competitive neutrality and other new rules have surfaced. Under the twin impact of new and old rules, the international community is making an appropriate response.

Fifth, relationships among countries with different standards of development in the
reconstitution of international trade rules are difficult to manage. Participating in the reconstitution of international trade rules is a group action. The logical point of departure is clearly not to do it single-handedly. Thus, a number of economic and trade relations must be properly handled. Developed countries are the primary force of rule reconstitution, while emerging economies hope to become the leaders of rule reconstitution. In multilateral rule negotiations, all interest groups interact and influence one another.

Developed countries often leverage the strength of developing countries to amend rules. Emerging economies have increased their voice in incremental reforms of international trade rules, regarding the many developing countries as allies and "candidates in a united front" good at solidarity in the participation of reconstituting rules.

Although African nations, small and fragile economies, and least developed countries are at the periphery of international trade rule reconstitution, they are also a significant source of support. Not only will they continue to enjoy special and differential treatment, their exports will also enjoy "twin free" treatment, namely, duty free and quota free.

China's economy entered a new norm in 2014. Trade and investment also moved into a new stage of increasing quality and raising efficiency. In the process of reconstituting international trade rules, the positioning of China's status has become more vague. On the one hand, the size of China's economy exceeds US$10 trillion; it is a major developing nation. On the other hand, China's per capita indicators imply that the nation is still in the preliminary phase of socialism.

This means that it is difficult for China to play a role that corresponds to the size of its economy in the reconstitution of international trade rules. It also means that China carries a dual nature as regards its negotiating position in international trade rules. Sometimes, China's interests are aligned with developed nations; for instance, WTO's Trade Facilitation Agreement can advance trade liberalization and investment facilitation, adapting to the new requirements of major trading nations. Sometimes, China's interests are aligned with developing nations, such as WTO's Decision on Food Security which can allow China's shortcomings in agricultural modernization to be supplemented quickly.

As such, balance and coordination is required between persevering in China's major power status and striving for rights in international trade rule negotiations.

On the whole, after years of building up, the basic conditions of China's participation in international disputes have improved significantly. With the characteristics of both developed and developing economies, China's integrated strength is significantly higher than the average developing country.

The future outlook is expected to be positive, and more room for manoeuvring is provided for China to realize a higher level of liberalization.

However, China's basic national conditions of being at the preliminary phase of socialism and its basic positioning as the largest developing country remain unchanged.

This means that China can neither make immediate and comprehensive high level commitments in all trade negotiations nor can it respond passively and do nothing; rather, it should make all-round considerations, strengthen interaction and make key breakthroughs.

Looking ahead, China's participation in the reconstitution of international trade rules must suit China's medium to high economic growth. Its structure should be lightened and made service oriented. Development of trade and investment should be deepened and enlarged. In the reconstitution of international trade rules, China should take the initiative to set new topics. It should take a leading role in the multilateral, bilateral, regional and plurilateral negotiations of relevant topics, and take into account both domestic and international considerations, reflecting distinct Chinese thought, Chinese style and Chinese manner.
Chinese Yuan Goes “International”

Sun Lujun, former chief director of the Capital Account Management Department of the State Administration of Foreign Exchange

The central economic work conference held at the end of 2014 called for “steady promotion of Renminbi internationalization”. It’s the first time the Chinese government explicitly proposed to “internationalize RMB.” RMB internationalization has become an important aspect of building a new system of open economy in China under the “New Normal” model of economic growth.

So far, Chinese imports and exports, outbound investment, borrowing and lending are mostly denominated and settled in U.S. dollars. Similarly, its massive foreign exchange reserves are invested in U.S. treasuries. Given fluctuations in exchange rate, foreign exchange has greater risk exposure. As the CNY becomes an international currency, it will be broadly accepted on international financial markets, allowing Chinese companies, organizations and individual traders to choose CNY or USD as the denoting and settlement currency in international economic activities based on current exchange rates. Accordingly, they will benefit from reduced risks of exchange rate fluctuations and lower forex-related costs. The resulting savings of operating costs and enhanced international competitiveness will help facilitate China’s import and export and outbound investment activities.

The global financial crisis in 2008 raises the question of the USD-dominated international monetary system. A reformation of the global monetary system has become the consensus of the international community.

Early Milestones of RMB Internationalization

Following the Asian financial crisis in 1997, RMB started circulating in the nearby countries primarily for border trade denoting, billing and payment purposes. In July 2009, RMB settlement of cross-border trade became a reality in line with market demand — this marks the official start of RMB internationalization. Thus far, RMB internationalization has achieved initial results, with RMB increasingly accepted and used for trade settlement, financial transactions and foreign exchange reserve. According to the Society for Worldwide Interbank Financial Telecommunication (SWIFT), as of November 2014 Chinese yuan has overtaken Canadian and Australian dollars to become the fifth largest currency of payment in the world.

Cross-border RMB businesses have grown rapid. By July 2009, RMB settlement of cross-border trade had been piloted in four cities including Shanghai and Guangdong, and the pilots expanded in June 2010 to include Beijing, Tianjin and other 18 provinces and municipalities.

Later on, the pilot program was introduced on a nationwide scale, allowing all companies to conduct export settlement in RMB without any restrictions.
on the overseas locations. As cross-border RMB settlement developed, the use of RMB abroad was increased from trade settlement to investment and financing transactions such as direct investment, foreign trade and guarantee.

According to the PBoC, the amount of cross-border RMB settlements under current accounts rose rapidly from RMB 3.58 billion in 2009 to RMB 4.63 trillion in 2013. In Jan-Oct 2014, the figure grew further to RMB 5.4 trillion up 51.2 percent yoy. Cross-border RMB payments as a percentage of total cross-border payments (in RMB and foreign currencies) rose from 1.7 percent in 2010 to ~25 percent in Q3 2014; in Jan-Oct 2014, China’s direct outbound RMB investments totaled RMB 144.8 billion, and direct foreign investment in China was RMB 651.6 billion.

Apart from the Ministry of Finance (MOFIN), a growing number of Chinese organizations have listed RMB bonds in Hong Kong, giving overseas investors more options of RMB investment. As of the end of 2013, Chinese organizations (including MOFIN) issued an aggregate of over RMB 170 billion of RMB bonds in Hong Kong; in August 2013, foreign central banks and monetary authorities, Hong Kong and Macao RMB clearing banks and overseas participating banks in RMB settlement of cross-border trade were permitted to invest in the domestic interbank bond market using RMB funds.

As of end-2013, a total of 138 foreign central banks, international financial institutions, sovereign wealth funds, clearing banks in Hong Kong and Macao, participating banks overseas, foreign insurance institutions, RQFII (RMB Qualified Foreign Institutional Investors) and QFII (Qualified Foreign Institutional Investors) offshore institutions had been officially approved to invest in the interbank bond market.

RQFII was piloted starting in December 2011 and qualified overseas institutions were permitted to invest in securities using RMB in China. Today, eligible countries have been increased from the original Hong Kong to include Singapore, UK, Germany, France, South Korea, Canada, Qatar, Australia, etc. with a total of RMB 870 billion of RQFII quota allocated.

As of November 2014, 93 qualified overseas institutional investors had been allocated an aggregate of RMB 298.4 billion worth of investment quota. On 17 November 2014, Shanghai-HK Stock Connect was officially launched to enable investors from Hong Kong Stock Exchange to invest in shares listed on Shanghai Stock Exchange and vice versa. The daily RMB exchange allowance for HK residents capped at RMB 20,000 was subsequently removed.

At present, an offshore RMB market based in Hong Kong with multiple supplementary locations has been put in place. Before RMB becomes a fully convertible currency, the offshore market will serve as the primary venue for trade settlement and financing/investment activities in RMB by overseas institutions and individuals. The offshore RMB market is an open and competitive market with Hong Kong as the base and secondary locations in Taiwan, Singapore, London, Luxembourg, Frankfurt, etc.

While Hong Kong currently processes 53 percent of total offshore RMB transactions worldwide, increasingly close economic and trade ties with China put Europe well on track to become the second largest offshore market for RMB transactions with rapid development expected in the near future.

Today, London has grown into one of the largest offshore RMB markets second only to Hong Kong. According to the SWIFT report 2013, 62 percent of the total volume of RMB transactions outside China and Hong Kong occurred in London, far outstripping the U.S. (15 percent), France (10 percent) and Singapore (8 percent). Canada is planning to set up the first offshore RMB market in North America. The weight of RMB payments in U.S. transactions in China increased by 229 percent in April 2014, and by 327 percent in other parts of the world. It is expected that offshore RMB markets in London, Frankfurt, Luxembourg and Singapore will all pose strong competition for Hong Kong in the future.

As offshore RMB markets continue to develop, offshore RMB loans, debts and financing are no
longer confined to Asian countries but have gone far beyond to reach Europe and other regions. According to PBoC statistics, as of end-September 2014, RMB deposits in Hong Kong reached RMB 944.47 billion, accounting for 23.1 percent and 12 percent of its total foreign currency deposits and total deposits, respectively. RMB deposits in Taiwan were RMB 300.43 billion, RMB 118.71 billion in Macao, RMB 120 billion in South Korea, and RMB 92 billion in Singapore.

In addition to Hong Kong, Macao and Taiwan, the PBoC set up RMB clearing arrangements in Singapore, London, Frankfurt, Seoul, Paris, Luxembourg, Doha, Toronto and Sydney by designating a Chinese bank to act as the offshore RMB clearing bank in every city. RMB internationalization has accelerated on the back of successful expansions of offshore RMB markets.

Bilateral monetary cooperation has deepened. Since the financial crisis in 2008, the Chinese government introduced multiple measures to actively open up new channels to boost RMB circulation. The PBoC signed bilateral currency swap agreements with central banks and monetary authorities in 28 countries and regions including South Korea, Hong Kong, Malaysia, Belarus, Indonesia, Argentina, Iceland, Singapore and Luxembourg, with the total amount exceeding RMB 3 trillion.

Direct exchanges between RMB and USD, euro, Japanese yen, Hong Kong dollar, British pound, Australian dollar, Canadian dollar, New Zealand dollar, Malaysian ringgit, Russian ruble and Thai baht have been launched on China’s interbank forex market, creating a conducive atmosphere for forming direct rates, lowering foreign exchange costs, making RMB the currency for bilateral and multilateral trade and investment in these countries, ultimately facilitating foreign trade and financial cooperation.

Participants in the interbank forex market are currently limited only to banking institutions. Going forward, qualified domestic non-banking financial institutions and RMB clearing banks overseas will be allowed to trade the interbank forex market, adding to OTC trading involving RMB clearing in cross-border trade between overseas financial institutions and domestic banks. Direct trading between RMB and Korean won, Vietnamese dong, Lao kip, Kazakhstan tenge, Taiwan Dollar, etc. was made available at bank counters.

At present, RMB has been adopted by some countries as the reserve currency. With increases in the scale of RMB circulation and usage, more bilateral currency swap deals and the expansion of offshore RMB markets, some countries (regions) began to formally include RMB in their official reserve assets, and the number of countries (regions) accepting RMB as the reserve currency will continue to increase.

In October 2014, the U.K. announced to issue national debts of RMB 2 billion with the RMB funds raised directly entering the national pool of foreign exchange reserves. In December, New Zealand released a new trade-weighted index to include RMB in the currency basket for the first time with a weighting of 20 percent, the second highest weight after Australian dollar (22 percent), higher than euro (11 percent).

As of end-October 2014, over 30 foreign central banks and monetary authorities included RMB in their forex reserves. The IMF is due to hold the five-year review of SDR (Special Drawing Rights) basket currencies at the end of 2015, and RMB is expected to be added to the SDR basket.

**Foundation for RMB Internationalization**

The economic power of a country is the foundation for currency internationalization. It is also an indication of the overall national economic strength reflected in the monetary form. After economic reforms over the last three decades, the Chinese economy has been consistently enhanced with substantive progresses in the domestic financial system, foreign trade and investment and capital account convertibility, thereby laying a solid foundation for RMB internationalization.

First, substantive progress has been achieved in terms of capital account convertibility. The IMF
categorizes capital account transactions into capital and money market instruments, derivatives and other instruments, credit services, direct investment, direct investment liquidation, real estate transactions and personal capital transactions. These seven categories are further divided into 11 items and 40 sub-items. In early 2012, the State Administration of Foreign Exchange (SAFE) made an assessment of capital account convertibility and classified capital accounts into convertible, basically convertible, partially convertible and inconvertible accounts. The results: 7 fully convertible accounts, 8 basically convertible accounts and 6 inconvertible accounts (mostly credit, capital, money market and personal capital transactions).

Overall, 85 percent of capital accounts were classified as partially convertible or to have a higher degree of openness.

From the second half of 2012 onward, SAFE optimized forex administration procedures for direct investment, foreign debt management, external guarantees and capital market operations revolving around decentralization and capital facilitation as the top priorities. Unnecessary administrative formalities were either abolished or merged resulting in considerably reduced approval requirements. Administrative approvals were removed for all capital account related items except only for foreign debts and capital market businesses. As a result, a new forex capital account administration framework has taken shape. It is characterized by registration as the central principle, and statistics-based monitoring and post-project review as the management methods.

In addition to decentralization and capital account administration innovations, the government also increased support for Chinese capital to “go abroad”, with the aim of bringing an end to the asymmetry in capital account opening and ultimately further improving capital convertibility.

Second, a breakthrough has been realized in interest rate liberalization. Regulatory restrictions on lending rates were lifted in 2013, and financial institutions were allowed to determine lending rates independently based on business principles, hence liberalization of lending rates was achieved. Later on 21 November 2014, the PBoC increased the upper limit of deposit rate floating band from 110 percent to 120 percent and simplified maturity requirements for deposit and lending rates, allowing greater flexibility in market-based pricing. The deposit insurance system plan was finally introduced after over 20 years in the making. It not only added a market exit mechanism for financial institutions, but provided a solid basis for further liberalizing deposit rates and improving the market-oriented competition mechanism.

Third, RMB exchanges rates are heading in the direction of rationalization and enhanced international liquidity. The former RMB exchange rate formation mechanism was reformed in July 2005, replacing it with regulated floating exchange rates based on demand and supply and the currency basket. On 21 May 2007 and 16 April 2012, the floating band of RMB against USD was increased to 0.5 percent and 1 percent, respectively. It was then further widened to 2 percent on 17 March, 2014. During the intervening years since the exchange rate formation reform in July 2005, the RMB nominal and effective exchange rates appreciated by 34.1 percent and 43.4 percent respectively. Increasingly rationalized and balanced, RMB exchange rates entered a new phase of two-way fluctuations.

As well, with rapid development of the Chinese economy especially in terms of foreign economic activities, its national forex reserves grew dramatically to US$3.8 trillion in September 2014. Massive forex reserves went a long way toward improving China’s overall economic power with increased solvency on foreign debts. And this will also facilitate the RMB internationalization process.

Policy Support

The current rebalancing of the ever-changing global economy landscape provides an ideal opportunity for China’s financial reforms. We should seize the opportunity to eliminate various forms of financial regulation as soon as possible and create a fully market-oriented financial system; speed up
relevant efforts to improve the convertibility of RMB capital accounts and push forward the RMB internationalization process.

Ultimately, the internalization of a given currency depends on the choice of market players and the global financial market. During the process, the role played by policy incentives is certain visible but not decisive. Therefore, RMB internationalization is bound to be a lengthy process and cannot be completed overnight. It will advance progressively as the Chinese economy and financial industry develop, and overall national economic power increases.

First, cross-border RMB businesses should be further developed. Taking advantage of opportunities offered by the “One Belt and One Road” strategy and the “Connectivity” initiative, efforts should be made to make RMB the currency for cross-border trade in more countries (regions); actively promote RMB-based cross-border loans and direct investment overseas; further increase the use and circulation of RMB outside China, facilitating RMB “going abroad”. On the other hand, channels for RMB repatriation also need to be expanded. On the basis of experiences gained through previous pilot operations, new areas and applications should be added for cross-border RMB credit business innovations to create a reliable and efficient mechanism for RMB repatriation.

