

First International Conference of Councils on Economic Policy

CONFERENCE TRANSCRIPT

June 2017

PREFACE

Throughout the last years, the German Council of Economic Experts (GCEE) has intensified its outreach to researchers and institutions abroad with the aim of fostering communication and cooperation regarding issues of economic policy. To provide a platform for this international exchange, in 2016 the GCEE initiated a first **International Conference of Councils on Economic Policy**. This conference took place on **June 24, 2016** upon the invitation of Minister Sigmar Gabriel and was hosted in Berlin by the German Ministry for Economic Affairs and Energy (BMWi). Participating councils included:

Conseil d'Analyse Économique (France),
 Council of Economic Advisers (US),
 Council on Economic and Fiscal Policy (Japan),
 CPB Netherlands Bureau for Economic Policy Analysis,
 Economic Council (Finland),
 German Council of Economic Experts, GCEE,
 Independent Authority for Fiscal Responsibility (Spain),
 Office of Parliamentary Budget Officer (Canada),
 Parliamentary Budget Office (Greece), and
 Portuguese Public Finance Council.

The contributions to the conference were concentrating on two major issues, the development of the Chinese economy and its implications, and the challenges to economic growth in advanced economies. In addition to the representatives of the various economic councils, important aspects of the developments in China were also discussed by Rodney Jones of Wigram Capital Advisors.

This volume collates the papers which formed the background for the individual conference presentations, prefaced by a welcome address given by Parliamentary State Secretary **Iris Gleicke** (BMWi), and a brief paper by Christoph M. Schmidt, the GCEE chairman, explaining the statutory mandate of and the processes behind the GCEE's work.

A first set of three presentations addressed the first major topic of the conference, the development of the Chinese economy. To provide a first impulse for the discussion, **Rodney Jones** (Wigram Capital Advisors) presented an analysis of China's credit boom. **Peter Bofinger** (GCEE) continued the discussion of this first overarching theme by providing an assessment of the transformation process which has engulfed the Chinese economy throughout the last years. In addition, he discusses the various implications that this transformation will have for

the rest of the world economy. Finally, **Pekka Sinko** (EC Finland) discusses the consequences of China's decelerating growth and its changing composition, with a particular focus on the case of Finland.

A second set of five presentations addressed the theme of low and unsatisfactory growth in advanced economies. **Motoshige Itoh** (CEFP Japan) contributed to the conference with a discussion of Japan's experience of a protracted phase of low growth. Starting from the observation that global growth has been disappointing once and again throughout the last years, **Jay C. Shambaugh** (CEA) discusses the reasons behind these developments, sorting out potential factors on both the demand and the supply side, emphasizing the role of weak demand.

Laura van Geest (CPB) uses several examples from the realm of trade policy issues, such as TTIP and Brexit, to explain how the CPB employs its model infrastructure to quantitatively assess the economic implications of policy decisions. In his presentation, **Mostafa Askari** (CBO Canada) outlines possible reasons for the apparent lack in the stability and strength of economic growth in advanced economies since the start of the current century, with a special eye on the Canadian experience. Finally, **Volker Wieland** (GCEE) critically discusses recent attempts at estimating the equilibrium real interest rate and argues that it would be premature to declare the evidence for its possible decline conclusive.

This conference was highly successful because of the many stimulating contributions and the open and engaged discussion of the participants. But the support given to the conference by several members of the GCEE team was also indispensable. The GCEE would like to thank especially the organising committee, comprised of Dr. Jochen Andritzky (Secretary General, GCEE), Birgit Hein (Office Manager, GCEE), Peter Kuntze (Deputy Office Manager, GCEE), and Dr. Astrid Klesse (Head of Unit, Fundamental issues of economic policy, BMWi).

Christoph M. Schmidt, GCEE
Peter Bofinger, GCEE
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CONTENTS

INTRODUCTION

WELCOME (Transcript of the freely delivered speech) _____	6
Iris Gleicke – Federal Ministry for Economic Affairs and Energy	
THE GERMAN COUNCIL OF ECONOMIC EXPERTS: STATUTORY MANDATE AND PROCESS _____	9
Christoph M. Schmidt – German Council of Economic Experts	

SESSION 1: ECONOMIC SLOWDOWN IN CHINA AND IMPLICATIONS FOR OTHER ADVANCED COUNTRIES

THE BANKS AND CHINA'S CREDIT BOOM _____	14
Rodney Jones – Wigram Capital Advisors	
CHINA: NEW NORMAL OR OLD ABNORMAL? _____	30
Peter Bofinger – German Council of Economic Experts	
DIRECT AND INDIRECT EFFECTS OF CHINESE FINAL DEMAND – CASE FINLAND _____	48
Pekka Sinko – Economic Council, Finland	

SESSION 2: CHALLENGES FOR ECONOMIC GROWTH IN ADVANCED ECONOMIES

JAPAN'S CHALLENGES TO BOOST ECONOMIC GROWTH _____	55
Motoshige Itoh – Council on Economic and Fiscal Policy, Japan	
DEMAND AND GLOBAL GROWTH _____	59
Jay C. Shambaugh – Council of Economic Advisers, United States	
OPEN BORDERS _____	76
Laura van Geest – CPB Netherlands Bureau for Economic Policy Analysis	
POTENTIAL GROWTH IN ADVANCED ECONOMIES _____	81
Mostafa Askari – Office of Parliamentary Budget Officer, Canada	
MONETARY POLICY, EQUILIBRIUM INTEREST RATES AND SECULAR STAGNATION _____	86
Volker Wieland – German Council of Economic Experts	

Introduction

Iris Gleicke

Parliamentary State Secretary at the Federal Ministry for Economic Affairs and Energy

To kick off the conference, Parliamentary State Secretary Iris Gleicke welcomes the participants to the Federal Ministry for Economic Affairs and Energy.



WELCOME

(TRANSCRIPT OF THE FREELY DELIVERED SPEECH)

Ladies and Gentlemen!

