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Following the "general theory of macro-finance", IMI aims to become a world-class think tank, focusing on the studies of international finance, in particular the international monetary system and RMB internationalization. Despite its relatively short history so far, IMI has established itself as a leading research institution and important forum, where industry leaders, policy makers and academic experts from home and abroad share their insights and expertise.

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Featured Article

Europe at a Crossroads*

By NOUT WELLINK*

Global Picture

Introduction

The world is changing rapidly. We are witnessing historic changes in economic and political relations. These changes will put to an end a period of 500 years in which the Western countries have ruled the world. Self-evidently the US will not disappear overnight as the world's most powerful country. But what we have in front of us is a complex, painful, potentially accident-prone adjustment process in international relations (1). The Trump phenomenon but also Brexit should be seen in this context. Policymakers of the major countries face a number of complex challenges as to how to deal with this adjustment process. It requires a lot of wisdom and also a full understanding of the interdependencies in tomorrow's fully integrated world. In such an interdependent world even the powerful loose power.

Economists will tell you that the integration of China and other countries into the world economy is improving prosperity and to the benefit of all. In theory they are right, but I want to qualify this view a bit. The impact of China (and more broadly speaking globalisation) on other parts of the world has been so big and has come so fast, that it seems to have exceeded, at least in the short term, the absorption capacity of Western countries. We knew, of course, that structural reforms, in labour markets and product markets were necessary to cope with a globalising world (2), but socially and politically these reforms proved extremely difficult to implement in democratic societies.

According to certain studies the trade deficit with China has cost the US millions of jobs (3). The same job-losses stories have been told about the UK and other countries. In addition, there is the complaint that the income gains from globalisation have not been evenly spread. Recent studies link the rise of populist movements in Europe to the globalisation process (4), but also to other factors such as massive cultural changes in our societies, resulting in a cultural backlash among people who feel threatened by this development (5). Whatever the merits of these (numerous) studies, I think that the industrialized world seriously underestimated the scale, speed and the impact of the globalisation shock. China's membership of WTO was a quantum leap. That said it is not only globalisation that plays a role in the job losses and the income inequality problems in industrialized countries, but also - and increasingly - technological developments. The B.I.S. came in its recently published Annual Report 2017 (6) to the conclusion that "*globalisation is not the main cause of increased within-country inequality;*

* This article is based on a speech by Nout Wellink at Renmin University of China on June 27, 2017.

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technology is”. Therefore, focussing only on globalisation, as the US Administration seems to do, is fighting the last war.

Risk of rising protectionism

The present US Administration argues that it is not against globalisation and free trade, but it should be "*smart trade*". For the time being the only interpretation can be: protecting your own industry from foreign competition by tariffs, special taxes, moral suasion, etc. *(“Buy American, Hire American”)*. Nevertheless, it is still too early to pass judgment as to the trade policy of the US in the coming years, but the omens are not entirely good. Kind of dialogue has started with China, but also with Canada and Mexico, and China is, at least for the time being, not anymore as a currency manipulator on President Trump's radar screen. Let’s wait and see what the future will bring and whether the US Administration will put its money where its mouth is.

Trump's "*smart trade*" (these words have also been used by Tillerson) is his reaction to what he sees as unfair competition from especially Mexico, China but also Germany. It would be naive to deny that sometimes there is unfair competition, but if China and/or Mexico and/or other countries violate trade rules, one should cope with these violations in the context of WTO and not start a damaging trade war. What we should do in the industrialized part of the world, is increasing what I called our absorption capacity, that is to say we should speed up structural reforms and take additional measures (e.g. better schooling), so as to cope better with and fully reap the fruits of globalisation. It is undeniable that globalisation “*has had a profoundly positive impact on people’s live over the past half century*” (6).

It is interesting to see how the Chinese leadership has reacted to Trump's trade ideas. Immediately (on November 19th, 2016) President Xi Jinping stated that China "*will remain fully involved in economic globalisation*". And later, at the Davos' World Economic Forum, Mr Xi stressed that "*Countries should view their own interests* in *the broader context and refrain from pursuing their own interests at the expense of others*". And: *...ships should not scurry back to harbour at first sign of a storm*". Premier Li Keqiang repeated these messages in his keynote speech at the opening ceremony of the so-called Summer Davos meeting in Dalian on 27 June 2017.

To some extent China already has developed an answer to the protectionist threats coming from the US. China strongly promotes a "*Regional Comprehensive Partnership*" and a broader free trade zone for Asia, thereby creating its own, vast economic zone. Creating its own hinterland is also what, to my mind, China is aiming at with its "*One Belt, One Road*"-project. This project seems as much a political as an economic project to me.

The US ideas about "*smart trade*", trade that fits in an "America first"-philosophy, have made the Europeans aware that they should not overly rely, as they did in the past, on its traditional ally America. Strengthening trade relations with China and other countries in the Far East has clearly come higher on EU’s agenda. The interesting thing is that Trump's policies and statements, also in other area's such as NATO and environmental protection, have brought European countries closer together (7) and has led them to explore new alliances for the future. It’s true, challenges often create new opportunities.

Exchange rate issues

The US has a trade deficit with China, for years in a row now, of around $300 bln. This is the result of exports amounting to some $100 bln and imports of around $ 400 bln. Trump blamed China for being a currency manipulator. That song has faded away. For the time being at least, because I am convinced that this music will get a replay in the future. The US did the same with the Japanese in the sixties and seventies of the last century and forced the Japanese authorities to strengthen the yen dramatically. To my mind China has contributed to the international adjustment process at a scale that is highly underappreciated. The country succeeded in reducing its current account deficit from 10,1% of GDP at the beginning of the financial crisis in 2007 to 2,3% in Q3 2016. During a major part of that period the RMB experienced a very strong appreciation.

In the course of 2016 the RMB became part of the SDR basket and the authorities started, self-evidently, to focus more on stability vis-a-vis a basket instead of vis-a-vis the US dollar. At the same time they allowed for a bit more flexibility in the development of the RMB. As a consequence the RMB weakened further, not surprisingly so taking into account the gradual tightening of monetary policy in the US and some doubt in the Western world as to the strength of the Chinese economy. The PBoC, the Chinese central bank, lost almost 1 trillion dollar to mitigate the downward pressure on the RMB. In addition, last year measures were taken to restrict capital outflows. I think the Chinese authorities did what they could and should do to keep the process as orderly as possible. But this is not the point I want to make. The point I want to make is that, if you ask from the Chinese authorities to liberalize their economy, including the capital account of the balance of payments, one should accept that market forces determine more than in the past the exchange rate. It will increase what is called by the B.I.S. "*the "excess elasticity" of the international monetary and financial system- its ability to amplify financial booms and busts and thereby cause serious macro-economic costs" (*6).

For me these developments show that one should be very careful with a quick, complete liberalization of the RMB, because the result could be substantial, unwelcome capital flows, bringing also other countries in serious problems.

In summary

Let me - before turning more specifically to Europe - try to summarize the message of this part of my lecture. Never in economic history we have seen a country of the size of China (and others are following) integrating in the world economy in such a short period. We are clearly entering a new era, with inevitably economic and political hick ups during this process. We should try and control as much as possible these hick ups, in close cooperation. Speaking in very general terms, the Western economies were not sufficiently prepared for the globalisation shock. Their economies were too rigid, not flexible enough to adjust to the new circumstances and to fully reap the benefits of globalisation. This especially holds for Europe. Europe, therefore, is clearly at a crossroads. If it does not speed up its reform program the forces against globalisation will further increase. Secondly, Europe has to re-assess its position in a globalising world if the US is moving away from its traditionally open attitude towards international trade. But even if the US is not taking steps back, the US as well as Europe should realise that a world different from the past is emerging, with new players and increased interdependencies (8). My feeling is that we are not sufficiently prepared for this world in which capital flows can freely move around and in which exchange rates are mainly determined by market forces. The institutional and analytical framework to cope with such a world is still missing. In this respect we are all at a crossroads now, not only Europe or China or the US.

Europe More in Particular

Economic developments

It is always fun to read the Bloomberg's "*Pessimist's Guide*" to the coming year. In December 2016 Bloomberg published on the internet a list of potential disasters in 2017, ranging from the unpredictable consequences of the election of Mr Trump as President of the United States (especially in relation to China), to the rise of populist movements on the European continent (elections in France, the Netherlands, Germany, Italy), and, of course, Brexit. So, a lot could have gone wrong in 2017, but as far as the European economy is concerned I am inclined to say: "*So far, so good".* That being said we are only on the half of the year! In the Netherlands and France populist anti-Europe parties were defeated, in France by a landslide, and in spite of the new US President and the Brexit-discussions recent economic figures (GDP, unemployment) are very encouraging. On an annualized basis the euro zone economy was expanding in the first quarter of 2017 at a rate of 2.3%, clearly outstripping the 1.2% growth rate of the US in that quarter. Positive news is also that the dispersion of growth rates between the members of the monetary union is at its lowest level since the start of the union in 1999 (9) and that consumer confidence in June stroke a 16-year high.

Longer-term developments

Looking at some more long-term developments, the picture becomes less rosy. Real per capita GDP levels were already widely diverging at the trough of the financial crisis (2009). Portugal's per capita real GDP, for example, amounted in 2009 to only 54% of Germany's. However, in the period 2009-2016 the divergences between euro area members have further widened. During those years real per capita per capita in Germany increased, cumulatively, with 12% (US 9.8%), 3.3% more than in the UK, 7,4% more than in France, 10.3% more than in Spain, 14.3% more than in Italy, and 32.5% more than in Greece (8). This is not a very healthy situation. From a system's perspective I am especially worried about (the persistency of) the income and competitiveness gaps between the countries in the euro area. What also worries and even frightens me is the level of unemployment. Although total unemployment is at its lowest level - 9.4% - since 2009, it is still extremely high. This especially holds for youth unemployment in Southern Europe. On average youth unemployment amounts to 19.4% in the euro area, but in Italy, Spain and Greece this rate has reached levels of 35,2 %, 41,5% and 45,2% respectively (10). Europe, therefore, is faced with the risk of a lost generation.

Some observations

Some interesting observations/ conclusions can be drawn from the above. First of all, the British - in the context of the Brexit discussion - often portray Europe as the world's weak link from which the wonderful, dynamic UK economy should decouple itself. However, the reality is that on a per capita basis (cumulative real growth of 8.7% in 2009-2016) the UK is, indeed, doing better than France (4.6%) but clearly lagging behind Germany (12%). My second observation concerns the frightening, still growing gap between the real per capita growth and the unemployment levels in the strongest European countries, and a number of other, weaker euro area countries. This is very worrisome, not only from an economic, but also from a political perspective. It is a problem European countries should address, otherwise it will endanger at some point in time the EU-project and, self-evidently, the European Monetary Union.

Many observers, also the IMF, are of the view that Germany and the Netherlands run much too large a surplus on their current account and that they should stimulate their economies via tax cuts and infrastructural investments (11). They are right from a balance of payments point of view (although in a monetary union only the balance of payments of the union as a whole matters). Such a policy would also contribute to a higher inflation in core countries and lift the inflation rate in the euro area as a whole. An expansionary German and Dutch budgetary policy might furthermore give some stimulus to other economies in Europe, but at the end of the day such a policy will, ceteris paribus, even further strengthen the German/Dutch economy vis-a-vis the weaker European countries. The underlying, more fundamental problem is that the euro is too weak for Germany, but too strong for some other countries. Strengthening the economy of weaker countries can only solve this very fundamental problem. The present approach, in which the ECB, the European Central Bank, plays kind of a bridging role, is buying time for governments to pursue the right policies, but cannot be continued forever. The authorities, especially in the weak countries, should use the present recovery to complete unfinished reform businesses.

Brexit

In assessing the situation in and the perspectives for Europe it is inevitable to spend some words on the British leaving the European Union

In a speech I delivered more than a year ago on Brexit I said that the UK remaining a EU member was no longer a racing certainty. Unfortunately I added: "*The prospect of the UK leaving the EU is real but my instincts tell me - although I hover between hope and fear - that voters tend to swing back to status quo if the become uncertain about the consequences for themselves*". My instinct clearly threw me off. The lesson is that we should be very careful in forecasting the “future” of Brexit. The more so because many completely unforeseen developments have taken place recently.

It is useful to make a distinction between the short-term effects of the decision to leave the EU and what could/would happen after a few years. A predictable short-term effect was the depreciation of the pound, which actually took place. This had an impact/is having its impact on prices, real disposable income and consumption. More interesting is what will happen in the years ahead. That totally depends on a great number of unknowns. At present that number is even bigger than I thought in June 2016, one of the reasons being the dramatic outcome of the snap elections in the UK on June 8th. Instead of a victory the conservative party, under the leadership of Mrs May, lost its majority in the parliament. Mrs May had "sold" the snap election with the argument that "*Now, more than ever, Britain needs a strong governmentto get the best Brexit deal for our country and its people*.” (12). After the disastrous outcome of the elections Mrs May needs, for a majority in parliament, the support of DUP, the Democratic Unionist Party, the largest party in Northern Ireland. It is difficult to assess how stable this support will be. DUP seems prepared to back up a Conservative minority government on a case-by-case basis. Relying on DUP is not only humiliating for Mrs May, but also politically dangerous. The UK government has always stayed far away from the internal Irish problems. On the one hand DUP is Eurosceptic, on the other hand it wants soft borders with the Irish Republic, i.e. the EU. The implication is that DUP is against a hard Brexit as favoured by Mrs May, who has said time and again that no deal is better than a bad deal, (“a *reckless approach”*, according to the Labour Party; I happen to agree with that). If lawmakers in Scotland would be given a separate vote on the Great Repeal Bill, which puts EU-law into British law, the situation might become even more complex if they would decide to vote down this Bill.

At this very moment it is completely unclear what the UK policy/position during the negotiations will be. It is also unclear whether or how long Mrs May will survive. Her position has been eroded further by her handling of the London Tower Fire, which was slammed by the surviving victims and the media and for which she had to apologize. The seriousness of the uncertainties on the British side should not be underestimated, because time and tide wait for no man. The 2-year period of art.50 of the Lisbon Treaty has started with the notification of the intention to leave the euro area on 29 March 2017. The European Council can decide unanimously -it's true - to extend this period, but the sword of Damocles is hanging above the heads of the British as of the notification to leave the EU.

Until now the remaining EU countries have sticked together. Last March they have formulated legally binding instructions for EU's chief negotiator, Michel Barnier. In four area's clear cut principles for the negotiations have been formulated: the UK should pay an exit bill (meet earlier commitments), the rights of EU citizens in the UK should be sufficiently protected, a solution should be found for the border problems between the two "parts" of Ireland, and a transition deal should be reached, which includes continued free movement and the jurisdiction of the European Court of Justice during the transition period).

Interesting is that the Brexit threat - just like Trump's views on defence, trade and climate - seems to have focussed the minds of the European Commission and policy makers in the remaining EU countries on how to further strengthen the EU (13). Helpful in this context is the outcome of the French elections (the overwhelming victory of Macron) and the increased support for Mrs Merkel in Germany. If there is to be a Brexit (the probability is high but one never knows and the mood seems changing a bit in the UK) the negotiations will be extremely difficult. The model of remaining a member of the internal market is not acceptable for the British, because then they have to accept the so-called 4 freedoms (freedom of movement of goods, people, services and capital); the customs union option is not attractive, because then it is still the EU that is responsible for trade negotiations. Becoming a member of the European Economic Area (Iceland, Liechtenstein, Norway) will also be difficult to swallow. Although it does not involve membership of EU's customs union, it implies freedom of movement to almost the same extent as holds for EU-members.

I think that at the end of the day parties will show some flexibility and succeed in finding compromises, but it is quite clear that "*Whoever wants to leave this family cannot expect to shed all of its responsibilities but keep the privileges*" (Angela Merkel). It is also evident that the process of disentangling the UK from the EU - this is something else than the 2 years negotiation period - will take many, many years. It might take a very long time, if ever, before the British, via increased autonomy, have made up for the losses they will suffer in the coming years, losses that range from loosing London based EU agencies (European Banking Authority, European Medicines Agency), to a weakening of its financial sector, and more generally speaking, the pressure on its gdp growth. Perhaps the biggest loss will be the UK's weakened impact on the decision-making in the EU-area. This is the flipside of becoming more independent.

The European economy seems large enough to absorb the setback of Brexit. Brexit might even give a positive impulse to the European integration process. Don't forget: the British have been blocking for years in a row almost all initiatives to further strengthen the EU. That being said, an orderly and smooth Brexit should not been taken for granted. Andy Haldane, BoE's Chief economist, recently qualified this as a strong assumption (14). I tend to agree with him. The disentanglement from the European Union indeed is a risky process, more for the UK than for the EU.

In summary

Brexit has not made life easier for the EU. Brexit is regrettable, but seems surmountable. However, it is not the only problem the remaining EU members are confronted with. Something should be done on the still existing, big divergences between a number of strong (mainly Northern) countries and the weaker/weak countries. If a transfer union is to be excluded - there is absolutely not enough support for such a union - the weak countries should address their problems mainly themselves, of course with some help of the EU and the stronger member states. A political union to force upon member states substantial transfers is, for the time being, not in the offing.

That is not to say that we have not made a lot of progress during the last two decades (e.g. with the creation of a monetary union, a European Central Bank, a European supervisor and a banking union; furthermore we substantially strengthened budgetary rules and practices, showing up in a fall of the aggregate deficit from 6% in 2010 to 1.4% in 2017). But, admittedly, more progress is needed for the solid anchoring of the European integration project. In the coming years we should complete the banking union, the capital market union and further strengthen the internal market. It would also be wise to change the regulatory treatment of sovereign bonds so as to loosen the bank-sovereign loop. The French have floated the idea of creating a EU Ministry of Finance with a EU Finance Minister. It is too easy to say that they are showing little sense of reality; because at the end of the day it all depends on how much power you, initially, want to give to such an institution/person. I think in many areas further progress can be made.

The real "at a crossroads" moments for Europe at this very moment are: how to deal with Brexit, how to address the problems in the weaker European countries, how to make further progress with the European project and how to further strengthen, more generally speaking, the credibility of this project.

The European Central Bank and Its Policies

Unconventional monetary policies

During the first years of the financial crisis the major central banks did, to my mind, a marvellous job. They have prevented a collapse of the global economy, by providing on massive scale liquidity to the banking system and by a very loose monetary policy. That was fine and dandy, but after a certain moment they started with so-called unconventional monetary policies. The main argument for central banks to start with these policies (forward guidance and broadly-based, large scale Quantitative Easing) was the danger of deflation, at a moment the policy rate approached the zero bound. In this context it is quite popular to refer to Japan. The long period of deflation in that country resulted in stagnation in the real economy. That is at least what many people think.

With respect to the performance of the Japanese economy it is necessary to take into account demographics. "*Given Japan's unique demographics per capita GDP is equally, if not more relevant. On that basis Japan's economy slowed markedly in the 1990's. But between 2000 and 2013 cumulative per capita GDP growth was a respectable 10% compared with 12% for the US*" (15). The Japanese consumption price level end 2014 was roughly the same (2% higher) as in the beginning of the nineties of the last century. During that period, inflation had its ups and downs, within a narrow band, and was more often negative than positive, but there was never real deflation. Deflation, negative inflation can indeed be dangerous if it is the (potential) beginning of a downward price-wage spiral as we have seen in the Great Depression. Then quick, decisive action is required. But our economies and societies are different from those in the 30s of last century. An interesting case is Greece. It took a 25% fall in GDP since 2008 before inflation entered negative territory (-1,7% in 2013 and -2,6% in 2014). In 2014, the year with the greatest negative inflation, real GDP growth hesitantly started to recover.

Without denying that the present low inflation (core inflation in Europe fluctuates for some time already around 1%) should also be seen in the context of low demand for a very long period, other factors seem to play an important role such as the aging of our populations (affecting the savings behaviour, but also wages), the globalisation process (resulting in pressure on import prices), and technological developments (e.g. increased competition via the internet, cheaper production methods, etc.etc.). Technological developments might also have weakened the bargaining power of labour. In some area's we have seen spectacular drops in prices. It may well be that we are facing - worldwide - a long (er) period of low inflation. Fighting this low inflation environment by sticking under all circumstances to a fixed (close-to-2%) target can only through an ever looser monetary policy and will eventually - via bubbles in certain sectors of the economy - turn into a new financial crisis or inflation. Let me quote a statement of Herve Hanoun (2014), the then Deputy General Manager of the BIS: "*In this sense, continued unconventional monetary policy, can buy more stability now, but at a price of lower average growth - by damaging the supply side of the economy - and greater financial instability in the future*". And let me in this context also refer to a remark made in a speech a year earlier by Caruana, the General manager of the BIS: "*If a medicine does not work as expected, it is not necessarily because the dosage was too low. Maybe instead the overall treatment, and the role of the medicine within it, should be reconsidered. Most likely something else is needed".*

More flexibility seems needed

Therefore, in order not to swim into the trap of too loose a monetary policy for too long a period, central banks would be wise not to commit themselves too strongly to a specific inflation target. They should not make deflation kind of a bogeyman (Marty Feldstein). Here I have especially in mind the Bank of Japan and the European Central Bank. (Draghi: "*Inflation should be at a sustainable path close to 2%"*; "*This is a legal obligation*"). To my mind a better approach would be to introduce more flexibility by the introduction of a bandwidth for the inflation target of the central bank. More flexibility, especially downwards, would do more justice to the fact that we do not fully understand what is happening with respect to price developments (16) and might be confronted, for a relatively long period, with low or even negative inflation rates without any danger for a downwards deflationary spiral. Contrary to the ECB' s self-imposed interpretation of price stability, the FED has more flexibility due to its dual mandate. The Japanese Central Bank, however, feels very strong about a specific inflation target.

Introducing some flexibility with respect to the inflation target seems to me the more sensible because of the limited effectiveness of ultra loose monetary policies. All studies known to me illustrate that, depending of course on the country involved and the conditions at the moment of the start of such a policy, you need enormous amounts to get only a limited impact on inflation and growth. In Europe the recovery started already in the 2nd quarter of 2013, 2 years before QE, The implication of out-of-scale monetary policy operations is the danger of serious side effects. One of them is that financial markets become detached from economic reality. Linked to that is that central banks become the prisoner of financial markets, as they might become also the prisoner of fiscal authorities that can't afford higher interest rates. Unprecedented central bank policies, aimed at keeping interest rates as, low as possible, even negative, are driving up asset prices: bonds, stocks, paintings, real estate. It brought an analyst of Citi's research department to the sigh: "Please don't buy so many bonds, Mr Central Banker" (17). There are so many distortions nowadays in financial markets, that it has become almost impossible to assess the size of the risks: swap spreads are distorted, the yield curve can't be used anymore as an indicator of future economic developments, traditional volatility indicators have become useless, etc. We are living in a period of broken indicators, which is risky.

In Europe it is the ECB that has kept alive the very weak countries. It succeeded in pushing interest rates further downwards and in reducing spreads between strong and weak countries. This was crucial for the survival of the weak countries. But such a policy cannot go on forever, taking into account the side effects and growing exit-problems. At its June meeting the ECB closed the door for further rate reductions and it will, highly likely, run down its unconventional policies as of/ in the course of next year. Therefore, the ECB is at a crossroads, but even more so Europe, because without the support of the ECB the other authorities should finally deal with the still existing and even growing divergences.

Conclusion

The world is changing rapidly. The integration of new, big countries (China, India) in the world economy has an enormous impact on all players. This is because of the size of these new entrants and the speed of the process. Not everybody is enough aware of the consequences and it remains to be seen whether we are sufficiently prepared for this brave new world. The European project is, to some extent, an answer to the new circumstances. It is a unique experiment of countries giving up, step-by-step, part of their sovereignty to better cope with tomorrow's world. It is a process with many hick ups. Brexit is such a hick up and we will see more developments endangering the process. That said enormous progress has been made, in many areas. The British will experience, during the disentanglement process, how much integrated they already were and how much they are going to loose. Part of the progress made in Europe shows up in the creation of the monetary union. Europe survived the financial crisis with the help of its newly created central bank. There is no doubt in my mind as to that. Meanwhile the divergences between the countries remained or became even larger. The authorities should address these divergences and not overburden the ECB. But the central banks themselves - in Europe and elsewhere - should realize that, from a risk management point of view, they also have a responsibility and that is to say: "*This is where it stops. Now the potential side-effects become too large".*

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China Rebalances Foreign Assets*

By DAVID MARSH*

How China deploys its considerable foreign assets, acquired as a result of two decades of sizeable current account surpluses, is one of the most important issues facing the world economy. Balance of payments and international asset statistics underline how China is rebalancing its foreign investments away from holdings of other countries' debt (led by US government dollar bonds) towards greater ownership of foreign equities, with a particularly large build-up in Europe.

This redeployment is part of Beijing's deliberate strategic efforts to gain extra leverage and value from foreign investments. It is seeking to emulate the successes of the US and other Anglo-Saxon countries in borrowing from abroad at relatively low rates of interest and investing outside the country at significantly higher rates of return.

China's corporate spending in Europe has slowed significantly this year because of Beijing's sharpened controls on capital outflows, introduced to damp downward pressure on the renminbi. But the underlying trend is clear and suggests China may wish to continue foreign equity purchases once balance of payments constraints ease.

Strains on the country's international position were demonstrated by last week's announcement by Moody's of a cut in China's credit rating. The rating agency based its decision on expectations the country's financial strength will 'erode somewhat' over coming years as debt rises – even though China's outlook was lifted to stable from negative.

China is the world's third largest net foreign creditor in value terms, according to data on the net international investment positions of different economies collated for OMFIF's annual *Global Public Investor*. The publication summarises the investment management performance of 750 public sector agencies around the world. OMFIF's *GPI 2017* report is due for release on 14 June.

The world's largest net foreign debtor, by a wide margin, is the US. This reflects its extraordinary position as the home of the primary international reserve currency and a haven for much of the world's savings.

The enormous debt position in the US co-exists with the country's role as the world's largest holder of gross assets. In the list published in *GPI 2017* of the world's 750 top public investors – central banks, sovereign funds and public pensions funds – the US accounts for around 20% of global public investable assets. China accounts for three of the world's top public sector investors – the People's Bank of China, China Investment Corporation and the National Social Security Fund – with assets of around 12.5% of the total.

Data on China's holdings of reserve assets at the PBoC, which are heavily weighted to US Treasury bond holdings, compared with portfolio, direct and 'other' investments, which are mainly in publicly quoted and non-quoted equity, underline how China shifted its foreign investment structure during the last few years. This follows recognition by the Beijing authorities that the country was achieving suboptimal returns on its foreign investments by gearing an undue amount of its allocations towards unprofitable holdings of US fixed income securities.

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China's gross external assets at the end of last year – which may not include all the country's overseas wealth, some of which seeped abroad via illicit channels – were roughly equally split between reserve assets and other types of investment, most of it in equities, according to publicly available data from the International Monetary Fund and other sources, compiled by OMFIF. This was a marked shift from previous analysis for 2013, when around two thirds of external assets were in reserve assets and one third in other types of investment. According to our analysis, China's direct investments abroad roughly doubled over the last three years, reflecting the foreign corporate buying effort that has slowed considerably because of capital controls.

These data – which show a clear switch to direct investments in advanced countries and away from the developing world over the past decade – demonstrate how the PBoC's well-publicised fall in China's reserve assets of more than $1tn from 2014 highs has helped finance a fall in Chinese corporate foreign debt and a build-up in overseas equity holdings. Europe and North America accounted for only 3% of China's overall foreign investment flows abroad. Their share soared to almost half of a much larger total last year as part of the foreign investment rebalancing.

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Moody's Rating Decisions Not Reflective of Economic Fundamentals of Mainland China and Hong Kong

By E ZHIHUAN AND RICKY CHOI*

We believe that the downgrade on China and Hong Kong's credit ratings does not fully reflect fundamentals and lacks foresightedness. Therefore, the impact of the downgrade should be fairly limited.

A.Moody's downgrade of China not indicative of fundamentals

The rationale given by Moody's differs from economic reality.

Firstly, the main reason given by Moody's is China's economic slowdown and rising debt, but that is not an accurate reflection of the trend of China's economy.

In fact, since the second half of last year, China's economic growth has bottomed. China's 6.9% growth in the first quarter of this year is among the fastest in the world. The size of the Chinese economy is the second biggest worldwide, and China accounts for one third of global growth. In terms of economic structure, consumption and services are becoming increasingly important. Services now account for 51.6% of China's economy and have become the main engine and stabilizer of growth. Meanwhile, the contribution of consumption to growth exceeds 60%. Pessimism on China is not justified by stable economic fundamentals.