Second, we should work toward making RMB capital accounts fully convertible, which will become a new institutional variable as an integral part of the financial reform and open-up strategy in China.

This will go a long way toward reforming the existing economic and financial systems — interest and exchange rate liberalization in particular, and ultimately speeding up the RMB internationalization process.

As shown in the results of the RMB capital convertibility assessment, capital account convertibility is comparatively low for capital market and personal capital transactions. Thus, relevant efforts to increase capital account convertibility should focus on capital market and personal capital transactions, i.e. further improving convertibility for securities investment by opening up the capital market.

Drawing on experiences gained from Shanghai-HK Stock Connect operations, we should explore various means of introducing a Shenzhen-HK stock connect program and mutual recognition of cross-border funds; increasing the level of participation of foreign institutions in Chinese securities investment and capital market, expanding the range of eligible overseas institutional investors, significantly increasing securities investment quota allocated to foreign institutional investors, gradually raising A-share holdings by overseas investors, removing restrictions on the types of securities investments accessible to foreign institutions, and gradually abolishing the QFII systems by replacing the approval system with one based on registration filing; exploring various ways of allowing foreign investors to issue equity on Chinese stock markets; further relaxing restrictions on admission of foreign institutions to the Chinese futures market, and speeding up the introduction of international crude oil futures; further raising interbank bond market investment quotas for foreign investors and increasing the range of qualified foreign investors allowing long-term institutional investors overseas such as insurance, pension, etc. funds to enter the Chinese bond market, with other types of foreign investors to be introduced at later stages when the time is ripe.

We should research different ways of allowing foreign financial institutions and non-banking financial institutions to issue RMB bonds in China, as well as enabling them to use RMB funds raised through domestic bond issues within China, or outside China after remitting the proceeds to overseas locations as RMB funds or converted to foreign currencies.

Focusing on increasing foreign exchange autonomy of individual Chinese residents, efforts should be made to relax the regulation of cross-border personal capital transactions, and pilot direct overseas investment by individual investors in selected provinces (or municipalities) at an appropriate time.
It is recommended that Chinese individual investors be allowed to conduct industrial investments overseas under effective investment scale control and enclosed account administration. Drawing on experiences gained through the pilots, relevant measures should be introduced on a nationwide scale to gradually lift restrictions on personal capital transactions.

In response to the needs of economic reforms and market economy development in the new era, a macro-prudential regulatory framework should be created and developed through thorough research for cross-border capital flows and foreign debts, thereby setting up fully developed statistical monitoring and early warning systems on capital movements and preventing risks associated with inbound and outbound movements of capital. Existing laws and regulations should be comprehensively rationalized and amended at the legislative level based on the progress of capital account convertibility reforms, aiming to establish a well-defined foreign exchange regulation system that applies the capital account convertibility principle.

Third, we must actively push forward the RMB exchange rate reform oriented toward a market-based pricing mechanism pursuant to the requirement of recognizing market as the decisive factor in resource distribution, increasing the range of exchange rate floating and elasticity of exchange rate fluctuations. This would provide a basis for the PBoC to cease routine forex interventions and therefore give full play to the role of demand and supply as the decisive factor in exchange rate formation. Thus, RMB exchange rates will be stabilized at a reasonable and balanced level.

Fourth, we must build a financial market with depth and liquidity, which is critical for RMB to acquire international recognition.

In a bid to attract more foreign investors, domestic financial system reforms need to be deepened further to develop a modern financial system, accelerating the establishment of the domestic financial market and international financial centers. With the objective of raising the weight of direct financing activities, the stock issuance registration system reform should be pushed forward, promoting equity financing through multiple channels, increasing the size of the bond market, push ahead with financial product innovation and diversification as well as asset securitization efforts. The breadth and depth of the Chinese financial market should be increased with a focus on market layers and financial products, facilitating integration with the international financial market. In the meantime, the financial regulatory system must be further developed to enhance financial institutions’ capabilities in terms of risk prevention and management.

Fifth, we should support the development of offshore RMB markets: actively and steadily facilitate the development and establishment of multi-layer offshore RMB markets in varying forms; increase offshore RMB financial products, further diversify offshore RMB product mix, and expand the functions of RMB as a currency for overseas investment, financing and forex reserve; strengthen cooperation between offshore RMB markets within and outside China, facilitate orderly movements of RMB between different offshore markets, cater for the needs of foreign institutional and individual investors for diversified and multi-layered allocation of RMB assets, create a virtuous cycle of RMB circulation in China and overseas, lower the costs of management and trading for RMB market participants thereby making RMB more attractive to investors.

Sixth, we should development cross-border RMB payment and settlement systems: the development of a secure and efficient RMB payment clearing system is critical to improving the status of RMB in cross-border settlement transactions; efforts should be made to establish and develop the China International Payment System (CIPS) and integrate existing cross-border RMB settlement clearing channels and resources on the basis of rationalized relations between various settlement agencies and RMB clearing banks overseas, creating secure and highly efficient cross-border RMB payment and settlement systems covering all major time zones to ensure transaction safety and enhance the efficiency of RMB clearing operations.
Outlook for Marketization Reform for RMB Interest Rates and Exchange Rates

Lu Xinhong, deputy researcher at China Center for International Economic Exchanges

As an important component of China's financial reform, interest rate marketization and exchange rate marketization reform appears to have accelerated since 2013. Since 2014, after exchange rate volatility increased again, the foreign exchange market has continued to fluctuate.

Meanwhile, the traditional financial sector has also been affected by internet financial innovation, further intensifying financial disintermediation. How will interest rate and exchange rate reform advance going forward? In this process, what risks will be encountered?

Pace of Reform Has Accelerated

In recent years, China's interest rate marketization reform has advanced steadily and has seen significant progress. The effect of the market mechanism has increased significantly in the formation of interest rates.

Since 2014, the People's Bank of China (hereinafter referred to as "PBOC") has taken other important steps toward promoting interest rate marketization reform. On 21 November 2014, while adjusting benchmark RMB lending and deposit rates, an important measure concerning interest rate marketization was introduced, which saw the lifting of the ceiling of the range within which the RMB deposit rate may fluctuate from 1.1 times that of the benchmark rate to 1.2 times. At the same time, among other measures taken, the terms for benchmark deposit and lending rates were simplified, room for interest rate marketization pricing enhanced, the Shanghai Interbank Offered Rate (SHIBOR) and market interest rate pricing mechanism optimized, and the issuance and transaction of interbank deposit receipts steadily expanded.

From January to October 2014, the total amount of interbank deposit receipts issued exceeded RMB 580 billion; this compares with just RMB 34 billion for the whole of 2013. As regards further strengthening the market interest rate formation mechanism, raising the autonomous pricing ability for financial institutions carries great significance.

Since 2014, China similarly accelerated the pace of exchange rate marketization reform. The unilateral appreciation trend of the RMB exchange rate changed, as two-way volatility became the norm, with the exchange rate increasingly approaching the dynamic equilibrium level. The marketization pricing mechanism saw further improvement, and market efficiency rose significantly.

The market's influence on prices has risen dramatically while exchange rate elasticity has strengthened considerably. Exchange rate marketization reform is that which is driving the RMB exchange rate formation mechanism toward developing along the direction of marketization, allowing the market to decide exchange rates. Prior to
the market giving full play to its role, the magnitude of volatility of the RMB to USD exchange rate has been liberalized gradually, increasing to 2 percent in March 2014.

The PBOC’s liberalization of the magnitude of volatility of the RMB exchange rate was rolled out under the backdrop of the market having a certain amount of differences as regards expectations towards the trend in the RMB exchange rate as well as moderating capital inflows. This helps engender the formation of two-way volatility for the RMB exchange rate, and strengthens elasticity, thus enhancing the impact of the market on prices.

The PBOC has basically withdrawn from normalized market intervention, while market efficiency has risen significantly. Since the second quarter of 2014, the PBOC has basically withdrawn from normalized market intervention. The central bank’s role has changed from a "price setter" to a "price supervisor".

The foreign exchange control system reform has deepened, as administrative procedures were streamlined and powers were delegated to lower levels further.

In December 2014, the State Administration of Foreign Exchange (hereinafter referred to as "SAFE") announced the liberalization of interbank foreign exchange market access policy, abolishing pre-qualification licensing, and allowing qualified currency brokerages to launch related businesses in the interbank foreign exchange market, thus expanding the number of foreign exchange market participants.

Currently, the RMB exchange rate is approaching the equilibrium level. On the whole, two-way volatility will continue in the future. Since foreign exchange reform was introduced, the RMB to USD exchange rate has appreciated by close to 30 percent on a cumulative basis.

However, since 2014, the RMB has changed course from a strong appreciating trend seen in 2013, and depreciated sharply. Currently, the RMB exchange rate is already approaching its equilibrium level. Going forward, as the RMB foreign exchange formation mechanism marketization reform advances, RMB elasticity is expected to strengthen further, and two-way volatility will become the norm. The RMB exchange rate will become closely aligned to market equilibrium exchange rate levels.

Given that China’s economy is under a certain amount of downward pressure, global capital flows have changed, and other factors, the RMB exchange rate may continue to show a slight depreciating trend over the short term, but the risk of a significant depreciation does not exist.

First, China has ample foreign exchange reserves. Second, the median RMB exchange rate is basically stable and is able to effectively guide market expectations. Third, China’s macroeconomy is operating steadily, and will underpin the RMB exchange rate, keeping it generally stable.

As of end-October 2014, RMB cross-border receipts and payments accounted for approximately 24 percent of total domestic and foreign currency cross-border receipts and payments. The number of countries that have incurred cross-border RMB receipts and payments totaled 174, while 28 central banks have entered into bilateral currency swap agreements with China.

The nation has also entered into RMB settlement arrangements with the central banks of 12 countries or regions, and 169 overseas institutions have invested in China’s interbank market. More than 30 central banks and monetary authorities have included the RMB into their foreign exchange reserves.

Subsequent Major Risks

Enterprises face the risk of rapidly rising financing cost. As the interest rate marketization process gathers pace, overall interest rate levels will trend upwards. This will lead to a large increase in financing costs for enterprises, adversely affecting real economic growth.

Currently, China’s PPI has experienced negative growth for 34 consecutive months (March 2012 to December 2014), and signs of deflation are clear. At the same time, given that the financing demand
and supply relationship is relatively tight, if the deposit rate ceiling is abolished, but mandatory cash payments of principal and returns of trust products due are not eradicated, this will drive up risk-free interest rates and increase the cost of bank capital, thereby further increasing lending rate levels. The financing costs of enterprises will rise sharply. In particular, the bargaining power of small and medium-sized enterprises as regards borrowing rates are lower, hence, their interest rate risk would increase further.

Commercial banks face systematic operating risks. First, after interest rates are marketized, commercial banks will face such challenges as increased competition, the narrowing of interest margins, and falling earnings. Subsequent to interest rate marketization, commercial banks will compete to increase deposit rates to attract deposits, intensifying competition among commercial banks. Elsewhere, net interest income is the primary source of income for China's banks. High-quality large enterprises, which are the main customers of commercial banks have stronger bargaining power, which will thus make it difficult for lending rates to rise significantly. After interest rate marketization, a narrowing of the deposit-lending margin is an inevitable trend. Banking sector profitability will thus face a major test.

Second, commercial banks will face greater interest rate pricing risk, and difficulty in credit customer risk management.

Third, the business risk of small and medium-sized commercial banks is larger than large commercial banks. Hence, a number of banks may face the risk of bankruptcy and collapse.

Fourth, traditional commercial banks face such challenges as financial disintermediation and internet finance. Technically, internet finance can completely replace commercial banks and thoroughly subvert the business model, earnings model and service model of traditional commercial banks.

Security issues concerning deposits of residents are prominent. Currently, most residents in China make savings deposits their primary investment choice. Although returns on savings deposits are lower, as the risk-free rate, deposit rates are implicitly guaranteed by the government.

Thus, safety is higher. Following interest rate marketization, competition among banks will intensify. Some banks, which look to attract deposits with high interest rates, will experience higher business risk. However, residents generally lack risk awareness. Hence, resident deposit risk will increase.

Real estate credit default risk will increase. In recent years, real estate credit has grown relatively quickly. Hence, China's commercial banks have higher dependence on real estate loans. As of the third quarter of 2014, real estate loans in China's banking sector accounted for 18.2 percent of total loans, of which loans to real estate developers comprised 34.7 percent of total real estate loans. The 2014 Research Report on the Top 10 Listed Real Estate Companies in China revealed that the debt to asset ratio of listed companies in China's listed real estate companies has always been on an uptrend.

In 2013, the average debt to asset ratio of real estate enterprises listed on the Shanghai and Shenzhen stock exchanges stood at approximately 64 percent, the highest level in nearly four years. It can be seen therefore, that the financial risk of real estate developers have risen, further increasing real estate credit risk.

In addition, some of China's cities are currently showing signs of oversupply of existing housing units, over-development and other related signs. Housing prices contain downward pressure, raising the loan default risk of real estate enterprises.

The default risk of local financing platform debt will rise. China's local government debt is currently on the rise. Audited results revealed that as of end-June 2013, the outstanding balance of local government debt with repayment obligations stood at approximately RMB 10.9 trillion.

Debt due for repayment in 2014 and 2015 comprised 21.89 percent and 17.06 percent, respectively, of outstanding debt balance. 2013-2014 was the peak period of platform debt due and repayment pressure was greater. As China's economy
is decelerating, local government fiscal revenue growth will moderate in the future. Meanwhile, rising interest rates will increase interest payment pressure. If debt growth is not effectively controlled, local financing platforms will see widespread default.

As the RMB exchange rate formation mechanism deepens and the market takes on its role, exchange rate marketization reform also faces numerous risks.

Foreign exchange management faces numerous challenges.

The first challenge lies in how the central bank can effectively intervene in the foreign exchange market so as to maintain basic stability in the exchange rate thus advancing international balance of payments. When the RMB exchange rate experiences relative large volatility, the central bank has the responsibility of stabilizing the foreign exchange market.

How to effectively intervene in the foreign exchange market, help the RMB exchange rate toward two-way volatility at a reasonable equilibrium level, and on this basis, achieve the goals of improving foreign-related economic environment, safeguarding against financial risk, and advancing international balance of payments, is a key challenge of the central bank. In December 2014, SAFE liberalized the access for domestic institutions into the interbank foreign exchange market, introducing more types of financial institutions. This has made foreign exchange intervention by PBOC harder.

Second, management of foreign exchange reserves face challenges. Not only is management of large foreign exchange reserves constrained by foreign exchange volatility risk, it is also constrained by market capacity.

The third challenge relates to solving the dilemma between "facilitation" and "risk prevention" that are present in foreign exchange management. For instance, how effective supervision and promoting trade and investment facilitation should be implemented. Only with effective selection of appropriate investments and investment arbitrage can effective supervision be carried out on cross-border capital flows.

Foreign exchange risk faced by enterprises will increase. As China has implemented a relatively stable exchange rate system over a long period of time, the real economy often neglects foreign exchange risks in international economic transactions, and generally lacks exchange rate risk aversion awareness. it also uses less risk hedging tools. As the RMB exchange rate formation mechanism marketization reform accelerates, and after access to the interbank foreign exchange market is liberalized, more institutions will enter the interbank market, and prices of foreign exchange transactions will reflect the expectation of more market institutions. A gradual increase in the magnitude of RMB exchange rate volatility is an inevitable trend. On this basis, the exchange rate risk faced by enterprises will increase.

Financial market volatility risk will rise. Recently, under the pressure of a depreciating RMB, China's capital faced outflow pressure. From an international perspective, the collapse of the Rouble may accelerate currency depreciation in, and capital outflows for China and some other emerging market countries.

Economic recovery in the US and expectations of a rate increase by the Fed will continue to boost the USD, driving international capital flows back to the US, thereby further increasing China's twin pressure of capital outflow and currency depreciation.

From a domestic perspective, downward pressure in the economy, increased exchange rate volatility, and considerable narrowing of the ratio of China's current account surplus to GDP can easily trigger cross-border capital volatility. Hence, the risk of financial market volatility in China as a result of cross-border capital flows and RMB depreciation should be cautioned.