Allow me to warmly welcome you to the Federal Ministry for Economic Affairs and Energy for the first International Conference of Councils on Economic Policy. Minister Gabriel would have liked to address you himself; however he is unable to attend today's conference due to other obligations. He therefore asked me to stand in for him and to welcome you here today, and to convey his best wishes to you for a successful event.

You are all experts in the difficult and demanding business of economic policy consultation. Traditions and experience in this area differ greatly from country to country. So the idea of holding an international exchange of ideas and experience among councils on economic policy was actually obvious. There have been isolated bilateral exchanges of this nature in the past, and so I am even more pleased that this multilateral exchange is being held today.

The relationship between science and politics is complex and not without tension. This is particularly true in economics and the social sciences. There is more than just the gap between theory and practice, which is often sizable. For scientists it is firstly – as it should be – about examining the problem as accurately as possible, about gaining knowledge. Policymaking, in contrast, is an act of creation – often very swift, and regarding issues on which there is no proven knowledge. But in a parliamentary democracy, it is above all always about striking a balance between different interests.

For this reason, policy must always be focused on everyday life and meeting the people at their level. Because at the end of the day, politics in a democracy depends on the consent of these being governed. In this light, specific economic policy recommendations are necessarily always linked to value judgements. For instance, many economists tend to consider efficiency the top priority and neglect the distribution policy impacts of their recommendations since these can be corrected later anyway, if necessary, via taxes and transfers.

But the reality is different. Policy measures are always judged on their distribution effects – in fact this is often the first criterion.

And yet, separation of efficiency and distribution is frequently not a simple matter. That is why policy consultation “users” would like their advisors to also take into account which measures are feasible and under what conditions. Economic consulting that does not include this can easily miss the mark. Implementing recommendations too often fails because the measures lack the necessary societal recognition and legitimation.

There is a second thing that is important to me: policy consultation must disclose the value judgments on which its recommendations are based. Consultants must openly reveal their underlying “knowledge interests” – to use an expression from academic theory. Their own value judgements hidden beneath the cloak of science may under no circumstances be placed above those of whom they are to advise. This would turn policy consultants themselves into an interest group and they would undoubtedly lose the credibility and acceptance of those they are advising.

You have chosen two important main issues for today's conference: the effects of slower economic growth in China and the longer-term challenges to economic growth in industrialised countries. Both topics are also highly relevant to economic policy in Germany at present. Germany is currently on a solid growth path. The German economy grew by 1.7 percent overall last year despite the difficult international environment. The Federal Government also expects 1.7 percent growth this year and 1.5 percent in 2017.

German economic growth this year is largely being driven by domestic growth; the positive development in employment and income and the low oil price are stimulating private consumption, for example. The main risks to economic development in Germany remain in foreign trade. The slowdown in growth in the emerging markets, such as in China, create headwinds for German exports. So we are very interested in your analyses and assessments of how China's economy will progress.

As regards long-term challenges to economic growth in industrialised countries, I see Germany facing two main challenges at the moment. One major challenge is demographic change. While a heavier influx of skilled workers and labour market integration of refugees can mitigate the consequences of demographic change, it cannot reverse them. The Federal Government's economic policy thus continues to be aimed at boosting employment. This is the reason why, for instance, childcare is being further expanded – so that family and career can be better combined. The Federal Government is also planning to make the transition from work to retirement more flexible so that in future more older people opt to continue working even after they have reached retirement age.

A second major challenge for Germany as an industrialised country is digitalisation. As this will play a key role in future economic growth, the Federal Government is actively addressing the digital transformation. It is supporting digitalisation of the economy and society primarily by adapting the social market econo-

my's regulatory framework to the requirements of the digital world. Ensuring openness to innovation and control over own data – at national as well as European and international levels – and creating the right framework, particularly for private investment, are important in this process.

Of course, we cannot talk about economic policy challenges today without referring to the outcome of yesterday's referendum in the UK. We must respect the British people's decision even if I regret it very much. The decision also shows that rational economic arguments often have only a limited effect in politics. Numerous studies were undertaken in advance of the vote, including those by the IMF and the OECD, that warned of the negative economic consequences Brexit would have for the UK itself. However, these were obviously insufficient to convince the British people to remain in the EU.

The British government now has to decide what steps to take next. If it files a formal leave application, this will trigger negotiations with EU institutions. The General Affairs Council members will discuss this matter in Brussels for the first time today. However, we should not make the mistake of invoking the end of the European Union. I don't see other member states planning any referendums about withdrawal. Nor would that make much economic sense. Membership in the single market and the Schengen Area – for some states – safeguards our prosperity. European structural policy also contributes a great deal for many member states. The question of acting as a member state of the European Union or as an individual nation is, not least, a foreign and security policy issue.

On an emotional level, however, the crises have given rise to doubts about the EU for many people. Firstly the economic and financial crisis and then the refugee crisis have resulted in a loss of confidence. And this is why Europe must win that confidence back. We must encourage people, encourage them to believe in Europe and its – our – ability to solve problems.

Let me stress once again in closing how important independent economic policy consultation is to the Federal Government. Even if we do not always share the criticism of the German Council of Economic Experts, it provides us nonetheless with important analyses for economic policy understanding and discourse.

I wish you interesting discussions and lively debate at your conference today, which – if I understand correctly – is to be the first in a series of regular exchanges.

Thank you for listening.

Christoph M. Schmidt

German Council of Economic Experts

As part of the introduction of the participants, GCEE chairman Christoph M. Schmidt highlights the particularities of the GCEE's mandate and the role of its annual report.



THE GERMAN COUNCIL OF ECONOMIC EXPERTS: STATUTORY MANDATE AND PROCESS

Since 1963, the year of its foundation, the German Council of Economic Experts (GCEE) has been working as an independent group of advisors on a wide range of questions of economic policy to Germany's policymakers and the general public. Its annual report has been serving as an anchor for budgetary planning and forecasting of administrations and enterprises, as a principal source of information regarding the state of the economy and the effects of policy interventions, and more generally as an inspiration for the public discourse on economic policy in Germany and at the European level. As a reflection of its independence, the GCEE's analyses and views are often exposed to considerable criticism from the political sphere. Yet, this sense of unease must not be confused with criticism of the council's analytical quality. As this brief article explains, being a critical, yet constructive voice in the economic policy arena is enshrined in the GCEE's legal mandate and process.