Meanwhile, supply-side reforms are bearing fruit. As the issue of overcapacity is being addressed, producer price index ended 54 months of persistent deflation in September of last year and rose 6.4% in April, 2017. Firming producer prices will help improve corporate earnings and lower indebtedness. Deleveraging and de-stocking will continue to improve the health of the economy.

Looking ahead, critical reforms on state-owned enterprises, taxation, finance, and pricing will be deepened, while the belt and road initiative will unleash new momentum and create synergies. These developments are all conducive to stable and robust growth.

Secondly, Moody's debt forecasts are not entirely accurate.

According to Moody's, China's direct debt burden will rise to about 40% in 2018 and approach 45% in 2020. Yet according to the BIS, China's overall leverage ratio stands at 255.6%, considerably lower than the 279.2% average of developed economies.

In 2016, China's government debt to GDP ratio was at 36.7%, lower than the 60% requirement of the EU as well as those of most advanced and emerging economies. Moreover, most of the debts are denominated in local currency. While foreign debt amounts to 1.4 trillion dollars, it was lower than half of China's foreign reserves. Furthermore, as only 34% of China's foreign debt was denominated in foreign currencies, risks are manageable.

As for fiscal conditions, even as China continues to implement proactive fiscal policies by increasing investment and lowering taxes, its fiscal deficit to GDP ratio was only 3%, substantially less than the height of 10% reached by the U.S. in the aftermath of the financial crisis. Meanwhile, government income is rising at a similar pace with economic activity and gained 11.8% in the first four months of this year compared to the same period of last year for a year-over-year acceleration of 3.2 percentage points, the strongest growth in the same period

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since 2013. Healthy fiscal conditions are instrumental to economic stabilization and restructuring.

Moreover, China's high savings rate and massive foreign reserves provide an important defense against debt risks. As China's economy stabilizes, concerns about an economic slowdown and RMB depreciation have notably eased, mitigating capital outflows. As of April, 2017, China's foreign reserves had been rising for three consecutive months and reached $3.03 trillion, far larger than second-placed Japan's $1.2 trillion. Given China's stable economic fundamentals, prudent monetary policy, and the RMB SDR status, foreign reserves will remain at adequate levels, which, along with sizable current account surpluses, will offset the impact of capital outflows.

Therefore, we agree with the judgment of Ministry of Finance that Moody's overestimated China's economic challenges and underestimated the effectiveness of supply-side reforms. Major debt indicators are unlikely to change materially in 2018—2020, supporting China's sovereign creditworthiness.

B. Lack of foresight in downgrading Hong Kong's credit rating

Moody's action in downgrading Hong Kong's credit rating does not reflect the actual condition of Hong Kong, while it exposed some weaknesses of its rating methodology.

Firstly, the Hong Kong economy is now on a cyclical upturn. Over the past few years, Hong Kong economic growth remained modest, largely because of the subdued economic growth and elevated political uncertainties globally. However, Hong Kong economy has been recovering since 2H 2016, with its Q1 2017 GDP growth accelerated to 4.3% over the previous year, the highest level in 6 years. Meanwhile, the labor market also reaches full employment level, with unemployment rate hovered between 3.1% and 3.5% since mid-2011. Even though there were comments that the household debt to GDP ratio is increasing in Hong Kong, the debt servicing ratio of mortgage loans are under control after eight rounds of prudential measures for mortgage loans. The debt servicing ratio of new mortgages approved was just 34% in March 2017, indicating the financial condition of Hong Kong households remains healthy.

Secondly, the fiscal condition of Hong Kong government remains solid, holding one of the largest fiscal reserves in the world. Hong Kong government has long maintained the principle of keeping its expenditure within the limits of revenues in drawing up its budget. Over the past two decades, Hong Kong government recorded 14 years of fiscal surpluses, and 6 years of deficits. The fiscal reserve of Hong Kong then increased from HK$ 370 billion in mid-1997 to over HK$ 950 billion in March 2017, equivalent to 38% of GDP and up 8 percentage points since 1997.

Thirdly, the institutional strength of Hong Kong is widely recognized globally. Hong Kong's steadfast commitment in safeguarding the free market principles, favorable business environment, free trade, simple and low tax regime, the rule of law and independent judiciary, is widely affirmed globally. For example, the Heritage Foundation ranked Hong Kong as the world's freest economy for the 23rdconsecutive year. The International Institute for Management Development World Competitiveness Yearbook 2016 also ranked Hong Kong as the world's most competitive economy, moving up from second place in 2015. The institutional strength forms the foundation of Hong Kong's long-term economic prosperity.

Fourthly, Hong Kong benefits from the rising economic and trade interconnection with the Mainland. Based on the International Monetary Fund's statistics, Hong Kong's nominal GDP recorded US$320.7 billion in 2016, ranking 33rd in the world. Its GDP per capita even hit US$43,700, ranking 15th in the world, similar to or even better than many advanced economies. High GDP per capita is the result of decades of successful economic development. This also shows the economy has a strong ability to withstand shock and provides stronger fiscal support to the government when it becomes necessary.

Indeed, the financial sector and economy of Hong Kong also increasingly benefits from the opening and reform of the Mainland economy. For example, Mainland-based companies raised HK$181.3 billion IPO funding in Hong Kong last year, making Hong Kong the largest IPO centre in the world. Also, the number of Mainland-based companies listed in Hong Kong increased from 101 in 1997 to 1,002 in 2016, boosting the capitalization of Hong Kong stock markets to HK$24.8 trillion. Meanwhile, Hong Kong also develops into the largest offshore RMB centre in the world. Against this background, the financial sector of Hong Kong recorded remarkable growth, with its economic value-added and employment increased to HK$409.9 billion and 246,000 in 2015 respectively, up 150% and 45% since 2000. Going forward, the Hong Kong economy will continue to benefit from the belt and road initiative, Guangdong-Hong Kong-Macau Bay Area development, as well as the increasing interconnection between the capital markets of the Mainland and Hong Kong.

C.Market reaction didn’t support the Moody’s views

After the Moody’s downgrade, the Mainland and Hong Kong’s equity markets both increased slightly on that day and rose further in the day after. The 10-year yield of the Mainland government bonds even decreased around 2 bps after the downgrade to 3.63%, while the 10-year Hong Kong government bond yield remained largely steady at around 1.24%, indicating that the market did not take the rating agency’s views seriously.

All in all, the Mainland economy is now stabilizing and also making some progress on economic restructuring. The economic upgrading can help offset some negative impacts from economic slowdown. On the other hand, Hong Kong is already one of the highly developed economies in the world. With its strong ability to withstand shock, it deserves a higher credit rating.

IMI International Monetary Review

The Promise of China's Pearl River Delta *

By ANDREW SHENG AND XIAO GENG*

July 1, 2017, will mark the 20th anniversary of Hong Kong's return to China, after more than a century of British colonial rule. It comes at a moment when China's leaders are increasingly promoting Hong Kong's unique role in advancing the country's economic development.

Two months ago, Premier Li Keqiang described China's intention to deepen economic cooperation across the Guangdong-Hong Kong-Macau Bay Area – which Hong Kong analysts have called the Pearl River Delta (PRD) – in order to reinforce its role as a major driver of sustainable development. The region includes Guangdong's nine key cities – including Guangzhou, Foshan, and Shenzhen – plus Hong Kong and Macau. Last year, the PRD's population stood at 68 million, and its GDP was $1.3 trillion.

The PRD is the southern pillar of the three Chinese coastal growth clusters. In the middle is the Yangzi River Delta (YRD), which includes Shanghai, has a population of 130 million and GDP of $2 trillion. To the north is the Beijing/Tianjin/Bohai (BTB) corridor, covering ten key cities; it has a population of 100 million and GDP of $1.3 trillion. Taken together, these three clusters account for 21% of China's population and just under 40% of its GDP.

The PRD has the lowest population of the three, but the highest income *per capita*, and it forms an important link between China and global supply chains. It gains a distinct advantage from the free-trade, low-tax, and highly globalized cities of Hong Kong and Macau; both are "special administrative regions" under China's "one country, two systems" principle. Another major asset is Shenzhen, a highly innovative "special economic zone" boasting a dynamic capital market and a tradition of experimentation with private-sector-driven job creation and integration into global supply chains.

The PRD's competitiveness is no accident. Deng Xiaoping used the region as a kind of public-policy laboratory, allowing different legal and institutional arrangements to exist concurrently, while China figured out how to approach globalization. The system clearly works, but it does suffer from a fundamental contradiction, related to the economist Ronald Coase's concept of transaction costs.

Thanks to China's geographic, demographic, and economic scale, "reform and opening up," in Deng's phrase, and technological progress naturally drive down transaction costs, improving markets' capacity to allocate resources. This process often fuels specialization, with regional or municipal economies focusing on their own competitive advantages, in order to maximize their gains from the decline in transaction costs.

Such specialization can be seen clearly in the PRD. Hong Kong is becoming a hub of international finance and services, while Macau establishes itself as a global gambling and entertainment center. Meanwhile, Shenzhen is focusing on technological innovation; Guangzhou is a global trading hub; and Foshan and Dongguan are major manufacturing bases. While each city appears to be imbalanced in its economic structure, the city cluster as a whole is well balanced and highly competitive.

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But – and herein lies the contradiction – massive numbers of transactions can raise financial, social, and security risks, which can fuel systemic volatility and contagion across regions and sectors. To mitigate these risks, governments and regulators must intervene, potentially even imposing restrictions on markets that artificially raise transaction costs. China's leaders would do well to remember this as they attempt to take advantage of the strengths of various systems to build a more open, modern, and faster-growing economy.

Chinese policymakers certainly recognize the value of city clusters to advance economic development and ease the pressures of rapid urbanization. The urban share of the Chinese population surpassed 50% in 2011, and another 300 million people could be living in urban areas within the next 20 years. In this context, city clusters could be essential to innovation and job creation, particularly in the service sector, while limiting resource wastage, avoiding further environmental degradation, and easing urban congestion from overcrowding.

Already, China has worked with Singapore and other major cities to improve urban design, water management, and environmental sustainability, as well as taking steps to tap the potential of the sharing economy. Moreover, in April, President Xi Jinping announced the formation of the Xiongan New Area, about 50 miles south of Beijing, which will serve as a venue for experimentation with policies that enable innovative start-ups to replace obsolete smokestack industries. The goal is to encourage job creation in sustainable industries while relieving urban congestion in the capital.

As for Hong Kong, China's leaders view it as a source of valuable economic-development "software" – including an independent judiciary, a robust anti-corruption regime, a stable currency, and world-class capital markets. Hong Kong's high-quality and internationally oriented education system, and its efficient and sophisticated city-management scheme, are also important assets.

Hong Kong's "software" complements China's broader drive to build the "hardware" of development, exemplified in the One Belt, One Road initiative, which entails massive investment in infrastructure linking China to the rest of the world. Already, stock-connect schemes involving Hong Kong, Shanghai, Shenzhen, and London are being established to support Chinese city clusters' ability to meet OBOR-driven demand for offshore financing.

But more must be done to help Hong Kong – and, more broadly, the PRD – meet its potential. Hong Kong's world-class services sector currently is working below capacity, owing to physical constraints. With better cross-border transport infrastructure and more flexible schemes for delivering medical, financial, and social services, senior citizens could retire outside of Hong Kong's city limits, creating space for younger workers.

While many observers focus on China's credit glut, the authorities are quietly fostering the development of dynamic city clusters. But, in order to protect and sustain this progress, Chinese policymakers must work to minimize the risks associated with rapid urbanization and growing specialization. Otherwise, trends that are doing China so much good may end up undermining prosperity and social stability.

The "Half-Opened" Mainland-HK Bond Connect

By STEVE WANG AND ZOE CHUANG[*]

- The PBOC and HKMA have officially announced the plan for the widely-anticipated Mainland-HK Bond Connect, China's latest capital market opening scheme and a new capital market link between the mainland and Hong Kong.
- The official announcements have divulged some key points of this "bond connect" scheme, but technical details and execution plans are sketchy. The market is expecting the scheme to start operation on1 July 2017.
- The Connect's initial phase will see a partial opening, following tremendous efforts from both the mainland and HK authorities. The Connect will be opened to northbound investors first and southbound ones later; to interbank bond market first and exchange bond market later; and to institutional investors first and individual investors later.
- Although the limited scope of opening under the Connect programme will make the programme implementation relatively easy and smooth, some long-term issues need to be addressed, such as the integration of China's segmented bond markets, the global trend of shifting securities trading from OTC model to exchange model, and the growth of China's credit bond market.
- The rapid development of Fintech could help to provide new solutions for the bond connect to tackle the traditional challenges and to step into the future during its next phase.

China's latest capital market opening scheme, the Mainland-HK Bond Connect, has officially received a stamp of approval. Yesterday, after the market close, both the PBOC and HKMA posted official announcements regarding the plan to establish a cross-border link between China's domestic bond market and the HK securities market, making the widely-anticipated bond market access a reality sooner than expected.

Although the announcements have not specified the opening day of the bond connect (the media have been expecting debut on 1 July 2017, which will mark the 20th anniversary of Hong Kong's return to China and President Xi's visit to Hong Kong) and there are few details on the technical and execution blueprint, a number of key features revealed on the scheme are significant for potential participants.

"Northbound first and southbound later"

The connect will be opened first to "northbound" HK investors and then to "southbound" Chinese investors. Such a design will make the connecting process easier, simpler and better-managed on the basis of one-way opening-up, and, meanwhile, meet the near-term needs of mainland authorities in dealing with the currently-elevated risk of capital outflows and in boosting capital inflows. This design also dovetails with the commonly-practised doctrine of mainland authorities to open up the Chinese capital markets in a measured, gradual and progressive approach in order to avoid causing major interruptions and instability in the financial market. In addition, this also marks the resolve from the mainland and HK to get the scheme started first in a limited scope at the earliest-possible time without being bogged down by a

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much more complex bond connect as compared to the existing Shanghai-HK and Shenzhen-HK stock connects.

"Interbank market first and exchange market later"

The current plan is to link China's interbank bond market (CIBM), which makes up over 90% of the overall bond trading activities, with the HK market first, but lacks specifics for China's exchange bond markets. This means bonds traded in the exchange market may not be opened to international investors in the initial phase. Although we had expected the opening-up of the exchange market in a bond-connect to be easy and simple, given the cross-border connects for exchange-traded stocks already in place, the priority given to the CIBM at the first stage is well thought out and designed to maximise the access for international investors to China's bond market under the condition of limited opening. This is largely in line with the international investors' current focus on the high-quality segment of the Chinese bond market, such as treasury bonds, policy bank bonds, financial bonds and the CP and repo markets. The high liquidity level and participation depth of the CIBM also offer key attractions for many of the major international investors in this market, such as FX reserve funds, sovereign wealth funds and international agencies, which have high level of demand for liquidity, safety and stability.

"Institution investors first and retail investors later"

Since the CIBM is opened only to institutional investors, in contrast to the exchange market opened to both institutional and individual investors, the initial phase of the bond connect will only be available to institution investors. This design also makes the operation of the connect easy to manage and to conduct, as these investors' professional sophistication, familiarity with the Chinese market and investor pool concentration are high, and regulatory supervision can be carried out more efficiently and effectively. This measure could boost the certainty of a smooth sailing at the start of the bond connect.

A few more thoughts

We applaud the painstaking efforts and resolve from both the mainland authorities and HKSAR to establish the cross-border bond connect and to choose the much more complex CIBM as the initial target for market access. Since the connect will initially bypass the exchange traded bonds and instead reach out to the "OTC" characterised CIBM directly, it will set a much higher bar for the scheme to meet. When the plan is proven successful, adding the exchange-traded bonds to the connect at a later stage should be easy and natural.

There are some long-term issues that we may also want to examine now. How China's bond market will evolve in the long term has been a major subject of discussion and debate for quite some time. The policymakers have been promoting the linkage and integration of China's own segmented bond market. Many efforts have been made to encourage more traditional issuers in the CIBM to issue bonds in the exchange markets, trying to bridge the valuation, liquidity and variety gaps between the two bond markets, and, at the same time, making securities information disclosures more open and public leveraging the advantage of the exchange system. Past experience does reveal that securities disclosures on exchange-traded bonds, such as basic securities information, price discovery, securities documentation and relevant corporate announcements, are more readily accessible and available.

Shifting OTC trading to exchange trading for the securities market and centralising settlement & clearing have been a long-term goal of the financial market, and China has actually done a great job in those areas, largely owing to the relatively-youthful nature of the China's securities market that has learned a great deal from developed markets' experience. On this basis, we are hoping the Mainland-HK Bond Connect will help China to continue the efforts in that direction, i.e. integrating its multi-platformed bond market and making the market more centralised and exchange-style oriented.

Another long-term issue is the future development of China's credit bond market. The CIBM is dominated by treasury and other high-quality bond products that are largely considered interest rate products by market participants. In contrast, the exchange bond market is mainly made up of credit bond products, including corporate bonds, HY bonds and convertible bonds. Policymakers have been promoting the important function of direct finance for the economy in order to lessen the traditional heavy reliance of the economy on bank loans. That means China needs to greatly expand the corporate and other credit bond markets. In other words, the country needs to scale down the dominance of banks and other financial institutions in the CIBM, in order to make room for corporates and other credit entities to grow in the CIBM, as well as in the exchange bond market.

Since the bond connect will initially open up the CIBM only to international investors, such a set-up would channel the investment flows into that market exclusively. Such an exclusivity would only further exacerbate the dominance of the CIBM in the China bond market and therefore the dominance of the financial bond segment. This could only disserve the market's long-term needs and the trend of transitioning from OTC trading to centralised trading and from bank finance to direct finance.

A long-term prospect

With the rapid development of Fintech, including big-data technology, cloud technology, mass-sharing technology, artificial intelligence (AI) technology, mobile device technology, etc, the global financial market is facing revolutionary challenges to its traditional business practices and operation methodologies, and the bond market, which is the most diverse, complicated, structured and fragmented securities market, has a high probability of seeing the breakdown of some old conventions and breakout of new trends. The China bond market as a whole and the Mainland-HK Bond Connect in specific are well positioned to journey from tradition towards the future. It would be truly challenging for the policymakers and the market participants to make the "Mainland-HK Bond Connect" a long-term success and a globally-significant initiative.

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Financial Deleveraging: Two Steps Forward; One Step Back ⋆

By BETTY HUANG, TOMASA RODRIGO AND XIA LE*

Summary

- After months of persistent regulatory tightening in domestic financial markets, China's authorities unexpectedly fine-tuned their stance of monetary prudence and leverage control by injecting a vast amount of liquidity into the banking sector in the past couple of weeks.
- It is too sanguine to conclude that the regulatory storms come to an end after the recent liquidity injection by the PBoC and the regulators' suave words. The authorities have just loosened the rein a little bit to avoid unnecessary market panic and selloffs in financial markets. We interpret the authorities' strategy as "two steps forward one step back". After the market stabilizes and absorbs their messages, they are set to leap forward again.
- It is a formidable task to achieve a deleveraging in the financial sector while not causing a systemic debacle. In China's case, a confluence factors could help the authorities to ensure a soft-landing, including the authorities' lessons drawn from previous attempts, the high level of RRR in China's banking sector and the de facto state ownership of important financial institutions.
- On balance, the process of China's financial deleveraging could last for a few years, accompanied with greater volatilities in domestic financial markets. The liquidity squeeze and small-scaled selloffs could appear repeatedly before the authorities achieve their goal of deleveraging. The currency value could become one of important binding constraints for the authorities to press ahead with their deleveraging strategies. Moreover, the regulatory storms could take a toll on the real economy, leading to a protracted period of growth below its potential level.

A brief introduction

After months of persistent regulatory tightening in domestic financial markets, China's authorities unexpectedly fine- tuned their stance of monetary prudence and leverage control by injecting a vast amount of liquidity into the banking sector through reverse repo and Medium Lending Facility (MLF) in the past couple of weeks. In the meantime, a number of regulators communicated to the market to alleviate the fast-rising market tension stemming from the policy- driven liquidity squeeze.

The authorities' latest policy moves beg a number of crucial questions with respect to the ongoing regulatory storms—— why did the authorities choose such a time to fine-tune their policy? Does it mean the authorities will abandon their previous target of reining in shadow banking activities? Is it possible for China to deploy its deleveraging strategy without causing a systemic debacle in the country's gigantic financial sector? This economic watch attempts to address the above issues and shed light on China's policy outlook for its financial sector.

The origin of the regulatory storms

Starting from December 2016, a number of China's regulators, including the CBRC (banking regulator), CSRC (security market regulator) and CIRC (insurance regulator), stepped up their efforts to curb shadow banking activities. Meanwhile, the PBoC also shifted their policy stance to "prudent" and implement a new regulatory framework of Macro Prudential Assessment

⋆ This article appeared in BBVA Research China Economic Watch on May 22, 2017.
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(MPA), the thrust of which is to force banks to include many previously off-balance-sheet activities into their books. That being said, the main targets of currently regulatory tightening are the wealth management products (WMPs) and bank- issued CDs in the interbank market, through which many small-and- medium-sized banks (SMBs) and non-banking financial institutions (NFBIs) raise funds to support their risky lending behaviours on and off their balance sheets. (Refer to our Banking Monitor)

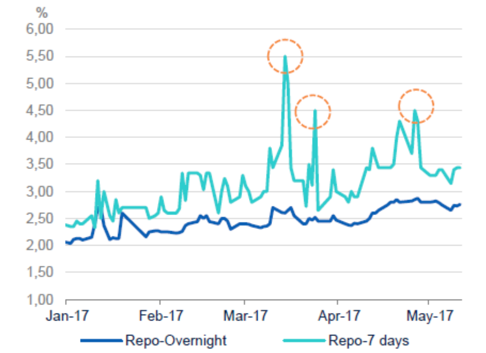
These shadow banking activities have not only aggravated the indebtedness of the corporate sector but also increased the leverage of the entire financial sector and made it more vulnerable to any potential external shocks. Given that the bulk of these activities are not reflected on financial institutions' balance sheets, the existing supervisory requirements of liquidity or capital adequacy cannot effectively limit their expansion. The rampant growth of these activities could also lead to risk-transfer within the financial sector, in which financial institutions have less incentive to monitor and manage risks associated with these activities since they tend to believe the risks have been shifted to other counterparties through complex and opaque structures of deals. As a consequence, the interconnectedness of the financial sector has been strengthened to elevate the systemic risk on the one hand, while the risk management of these activities become even laxer on the other.

The combination of monetary prudence and regulatory storms is aimed to tackle the rising financial vulnerability associated with shadow banking activities, which unavoidably led to the tight liquidity and elevated tensions in domestic financial markets. Since the beginning of the year, the volatility of interbank 7-day repo rate, which is a widely received market indicator, has significantly increased with several spikes. (Figure 1) The liquidity squeeze in the money market quickly spilled over to the bond market and raised the financing costs of bond issuance. Through April, a large number of bond issuances (valuing around RMB 260 billion) were delayed or cancelled due to elevated interest rate. (Figure 2) The liquidity squeeze has also dampened the stock market, in particular on the listed SMBs and NFBIs with greater exposure to WMPs and heavy financing reliance on interbank banks. (Figure 3)

The curtain has just been lifted…

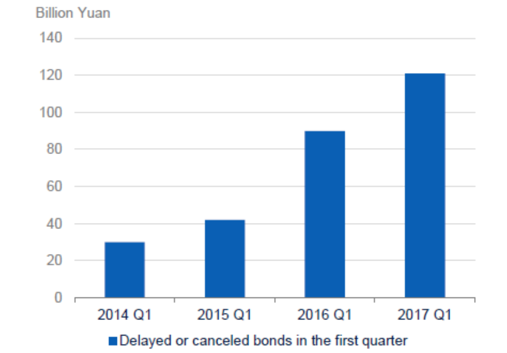
It is too sanguine to conclude that the regulatory storms come to an end after the recent liquidity injection by the PBoC and the regulators' suave words. First of all, the previously implemented tightening efforts have not achieved much given the gigantic size of shadow banking activities. According to our estimate, Chinese banks' aggregate exposure to shadow banking activities amounted to RMB 58.5 trillion as of end-2016, or 11.3% of banks' total assets. It's a huge figure compared to banks' 4-5% leverage ratio, (which is defined as the ratio of a bank's tier-I capital after deduction to its total assets). A back-on-the-envelope calculation tells that banks' tier-I capital could be entirely wiped out if 40% of these high-risk shadow banking activities turned losses. It means that the deleveraging process in the financial sector will likely be a multi-year campaign rather than a one-off effort. The authorities know this point very well. Since the last quarter of 2016, the authorities have repeatedly emphasized that the priority of the government in the economic area will be given to financial stability. That being said, they will continue defuse the risks associated with shadow banking activities while calibrating their pace of regulatory implementation so as to avoid that policy missteps lead to market panic.

Figure 1 Volatility of interbank 7-day repo rate increased…



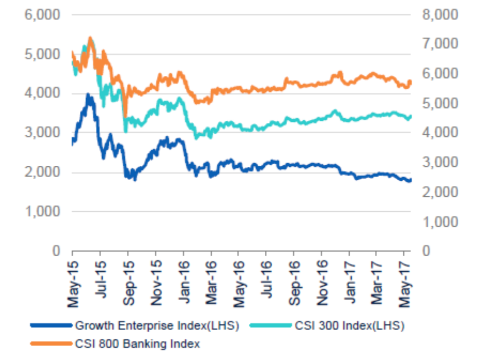
Source: CEIC and BBVA Research

Figure 2 …Delayed or cancelled bond issuance



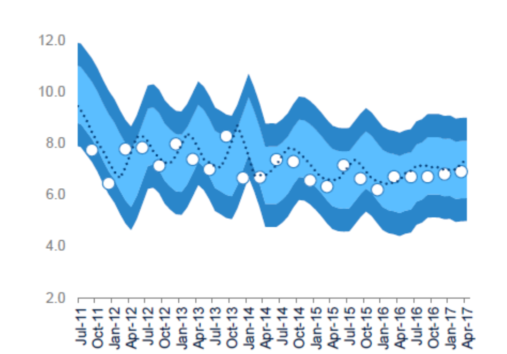
Source: Wind and BBVA Research

Figure 3 The Stock market dampened by the liquidity market



Source: Wind and BBVA Research

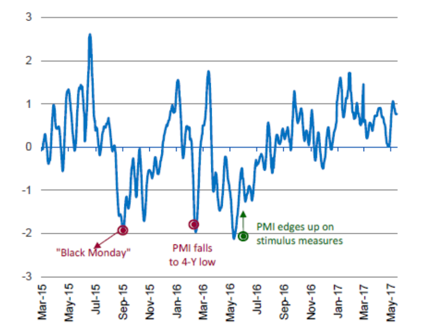
Figure 4 April MICA model points to robust growth outlook



Source: Wind and BBVA Research

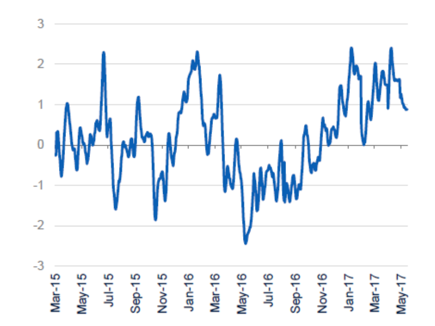
Second, China's growth momentum continues to be robust despite some recently emerging signs of moderation. According to the estimation of our MICA model, the monthly GDP growth in April still remained above 7.0% y/y. (Figure 4) The strong growth impulse in China and the benign external environment are expected to help China achieve a decent growth rate (likely 6.0-6.5%) for this year. Since the authorities have already downplayed the importance of growth relative to financial stability, it is unlikely for them to halt their efforts of reining in shadow banking activities at the current stage.

Figure 5 China Vulnerability Sentiment Index(CVSI) …



Source: CEIC, Wind and BBVA Research

Figure 6 Shadow banking Vulnerability Index



Source: Wind and BBVA Research

Last but not least, our China Vulnerability Sentiment Index (CVSI)[1], which is our in-house developed and multidimensional to gauge the global media's sentiment about a number of Chinese vulnerabilities, still remains positive despite the recently rising tension in domestic financial markets. (Figure 5) Interestingly, a sub-index of CVSI tracking the sentiment about shadow banking activities tended to perform better during the period of regulatory tightening and softened after liquidity injection. (Figure 6) The CVSI indicates that the current market situation hasn't deteriorated to the extent comparable to the previous episodes of financial turmoil. As such, the authorities still have adequate room to push forward their deleveraging campaign. Moreover, the sub-index of CVSI regarding shadow banking activities implies that the public, even including some market participants, tends to welcome the measures targeting to curb shadow banking activities. It will reinforce the authorities' resolve to rein in shadow banking activities and lower the general leverage of the financial sector.