**Subsequent Key Areas in Interest Rate Reform**

First, room for interest rates to move higher will be further enhanced.

Second, develop a benchmark yield curve. Setting up a benchmark yield curve is the first
requirement of marketization sequence. It is also the most important step in driving interest rate marketization reform.

It is recommended that SHIBOR be actively developed into the benchmark for the short end of the benchmark yield curve. The loan prime rate (LPR) should be optimized and take on the role of the benchmark lending rate targeted at the real economy. The treasury yield curve should be developed into the benchmark for the medium and long-term end of the benchmark yield curve.

Third, establish a deposit insurance system and a financial institution bankruptcy and withdrawal mechanism. In the process of interest rate marketization, as risk in the banking system increases, it is necessary to set up a deposit insurance system based on a market mechanism, protecting the interests of depositors.

At the same time, a financial institution bankruptcy system should be introduced as soon as possible, creating a fundamental, safe and highly efficient market withdrawal mechanism and bankruptcy legal system based on market principles, standardizing the market withdrawal procedures of financial institutions.

A financial institution market withdrawal mechanism based on bankruptcy as its core should be established, which must be combined with the liberalization of the banking sector access system. Financial institution access reform should be actively advanced, giving more room to micro-financial institutions and private finance.

Fourth, risk supervision in key areas should be enhanced. As interest rate marketization advances, risk in the financial system will increase. Real estate financial risk, local debt financing platform risk, shadow banks and other such risks will continue to build up, thus increasing the triggering of latent systematic financial risk.

Supervision of inter-market risk transmission should be enhanced, and supervision of the real estate market, local financing platforms, shadow banks and other key areas should continue to be strengthened. Supervision of financial innovation should be enhanced.

**Control the RMB Exchange Rate Reform Process**

The positive role of exchange rate marketization shall be given full play, lowering the adverse impact and risks that may result from this. The following three aspects need to be highlighted:

First, the exchange rate market pricing mechanism should be further optimized, and exchange rate elasticity should be strengthened. Under the premise of keeping the RMB exchange rate generally stable at an appropriate and equilibrium level, it is recommended that the magnitude of RMB exchange rate two-way volatility be gradually liberalized, ultimately resulting in a marketized pricing mechanism.

Second, foreign exchange hedging tools should be enhanced, increasing enterprise risk aversion awareness. Enterprises engaged in foreign trade should fully establish risk awareness and adopt measures to avoid losses resulting from exchange rate volatility, such as entering into forward contracts, foreign exchange swaps, RMB foreign exchange options and other RMB derivative contracts. It is recommended that the foreign exchange derivative market should be actively developed, with the launch of more available foreign exchange hedging tools for enterprises, such as RMB futures. At the same time, RMB internationalization should be actively advanced. Enterprises should be encouraged to use the RMB to settle cross-border transactions, avoiding exchange losses.

Third, safeguarding against the impact of capital flows should be enhanced, and control tools optimized. It is recommended that control tools be optimized, a Tobin tax implemented, and necessary capital controls carried out, thus strengthening monitoring and early warning of two-way cross-border capital flows, safeguarding against the impact of two-way cross-border capital flows. At the same time, RMB capital account convertibility should be steadily advanced, advancing trade and investment facilitation.
Internet Finance and Traditional Chinese Culture

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At a glance, traditional Chinese culture and internet finance are "different as night and day." The two have nothing in common:

First, in terms of time, one is ancient, the other contemporary.

Second, in terms of domain, one belongs to culture, and has societal attributes; the other to economics, with society as foundation and application field.

Third, in terms of function, one is concerned with thought, the other, material.

Fourth, in terms of outcome, one is a "finished good," the other, an intermediary.

In that case, why link internet finance with traditional Chinese cultural elements?

Virtual Networking is the Network’s Acquaintance Society

The rationale behind the development of the internet finance sector lies in "virtual networking" which then becomes an "acquaintance society". When "anonymity" in internet culture meets finance, things no longer work.

In other words, the basis for the existence of internet finance is "reality and transparency". An "acquaintance society" is re-set by way of virtual networking. By creating numerous micro circulation "acquaintance societies", an entire large circulation internet finance is formed.

At the same time, with the help of big data resulting from internet records, defaulters will be "sanctioned" by the network society and in the real world. How can we convert a "stranger" we have never met before into a real "acquaintance"?

The main difference between a "stranger" and an "acquaintance" lies in the difference in the level of familiarity. Therefore, internet finance platforms require that an investor carry out real name authentication, and would carry out due diligence on borrowers.

However, not all "acquaintances" are potential parties with which you can do business. These "acquaintances" also need to have good character, and be reliable. Therefore, the internet finance platform requires credit evaluation, risk management and credit pricing to be carried out.

As China’s credit system is inadequate, data accumulation at internet finance platforms and optimization of credit evaluation systems still require time.

Thus, depending simply on going online to realize full and authentic information is very difficult. As a result, the O2O model (Online to Offline), which combines online and offline was born. For instance, a P2P or P2C platform performs offline customer development, and finds investors online. An institution with risk management and service capability offline would complete due diligence and
credit information collection offline before referring qualified customers back to the P2P or P2C platform, completing online matches. Offline institutions would undertake post-lending management duties. The division of labor between online and offline are distinct and the two have complementary advantages. The fact that regional O2O models are popular is the proof.

The "acquaintance society" which is reset by internet finance is of the same origin as the "rural China" referred to by Mr. Fei Xiaotong. In the living community of the "acquaintance society" that comprises "rural China", people pay particular attention to inter-personal relationships within "acquaintance society", and to the rural flavored "rule by rites," which is different from "rule by man" or "rule of law."

In addition, people live together as a community, and are thus familiar with each other's psychology, temperament and family. This subconsciously becomes a social order where non-routine information is automatically known. In this order, non-routine information does not require stringent statistical reports. Everyone works according to their conscience, and will not lose their reputation of trustworthiness accumulated over a long period of time within this community because of a moment of "personal gain."

A case in point. About a hundred years ago, late-Qing dynasty industrialist, Zheng Guanying founded a micro-credit organization in Yangzhou, Jiangsu Province, called "Save the Poor Interest-free Lending Bureau". It only provides loans to the poor and does not require collateral, and it is interest-free. In the three-year period after its founding, there were frequent outbreaks of war, but 2,400 poor households received loans. Other than two households which did not repay their borrowings because the borrower passed away, the remaining 2,398 households repaid on time; the repayment rate was as high as 99.92 percent.

This made Zheng Guanying remark, "It is evident that the poor have a conscience. Borrowing without repayment is not a concern."

"Rural finance" of "rural China" is such. Internet finance is also the creation of a "rural China" on the network. Interactive information exchange, such as clicking like or support, is in fact, modern measures of carrying out the construction of a credit system within a specific domain, and to build a "micro circulation" system for the virtual world.

What happens after internet is used in depth? The internet has realized a voluminous grade of "one-on-one". Not only has it establish numerous "micro circulations" and "small circulations", it has also linked countless circulation systems together. Coupled with "revolutionary" breakthroughs in 3D and other manufacturing segments, meeting astronomical amounts of varying demands becomes a possibility.

In reality, the crux to medium-sized, small, micro and rural finance lies in ability to secure funds, manageable risks and information quality. Securing funds is the outcome, risk management is the process, and information quality is the prerequisite, and is of utmost importance. The essential requirement of information quality is information symmetry.

Information asymmetry leads to suspicion, raising gaming cost and corroding credit value. The quandary in which medium-sized, small, micro and rural finance find themselves stems from inadequate subjective initiatives of banks. In particular, absence of credit and inaccurate risk pricing stemming from information asymmetry are the key reasons for the "all talk and no action" lack of initiative of banks.

Medium-sized, small, micro and rural finance are typical "rural finance", and their corresponding financial behavior should be the different from the generic commercial bank, whether in terms of structure, type of organization, or business development method or product and services, among other things. The main institutions that serve medium-sized, small, micro and rural finance should be regional or community based. These would be familiar with the customers, the regional market, as well as people and social conditions.

In terms of organization, these would have a unitary based or at the maximum, a two-level
"management-operations" structure. Only in this way can a professional management radius and service radius be reasonably laid out, lowering information asymmetry, and accurately determining heterogeneous risk. Interactive movement between servicing and the serviced becomes the circulation movement of incorporating service into production life.

In contrast, in China, banks are mostly "nationwide," or at least "regionally based." True local banks are rare. "Community banks" is also conceptual, only a "new title" bestowed by commercial banks when expanding their branch network outlets.

Community banks are originally independent legal person banks, and serve the community; and they only serve the community. These are not commercial bank branches that exist in the form of commercial banks. Using this as a benchmark, structural defects of the Chinese banking system as regards servicing medium-sized, small, micro and rural finance are apparent.

Clearly, the banking system has not been played its rural card well. Its structural defects, particularly, commercial banks' universal "greed for large projects", and their conformist nationwide network layout and internationalized expansion have meant that the number of financial institutions that are truly close to the serviced parties are inadequate or professionally lacking. This is a deviation from the original intention of servicing medium-sized, small, micro and rural finance/

The Internet finance model is the perfect "remedy" for the defects mentioned above. The gathering and handling of voluminous information is the starting point. This is followed by modeling, where large models overlap small models, subdivideing to the extreme.

After that, numerous "micro schemes" are interfaced with numerous "micro demands." Specific "offers" of micro finance receive widely covered "undertakings" from the network, realizing form diversification, while there is ample crowdfunding and other innovators. The outcome is that traditional finance is bounded by cost, and is unable to provide custom made financial products and services for heterogeneous entities that are fragmented, small and numerous but the internet finance is capable of doing that.

**Apps and Experience Equal to "Described Situation" and "Created Situation"**

The important characteristics differentiating Internet finance from traditional finance are the creation of application scenarios (hereinafter referred to as "app(s)" and emphasis on customer experience. The key measure adopted to expand internet finance is to occupy as many apps as possible, i.e. flow access. Internet finance relies on e-commerce, social networking, searches, games, advertisements and other diversified accesses, building its own scenario system, gaining a multitude of users.

For instance, the competition between Alipay Purse and Weixin Payments in the taxi market is to incorporate electronic purses into everyday life. Weixin Payments' gift in red envelop (hongbao) activity very nicely integrates social networking and payment elements through the app for taxi fare payment, binding customers to Weixin Payments. Whether in terms of payment, financing, wealth management investment, or credit information collection or search services, the specific operations of internet finance are packaged with apps, realizing a fast, secure and one-stop financial experience.

From the "created situation" of Internet finance, one cannot help but think of the "described situation" and the "created situation" in traditional culture. Apps and user experience are the weapons for rapid growth in internet finance, while the "described situation" and the "created situation" endowed traditional Chinese culture with intelligent beauty and perpetual vitality.

Mr Wang Guowei once said, "There is a created situation and there is a described situation,
therein lies the basis for distinguishing idealism and realism”. The "described situation" reflects the actual state of nature while the "created situation" a state of art created through artistic creation.

In traditional Chinese culture, both the "described situation" and the "created situation" are widely applied. The "described situation" constituted the basis of all cultural works while the "created situation" endows such works with thought and soul. Internet finance also "describes" and "creates", and its speed and volume exceed the imagination. The demand for experience drives the launching of new scenarios in place of the old. The supply of scenarios in turn creates demand for new experience. All of these pivot around financial service availability and accessibility, greatly enhancing financial intension and extension. It has also deeply changed the method of realizing financial products and services.

**Connectivity is Thorough Understanding and Knowledge Integration**

Open sharing, and connectivity and integration are distinct characteristics of Internet finance. Internet finance greatly lowered information asymmetry. Information can be fully and quickly exchanged at a low cost, and can be transmitted and shared, thereby leading to multi-dimensional connectivity, cross-border penetration and integration among institutions, customers and terminals through internet finance. In terms of institutional connectivity and integration, traditional financial institutions and internet technology are integrated, bringing the business online, and providing customers with a "one-stop" service.

Internet enterprises involved in finance, such as Alibaba microfinance, will compensate for the inadequacies of banks by connecting and consolidating the transaction and credit records of e-commerce platforms, social networking platforms and other large customer groups.

In terms of terminal connectivity and integration, internet finance connects and causes interaction among almost all application terminals of users, including shopping services, travel, communities, making friends, information, taxi booking and other day-to-day services, games, videos, music and other entertainment services, as well as insurance, funds, wealth management and other financial services such as Tencent taking a stake in dianping.com, its involvement in Didi Taxi and cooperation with Sinolink Securities, Baidu’s acquisition of 91, Alibaba’s acquisition of AutoNavi, and Suning Commerce’s acquisition of PPTV. The goal is to connect as many internet services as possible, securing flow, thereby securing customers. Behind terminal connectivity is data connectivity; customer flow, goods flow, capital flow, and information flow are highly connected, amalgamating into the basis for big data and cloud computing.

Internet finance has an internal impetus to break through boundaries and integrate everything, and "thorough understanding and integration of knowledge" is the highest state esteemed by traditional Chinese culture. Traditional Chinese culture is itself a culture that integrates a myriad of diverse content and nature. Take Confucianism, Buddhism and Daoism as examples. The three appear to be independent but are in fact complementary, integrated as a whole. Confucianism expounds the relationship between people and society, where one's life is based on society. Daoism exhibits the relationship between people and nature, where nature transcends mind and body. Buddhism reveals the relationship between people and their ego, pursuing the building of one's true ego with the soul as the foundation.

By thoroughly understanding and integrating wisdom of sages from Confucianism, Buddhism, Daoism and other ancient schools of philosophical thought, and then raising it to a higher state is the essence of traditional Chinese culture. Internet finance wants to integrate society, and integrate the ego, to integrate things as well as integrate people. Once the "integration" essay is completed, internet
finance will work.

**Harmony is the Common Pursuit**

The Internet's innate shared benefit attribute promotes harmony. Traditional finance more or less gives the impression that people resent the poor and love the wealthy, and is fair-weather friend. Internet finance, on the other hand, breaks through the constraints of geography, time and space, lowering transaction cost, while raising the breadth and depth of financial service coverage, providing opportunities for remote areas, small and micro enterprises, entrepreneurs, and low-income groups to obtain financial services on relative equality, thus winning the title of "shared benefit finance" on the back of low cost, low threshold, popular, strong coverage and availability.

The implied meaning of "shared benefit" "harmony" in internet finance is related to China's traditional "harmonious culture". The pursuit of a harmonious inter-personal environment in "valuing harmony"; "harmony but different" advocates the pursuit of overall harmony while retaining individual development, attaining unity and harmony through mutual help and complementarity. The theory that "humanity is an integral part of nature" emphasizes the coordination between and the unity of humanity and nature.

Harmony between individuals and groups, and harmony between nature and society are precisely the ideals and goals pursued by the Chinese. Participants of internet finance are all different. Internet finance begins with data handling supported by modern technology and ends with meeting the demands of independent entities, thereby realizing harmony among participants, corresponding harmony of the internet ecology, the overall harmony of internet finance, as well as the harmony between Internet finance and substantial existence.

**Welfare is the Ultimate Concern**

The goal of economics is to increase the welfare of humanity, which is an extremely complicated and diverse concept. Internet finance is a measure, a path, and its outcome is to make perfect the financial market system, and to develop shared benefit finance so that the material life of people would become better. In the process of its relentless pursuit for a better state, the ultimate concern of traditional Chinese culture is also to "make the world a better place".

What Internet finance provides is service, a coincidence of production and consumption. It satisfies both differentiated demand, and creates new demand through supply. It first provides products on a trial and error approach, and then carries out improvements and innovation according to the degree of customer acceptance, ultimately allowing a person's multiple demands to be met once-off and on a continual basis.

This is similar to the dynamic elevation of "perfecting the self" and the "perfect being". By continuous cultivation of one's moral character, "perfection of self" is attained; this is followed by "forgetting the self," finally arriving at the "perfect being."

There are numerous links between Internet finance and traditional Chinese cultural elements. These are by no means the only examples and it is difficult to provide full coverage of an analysis and description.