The GCEE's legal mandate

The GCEE has the legal obligation to submit an annual report on macroeconomic development, "to assist all authorities responsible for economic policy as well as the general public in forming a sound opinion" (Act on the Appointment of the Council of Economic Experts (Gesetz über die Bildung eines Sachverständigenrates zur Begutachtung der gesamtwirtschaftlichen Entwicklung – SVR-Gesetz)). The GCEE is "only bound by the mandate set forth in this law; it is independent in the performance of its work" and comprises persons who "possess a specialised knowledge of economic science and be experienced in matters of economic policy".

The pool of eligible potential members is clearly delineated by the act (Article 1(3) SVR-Gesetz); for example, they cannot be members of government or public service at the time of appointment or during the year preceding appointment, except as a university teacher or an assistant at an institute of economic and social science. Furthermore, they must neither be representatives of any association of employers or trade union, nor may they be bound to them by any perma-

ment contract of employment or agency agreement. However, there is an informal understanding that one council member will be appointed with the approval of the German trade unions, and one with the approval of the association of German employers.

GCEE members are appointed for five-year terms, with the possibility of being reappointed for a second (that happens often) or even third (a rare event) term. Once appointed for their five-year term, GCEE members cannot be dismissed, providing them with considerable independence. The members' terms are not synchronised, but are overlapping. Typically, one member is up for reappointment or is newly appointed to the GCEE each year. Consequently, throughout its history the group has tended to comprise a mixture of experience and fresh perspectives. As the GCEE's reputation rests on the academic standing of its members, they should have published extensively in refereed international journals.

The SVR-Gesetz explicitly states what the GCEE is to examine and that the assumptions underlying the analysis are to be transparent. The benchmark for assessing future macroeconomic developments is also defined in the SVR-Gesetz (Article 2 SVR-Gesetz). However, in all cases where the four prescribed objectives of this so-called “magic square” – stability of the price level, a high rate of employment and equilibrium in foreign trade and payments, together with steady and adequate economic growth – are not completely congruent, the GCEE is free in determining how to weigh them against one another. The mandated task of the council is to indicate undesirable developments that pose a threat to the stated objectives, and identify ways to avoid them.

It might well happen that one or two GCEE members have a different opinion on how to weigh the individual objectives than the council's majority, or that they are convinced of another interpretation of the empirical evidence. In these cases, the SVR-Gesetz explicitly entitles this minority to express a dissenting opinion. The act thus recognises that despite the prescribed objectives and the shared academic and informational basis, there typically cannot be an “objective” or “neutral” benchmark for assessing economic policy. Consequently, the statutory mandate implies that each annual report is an expert opinion of current macroeconomic developments based on economic reasoning, reflecting the inherent uncertainty regarding these matters wherever this is appropriate.

The process behind the GCEE reports

The GCEE draws on the latest economic literature when preparing the annual report. The references to literature enable readers to quickly gain their own overview of the relevant literature. However, the report does not purport to provide a complete reflection of the literature. It would anyway not be in accord with the mandate to simply provide an overview of literature on the issues discussed. Rather, the current academic and applied literature forms the transparently documented basis for the GCEE's own discourse and the ensuing conclusions. It is the council's firm conviction that only by formulating an explicit position on all relevant matters of economic policy, it will be able to fulfil its mandate: to help inform the opinions of policymakers and the public.

The GCEE also conducts its own empirical analyses, based on macroeconomic data or individual-level survey data. Quite frequently it commissions additional empirical analyses in collaboration with external economists who are particularly knowledgeable in a specialised field of application. These studies are often an especially valuable instrument for assessing the likely future impact of economic policy measures, as the academic literature will typically only provide such analyses with a delay. It certainly adds to the reputation of the council's work that the empirical studies of both the council and its staff and of the external economists are often subsequently published in peer-reviewed international journals.

While in the public debate it is often mistaken as an indication of indecisiveness, the GCEE openly embraces the instrument of reflecting a diversity of perspectives on economic policy in dissenting opinions. Their publication in the annual reports provides much more transparency about the inherent intricacies of these matters than is available in most reports of other institutions or research papers. The fact that each member of the GCEE is legally entitled to express a dissenting opinion in the annual report is therefore an important component of the council's process, enhancing its transparency and ultimately its legitimacy.

To foster transparency about its work, the GCEE provides the data underlying all charts and tables published in the annual reports for download from its website, with the rare exception where copyright rules do not permit this. The reports also include a comprehensive list of all institutions and persons with whom the council members spoke prior to preparing them. They also name all members of staff, including interns, who worked on the report, as well as all economists who provided analyses for the GCEE. Finally, academic articles (co-) authored by members of the council's staff are published as working papers on the GCEE website.

The GCEE – a voice in the economic policy arena

In light of the so-called magic square of economic objectives that serves the council as a benchmark, almost every analysis of economic policy measures will necessarily end with a value judgement, because the four objectives have to be weighted against one another. It is quite obvious from looking at the decade-long history of annual reports, that this frequently leads to criticism levelled at prevailing government action. This criticism generally becomes more vocal when economic policymakers have taken or plan to take steps that could be a threat to achievement of the four objectives set in the SVR-Gesetz.

This often happens in years when a new government has taken office following a general election, and introduces a new direction for economic policy. In 2009, the economic policy plans of the newly elected coalition government of the CDU/CSU and FDP resulted in the title of the 2009/10 Annual Report being "Securing the future through responsible economic policies". And in 2013, the plans of the newly elected "grand coalition" government to further dilute the reforms of Agenda 2010, thereby – at least according to the assessment of the GCEE's majority – putting the GCEE's four objectives at risk, led to the title "Against a backward-looking economic policy" of the 2013/14 Annual Report.