All in all, the ease of regulatory tightening is likely to be transitory. The authorities will definitely continue their long- term campaign of facilitating the decelerating financial sector and curtailing shadow banking activities. Now the authorities have just loosened the rein a little bit to avoid unnecessary market panic and selloffs in financial markets. We interpret the authorities' strategy as "two steps forward one step back". After the market absorbs their messages, they will leap forward again along the way of deleveraging. There is no doubt that they will unveil more regulations in a targeted and calibrated way.

Is it possible to achieve a deleveraging without debacle?

It is a formidable task to achieve a deleveraging in the financial sector while not causing a systemic debacle. In China's case, a confluence factors could help the authorities to attain it in a smoother way. The authorities seem to have taken lessons from their past unsuccessful attempts to do similar things. In particular, they are paying more attention to market communications to avoid causing unnecessary market panic. Different regulators also learn to implement regulations and initiatives in a coordinated way. Their approach of "two steps forward one step back" is especially helpful in defusing the risks of shadow banking activities while avoiding policy missteps of bluntly pricking the asset bubbles.

Another important cushion which the authorities could count on is the high level of reserve requirement ratio (RRR) of China's banking sector. For large banks, their RRR stands at 17% of its total deposit. Even SMBs have a RRR of 15% now. That being said, the authorities can unleash a vast amount of liquidity to the banking sector when they deem necessary. With such a high RRR level at disposal, the authorities have ample room to manoeuvre along the way of deleveraging.

It is also noted that all the important Chinese financial institutions are state-owned. Such an ownership structure might not be good for the efficiency but it could help to stabilize the public confidence during the time of market turmoil. For the banking sector as a whole, the ability to receive deposits from households and firms during stress time is imperative for its survival. Fortunately, the state-owned nature of financial institutions could help to steady people's confidence and avert a bank-run scenario.

On balance, the process of China's financial deleveraging could last for a few years, accompanied with greater volatilities in domestic financial markets. The liquidity squeeze and small-scaled selloffs could appear repeatedly before the authorities achieve their goal of deleveraging. Although China has put their capital account under tight grip now, the turbulence in domestic financial markets can spill over to the currency market and add further downward pressure to the seemingly stabilized RMB exchange rate. We tend to believe that the currency

[1] For those readers who are interested in the details of CSVI, you can have access to our working paper via the link https://www.bbvaresearch.com/en/publicaciones/tracking-chinese-vulnerability-in-real-time-using-big-data-2/

value could become one of important binding constraints for the authorities to press ahead with their deleveraging strategies. Moreover, the regulatory storms could take a toll on the real economy by raising general funding costs. In this respect, we might see several years of growth below its potential level.

IMI International Monetary Review

Belt & Road and RMB Internationalization

Outlook of financing along the road from the perspective of international cooperation in "One Belt One Road" strategy

By E ZHIHUAN*

As the top initiative developed by China against the backdrop of a new global economy pattern, "One Belt One Road" breaks through the traditional concept about regional cooperation that focuses on trade and investment facility. It supplies international public goods for Road countries, provides new impetus for the still sluggish global economy, and provides new ideas and Chinese solution to solve the current global trade difficulties and to maintain the position of multilateral trade system. In the five key respects emphasized by "One Belt One Road" strategy including policy co-ordination, facilities connectivity, unimpeded trade, financial integration and people-to-people bonds, financial integration lends important support to "One Belt One Road" construction, which is vital to the success of the policy.

Firstly, financial integration is of systematic importance

In the five key respects emphasized by "One Belt One Road" policy including policy co-ordination, facilities connectivity, unimpeded trade, financial integration and people-to-people bonds, financial integration is of systematic importance. The establishment of efficient and smooth network of financial integration is essential to the success of "One Belt One Road" strategy.

In a word, financial integration is inextricably linked with policy co-ordination, facilities connectivity, unimpeded trade, and people-to-people bonds.

First of all, financial integration is the basis for realizing facilities connectivity. The initial stage of "One Belt One Road" strategy gave priority to facilities connectivity and established the basic framework of Asian infrastructure connectivity backed by the transportation channels and the economic corridors. Focusing on infrastructures such as transportation, electricity, communications and other projects conducive to the improvement of people's living standard along the Silk Road, "One Belt One Road" strategy has carried out a series of key projects. According to comparative advantage in the natural resources and labor costs indifferent Road countries, "One Belt One Road" strategy promotes the construction of international transportation and accelerates the development of high-speed railways to complement for the geographic disadvantage of some inland countries. Construction of traffic network propels the solid growth of infrastructure investment along the Silk Road and results in a large funding gap.

Secondly, the unimpeded trade brings forward higher demand for financial integration. The construction of transportation infrastructure has promoted the exploitation and utilization of resources and energy, which further promotes the all-round trade and service contacts along the Silk Road, and continuously strengthens investment and trade cooperation in the region. It is estimated that China's trade with the Road countries will increase by more than 10% per annum

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over the next ten years, and bilateral trade will reach nearly US$3 trillion, accounting for one third of China's total foreign trade. Financial integration plays an important role in facilitating investment and trade, eliminating investment and trade barriers, and actively building free trade zones with Road countries.

Thirdly, financial integration is closely related to policy co-ordination. Road countries encounter policy incompatibility, geopolitical risk, cultural and religious conflict, terrorism and other risk factors in varying degrees. Therefore, policy co-ordination helps to build the Silk Road into a road of peace. To promote political mutual trust and reach a new consensus of cooperation, collaboration among governments and multi-level communication mechanism of macro policies are needed. Commercial organizations also need to strengthen communications and negotiations when participating in the construction of Silk Road to realize their function as cooperation platform.

Finally, People-to-people bond is the motivation for "One Belt One Road" strategy. Only by strengthening cultural exchanges can the Silk Road countries develop through economic cooperation, and build a solid public and social foundation. At present, great diversity exists in some Road countries and thus greater efforts should be made in these countries.

Secondly, further enhance the service ability of diversified financing system of "One Belt One Road"

In order to satisfy the "One Belt One Road" financing demand, China took a lead in establishing major financial platforms, including The Asian Infrastructure Investment Bank (AIIB), The Silk Road Fund, The BRICs New Development Bank and the Shanghai Cooperation Organization (SCO) Development Bank , to inject abundant liquidity into Silk Road construction. At present, AIIB has provided US$1.7 billion loan for 9 projects of participating countries, while The Silk Road Fund has invested US$4 billion. In addition, with the “16+1” financial holding company between China and Central and Eastern European countries established, various types of regional financial institutions have joined the "One Belt One Road" funds platform, further enhancing the representativeness of this platform.

Newly established multilateral institutions focus on the infrastructure financing along the Silk Road, and complement with The AIIB, The European Bank for Reconstruction and Development, The World bank and The International Monetary Fund and other traditional multinational financial institutions. These emerging multilateral institutions are becoming important international financing and financial services platform, to provide financial support for the long-term development of Silk Road, to improve regional infrastructure, and to achieve connectivity.

Recently, the Silk Road Fund adds100 billion yuan, while the Export-Import Bank of China and the China Development Bank add 380 billion yuan of special loans for supporting "One Belt One Road" infrastructure construction and financial cooperation. This, to some degree, will enhance the financial strength of The AIIB, The Silk Road Fund, various Sovereign funds and other emerging multilateral development platforms.

"One Belt One Road" multilateral financial institutions cooperate with The World Bank and other multilateral development institutions to promote related projects, and to jointly develop "One Belt One Road" financing guidelines. These financing guidelines mean the mentioned multilateral institutions can fully display their roles in leading the market, and to direct the commercial equity investment funds and social funds to the construction of "One Belt One Road” key projects.

Thirdly, improve "One Belt One Road" financial arteries through market instruments

Albeit funds provided by The AIIB and The Silk Road Fund, "One Belt One Road" construction still faces a huge funding gap. To ensure the sustainability of funding, it is necessary to expand financial cooperation, to build a strong financing channel, and to expand the feasibility of cooperation between The AIIB, The Silk Road Fund and the market-oriented financial institutions.

Therefore, it is also necessary to make "One Belt One Road" financing mode the important connotation of the innovative Silk Road, to improve the "One Belt One Road" financial arteries, and to provide vast room for Chinese financial industry to engage in the construction of Silk Road.

In order to meet the financial needs of "Going-Out" enterprises, China's financial institutions have set up branches in Road countries. By the end of 2016, 9 Chinese banks had set up 61 tier one institutions in 25 countries. These financial institutions timely grasp the opportunities from overseas mergers and acquisitions, capital operation, and foreign direct investment and etc. They provide one-stop integrated financial services solutions, improve the success rate of projects, and finally accumulate a lot of successful experience.

In the future, the further construction of financial arteries can be promoted from the following areas.

(1) Financial institutions can be encouraged to carry out overseas RMB funds business, and the scale is expected to be approximately 300 billion yuan. Financial institutions can also provide new currency alternatives for the existing financial products system, and to finance the infrastructure projects along the Silk Road with syndicated loans, project loans and etc.

Relevant financial institutions will provide more diversified financial services for Silk Road countries. Silk Road countries own abundant national resources such as oil and gas, with substantial development value. Also, petrochemical industry, metallurgy and deep processing, mining, machinery manufacturing and electronics industry face broad development opportunities. China has signed capacity cooperation agreements with many countries, and a large number of key projects have been launched. The Capacity Cooperation Fund established by China has been over hundreds of billions of US dollars, which will give rise to the demands for financial services, and provide a useful supplement for the innovative financing.

(2) Create a brand-new financing model. By fully leveraging the PPP model (public-private-partnership), syndicated loans and infrastructure bonds, innovations can be achieved in investment and financing models to promote cooperation between the governments and the public capitals. This will help provide financing for various infrastructure projects along the Silk Road, and strongly support investment and financing.

(3) Create an integrated financial services platform for "One Belt One Road" industrial parks and the economic corridors. To promote the "One Belt One Road" platform, China has successively set up a number of industrial parks in ASEAN, Central Asia, South Asia, and Eastern Europe. Chinese banks provide credit support and develop comprehensive financial services programs to qualified industrial parks and the park enterprises. Diversified financial products and asset allocation tools can be provided, including foreign exchange and position squaring, interbank lending, bond investment and clearing etc.

(4) Establish multi-level capital markets. To further deepen the "One Belt One Road" financial market system, it is necessary to attract mature investment projects to list in the capital markets, to issue infrastructure bonds and funds, and to create an international financing platform.

Recently, developments in regional debt market and Asian bond market can be expedited to improve the "One Belt One Road" financing network system. By helping foreign government and high creditworthy companies to issue RMB bonds onshore and helping qualified Chinese financial institution to issue RMB bonds offshore, China can encourage RMB usage in Road countries. By strengthening the construction of financial market system and the construction of investment and financing channels for efficient resources allocation and superior risk management mechanism, problems about shortage of funds and financing during the construction of Silk Road can be solved.

Fourthly, focus on key currency, and maintain the stability of RMB in the global monetary system

"One Belt One Road" not only focuses on the key channels, key cities and key projects, but also, in the financial level, focuses on key currency. Accelerating the organic integration of "One Belt One Road" strategy and RMB internationalization strategy helps to further enhance the RMB's international usage and make RMB a critical regional currency, which can effectively make up for the insufficient liquidity along the Silk Road and provide liquidity to the Road countries.

Due to the huge demand for funds from Road countries, increasing the usage of RMB can provide more RMB denominated investment tools, and promote the development of financial markets along the Silk Road. In the first quarter of 2017, China's foreign investment amounted to US$20.54 billion, 48.8% less than last year. Among them, Chinese enterprises invested US$2.95 billion in 43 Road countries, accounting for 14.4 percent of Chinese firms' total outbound investment and representing an increase of 5.4 percentage points over the same period in previous year. Chinese enterprises signed 952 project contracts with 61 Road countries with a turnover of US$14.39 billion, nearly half of the total value of contracts in Q1. Obviously, influx of Chinese capitals to the Silk Road provides a rare opportunity for the promotion of RMB circulation in the local market. At present, the RMB is mainly used for loans and settlement etc. It is expected that with the economic growth and wealth accumulation, a variety of institutions, enterprises and individuals are willing to hold diversified assets in RMB. The surging demand for RMB asset management will shift the function of RMB to offshore lending, offshore bonds, exchanging, financial derivatives and hedging tools.

The developments of investment, as well as trade, between China and Belt and Road countries provide new room for international currency cooperation. The People's Bank of China has entered currency swap agreements with many offshore monetary authorities, including 21 countries along the Belt and Road. Moreover, 6 Belt and Road countries have been authorized RMB Qualified Foreign Institutional Investor (RQFII) quota.

The construction of clearing network is essential for promoting the RMB usage along the Belt and Road. At present, seven countries along the region, such as Malaysia, the Philippines, Thailand, Indonesia, etc. expand the coverage of the RMB clearing through utilizing the RTGS in Hong Kong. After launching the Cross-Border Interbank Payment System or China International Payments System (CIPS), it will gradually optimize the RMB clearing system in the Asia-Pacific region with higher efficiency and convenience. As a result, it will propel the RMB usage by banks and corporations in the ASEAN, supporting the growth of RMB clearing scale. The RMB usage can fulfill liquidity needs along the Belt and Road, which helps ease tightening liquidity condition.

To propel the RMB usage along the Belt and Road, we should explore the possibility of establishing energy-related financing market, in order to confront the challenge of volatile energy price in global market and enhance energy safety. Furthermore, we should seize opportunities to develop the Petro-RMB, expanding the use of RMB in petroleum price fixing and transaction.

The 2017 Government Work Report stated "to persist with liberalization in the foreign exchange market and to maintain the RMB's stable status in global monetary system". Apparently, the ultimate goal of the RMB internationalization is to provide new products and solutions to address the drawbacks under existing global monetary system, which is dominated by the US dollar. With deepening integration between China and global financial system, China has to undertake more responsibilities for maintaining global financial stability.

Following the inclusion of RMB into the SDR, the systematic dividend will be gradually unleashed. While the depth and breadth of the RMB market is increasing, central banks and sovereign institutions become more willing to hold RMB assets. The RMB will play a more active role in global financial governance now that it has become a critical regional currency along the Belt and Road.

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Utilizing on- and off-shore RMB Bond Markets for "Belt & Road" Financing Needs ⋆

By STEVE WANG*

Since 2013, China's " Belt and Road (B&R)" initiative for international economic development has become one of the most prominent investment themes in the global capital markets. The initiative covers 65 countries along the ancient land and maritime Silk Roads, a region accounting, as of 2015,for about 62% and 16% of the global population and GDP, respectively. According to Xinhua News Agency, China has signed a total of USD$126bn of foreign project contracts in B&R countries during 2016, covering infrastructure projects in energy, transportation, real estate and metal/mining. These B&R infrastructure investments will create large financing needs in the world that can look up the capital markets for supports.

The B&R projects will rely on funding from multiple fronts. They include, but not limited to, international financial agencies, regional funding organizations and commercial banks. On the eve of the first "Belt and Road Forum for International Cooperation (BRF)" held on May 14-15, Mr. Zhou Xiaochuan, Governor of the People's Bank of China, wrote an article outlining an 8-point proposal on issue of B&R financing. Among the eight points, two **promote the B&R roles of global financial centers and local currency markets. Hong Kong can certainly contribute very significantly to these two areas.**

Being one of the three major global financial centers and also the first-established, now the largest offshore renminbi (RMB) center, Hong Kong enjoys many advantages to uniquely serve the financial needs of B&R, whether from its leadership in the offshore RMB market or from its growing capital market connections with the Mainland. This is especially true in the bond market front. We believe the growing maturity of the domestic Panda Bond market and the Offshore (Dim-Sum) RMB bond market has a great potential to meet many of the B&R funding needs, particularly when considering that the Chinese financial institutions and enterprises are among the major participants in B&R programs, ranging from project funding, equipment supply to material sourcing, personnel involvement, and etc. Indeed, President Xi has mentioned in his theme speech at the BRF the use of RMB as one of the financing currencies for B&R initiative.

The two RMB bond markets have accumulated large amount of precedence and experience over the years of development. Being the third largest bond market globally, China's local currency bond market offers a rich product variety and a broad investor base as the foundation for both the panda bond market and the offshore RMB bond market to expand.

Our statistics show that the issuance of panda bonds has become quite active since 2015, with a total issuance volume jumped to RMB132bn in 2016. Although the offshore RMB bond issuance volume has declined in recent years from its record of RMB 282bnin 2014to RMB117bn in 2016 (largely due to the lower onshore funding costs), the percentage of bond issuance from international borrowers continues rising over the past two years, to a 58% share in 2016(vs. 55% in 2015). Overall, we believe the further opening up of the domestic bond market over the past year will not only help expanding the Panda Bond market further, but also

⋆ This article first appeared in Global Times.
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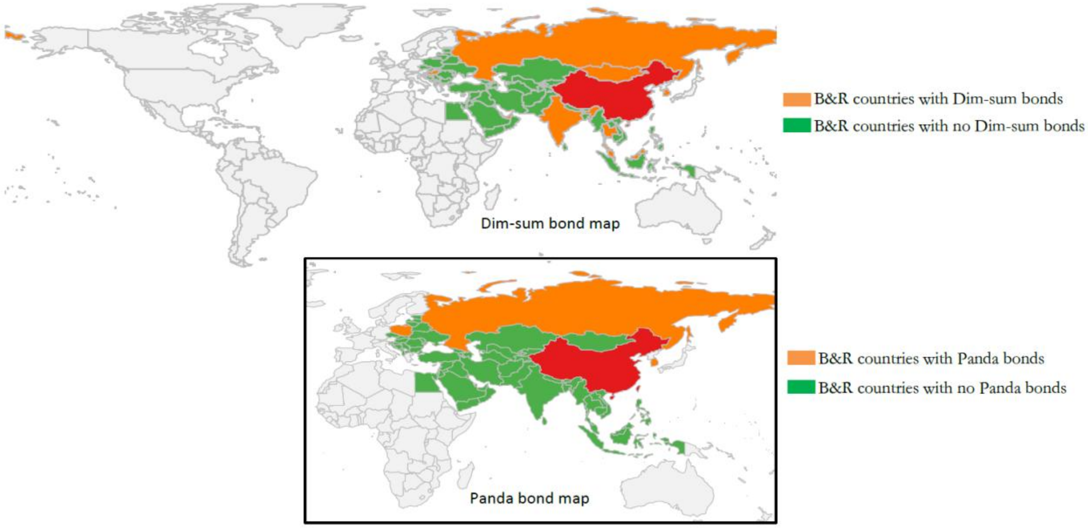
strengthening the integration and connection between the offshore and onshore RMB bond markets, by which the offshore RMB bond market can maintain its vitality and both markets can become a major B&R financing channel.

And we see a huge potential. As of 2017, only 11 out of the 65 B&R countries have seen issuance of Panda Bonds or Dim Sum Bonds from their institutions or corporations (see figure).They were Hungry, India, Malaysia, Mongolia, Qatar, Russia, Thailand, Poland, UAE, South Korea and Singapore. Among them, only three have seen Panda bond issuance (Poland, South Korea and Russia). As of the end of April 2017, their total outstanding amounts in Panda and Dim Sum bonds stood at RMB7bn (accounted for 5% of the market) and RMB39.9bn (accounted for 8%), respectively. Apparently, financing uses of the Panda and Dim Sum Bond markets by B&R countries are still very limited. This simple signifies a great potential for future expansion, an opportunity that Hong Kong's financial firms can seize and play. We believe the two RMB bond markets will attract more B&R issuers for fundraising in the future, thus allowing the financial resources for B&R developments more diversified and market-based.

Figure. "Belt & Road" countries (with colors) and their RMB bond market participation states (by color differences)



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The BIS Statistical Ingredients in the RMB Internationalisation Index (RII)

By HERBERT POENISCH*

The Bank for International Settlements has been a rather unknown institution, compared with the IMF, the IBRD and other international financial organisations.

However, it is the oldest financial institution, established in 1930 and it has been crucial for central bank cooperation. One of the main areas of this activity is the collection of statistics to better monitor and understand global financial developments which might undermine national monetary and financial stability.

The statistics published by the BIS are a unique source of information about the structure of and activities in the global financial system. They are compiled in cooperation with central banks and other national authorities and are designed to inform analysis of financial stability, international monetary spillovers and global liquidity[2].

A key objective of this function is to promote the wider use of BIS statistics, especially for policy analysis. It builds on an international initiative to improve the availability of key information for policymakers to assess risks across countries[3].

Although the statistics were originally compiled with a specific purpose in mind, they nevertheless have a wide range of possible uses. These uses include extending monetary and credit aggregates, monitoring external debt, analysing banks' country risk exposures and documenting changes in financial intermediation. The BIS statistics are referenced by a wide range of users for a wide range of purposes[4].Although the BIS statistics were *not designed to monitor the Internationalisation of RMB*, one can trace this process through the breakdown in various statistics. This is the purpose of the present contribution.

As the internationalization of RMB advances rapidly[5], particularly since the inclusion of RMB in the SDR basket in 2016, the BIS statistics have singled out RMB among the other EME currencies. Thus, they offer vital insights into the use of RMB in the international financial markets. In order for RMB to serve as an international currency, RMB has to fulfill the three functions of money, denomination, transaction and store of value.

Of all BIS statistical series available the following ones have been selected as they offer the most relevant information on whether RMB can fulfill these functions of money.

These are the effective exchange rate indices (for denomination in RMB), the foreign exchange and derivatives survey 2016 (for transactions in RMB), the locational banking statistics and the securities statistics (for store of value in RMB). In order to demonstrate their usefulness, each of these statistics will be illustrated with recent data and website references so that the reader can easily access data at a later stage[6].

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* Herbert Poenisch, Member of International Committee; Former Senior Economist, Bank for International Settlements

[2] Bank for International Settlements-BIS (2015): Introduction to BIS Statistics. In: BIS Quarterly Review, September, p 35www.bis.org/publications

[3] Ibid, p 35.

[4] Wooldridge, Philip D (2002): Uses of BIS Statistics: An introduction. In: BIS Quarterly Review, March www.bis.org/publications

[5] International Monetary Institute-IMI (2016): Report on the Internationalisation of the RMB. www.imi.org.cn

[6] Regular updates are published in the BIS Quarterly Review, which is published at the beginning of March, June, September and December of every year.

1. The effective exchange rate indices

A nominal effective exchange rate (NEER) is an index based on a trade-weighted average of bilateral exchange rates. A real effective exchange rate (REER) is theNEER adjusted by some measure of relative prices or costs. Changes in the REERthus take into account both nominal exchange rate developments and the country's inflation differential vis- à-vis trading partners[7].

This indicator is based on published information, the daily exchange rates, the inflation rates and the trade shares as reported in the IMF Directions of Trade handbook. The RMB data go back to 1994.

The BIS EER indices currently cover 61 economies (including individual euro area countries and, separately, the euro area as an entity). Nominal EERs are calculated as geometric weighted averages of bilateral exchange rates. The weighting scheme adopted is based on Turner and Van 'tdack (1993). The weights are derived from manufacturing trade flows and capture both direct bilateral trade and third-market competition by double-weighting. Real EERs are the same weighted averages of bilateral exchange rates adjusted by relative consumer prices in the two countries[8].

The data https://www.bis.org/statistics/eer.htm?m=6%7C187are published in excel files, and can be manipulated through direct query. pdf tables are compiled (see below).

Nominal effective exchange rates

Period averages; 2010 = 100[1] Table I1

	2011	2012	2013	2014	2015	Q4 15	Q1 16	Q2 16	Q3 16	Q4 16
Algeria	98.3	97.3	94.0	94.0	86.3	82.3	82.2	79.2	79.7	81.9
Argentina	90.8	88.3	75.9	53.3	55.7	54.6	38.6	37.4	34.8	34.4
Australia	107.1	109.3	103.2	97.9	88.7	86.7	87.2	88.5	90.1	91.6
Austria	100.0	98.4	99.9	100.9	98.1	98.5	99.3	99.4	99.2	99.0
Belgium	100.6	98.3	100.5	101.5	97.7	98.1	99.2	99.4	99.4	99.0
Brazil	102.3	90.7	83.9	81.1	64.0	56.1	58.1	63.6	69.5	70.3
Bulgaria	101.2	99.9	101.8	103.9	101.8	102.7	104.0	104.0	104.0	104.2
Canada	102.0	102.1	99.3	93.4	84.5	81.7	79.9	84.6	83.9	83.2
Chile	101.6	103.5	102.8	91.7	88.0	84.6	86.0	87.4	89.6	91.5
China	100.2	105.9	111.9	114.7	125.6	126.3	123.9	120.6	117.3	117.8
Chinese Taipei	102.2	102.7	104.7	104.8	108.5	107.6	106.4	106.3	108.3	111.5

Table 1: Source: https://www.bis.org/statistics/eer.htm?m=6%7C187

[7]BIS, ibid, p 48

[8]BIS, ibid, p 48

Real effective exchange rates

CPI-based; period averages; 2010 = 100[1] Table I2

	2011	2012	2013	2014	2015	Q4 15	Q1 16	Q2 16	Q3 16	Q4 16
Algeria	99.2	103.9	101.5	102.8	97.8	94.5	95.8	94.3	95.8	98.5
Argentina	95.2	98.2	90.1	74.0	86.3	88.3	68.2	72.1	70.6	72.4
Australia	106.9	108.5	102.9	98.2	89.6	87.8	88.0	89.1	91.2	92.7
Austria	100.3	98.8	100.7	102.1	99.6	100.2	100.8	101.1	100.5	100.7
Belgium	101.0	99.0	100.5	100.4	96.3	97.0	98.6	99.1	98.9	98.4
Brazil	104.6	94.4	90.0	88.9	74.0	66.2	69.6	76.3	83.5	84.0
Bulgaria	101.7	100.2	100.8	99.8	96.6	96.8	97.7	96.3	96.8	96.3
Canada	101.6	100.9	97.2	91.4	83.2	80.4	78.6	83.5	82.6	81.4
Chile	100.8	102.8	101.6	92.0	90.2	87.6	88.8	90.3	92.8	94.2
China	102.5	108.7	115.6	118.3	129.7	130.1	129.7	124.8	121.2	121.8
Chinese Taipei	100.2	100.3	101.0	100.2	102.2	101.7	99.9	99.9	102.0	105.5

Table 2: Source: https://www.bis.org/statistics/eer.htm?m=6%7C187

USE: the NEER and REER are indicators of international price competitiveness. The published data clearly show that China has the highest rate of appreciation of the NEER as well as the REER which repudiates any suggestion of currency manipulation.

2. The 2016 Triennial survey of foreign exchange and derivatives activities

The BIS is the only institution which conducts such a survey on a regular basis, every three years since 1998. The resulthttps://www.bis.org/publ/rpfx16.htm?m=6%7C35shows a breakdown into currencies, instruments, counterparts and locations.

Central banks and other authorities in 52 jurisdictions participated in the 2016 survey, collecting data from close to 1,300 banks and other dealers. It asks reporting institutions to compile data on spot forex trades and derivatives, such as swaps, futures, forwards and options on a normal trading day in April 2016. The reporters have to adhere to very strict reporting guidelines https://www.bis.org/statistics/triennialrep/2016survey_guidelinesturnover.pdf

According to this survey the CNY has doubled its share in the turnover ever since 2010 reflecting the increased use of RMB in international transactions, reaching 4 percent (out of 200%) included in currency pairs (see below).

Turnover of OTC foreign exchange instruments, by currency

"Net-net" basis, April 1998–2016 daily averages, in billions of US dollars and percentage share Table D11.3

	1998		2001		2004		2007		2010		2013		2016	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
USD	1,325	87	1,114	90	1,702	88	2,845	86	3,371	85	4,662	87	4,438	88
EUR	...	...	470	38	724	37	1,231	37	1,551	39	1,790	33	1,591	31
JPY	332	22	292	24	403	21	573	17	754	19	1,235	23	1,096	22
GBP	168	11	162	13	319	16	494	15	512	13	633	12	649	13
AUD	46	3	54	4	116	6	220	7	301	8	463	9	348	7
CAD	54	4	56	4	81	4	143	4	210	5	244	5	260	5
CHF	108	7	74	6	117	6	227	7	250	6	276	5	243	5
CNY	0	0	0	0	2	0	15	0	34	1	120	2	202	4

Table 3: Source: https://www.bis.org/publ/rpfx16.htm?m=6%7C35

Another interesting result is that the use of RMB for financial transactions (USD 134bn) has overtaken the use for trade (USD 68bn) expressed in spot transactions.