However, the conclusion is apparent. Internet finance "has culture," and has many traditional Chinese cultural elements. In the development of Internet finance in China, borrowing from tradition may well be a good idea, with continued breakthroughs amid heritage.
Winter May Have Just Begun for the Commodities Market

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The global commodity market was battered in 2014. International crude oil prices experienced a series of staggered declines in the second half of the year, plunging from US$107 per barrel in mid-June 2014 to US$45 dollars per barrel today, representing a 58 percent decline over a seven-month period.

In the World Bank’s latest Commodity Markets Outlook released on January 22, three industrial commodity price indices — energy, metals and minerals, and agricultural raw materials — experienced near identical declines between early 2011 and the end of 2014. Such a consistent decline across the board is rare.

Going forward, I believe the global commodities market will remain bearish in 2015 as weak global demand, ample supply and dollar strength are expected to prevail. Winter has just begun for the commodities market.

Dragged Down by Weak Demand

The most obvious indication is the sluggish demand. Weak commodity prices this year has been decided by economic fundamentals in the form of supply adequacy. Historically, supply and demand changes have a very significant impact on commodity prices. In the 1970s, volatilities in international commodity prices had much to do with supply factors and one such example was the continuous oil price shocks.

In the 1990s, the demand for commodities grew rapidly in tandem with industrialization and urbanization of emerging economies, resulting in soaring prices. In the second half of 2008, affected by the international financial crisis, global economic growth slowed down significantly, especially in the once fast-growing emerging markets. Commodity prices plummeted consequently and the CRB spot indices fell by 34 percent within four and a half months from July 2 to November 25 in 2008. The situation improved only when the United States launched its first round of quantitative easing.

Analysis from the demand perspective shows that the global economic outlook for this year is not too optimistic and this will have a negative impact on the demand for commodities. It is clear that although the global economy is recovering, growth is weak as the growth rate is still approximately 2 percentage points lower than the pre-crisis level of more than 5.5 percent (2006-2007).

In fact, the IMF cut its global economic growth forecast again on January 20. Global growth was projected at 3.5 percent for 2015 and 3.7 percent for 2016, the IMF said in its latest World Economic Outlook report, lowering its forecast by 0.3 percentage points for both years. The cut was due the IMF’s reevaluation of the economic outlook.
of China, Russia, the euro area and Japan, and the expectation of weakening economic activities in major oil-producing countries as a result of plummeting oil prices.

I share the same cautious sentiment as the IMF and other international institutions towards the global economic outlook for this year. In terms of developed countries, the economic recovery in the US is indeed a major positive factor. A relatively benign cycle seems to have begun between the country’s labor market and domestic consumption as the real estate market undergoes deep correction and the job market recovers.

However, in contrast to the robust economic recovery in the US, Europe and Japan face a greater challenge. The situation is more severe in Europe as the region grapples not only with economic issues. Greater risks lie in its internal political factors. Should the region be caught in long-term deflation, compared to Japan, it would be even harder for it to bail itself out.

The impact of slowing growth in emerging market countries on the demand for commodities is even more direct. The current growth rate of these countries as a whole is markedly slower than its pre-crisis level of more than 8 percent and it is highly probable that the growth rate this year will drop to half of its pre-crisis level.

At the same time, greater divergence is occurring in the development of emerging market countries. China has entered a phase of “new normal” and faces many challenges in its domestic economic transformation. Its economic growth will slow down from a fast pace to moderate to high speed, but the country will continue to lead the global economy nonetheless.

**Commodity Prices May Continue to Fall**

Benefitting from falling commodity prices, India which is an importer of commodities recorded strong economic growth of 5.3 percent in the first three quarters last year. In contrast, Russia and Brazil which had achieved strong post-crisis economic showing are now in a worrying state. Dragged down by their energy exports, both countries have slipped into recession.

Supply-wise, there is no sign of a grey swan event in which a supply contraction is likely, especially in terms of crude oil which is the “king of commodities.” Increased shale oil development in the US, coupled with OPEC’s announcement that it would not cut production, means that oil supplies will remain abundant this year.

Rapid shale gas and shale oil development in the US has led to rapid natural gas and crude oil output growth in the country. According to the
U.S. Energy Information Administration (EIA), the country’s crude oil output has increased to more than 9 million barrels per day, a new high since January 1983, and it is expected increase by 10 million bbl/d in 2015. This has also led to a continued decline in US crude oil and natural gas imports. At the same time, the announcement by major oil exporter Saudi Arabia that it would not cut its oil exports means that oil supply will remain relatively abundant.

It goes without saying that in addition to the impact of economic fundamentals, the movement of the dollar is also closely linked to the movement of commodity prices. As the dollar is the pricing and settlement currency for most international trade in goods and services, the movement of the dollar will have a direct impact on changes in international commodity price movements when other conditions remain unchanged.

The dollar experienced long-term weakness after the Federal Reserve launched its quantitative easing program and this boosted dollar-denominated international commodity prices to some extent. Analysis of the latest data shows that the current round of rising dollar is also highly correlated with weaker commodity prices. Regression analysis shows that since the dollar began to rise in June 2014 to date, the correlation coefficient between the dollar index and the WTI crude oil price index is a whopping -0.98, while the correlation coefficient between the dollar index and the CRB index is -0.99, which mean the current round of rising dollar and falling commodity prices occurs almost in real time.

From this perspective, the movement of the dollar going forward can act as an important reference for projecting commodity price movements. In my opinion, the dollar is expected to remain strong this year, given that the US economy is displaying a clear recovery trend and the return of global hedge funds to the US has been accelerating following QE tapering by the Federal Reserve. As such, commodity prices are expected to continue to decline.

In fact, such a trend has begun, judging from the latest dollar and commodity price movements.

In short, given the weak global demand, unconventional crude oil production growth, OPEC’s refusal to cut its output, a strong dollar and other reasons, the downtrend in oil prices is expected to remain intact this year. The above analyses of supply and demand fundamentals and the dollar trend have a similar impact on other commodity prices.

In addition, given the existence of an interaction effect between commodity prices, i.e. falling crude oil prices can result in lower coal, natural gas and other energy prices to a certain extent, and that relatively low prices for oil and other fossil fuels can result in diminished demand for bio-energy that uses agricultural products as raw materials and in turn depress the prices of agricultural products and exert a negative impact on metals and other commodity prices, the synchronized decline of international commodity prices as witnessed last year is set to continue this year and new lows can be expected.

Furthermore, I believe the impact of falling global commodity prices on China this year may be bidirectional. However, it will bring greater good than harm in general. In the case of crude oil, as China is the world’s largest oil importer, lower global oil prices can directly reduce the cost of goods purchased and transportation costs, and this could be a positive development in terms of lower non-food prices and also in terms of corporate profits and consumer spending.

Moreover, lower crude oil prices also provide an excellent opportunity for expanding the country’s strategic stockpiles of the commodity.

Depending on the type of trade, some commodity-exporting countries such as Russia, Brazil and Australia will naturally be hit. A sustained price decline can also lead to further deflation risks to the euro area. As these countries are important trading partners of China, China’s export situation this year may be even more severe. Coupled with the negative impact of deepened fiscal reform on investment this year and the possibility of greater-than-expected RMB devaluation, many grey swan events mean that the economy will be full of challenges and uncertainties this year and this warrants great attention.
Shale oil and gas (for convenience I am including both tight and shale oil/gas in this description) have prompted a massive rethinking of global energy prospects. While the initial focus has been on North America, both the latest U.S. Energy Information Administration (EIA) and International Energy Agency (IEA) projections put most of the technically recoverable reserves (TRR) elsewhere in the world.

And these indicators are considerable. Currently, the best estimates put better than 83 percent of shale gas and almost 81 percent of shale oil TRR someplace other than North America. This means the medium-term expansion prospects worldwide are significant. More so when you consider the following startling point: the EIA in its recent report increased the expected global TRR by 60 percent!

A cursory review of current data indicates that among shale gas reserves the U.S. is only fourth worldwide (and Canada is fifth). Meanwhile, China leads the table, followed by Argentina and Algeria. On the shale oil side of the reserves, the U.S. is second (to Russia), while Canada is only ninth. China, Argentina, Libya, Venezuela, Mexico, and Pakistan round out places three through eight.

As the shale revolution unfolds, it is going to be a global phenomenon. Of course, as any field engineer would hasten to tell you, the difference between what can be technically recovered and what are genuinely extractable reserves (ERR) is decisive. Nonetheless, while only development can determine the actual extraction flow, three conclusions are already pressing upon the market.

First, unconventional oil and gas is going to alter the production landscape. Second, the focus of that production will progressively become global in scope. It may have begun in North America but it is hardly going to stay there. Both of these considerations are now widely shared, although the ERR available, the time frame involved in moving extraction on line, how long it will take to provide the critical mass of technology, expertise, and support, transport and distribution, along with a number of related factors are in doubt. But the decisive considerations here largely address time and the scaling up of ability to produce and utilize.

I have addressed both of these points on numerous occasions recently. In this article, I want to talk about the third, and perhaps most decisive impact of the oncoming shale boom.

This involves the major changes to take place in global energy trade as a result of shale. There are three interconnected elements to what is fast approaching. First, the accelerating presence of
domestically produced unconventional oil and gas will revise import requirements in many countries and regions.

We are already seeing the result of that in the U.S. and Canada where the widely-held expectation is for effective North American energy independence within the next ten years. While Canada has been extracting a surplus of oil and gas above local needs for some time, the U.S. is quite a different story.

Only a few years ago, the U.S. was importing almost 70 percent of the crude oil needed on a daily basis. Less than ten years ago (in 2005), I recall being in a meeting where we all agreed the American market would require at least 15 percent of its daily natural gas to come in imported liquefied natural gas (LNG).

Today, projections look at 30 percent of oil satisfied by imports as early as 2020 (with all of that coming from Canada), while the new domestic largess of shale gas has provided projected reserves of between 40 and 120 years of need, depending on which region and whose estimates you accept.

Contract swaps and arbitrage will still oblige some additional imports of both oil and gas into the U.S. The difference will come from the reason — to maximize bottom lines rather than meet existing market demand.

Certainly, the advance of shale gas and oil will affect other domestic markets in other ways. But the inescapable fact is this: shale field development will provide the opportunity in dozens of countries worldwide to meet at least some of the industrial, commercial, and residential energy needs locally.

The revised import-export dynamic introduces the second factor — direction. Two years ago in the latest revision of its primary internal planning document, OPEC posited that no member of the organization is likely to be selling a single barrel of oil to the U.S. by 2050, given the expected impact of the shale era. OPEC is now targeting Asia for additional sales moving forward.

And for good reason. The fundamental direction of global energy trade is moving toward Asia, and rather quickly. Asian demand is beginning to drive the global sector as a whole. Every analysis being released these days tells the same story. It points toward the redirection of energy supplies to Asia.

That means Asia will remain the fastest growing destination for crude oil, while its increasing requirements for natural gas via pipeline and LNG tanker deliveries will redefine overall world transit.

Even the prospects for the acceleration of domestic electricity production will not stop all the new plans to increase cross-border power grids. Long story short: We are looking at a steady increase in Asian demand far outdistancing any other part of the globe at least through 2035.

The result is nothing less than Asia becoming the target for the primary changes in the way energy is moved. This new balance adjustment is going to alter fundamentally pricing expectations in other regions as well. The readjustment for conventional oil and gas will be clearly moving to Asia, a basic ramification of shale.

Despite the onslaught of shale, traditional energies will continue to comprise a massive chunk of the international energy market. For Asia, that also includes a continuing reliance on coal. But when it comes to imports, there is developing an interesting twist.

Asia may finally be getting a break on premium pricing. That premium has traditionally been determined by OPEC export directions in general and Saudi in particular. The entire oil market has based its pricing projections on the additional amount Asia has been forced to pay. This premium has also allowed Iran to charge more for the crude it sends, circumventing Western sanctions.

Whether anything substantive results from the recently announced “agreement” on the Iranian nuclear program, the potential addition of a new source of oil to Asia is about to change the premium dynamics. That’s because the flow of new oil from Russia is tipping the pricing scales in favor of Asia now that the major East Siberia-Pacific Ocean (ESPO) pipeline is finished. This pipeline allows for the transit of oil to Asia from a major terminal at Kozmino on the Russian Pacific coast.
An earlier completed ESPO spur at Skovorodino in Siberia has been sending Russian oil to northwestern China for years. ESPO allows Moscow to begin developing its vast reserves in Eastern Siberia. But it has an even more important significance when it comes to Russian oil exports: It’s certain to result in a new benchmark crude rate.

Named for the pipeline itself, ESPO Export Crude will offer oil at a discount to what Asia currently pays for Saudi production. In addition, the oil is of better quality. The Saudi standard export has higher sulfur content and costs more to process. All of this means the new ESPO crude will come to dictate much of the pricing in Asia and is quite likely to replace the current premium paid with an actual discount to what is charged elsewhere.

This is a significant double advantage to Asia. It is already coming to control the international demand curve and will also now be able to dictate lower prices. And what happens in oil also has an effect on natural gas and electricity tariffs, especially in terms of the breakthrough Chinese-Russian natural gas accord (assuming the finalization of the agreement on pricing and volume can be worked out).

As Asia becomes the driving force in energy usage, it is also going to be setting the pricing levels for other regions. In this case, look for previously unseen pricing premiums to emerge elsewhere — even parts of Europe are a possibility here — as Asia begins to control the wider energy picture.

Much of this would happen anyway, given the magnetic effect of Asian demand. But the shale push is certainly accelerating the changes.

Which brings me to the final point, the most significant revision in trading resulting from shale.

LNG in particular will revise the terrain, but the sourcing of oil and gas will also impact pipeline pricing. Much of the North American gas excess will be moving to export. This will begin in the next 18 months, driving the U.S. from 0 percent of the LNG export market to 6-8 percent as early as 2020. Canadian exports will also be accelerating.

The North American move into exporting gas will be paralleled by a major revision in policy. After over four decades, Washington will begin phasing in the export of crude oil, a result of the shale oil surge that has moved American oil production to the highest levels since the early 1970s.

What is key here is an element already identified in European LNG imports and comprising a staple on the oil side for some time. Sufficient availability of supply in many parts of the world will allow the setting up of spot markets. Those markets will serve to temper pricing variations and actually undercut (usually) the cost of gas delivered on long-term, take-or-pay, crude oil price-based pipeline contracts.

An entirely new environment of rapid contract swaps and arbitrage agreements will follow as various local spot markets compete for transit. But the overall results will favor energy pricing predictability and market planning (either centralized or decentralized). Another plus is the likelihood for many of these areas that the new trading patterns will allow for the minimization of geopolitical tension impacts on the availability of energy.

This is the most impressive change occurring in energy trading as a result of the shale revolution.

Some of my acquaintances in the industry (especially at Russian Gazprom) are quick to point out that LNG imports would be more expensive than traditional piped gas, thereby lowering the advantage of spot markets.

The price differential will change dramatically as the volume increases (because that also introduces competition on both ends of the trade). The guaranteed availability of the energy will have the decisive impact here, pulling down the actual price given how a local spot market operates with quick purchases related more to the market needs than those of the exporter.

All of this is about to hit, and the advent of shale is the primary catalyst. But let me leave you with a final striking thought. As big as shale is becoming, it is still not the only new game in town. After all, I have said nothing about the huge global reserves of coal bed methane and hydrates on the gas side, or heavy oil on the other.
China has achieved rapid economic development, particularly since the mid-1990s, at an average level of 7–8 percent of gross domestic product (GDP) each year. This growth has been underpinned by significant increases in coal use especially for power generation. In the context of balancing growth with environmental consequences, this approach has caused severe air pollution problems, especially in urban areas. There are severe acid rain problems across large regions of Southern China, which have arisen from a combination of industrial emissions of acid gases and particulates due to coal combustion.