It is abundantly clear that by adamantly voicing its conclusions in the public arena, the GCEE fulfils its statutory mandate – that is as a critical economic policy companion to every German federal government, and not a direct government advisor. As was intended when it was formed, the GCEE thus continues to remain a public challenger to policymakers¹, as evidenced by the intense public debates on the analyses and results of the annual reports.

While this might feel uncomfortable for policy-makers from time to time, then Chancellor Gerhard Schröder put matters in perspective on the occasion of the 40th anniversary of the GCEE in 2003, by saying: “Advice from competent third parties is valuable support for every active politician, particularly when provided independently in a public and critical dialogue. And I stress: This also applies if – and this is said to have happened before – the expert opinions are not what we want to hear.”²

¹ H. Tietmeyer: Die Gründung des Sachverständigenrates aus der Sicht der Wirtschaftspolitik, in: Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung (Ed.): Vierzig Jahre Sachverständigenrat 1963-2003, Wiesbaden 2003, pp. 22-33.

² G. Schröder: Wissenschaftliche Beratung und politische Durchsetzbarkeit, in: Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung (Ed.): Vierzig Jahre Sachverständigenrat 1963-2003, Wiesbaden 2003, pp. 15-21.

Session 1:
**Economic slowdown in
China and implications for
other advanced countries**

Rodney Jones

Wigram Capital Advisors

A first set of three presentations addressed the first major topic of the conference, the development of the Chinese economy. To provide a first impulse, Rodney Jones (Wigram Capital Advisors) presented an analysis of China's credit boom.



THE BANKS AND CHINA'S CREDIT BOOM

Introduction

The banks have always been central to the Chinese development model, marshalling China's savings and directing it through loans to the industrial sector, property development, as well as funding investment. However, this system is now coming under increasing strain, as the banking system migrates from simple loans and deposits to shadow financing. Outside of the Big Four banks, opaque and secretive shadow financing now dominates traditional banking activity.

Since 2010 leverage has risen sharply, while Chinese banks are increasingly reliant on short term paper for funding. What began as regulatory arbitrage has now evolved into a new credit system, with banks operating three balance sheets; a traditional banking deposits and loan book, an on-balance sheet shadow financing book, and an off-balance sheet financing book – the latter of which comprises unconsolidated credit assets. The aggregate size of these balance sheets has grown dramatically since 2010, and now represents 350 % of GDP. From this, we estimate that credit to GDP was around 270 % at the end of 2015 - and growing rapidly.

This new credit system is deeply grounded in provincial China. The importance of the Big Four banks has shrunk, with the balance of power shifting towards provincial based financial institutions. Today China's banking system is more provincially based than at any point in the last 30 years. Moreover, this highly leveraged system is tightly tied to the fate of the corporate / industrial sector. Adjusting for shadow financing, corporate credit makes up around 85 % of bank credit risk, leaving the Chinese banking system very exposed to a slowing industrial sector.

To better understand the evolution of the Chinese banking system, we undertook a project where we assembled Chinese bank data from the bottom up, closely examining 100 bank annual reports from 2008-15. This project 'pulled back the veil' on the Chinese banking system, and revealed that the credit boom has been more profound than appreciated. As of late 2016 this credit boom is still ongoing.

A brief history

Since 'Opening Up' in the early 1980s, banks have been central to the Chinese development model, marshalling China's savings and directing it through loans to the industrial sector, property development, as well as funding investment. Prior to 1993 this was under the 'credit plan', which was the key component of the Government's work plan for any given year. The purpose of the credit plan was to ensure that financing was made available to fund the fixed asset investment and the working capital needs of state owned enterprises.

The credit plan formulation was bottom-up, being formulated at the provincial level, and working its way up to the PBOC in Beijing, and then to the State Planning Commission and the MOF. The credit plan was meant to act as a discipline or constraint, but over time credit plan lending increasingly came to comprise direct support for loss-making industrial enterprises and social infrastructure which generated no return.

By the mid-1990s continued policy lending, as well as losses associated with China's first property boom in 1993/94, undermined the position of the banks. These accumulated losses created the banking problems from 1998, which drove the restructuring and reform of the banking system at the end of the 1990s. The 1990s reform involved the recapitalisation of the large four commercial banks, the emergence of joint stock or shareholding banks, and the restructuring of the urban and rural credit co-operatives into city and rural commercial banks. By the time the Chinese economy took-off in 2003 this was the broad outline of the Chinese banking system.

However, after the credit surge of 2009 in response to the GFC, a shadow system emerged, which was paradoxically both inside and outside the formal banking system. The emergence of a shadow financing system, with a plethora of new financial products and structures, has made formal analysis of the Chinese financial system increasingly difficult. Rapid financial innovation has meant that the normal financial metrics of money supply and bank lending data no longer reflect or measure growth in monetary liabilities or broad credit.

In 2010, in response to emerging financial innovation, the PBOC developed the concept of 'total social financing' (TSF), which added measures of entrusted loans, trust loans and banker acceptance bills to loans to create a measure of broad credit. However, since 2011/12 the Chinese financial system has developed further with the emergence of wealth management products (WMPs), issued by banks and third parties, which are not included in TSF.

As the Chinese financial system has embraced financial innovation post-2009, the composition of the system has changed, with the balance of power shifting away from the 'Big Four' commercial banks to the smaller joint stock banks (JSBs), and city and rural commercial banks (CCBs). Moreover, this financial shift has taken China back to the days of the credit plan, where the financial system is essentially based in the provinces. Today the financial system is more provincial based than at any point in the last 20 years, but without the discipline imposed by the central credit plan.

This radical evolution means that today the Chinese financial system is not well understood, with the shift in financial importance from the Big Four commercial banks to the joint stock and city and rural commercial banks, and from the centre in Beijing to the provinces making the system increasingly opaque.

The banks today

The period since 2010 has been characterised by a shift in financial power away from the large banks. According to the CBRC's measure of domestic banking assets, today the Big Four banks account for 38 % of the banking system's assets – down from 51 % in 2009, and 58 % in 2003. The Big Four banks have employed a conservative approach to growth, particularly after 2010 where total assets have grown at a 10 % compound rate. In contrast, the growth rate of the other commercial banks has averaged a full 10 percentage points higher than that of the Big Four. Since 2003 the share of joint stock and city and rural commercial banks has risen from 25 % of banking assets, to 44 % today. The fastest growing segment of the Chinese financial system is the city commercial banks, which have grown assets at a 26 % compound rate since 2003.