Turnover of OTC foreign exchange instruments, April 2016

Daily averages, in billions of US dollars — Table D11.1

Instrument, currency, counterparty and country	Total 2016	Spot transactions 2016	Outright forwards 2016	Foreign exchange swaps 2016	Currency swaps 2016	FX options 2016
Total, "net-net" basis	**5,067**	**1,652**	**700**	**2,378**	**82**	**254**
By currency						
USD	4,438	1,385	600	2,160	74	218
EUR	1,591	519	178	807	22	64
JPY	1,096	395	151	458	18	74
GBP	649	211	92	305	10	30
AUD	348	143	41	138	7	20
CAD	260	105	34	103	4	14
CHF	243	57	30	150	2	5
CNY	202	68	28	86	3	18
SEK	112	34	13	59	1	5
Other currencies	1,195	388	232	490	23	61

Table 4: Source: https://www.bis.org/publ/rpfx16.htm?m=6%7C35

USE: this is an indicator for the use of a currency in the international foreign exchange market. This market is an OTC market, mainly between foreign exchange dealers. It is a clear illustration that RMB is a maturing currency, used more for financial transactions that just bilateral trade with China[9].

3. Locational banking statistics

The history of the locational banking statistics dates back to the 1970, when the emergence of the euro-dollar market, a market for a currency outside its own jurisdictions was a concern for central bankers. They worried that this development posed a challenge for domestic monetary policy. As a result they commissioned the BIS to collect cross-border banking claims and liabilities, comparable to balance of payments financial account data.

As of 2015 major banks (domestic as well as foreign) with significant cross border business in 46 countries (44 in table5 plus Russia and China) and jurisdictions report their cross-border assets and liabilities to their central banks on a quarterly basis. These pass on the national statistics to the BIS which removes doubled counting. China joined this reporting system in 2015. The reporters have to adhere to strict reporting guidelines: https://www.bis.org/statistics/bankstatsguide_repreqloc.pdf

The locational banking statistics (LBS) are reported with the following important breakdown: currencies, instruments, counterparty sector (see below)

[9] Poenisch Herbert (2017): RMB-a maturing currency. In: International Monetary Review, January Vol 4, no1

	Locational banking statistics	
	By residence (LBS/R)	By nationality (LBS/N)
Reporting countries	44	43
Business reported	Financial assets and liabilities (incl derivatives)	
Breakdowns reported		
Bank type	All reporting banks, domestic banks, foreign subsidiaries, foreign branches, consortium banks	not available
Bank nationality	not available	≥43
Type of position	Cross-border, local	
Currency	Local, USD, EUR, JPY, GBP, CHF, others (optional)	
Maturity	*For liabilities*: debt securities (of which: ≤1 year)	
Instrument	Loans and deposits, debt securities, other instruments	*For liabilities*: debt securities
Counterparty country	>200 (incl reporting country)	≥76 (incl reporting country)
Counterparty sector	Banks[3] (of which: related offices, central banks), non-banks[4], non-bank financial institutions, non-financial sector (general government, non-financial corporations, households)	

Table 5: Source: BIS Introduction to the banking statistics

The summary sheet gives the total cross-border assets and liabilities in billions of USD and the breakdown into counterparty sectors.https://www.bis.org/statistics/bankstats.htm

Cross-border positions, by location of reporting bank and sector of counterparty

Amounts outstanding, in billions of US dollars

Sector of counterparty	All sectors		Bank sector			
			Total		Of which: Intragroup	
	Claims	Liabilities	Claims	Liabilities	Claims	Liabilities
Location of reporting bank	Q3 16	Q3 16	Q3 16	Q3 16	Q3 16	Q3 16
Banks in all LBS reporting countries	**28,238.5**	**25,684.2**	**14,830.2**	**14,161.9**	**9,269.6**	**8,347.7**
Australia	445.2	732.4	272.4	603.1	157.7	159.4
Austria	256.4	163.8	106.1	54.5	7.8	8.2
Bahamas	124.0	116.5	95.3	68.6	...	...
Bahrain	137.9	138.1	52.7	82.4	...	...
Belgium	613.9	515.4	353.1	283.5	219.2	139.2
Bermuda	12.6	3.0	4.9	0.5	2.8	0.5
Brazil	84.9	141.8	81.0	136.0	66.2	56.2
Canada	562.5	477.4	276.0	238.2	219.2	203.8
Cayman Islands	1,073.5	1,082.8	761.0	649.2	688.5	524.7
Chile	17.3	25.8	12.9	21.5	...	...
China	827.6	979.6	\	\	\	\
Chinese Taipei	377.0	210.2	201.9	108.3	96.8	61.0

Table 6: Source: BIS LBS 3Q2016

For individual countries (such as China) the currency breakdown is also available.

Banks located in China

Positions reported by banking offices located in the specified country regardless of the nationality of the controlling parent, in millions of US dollars

Table A5

	Claims			Liabilities		
	Adjusted changes		Outstanding	Adjusted changes		Outstanding
	Q2 16	Q3 16	Q3 16	Q2 16	Q3 16	Q3 16
Total	**32,375**	**50,163**	**827,606**	**26,268**	**63,222**	**979,649**
Cross-border positions	32,375	50,163	827,606	26,268	63,222	979,649
Of which: local currency	6,337	12,164	84,926	–11,952	–4,780	351,783
Local positions	...	...	...	...	...	...
Of which: local currency	...	...	...	...	...	...
Unallocated	...	...	...	...	...	...
Of which: local currency	...	...	...	...	...	...
Cross-border positions	**32,375**	**50,163**	**827,606**	**26,268**	**63,222**	**979,649**
By sector of counterparty						
Banks	\	\	\	\	\	\
Of which: intragroup	\	\	\	\	\	\
Non-banks	\	\	\	\	\	\
Of which: non-bank financial	\	\	\	\	\	\
Of which: non-financial	\	\	\	\	\	\
Unallocated	...	...	...	...	...	...
By currency						
Local currency	6,337	12,164	84,926	–11,952	–4,780	351,783
Foreign currencies	26,038	37,999	742,680	38,220	68,003	627,866
Of which: US dollar	10,476	33,751	582,264	26,361	24,490	298,513

Table 7: Source: BIS LBS 3Q2016

There are again various formats of presenting the data. The pdf is used above, the BIS Statistics Explorer and BIS Statistics Warehouse allows the user customized queries. https://www.bis.org/statistics/bankstats.htm

USE: the data give a summary view of stocks and changes in the past 2 quarters adjusted for changes in the USD exchange rate. In the case of China the cross-border liabilities (USD 979.6bn) were bigger than the cross-border claims (USD 827.6). This means that China has a net liability to the rest of the world[10].

The local currency component shows that liabilities in RMB (USD 351.8 bn) are much larger than the assets in RMB (USD 84.9 bn). The picture is the opposite for assets. The assets of China banks[11] in USD are much larger (USD 582.3 bn) than the liabilities (USD 298.5 bn). The conclusion is that China banks have a long position in USD and a short position in RMB[12].

4. BIS Securities Statistics

The purpose of the BIS data on debt securities is to capture the securitized share of the domestic and international debt of a country. They include domestic debt securities (DDS), international debt securities (IDS) and the total debt securities (TDS).https://www.bis.org/statistics/about_securities_stats.htm?m=6%7C33

The DDS are debt securities issued in the local market of the country where the borrower resides, regardless of the currency in which the security is denominated. China has the 3rd biggest domestic securities market in the world, with outstanding issues of USD 9183 bn in the 3Q2016.

[10]According to BOP capital outflows are net increases in assets (triggered by residents)and capital inflows are net increases in liabilities (triggered by non-residents).

[11]The term China banks is used here for all banks resident in China, these are Chinese owned banks as well as affiliates of foreign banks resident in China.

[12]Poenisch Herbert (2016): Contribution by Chinese banks to RMB Internationalisation. In: IMI International Review, Vol 3, No 3&4, October www.imi.org.cn

The IDS are debt securities issued in a market other than the local market of the country where the borrower resides. They capture issues conventionally known as euro bonds and foreign bonds. The IDS issued by Chinese residents are relatively small amounting only to USD 125 bn in 3Q2016. They include issues by Chinese residents (such as CDB) in RMB (such as in CNH) as well as in foreign currencies.

The TDS are debt securities issued by residents in all markets (the sum of international and domestic debt securities). The BIS does not calculate TDS. This is due to potential overlaps between IDS and DDS statistics.

The data are retrieved by the BIS from published sources according to the Handbook on Securities Statistics (HSS).http://www.imf.org/external/np/sta/wgsd/hbook.htm

The most recent data in pdf format give the following picture for IDS issues in RMB by Chinese residents (banks, other financial and non-financial corporations).https://www.bis.org/statistics/secstats.htm?m=6%7C33%7C615

China

Debt securities issues and amounts outstanding, in billions of US dollars

Table C3

	Amount outstanding	Net flows	Amount outstanding	Gross issuance	Net flows	Amount outstanding	
						Total	Of which: Up to and including one year
	Q2 16	Q3 16	Q3 16	Q4 16	Q4 16	Q4 16	Q4 16
Resident issuers							
Total debt securities	**8,853.7**	...	**9,400.5**	...	...	...	...
Financial corporations	3,377.0	...	3,520.2	...	...	...	...
Non-financial corporations	2,486.2	...	2,597.7	...	...	...	...
General government	2,990.5	...	3,282.7	...	...	...	...
Domestic debt securities	**8,639.0**	**578.5**	**9,183.7**	...	...	...	...
Financial corporations	3,248.9	162.4	3,398.6	...	...	...	...
Short-term	...	...	...	...	...	...	...
Long-term	...	...	...	...	...	...	...
Non-financial corporations	2,467.1	122.2	2,579.6	...	...	...	...
Short-term	...	...	...	...	...	...	...
Long-term	...	...	...	...	...	...	...
General government	2,923.1	293.9	3,205.4	...	...	...	...
Short-term	...	...	...	...	...	...	...
Long-term	...	...	...	...	...	...	...
International debt securities	**112.3**	**12.7**	**124.9**	**14.8**	**8.4**	**131.8**	**12.4**
Banks	49.9	2.4	52.3	4.9	4.4	56.2	5.0
By currency							
Local currency	8.9	0.0	8.8	...	–0.2	8.3	2.2
US dollar	36.8	1.9	38.7	2.7	2.6	41.3	1.4
Euro	3.2	...	3.2	2.1	2.1	5.1	0.0
Other foreign currencies	1.0	0.5	1.6	0.1	–0.1	1.4	1.4
By original maturity							
Short-term	1.7	0.8	2.6	0.4	0.2	2.7	2.7
Long-term	48.2	1.6	49.7	4.5	4.2	53.4	2.3
By interest rate type							
Fixed	49.0	1.8	50.8	4.9	4.4	54.6	5.0
Other	0.9	0.6	1.5	0.0	0.0	1.5	0.0
Other financial corporations	33.6	5.0	38.7	2.0	1.4	39.8	1.5
By currency							
Local currency	1.6	0.3	1.9	...	...	1.8	0.7
US dollar	29.2	4.8	34.0	2.0	1.4	35.4	0.8
Euro	2.8	...	2.8	...	...	2.6	...
Other foreign currencies	0.1	–0.1	0.0	0.0	0.0	0.0	0.0
By original maturity							
Short-term	...	...	...	...	...	...	...
Long-term	33.6	5.0	38.7	2.0	1.4	39.8	1.5
By interest rate type							
Fixed	27.6	4.4	32.1	2.0	1.4	33.2	1.5
Other	6.0	0.6	6.6	0.0	0.0	6.6	0.0
Non-financial corporations	16.0	4.7	20.7	4.3	0.9	21.3	2.2
By currency							
Local currency	4.0	0.2	4.2	1.0	–0.6	3.5	1.2
US dollar	9.7	4.4	14.2	2.4	0.6	14.7	0.3
Euro	0.4	...	0.4	...	...	0.4	...
Other foreign currencies	1.8	0.0	1.8	1.0	0.9	2.6	0.6
By original maturity							
Short-term	...	...	...	...	...	...	...
Long-term	16.0	4.7	20.7	4.3	0.9	21.3	2.2
By interest rate type							
Fixed	8.8	2.6	11.4	3.8	1.5	12.6	0.9
Other	7.2	2.1	9.3	0.5	–0.6	8.7	1.2

Table 8: Source: BIS Securities Statistics

https://www.bis.org/statistics/secstats.htm?m=6%7C33%7C615

The above table 8 shows that outstanding international RMB issues (in CNH) by Chinese residents amounted to USD 15 bn in 3Q2016 out of a total of outstanding international issues of USD 125 bn (or 12% of the total). What is not shown in the statistics is the issue of RMB denominated securities by non-Chinese entities, such as the British Government[13].

The debt securities statistics are the obvious example where the BIS purpose, ie to show debt securities in local and foreign currencies does not fully meet our requirement of monitoring issues in RMB. Apart from Chinese residents, non-residents such as the British Government, international organisationsand some B&R countries have issued debt securities in RMB which are not shown explicitly in the statistics.

USE: in order to serve as an international currency, debt instruments denominated in RMB have to be issued. This allows foreign investors to hold RMB assets, thus fulfilling the third function of money, storage of value. Foreign investors with the status of Qualified Foreign Institutional Investor and foreign central banks can invest in domestic RMB securities (CNY). Any foreign investor can invest in international RMB securities (CNH).

Conclusion

The BIS financial statistics have included RMB in their data during the last few years. They cover most of the functions of an international currency. The denomination function is covered by the exchange rate indicators, such as the NEER and the REER. The transaction function is covered by the foreign exchange and derivatives survey, the latest one in 2016. The store of value function is covered by the locational banking statistics, such as cross-border deposits with China banks in RMB. The outstanding amount and net new issuance of RMB denominated securities which are available for investment by foreign entities in both, in CNY for domestic securities as well as CNH in international securities are shown in the BIS securities statistics.

Other significant RMB business is conducted by Chinese banks in Hong Kong, London and other locations. Their business would be included in the statistics of these reporting countries and regions. However, there is no break down into RMB, as only USD and EUR are explicitly reported in addition to their respective local currencies, such as HKD, GBP.

[13]British government securities in RMB are included in other currencies.

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Macroeconomic Theory

Defending the Dismal Science*

How economists beat the crisis

By MIROSLAV SINGER*

In public debates I am continually asked – in my capacity as a practising economist and former central bank governor – whether economics as a science has failed. People are quick to cite how most economists did not foresee the source or severity of the 2008 financial crisis. But recent normalisation of the world economy makes it easier to argue No. Although the West in the last decade faced the worst economic crisis since the 1930s, the dismal science was essential for implementing appropriate macroeconomic policies to avoid the gravest consequences.

The failure to forecast the crisis led to enormous costs. The upset struck the financial systems of most developed economies. This caused widespread distrust of free market doctrines and government officials. Anti-establishment politicians are attracting large number of votes. However, global free trade was mostly unharmed, and mainstream political parties are addressing the electorate's concerns through new policies. The situation could have been much worse. In 2017, nine years after the start of the recession, the global economy is returning to sustainable equilibrium.

Compare this to what followed the 1929 great depression. Nine years later, in 1938, Adolf Hitler's power was rising to unprecedented levels. Austria, already under authoritarian rule since 1934, was annexed by Germany. The second world war began in September the following year. Many democracies were fatally undermined by the political consequences of massive unemployment, which in some economies peaked at one-third of the workforce. For those lucky enough to have jobs, wages for falling.

Deficient macroeconomic policies in the 1930s forced much of the population to queue for stale bread and thin soup. Many states shifted to protectionism and price-fixing, and created monopolies in key industries. The consequences of overly tight macroeconomic policies after the great depression were a great deal higher than those of policies pursued by central banks over the last nine years.

The dismal science may not have improved its forecasting record, but it has performed better in moderating the consequences of its failures. The troubles of the 1930s and subsequent war should make us reflect. When discussing the value of economics as a science following the 2008 crisis, one should keep in mind, nine years later, what the alternative could have been.

* This article appeared in OMFIF Commentary on June 21, 2017.

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IMI International Monetary Review

There Is More to J.B. Say than 'Say's Law'⋆

By STEVE H. HANKE*

In 2014, the U.S. Department of Commerce's Bureau of Economic Analysis (BEA) started to report a new data series as part of the U.S. national income accounts. In addition to gross domestic product (GDP), the BEA now reports gross output (GO). This has gone unnoticed and unreported — an unfortunate, but not uncommon, oversight on the part of the financial press. Yes, GO represents a significant breakthrough.

A brief review of some history of economic thought reveals why GO is a big deal. The Classical School of Economics prevailed roughly from the time of Adam Smith's *The Wealth of Nations*(1776) to the mid-19th century. It focused on the supply side of the economy. Production was the wellspring of prosperity.

The French economist J.B. Say (1767-1832) was a highly regarded member of the Classical School. To this day, he is best known for Say's Law of Markets. Thanks to John Maynard Keynes, in the popular lexicon, this law simply states that "supply creates its own demand." But, Keynes' rendition of Say's Law distorts its true meaning and leaves its main message on the cutting room floor.

Say's message was clear: a demand failure could not cause an economic slump. This message was accepted by virtually every major economist, prior to the publication of Keynes' *The General Theory of Employment, Interest and Money* in 1936. So, before *The General Theory,* even though most economists thought business cycles were in the cards, demand failure was not listed as one of the causes of an economic downturn.

All this was overturned by Keynes. Keynes set J.B. Say up as a straw man so that he could remove Say's ideas from economic discourse and the public's thinking. Keynes had to do this because his entire theory was based on the analysis of demand failure, and his prescription for putting life back into aggregate demand — namely, a fiscal stimulus (read: lower taxes and/or higher government spending).

Keynes was wildly successful. With the publication of *The General Theory,* the supply side of the economy almost entirely vanished. It was replaced by aggregate demand, which was faithfully reported in the national income accounts. In consequence, aggregate demand has dominated economic discourse and policy ever since. The structure of the economy — the supply side — is nowhere to be found.

Then came the supply-side revolution in the 1980s. It was associated with the likes of Nobelist Robert Mundell. This revolution was carried out, in large part, on the pages of *The Wall Street Journal,* where J.B. Say reappeared like a phoenix. *The Journal*'s late-editor Robert Bartley recounts the centrality of Say in his book *The Seven Fat Years: And How to Do It Again* (1992): "I remember Art Laffer telling me I had to learn Say's Law. 'That's what I believe in', he professed. 'That's what you believe in.'"

Importantly, we now have official supply-side data on the structure of the economy, namely gross output (GO). And when it comes to the public and the debate about public policies, there is nothing quite like official data. GO measures total economic activity at all stages of production. It is analogous to "topline" (read: total revenue or sales) data in business financial statements. It is reported on a quarterly basis, with 2016 Q4 being the most recent. GO data will complement,

⋆ This article appeared on Forbes.com on May 31, 2017.

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not replace, traditional GDP data, which are "bottom line" data, analogous to gross profits on business financial statements. GO data will improve our understanding of the magnitude of business activity and our understanding of the business cycle.

GDP and GO – Equations and U.S. Values

Aggregate	Equation (Variables defined in table below)	Value in 2016 Q4 (Billions of USD)
Gross Domestic Product (GDP)	C + I + G + (E-M)	$19,780.6
Gross Output (GO)	C + (I + II) + G + (E-M)	$33,706.2

Source: Federal Reserve Bank of St. Louis Economic Data.
Calculated by Prof. Steve H. Hanke using inputs sourced from FRED.
Prepared by Prof. Steve H. Hanke, The Johns Hopkins University.

U.S. gross domestic product and gross output.

GDP and GO –
Components, Definitions and U.S. Values

Component	Definition	Value in 2016 Q4 (Billions of USD)
Personal Consumption Expenditures (C)	Consumer spending on goods and services.	$13,008.9
Private Investment (I)	Purchases of fixed assets that business make to produce consumer goods. However, this does not include the exchange of existing assets and non-fixed assets like employee salaries.	$3,101.4
Government Expenditures (G)	Purchases made by all levels of the government for goods and services.	$4,215.5
Exports – Imports (E-M)	Net value of total trade by a country.	-$545.2
Intermediate Inputs (II)	Goods and services used in the production process to produce other goods and services rather than for final consumption. It does not include gross sales from wholesale and retail levels because there is no further transformation of the goods and services.	$13,925.6

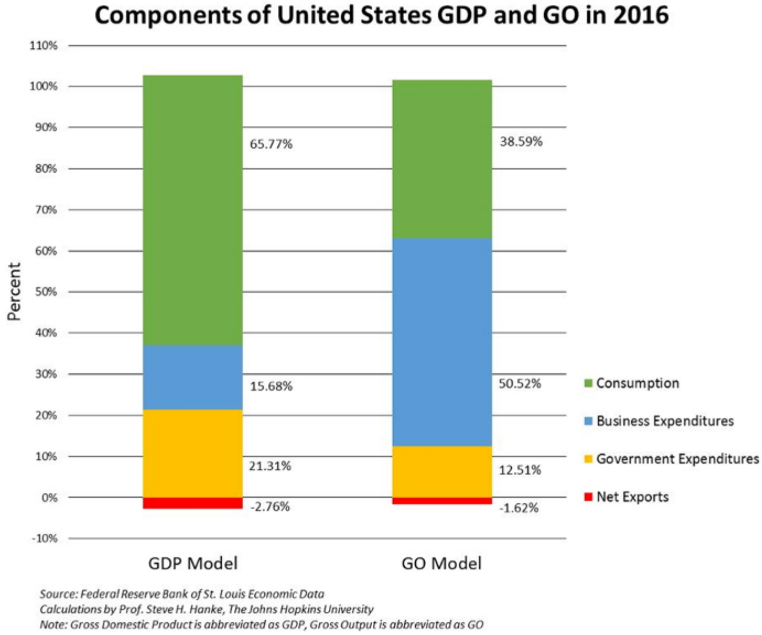
Source: Federal Reserve Bank of St. Louis Economic Data
Prepared by Prof. Steve H. Hanke, The Johns Hopkins University.

U.S. gross domestic product and gross output components.

What makes up the conventional measure of GDP and the new GO measure? The tables below answer that question.

These changes are big, not only conceptually, but also numerically. Indeed, in 2016 Q4 GO was 73.8% larger than GDP. Why? Because GDP only measures the value of all final goods and services in the economy. GDP ignores all the intermediate steps required to produce GDP. GO corrects for most of those omissions.

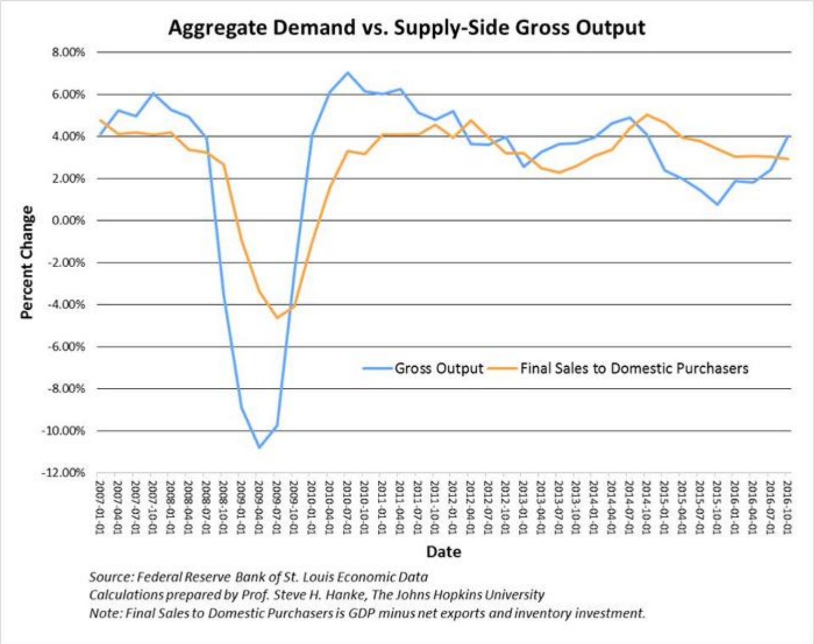
Even though the always clever Keynes temporarily buried J.B. Say, the great Say is back. With that, the relative importance of consumption and government expenditures withers away (see the accompanying bar charts).



US. gross domestic product and gross output components.

Contrary to what the standard textbooks have taught us and what that pundits repeat ad nauseam, consumption is not the big elephant in the room. The elephant is business expenditures.

Using the best proxy for aggregate demand and the supply-side GO measure, we obtain a clear picture of the current state of play in the U.S. economy. The chart below shows a continued growth recession: growth but growth below its trend rate. This shouldn't be surprising. The growth rate of the broad money supply (Divisor M4) determines the growth rate in key nominal variables — like aggregate demand. Broad money grew at 4.95% on average for 2016. So, it's no surprise that nominal aggregate demand was 4.46% and nominal GO was 4.006% in 2016 — both growing but below trend. That said, GO is a leading indicator, and it is surging. But, broad money growth is slowing. So, the picture remains one in which the U.S. will probably be stuck in a growth recession for the foreseeable future.



U.S. final sales to domestic purchasers vs. gross output.

IMI International Monetary Review

Income Gap Poisons Politics *

Rebellious citizens are fighting back

By BRIAN READING*

Income is split between labour and capital, what you earn and what you own.

The French economist Thomas Piketty, in his book Capital in the Twenty-First Century, observed that wealth inequality is increased when the rate of return on capital exceeds the rate of economic growth. One of the chapters in the IMF's April 2017 World Economic Outlook could have been entitled 'Income in the Twenty-First Century'. It documents declining wage shares in nominal income almost everywhere.

The downward trend in advanced economies began in the 1980s. It started a decade later in developing economies. The message is the same – increased inequality. If real wages grow less than real output the labour share of income diminishes. These developments underscore the acrid divisions between haves and have nots that now poison politics in most advanced economies.

The gap between the growth (or lack of it) in productivity and the lesser increase (or decrease) in real rewards from working, relative to rewards from owning, exacerbates inequality. The causes are far from simple and almost impossible to disentangle. Technological advances and globalisation play their part. Self-employed income is not included as statisticians cannot divide it between labour and capital. Measuring productivity in service industries, especially in non-market public services, is near impossible. Quantity is a proxy but quality may be inversely correlated. Supposedly slower productivity growth, predating the global financial crisis and great recession, may be partly blamed on employment shifts from manufacturing to private and public services.

Technology has reduced the cost of capital equipment, allowing companies to be more productive at lower cost. The elasticity of substitution between capital and labour has shifted in favour of capital. The result is that middle-skilled repetitive jobs in high-wage advanced economies have either been replaced by robots and computers or outsourced to low wage emerging ones. The fall in wage share, and growing income inequality, has led to a middle-class squeeze. The highly skilled few are better paid than ever. Low-paid domestic service workers who don't compete globally are not much worse off than before. The middle shrinks between the two.

Perhaps the savings glut has something to do with wealth and income disparities. The monetary antidote to fiscal austerity, quantitative easing and zero-bound interest rates, produces a lethal combination of asset-price inflation and product-price deflation.

Remarkably, UK unemployment is at its lowest in 42 years, inflation has modestly rebounded yet wage growth remains anemic. What has happened to Nairu, the non-accelerating inflation rate of unemployment? Slower productivity equals more jobs but less pay.

Increasing inequality in income and wealth divides. It is the common denominator in contemporary politics. It explains Donald Trump in the US, Emmanuel Macron in France, Germany's Angela Merkel and even Theresa May, Britain's prime minister.

The peasants are revolting as in 1848, the year of revolutions – known as the Spring of

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* This article appeared in OMFIF Commentary on May 19, 2017.

* Brian Reading was an Economic Adviser to Prime Minister Edward Heath and is a Member of the OMFIF Advisory Board.

Nations – when rulers were overthrown by popular discontent. In spring 2017, politicians should tread carefully.

Monetary Policy

Regulation as Science and Art[⋆]

Markets should be given room for innovation and failure

By FELIX HUFELD[*]

Financial regulation, like investing in the stock market, is as much an art as a science. No one doubts that regulation requires quantitative analysis, but there are questions that rely on human judgement. The answers to these will not come from algorithms.