At the same time, in cities throughout the country, the air pollution levels are high, with 90 percent of those assessed failing to meet WHO health-based standards. A major study between the State Environmental Protection Administration, now part of the Ministry of Environmental Protection (MEP), and the World Bank reported that:

* The annual combined health and non-health cost of outdoor air and water pollution for China’s economy is over US$100 billion a year;

* Air pollution, especially in large cities, is leading to higher incidences of lung diseases, including cancer, respiratory system problems and therefore higher levels of work and school absenteeism;

* Water pollution is also causing growing levels of cancer and diarrhoea particularly in young children;

* Water pollution is further exacerbating China’s severe water scarcity problems, raising the overall cost of water scarcity to about 1 percent of GDP.

The Chinese government has taken some very significant steps to address these and related energy issues by introducing lower carbon and zero carbon options into the energy mix. The UK Government shares many such goals, particularly in promoting low carbon transition and moving towards greater deployment of sustainable energy. There is extensive collaboration in these fields, with joint China-UK projects bringing together experts, officials and companies to share their thinking and expertise. This work not only helps China and the UK achieve their domestic objectives for low carbon development, but also helps the global development of low carbon policy, technology and expertise.

This cooperation includes:

* Joint £20 million research programme on Low Carbon Innovation, including work on offshore renewables, low carbon manufacturing processes and technologies, and low carbon cities;

* Commitment of £35 million by the UK from the International Climate Fund to the Asian
Development Bank Trust Fund for Carbon Capture and Storage (CCS) development in Asia, with a focus on China and Indonesia. With the ADB and the Chinese Government, the UK is identifying opportunities to accelerate the development and deployment of CCS in China;

* Joint UK and China actions on areas including green finance, green credit and green procurement. Through the Climate Public Private Partnership, the UK aims at catalyzing private finance specifically from institutional investors (such as pension funds and sovereign wealth funds) into low carbon investments in China and other countries; and

* Joint activities with Chinese partners and UK companies to promote low carbon urbanisation both bilaterally and under the EU-China Urbanisation Partnership Framework.

Climate change has been increasingly highlighted within China and its government has emerged as a global leader in strengthening mitigation efforts. In 2009, the government pledged to reduce CO2 emissions per unit of gross domestic product (GDP) by 40-45 percent from 2005 levels and to achieve a share of non-fossil energy of 15 percent, both by 2020. By 2013, the carbon emission intensity had decreased by over 28.9 percent and the share of non-fossil fuels in primary energy consumption accounted for 9.8 percent. In November 2014, the Chinese government announced that it had set a target for 2030 of reaching peak CO2 emissions and achieving a share of 20 percent non-fossil energy in the total primary energy supply. Given the size of the Chinese power sector, which has already become the largest solar and wind market in the world, this represents a major structural change.

That said, in order to satisfy electricity demand growth until 2030, total power generation capacity will have to increase to about 2,300 GW, which means that even with a very strong growth in non-fossil energy, there will be increases in coal and natural gas use. While in percentage terms coal power capacity will decrease, this will be within a still rapidly growing power generation sector, with coal-fired power plant capacity projected to rise from about 800 GW to 1,200 GW. Most of this additional capacity will be built in the next 5 to 10 years. Consequently, in absolute terms, coal use for power generation will increase through to about 2030.

This gives China some major challenges, which need to be addressed in a pragmatic manner since it cannot simply cease to use coal. The Chinese government has stepped up its efforts to address the comprehensive need for clean coal technology across many sectors in order to improve energy and environmental performance. This covers the essential need to achieve lower carbon intensity and to address air quality issues. The former includes the further extensive deployment of high efficiency low emissions (HELE) coal power plant, which in itself results in a significant reduction in carbon intensity while also providing a precursor to the addition of CCS technology as a means to make coal based technology a low carbon option. For the latter, this requires a focus on how to meet the tightening emissions standards in the various coal industrial sectors while avoiding significant adverse impact on local GDP.

**Early Steps to Reduce Carbon Intensity and Improve Air Quality**

From 2006 onwards, China established a strong policy and regulatory framework to reduce emissions from coal power plants, which remains by far the largest coal using industrial sector. This has required the power plant companies to make major improvements not only in terms of overall energy efficiency, which will lead to CO2 emissions reduction, but also in the absolute reduction of pollutant emissions, namely SO2, NOx and particulates. Thus, there has been a major policy to only build high efficiency coal power plants based on supercritical and more recently ultra-supercritical steam cycles. Such plants are over 20 percent more efficient than the older units, with a corresponding reduction in CO2 emissions. In addition, almost all small, old and obsolete power station boilers below 300MW unit capacity have been closed.

In 2011, the MEP put in place some of the
strictest emissions performance standards in the world for coal power plant.

The primary focus is on nine key regions, which are facing very significant air quality challenges. These are the three major economic zones around the cities of Beijing, Shanghai (Yangtze River Delta) and Guangzhou (Pearl River Delta), together with six areas around the cities of Shenyang, Changsha, Wuhan, Chengdu-Chongqing, the Shandong peninsula, and the coastal area west of the Taiwan strait. These regions comprise the population and economic centres of the country, accounting for 64 percent of national GDP, 43 percent of total energy use, and 39 percent of the population. In these locations, all existing and new coal-fired power plants have to achieve particulate, SO2 and NOx emissions limits of 20, 50 and 100 mg/m3 respectively, with new plants meeting the standards from 1 January 2012 and existing plants by 1 July 2014.

For the rest of the country, the standards are not quite so strict and the SO2 limits for existing plants are less severe than for new plants. Thus the particulates and NOx emissions limits for all plants are 30 and 100 mg/m3 while for SO2 it is either 100 or 200 mg/m3 depending on whether the plant is new or already in operation. In addition, in several provinces which are not so developed and which are dependent on the use of local higher sulphur coal, the SO2 limits are further relaxed. While the new standards for the coal power sector represent a very significant tightening of the emissions limits, there is an expectation that further changes could be applied prior to 2020. It has been suggested that levels could be reduced to particulates 5 mg/m3, SO2 30 mg/m3 and NOx 50 mg/m3. In addition, from 2012, the Chinese government has limited coal consumption for power generation in China’s nine key regions. In practice, this means that permission for additional coal plants in such regions will not be granted.

In order to meet these very tight emissions standards for non-CO2 pollutant emissions, the power plant owners have had to install and use of state of the art control systems for the specific removal of SO2 and NOx. The other initiative has been to strengthen primary fine particulate emission control, through an increase in the use of washed coal, which reduces the ash in coal and then reduces the fine particulate matter emissions, together with measures to install either higher efficiency electrostatic precipitators (ESP) or bag filters.

In addition, China is seeking to address the need for structural changes for the power sector where sectoral reform and pricing liberalisation are central to all of the proposed energy reforms.

Notwithstanding these various initiatives, the air quality in many major cities has remained poor, due primarily to continued high levels of coal use in the smaller and relatively less efficient non-power sectors. The Chinese government has now made addressing these ongoing problems a key environmental priority, with an intention to accelerate the development of systems, institutions and a technical knowledge base for sustained air quality improvement. This is being supported with significant investments to meet the enormous national needs for cleaner energy, air and water.

Further Initiatives

The MEP has recently released 2013 pollutant information for 74 cities in China, of which only 5 met the national air quality standard of 35ug/m3.

In September 2013, the State Council released the ‘Air Pollution Prevention and Control Action Plan’ (APPCAP), to address the national air quality problems within all provinces of China, especially in the northern urban areas. The aim is to ensure that within the next five years there will be a significant improvement in air quality within the nation’s 338 cities, taking into account pollution and economic development in different areas, with the aim of reducing PM2.5 levels in the Beijing-Tianjin-Hebei, Yangtze Delta and Pearl River Delta regions, and PM10 levels in the other cities. There is an expectation of further improvements nationwide during the subsequent five year period. It is noted that the emphasis on PM10 in cities outside the three key regions does not imply that controlling PM2.5 is
less important, since PM2.5 particles account for 50 to 60 percent of PM10 particles.

Specific targets are as follows: PM10 emissions in cities at prefecture level or above need to decline by over 10 percent in 2017 compared with 2012 levels while PM2.5 emissions in the Beijing-Tianjin-Hebei, Yangtze Delta and Pearl River Delta areas need to drop by about 25 percent, 20 percent and 15 percent respectively.

In recognition that the Beijing-Tianjin-Hebei region is to be the most stringently targeted, the annual PM2.5 in Beijing to be controlled to within a 60μg/m^3 upper limit. While this will be challenging, this target is still higher than the 35μg/m^3 limit established in the National Ambient Air Quality Standard (GB3095-2012) for average PM2.5 concentration, which was issued in 2012 and is to be implemented in 2016.

The National Development and Reform Commission (NDRC) has established a coal cap strategy, in order to add a critically important lever to existing climate and energy policies. By 2020, it aims to cap both national coal production and consumption at around 4.2 Gt, compared to about 3.6 Gt in 2013, with the introduction of regional production targets and individual provincial consumption caps. By 2017, it intends that the proportion of coal in China’s total energy consumption will be reduced to 65 percent, with this proportion falling to some 62 percent by 2020. The proportion of non-fossil energy consumption will be increased to 15 percent of the primary energy mix by 2020, with the intention that this rises to 20 percent by 2030.

It has been mandated in China’s Energy Conservation and Emission Reduction Program for the 12th 5 year Plan Period (2011-2015) that energy efficiency enhancements and dust removal retrofits shall be conducted on emission intensive industries such as iron, steel and cement making. However, as yet there are no standards in place to determine the levels of reduction required. Even so, closure programmes for older plants are already underway.

The options available to operators of existing boilers (and in due course the other non-power sectors) are threefold. They can:

* Meet the new standards by the due date;
* Convert to gas firing, this being subject to adequate supplies of gas being available at an economically acceptable price; or
* Close down, with potential adverse impact on the local economy.

These top down edicts will require considerable action from the provincial governments and there will be consequences for non-compliance. For example, the PM2.5 and PM10 emission limits will be considered as compulsory targets in the social and economic development objectives for provinces, and be part of the performance evaluation indicators for provincial leaders. While there are broad policies in place, in many cases there is a lack of an implementation approach, combined with a lack of awareness of the better technology options to apply.

As part of the UK Government’s collaborative energy and environment activities with the Chinese Government, via the UK Foreign and Commonwealth Office’s Strategic Programme Fund for China, it has supported the IEA Clean Coal Centre, an international organisation based in the UK which is supported by a range of national governments and corporate industrial sponsors, and Chinese partners, Tsinghua University and the Electric Power Planning and Engineering Institute (EPPEI), to assist both Hebei Province and Shandong Province in their actions to improve air quality. The aim is to assist the provincial governments of both provinces to develop positive frameworks for introducing clean coal technology with higher efficiencies and lower environmental impact. This should help to improve the efficiency of coal utilisation and so lower carbon and energy intensities, as part of an overall transition towards a diverse energy mix that will include natural gas and renewables, in line with national policies as set out by the National Energy Administration.

This consortium has provided credible, impartial, expert advice at the policy, technical and financial level regarding the cost effectiveness of introducing clean coal technology by working with the Foreign Affairs Offices of the two provinces.
to provide workshops for industrial stakeholders and government officials. In each workshop, the clean coal experts provided a series of interactive clean coal presentations on technology options that might assist the two Provinces to make an effective transition towards cleaner coal use in various sectors. This has been complemented by subsequent interactive discussions with government and industrial stakeholders, including determining possible mechanisms for facilitating the introduction of cost effective clean coal technology in the major coal using sectors, either through new units or through retrofitting and upgrading of existing units. In addition, EPPEI and Tsinghua University are holding further collaborative discussions with stakeholders regarding specific technology introductions.

The overall outputs can be relevant to other coal dominated provinces that are without ready access to natural gas and with as yet limited renewables implementation, and dissemination will be taken forward through various channels.

**Looking to the Not So Distant Future**

While China is taking important steps to diversify its energy mix with nuclear, gas and renewables to reduce its national carbon intensity, the scale of this task is too large to have the required impact in the timescales identified by climate scientists. As noted above, introducing HELE cleaner coal technology results in less coal being burned and reduces the emissions of CO2 per unit output. However, on its own, this too is not enough and it is essential to look towards the application of CCS. This includes technology to capture most of the CO2 emitted and, in order to ensure that this doesn’t later escape to the atmosphere, the captured CO2 is liquefied then transported and stored in a geological formation such as a depleted oil well or a saline aquifer, for very long term containment. This is currently the only available technology that can cut up to 90 percent of CO2 emissions from coal based processes. Any delay in its widespread commercial application may decrease the maximum abatement potential and, without CCS, the cost of meeting the country’s anticipated climate change mitigation objectives will be at least 25 percent higher. CCS will also allow cost-effective deeper reductions in CO2 emissions in many carbon-intensive and process industries in the coal chemical, power, steel, cement, and refinery sectors thereby reducing the projected peak of the CO2 emissions in 2030.

Moving forward such that CCS can be installed and operated with confidence on a commercial basis is an area where international cooperation is of enormous benefit to all parties concerned. A good example is the Near Zero Emissions from Coal (NZEC) project, which was funded by the UK Department of Energy and Climate Change (DECC). This was a comprehensive capacity building project, with UK and Chinese experts working together to examine all aspects of CCS within the Chinese context. This paved the way for more specific activities and China has since established a strong record for developing CO2 capture projects in the coal power sector, with 12 pilot projects during the last decade. The Chinese government has invested more than RMB 3 billion (US$500 million) in CCS research since 2008, covering CCS emission reduction potential, CO2 capture, biological utilization of CO2, CO2-EOR and geological storage, different CO2 capture technology options, CO2 capture from different CO2 sources, and different options for CO2 transformation. There has been strong cooperation with UK universities and institutes on many of these projects. The UK government via the British Embassy has been working with a range of Chinese partners to establish two CCS centres, which will look to research and demonstrate the viability of various CCS technologies. As noted previously, the UK has also provided significant funding through the Asian Development Bank, which has been working with the Chinese government to establish a roadmap for Chinese CCS demonstration and deployment, while also taking forward a series of detailed assessments of coal and gas power plant options, with a view to selecting some for large scale CCS demonstration.
Currently, the cost of avoided CO2 for CCS is comparable with other low-emission technologies like solar photovoltaic and offshore wind. There is considerable potential that early-stage CCS demonstration will drive down costs in the future. However, while none of the individual CCS components is complicated, their integration in the entire project chain is complex. Each CCS project is highly capital intensive and faces major policy, technical, financial, and commercial challenges. In some parts of the world, large-scale carbon sequestration projects have met significant public opposition. For early demonstration projects in the power sector, the Chinese government could establish a support program consisting of revenue support, such as large-scale feed-in tariff, and relief from resource taxes.

In this regard, there is much complementarity with the UK’s domestic experience in tackling the combined challenges of air pollution/climate change/energy security. In early 2014, coal still provided over 35 percent of the UK’s energy mix, primarily for power generation. However, in order to meet the nation’s climate change targets (i.e. 2050 target and carbon budgets) there is a need to ensure that the remaining old coal power units are phased out and that new coal plants with CCS can be established on an equitable basis with other low and zero carbon options. Consequently there are policies in place to drive the development and deployment of CCS together with other clean energy sources through Energy Market Reform.

Thus the UK Government’s energy and climate change goals are to deliver secure energy on the way to a sustainable low carbon future and drive ambitious action on climate change at home and abroad. This requires that it addresses security of supply and climate change challenges, while maximising the benefits and also minimising costs for consumers, particularly in the electricity sector. A key part of this is the development of a new pricing mechanism through the introduction of a Contract for Difference (CfD). This aims to secure the significant investment required to replace the generation capacity scheduled to close by 2020 and deliver a secure, low-carbon electricity system in a least-cost way. The CfD is a long term, private law contract that pays the generator the difference between an estimate of the market price for electricity (the ‘reference price’) and an estimate of the long term price needed to bring forward investment in a given technology (the ‘strike price’). This removes generators’ long term exposure to electricity price volatility, substantially reducing the commercial risks faced by these projects, encouraging investment in low-carbon generation at least cost to consumers.

The expectation is that companies with low-carbon generation with a CfD will sell their electricity into the market in the normal way, and remain active participants in the wholesale electricity market.