Market Share	2003	2009	2015	Compound Growth*
Big Four	58	51	38	14%
Joint stock Banks	10	15	19	24%
City and Rural CBs	15	18	25	23%
OFI**	17	16	18	18%

Source: Wigram Capital Advisors, CEIC and CRBC

*since 2003

**Other financial institutions, incl Policy Banks

Because of this imbalance in the banking system, it is not appropriate to view the banking sector as one whole. Our approach is to separate the Big Four from the rest, which allows us a deeper insight into the banking system, and into the emerging fragilities and vulnerabilities. The impact of the economic slowdown is likely to be more severe on the JSBs and CCBs due to a lack of provisioning and capital buffers.

The approach we have taken is to undertake a survey of 100 banks from 2008-15, using their published annual reports. Additionally, we include the three policy banks. This has involved analysing the balance sheet, as well as referencing the notes to the accounts. While our survey covers just over 2/3 of banks by number, it covers 85 % of the system by assets.

Our survey of 100 banks allows us to critically review the official measures of credit, bank liabilities and bank assets, and arrive at our own alternate estimates.

There are three official measures of the Chinese financial system:

- Total social financing (TSF), published monthly by the PBOC, which is a measure of broad credit.
- Banking assets, published monthly by the CBRC, which breaks out banking system assets in the large commercial banks, the joint stock banks, the city commercial banks, the rural commercial banks and other financial institutions.
- The depository corporation survey, published monthly by the PBOC, which provides a breakdown of depository corporation assets, using definitions consistent with BIS measures.

The challenge which faces attempts to measure both the stock and growth of credit in China since 2010 is the rise in importance of shadow financing. While shadow financing is seen as distinct from the banks, in China the shadow system is operated by the banks, and incorporates both on and off balance sheet debt. Most observers have until recently ignored this shadow debt, and focus solely on loans and deposits.

In our view it is the combination of CBRC's banking asset survey and the PBOC's depository corporation survey which provides the best insight into the Chinese financial system. However, such has been the extent of financial innovation in China over the last decade that fitting the Chinese system into BIS definitions is akin to fitting a square peg into a round hole. Getting the actual data to fit has distorted the underlying meaning of the data.

This is the first time in Asia that we have seen such intensive use of shadow financing structures. In Thailand and Malaysia in 1997, credit risk was concentrated in the finance companies, which although non-banks, the finance company balance sheet, loans and deposits were transparent, while aggregate loans and deposits were reported monthly by the central bank. In Korea the trust accounts of the banks represented an attempt at regulatory arbitrage, and offered higher interest rates, but nonetheless had transparent accounts. Bank annual reports comprised the balance sheets of both the banking and trust accounts.

In contrast, what has evolved in China much more clearly represents a shadow financing system, and remains surprisingly secretive. The motivation behind the emergence of a shadow system is clearly regulatory arbitrage, and is in response to continuing high reserve requirement ratios, loan quotas, and the standard capital and provision requirements. Yan Qingman and the late Li Jianhua (2016, loc 1006), in their review of shadow financing in China note that '[c]ommercial banks' active disintermediation implies that commercial banks are not satisfied with on-balance sheet business. They have a desire beyond what regulations allow, so they engage in regulatory arbitrage'.

But opaqueness itself is also a motivation. Yan and Li noted that "China's shadow banking is more secretive than in Western countries. Systemic risk arises because central banks cannot monitor them, and the lender of last resort cannot provide aid on time" (2016, loc 1089). This secrecy is endemic in the Chinese financial system, and inhibits the ability of outside observers – and possibly regulators themselves – to assess underlying financial stability risks.

The 'three balance sheet' system

China banks' increased reliance on shadow banking has seen emergence of effectively three independent balance sheets within one bank:

- The banking balance sheet, comprising loans and deposits
- The on-balance sheet shadow financing book
- The off-balance sheet shadow financing book

Identifying each of these different balance sheets requires careful reading of each bank's annual report, both the balance sheet and notes to the accounts. Chinese reporting standards have recently been strengthened to require more disclosure around off-balance sheet vehicles.

Balance sheet (ii) comprises debt classified as receivables (1) as well as financial structures such as (2) – the other investment assets. Balance sheet (iii) comprises unconsolidated assets reported in the notes of the annual report and off-balance sheet items such as entrusted loans and credit commitments.

Balance sheet (ii) – Debt classified as receivables

The challenge with looking at the Chinese banking system is that rather than having loans and deposits, it has evolved into a collection of SPVs, and as the size and number of SPVs continues to grow, where the SPV resides – and how it resides – becomes increasingly critical in assessing risk, both at the bank level, and the financial system itself.

Gorton and Soulesles (2006, p.530) noted in their work on shadow financing that the key test with Special Purpose Vehicles (SPVs) is whether “these vehicles truly satisfy the legal and accounting requirements to be off-balance sheet”. Moreover, the “difficulty lies in the distinction between formal contracts (which are subject to accounting and regulator rules) and ‘relational’ or ‘implicit’ contracts” (p 530). In China, relational and implicit contracts assume the greatest importance.

In China the off balance sheet entities or SPVs are partially consolidated depending on the bank's maximum exposure to the entity. This is an attempt to measure the relational or implicit contract. While the data for underlying sizes of the SPVs are usually unavailable, the “maximum exposure of loss” to the SPVs is consolidated to the balance sheet. In other words, only the equity investment amounts in the SPVs are consolidated into the banks' balance sheet – titled as their “maximum exposure to unconsolidated assets”. In most cases, banks do not report the full size of the structured entities, another area where we cannot obtain information to determine the true size of the shadow banking system in China.