Financial markets cannot be viewed in isolation from their often volatile political and social environment. In unusual conditions, regulators must find similarly unusual solutions. While showing steadfastness and continuity in their principles, regulators must be pragmatic and flexible on individual issues.

It is neither desirable nor possible for the regulator to exclude every risk and any conceivable uncertainty. On the contrary, it is part of the regulatory mandate to give financial markets the necessary freedom for innovation and, indeed, failure. That is why it is important to seek the best possible balance between responsibility and liability, which are inseparable. Liability and the prospect of a bail-in should be the best friend of financial supervision. Banks and their customers are likewise entitled to expect dependability from regulators.

Nuance on risk sensitivity

On the relationship between financial stability and profitability, one issue is the extent to which banks must be curbed by capital, liquidity, and other requirements. Opposed to this, there is the financial institution's need to generate profit and offer investors appropriate returns on the risk capital they provide.

Experience has shown that when this pressure becomes strong, banks seek to improve or maximise their business model. This is neither illegal nor illegitimate. It even contributes to some extent to making banking more profitable, and possibly, resilient.

But there is a limit. Some politicians might say that this limit is reached at the point where profit is distributed to shareholders but heavy losses have to be borne partially or completely by taxpayers. This would disrupt the unity of responsibility and liability. Regulation should ensure that taxpayers' money is not used, or that it used only in limited and extraordinary circumstances.

Some may ask why proceedings must be so complicated, when it would be possible to make banks just as resilient by introducing a much higher leverage ratio or comparable tools. The premise for such a question is flawed.

Experience shows that a crude capital approach kills all risk sensitivity. Additionally if institutions have to protect their banking and trading books with flat-rate capital requirements, they are left with no alternative but to take on maximum risk in order to recoup high capital costs.

[⋆] This is an abridged version of an OMFIF City Lecture on 1 February in London.

[*] Felix Hufeld is President of BaFin, Germany's Federal Financial Supervisory Authority.

I am convinced that, rather than guiding credit institutions towards a less risky way of doing business, a leverage ratio of 10% or beyond would make many financial institutions act in a riskier way.

Mitigating procyclical effects

There is a conflict between the objectives of risk sensitivity and procyclicality. In recent years, the greater market orientation of the valuation of assets and liabilities has made the risk situation of financial actors and markets more transparent.

In banking regulation, this has happened gradually with the transitions from Basel I to Basel III, while in the insurance sector the launch of Solvency II was a milestone.

The market-value orientation is intended to reduce companies' assumption of risks and strengthen their solvency, among other things. In addition, the loss-absorbing capacity is supposed to be increased.

Risk sensitivity, if not appropriately limited, can turn long-term movements into excessive short-term volatility. It can promote the tendency towards too much credit expansion in boom phases and more restricted lending in recession phases – with potential repercussions for the real economy.

Much has been done to mitigate procyclical effects. In banking regulation, the countercyclical capital buffer was designed so that institutions should accumulate an additional capital cushion during periods of excessive credit growth.

However, ultimately it will not be possible to avoid the regulatory linking of capital and risk with market valuation to go along with some degree of procyclicality. A balance must be struck between market-value orientation and prudence which enables a risk-based regulation with the least possible procyclical effect.

The dynamic nature of the markets can only be kept on track when regulation does not spell out everything to the last detail. Regulation ought to restrict itself to forming a framework of principles within which some leeway and freedom from day-to-day supervision is granted.

Crises breed demand for regulation

Working according to principles demands a close relationship between companies and supervisors. It is important that supervisory authorities can get a full picture of whether an institution has appropriately established its risk management system. Institutions, for their part, have a right to supervision which is fair and comparable, and yet essentially individual.

Calls for greater rules-based regulation become louder if something goes fundamentally wrong: real estate crises, sovereign debt crises, and mis-selling scandals are pertinent examples.

An abundance of rigid rules cannot do justice to dynamic financial markets and individual risk profiles. Too much principles based regulation, on the other hand, reduces predictability and the harmonisation of the

legal application of supervisory measures across individual institutions and countries. It is the mix of both – a principles and a rules based approach – which ultimately makes for robust regulation.

Models and statistics alone cannot live up to the reality of financial markets, which are inconceivable without risk. Good regulators are characterised by their ability to balance differing policy and economic goals, even in situations of extreme crisis.

Even regulation itself is exposed to volatility. Proportionality, differentiation, and lessons learned are always important and welcome; full-fledged deregulation should be avoided.

IMI International Monetary Review

Money Market Rate Hike a Step in Tackling China's Financial Risks ⋆

By WANDA SUNG-HWA TSENG*

The People's Bank of China (PBC) recently raised interest rates in the interbank market and on its medium-term lending facility. These moves came against the background of a firming domestic economy and the end to producer price deflation. The Chinese authorities project economic growth for 2017 at 6.5 percent, a rate broadly in line with forecasts by international financial institutions and market analysts. Externally, the US Federal Reserve raised interest rates in March, and indicated that further increases are likely during 2017.

The PBC's move was small and its impact on the broader economy is likely to be very limited, but its signal of addressing financial risks is welcome. The financial risks are reflected in the intertwined problems of rapid credit expansion and high corporate debt. Since the global financial crisis of 2008, economic growth in China has been supported by a huge increase in credit. Total credit (as measured by total social financing which includes traditional bank lending and new forms of financial intermediation referred to as shadow banking) rose rapidly from about 120 percent of GDP in 2008 to over 200 percent of GDP in 2015. While this provided a much-needed boost to domestic and global demand during the global financial crisis, the reliance on credit for growth has created risks for financial stability.

In its most recent annual consultation report on China, the IMF pointed out that the credit boom resulted in a credit-to-GDP ratio in China that is high in international comparison. International experience shows that banking crises or prolonged declines in GDP generally follow credit booms similar to that experienced in China. Furthermore, potential losses from such a rapid and inefficient credit expansion could be large. The IMF's Global Financial Stability Report of April 2016 estimated potential losses of 7 percent of GDP on corporate loans. Additional losses can be expected in other parts of the financial system, especially in shadow credit products. All this is not to predict a financial crisis or hard landing for China, but rather to highlight the priority that must be given to reduce financial stability risks.

The Chinese authorities are well aware of the need to enhance financial stability. According to the government's work report released in March, a key task is to build a firewall against financial risks and keep a careful watch on non-performing assets, bond defaults, shadow banking and Internet finance. Priorities should include strengthening banking regulation and supervision, in particular loan classification and provisioning regulations to encourage banks to proactively recognize non-performing loans, fortify their capital buffers and strengthen their liquidity and funding risk management. The strict enforcement of the new regulations on shadow banking products is also a priority for reducing vulnerabilities.

The rapid build-up of corporate debt in China mirrors the huge expansion in credit. IMF data shows that China's corporate credit-to-GDP ratio is also high compared with countries at China's level of per capita income. Moreover, corporate fundamentals in China have weakened as indicated by rising intercorporate payments arrears, increasing defaults and downgrades and the rising share of debt owed by companies with weak interest coverage.

Accordingly, enhancing financial stability goes beyond monetary policy and requires a comprehensive approach to deal with the corporate debt problem. This requires further progress

⋆ This article appeared in Global Times on April 13, 2017.

* Wanda Sung-hwa Tseng, Member of IMI International Committee, Former Deputy Director in the Asia and Pacific Department of IMF

on State-owned enterprise (SOE) reforms, especially stopping the financing of weak firms, hardening SOE budget constraints and restructuring or liquidating over-indebted nonviable firms. Losses should be recognized and shared by the relevant parties, including the government if necessary. The lessons of Japan's lost decades with zombie lending to bankrupt firms are relevant in this context. Zombie firms - kept alive by forgiving banks not ready to recognize loan losses - trap labor and capital in dying industries, thereby withholding them from more promising innovative industries that are needed to spur economic growth and resulting in economic stagnation. SOE reforms should be complemented with targeted social safety nets for displaced workers and assistance in training to improve their prospects for new employment.

Against the backdrop of rising interest rates in the US, some have argued that the PBC also needs to enter a tightening cycle to prevent capital outflows and stabilize the yuan's exchange rate. However, the US and China are at different cyclical positions and their monetary policy needs are not the same. Monetary policy in China should be tailored first and foremost to domestic needs, but of course it will have external implications. Rather than rely primarily on interest rates, capital outflows can be managed with macroprudential and capital flow management measures, which the PBC has deployed in recent years. The PBC has also taken steps toward an effectively floating exchange rate regime and can build on this progress by allowing greater exchange rate flexibility.

The PBC faces difficult challenges on monetary policy in the period ahead against the backdrop of an unsettled global environment. It needs to maintain an accommodative stance to support activity, while giving priority to enhancing financial stability by reining in credit growth. Urgent progress is needed to address the corporate debt problem through SOE reforms. Capital outflow pressures should be addressed primarily with macroprudential and capital flow management measures, while further progress can be made on exchange rate flexibility.

IMI International Monetary Review

Central Banks without a Rulebook⋆

Unorthodox policy, unorthodox normalisation

By JOHN NUGÉE*

Reinvigorated economies are in evidence across much of the developed world. Growth is becoming more firmly established. Inflation is beginning to climb in the US, euro area and UK.

After seven years of unorthodox operations, primarily quantitative easing, central banks are beginning to consider when and how to normalise monetary policy. Earlier this month Mario Draghi, president of the European Central Bank, said that while the ECB's interest rates would stay unchanged, there was 'no longer a sense of urgency for taking further actions' on monetary stimulus. On 15 March the US Federal Reserve fulfilled expectations by raising interest rates 25 basis points. Commentators are forecasting another two Fed increases in 2017.

But, if rate rises are back on the agenda in much of the G7, another consequence of unorthodox policies is still very much with us. Central bank balance sheets remain substantial – well over 20% of GDP for the Fed, the ECB and the Bank of England, and much higher for the Bank of Japan. There are few signs that these circumstances will change soon.

This subject has been hotly debated within central banking circles. Central bankers have been discussing what constitutes the optimal long-term size and composition of central bank balance sheets almost since unorthodox policies were introduced. For every central banker who argued that there was no alternative to QE, there was another who asked, 'Where will this lead, and how do we end it?'

The counter argument of 'We must do something, this is something, so we must do it' prevailed. And despite concerns that these policies had dubious grounding in monetary theory, the results have, in many ways, been successful. Developed economies avoided a repeat of the great depression, and growth has returned to most of them.

But there are other more fundamental questions, such as what the role of the central bank is and what its optimal involvement in a free market should be.

At various times in the past seven years, central banks' direct involvement has been so extensive that markets have been in danger of ceasing to act as a window into the true workings of an economy. There is a risk that markets now show central bankers only the impact of their own policies. The desire to end the experiment of QE is, therefore, felt keenly. But to bring that debate into the public domain, central banks will need to address three issues.

First, they must rebut the beguiling argument that a small balance sheet will lead to prosperity simply because this is how things seemed in the past. This argument mistakes correlation for causality, and ignores all the other changes since QE was brought in, not least the effect that very low interest rates have had on the interaction between bank reserves and interest rate policy.

Second, they will need a coherent theory of whether the impact of the central bank balance sheet on an economy is predominantly a stock or flow matter – is it the fact of having a large balance sheet that matters, or the act of increasing it? And, after QE, central banks will need to determine whether 'normality' refers to the point when a balance sheet stops growing, or when it shrinks back to some predetermined size.

⋆ This article appeared in OMFIF Commentary on April 3, 2017.

* John Nugée is a Director of OMFIF and a former Chief Manager of Reserves at the Bank of England.

Third, if central bankers decide that their balance sheets should shrink, they will need to articulate to the public a clear proposal for how to accomplish this and what the economy's response is likely to be. It would be reckless to start the process in any other way. Central banks could cause real damage to the economy, markets and their own reputation if the process goes wrong.

The unorthodox nature of much recent monetary policy means that, just as there was no rulebook for how to conduct it, there is no rulebook for how to end it. But whereas the scale and urgency of the crisis seven years ago meant that central bankers had to be brave and unorthodox, there is no such urgency now, and no need to gamble the economy's future on an untried policy change. The route out of unorthodoxy is likely to be gradual, painstaking and nervous – with central bankers aware that mistakes could cause setbacks that could lead them back to another bout of unorthodoxy with still less chance of reversal.

IMI International Monetary Review

Prudent Approach to Shadow Banking *

By XIA LE*

"Market regulators are seeking to implement initiatives in a coordinated way, and are fine-tuning the pace of regulation."

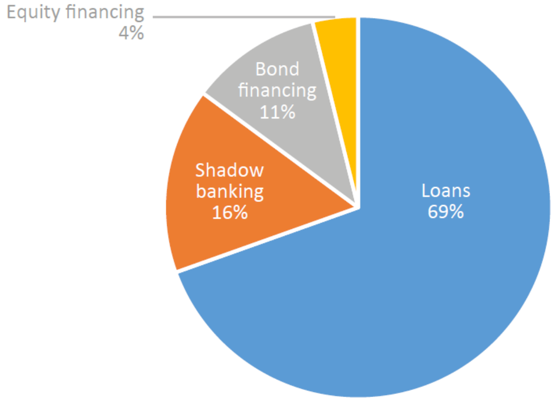
Chinese regulators are intensifying their efforts to curb shadow banking activities and lower the leverage of the country's financial sector. The People's Bank of China shifted its policy stance to 'prudent' and implemented a new regulatory framework of 'macroprudential assessment'. The aim is to make banks include many previously off-balance sheet activities on their books.

Wealth management products and bank-issued certificates of deposit in the interbank market are the main targets of this regulatory tightening. These are the instruments through which many small and medium-sized banks and non-banking financial institutions raise funds to support risky lending both off and on their balance sheets.

Chinese banks' aggregate exposure to shadow banking activities amounted to Rmb58.5tn ($850bn) at end-2016, or 11.3% of banks' total assets. These activities are increasing the indebtedness of the corporate sector, making the formal banking sector more vulnerable to potential external shocks.

How off-balance sheet financing compares with banks' loan portfolios

Share of total Chinese financing, %, March 2017



Source: People's Bank of China, OMFIF analysis

Excessive risk transfer

As the bulk of these shadow activities are not reflected on institutions' balance sheets, existing supervisory requirements of liquidity or capital adequacy cannot effectively limit their expansion. Moreover, the rampant growth of these activities could lead to excessive transfer of risk within the financial sector. Financial institutions may become less incentivised to monitor and manage

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* This article appeared in *The Bulletin* June 2017 published by OMFIF.

* Xia Le, Senior Research Fellow of IMI, Chief Economist for Asia, Research Department, BBVA

risks associated with shadow banking, since they believe other parties are taking on those risks through complex deal structures.

Since the start of this year, the volatility of China's interbank seven-day repo rate (a widely accepted gauge of market interest rates) has significantly increased. Institutions' reluctance to lend in the money market spilled over to the bond market and raised the financing costs of bond issuance. Up to April, high interest rates led to the delay or cancellation of the issuance of several bonds worth around Rmb260bn.

Furthermore, the liquidity decline is restraining Chinese stock markets. The Shanghai composite index is below the 2016 high recorded in November despite the economy showing stronger than expected momentum in the first four months of 2017.

The shares of small and medium-sized banks and non-banking financial institutions with greater exposure to wealth management products and interbank businesses are under particular pressure.

Coordinated and measured approach

Successfully deleveraging the financial sector while avoiding a systemic debacle is an arduous task. However, a confluence of factors could help the Chinese authorities to do so in a smoother way.

The regulators are paying more attention to communications to avoid unnecessary market upheaval, and authorities are seeking to implement initiatives in a coordinated way. In response to market reactions, they are fine-tuning their pace of regulatory tightening. This measured approach can help them avoid serious policy miscues.

Another buffer the authorities can rely on is the high reserve requirement ratio of China's banking sector. For large banks, that ratio stands at 17% of total deposits. Even for small and medium-sized banks, the reserve- requirement ratio is 15%. Nonetheless, the authorities can still release a large amount of liquidity to the banking sector when they deem necessary. With such a high reserve- requirement ratio, the authorities have room to manoeuvre along the deleveraging path.

Preserving confidence

Moreover, almost all important Chinese financial institutions are state-owned. That structure might not be good for efficiency, but it could help sustain public confidence in the event of market turmoil. Banks benefit greatly from the ability to take deposits from households and firms during difficult times. The state-owned nature of financial institutions could help to preserve confidence and avert a run on banks.

The deleveraging process may last several years and could be accompanied by heightened volatility in domestic financial markets. There is a risk of declining liquidity and small-scale sell-offs before the authorities achieve their goal.

Although China is exercising tight control of its capital account, the turbulence in domestic financial markets could still spill over to the currency market and put downward pressure on the renminbi.

Worries about a possible renminbi decline could become a key binding constraint for the authorities in pressing ahead with their deleveraging campaign. Regulatory changes may damp the economy by raising fund in costs. All this may lead to China experiencing a few years of growth below its potential.

Green Finance

Why Green Finance Is a House of Cards, and How to Fix It *

By STEVE H. HANKE*

For some time, the flavor of the day has been "green." Indeed, companies around the world are scrambling to go green. Some are so desperate that they engage in "greenwashing." This practice amounts to little more than the use of public relations campaigns to assert greenness. McDonalds, for example, literally became green by changing the colors on its signature logo. Now, McDonalds' classic yellow "M" is displayed with a green, not a red, background. That said, many companies are, and have been, engaged in producing products and employing production processes that, by any definition, would qualify as green.

Just how large is the green investment space? Well, it's large, and it's growing rapidly. For example, the FTSE4Good, which is a sub-index of London's FTSE, has the largest market capitalization of any of the green equity indices. At the end of May 2017, the global FTSE4Good's market capitalization stood at a whopping $20.9 trillion. That's somewhat larger than the current GDP of the United Statesof $19.0 trillion.

With investors favoring green, and investment flows being earmarked as green, an obvious question arises: "How does an investment qualify for the coveted green designation?" The current methods used to measure green and qualify an investment as "green" fail to meet rudimentary standards of measurement. The most basic principal of measurement is replication. But, the current methods are, for the most part, subjective and opaque. They are "black boxes," yielding results that can't be replicated. This leaves a multi-trillion dollar green investment house wobbling on stilts, rather than a sound foundation.

In order to firm up the green investment house's foundation, Dr. Heinz Schimmelbusch, Founder & CEO of the Advanced Metallurgical Group (where I am a member of the Supervisory Board), and I have developed a methodology that is simple, transparent, and replicable. Our metric is determined by starting at the origin of the supply chain. It is from that starting point that we measure the amount of greenness ultimately enabled by the production of a so-called green enabler.

For example, the reduction in CO2 is a green good. If a company produces graphite that enables the production of more efficient insulation, which results in lower demand for energy required for heating and cooling, then the graphite producer is a net supplier of a green good - the net reduction in CO2. In short, the enabler of the production of the green good is the supplier of graphite. So, the source of greenness resides at the very beginning of the supply chain. When it comes to the measurement of greenness, this enabling notion leads to simplicity and transparency, as well as an objective measure of the amount of greenness associated with each supplier that is enabling the production of green goods.

To operationalize the enabling concept in the context of CO2 emissions, the following transparent and replicable formulation for measuring greenness with precision can be used:

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* This article appeared on Forbes on June 23, 2017.

* Steve H. Hanke, Member of IMI International Advisory Board, Professor of Applied Economics at Johns Hopkins University

$$\text{Enabling Greenness Ratio} = \frac{\textbf{Net } \mathbf{CO_2} \textbf{ Reduction}}{\textbf{Total Assets}}\text{, where}$$

The Net CO_2 Reduction = the Net CO_2 reduced by a company, and

Total Assets = the Total Assets as listed on a company's balance sheet.

Enabling Greenness Ratio Created by Prof. Dr. Steve H. Hanke and Dr. Heinz Schimmelbusch

The enabling greenness ratio is simply the net CO2 reduced by a company divided by the level of a company's invested capital. Because this metric is divided by a company's total assets, it provides net CO2 reduction relative to a company's size. This is analogous to the traditional accounting measure - return on assets.

Our suggested methodology can be applied with precision. We use the Advanced Metallurgical Group (AMG) to illustrate. The table below contains our results.

Enabling Greenness Metrics: Advanced Metallurgical Group

Product Enabled	Total Equivalent CO_2 Emissions Reduced (millions of metric tons)							
	2010	2011	2012	2013	2014	2015	2016	2017
Ford F-150						.68	1.37	2.05
Graphite	.93	1.87	2.80	3.74	4.67	5.61	6.54	7.47
Transmission Heat Treatment		.42	.84	1.26	1.68	2.10	2.52	2.94
Fuel Injectors		.88	1.75	2.63	3.50	4.38	5.25	6.13
Aerospace Ti Alloys	5.17	6.20	7.23	8.27	9.30	10.75	12.28	13.89
Aerospace Coatings	.83	.96	1.10	1.24	1.38	1.58	1.79	2.01
Gamma Ti Aluminide								4.13
TOTAL CO_2 Emissions Reduced (millions of metric tons)	6.93	10.33	13.73	17.13	20.53	25.09	29.74	38.62
TOTAL CO_2 Emissions Produced (millions of metric tons)	.12	.15	.48	.58	.68	.77	.87	.97
NET CO_2 Emissions Reduced (millions of metric tons)	6.80	10.18	13.25	16.55	19.85	24.32	28.87	37.65
TOTAL ASSETS	855.075	900.797	947.921	832.216	929.436	1026.656	1123.876	1221.096
Metric Tons of CO_2 reduced per $1,000 of Assets	**7.96**	**11.30**	**13.98**	**19.89**	**21.36**	**23.68**	**25.69**	**30.84**

Source: Advanced Metallurgical Group and calculations by Prof. Dr. Steve H. Hanke and Dr. Heinz Schimmelbusch.
Notes: These data assume that all products produced since 2008 are still in use by 2017. All data from 2014-2017 are estimates made by the authors.

Over the past eight years AMG has produced products that have enabled an estimated net CO2 reduction of 157.47 million metric tons. Very green, indeed. And yes, there's more; due to the cumulative nature of supplying raw materials that enable the production of green goods, AMG's greenness enabling ratio soars over time - indicating that AMG's green rate of return is growing rapidly.

IMI International Monetary Review

Institutions Propelling African Green Issuance ⋆

The case for smart development money

By DAVID MARSH *

Africa has slid down investors' lists of favoured investment destinations as a result of the fall in oil and commodity prices of the last three years and the well-known problems of South Africa and Nigeria, the continent's two largest economies.

However, in one fast growing but still undersized section of international capital markets there could be room for African countries to play a leading role. The new frontier for Africa may be the issuance of 'green bonds' to finance environmentally friendly projects under a range of initiatives by governments, banks and international development agencies.

A panel on green bond issuance, with around 100 participants, was one of the best-attended sessions at last week's African capital markets conference in Nairobi organised by the International Finance Corporation, the private sector scion of the World Bank. It featured presentations from Barclays, Citibank, the Kenyan Bankers Association and the London Stock Exchange. As one speaker said, three or four years ago only a handful of delegates would have taken part.

Kenya, the host for the IFC conference (where OMFIF was one of the partner organisations), is considering launching a green bond after elections in August, intended to highlight the country's advances in improving energy self-sufficiency and reducing carbon emissions. The progress is partly due to investments in geothermal energy projects financed by China. A range of African countries which have seen their bonds downgraded as a result of recent economic misfortunes, including Angola and Nigeria, are also candidates for such issuance.

One of the impediments for such schemes – and to the development of African capital markets as whole – is the continent's low economic weight and high fragmentation. On the other hand, most African economies are growing at well above the world average, and risk-orientated investors can normally find channels for their funds yielding rewards that more than match actual risk.

Jingdong Hua, the IFC's treasurer, points to $40tn of fixed income placements in industrialised economies in low or negative interest instruments. He urges investment groups and pension funds to become more adventurous in funnelling capital to developing economies. Hua propounded in Nairobi the idea of the IFC launching 'diaspora' bonds to absorb savings held abroad by wealthy Africans, a bid to encourage repatriation of sometimes illicit offshore holdings.

The IFC is in the forefront of what Hua calls 'smart use of [public sector] balance sheets' to combine funds from multilateral agencies and donor governments with innovative private sector financing for Africa, Latin America and Asia. This is part of the 'joined-up thinking' gradually taking hold among governments providing development aid. This will allow taxpayers' money in many countries to stretch further into boosting beneficial investment in ventures ranging from ports, highways and railroads through to energy, telecommunications and education.

⋆ This article appeared in OMFIF Commentary on May 18, 2017.

* David Marsh, Member of IMI International Committee, Managing Director of OMFIF

The IFC is placing $325m in a green bond fund for developing markets, in a move announced in March. It has partnered with Amundi, the European asset manager, to raise up to $2bn from other international investors to create the biggest-yet green bond fund for emerging markets. Other groups such as the European Investment Bank and KfW, the German state financing agency, are both issuers of and investors in green bonds.

The worldwide green bond market totals less than $1tn, a miniscule part of the overall fixed income sector of around $100tn. But issuance has increased, owing to worldwide accord on anti-climate change measures in Paris in December 2015, adroit marketing by investment management groups, and demand for environmental instruments from governments and investors around the world.

Poland launched the first sovereign green bond in December. This was followed by a €7bn French green bond in January. Issuance this year is forecast at $110bn-$120bn, above the record $93bn in 2016. Because demand outstrips supply, green bonds appear to be performing better than standard bonds in the aftermarket, although the scarcity of longer-term data makes it impossible to discern whether this is a durable trend.

One of the drawbacks is lack of international standardisation of what constitutes a green bond. There is no worldwide monitoring mechanism to ensure compliance with the parameters set by frameworks such as the Green Bonds Principles or Climate Bonds Standards, adding to market fragmentation. To improve certification procedures, the Bank of England and People's Bank of China are collaborating under an initiative spurred by the G20 leading economies.

As emerging market green bonds attain greater scale, one area of demand will be Nordic pension funds and public sector agencies. Norway's sovereign fund – usually classified as the world's largest, and a leader in environmental investments – has investments in 77 countries and 50 currencies. At end-2016 this encompassed 30 frontier markets, including Botswana, Ghana, Kenya, Mauritius, Morocco, Nigeria, Tanzania and Uganda – all candidates in coming years for launching African green bonds.

Fintech

Fintech Initiative for Private Placements ⁎

Working with banks on debt capital markets

By FRANK SCHEIDIG*

Fintech companies are everybody's darlings. Major financial centres and many banks have their own fintech incubators or accelerators. Unconstrained by legacy systems and processes, fintech companies take pride in their ability to innovate and disrupt. This is seen primarily in retail markets with the establishment of companies such as the peer-to-peer lender Zopa, and TransferWise for foreign exchange transactions. Fintech companies thrive because they can promote their services directly to customers. They make market gains against incumbents by being more cost effective and easier to use, and by focusing on niche areas.

These methods do not always translate to a wholesale environment such as capital markets. Fintech companies must overcome considerable barriers including the complexity of regulations, IT systems, capital requirements and the need for accepted standards. This may well be why those companies backed by banks or other strategic players, such as exchanges, tend to reach maturity faster and become more successful than those without such support.

Disruption in wholesale environments is less common but also less desirable. Fintech companies can work alongside banks and help add value by better monetising existing assets such as data, or by mutualising industry costs. The idea of mutualising costs is already well established through partnerships such as the payment system Swift or the DTCC in the US for settlement issues. A similar approach has been taken by collaborative start-ups such as the R3 consortium in the blockchain environment. Others such as TrustBills are looking more at the commercial banking sector rather than capital markets.

Establishing industry utilities is infinitely more difficult than offering a new niche product to retail consumers. DZ BANK is working with peers to support an industry utility that will revolutionise debt capital markets by mutualising costs that so far have been carried by banks, issuers and investors alike.

The 'european private placement facility' is a neutral and independent platform regulated by the Luxembourg financial sector regulator (CSSF). It allows borrowers – companies, municipalities, regions, sovereigns and agencies – to issue debt securities in a fast, standardised and cost-effective way. This will help banks restore their return on equity and optimise regulatory compliance. Borrowers will be able to tap markets in a way not possible before. Investors will have access to standard documentation, stringent quality control and data hubs for help in carrying out due diligence. The eppf initiative should also benefit countries' economies by bridging national borders, which still limit markets to smaller regional pockets.

By offering the complete value chain of a bond issuance, eppf allows each stakeholder to concentrate on what it does best – banks originate and place bonds, investors analyse and make

⁎ This article appears in OMFIF's fourth annual Global Public Investor report.