This approach recognizes that the levels of support required to ensure the transition to a decarbonizes electricity market must take account of minimizing costs to consumers and reducing uncertainty for investors. For example, there are costs to replacing the UK’s ageing energy infrastructure with low-carbon alternatives. The intention is that by giving advance visibility of the support available, and when and how prices may change, will provide developers with the clarity they need in order to plan their projects and take investment decisions.

**Final Thoughts**

Since China is such a major user of coal, it is essential that it is fully engaged with ensuring that this fuel is burned as efficiently as possible with minimal emission of pollutants. At the same time, the development, demonstration and deployment of CCS technology is critical to limit CO2 emissions from coal power plants and other large process units. China already is a world leader in establishing modern very high efficiency coal power plants, and these are the most effective units on which CCS can be included. As such, the basis for CCS implementation is already in place. International cooperation for such actions is essential and the UK remains a key partner for China on this and other energy issues of global significance.
2015 is Key Year for Climate Change Combating Campaign

Laurence Tubiana, Climate Change Ambassador and Special Representative of Foreign Minister of France for COP 21

In recent years, scientists worldwide have amply proven that climate disruption is man-induced. They have alerted the international community to the dramatic consequences of extreme and uncontrolled global warming. Last October, the greatest world climate specialists, gathered at an IPCC expert meeting, called for action before it was too late.

The scientific community has done its work. It is now up to States, economic leaders and civil societies to take action. As the French President Francois Hollande said a few days ago in the Philippines: "We have to change the world to save the planet." We all need to take action and reflect on the impact of our ways of life on our environment. We also need to encourage and support efforts by governments and businesses to limit global warming.

The year 2015 will be a milestone in the fight against climate disruption. States must agree on a text that will set the course to keep global warming at an acceptable level for the planet and our ways of life. We are just a few months ahead of the COP21 Conference that France is going to chair and host in Paris.

Following the COP20 Lima Conference and the recent round of negotiations held in February in Geneva, there are good grounds for us to be optimistic, but we must remain mobilized. Success is possible. Despite having different approaches, States succeeded in agreeing on a working base in Geneva and, once again, it was clear that all were determined to reach an agreement.

We know that climate change negotiations are difficult in a world that remains all too often divided. Differences exist among countries, particularly between developed and developing countries, about ways to combat, confront and adapt to global warming.

Yet we think that things have changed since the failure of the 2009 Copenhagen Climate Change Conference. People's attitudes have gradually changed throughout the world. In China, as everywhere else in the world, people have gradually become aware of the sometimes disastrous impact of economic activities on health and the environment.

Due to its booming economic growth, China has become the world’s biggest greenhouse gas emitter. For several years now, the Chinese authorities have gauged the situation and this responsibility and resolutely embarked on the road to modernity, towards a low-carbon economy and more environmentally friendly growth.

This is exactly the spirit of the future Chair of
COP21. The point is not to assign blame, but to work together, among responsible countries and in a spirit of solidarity, to change our economies. The point is to make everyone understand that while this is an immense challenge, it also affords huge economic opportunities.

Everything needs rethinking, everything needs rebuilding: construction of more energy-efficient housing, improvement of public transport systems, vehicles of the future, etc. This is the economy of tomorrow which we must devise together, starting today. Many environmental projects are being launched worldwide.

In China, innovative projects for sustainable cities, as in Wuhan, for example, demonstrate the key role cities and territories will play in the future in combating climate disruption. Everyone at their level must examine this issue carefully and find solutions.

As the upcoming Chair of COP21, France, together with its European Union partners, will spare no efforts to help the international community overcome its differences of approach and reach an agreement at last.

We are determined to do our utmost to ensure that negotiations are inclusive, transparent and unbiased. It is in this spirit that we have agreed with the current Peruvian Chair of COP20 to work hand-in-hand to prepare the Paris Conference.

France is aware of the heavy responsibility it has been entrusted with. We are determined to ensure that the voices of all countries are heard. China's voice and resolute commitment must be heard, as we are convinced there can be no serious outcome in Paris without China.

Following the Lima Conference and February Geneva negotiations, we have a text that forms the basis for negotiations in the coming months. At the same time, States have started preparing their national contributions to ensure that global warming increase is limited to 2°C. This progress means we are entering a new stage.

We believe that China, by setting an example and through its key role in South-South cooperation and capacity to lead the major emerging countries, can play a very significant role in helping mobilize the international community during this new step forward.

This is how, for example, a huge momentum arose from the Joint China-U.S. Statement last November. China's ongoing internal efforts and its future participation in joint international efforts are crucial to negotiation dynamics. The Chinese intended nationally determined contribution (INDC) will be, we hope, a first step where the level of ambition is progressively revised upward, as the international agreement begins to bear fruit and it becomes easier and less costly to reduce emissions. They can serve as obvious proof that economic growth and environmental responsibility are not only compatible but, in actual fact, cannot be disassociated, and that the intense decarbonisation of our economies is the way towards a livable future. This is the whole point of the green economy. France is therefore prepared to work hand-in-hand with China.

In recent months, we have increased contacts at the highest level with the Chinese authorities and are going to continue consulting with them regularly prior to the Paris Conference.

To be accepted by all, the future agreement will have to take account of the principle of common but differentiated responsibilities, and of respective capabilities, in light of national circumstances, as agreed during the COP20 Lima Conference. This agreement will have to be an ambitious one, to be effective and respond to the call for urgent action issued by scientists.

Finally, this agreement should be dynamic and provide a mechanism to review contributions in order to gradually raise the level of ambition and return us to a trajectory which limits the temperature increase to 2°C. By adopting such a text, the international community would at last deserve its name: it would give the signal that now is the time to collectively shoulder our responsibilities to future generations and pass on to them not a climate crisis-ridden world but a welcoming planet for our children and grandchildren.
The Transformation of China's Environment Protection Strategy

Zhao Yingmin, Director, Pollution Prevention Department, Ministry of Environmental Protection

Against increasingly severe environmental conditions, the central government has raised the status of ecological environmental protection to a new historic high. Central government accountability has led to enormous pressure on local governments. Coupled with the fact that environmental issues have already become an important factor affecting social harmony, local governments' attitude toward environmental protection has seen significant change.

The public's awareness of protecting its rights has become increasingly rational and professional, and public interest litigation as well as other legal alternatives have begun to be employed. It can thus be seen that the series of changes from top to bottom and from the internal to the external has had far-reaching impact on pollution prevention and control work conditions as well as future administration strategy. The creation of a new landscape for environmental protection work is accelerating.

Establishing the Core of Environmental Quality Control Targets

The Air Pollution Prevention and Control Action Plan (hereinafter referred to as the "10 Air Measures") is an important milestone in China's pollution prevention and control. For the first time, quantifiable evaluation indicators for environmental quality exist; as a result, the target of the mission has changed from reducing the volume of pollutants to one of environmental quality improvement. This change has emerged along with a series of changes.

First, external impetus to reform. Since the "18th National Congress of the CPC," a new round of development opportunities guided by market allocation is in the offing. The pace of reform in all areas has accelerated significantly. Establishing the core of environmental quality control targets, enhancing outcome constraints, weakening procedural controls, and replacing reduced government powers with greater market and social vitality are critical moves for healing the chronic malaise that plagues the environmental control system.

Next, with conditions mature, management transformation is expected to usher in opportunities. For some time, pollution prevention and control was focused on the control and management of a single environmental element, treatment of a certain polluted medium, and reduction of key pollutants. This has led to the accumulation of a large amount of treatment experience.

Accelerating the change in government function, advancing the transformation of management strategies guided by environmental quality, and forcing local governments to build a long-term environmental management mechanism, accountability is being transmitted level-by-level,
moving from "talk a lot and do little" to "talk less and do more," allowing environmental quality and treatment outcome to speak for themselves.

Currently, the environmental protection department is striving to align the environmental monitoring evaluation outcome with the public's sensory perception, allowing the public to truly feel that there is a change in environmental quality. On this basis, we hope that the work evaluation outcome will be identical to how the public feels, allowing the public to supervise the government's environmental management results.

**Prizing Open the Market and Constructing an Accountability System**

Indistinct authority and responsibility is the direct representation of a flawed environmental management system and impeded implementation of management measures. It is also the fundamental reason why market growth is constrained.

First, the division between authority of office and responsibility is unreasonable, and the boundaries are indistinct. Some affairs for which the central government should be responsible were passed on to local governments, while duties undertaken by local governments are borne by the central government. Some affairs suitable for local governments have excessive participation by the central government. In addition, an enormous amount of public finances have been used to foot the bill of polluters, lowering environmental management efficiency on a relative basis. Enterprises have little enthusiasm and do not take sufficient initiative to treat pollution.

Between 2001 and 2011, the State expended a total of Rmb180 billion in government funds to treat water pollution. In 2013, central government funds amounting to Rmb10.48 billion were used to treat various types of air pollution in Beijing-Tianjin-Hebei and neighboring regions as well as the Yangtze River Delta and Pearl River Delta regions, driving local government commitments of more than Rmb300 billion.

Nonetheless, the gap remains very large. If the "pollutants foot the bill" principle could be implemented according to the law, the outcome of the government's pollution control activities would be more pronounced. Not only would it stimulate, to a very large degree, pollution treatment market vitality, it could also guide the market toward prosperous development of a greener and healthier direction.

That which is of greatest importance is the proper handling of the relationship between government and the market.

On the one hand, the government must conscientiously bear the duty of supervising environmental quality and enforcing the law stringently, while delegating powers and authority to local governments, simplifying the review and approval process, and reducing interference, thus allowing the market to play a decisive role in resource allocation.

On the other hand, the government's ideas on treatment must change from "whoever pollutes must clean up" to "whoever pollutes must foot the bill." The government should strive to lay good policy ground for environmental monitoring, treatment, assessment and other third-party services. This will raise resource allocation capability, effectively giving play to the effect of third-party treatment.

Currently, a number of regions have already implemented trials. For instance, numerous models in the third-party professional pollution treatment market in Jiangsu Province have emerged, such as cooperation between enterprises, and government-enterprise cooperation.

Tianjin has printed and circulated the Trial Implementation Scheme for the Administration of Green Supply Chain, advancing green procurement for the government. Shenzhen has since 2008, entered into enterprise green procurement cooperation agreements with 23 large enterprises such as Huawei and Foxconn, to promote the greening of upstream supply chain manufacturing processes and service modes, building a green procurement certification management system. This is expected to gradually reduce the market for enterprises that breach environmental protection laws.

There are many other specific measures such as
Use Public Supervision to Create an Environmental Protection Wave

Public supervision and participation are both the weapons for preventing "government malfunction" and the prerequisites for social harmony and stability. The government should move from the traditional one-way education promotion system to a two-way reciprocal communication and exchange, providing the public with a platform for finding out information and expressing opinion. Information disclosure is the first step. The government should disclose all environmental information such as environmental quality data and information on government environmental administration, based on territory.

Next, enterprises should disclose pollution treatment, pollution emission and other information related to pollution sources. Third, make public satisfaction rating the key to evaluating the government's environmental protection performance. The government shall authorize a third party to conduct an independent investigation on the public satisfaction rating data.

Finally, an unhindered information and communication channel should be built so that the government's administrative conduct and the production behavior of enterprises are more public and transparent, thus allowing major decisions taken by, and routine management of, urban governments to be supervised by the public. This can effectively prevent data falsification, policy malfunction and other issues.

Some local governments have already taken the first step in communication and exchange. Starting from next year, 338 cities at the prefecture level and above will publish real-time data monitoring on air quality. Eleven locations across the country have introduced provincial level environmental protection weibo.

In particular, the environmental protection office of Shandong Province has set up a weibo work system comprising both government administration weibo and personal work weibo. Zhejiang Province, meanwhile, has set up a public review system for environmental protection cases, a pilot "resident environmental protection investigation group" that participates in on-site environmental enforcement, a pilot "resident order style" environmental enforcement, as well as other relevant programs.

Coordinated Action Accelerates and Raises Environmental Quality

Pollution prevention and control work with environmental quality at the core of administration requires integrated coordination. At this time, it is necessary to explore the establishment of a new mechanism for pollution prevention and control work that is directed by the government, where enterprises implement treatment, that is market driven and with participation from the public.

The "10 Air Measures" have been successfully tested in this regard. Thirty-five departments including the National Development and Reform Commission, Ministry of Finance, Ministry of Industry and Information Technology, Ministry of Housing and Urban-Rural Development, Ministry
of Transport and National Energy Administration have formulated departmental work programs that are functionally distinct with clear division of duties. Each province (region, municipal) has taken into consideration local circumstances when formulating implementation schemes.

The target mission is divided level by level, and assigned to government, relevant departments and key enterprises. These rigid measures have yielded preliminary success. In 2014, the average PM2.5 density in the Beijing-Tianjin-Hebei region fell 12.3 percent to 93 micrograms/m³, while that in Beijing decreased by 3.9 percent to 86 micrograms/m³.

The "10 Air Measures" have not only determined environmental quality targets, but have also set out clear work measures. The key is in supervision and implementation. In 2015, the Ministry of Environmental Protection, in conjunction with relevant departments, will carry out annual evaluation and assessment as to the status of implementation of each province (municipal, region).

In particular, in addition to achieving fixed environmental and air quality targets, key regions including Beijing-Tianjin-Hebei, the Yangtze River Delta and Pearl River Delta regions have, until the end of next year, to generally complete the construction and transformation of pollution treatment facilities for coal-fired power plants, coal-fired boilers and industrial furnaces.

In general, yellow label vehicles (those that fail to meet the No 1 European exhaust emission standards) will be made obsolete, and gasoline and diesel will be provided for vehicles under the national No 5 exhaust emission standards. In the future, we will also further strengthen supervision and assessment, combining routine assessment with year-end assessment. We will continue to embark on special campaigns to treat air pollution, accelerating the adjustment of industry and energy mixes, and focus on advancing the realignment of key industries.

Water pollution prevention and control, meanwhile, will move from pollutant emission control to a combination of numerous measures including emission reduction, water conservation, ecological treatment, and ecological conservation. These will be focused on improving environmental quality, effectively preventing such risks as heavy metals, hazardous waste, and hazardous chemicals on the water environment. Currently, there is illegal waste discharge in a number of regions, and water in urban river channels are all polluted. Some regions have excessive concentration of industry and the total volume of waste discharge is larger than could be borne by the environment. This has made treatment of water pollution very difficult. The conservation situation of China’s water ecological space is also pessimistic. The rates of development and utilization of water resources in inland rivers have exceeded reasonable development and utilization levels. The rates of development and utilization of water resources in Huai River and Hai River are far higher than 30 percent of the total volume of water resources. Meanwhile, sustained drought in Yunnan has affected its water ecological environment. Reduced water volumes and increased pollution at both Jing River (a tributary of Wei River) and Wei River have caused the "demarcation between Jing and Wei to be no longer distinct". Water pollution prevention and control must take the path of treatment that is a combination of pollution reduction, water conservation, capacity expansion, and conservation, with existing water quality conditions and functional needs as the bases to formulate specific, clear and operable water environmental protection targets.

Soil pollution is not an isolated environmental problem. Its prevention and control strategy has to be advanced taken into consideration and in tandem with water and air pollution prevention and control. Soil pollution prevention and control must treat and restore known pollution, as well as prevent unknown risks, and strengthen environmental supervision of polluted locations.

Currently, in terms of pollution prevention and control for enterprises in the process of closure, relocation, and redevelopment on the existing site, specific measures include: giving impetus to legislating the Soil Pollution Prevention and Control Law, accelerating and optimizing the
policy compliance system, advancing the building of a standard full process management model that supervises the environment of polluted locations, putting relevant systems and mechanisms in order, introducing management systems and policy measures, as well as formulating financial, tax, pricing and other economic policies that are favorable to the supervision of the environment of polluted locations.

**Strictly Control Environmental Risks**

Prevention ahead of time is more important than post-event treatment. Environmental risk prevention stems from the management of environmental quality targets but differs from target management. It requires adhering to a full process management mechanism that comprises taking strict precautions at the source, stringent control over the process, and severe punishment as regards the outcome, so as to build an environmental management system based on a full life cycle. The key is to strictly control three types of environmental risks, namely hazardous waste, heavy metals and hazardous chemicals.