The ‘maximum exposures’ to the SPVs are consolidated into balance sheet items. The overall accounting treatment, though, is ambiguous. It appears that the ‘carry cost’ represents ‘an asset’, and appears on the asset side as a debt receivable

(the notes to the accounts link the debt receivable to the carrying cost), even though it is more easily thought of as a liability of the bank (a risk obligation that the bank will be held accountable for). Moreover, the investors in this SPV will most likely already be a depositor at the bank, and have bought the product through a bank branch. Instead on the liability side, the counterpart to the carry value or maximum appears to be recorded as a claim of an 'other financial institution', which is the SPV itself.

It is also important to note that whilst most of the maximum exposures are consolidated in the balance sheet item – debt securities classified as receivables – they can also be found in other investment categories in the balance sheet.

Balance sheet (iii) – Unconsolidated assets

Of growing importance, however, is balance sheet (iii), which represents the fully off-balance sheet shadow financing book. We have identified three major parts of unconsolidated assets present in bank annual reports – unconsolidated structured entities, entrusted loans, and credit commitments. These items are separate from the assets in the consolidated structured entities.

In March 2014, banks in China adopted CAS 37 – a new accounting standard. Starting from the 2014 annual report, banks are now required to disclose interests in other entities – which are displayed in the footnotes of the annual report.

Unconsolidated structured entities mainly provide shadow banking through non-principal guaranteed WMPs and investment funds sponsored by the group. The difference with the consolidated structured entity is; whether the WMPs issued are principal guaranteed or non-principal guaranteed. Non-principal guaranteed WMPs are not consolidated in the balance sheet as the banks theoretically do not have credit risks against these assets.

However in practice, the unconsolidated assets do pose a credit risk to the banks. The risks are stated in the risk factor section of various prospectuses. This is consistent with the argument by Gorton (2015, p.31): 'Although not legally required, issuers [sponsors] may feel compelled to support a securitisation and absorb credit risk beyond the residual exposure. In effect, there is moral recourse since failure to support the securitisation may impair future access to the capital markets' (Gorton and Pennacchi (1989) cited in Gorton (2015)).

Other unconsolidated credit activities are fiduciary activities by the banks, with entrusted loans by banks replicating a loan by acting as the agent between two parties. The bank charges a fee as an agent, but the entrusted loans are not consolidated in the balance sheet as the banks assert that the credit risk remains with the trustors. Banks have pushed these loans off the balance sheet by denying the credit risk of the loans.

We also follow the off-balance sheet credit commitments. Out of the four items in the off-balance sheet credit commitments, we consider banker's acceptances and letters of credit as credit assets. There have been increasing reports of banker's acceptances being used as a credit source due to loose regulations. For ex-

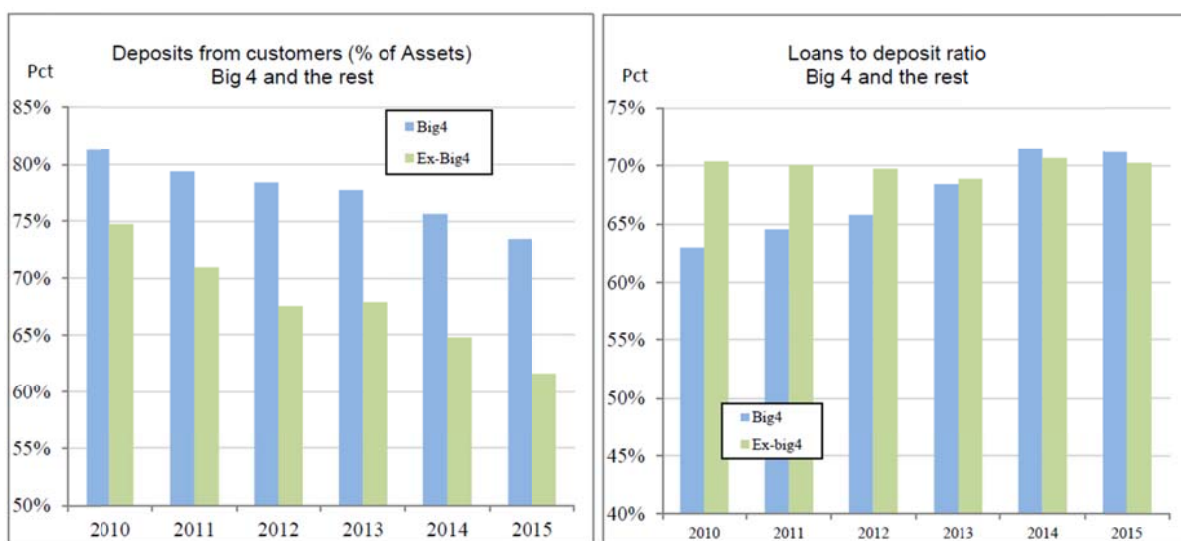
ample, two parties trade a fictitious asset and then repurchase to each other – no asset changes as a result but a receipt is created for the trade. These receipts can be used to obtain cash in the form of a banker's acceptance.

To avoid over-statement, we do not include guarantees and credit commitments in our calculations of broad credit. However, these off-balance sheet items still represent risk for the banks, as a number of banks have acknowledged in their listing prospectuses. In the Korean banking crisis in 1997, guarantees ended up as being a major of credit exposure and losses for the Korean banks.

Shadow financing as regulatory arbitrage

China banks' reliance on shadow banking has rapidly expanded in recent years. As shadow banking is performed outside the regular banking system, they are not restricted by capital and provisioning requirements. Reserve requirements are onerous on standard bank deposits, but are not levied on shadow banking. Shadow banking allows more flexible lending by avoiding regulatory requirements, as they are not subject to loan quotas. Regulations on lending to property can be evaded by use of shadow structures, while lending by SPV also opens up the capacity to conduct extended 'ever greening' of bad loans, particularly through principal guaranteed WMPs. These are all examples of regulatory arbitrage, which collectively undermine the stability of the Chinese financial system.