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informed investment decisions, borrowers tap a large universe of potential investors, and regulators supervise efficiently. The link between them all is eppf. Although evolutionary rather than disruptive, the results it achieves are revolutionary. Owing to the immense economies of scale, trades can be settled at T+1 (one day after the trade date). This will improve to T+0 in the future, eliminating the difference between primary and secondary markets. The standardisation of bond documents makes them easier to compare and easier for traders and investors to understand. This will improve liquidity.

Lower costs will enable new issuers to access markets, reducing an economy's dependence on bank funding. If the link between sovereign funding and banking crises is broken, the overall resilience and stability of economies will increase. The private placement initiative is an example of how, with an open-minded approach, fintech can be used to the advantage of a whole market and even entire economies. The hope is that it is the first of many industry utilities that provide revolutionary services in a collaborative way.

IMI International Monetary Review

Model Future for Mobile Banking *

Interoperability essential to market growth

By MTHULI NCUBE*

For successful mobile banking systems, it is essential that everyone using them – customers, retailers, mobile network operators and financial institutions – feel they benefit.

Finding technology and business models that work for all parties is challenging because of the different objectives of those involved. Customers want convenience, easy access and fair pricing, while retailers are looking to improve customer service and attract new business by offering additional payment channels. Financial institutions and mobile network operators, too, aim to offer more options for making payments, and thus increase customer satisfaction.

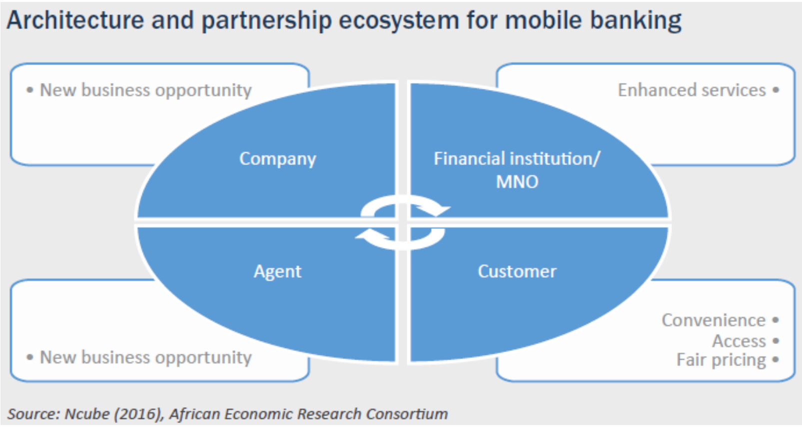
Failure to meet any of these expectations may result in the collapse of the mobile banking business model. These partnerships often require parties to compete and work together simultaneously.

Models of co-operation

Mobile banking partnerships can follow a number of models with varying levels of co-operation. One model is 'light-touch' with minimal co-operation among providers such as banks, network operators and other businesses involved in digital payments services.

In models that are mobile phone-centred, network operators lead the mobile payments service, and there is minimal co-operation with banks and other parties. A further option is to have services that are bank-led, where there is minimal co-operation with network operators and other parties.

In yet another model – partial integration – banks and network operators have a high level of co-operation but there is little interaction between them and others providing digital payments services. The alternative to this is full-integration, where there is strong co-operation among all parties.



* This article appears in *The Bulletin* April 2017 published by OMFIF.

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Regulatory implications

Under a functional approach to regulation of mobile banking, central banks have to maximise financial inclusion as well as focus on price stability, the growth of the network and payment system stability.

The regulator should adopt a risk-based approach to supporting financial inclusion. This is based on the risk that an activity poses to the individual participant and to the stability of the financial system. Equally, the regulator must find a balance between initial regulation, which defines the rules of the game, and intervention in response to the evolution of markets.

Regulators such as central banks and governments need to ensure that the environment is competitive and that monopolies are curtailed. Easy entry to and exit from the market should be encouraged. It is also important to develop the capacity for phone users of one telecommunication network to make calls and communicate with those of another.

Such interoperability is equally necessary in mobile banking, to ensure that users of one financial service's digital network can transact with those on another. This deepens the penetration of mobile money, lowers the cost of transactions, broadens customer choice, and encourages competition.

The GSM Association, the body that represents mobile operators worldwide, has been promoting interoperability across Africa and the Middle East. In April 2014, the association announced that nine mobile network operators in the two regions were to work together to accelerate the implementation of cross-network mobile money services. These operators have 582m mobile connections across 48 countries in Africa and the Middle East.

Africa's first interoperability arrangement was announced in June 2014 when the telecommunications company Tigo, which has 6.2m customers in Tanzania and 3.4m users of its Tigo Pesa system, said it would be linking with rivals Airtel and Zantel. Interoperability was extended further last year when Vodacom, Tanzania's fourth mobile money provider, connected with Airtel and Zantel. This allows over 16m people to send money by mobile to each other in Tanzania, regardless of network. By contrast, in Uganda users of mobile money services are forced to use multiple mobile providers as the country has no interoperability.

Equal access to infrastructure

The final aspect of regulation, and one that is critical to the success of mobile banking services, is that there should be equal access to infrastructure. This refers to the right of providers to access on identical terms the infrastructure that underpins their services.

For mobile network operators, such infrastructure includes telecommunications lines, fibre optic networks, the power grid, and water supply. For providers of digital financial services, the required infrastructure includes the telecommunication system, and network services for payment and settlement credit bureau.

Both providers and regulators have important roles to play in breaking down barriers to expansion. That is the crucial condition for ensuring mobile networks continue to transform banking in emerging markets.

IMI International Monetary Review

The UK's Fintech Industry Support Policies and its Implications⋆

By HYOEUN YANG*

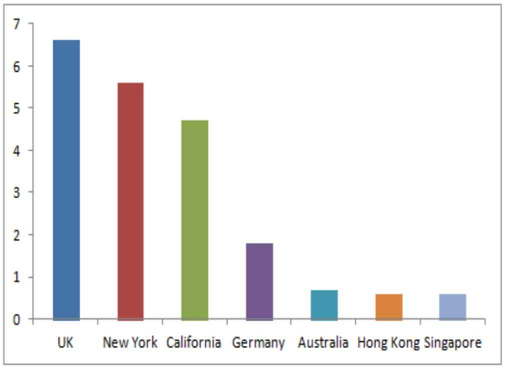
The UK Fintech Industry

During the past 4 to 5 years, the UK has emerged as a leading global fintech hub. The outstanding growth of the UK fintech industry can be attributed to its connectivity to global financial markets, government policy on building a business-friendly regulatory environment, and easy networking with other fintech hubs, among other factors. While there is no doubt about the competitiveness and global leading status of the UK's financial services industry, based on the London financial market over the past hundreds of years, it is interesting that the fintech industry, which is an icon of new industry and necessarily re- quires some of the most innovative ideas and the newest information technology, has seen immense growth in the UK.

The fintech industry in the UK has seen rapid growth since the global financial crisis in 2008. In 2015, the size of the UK fintech industry was 6.6 billion pounds and around 61,000 per- sons were employed in this sector. In terms of size, this is only second to the US fintech industry, which has two global fintech hubs in New York and California, each with different characteristics.

Figure 1. Market Size of Global Fintech Hubs (2015)

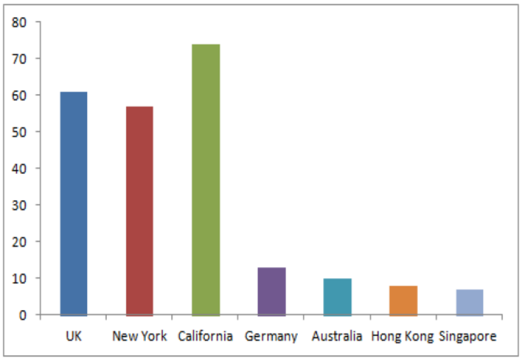
(Unit: billion pounds)



Source: EY (2016).

Figure 2. Number of Employees in Fintech Industry (2015)

(Unit: 1,000 persons)



Source: EY (2016).

Since the global financial crisis in 2008, the level of customers' trust in traditional banks has sharply declined and the demand for conventional financial services has also decreased while the need for structural reform in the financial services sector has increased globally. This request for reform was very strong in the UK as the financial services industry has been one of the most important industries for the British economy. In this context, the UK government has emphasized the concept of innovation in its new economic policies as a means of recovering from the financial downturn and discovering new sources of growth. Following the call for improving customers' benefits and competitiveness of the financial services market, the UK

⋆ This article is published in KIEP's *World Economy Brief* on February 17,2017.

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fintech industry has rapidly evolved by utilizing a competitive financial infrastructure and providing innovative ways of providing financial services.

From 2008 to 2013 the size of transactions related to the fintech industry has increased 74% each year and the amount of investment has increased by eight-fold. While the Brexit decision has significantly increased the level of uncertainty in the UK economy, it is interesting to note that London ranked as the top international financial center (IFC) in 2016 according to the Financial Times. While the future of financial markets in the UK is still uncertain due to the Brexit decision, its negative impact on the fintech industry has not been visible so far. According to a survey of 1,200 CEOs and executive officers in major UK fintech companies following the Brexit referendum, most of the respondents expected that the negative impact of Brexit on the fintech industry would not be serious, when considering the rapid growth of the UK digital economy and that more than 40% of new fintech companies in Europe valued at a billion dollars or more are located in the UK. The confidence indicates that the growth of the UK fintech industry is not based on short- term foreign investments or certain fintech companies or products. Instead, the innovative and business-friendly regulatory policy of the government has led the UK fintech ecosystem.

UK's Fintech Ecosystem

The rapid growth of the UK fintech industry is closely linked to the high quality of its fintech ecosystem. The global consulting agency Ernst & Young analyzed the quality of fintech ecosystems based on four categories: talent, capital, policy, and demand (Ernst & Young 2016). According to this analysis of the quality of fintech ecosystems, the UK has the best ecosystem among global fintech hubs. While California is ranked at the top in the level of capital due to the abundant venture capital markets located in Silicon Valley and the UK was ranked as third, the UK greatly outweighed other fintech hubs in terms of its quality of government policy, including regulatory regimes, government programs, and taxation policy.

Table 1. Benchmarked Ranking of Fintech Ecosystems

Region	Talent ▸Talent availability ▸Talent pipeline	Capital ▸Seed ▸Growth ▸Listed	Policy ▸Regulatory regimes ▸Government programs ▸Taxation policy	Demand ▸Consumers ▸Corporates ▸Financial institu- tions	Total points
UK	2	3	1	3	9
California	1	1	6	2	10
New York	3	2	7	1	13
Singapore	4	7	2	6	19
Germany	6	4	5	5	20
Australia	5	5	3	7	20
Hong Kong	7	6	4	4	21

Relative rank: 1=highest, 7=lowest.

Source: EY. 2016.

Innovative Regulatory Environment

While in the past the rigid regulatory system of the UK had been blamed for disrupting the development of the UK fintech industry, the effective regulatory reform and facilitation of public-private partnership driven by the government in recent years have succeeded in promoting the fintech industry as a new engine for growth in the UK. Most of all, in April 2013 the UK government divided the financial regulatory system into two parts: the Prudential Regulation Authority (PRA) for the pur- pose of supervising systemically important financial institutions, and the Financial Con- duct Authority (FCA) for supervising the con- duct of other financial institutions.

The core objectives of the FCA included improving consumer protection, the prudentiality of the financial system, and the competitiveness of financial services. During the process of restructuring the global financial markets after the global financial crisis, the FCA focused on the potential of the innovative fintech industry as a remarkable way of improving the benefits of consumers in the financial market and has actively supported fintech startups and introduced creative ways of regulating new and innovative products. While the traditional role of financial supervisory institutions had been limited to overseeing any illegal conduct by businesses in the market, the interactive approach of the FCA to regulation has provided the best soil for the remarkable growth of the fintech industry with innovative ideas and services. The Project Innovate Initiative of the FCA has been considered one of the most successful policies in support of innovative fintech businesses. With the purpose of providing direct support to innovative businesses and improving related administrative procedures, the Initiative has changed the role of financial supervisory institutions from rigid supervisors to creative supporters of innovative businesses. Under the initiative, the Innovation Hub was introduced as a team dedicated to supporting new and established fintech businesses for authorization so that innovative fintech startups or existing businesses with innovative ideas could have easier access to the market by mitigating regulatory risks while maintaining the adequate level of stability in the financial market.

Innovation Hub

In October 2014, the FCA launched a new program called Innovation Hub which provides dedicated support for innovator businesses to be able to introduce innovative financial products and services with less regulatory costs and burden.

In order for a business to be eligible for the support of this innovation hub, it must prove that the specific product or service includes innovative factors significantly different from existing ones and that the innovation offers considerable benefit to consumers (see Table 2).

Table 2. Eligibility Criteria for Innovation Hub

Criteria	Key question	Positive indicators
Genuine innovation	- Is the innovation ground-breaking or significantly different?	- Desk research produces few or no comparable examples of innovation. - Independent expertise believes that it is genuinely innovative. - Step-change in scale
Consumer benefit	- Does the innovation offer a good prospect of identifiable benefit to consumers?	- The innovation is likely to lead to a better deal for consumers e.g. through lower price or higher quality. - The business has identified any possible consumer risks and proposed mitigation. - The innovation will promote effective competition
Background research	- Has the business invested appropriate resources in understanding the regulations in relation to its own position?	- The business has sought to understand their obligations as far as appropriate.
Need for support	- Does the business have a genuine need for support through the Innovation Hub?	- The business has no alternative means of engaging with the FCA. - The innovation does not easily fit the existing regulatory framework.

Source: FCA. 2016. Criteria for Innovation Hub.

The support provided by Innovation Hub consists of three stages: pre-authorization, authorization, and after authorization. At the stage of pre-authorization, regulators help fintech businesses understand the risk and cost of acquiring authorization. Since the regulator provides accurate information on the requirements for acquiring authorization and assists businesses to prepare for this, the process significantly reduces regulatory risk and cost. In many cases, fintech startups struggle with understanding complex financial regulatory systems and cannot easily afford an expensive compliance system. Hence the consulting and assistance provided directly by the regulator is more than beneficial for fintech startups in reducing regulatory risk. Once a business submits an application for authorization, the application goes through a special authorization process available only to those participating in the innovation hub program. After authorization, the regulator provides additional supervision and support up to a year.

While new fintech businesses benefit from these programs, it is also very helpful for the regulator since they can receive direct feedback on the effectiveness of the regulatory system from participating businesses. Overall the interactive communication throughout the entire process of introducing and operating innovative products and services among diverse actors in the market enables effective operation of the fintech ecosystem.

Rethinking the Aim of Regulation

The most interesting feature of the UK government's fintech support policy is that the regulator who supervises the financial market provides direct and customized support to businesses which are under its supervision so that those businesses can easily understand the regulatory system and comply with less time and cost. Overall, based on this supportive attitude of the regulator, the interactive ex- change of opinion and information among the government, companies, investors, and developers provided a good soil for establishing a strong and effective fintech ecosystem in the UK.

Considering that the core purpose of financial regulation should include stabilizing the financial market and also increasing the benefit to consumers by promoting innovation and competition in the market, the fintech support policy of the UK government provides a fine example for financial regulators as the continuing economic downturn is causing a desperate need for innovation in the market.

IMI International Monetary Review

Working Paper

Foreign Aid, Human Capital Acquisition and Educated Unemployment: Fish or Fishing⋆

By Chi-Chur Chao, Hua Fan and Xiangbo Liu*

By tying aid to the productive purpose of the skilled sector, this paper explores the effects of foreign aid on human capital acquisition and educated unemployment in the recipient economy. Utilizing a search and matching model, a rise in the allocation of aid can increase skilled sector productivity, thereby providing incentives to firms for more job entries and resulting in a lower unemployment rate among skilled workers. However, this result can be mitigated or even overturned when endogenous human capital acquisition is incorporated. We also show that an increase in the portion of foreign aid used for education subsidy can increase the supply but reduce the demand for skilled labor. This thus results in a higher educated unemployment rate in the economy.

Keywords: Foreign Aid; Search; Unemployment

1. Introduction

There is an old proverb, "Give a man a fish and you feed him a day; teach a man to fish and you feed him for a life," saying that the ability to work is of greater benefit than a one-off handout. Foreign aid is commonly used for the donor country to help the recipient country. Nonetheless, in the literature of international trade and development economics, foreign aid is often considered as a one-off handout. The famous debate between Keynes (1929) and Ohlin (1929) indicates that foreign aid can benefit the recipient country for more consumption of goods but recipient immiseration can take place via a deterioration of the terms of trade when distortions exist in the economy.

The research focus on international transfers of income has then shifted towards the welfare effects of aid under distortions. Tied aid imposed by the donor is a type of distortions to the recipient country. In the literature, foreign aid, as a one-off handout, can be tied to: (i) purchases of export goods and services from the donor country (Kemp and Kojima, 1985; Schweinberger, 1990), (ii) supply of public goods or infrastructure (Hatzipanayotou and Michael, 1995), (iii) clean-up of the environment (Chao and Yu, 1999), and (iv) reforms in trade policy (Lahiri and Raimondos, 1995). The welfare effects of tied aid in those studies again rely on the induced changes in the international terms of trade on the economy.

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In this paper, rather than treating aid as a one-off handout, we consider foreign aid tied to acquisition of human capital, which is vital to the productivity of the economy. To achieve it, we incorporate foreign aid into a search and matching model. As part of the foreign aid tied to the productive purpose, a rise in the allocation of aid can raise productivity in the skilled sector. This provides an incentive to firms for more job entries which can result in a lower unemployment rate among skilled workers. Nonetheless, this favorable result can be mitigated or even overturned when endogenous human capital acquisition is incorporated. We also show that on the one hand, an increase in the portion of foreign aid used for education subsidy can increase the supply of skilled workers, but on the other hand it leads the demand for skilled labor to decrease. Thus, foreign aid could raise "educated unemployment" in the economy. This unintended consequence is often observed in developing countries. .

This paper is organized as follows. Section 2 examines the effect of tied aid on human capital acquisition in a baseline model, while several extensions are considered in section 3. Section 4 concludes.

2. Baseline Model

Consider a developing economy inhabited by a unit mass of workers that are risk neutral and discount the future at a constant rate $r>0$. Before entering the labor market, each worker decides whether to invest in education and become skilled or remain unskilled. Therefore, workers are either skilled (H) or unskilled (L). We use the index i to distinguish their skill level, i=H,L. Individuals differ in terms of their individual ability h with the cumulative distribution function Ψ on $[0,1]$ and associated density function $\varphi>0$ and continuous over the unit interval. In the baseline model, we assume that the shares of skilled and unskilled workers in the population are fixed. But in the extension where we allow for human capital acquisition decisions, these proportions will then become endogenously determined.

We assume that labor market fractions only exist in skilled sector, whereas there is full employment in unskilled sector. In the skilled sector, each firm posts a skilled vacancy and incurs a flow cost c_H. Free entry determines endogenously the number of firms in this sector. On the other hand, unemployed workers search for employment.

Job seekers and vacant jobs are matched randomly in a pair-wise fashion. The mass of successful job matches in skilled labor market is determined by the matching function $M(u_H,v_H)$, where u_H and v_H denote respectively the number of unemployed workers and vacancies of skilled worker. We define the labor market tightness in skilled labor market as $\theta_H=v_H/u_H$. The rate at which skilled vacancies are filled is $q(\theta_H)=M/v_H$, where $q'(\theta_H)<0$. The rate at which unemployed skilled workers find jobs is $m(\theta_H)=\theta_H q(\theta_H)$, where $m'(\theta_H)>0$. We also assume that matches dissolve at a rate s_H.

2.1. Asset Value Functions

Let Π_H be the present discounted value associated with a filled vacancy created by a skilled firm matched with a skilled worker and V_H the expected income streams accrued to unfilled vacancy. And let E_H and U_H the values associated with an employed and an unemployed skilled worker, respectively. Then in steady state, we have:

$$r\Pi_H(h)=y_H(h)-w_H(h)-s_H[\Pi_H(h)-V_H], \tag{1}$$

$$rV_H=-c_H+q(\theta_H)[\Pi_H(h)-V_H], \tag{2}$$

where we denote $w_H(h)$ as the wage rate of a skilled worker, and the flow of output is $y_H(h)$. Note that in the baseline model, to simplify our analysis, we assume that the flow of output does not depend on individual's ability, i.e., $y_H(h)$=P_H, where P_H is the skilled sector productivity. Therefore, in the baseline model, $\Pi_H(h)=\Pi_H$ and $w_H(h)=w_H$. In the extension, we will relax this assumption to allow the flow of output to be a function of both individual ability and skilled sector productivity.

The expected income streams accrued to skilled employed workers is:

$$rE_H(h) = w_H(h) + T - s_H[E_H(h) - U_H(h)], \tag{3}$$

The value associated with skilled unemployed workers is:

$$rU_H(h) = T + m(\theta_H)[E_H(h) - U_H(h)], \tag{4}$$

where T is the untied foreign aid distributed to individuals as a lump-sum transfer. Again in the baseline model, $E_H(h) = E_H$ and $U_H(h) = U_H$.

Free entry implies that, in equilibrium, the expected payoff of posting a vacancy is equal to zero, that is,

$$V_H = 0. \tag{5}$$

The unskilled sector is assumed to be fully employed. The present discounted value associated with an unskilled worker E_L is:

$$E_L = \int_0^\infty e^{-rt}(w_L + T) = \frac{w_L + T}{r} \tag{6}$$

where w_L is the wage rate for unskilled workers which we assume is taken as exogenously given.

2.2. Foreign Aid Allocation

Similar to Chatterjee and Turnovsky (2007), we assume that the recipient economy receives total amount of A foreign aid and λ is an aid-tying ratio. Moreover, we suppose that λ is required by the donor to be used on public inputs to improve skilled sector productivity $P_H = \lambda A$, while the $T = (1-\lambda)A$ is a lump-sum transfer to individuals.

2.3. Wage Determination

Once a worker meets a firm, they bargain over the wage rate. They solve a generalized Nash bargaining problem given by

$$\underset{w_H}{Max}(E_H - U_H)^{\beta}(\Pi_H - V_H)^{(1-\beta)},$$

where $\beta \in (0,1)$ represents the worker's bargaining strength. The solution to this problem gives:

$$(1-\beta)(E_H - U_H) = \beta(\Pi_H - V_H), \tag{7}$$

where $E_H - U_H$ and $\Pi_H - V_H$ are the worker's and the firm's surplus from the match, respectively.

Substituting for $E_H - U_H$ and Π_H, using equations (1) to (4), in equation (7) and noting that $V_H = 0$ (equation 5), we find:

$$w_H = \frac{r + s_H + m(\theta_H)}{r + s_H + \beta m(\theta_H)}\beta P_H, \tag{8}$$

2.4. Steady-State Equilibrium

Using the free-entry condition (equation 5), we derive the following system:

$$\frac{c_H}{q(\theta_H)} = \frac{1-\beta}{r + s_H + \beta m(\theta_H)}\lambda A \tag{9}$$

Equation (9) defines a unique market tightness θ_H^* for skilled labor market. The following proposition is immediate:

Proposition 1. (Existence and Uniqueness) *A steady-state equilibrium exists and is unique.*

Proof. The proof of Proposition 1 is presented in the Appendix.

At the steady-state equilibrium, the flow into unemployment equals the flow out of unemployment for skilled workers. The steady-state unemployment rate for skilled workers is:

$$u_H^* = \frac{s_H}{s_H + m(\theta_H^*)}. \tag{10}$$

2.5. Labor Market Effects of Foreign Aid

We examine the effects of allocations of foreign aid on labor market tightness, wage rate and unemployment rate for skilled workers. We have the following proposition:

Proposition 2. *If the share of foreign aid used to improve skilled sector productivity becomes higher, then we have:*

$$\frac{d\theta_H^*}{d\lambda} > 0, \quad \frac{dw_H^*}{d\lambda} > 0, \textit{ and } \quad \frac{du_H^*}{d\lambda} < 0.$$

Proof. The proof of Proposition 2 is presented in the Appendix.

For skilled workers, an increase in the foreign aid used to improve skilled sector productivity results in a higher profit to firms, which encourages entries of skilled jobs and increases the tightness of labor market for skilled workers. With the raise in the tightness of labor market for skilled workers, skilled worker's bargaining position improves and their wage rate becomes higher as well. Meanwhile, the finding rate of skilled jobs for these workers goes up and thus their unemployment rate goes down.

3. Extension

In the extension, we modify our baseline model in three ways. First, we allow individuals to make human capital acquisition decisions and thus the ratios of skilled and unskilled workers become endogenously determined. Second, the total foreign aid now can be divided into three portions: an investment in skilled sector productivity that aims to improve level of output $P_H = \lambda A$, or as an investment in the education system that aims to improve level of education $S = (1-\lambda)\delta A$ or as a lump sum transfer distributed to individuals $T = (1-\lambda)(1-\delta)A$. Last, the flow of output in skilled sector now also depends on each individual's ability, i.e., $y_H(h) = P_H h$. Note that equation (2) will now become:

$$rV_H = -c_H + q(\theta_H)\{E[\Pi_H(h)] - V_H\}. \tag{11}$$

This implies that a vacancy can be randomly matched with unemployed skilled workers that possess different levels of ability. Therefore, we use $E[\Pi_H(h)]$ to denote the expectation of the value of a filled job.

To make the portion of skilled workers endogenous, individuals need to decide whether to invest in education and become skilled or remain unskilled before entering the labor market. As mentioned above, we assume that individuals differ with respect to their ability. We denote the cost of acquiring training by Z. As individuals enter the labor market in the state of unemployment, they compare the values of unemployment for skilled and employment for unskilled workers when making their decisions on human capital acquisition. Recall that we assume that in unskilled sector, individuals are fully employed. An individual will invest in education if the benefit from this decision exceeds the cost, that is, a worker will invest in education if

$$U_H(h) - E_L \geq Z - S,$$

Thus, all individuals with ability h higher than some cutoff value $\chi \in (0,1)$ will invest in education. Plugging the expressions of $U_H(h)$ and E_L yields χ as

$$\chi=\frac{(r+s_H+\beta m(\theta_H))\{w_L+[Z-(1-\lambda)\delta A]r\}}{\beta m(\theta_H)\lambda A}. \tag{12}$$

3.1. Steady-State Equilibrium

Using the free-entry condition and equation (11), we derive the following system:

$$\frac{c_H}{q(\theta_H)}=\frac{1-\beta}{r+s_H+\beta m(\theta_H)}\lambda A\Lambda(\chi), \tag{13}$$

Equation (13) defines unique market tightness $\theta_H^*=\Omega(\chi^*)$ for skilled labor market. We use $\Lambda(\chi)$ to denote average ability of workers in skilled sector. It is a function of the cutoff ability χ and satisfies

$$\Lambda(\chi)=\int_\chi^1\frac{\varphi(h)}{1-\Psi(\chi)}hdh, \tag{14}$$

By differentiating equation (14) with respect to χ, we obtain:

$$\frac{d\Lambda(\chi)}{d\chi}=\Lambda'(\chi)=\frac{\varphi(\chi)}{1-\Psi(\chi)}[\Lambda(\chi)-\chi]>0. \tag{15}$$

This result implies that when χ rises, the least able individual of the skilled workers becomes the ablest worker of the unskilled workers. Therefore, the average productivity in skilled sector rises. This induces more job entries in the skilled sector, thereby leading the skilled labor market tightness to increase. See equation (A4) in Appendix for details.

Proposition 3. (Existence and Uniqueness) *A steady-state equilibrium exists and is unique.*

Proof. The proof of Proposition 3 is presented in the Appendix.

At the steady-state equilibrium, the flow into unemployment equals the flow out of unemployment for skilled workers. The steady-state unemployment rates for skilled workers is

$$u_H^*=\frac{s_H}{s_H+m(\theta_H^*)}. \tag{16}$$

3.2. Labor Market Effects of Foreign Aid

We examine the effects of allocations of foreign aid on the share of the educated, labor market tightness, wage rate, and unemployment rate among skilled workers.

We first examine the effects of an increase in δ. Differentiating χ^* with respect to δ and evaluating it at the steady state, we have:

$$\frac{d\chi^*}{d\delta}=-\frac{(1+r)(1-\lambda)(r+s_H+\beta m(\theta_H^*))}{A\beta m(\theta_H^*)\lambda^2}<0.$$

Thus, an increase in the share of education subsidy leads to a rise in the fraction of skilled workers. A reduction in χ^* will lower the average ability of workers in the skilled sector. Therefore, an increase in education subsidy discourages entry of skilled jobs and reduces the tightness of labor market for skilled workers. With the reduction in the tightness of labor market for skilled workers, skilled worker's bargaining position decreases and their wage rate becomes lower. Moreover, the finding rate of skilled jobs for these workers goes down and thus their unemployment rate goes up. These results are summarized in Proposition 4.