In the last two years, hazardous waste business licensing, certification of enterprises related to the import of mixed metal scraps, approval of restricted imported wastes and other administrative approvals have been completely delegated to local governments. Recently, environmental protection checks on listed companies have also been abolished. Administrative departments will bid farewell to the "approval in place of administration" method, and place their emphasis on strengthening on-going and post-event supervision.

First, take precautions at the source. A sound environmental access system should be built, strengthening rigid constraints on pollution creation intensity at the source. This will help make pollution creation intensity an access threshold for newly constructed projects, and the life-or-death red line for existing projects. Environmental protection shall become the precondition of industrial, land and urban planning, while environmental capacity will become the prerequisite of urban development.

Second, strict control over the process. The environmental management of industrial parks (gathering areas) and key industries shall be enhanced, and the development and operation of the environmental protection infrastructure of parks shall be standardized and supervised. All regions shall be urged to accelerate the advancement of key projects according to heavy metal pollution prevention and control planning, enhancing the prevention and control duties of the enterprise entity. Pollution prevention and control of the entire production, storage, transfer, utilization and disposal processes of all hazardous waste shall be properly grasped. Environmental management information and environmental information on the sources of pollution will be comprehensively made public. Third-party evaluation is encouraged, and public supervision accepted. This will help expose entities and individuals that harm environmental quality and seriously threaten environmental safety.

Third, severe punishment as regards to the outcome. The perpetrating individual and perpetrating entity shall be determined. An entity or individual that causes environmental pollution accidents as a result of poor supervision shall be met with a larger degree of accountability and subject to liability. Where such illegal waste discharge constitutes a crime, the enterprise and the relevant perpetrating individual shall be strictly subject to criminal liability according to the law. Environmental quality improvement and environmental risk prevention are the main contents of the government's environmental protection performance. Going forward, we shall unite with relevant departments to strengthen the intensity of our endeavors, striving to incorporate the outcome of the government's environmental protection performance evaluation into the scope of a leading cadre's departure audit.

Pollution prevention and control is in the process of being transformed. There is no turning back but success can be expected.
Water Safety, Air Pollution, and Climate Change

Ernst von Weizsäcker, Co-President, the Club of Rome; Member, International Resource Panel

Air pollution

A neat cooperation between Tsinghua and Harvard universities shows the paramount importance for China of air pollution control. Annual health damages from air pollution in China are estimated to 3.8 percent of gross domestic product (GDP) in 2003; these are World Bank estimates quoted by Ho and Nielsen. Additional damages result from loss of crops, animal health, and non-health related economic losses.

China has clearly recognized the importance of the subject. The authors applaud China for addressing the problem quite a bit earlier than other countries did, notably the US. The US became serious about pollution control around 1970, when the country’s per capita income was US$21,000 (in 2005 dollars) while China became serious about pollution control around 2005, when per capita income was only US$4,100 in comparable terms. On the other hand, air pollution in the large Chinese cities has reached truly intolerable levels, by official Chinese standards:

The official Chinese national standard is at of 200 μg/m3 of total suspended particulates (TSP). But in northern cities, where coal is burned for heating, the typical particulates pollution stands at around 330 μg/m3. And the average values including the South was still at 256 μg/m3 by 2003.

It may be reassuring for China to see that some other countries, notably India, suffer from a still heavier burden of air pollution:

What is a lot more reassuring, I suggest, is the fact that other countries that had once been suffering from heavy air pollution, managed to overcome the problem. They developed and applied pollution control technologies that are now available worldwide. Figure 1 shows the development for sulphur dioxide emissions over roughly a century in the USA.

The shape of the curve is usually called the “Kuznets Curve” of pollution. The picture illustrates the typical behaviour of humans: At early stages of economic poverty, people tend to tolerate rising pollution levels, hoping for better times. At a certain level of pollution and economic development, however, public preferences shift to better environmental quality, and even costly measures of pollution abatement become acceptable. The praise for China above is understandable in this context: The Chinese seem to apply the shift to environmental quality at an earlier stage than the US Americans did some 40 years ago. For strategies to reduce levels of air pollution it seems useful to understand the main sources of air pollution. Figure 2 shows the main particle polluters in Shanghai as a pie chart.

From this picture, it becomes clear that pollution control has to address both the industrial and the transport sectors.
The next question is the price tag for pollution control. Average pollution abatement cost in China were estimated to be in the vicinity of 3000 RMB/ton of SO2 reduction. But as technological advances set in, the price fell dramatically to a mere 500 RMB/ton; this happened around 2010. This encouraging result emerged from a study discussing effects of the SO2 emissions trading pilot scheme (SETPS) that was introduced in a few Eastern provinces in China. It remained a bit unclear whether the scheme actually accelerated technological progress towards SO2 reduction, because also provinces not included in the pilot scheme benefitted from such progress. But then, when technological progress becomes available, it can be applied even without a specific incentive — provided there are no obstacles of proprietary ownership of the technology.

**Water Pollution and Scarcity**

Air pollution is only one of the two major pollution problems plaguing China (and other countries). Water pollution is also rampant in China and adds to the water scarcity that is hitting much of the Northern provinces. Approximately 40 percent of the nation’s major rivers are so polluted that they can only be used for industry or landscaping, according to a 2010 environmental assessment survey by China’s Ministry of Environmental Protection.

Luckily, water cleaning is now technically possible at reasonable cost, and if water prices are high enough, it can even be profitable. And cooperative inter-regional trading systems can optimize cost further, making use of the cost differentiation in pollution reduction between industries and municipal sewage plants as Laijun Zhao et al have shown.

What is equally important for China is dealing with drought and the scarcity of freshwater. Perhaps the most encouraging experience in this regard comes from Australia, which was badly hit by more than ten years of persistent drought, from 1997-2009, reducing the average water in rivers by 50 percent. Realizing that setting a maximum limit on water use is essential to everyone’s water and food security, Australia in 1997 adopted “The Cap”. This limit on total water use recognized that water extraction needed to be reduced by about a third if the country was going to avoid another economic and environmental disaster. The cap left some 60 percent of the water in the rivers, for ecological support, including to avoid massive fish kills and toxic blue-green algal blooms that occurred when water extractions were greater.

The Australian Murray-Darling Basin Plan refers to such extraction limits as Sustainable Diversion Limits (SDL). Part of the scheme was spending billions of dollars for compensating farmers for reducing water extraction. Some farmers sold their water and got out of farming altogether. But many others switched to growing crops that used less water, thereby freeing up some water for sale. The scheme made Australia the international front runner, together with Israel in applying and further developing drip irrigation as opposed to wasteful flood irrigation. Brian Richter postulates three principles of sustainable water management:

* Set limits on total consumptive use of water
* Invest in water conservation to its maximum potential
* If too much water is being consumptively used, subsidize reductions in consumption

**Climate Change**

Let us turn to the topic having the highest international visibility and being also highly important for China: global warming. In 2014, China entered a bi-lateral commitment of stabilizing annual greenhouse gas emissions by the end of the 2020s (while USA would reduce emissions by 26-28 percent by 2025.) For reaching the internationally agreed goal of stabilizing climate at a temperature level maximum 2°C above pre-industrial levels, neither of these commitments is ambitious enough. But compared to recent increases it is highly ambitious.

The resulting policy question is how China, the US and other countries can contribute more effectively to the mitigation of global warming.

The evident first step is linking the reduction of greenhouse gas emissions with other desirable goals. For China, one of the highly recognized...
The dangers of the future is “Peak Coal,” i.e. the time when no more coal can be excavated for burning than in the previous year, indicating the beginning of exhaustion of the resource. For a country so heavily dependent of coal, this must be alarming. Some estimates suggest that China’s coal production will peak earlier than the promised peak of carbon dioxide emissions, meaning that China would have to plan for massive coal imports.

More importantly, perhaps, the negative sides of local, notably urban air pollution in China correlate very strongly with carbon burning. It could therefore be politically agreeable for China to speed up air pollution control by reducing coal incineration rather than relying chiefly on emissions controls of particles, SO2 and NOx; the side-advantage being that the Chinese economy can save fuel and keep costs of pollution control at bay. A globally agreed CO2 emissions price could help make this avenue more economically viable.

To reduce carbon burning without negatively affecting economic development can be done by two mutually supportive strategies: Energy efficiency and renewable energies. (I am leaving aside nuclear energy due to known and unknown hazards.) On energy efficiency, I suggest a five-fold increase is doable in a time frame of some 40 years. The energy efficiency targets in the 11th and 12th Five Year Plans of China are a promising beginning but not ambitious enough. On renewable energies, Germany has shown that an increase from 6 percent to 25 percent can be done within 16 years. China makes great strides to increase renewable energies, but again not quite rapid enough.

**Economic Instruments**

Subscribing to ambitious goals for air pollution control, wastewater treatment, water efficiency, and reduction of greenhouse gas emissions means to subscribe to adequate policy measures. Command and control (administrative) instruments are necessary but not sufficient because they do not by themselves accelerate technological progress. Economic instruments can support administrative instruments and can introduce a self-accelerating dynamic. In a new report of the International Resource Panel of UNEP all relevant instruments stimulating resource efficiency are discussed and compared. At the end one instrument is advertised that could accelerate progress tremendously without damaging the economy or causing hardship for people: A trajectory of resource prices being elevated in line with the documented efficiency increases, so that average monthly cost for energy or water would not rise. For poor households a preferential price can be conceded because technological progress reaches the poor much later than the rich. For industry it would be possible to agree on a “revenue neutral” tax scheme returning the tax revenues to the respective sectors of industry on the basis of added value creation, so that the sector does not lose money but each firm has an incentive of increasing its resource efficiency.
How to Improve the Efficiency of Scientific Research

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On January 9, 2015, the Study of Network Computing Model and Basic Theory (i.e. transparent computing) was awarded the 2014 State Natural Science Award First Class Award, and this opened a floodgate of criticisms in the month that followed. The impact of the granting of the award also spread from the voicing of opinions on domestic platforms such as microblogging sites and WeChat to internationally renowned magazines such as Science, Nature and Foreign Policy. Many questioned the granting of the award from a technical perspective and called for accelerated reform of the national award system. The China Computer Federation, for example, urged the government to stop interfering in who gets the nation’s top science and technology awards. In my opinion, the underlying issue of reforming the award system in this controversy only scratches the surface. A deeper problem lies in the conflict between national strategic needs and social needs in some areas, giving rise to competition for scientific and technological resources.

Who Does It Serve?

From the national perspective, information security is no doubt a very important strategic need. With respect to transparent computing, a person in charge of the National Science and Technology Awards said in an interview that “Tsinghua University’s transparent computing which won the Natural Science First Class Award broke the traditional limitation of operating systems and this is of great significance in terms of solving the long-standing problem of having operating systems being controlled by others and ensuring national information security”. It is claimed that transparent computing allows software and data to be brought together at the server and enable users to undertake “stream loading” according to their needs. Such a concept would seem to facilitate information governance and is in line with the strategic requirements of national information security.

However, to the general public, transparent computing does not offer any new features, whereas other similar technologies offer even broader applications and better performance. Indeed, the SOPCA computer which is the predecessor of transparent computing has not caught on in the mainstream market since its launch in 2000, reflecting to some extent the fact that transparent computing has missed the mark somewhat in terms of meeting the real needs of the masses. As such, transparent computing is in an awkward situation. On one hand, it is of great significance to the protection of national information security and it has support from certain quarters of the government and national information security experts. On the other hand, it is facing criticisms from the masses, especially the IT industry, as they lambast the promotion of a technology that is
Just as transparent computing was facing a deluge of criticisms, an article titled “The Proposal of the China Computer Federation is Like a Song” voiced its support of transparent computing, stating that “had it not been for the government’s participation, it would have been difficult for physicist Yu Min to receive the accolade as his achievement cannot be put ‘under relevant tests by the market and society’”. The article shows that in the mind of the author, scientific research can only serve the purpose of either national strategy or the society and people’s livelihood; the requirements are different and never the twain shall meet. This is also the point of view of a considerable number of people.

Who or what does the scientific and technological strength of a country serve exactly? There are three situations in general. The first would be in special times when the use of such strength is directed by national strategic needs. An example is the pivotal breaking of ciphers by Alan Turing, the father of computer science, during the Second World War. The second situation occurs when there are rising social and livelihood needs and they are not in line with or are even in conflict with national strategies, leading to a jostle for scientific and technological resources. Such a situation occurred in the United States and Soviet Union during the Cold War. However, it is a very unstable state and failure to handle it appropriately can be detrimental to the country and its people. The fall of the Soviet Union is a negative example. The third situation is one in which national strategic needs are essentially in line with livelihood needs, thereby leading to complementary needs and mutual transformation and greater scientific research resource efficiency.

The United States have experienced all three situations. It encountered in the first situation during the Second World War whereby many university professors participated in the development of weapons. They included professors from top universities such as Harvard and Yale. Professors from Harvard University developed a new type of torpedo for the US Navy. According to statistics, the US government funded the participation of approximately 6,000 scientists in military research in 1941 and the number rose to 30,000 by the time the Second World War ended in 1945. After the Second World War, the US economy recovered and social and livelihood needs developed rapidly, thereby leading to the second situation which lasted until the 1970s. During this period, the majority of these universities including Harvard and Yale returned to serve the public while a handful such as the Massachusetts Institute of Technology and a number of national laboratories continued to serve national strategy needs and these included programs such as the Apollo program and Semi-Automatic Ground Environment (SAGE) program. However, such a state is not stable and there were many social conflicts and mass movements in the US in the 1960s. However,
with various social forces coming into play, science and technological development in the country made a relatively smooth transition from one that is led by national strategic needs to one that is driven by growing livelihood needs. At MIT, students and teachers rallied several times to force the school to withdraw from military projects; IBM turned from military projects to cater to the civilian market at its own initiative and developed computer rental services, business-oriented System 360 machines, etc. It was through these efforts that the US struck a balance between national strategic (military) needs and social and livelihood needs. The country gradually entered the third state after the 1970s and carved a path of research and innovation represented by the Silicon Valley model.

The granting of the award to transparent computing signifies that scientific and technological activities in China are still in the second state. The country’s economy has been growing rapidly over the past decades, and so have its social and livelihood needs. Although the government has repeatedly stressed that enterprises should be the “main body of innovation”, the actual “conductor’s baton” is still directing scientists to work with national strategic needs as the primary objective.

**Who is the Main Body?**

Science and technology awards are just one of the government’s many batons and the same holds true for the other batons such as the selection of academicians.

I conducted a statistical comparison of the composition of academicians at the Chinese Academy of Engineering and the National Academy of Engineering in the US. The latter selected 65 or so new academicians for each intake and the candidates hailed from universities and large companies such as IBM and General Electric, as well as small and medium-sized companies with core technologies and government agencies such as NASA and major national laboratories. Researchers from the corporate world accounted for a considerable proportion of these academicians. Including university professors who worked part time at companies, the proportion is even higher (see Table 1).

The composition of academicians selected to the Chinese Academy of Engineering in 2009 and 2011 shows that most of them were from the “ivory tower” of universities and research institutes. In 2011, 46 academicians were from universities and research institutes, accounting for 85.2 percent of the total intake. In 2009, they totaled 39 or 81.3 percent. As for enterprises which the government repeatedly stressed should be the “main body of innovation”, they only accounted for 12-15 percent and most of them were state-owned enterprises. The number of private enterprises was negligible (see Table 2).

Many researchers in China choose to stay with research institutions and this probably has much to do with the fact that the State’s “technology evaluation baton” is biased in favor of scientific research institutions while private enterprises are ignored. As funding for research institutions comes mainly from the government, research institutions are easily guided by the government’s “baton” and they tend to serve the needs of national strategies.

In fact, China’s private economy has become the biggest source of power for economic development, and it is also the absolute social body that can address labor issues. In emerging fields such as IT, private enterprises such as Huawei, Alibaba and Baidu are also playing a significant role in promoting China’s technological advances. With hundreds of millions of users, the problems they have to address are “world-class” problems.