The use of the shadow book to manage capital requirements is evident in the banks' accounts. In 2013 the China Banking and Regulatory Commission (CBRC) adopted Basel III risk-based capital regulations, tightening ratio requirements. The minimum tier 1 capital ratio went up from 4.0 % to 6.0 %, and the capital adequacy ratio climbed from 8.0 % to 11.5 %. Typical loans have a risk weighting of 100 %, but the risk weighting can be lowered through shadow banking. The use of shadow banking allowed banks to expand their loans without pressuring the capital adequacy ratio. Across the system, once shadow loans are recognised as credit assets, capital ratios decline sharply.



Source: Wigram Capital Advisors, and various annual reports)

Shadow banking has also been useful to avoid the loans to deposits ratio requirements. Until October 2015, banks' loans to deposit ratio was capped at 75 %. Growth in customer deposits have been slow, therefore many banks chose to expand their loans through shadow banking as they were not able to expand conventional loans. It is not clear, though, whether banks have activity diverted deposits towards the shadow system, or whether the customers have naturally migrated to the shadow system.

Credit assets and shadow banking: The actual data

The most important task is to arrive at an estimate of the size of the banks' shadow financing assets. We do not have the data to measure the whole shadow system, but using the banks' annual reports we can identify the extent of the banks' interactions with the shadow system, or more particularly the size of the three balance sheets we outlined above. This allows us to arrive at an estimate of broad credit.

The key shadow banking assets that can be identified are:

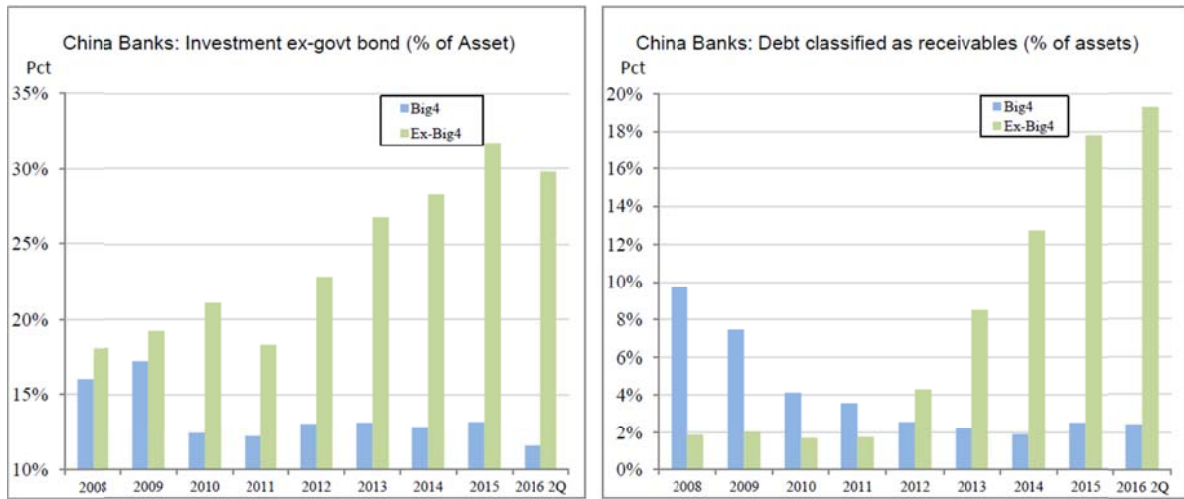
Investments excluding government bonds. This comprises debt receivables and other investment assets, excluding government bonds and policy bank bonds. There is a marked difference in the behaviour of the Big Four banks and the rest. Outside of the Big Four banks, investments and debt receivables now represent 35 % of reported on-balance sheet assets. In our sample, excluding the policy banks, investment and debt receivables are estimated to be Y35.1tn for 2015, against loans of Y68tn. The majority of the growth over the last three years has come from balance sheet item 'Debt securities classified as receivables'. For the ex-Big Four banks, this now represents 18 % of on-balance sheet assets.

Y tn		2010	2011	2012	2013	2014	2015
WCA Survey	Bank assets – survey (100 banks)	71.7	83.5	99.0	112.9	125.5	142.1
	Claims on Other Financial Institutions	2.5	5.2	6.8	6.0	6.6	7.8
	Financial Assets (excl Govt & Policy Bank bonds)	7.7	8.3	11.2	13.2	13.2	14.4
	Debt Receivables	2.4	2.4	3.2	5.7	7.8	12.8

We classify investment and debt receivables as credit assets. These instruments provide credit to the economy and eventually are risk assets to the banks. Banks acknowledge the risks of these items as shown in their prospectuses. These items are mentioned in the 'Risk factors' section of the prospectus where the potential loss is explained in detail.

Off-balance Sheet Credit Commitment – The off-balance sheet credit commitment contains four items: Banker's acceptances, letters of credit, credit commitments, and guarantees. The total off-balance sheet credit commitments are over 20 % of the assets for ex-Big Four banks. However, we only include banker's acceptances and letters of credit to be a part of the shadow banking system. We do not include guarantees and credit commitments into our calculation

of credit assets (although this is debateable given the experience of Korea in 1997).



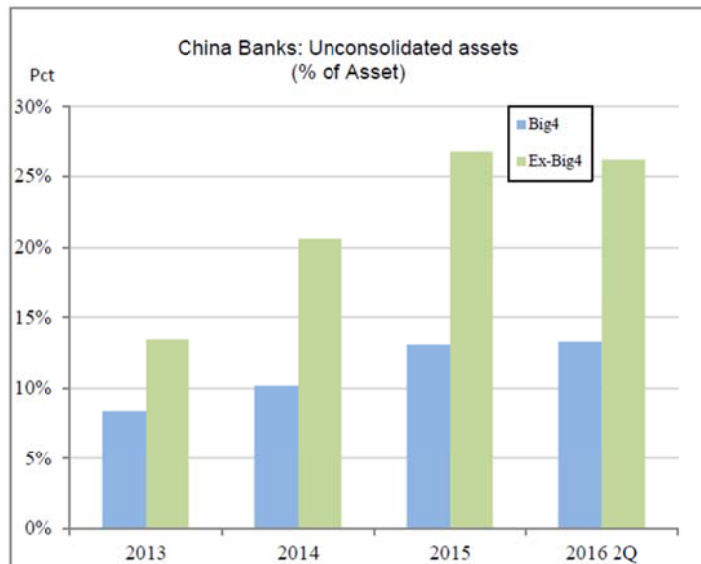
(Source: Wigram Capital Advisors, and various annual reports)