Proposition 4. *If the share of foreign aid used for education subsidy becomes higher, then we have:*

$$\frac{d\chi^*}{d\delta}<0,\quad \frac{d\theta_H^*}{d\delta}<0,\quad \frac{dw_H^*}{d\delta}<0, \textit{ and } \frac{du_H^*}{d\delta}>0.$$

Proof. The proof of Proposition 4 is presented in the Appendix.

Similarly, we examine the effects of an increase in λ .

$$\frac{\partial \chi^*}{\partial \lambda} = \frac{(r + s_H + \beta m(\theta_H))[\delta Ar - Zr - w_L]}{A\beta m(\theta_H)\lambda^2} \gtrless 0 \cdot$$

An increase in λ implies not only a rise in skilled sector productivity, but also a reduction in education subsidy. These two effects work in opposite directions to determine the share of skilled workers. Only when δ is sufficiently large, i.e., $\delta < \frac{Zr + w_L}{Ar}$, we have $\frac{\partial \chi^*}{\partial \lambda} < 0$. This indicates that the positive effect of an increase in skilled sector productivity on χ dominates the negative effect caused by the reduction of education subsidy. As a result, the share of skilled workers increases.

Proposition 5. *If the share of foreign aid used for public inputs to improve skilled sector productivity becomes higher, then we have:*

$$\frac{d\chi^*}{d\lambda} \gtrless 0,\ \ \frac{d\theta_H^*}{d\lambda} \gtrless 0,\ \ \frac{dw_H^*}{d\lambda} \gtrless 0,\ and\ \ \frac{du_H^*}{d\lambda} \gtrless 0 .$$

Proof. The proof of Proposition 5 is presented in the Appendix.

On the one hand, an increase in the share of public inputs to improve skilled sector productivity leads more firms to entry into the skilled labor market. On the other hand, in this case, the fraction of foreign aid used for education subsidy decreases, which raises the average ability of skilled workers and encourages job entries. Therefore, these two forces work together to improve skilled workers' labor market outcomes. However, an increase in foreign aid used for production purpose also induces individuals to invest in education and become skilled. This will lower the average ability of skilled sector, discourage job entries and cause opposite effects.

4. Conclusions

In this paper, we consider foreign aid tied to the productive purpose of the skilled sector of the recipient country. By employing a search and matching model with endogenous human capital acquisition, we have examined the effects of foreign aid on human capital acquisition and educated unemployment in the recipient economy. In the absence of endogenous human capital acquisition, an increase in the foreign aid used for the productive purpose can lower the unemployment rate among skilled workers. However, this result can be mitigated or even overturned when endogenous human capital acquisition is incorporated. We also show that an increase in foreign aid used for education subsidy can induce more educational investment but with a higher educated unemployment rate of the economy. This unintended consequence is often observed in developing countries.

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Appendix

This appendix provides the mathematical proofs of Propositions 1 to 5.

Proof of Proposition 1. An interior equilibrium is θ_H^* which satisfies equation (9). Differentiating both side of equation (9) with respect to θ_H leads to:

$$\frac{\partial[c_H / q(\theta_H)]}{\partial\theta_H} = -\frac{(1-\beta)\beta\lambda A}{[r+s_H+\beta m(\theta_H)]^2} m'(\theta_H) \tag{A1}$$

Since the left-hand side (LHS_{A1}) of equation (A1) increases in θ_H, and right hand-side (RHS_{A1}) of equation (A1) decreases in θ_H. Thus, a sufficient condition for the existence and uniqueness of solution to θ_H^* is $\frac{c_H}{q(0)} \le RHS_{A1}\big|_{\theta_H=0}$ and $\frac{c_H}{q(+\infty)} \ge RHS_{A1}\big|_{\theta_H=+\infty}$. Since $q(\theta)'<0$, $q(0)=+\infty$, $q(+\infty)=0$, $m(\theta)'>0$, $m(+\infty)=+\infty$, $m(0)=0$, the above conditions always hold. Q.E.D.

Proof of Proposition 2. Recall that from Proposition 1, there is a unique θ_H^* which satisfies equation (5). Rewrite equation (9), we have:

$$F_1(\theta_H) = \frac{c_H}{q(\theta_H)} - \frac{(1-\beta)\lambda A}{r+s_H+\beta m(\theta_H)}, \tag{A2}$$

Thus, by using equation (8) and equation (10), we have:

$$\frac{\partial\theta_H^*}{\partial\lambda} = -\frac{\partial F_1(\lambda,\theta_H^*)/\partial\lambda}{\partial F_1(\lambda,\theta_H^*)/\partial\theta_H} > 0,$$

$$\frac{\partial u_H^*}{\partial\lambda} = \frac{\partial u_H^*}{\partial\theta_H}\frac{\partial\theta_H^*}{\partial\lambda} < 0,$$

$$\frac{\partial w_H^*(\theta_H^*,\lambda)}{\partial\lambda} = \frac{\partial w_H^*(\theta_H^*,\lambda)}{\partial\lambda} + \frac{\partial w_H^*(\theta_H^*,\lambda)}{\partial\theta_H}\frac{\partial\theta_H^*}{\partial\lambda} > 0.$$ Q.E.D.

Proof of Proposition 3. An interior equilibrium is a vector (θ_H^*, χ^*) which satisfies equation (13); and exists $\chi^* \in (0,1)$ satisfies equation (12), where $\theta_H(\chi^*) = \Omega(\chi^*)$.

From equation (13), we have:

$$F_2(\theta_H,\chi) = \frac{r+s_H+\beta m(\theta_H)}{q(\theta_H)} - \frac{(1-\beta)\lambda A\Lambda(\chi)}{c_H} \tag{A3}$$

First, determine the existence and uniqueness of function $\Omega(\chi)$.

$$\lim_{\theta_H\to 0} F_2(\theta_H,\chi) = -\frac{(1-\beta)\lambda A\Lambda(\chi)}{c_H} < 0,$$

$$\lim_{\theta_H\to\infty} F_2(\theta_H,\chi) = \infty,$$

$$\frac{\partial F_2(\theta_H,\chi)}{\partial \theta_H} > 0 \cdot$$

Therefore, there exists a unique function $\Omega(\chi^*)$ for equation (12). And differentiating $\Omega(\chi)$ with respect to $\Lambda(\chi)$ and χ, we have:

$$\frac{\partial \Omega(\chi)}{\partial \Lambda(\chi)} = -\frac{\partial F_2(\Omega(\chi),\Lambda(\chi))/\partial \Lambda(\chi)}{\partial F_2(\Omega(\chi),\chi)/\partial \Omega(\chi)} = \frac{(1-\beta)\lambda A q(\theta_H)^2}{\partial F_2(\Omega(\chi),\chi)/\partial \Omega(\chi)} > 0, \tag{A4}$$

$$\frac{\partial \Omega(\chi)}{\partial \chi} = \Omega'(\chi) = -\frac{\partial F_2(\Omega(\chi),\chi)/\partial \chi}{\partial F_2(\Omega(\chi),\chi)/\partial \Omega(\chi)} = \frac{(1-\beta)\lambda A \Lambda'(\chi)}{\partial F_2(\Omega(\chi),\chi)/\partial \Omega(\chi)} > 0 \cdot$$

This monotonicity indicates that there exists a unique vector (θ_H^*,χ^*) that satisfies equation (13).

Then turn to equation (12). Rewrite equation (12), we have:

$$F_3(\chi) = \beta m(\theta_H)\lambda A\chi - (r + s_H + \beta m(\theta_H))[w_L + (Z - (1-\lambda)\delta A)r] \,. \tag{A5}$$

Let $\lim_{\chi\to 0}\Omega(\chi) = \underline{\theta_H}$, $\lim_{\chi\to 1}\Omega(\chi) = \overline{\theta_H}$, then we have:

$$\lim_{\chi\to 0} F_3(\chi) = -(r + s_H + \beta m(\underline{\theta_H}))[w_L + (Z-(1-\lambda)\delta A)r] < 0,$$

$$\lim_{\chi\to 1} F_3(\chi) = \beta m(\overline{\theta_H})\lambda A - (r + s_H + \beta m(\overline{\theta_H}))[w_L + (Z-(1-\lambda)\delta A)r],$$

$$\frac{\partial F_3(\chi)}{\partial \chi} = \beta\{\lambda A m(\theta_H) + \lambda A\chi m'(\theta_H)\Omega'(\chi) - m'(\theta_H)\Omega'(\chi)[w_L + (Z-(1-\lambda)\delta A)r]\} \cdot$$

Thus, to have an unique solution $\chi^* \in (0,1)$ satisfying equation (12), we need $\lim_{\chi\to 1} F_3(\chi) > 0$, and $\frac{\partial F_3(\chi)}{\partial \chi} > 0 \cdot$ Q.E.D.

Proof of Propositions 4&5. From equation (12) and equation (A3) we have:

$$\frac{\partial \chi(\delta)}{\partial \delta} = -\frac{r(1-\lambda)(r + s_H + \beta m(\theta_H))}{\beta m(\theta_H)\lambda} < 0,$$

$$\frac{\partial \chi(\lambda)}{\partial \lambda} = \frac{(r + s_H + \beta m(\theta_H))[\delta A r - Z r - w_L]}{A\beta m(\theta_H)\lambda^2} \gtrless 0 \cdot$$

In addition, the free-entry condition defines an implicit function $\Omega(\chi)$, whose properties are provided in the Proof of Proposition 3. Thus, from equation (12) and equation (A3) we have:

$$\frac{\partial \theta_H}{\partial \delta} = \frac{\partial \Omega(\delta,\chi)}{\partial \chi}\frac{\partial \chi}{\partial \delta} < 0,$$

$$\frac{\partial \theta_H}{\partial \lambda} = \frac{\partial \Omega(\lambda,\chi(\lambda))}{\partial \lambda} + \frac{\partial \Omega(\lambda,\chi(\lambda))}{\partial \chi}\frac{\partial \chi}{\partial \lambda} \gtrless 0,$$

where $\frac{\partial \Omega(\lambda,\chi(\lambda))}{\partial \lambda} = -\frac{\partial F_2(\theta_H,\lambda)/\partial \lambda}{\partial F_2(\theta_H,\lambda)/\partial \Omega(\lambda)} > 0$. Plus, $\frac{\partial u_H}{\partial \theta_H} < 0$ and $\frac{\partial w_H}{\partial \theta_H} > 0$, we have

$$\frac{dw_H}{d\delta} < 0,\quad \frac{du_H}{d\delta} > 0,\quad \frac{dw_H}{d\lambda} \gtrless 0 \text{ and } \frac{du_H}{d\lambda} \gtrless 0 .$$ Q.E.D.

IMI International Monetary Review

The Belt and Road Initiative, RMB internationalization and Sino-Australian financial cooperation☆

By YU LUO, YUHE WU, YIRAN ZHANG, YIQI FANG*

The trade and financial cooperation between Australia and China are increasing year by year. Australia becomes an important priority investment destination of China. We discuss the financial cooperation against the backdrop of the Belt and Road Initiatives and the internationalization of RMB. We analyze the financial cooperation demand between China and Australia after summarizing it as well as the investment situation. We find that the financial cooperation between China and Australia has a broad prospect, both sides can work together in many aspects such as wealth management, establishment of Sydney international RMB clearing center, opening up the financial sector, infrastructure investment and PPP, financial technology and financial regulation. And we have provided many suggestions for cooperation in various fields. It is expected that in the future the financial cooperation between China and Australia will keep moving forward under the constant dialogue between the two countries.

Keywords: The Belt and Road Initiative; RMB internationalization; financial cooperation; China and Australia

In 2013，China launched the "The Belt and Road "Initiative which relies on the existing cooperation mechanism of China and countries along the ancient Silk Road. The existing and effective platform helps countries along the routes achieve economic policy coordination, regional cooperation in a wider, higher and deeper level, and the initiative has received positive responses. At the same time, recent internationalization of the RMB has become China's national strategy, especially after the inclusion of the RMB into the SDR basket of currencies in 2016, the internationalization of the RMB has developed into a new stage. Under the background of "The Belt and Road" Initiative and the internationalization of the RMB, Chinese companies have been entering the global markets at a faster pace, with Chinese-funded financial institutions expanding overseas, the affluent class’s needs for overseas asset allocation are on the rise. Australia has advantageous economic and political stability with sufficient supervision experience in a developed financial system. The financial cooperation between Australia and China is becoming increasingly close. The two sides are complementary in creating more opportunities for future investment and development platform.

Economic globalization has encountered a series of obstacles since the last year. Under this background, on March24th,2017, Premier Li Keqiang and Prime Minister Malcolm Turnbull of Australia jointly attended the fifth annual meeting of Chinese and Australian prime ministers in Canberra. During the visit, the two sides reached more than twenty agreements on intergovernmental and commercial cooperation in many fields. The leaders of the two countries

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have repeatedly stressed in different occasions that they will jointly promote economic globalization, trade and investment liberalization and facilitation, oppose trade protectionism, and push forward the building of an open world economy. Financial cooperation between China and Australia will have broader prospects.

This paper studies the financial cooperation under the background of "The Belt and Road" Initiative and the internationalization of RMB. It is structured as follows: The first part summarizes the Sino-Australian financial cooperation and investment situation; The second part analyzes the demands of China's financial cooperation with Australia from China's perspective under the background of "The Belt and Road" and the internationalization of RMB; The third part analyzes the demands of Australia's financial cooperation with China from Australia's perspective; The fourth part we put forward some possible areas and approaches of Sino-Australian financial cooperation; The fifth part analyzes the existing difficulties of Sino-Australian financial cooperation; The last part is the conclusion.

2. The overview of the Sino-Australian investment and financial cooperation

1.1 The basic situation of China's investment in Australia

For China, Australia is an important destination for overseas investment. According to the *"Foreign Investment Review Board(FIRB) Annual Report 2013-14"*, China for the first time overtook the United States and Canada to become the largest source of foreign investment in Australia with 27.65 billion AU dollars of investment approved by the Foreign Investment Review Board (FIRB) in the 2013- 14 financial year. In recent years, Chinese investment in Australia has also improved in quality and structure, from the original single mineral and energy industry to a wider area of many different fields such as infrastructure, health, agro-food, energy regeneration and commercial real estate. According to China's statistics, in 2016, China's direct investment in Australia has increased by 4.8 billion AUD with an increase of about 56%.

Real estate investment is China's most important investment in Australia. Data from *"Foreign Investment Review Board（FIRB）Annual Report 2014-15"*shows that Chinese investment in Australian real estate has four fold in two consecutive years with a total amount of up to 24.394 billion AUD, accounting for 28% of all foreign real estate investment in Australia. Chinese developers invest in both residential real estate and commercial real estate. According to a report from Knight Frank, in 2016, Chinese spent 1.8 billion USD in Australian residential investment, accounting for 38% of disclosed total sales, which was 9.4% higher than in 2015. Over the past three years, the transaction amount of Chinese developers and investors has taken 25% of the disclosed total sales and reached a record high of 38% in 2016. In addition to residential real estate, China's investment has also entered into long-term development projects including residential development, office buildings, retail properties and hotels and other commercial properties. KPMG's *"Demystifying Chinese Investment in Australia, March, 2013"*reports that commercial real estate is still the most attractive to Chinese investors: in 2015 it has attracted 46% of the total Chinese investment in Australia.

China's interest in Australian financial investment also surges. More and more Chinese financial services groups expressed willingness to buy Australian insurers' equity stakes. By buying a small stake and joining the board of directors of well-known insurance companies, they can acquire knowledge of market and business operations in Australia. China's enterprises also want to enter the financial services industry through listing and acquisitions. In October 2016, MAJOR HLDGS announced to purchase 13.42% stake of NSX Limited in Australia. In the future, MAJOR HLDGS hopes to enter Australian financial services industry through The National Stock Exchange of Australia (NSX).In March 2017, JIAJIAFU MODERN LIMITED, a leading enterprise of organic agriculture from Shandong, China, successfully listed on the Australian Stock Exchange (ASX).

1.2 Business development of Chinese-funded financial institutions in Australia

As the globalization goes deeper and the "Going-out Strategy" of Chinese enterprises unfolds, Chinese-funded financial institutions also accelerate their overseas expansion. More and more oversea branches have been set up to provide various financial services and support for the internationalizing of these Chinese enterprises.

At present, the major part of Chinese-funded financial institutions in Australia are banks, among which the Bank of China, Industrial and Commercial Bank of China, China Construction Bank and other big banks take the leading role, while insurance, securities and leasing companies also have a certain degree of participation. Table 1 shows some major banks' assets and liabilities in Australia:

Table 1 Selected assets and liabilities onAustralian books of individual banks

($ million)

Jan-17	Gross loans and advances	Total deposits	Number of branches	Start date
Agricultural Bank of China Limited	982	891	1	2014.4.28
Bank of China (Australia) Limited	1,073	945	10	1985.12.16
Bank of China Limited	16,640	12,874		
China Construction Bank Corporation	2,808	2,586	3	2010.12.01
Industrial and Commercial Bank of China Limited	5,432	1,902	4	2008.9.23
Bank of Communications Co., Ltd.	1,701	994	2	2011.11.28

Data from: APPA Monthly Banking Statistics

1.3 The development of RMB clearing business in Australia

With the internationalization of RMB, more and more enterprises and financial institutions of China and Australia will use RMB in cross-border trade. The construction of RMB clearing bank will become the infrastructure for RMB internationalization.

In July 28, 2014, Bank of China announced that the RMB clearing system jointly developed by Bank of China and the Australian Stock Exchange has run successfully in Australia. RMB becomes the first foreign currency included in the Australian clearing system. The launch of the Australian RMB clearing system marks a key step in the internationalization of the RMB in Australia.

On November 17, 2014, China and Australia signed a deal to launch an RMB clearing service in Sydney, in another push for use of the Chinese currency in international business. According to the memorandum of understanding inked by the two countries' central banks, the People's Bank of China and the Reserve Bank of Australia, China will set up a clearing bank in Sydney to handle transactions denominated in RMB. Under this agreement, China will grant Australian banking institutions a 50-billion-yuan (8.2 billion U.S. dollars) quota under the RMB Qualified Foreign Institutional Investors (RQFII) program. In November 18, the People's Bank of China authorized the Bank of China's Sydney branch as the clearing bank of RMB business in Sydney.

On February 9, 2015, the launch of the Bank of China (Sydney) as the official RMB clearing bank in Australia made Sydney one of the few places to deal with RMB clearing. The official launch of the bank in Sydney represents an important step in the internationalization of RMB, a strengthening tie between the Australian RMB market and China's RMB clearing system. It is also expected to further reduce the cost of trade between China and Australia and rich investment and financing options.

On April 8, 2015, The Reserve Bank of Australia has signed a new bilateral local currency swap agreement with the People's Bank of China (PBC). The agreement, which can be activated by either party, allows for the exchange of local currencies between the two central banks of up to AUD $40 billion or CNY 200 billion. It follows the initial swap agreement between the two central banks signed in 2012 and is for a further period of three years.[1]

1.4 Australia's participation in Asian Infrastructure Investment Bank

Asian infrastructure investment bank (AIIB), initiated by China, is a multilateral development bank aiming to support the building of infrastructure in the Asia-Pacific region. Australia responded positively to the initiative. On March 29th, 2015, the Commonwealth of Australia government announced the intention to join AIIB as a founding member. In June 24, 2015, Australia officially announced that Australia will become one of the founding members of AIIB, and would inject93 billion AUD into AIIB in the next five years to become the sixth largest shareholder of AIIB. Australian officials said that joining AIIB would bring significant opportunities for Australia. Australia could work together with its largest trading partner China and other Asian neighbors to promote economic development and employment. AIIB would work closely with the private sector which could provide opportunity for Australian companies to benefit from the great development of infrastructure in the region.

1.5 China–Australia Free Trade Agreement（ChAFTA） greatly facilitates bilateral investment and financial cooperation

The China-Australia Free Trade Agreement (ChAFTA) entered into force on December 20th2015.In this FTA, China and Australia both made a commitment of investment liberalization at a high level. ChAFTA has greatly reduced the restrictions on bilateral trade and investment to establish a more open, convenient and standardized institutional arrangements for the future development of bilateral economic and trade relations.

In the field of investment, both China and Australia give each other the most favored nation treatment (MFN) in the Bilateral Investment Agreement. ChAFTA will promote further Chinese investment in Australia by, for example, raising the Foreign Investment Review Board (FIRB) screening threshold for private companies from China in non-sensitive areas from AU$248 million to AU$1,078 million.

In the field of financial services, Australia makes a negative list to list specific matters and restrictions in banking, insurance and securities sectors. In addition, Chinese financial institutions will enjoy equal treatment with local financial service providers, which promotes cooperation, development and prosperity of the financial market. China relaxes market access with positive list, considering the major demands of Australian banks, securities and other sectors, and realizing further opening in the field of banking, insurance and securities. China has committed to providing new or expanded market access for Australian financial institutions in banking, insurance, fund management, securities, securities and futures. This has created new business opportunities for those financial institutions, which will encourage other Australian financial institutions to participate in Chinese financial activities, enhancing the bilateral trade, financial services and investment to ensure the future tightening of overall bilateral economic relations.

[1]From: http://www.rba.gov.au/media-releases/2015/mr-15-06.html

2. The demands of China's financial cooperation with Australia from China's perspective under the background of "The Belt and Road" and the internationalization of RMB

2.1 Australia is a preferred destination of overseas investment for Chinese Enterprises

Under the background of "The Belt and Road," and China's enterprises choose their "going out" destinations, they need overall investigation of political, economic and cultural factors. Australia's political stability, transparent regulatory system, and sound governance frameworks underpin its economic resilience. Australia's demonstrated economic resilience, adaptability and record of steady growth provide a safe, low-risk environment for business. Now in its 26th year of consecutive annual economic growth, the Australian economy is underpinned by strong institutions, an exceptional services sector and an ability to respond to global changes.[2]

Australia's economy is the world's 13th largest and ranked 17th in *"The IMD World Competitiveness Scoreboard 2016"*. By April 1st, 2017, Australia will achieve a record of maintaining economic growth for 104 consecutive quarters since the second quarter of 1991, becoming the country with longest economic growth in the world since records began.

Statistics also show that China's investment in Australia has increased rapidly in the past ten years. The American Enterprise Institute's China Global Investment Tracker shows that for cumulative investment from 2005 to 2015, Australia ranks the second with USD 78.68 billion(United States the first with USD 99.92 billion).*"Statistical Bulletin of China's Outward Foreign Direct Investment"* reports that in 2003 China's direct investment to Australia was only USD $30 million; in 2008, the number soared to nearly USD $1.9billionfollowed by a slight fluctuation. It reached USD $4 billion in 2014, declined slightly in 2015 for USD $3.4 billion.

2.2 Australia is an important investment destination of overseas asset allocation for the affluent class in China

After decades of rapid economic growth, the overall size of China's personal wealth has accumulated a certain scale. Industrial Bank (IB) and the Boston Consulting Group (BCG) jointly released the comprehensive development report of private banking in China, which shows the private wealth in China hits about 113 trillion RMB in 2015 with an annual growth rate of 24%. By 2020,the private wealth in China is estimated to reach 200 trillion RMB with an annual growth rate of 12%. It is also estimated that the amount of investible financial assets from High Net Worth individuals (HNW) is supposed to reach 51% of the overall individual wealth at home. China is well on its track to become one of greatest markets in HNW clients[3].

With the rapid growth of wealth, the needs of HNWIs in China become increasingly complicated and urgent. With investment area changing from simple to diversified, HNWs are more inclined to choose more customized products and services. Their links with overseas market will no longer be limited to daily activities, more commercial activities like technical cooperation, overseas financing, overseas investment will bring them into the global economy, further promoting a more globalized asset allocation.

China's financial market is not perfect and many investment channels are still restricted. A lot of HNW individuals change investment vision from focusing on domestic investment market to developing overseas markets. Australia has become an important destination for their overseas asset allocation. According to Bloomberg, the annual report *Foreign Investment Review Board(FIRB)* shows that in the past year by June 2015, China's investment in Australian residential and commercial real estate increased from AUD$12.4 billion to AUD$24.3 billion, while in 2013 it was only AUD$5.9 billion. All Chinese investors participated in a survey by

[2]From:http://www.austrade.gov.au/International/Invest/Why-Australia/Growth

[3]From: the Annual Report (2016) into Private Banking Institutions in China: Tremendous Growth Clamors for Global Allocation

KPMG and University of Sydney expressed their intention to invest more in Australia. More and more funds from China are continually flowing into the real estate market in Australia.

2.3 Australia has a developed financial services sector which makes it an ideal cooperator for China

Australian financial sector is the largest driving forth for Australia's national output, employment and economic growth, generating about 10% of real gross value added. Australia' developed financial industry benefits from its transparent regulation, floating exchange rate, open capital account and the high-end financial institutions which have been active in the international market. All these make Australia a good partner for China to develop financial cooperation.

(1) Australia has a huge market and rich experience in wealth management

Funds management plays an important role in the Australian financial ecosystem. Australia has developed professional and innovative asset and capital management capabilities, managing funds of more than AUD$2.6 trillion. In the international market including funds management, pension funds, life insurance, hedge funds etc., Australia shows its strong capabilities of risk analysis and capital allocation. These capabilities are backed by highly specialized service department that provides tax, accounting, legal and advisory services related to financial transactions. Financial instruments used in investment involve fixed and non-fixed two kinds, especially in the field of non-fixed financial derivatives and off balance sheet assets.

Australia's AUD $2.1 trillion pension system is the basis of its financial services sector, and makes a substantial contribution to the overall development of the industry. At present, Australia has 245 kinds of APRA-regulated funds and more than 560,000 kinds of Self-Managed Superannuation Fund (SMSFs). The mature pension system as well as the close geographical location to Asia will help Australia provide experience and expertise to China.

(2) Australia has experience in PPP and REIT

Australia has developed a robust and resilient public-private partnership (PPP) model and strengths in REIT through 30 years of experience combined with strong governance arrangements and a highly supportive legal and legislative framework. Economic projects delivered to enhance Australia's productivity include transport and transit systems such as toll roads, airport rail links, light-rail transit systems and major tourism precincts anchored by convention centers. Social projects include hospitals, prisons, schools, housing and accommodation, sports facilities and water and waste treatment facilities. The majority of PPP projects worth USD $50 million or more and their contract period varies from 15 to 40 years. Australia's four major banks occupy more than 50% market share in the domestic PPP project financing market. Australian government also works with Japan, Canada, Philippines, Indonesia and other Southeast Asian countries to carry out the PPP project with a wide range of technical cooperation. The formation of PPP project management structure shows both unity and relative independence, follows the federal government development strategy under the overall project priorities and improves the construction of project information management system and the actual operation guidance.

China has a huge demand for infrastructure construction and now Chinese government is vigorously promoting PPP. Australia's rich experience can be an important reference for China to carry out such business.

(3) Australia has valuable experience in financial regulation

Australia's financial regulatory quality is among the best in the world. Australia has three major financial regulatory agencies: Australian Prudential Regulation Authority (APRA), Australian Securities and Investment Commission (ASIC) and Reserve Bank of Australia (RBA).The three are mutually independent but seek complementary to promote the economic development of Australia. Council of Financial Regulators (CFR) is the coordinating body for

Australia’s main financial regulatory agencies. Its members are the RBA (Chair), ASIC, APRA and Treasury. They hold regular meetings, exchange financial information, establish a memorandum of understanding and form effective financial regulatory cooperation.

At present, the main body of China's financial supervision includes the general headquarters of People's Bank of China, China Securities Regulatory Commission, China Insurance Regulatory Commission and China Banking Regulatory Commission. In recent years, with China's financial industry development, the requirements of the financial services gradually increased. Increasing financial innovation and the diversity makes financial products and instruments more complex. The original supervision system is no longer compatible to the development. Australia's advanced regulatory experience can provide guidance for the reform of China's financial regulatory system and the improvement of the financial regulation and cooperation framework.