Some question that despite the boost of China’s private enterprises to the country’s economy, the technologies that they possess are mainly “knockoffs”. In my opinion, there is double standard in such a view: when researchers in the “ivory tower” replicate the advanced technologies of other countries to meet “national needs”, they are often touted as the “first in the country” to “fill the gaps” but when the scientific and technical personnel of private enterprises replicate the advanced technologies of other countries, overcome difficulties in product development, reduce product costs and
improve the people’s living standards, they are called “knockoffs.” In my opinion, meeting the country’s needs and improving the people’s living standards are fundamentally the same goal. Both contribute to the country and should be given the same technology acknowledgement and accolade.

**Dislocation of the Evaluation Mechanism**

When national strategic needs take precedence over the people’s needs over a long period of time, there are bound to be more government-led science and technology resources, including programs, awards and titles. However, as many research activities that cater to national strategic needs involving state secrets, they are defined as a “success” more often than not as long as it is approved by the government or leadership and thereby not constrained by traditional scientific paradigm, i.e. peer evaluation methods and criteria agreed upon by the scientific community.

This over-reliance on government-defined success has considerable negative effects on normal research activities.

Firstly, it impedes normal exchanges between Chinese researchers and the international academic community. Seeking to overtake others by working behind closed doors when one’s overall level of science and technology still lags behind developed countries may not be impossible but it will be an uphill task. Some may refute this by citing Japan as an example, pointing that the country has produced many Nobel laureates. But those who hold such a view have overlooked a fact — most Japanese Nobel laureates had studied in or visited the US, and many US scholars have also visited Japan to conduct exchanges. It was precisely this kind of close international cooperation and exchanges that made Japan a technology powerhouse.

Secondly, such practice is also more likely to breed corruption and give rise to doubts on the validity and fairness of the government’s evaluation mechanism. There is a great difference between the evaluation approach of the scientific community and that of the government. Researchers know that peer reviews of papers can often be quite fortuitous. Different reviewers can draw different conclusions on the same paper. Hence, the real value of a work needs to undergo a two-stage peer review. The first stage comprises evaluation by a small number of reviewers and the outcome is whether the paper can be published. The second stage comprises more peer evaluations following publication of the paper and the outcome is paper citations. The first stage of such an evaluation mechanism can be prone to misjudgment or fraud. For example, if a journal editor seeks to publish a certain paper, he or she can invite someone who has a favorable impression of the paper or even a friend to review the paper. Fortunately, this loophole can be rectified by the review at the second stage.

In contrast, government-led evaluations employ only the first evaluation method more often than not. There is no other mechanism to correct possible mistakes or fraud. Hence, some randomness exists in these evaluation outcomes.

The controversy surrounding the granting of the Natural Science Award First Class Award to transparent computing is largely due to the fact that it only meets national strategic needs but fails to meet social and livelihood needs. It meets the government’s definition of success but does not meet the scientific community’s definition of success.

Inconsistency between the evaluation criteria of the government and that of the research community can lead to confusion among researchers. They do not know which criteria to choose and the choice will ultimately affect the international competitiveness of Chinese technology.

One positive aspect of the transparent computing controversy is that it has prompted us to think about inherent rules in the development of science and technology systems and allow us to have a clear understanding of the current stage of the development of Chinese science and technology. Judging from the experience of some developed countries, this may be a necessary stage for the development of Chinese science and technology and we can perhaps afford to be cautiously optimistic if we can have a clear perspective of this.
**BFA Chronicle in 2014**

On the afternoon of January 8th, 2014, the Boao Forum for Asia (BFA) Secretariat held a press conference, Secretary-General Mr. ZHOU Wenzhong gave a detailed briefing about the preparatory work of the BFA Annual Conference 2014. He announced that the Annual Conference will be held in Boao, Hainan province, China from 8 to 11 April 2014 with its theme being "Asia's New Future: Identifying New Growth Drivers".

On January 8th, 2014, BFA held New Year Reception at China Summit Wing, Beijing to thank friends from all walks of life for their long-term solicitude and support to the development of BFA.


On February 19th, 2014, BFA Secretary General ZHOU Wenzhong visited Nanjing of Jiangsu at the invitation of the People’s Government of Jiangsu Province.

On February 25th, 2014, BFA Secretary General ZHOU Wenzhong met in Beijing with Henry Paulson, the visiting BFA director and former financial minister of the US.

On March 15th, 2014, at the invitation of the Chinese People’s Association for Friendship with Foreign Countries (CPAFFC), BFA secretary general ZHOU Wenzhong attended the 2014 Working Conference for UCLG Members from the Mainland of China convened in Wuhan of Hubei. He gave a report on the theme of “Current International Situation and Diplomacy of China” to about 60 cadres of foreign affairs and friendship systems from all over China.

On March 26th, 2014, BFA secretary general ZHOU Wenzhong held a press conference to introduce the preparations for the coming the BFA Annual Conference 2014, including the Dates, theme, topics, and sub-meetings, Highlights and innovations of the annual conference, attendance, partners and media.


From April 8th through April 11th, the BFA Annual Conference 2014 was held in Boao, China, which drew extensive attention. More than 1,700 personages in political, business and academic circles from 52 countries and regions of the world attended the conference. Among them, there were more than 80 ministerial-level officials from various states and chiefs of international organizations, more than 150 high-ranking executives from the World Top 500 Enterprises, as well as quite a number of academic thought leaders, who together carried out in-depth discussions and communications about the driving forces for the future sustainable development of Asia.

During the BFA Annual Conference 2014, BFA Chairman Yasuo Fukuda presided over the BFA Board of Directors Meeting and the BFA General Members Meeting; talked about the economic situation in Japan at the "Asian Economic Outlook 2014: A Dialogue with BFA Board of Directors"; led the Japanese delegation to participate in the "Japan-China CEO Dialogue: Japan-China Economic Relations & Trade – Status Quo & Prospect" meeting; delivered, on behalf of BFA, welcoming remarks at the Opening Ceremony; and proposed toasts at the Welcome Dinner for BFA Members and Partners. He also had in-depth exchange of views with BFA Vice Chairman Zeng Peiyan on matters of the Annual conference, and led the Japanese delegation to meet with Chinese leaders.

During the BFA Annual Conference 2014, Mr. Zeng Peiyan, Vice Chairman of BFA exchanged views on issues concerning the Annual Conference in an in-depth manner with BFA Chairman Yasuo Fukuda and his wife, and attended the BFA Board of Directors Meeting, BFA General Members Meeting, as well as such panel as the "Asian Economic Outlook for 2014: A Dialogue with BFA Board of Directors", "Reform: Reviving the Competitiveness of Asia & Emerging Markets" and "Japan-China CEO Dialogue: Japan-China Economic Relations & Trade — Status Quo & Prospect". He delivered a keynote speech at the meeting of " Reform: Reviving the Competitiveness of Asia & Emerging Markets ", and also gave a message on behalf of BFA at the Welcome Dinner.

In addition, He met separately with Mr. Melamed, Honorary Chairman of the Chicago Mercantile Exchange; and three BFA Board of Directors, namely, Mr. Goh Chok Tong, Emeritus Senior Minister of Singapore, Mr. Mohamed Al Mady, CEO of the Saudi Arabia Basic Industries Corporation, and Mr. Lee Jae-yong, President of the Samsung Group, and had communications and discussions with them on the issues of BFA work and regional cooperation.

During the BFA Annual Conference 2014, Secretary General Zhou Wenzhong met with delegates from various
Major Events
大事记

circles attending the Conference, including Sanjeev Chadha, CEO of the Asia, Middle East and Africa Region of PepsiCo; Jiang Weiming, President of the China Region of the Royal DSM of the Netherlands; Guy Bradley, the chief representative of Swire (China); Arun Maira, member of the Planning Commission of India, and Ashok Kantha, Indian ambassador to China, etc. SG Zhou thanked the guests for attending the Annual Conference and expressed his willingness to work with all parties to promote the development of BFA and the regional cooperation of Asia.

On April 10th, 2014, the very day of the opening ceremony of the BFA Annual Conference 2014, BFA organized the “BFA Annual Conference 2014 Health-Care and Charity Tour.”

On April 17th, 2014, Secretary General Mr. ZHOU Wenzhong, at the invitation of the China Business Council for Sustainable Development (CBCSD), attended the opening ceremony of the 10th Seminar on the New Trend of Sustainable Development held by CBCSD in Beijing and delivered a keynote speech.

On May 12th, 2014, Secretary General ZHOU Wenzhong attended at invitation the seminar of “China-Portuguese Countries Relations: China and Brazil” organized by the Macao University of Science and Technology and delivered a keynote speech.

On May 21st, 2014, BFA Secretariat and Her Excellency Reem Al Hashimy Minister of State in the Cabinet of the United Arab Emirates and Honorary President of Falcon and Associates, representative of the government of the United Arab Emirates, signed an agreement in Beijing for the joint holding of the BFA Financial Cooperation Conference in Dubai.

On June 5th, 2014, BFA Secretary General ZHOU Wenzhong met in Beijing with Andrew Stoner, the visiting vice governor of New South Wales, Australia. They signed a memorandum of understanding for the cooperation, in which the BFA, at the invitation of the New South Wales Government, will sponsor in Sydney the Financial Cooperation Conference in July 2015.

From 28th June to 29th June, 2014, the Seminar on “Infrastructure Connectivity in Asia — the Financing Challenge” was held at the Conference Center of Beijing International Hotel. The seminar was co-organized by the Boao Forum for Asia (BFA), the China Center for International Economic Exchanges (CCIEE) and the Global Foundation of Australia, supported by the Beijing Dongcheng District Government of Beijing and Beijing Tianjie Group Co. Ltd.

Attending the seminar were over 180 governmental officials, experts, scholars, and entrepreneurs in financial and banking industries from 29 countries and international organizations including the United States, Russia, Australia and New Zealand.

On July 2nd, 2014, BFA Secretary General Zhou Wenzhong met with Pascal Lamy, former director general of the World Trade Organization (WTO).

On July 16th, 2014, the BFA Promotion Dinner was held at Shangri-La Hotel Singapore by the BFA and Business China. Zeng Peiyan, Vice Chairman of the Boao Forum for Asia and former Vice Premier of China, Goh Chok Tong, Singapore Emeritus Senior Minister, Wong Kan Seng, Former Deputy Prime Minister of Singapore, Zhou Wenzhong, the BFA Secretary General attended the dinner and addressed a business audience of more than 60 Singaporean CEOs and executives about the BFA history, aim and role.

On July 17th-18th, 2014, the Annual Conference 2014 of “FutureChina Global Forum” was held in Shangri-La Hotel, Singapore. People from the economic circles of China and Singapore and within the region exchanged heated discussions on China’s economic trends and its opening-up and reform issues. Mr. ZENG Peiyan, vice-chairman and China’s chief representative of Boao Forum for Asia attended the forum by invitation.

On July 24th, 2014, the BFA held this year’s third event for its members at the Sheraton Hotel, Waigaoqiao Free Trade Zone of Shanghai. The event centered on “Started with 28km² — A Visit to China (Shanghai) Pilot Free Trade Zone”. On July 28, BFA members visited the Shanghai Disney Park (under construction) to investigate the business opportunities brought about by the settlement of Disney in Chuansha New Town.

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On July 28th, 2014, ZHOU Wenzhong, Secretary General of the Boao Forum for Asia (BFA) met with Mr. Masaru KATO, Vice Chairman of the Board and Chief Representative to China of the Sony Corporation.

From September 4th to 6th, 2014, BFA held in Seattle the “Energy, Resources, and Sustainable Development” Conference. About 350 elites from various sectors of China, the US, Japan, ROK, India and Australia attended the conference, including enterprise leaders, government decision makers, technological talents, media managers, and experts from other fields.

On September 24th, 2014, Boao Review held its third board meeting at the Kempinski Hotel, Guiyang. The meeting was presided over by Mr. ZHOU Wenzhong,
BFA Secretary General and Chairman of the board of Boao Review. On September 25th, ZHOU Wenzhong met with ZHANG Guangzi, member of the Standing Committee and head of the Publicity Department of CPC Guizhou Provincial Committee at the Guanzhou Hotel in Guiyang City.

From September 26th to 28th, Secretary General ZHOU Wenzhong paid a visit to Yangzhou on invitation. During the visit, he met with several local leaders, including XIE Zhengyi, Secretary of CPC Yangzhou City Committee, ZHU Minyang, Mayor of Yangzhou, KONG Lingjun, Vice Mayor of Yangzhou, and WANG Yuxin, Vice Chief of the People’s Congress of Yangzhou City. On September 27th Mr. Zhou gave a speech entitled "International Situation and China’s Diplomacy at Yangzhou Forum."

On September 28th, 2014, Secretary General ZHOU Wenzhong met with Paolo BORZATTA, Senior Partner of Ambrosetti, at the BFA Secretariat. The two parties exchanged ideas on their future cooperation.

October 15th, 2014, Secretary General ZHOU Wenzhong attended the launch ceremony of A Colorful Guizhou—Colorful Guizhou Series of Internet Cultural Events and delivered a speech.

On October 22nd, 2014, Boao Forum for Asia Secretary General Zhou Wenzhong met with Jorma Ollila, chairman of global oil giant Royal Dutch Shell, in Beijing.

On October 29th, 2014, members of the BFA Board of Directors attended a working meeting in Beijing, on which they focused on the theme and topics of the forum’s coming annual conference that will be held late next March.

They also discussed some long-term and strategic issues concerning the forum development. Mr. Yasuo FUKUDA chairman of the BFA board of directors and former Japanese prime minister; Mr. ZENG Peiyan, vice-chairman of the BFA board of directors and former Chinese vice-premier; and Jean-Pierre RAFFARIN, former French prime minister, Robert James Lee HAWKE former Australian prime minister Sergey TERECHSHENKO, former prime minister of Kazakhstan and Sergey N. KATYRIN, president of the Russian Federation Chamber of Commerce and Industry attended the working meeting as BFA members of the board of directors or as BFA members of the council of advisors.

On October 29th, 2014, XI Jinping, President of the People’s Republic of China meets with the members of the BFA board of directors, who gathered in Beijing for a working conference. Yasuo FUKUDA, chairman of the forum’s board of directors and former Japanese Prime Minister, on behalf of the BFA, invited XI to attend the Annual Conference of the BFA 2015. XI accepted the invitation.

On October 30th, 2014, the China (Hangzhou) International Business Expo 2014 opened during which the BFA Secretary General Zhou Wenzhong attended the Boao Forum for Asia-Global E-Commerce Leaders Summit 2014 and delivered a keynote speech titled "E-Commerce Makes Life More Beautiful".

On November 3rd, the 2014 BRICS Think-tank Roundtable was held in Guangzhou, Guangdong province. Entrusted by the China Society of Emerging Economies, Yao Wang, executive director of Boao Forum for Asia and executive president of Boao Forum for Asia Institution, presided over the meeting.

On November 21st, 2014, the Boao Forum for Asia and the Pathfinder Foundation of Sri Lanka organized a 21st Century Maritime Silk Road-themed panel discussion and dinner party in Colombo, capital of Sri Lanka. More than 200 representatives from both countries, including government officials, entrepreneurs, experts and scholars, attended the event.

From November 24-25, 2014, Boao Forum for Asia staged a Financial Cooperation Conference in Dubai. More than 300 government, business and academic representatives from Europe, Africa, Oceania and Asian countries, including China, the United Arab Emirates, Saudi Arabia, Japan, India and Pakistan, attended the opening ceremony.

On December 13, 2014, Boao Forum for Asia Secretary-General Zhou Wenzhong met with visiting former Australian foreign minister Bob Carr.

On December 15, Boao Forum for Asia Secretary-General Zhou Wenzhong met with the visiting South Korean delegation led by Moon Tae-young, chairman of the Executive Committee of the Jeju Forum for Peace and Prosperity.

On December 17, Boao Forum for Asia Secretary-General Zhou Wenzhong met with the visiting delegation led by Mohamed Hussain Shareef, minister at the President’s Office of the Republic of Maldives.