(4) Australia has strengths in Fintech

Australia is a recognized country in the field of financial technology, and its use of financial technology in banks, fund pension and asset management has a broad range of advantages, creating many world leading payment systems, financial management platforms, foreign exchange trading system and investor communications equipment. In 2017, the government also plans to implement a" new payment platform" for the development of a new national infrastructure project which is rapid, flexible and rich in data to improve the payment and settlement system throughout Australia.

In recent years, China's inclusive financial development shows the characteristics of multiple service subjects, wide coverage and mobile internet payment. China's internet financial development has outperformed many developed countries. China's financial technology companies have also entered Australian market. In 2014, AliPay announced the construction of a subsidiary in Sydney, Australia, to provide customized cross-border electronic commerce solutions for Australian businesses to help Australian companies expand Chinese market and promote the development of cross-border business between two countries. Additionally, AliPay also combined with Australia post to promote and sell AliPay shopping cards in 4,400 local retail stores so that Australian consumers can shop on Tianmao and Taobao platform. In 2016, Commonwealth Bank of Australia (CBA) became the first bank to work with AliPay, meaning AliPay could use digital pay infrastructure of federal banks which allowed Australian consumers to buy goods through Alibaba group e-commerce such as AliExpress to reduce the transaction inconvenience caused by currency.

2.4 Australia plays an important role in the internalization of RMB.

(1) Accelerating the RMB cross-border trade and clearing services will enhance the international status of the RMB

Australia is an important economy of close economic and trade relationships with China. Since 2014 Bank of China has provided RMB clearing services in Australia. In 2015, Bank of China was identified as the official clearing bank of Australia, the RMB internationalization process in Australia has taken an important step. The increased use of the RMB as settlement currency in the trade and investment activities between China and Australia and the acceleration of cross-border RMB clearing services in Australia not only makes cross-border trade and investment more convenient, but also reduces operating costs and exchange rate risks for the enterprises. With the deepening of the process of internationalization of RMB, it will play a greater role in cross-border trade settlement and bond market investment areas.

(2) China is trying to attract more Australian investors to invest in China

With the process of internationalization of the RMB, China welcomes more Australian investors to participate in China’s offshore and onshore financial market. Australian government also showed willingness to support the development of offshore RMB market. In 2014, Bank of China’s Sydney branch successfully issued two-billion-yuan “Oceania Bond”, to become Australia's first RMB bond market with a total subscription amount of more than 4.9 billion yuan. In April 2014, Australian central bank planned to invest about 5% of its foreign reserves in Chinese government bonds to help diversify investments and deepen economic ties with China. Allowing foreign central banks to invest in Chinese government bonds is one of the important steps for China to promote the internationalization of the RMB. It can benefit the RMB flow in the bond market and bring the corresponding return to foreign investors. In 2014, People's Bank of China and the Reserve Bank of Australia signed a memorandum of cooperation in the establishment of the RMB clearing arrangements in Australia. The same year, the central bank of two countries agreed to expand the pilot region of RQFII to Australia. Under the agreement, China would grant Australian banking institutions a 50-billion-yuan (8.2 billion U.S. dollars) quota under the RMB Qualified Foreign Institutional Investors (RQFII) program.

The Central Bank of Australia is allowed to invest up to 10 billion yuan (about USD $1.6billion)in the China inter-bank bond market. RMB clearing bank helps to protect local institutions in Australia so that they can get RMB conveniently, and the establishment of RQFII will be conducive to the return of RMB.

3. Analysis of Australia's demand for China’s financial cooperation after stranded TPP

3.1 Australia can take the advantage of China's growth dividend to promote economic growth and financial development

Australia has been actively promoting the development of the Trans-Pacific Partnership Agreement (TPP), however, in 2017, Donald trump, the new president of the United States signed an executive order to announced the withdrawal of the United States, the future of TPP remains to be seen. Under this circumstance, the cooperation between Australia and China has been put on the track again. In fact, according to a World Bank report published in 2016 shows that by 2030, TPP will only contribute 0.7% to Australia's GDP. Since Australia established diplomatic relations with China in 1972, the trade volume between China and Australia has increased by 1700 times, and the goods trade volume has reached ￥637.34 billion, it continues to maintain a good momentum of stable growth. Since 2007, China has become Australia's largest partner for 9 consecutive years. The Bonuses resulted from the Belt and Road Initiative and the implementation of the FTA to Australia will be far more than the contribution that TPP will bring to the Australian economic growth.

Through economic and trade cooperation with China Australia can obtain various growth dividends and at the same time, through the direct or indirect investment in Australia in all aspects, Australia can get funds to develop from China. Such cooperation can bring more communication between China and Australia. A large number of cross-border investments will promote the development of Australia's financial services industry. According to Investment Bank Credit Suisse reported[4] in mid-2016, Chinese companies worldwide acquisitions reached USD$11.7 billion, of which USD $2.5 billion are for the acquisition of Australian companies. On one hand, the merger and acquisition acquires Chinese local financial services institutions to provide services; on the other hand, a successful case of merger or acquisition needs the help of Australian financial services institutions. As a result, it can vigorously promote the development of the Australian financial services industry.

Australia has the third large fund pool in the world, its total net assets has reached 1600 billion in 2014. Australian fund management industry in the future can be focused on the export market,

[4] The report comes from *World Wealth Report 2016* by Investment Bank Credit Suisse.

as well as the entry and expansion of international market participants to get more room for development. With the deepening of cooperation between China and Australia, in order to attract more Chinese investment, Australia's financial services industry will continue to innovate and reform spontaneously.

3.2 A large number of cross-border capital flows need the Chinese government to relax the control of the capital account to Australia.

China's capital account is not fully opened. Recently, Chinese government worried that the devaluation of RMB would worsen the capital outflows, which would lead to further devaluation of the currency. Hence Chinese government tightened its capital controls. In 2015, China’s central bank strengthened the supervision of foreign exchange business: it notified commercial banks to control the exchange of dollar, and provided window guidance to suspend the application of the new RQDII (RMB qualified domestic institutional investors) related business. In 2016, due to the control of the capital outflows and strict implementation of annual limit of $50,000 foreign exchange purchase, many Chinese investors unable to remit funds to Australia, causing many potential deals to break.

Trade and financial cooperation between China and Australia needs releasing their respective capital controls. Trading business and fund management, the two key areas of the development of RMB business in Australia, should accept certain degree of capital account liberalization. Australia also hopes that China will relax its control of capital in Australia so that it will be free to move in and out of the market. This requires the deepening of financial cooperation between China and Australia.

3.3 Under the background of internationalization of the RMB, Australia can act as the Asia Pacific and global RMB clearing center

As the RMB join the SDR basket in 2016,its internationalization will be further accelerated with the rise of China's economy. Australia's Kathleen Walsh and Geoff Weir co-authored a report “The internationalization of RMB and the evolution of the offshore RMB center” states the chance of Sydney, which viewed from a new perspective to examine the opportunities for the internationalization of RMB to Sydney and Australia. The report shows that Australia and China, these two economic systems are complementary in terms of capital, food input and output, service and capital management. According to HSBC, if Australia directly exchanged to RMB, rather than first converted into dollars and then converted into RMB, the Australian companies can save up to 7% of the transaction costs. And if the RMB trading center establishes with FTA agreement, then in 2020, China's investment in Australia will grow 7 times to USD $300 billion.

Therefore, Australia plays an important role in promoting RMB internationalization, Australia should strive to serve as Asia Pacific and global RMB clearing center in the background of RMB internationalization. Deputy Treasury Secretary Siino Dinos said Australia and China should focus on development of long-term cooperative relations. Australian companies should increase their business settlement in RMB, expanding the use of its currency in Australia, which enhances the status of Australia as an increasingly important offshore RMB trading center[5].

3.4 Strengthening cooperation with China in global financial governance under the framework of G20 and Australia’s influence.

Australia is a regional power eager to increase its international influence. In 2008, the international financial crisis exposed the current global financial governance system lagging behind the actual needs of economic development. Global financial governance reform is imperative. Australia is the world's top financial regulator, Australia can voice louder through China's current international influence in global financial governance, provided the experience of financial governance and regulation. China can rely on Australia's advanced regulatory system,

[5]Sources from economic daily, February 25, 2014, *an important step in the internationalization of the RMB in Australia*

and actively transform the old international economic order and financial governance structure, and undertake more international responsibilities. By strengthening multilateral cooperation between the two countries, coordinating cooperative relationship at international, regional and bilateral levels, both will improve their international influence and discourse power while strengthening financial cooperation.

4. Prospect of financial cooperation between China and Australia

4.1 A brilliant future in wealth management lies ahead.

With the deepening of globalization, many wealthy Chinese began to invest overseas; wealth management business in China's private banking must keep pace with the need of their customers, resulting in great cooperative demand between China's private banking business and its foreign counterparts. Additionally, with the advent of the globalization of capital, cross-border asset allocation problem becomes the most significant issue remained settling. Australia has become a popular choice for many investors, China and Australia can further their cooperation in cross-border asset allocation: China will invest capital to Australia, and Australia provides high returns and security. It is expected to further expand the scope and scale of overseas investment in the field of Mutual Fund Connect, QDLP/QDIE, Shenzhen-Hong Kong Stock Connect program besides previous QDII and Shanghai-Hong Kong Stock Connect program. Australia should pay more attention to its professionalism and platform to build a fully operational asset allocation platform and information platform.

4.2 Establishment of Sydney international RMB clearing center

Under the background of internationalization of the RMB, Australia acts as the Asia Pacific and global RMB clearing center which can bring a lot of opportunities for cooperation between Australia and China, and can also provide convenience for both sides. The RMB business in Sydney has broad market prospects. Most of the RMB transactions are related to trade: the provision of foreign exchange services, derivatives hedging, cash management services, fixed deposits and trade financing. As “financing is attracted by trade”, two-way investment between China and Australia will continue to strengthen, which will also bring a lot of business opportunities for domestic and foreign banks in Australia.

To become a successful offshore RMB center, Australia can explore its own special strengths and skills from the underlying principles. Australia has professional knowledge in capital management, global real estate and global infrastructure funds. In the future, the offshore renminbi market in Sydney will start from the global real estate fund management, and global infrastructure fund etc., in addition to the transaction banking. Australia should make good use of its local advantages to construct offshore RMB center. Therefore, first of all, the most important thing is to help the subject of investments to facilitate the settlement of the currency, create a better market and policy environment for bilateral currency investment activities. Secondly, we must strengthen the financial cooperation between China and Australia, and try to provide more convenient financial services and better financial products for both companies.

4.3 Cooperate with each other in opening up the financial sector

Australia has been hoping an opener financial services sector in China. In 2015, China and Australia signed a free trade agreement on further opening of China's financial market. Australian financial institutions have obtained more development opportunities in China's financial market. Australia should strictly control the financial capital to China, and ensure the stability and reliability of the capital. This approach will provide confidences for China to further lessen the capital account restrictions, widening Australian financial institutions access to Chinese financial market.

China and Australia can further sign agreements on the market access rules of the financial institutions, relax the restriction to a certain extent, and establish agreement on the cooperation of financial institutions so that China can have more financial institutions in Australia. To this end, China needs to prepare in the following three aspects: 1) accelerate the competitiveness of China's domestic banking sector, 2) establish efficient laws and regulations systems as soon as possible to provide a solid legal guarantee for the opening up for China's financial market; 3) Form a comprehensive and effective financial risk monitoring system and enhance the confidence of foreign investors in China's financial sector.

4.4 Cooperation in infrastructure investment and PPP based on Asian Infrastructure Investment Bank.

In 2015, Australia became a founding member of the Asian Infrastructure Investment Bank. As an important developed country in the Asia Pacific region and with capital or experience, Australia will have an important impact on the development of the Asia Pacific Region. For Australia itself, joining the Asian Infrastructure Investment Bank can get huge economic benefits. Australia has been attracting infrastructure investments from China for a long time. In 2012, the Australian government signed a memorandum of cooperation to promote infrastructure construction. Becoming a founding member of the Asian Infrastructure Investment Bank will enable Australian companies get more opportunities to participate in investment projects in the Asian Infrastructure Investment Bank, which can in turn promote the growth of its resources and services. In addition, for the entire region, the cooperation in Asian Infrastructure Investment Bank will further enhance the depth and density of economic and trade Exchange. It can also play a leading role in the South Pacific Region to help the South Pacific island countries strengthen cooperation with China under the propose of maritime Silk Road initiative.

Cooperation in infrastructure investment between China and Australia can improve the infrastructure in Australia, expand and deepen mutually beneficial cooperation between the two countries while providing confidences in winning more infrastructure projects in western developed countries. To put into practice, the two countries can cooperate in capital, labor, planning design, management consulting, project construction、operation and supply of equipment. Australia has a thirty-year history of providing critical infrastructure and services and private sector financing, including public-private partnerships (PPPs) and long-term preferential ownership and operating agencies. China can strengthen cooperation in sharing the experience of PPP model with Australia, pay attention to the economic, social and environmental benefits of the project, and promote the realization of public policy objectives through the PPP model. Financial institutions in both countries should also provide support for PPP, and the two countries should improve the policy system of financial support for PPP projects financing. Financial institutions should also develop innovative financial products to support. All policy banks should actively participate in the project financing, providing risk management measures, and using syndicated loans, and entrusted loans. Finally, the governments of both countries should expand the financing channels of PPP projects, including the issuance of project bonds, etc.

4.5 Developing cooperation in financial technology (Fintech)

In view of the rapid development of Chinese mobile payment such as “Alipay” and its successful experience in overseas promotion, Australia can cooperate with Chinese mobile payment institutions in the future to push forward the establishment of a new payment platform. Australia can take this as a breakthrough to explore new modes of cooperation with China in financial technology, to promote the further development of financial cooperation between the two countries in science and technology. China and Australia should seize the development trend of mobile payments, and play the leading role in the field of mobile payment cooperation to promote the development of internet finance in the two countries and strengthen financial technology cooperation between China and Australia.

4.6 Cooperation in financial regulation

With its relatively well-established financial regulatory mechanisms, Australia can quickly recover from the financial crisis. China and Australia has a lot of room for cooperation in the field of financial regulation. China can learn from Australia to better regulate its domestic finance sector, to promote the stability and prosperity of the domestic financial market, and prepare itself for potential risks in investing in Australia.

Australia has set up memorandums with two of China's top financial regulators--the China Securities Regulatory Commission (CSRC) and the China Banking Regulatory Commission (CBRC)--ASIC has maintained a strong relationship with China Securities Regulatory commission. China and Australia should deepen cooperation in the field of financial regulation in the future, establish a macro and micro prudent management mechanism, form an effective financial risk assessment, testing, control system to scientifically forecast risk, evaluate risk and deal with risk, strive to achieve the establishment of a well-established financial risk system. Besides, the two countries should improve the framework of cooperation in financial regulation, China may learn from Australia in the field of financial supervision system, give full play to the one bank and three commissions, appropriate increase the restrictions on cross-border financial cooperation. Finally, the two countries can work together to promote the implementation of the relevant laws and regulations, help improve the integrity and standardization of global financial risk regulation.

5. Problems and challenges

5.1 Australia's strategic concerns

Australia's strategic concerns may affect the financial cooperation between China and Australia. As an important part of the Asia Pacific political and economic structure, Australia is important in connecting the two sides of the Pacific. In addition to maintaining economic and trade relations with countries in the Asia Pacific Region, the reason for choosing to join TPP and actively promoting the TPP negotiations is that it can help maintain U.S.-Australian alliance. When former U.S. President Obama came to power, he proposed the Asia Pacific rebalancing strategy, re-expressed concern about the Asia Pacific region. Based on its identity positioning as a "western country" and its “alliance with the strong" strategy, Australia actively cooperated with it. In addition, Australia actively promotes relations with the United States with their national security considerations. In developing relations with China, some people in Australia have strategic concerns. On March 23th 2017, Australia refused AUD $5 billion as national infrastructure fund which was promoted by China to invest in Canberra, and Australia also refused China's New Silk Road strategy. Australia is worried that its connection with China could undermine relations with the United States when it is the time that they call for Washington to strengthen its activities in the region.

5.2 Remaining Barriers to cross-border investment and financial cooperation

At present, China has stricter regulations on cross-border capital flows, and has already limited some cross-border capital flows and investments in China. There are also some barriers to cooperate in Australia. Australian treasury secretary Scott Morrison announced new rules that the important infrastructure assets of all states and territories governments must be examined by the Australian Foreign Investment Review Board (FIRB) before transaction. Australian government believes that foreign investment has become an important source of funding for infrastructure construction and upgrading in Australia, and it is necessary to regulate the behaviors of asset acquisitions by foreign investors to ensure that foreign investors do not violate the national interests of Australia. And this has affected the merger and acquisition of Chinese enterprises in Australia.

5.3 Local interests conflict

Financial cooperation between China and Australia may also encounter some local interest conflicts. Australian vice-premier Banaby Joyce announced that future bids from state-owned enterprises would face a rigorous review. In 2016, Australia declined a $10 billion purchase offer to Australian power company Ausgrid from China's National Electric Net Ltd, a Chinese state-owned enterprise, and CK Infrastructure Holdings Limited headquartered in Hong Kong. Reuters quoted a claim from government official said that one of the reasons that Australia rejected the mergers and acquisitions application was a concern of China becoming a “geopolitical threat". Besides，the Australian government has also blocked a Chinese consortium to buy Kidman, a livestock company owning more than 1% of Australia's land. Australia said it was for the national interests and security considerations, they worried that China's acquisition of Australian companies would lead to unemployment of Australian workers.

6. Conclusion

The trade and financial cooperation between Australia and China are increasing year by year. Australia becomes an important priority investment destination of China. Financial services industry plays an important role in the economic development of both countries. As China's largest trade and investment partners, Australia can actively seek opportunities for financial investment and achieve diversified cooperation in all aspects of finance. Under the background of the Belt and Road initiative and RMB internationalization, the financial cooperation between China and Australia can achieve a win-win situation, and the prospect of financial cooperation between the two countries is broad.

Despite potential problems and challenges, China and Australia will gradually open their capital restrictions and widen the access to financial institutions, making joint efforts to promote the construction of a financial cooperation platform. It is expected that in the future the financial cooperation between China and Australia will keep moving forward under the constant dialogue between the two countries.

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IMI News

- On April 8, the 2017 China Asset Securitization Annual Meeting, organized by IMI and China Asset Securitization 100 Forum, co-organized by XFintech and the Modern Bankers magazine, was held in Beijing. The annual meeting focused on using asset securitization to promote economic development. Professionals both at home and abroad were invited to discuss the trend and changes on asset securitization in the context of finance supporting the real economy and supply side reform.
- On April 11, Macro-Finance Salon (No. 53) and Fintech Open Classes (No. 1) was held in Renmin University of China. The Fintech Open Classes is a series of lectures co-hosted by IMI and the Global People magazine, supported by Zhejiang University Academy of Internet Finance. Professor Huang Yiping, Associate Dean of the National Development Research Institute and Director of the Digital Finance Research Center of Peking University, gave a lecture on "Digital Inclusive Finance in China". The lecture was presided over by the Associate Dean Zhao Xijun of School of Finance, RUC.
- On April 15, the Roundtable on Money and Finance and the 56th Clearing House Salon was held in Beijing. This meeting is co-sponsored by Shanghai Clearing House and IMI under the theme of Macro Factors of the RMB Exchange Rate Fluctuation and its Potential Effect.
- On April 16, Dr. Wu Xuchuan, Deputy Director and Secretary-General of the Internet Finance Research Center of PBoC, gave a lecture on “Characteristics, Risks and Regulations of Blockchain” on the Macro-Finance Salon (No. 55) and Fintech Open Classes (No. 2). The lecture was moderated by Mr. Qu Qiang, Assistant Director of IMI.
- On April 12, Macro-Finance Salon (No. 54) was held in Renmin University of China. Matthias Morys, associate professor of the Department of Economics of the York University, made a speech on the “The Rise and Fall of World Reserve Currencies since 1870”. Wei Benhua, former deputy administrator-in-bureau of SAFE and Sun Lujun, director of CNIC participated the meeting. The Salon was hosted by He Qing, professor of the School of Finance of RUC.
- On April 19, Macro-Finance Salon (No. 56) and Fintech Open Classes (No. 3) was held in Renmin University. Mr. Ye Daqing, co-founder and CEO of Rong 360, gave a keynote speech on "financial technology promotes inclusive finance".
- On April 20, Macro-Finance Salon (No. 59) was held in Renmin University. Guo Jianwei, President of PBoC Urumqi Central Sub-Branch, was invited to deliver a keynote speech on Practice of the Macro-Finance in Xinjiang. This salon was hosted by Tu Yonghong, Deputy Director of IMI and Professor of Finance in RUC.
- On April 20, the Press Conference of *Internationalization Progress and Outlook of RMB* was held in Renmin University. The report analyzed current trends of RMB internationalization from the perspective of international status, the impetuses for RII to rise this year, and challenges facing RMB internationalization in the future.
- On April 22, Macro-Finance Salon (No. 58) was held in Renmin University of China. Yao Yang, dean of the National School of Development (NSD) at Peking University, gave a keynote speech titled “beauteous trouble: how to use China’s huge savings”. The meeting was presided over by Prof. Zhao Xijun.

- One April 22, China Fintech 50 Forum (CFT50) was inaugurated in Beijing. CBF50, launched by IMI and *Modern Bankers* magazine, is the first non-government and non-profit academic organization in China that focuses on cross-border finance research. The forum endeavors to build a high-level platform for global dialogues on cross-border finance ecosystem construction and integration of traditional and innovative finance.
- On April 23, Macro-Finance Salon (No. 57) was held under the theme “Offshore RMB Asset Securitization in the Context of Internationalization”. Liu Borong, director of Zhong Lun Law Firm and chairman of the Executive Committee of China Asset Securitization Forum, and Zhang Xiufen, co-founder of the Asian-Pacific Structured Finance Association and the member and Executive Secretary-General of China Asset Securitization Forum, attended the Seminar and delivered keynote speeches. The Salon was hosted by the Deputy Director of IMI Dr. Song Ke.
- On April 25, the Macro-Finance Salon and Seminar on Wealth Management Development Index was held in Renmin University. The guests include Liu Qingsong, Former Division Chief of Henan Province, CSRC, Miao Yufeng, Former Deputy Director, Banking Division, CBRC, and Yan Xiandong, Deputy Director-General, Statistics and Analysis Department, PBoC. Zhuang Yumin, member of IMI Academic Committee, Head of the Wealth Management Development Index research team, and professor of RUC, chaired the salon.
- On April 27, the Macro-Finance Salon (No. 61) was held at Culture Square, Renmin University of China. The salon centered on the possibility of the outbreak of financial crisis in China. Wei Jianing, Member of the CF40, Xiong Yuan and Lin Nan, both IMI researcher fellows joined us as speakers. The salon is presided over by Su Zhi, professor of Statistics and Mathematics at Central University of Finance and Economics.
- On May 10, McKinnon Lectures (No. 11) was held at RUC. This lecture was jointly organized by the China International Finance Society and IMI. Mr. Wu Harry Xiaoying, professor at the Institute of Economic Research, Hitotsubashi University, delivered a keynote speech entitled "China's Economy—Explaining the Puzzle of High Growth and Low Productivity". Mr. Zhang Xingrong, senior researcher at the International Finance Institute, Bank of China, presided over the lecture.
- On May 14, the Macro-Finance Salon (No.62) was held in Renmin University. Mr. Wu Ge, Chief Economist of Huarong Securities, was invited to deliver a keynote speech on the Real Economy and Money.
- On May 15, the Macro-Finance Salon (No. 63) and Fintech Open Classes (No. 4) was held. Deng Di, Chairman of China Block Chain Application Research Center and Chairman of Beijing Taiyi Cloud Technology Co., Ltd. delivered a keynote speech on "the future of block chain and financial industry".
- On May 18, the Launch of IMF 2017 Asia and Pacific Regional Economic Outlook was held at InterContinental Hotel, Beijing Financial Street. The meeting was co-organized by IMF Resident Representative Office in China, IMI, and Guotai Junan Securities. The meeting was chaired by Mr. Zhang Zhixiang, academic member of IMI, former Director General of International Department, PBoC, former IMF Executive Director for China. Mr. Ranil Salgado, Chief of the Regional Studies Division, Asia and Pacific Department of IMF and Mr. Minsuk Kim, Economist, Asia and Pacific Department of IMF, gave keynote speech on Asia and Pacific Regional Economic Outlook.
- On May 19, Macro-Finance Salon (No. 64) and Fintech Open Classes (No. 5) was held in Renmin University of China. Guo Zhenzhou, Founder and CEO of Quark Finance, delivered a lecture on “Fintech’s Transformation and Promotion of Finance”. The lecture is presided over by Gang Jianhua, Associate Professor of Remin University.

- On May 24, the Launch of *ASEAN+3 Regional Economic Outlook 2017* was held in Beijing. The conference was jointly sponsored by AMRO and IMI. Participants include Wei Benhua, former Deputy Administrator-in-Bureau of SAFE and AMRO's first Director; Dr. Khor Hoe Ee, AMRO's Chief Economist; Li Wenlong, Senior Economist of AMRO; Gao Haihong, Director of International Finance Research Center of the Institute of World Economy and Politics of CASS; etc.
- On May 26, Macro-Finance Salon (No. 65) and Fintech Open Classes (No. 6) was held at RUC. Yang Tao, assistant director of Institute of Finance and Banking of CASS, director of Research Center of Payment and Settlement, was invited as the guest speaker and delivered a keynote speech on "New Technology Leading the Reform of Payment and Settlement System". The event was chaired by Song Yuanyuan, deputy director of Fintech research group.
- On June 7, Macro-Finance Salon (No. 66) and Fintech Open Classes (No. 7) was held at RUC. Guo Yuhang, the founder and the Co-CEO of Dianrong.com, was invited as the guest speaker and delivered a keynote speech on "Fintech Reshapes Rules and Investment Hotspots".
- On June 19, Macro-Finance Salon (No. 67) was held at Renmin University of China. Dr. Henry Chan, researcher at the East Asian Institute of the National University of Singapore, was invited to deliver a keynote speech titled Globalization and China-led New Order at this salon.
- On June 21, the 7th plenary meeting for "Series of IMF History" Project was held at China Financial Publishing House. Present at the meeting were Wei Benhua, head of the translation working group and former Deputy Administrator-in-Bureau of SAFE, Zhang Zhixiang, former Director General of International Department of PBoC, Wang Xiaolei, Deputy Director of Credit Reference Center of the PBOC, Duan Jining, Director of Foreign Banks Supervision Department of CBRC, Qi Jianming, Party Secretary and Executive Vice President of China Trustee Association, Wang Lu, Associate Editor-in-Chief of CFPH, He Wei, director of Rights & Licenses Editorial Department of CFPH, etc.
- On June 22, Macro-Finance Salon (No. 68) and Fintech Open Classes (No. 8) was held at Mingde Main Building of RUC. The salon is on the theme of Fintech Leading Financial Reform. The guest speaker was Li Wenxian, CEO of Tianchuang Credit.
- On June 27, Macro-Finance Salon (No.69) and Fintech Open Classes (No. 9) was held. Prof. Ben Shenglin, Executive Director of IMI and Founding Dean of Zhejiang University Academy of Internet Finance, delivered a keynote speech on "New Situation and New Opportunity—The Transformation and Development of Internet Finance".
- On June 27, McKinnon Lectures (No. 12) was held at Renmin University. Nout Wellink, former president of the Dutch Central Bank was invited to deliver a keynote speech on "Europe at a Crossroads". Prof. Ben Shenglin presided over the meeting.

Call for Papers

International Monetary Review

International Monetary Review is an internal academic magazine sponsored by International Monetary Institute. Following the principle of including both Chinese and western merits with precise and practical academic spirit, International Monetary Review focuses on the cutting-edge theoretical researches in internationalization of RMB, reform of international monetary system, regional monetary and financial cooperation, China's international financial strategies, and other macro-financial theories and policies.
We welcome submissions by scholars, experts and practitioners in financial industry. Papers and articles should center on key financial issues and follow academic standard and scientific methodology. We welcome quality articles based on data analysis and theoretical model and other insightful articles with standard writing.

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General rule: Submitted manuscripts should be double-spaced texts in 10.5 point font, and formatted for paper of standard size with margins of at least 20mm on all sides. Pages should be numbered, and an abstract (of no more than 200 words), as well as keywords and complete author affiliations, should be included in the paper in the title page. A regular article should not exceed 50 pages.
Mathematics: Equations must be identified by consecutive Arabic numbers in parentheses on the right. Expressions should be aligned and compound subscripts and superscripts clearly marked if there is any potential for confusion.
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