(Source: Wigram Capital Advisors, and various annual reports)

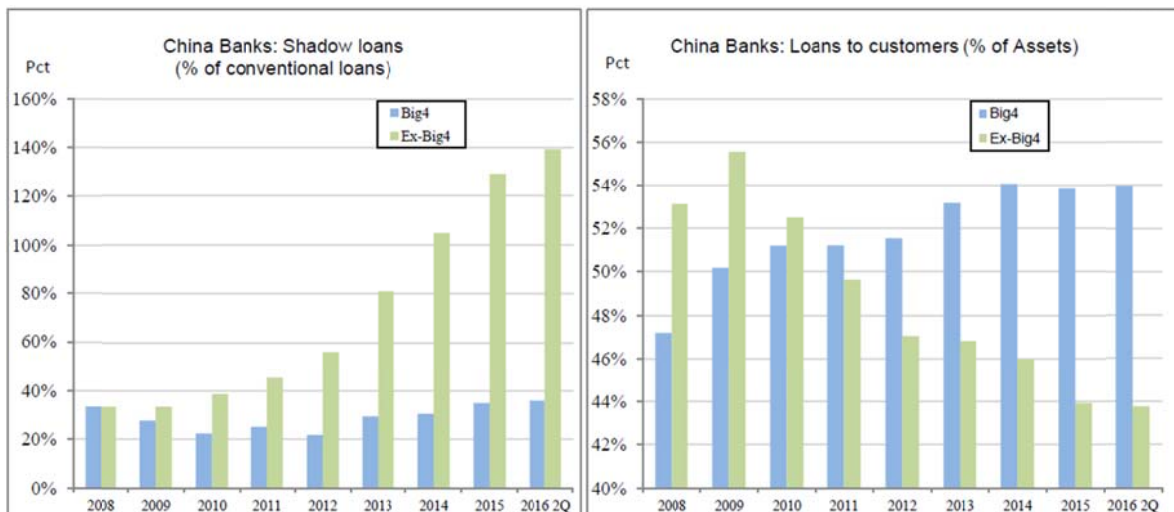
Unconsolidated assets – Out of our sample of 100 banks, 65 banks report the amount of unconsolidated assets, which they hold off-balance sheet. In 2015, unconsolidated assets are estimated to show around a total of Y27tn of assets, up from Y18.6tn in 2014. In 2015, unconsolidated have grown rapidly, expanding 41 % for the Big Four and 52 % for the ex-Big Four Banks. For the latter, unconsolidated assets now represents around 30 % of their reported assets. Unconsolidated assets mainly comprise of non-principal guaranteed WMPs and entrusted loans. In addition, a few banks also sponsor AMPs and investment funds.

Y tn		2010	2011	2012	2013	2014	2015
WCA Survey	Bank assets – survey (100 banks)	71.7	83.5	99.0	112.9	125.5	142.1
	Claims on Other Financial Institutions	2.5	5.2	6.8	6.0	6.6	7.8
	Financial Assets (excl Govt & Policy Bank bonds)	7.7	8.3	11.2	13.2	13.2	14.4
	Debt Receivables	2.4	2.4	3.2	5.7	7.8	12.8



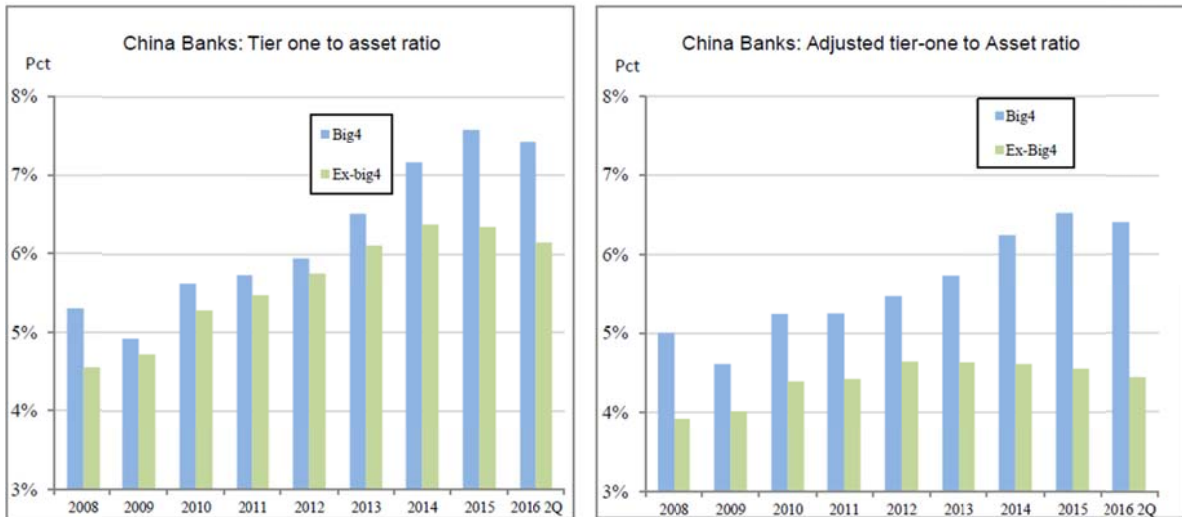
(Source: Wigram Capital Advisors, and various annual reports)

The three items - debt receivables, BAs and LCs and unconsolidated assets represent our estimate for shadow loans. Outside of the Big Four banks, our estimated shadow loans are now larger than the conventional bank loans, with shadow loans being equivalent to 140 % of their conventional loans. In contrast, for the Big Four banks shadow loans are equivalent to just 36 % of reported loans. Outside of the big-four banks, conventional loans are falling in significance, declining to 44 % of assets.



(Source: Wigram Capital Advisors, and various annual reports)

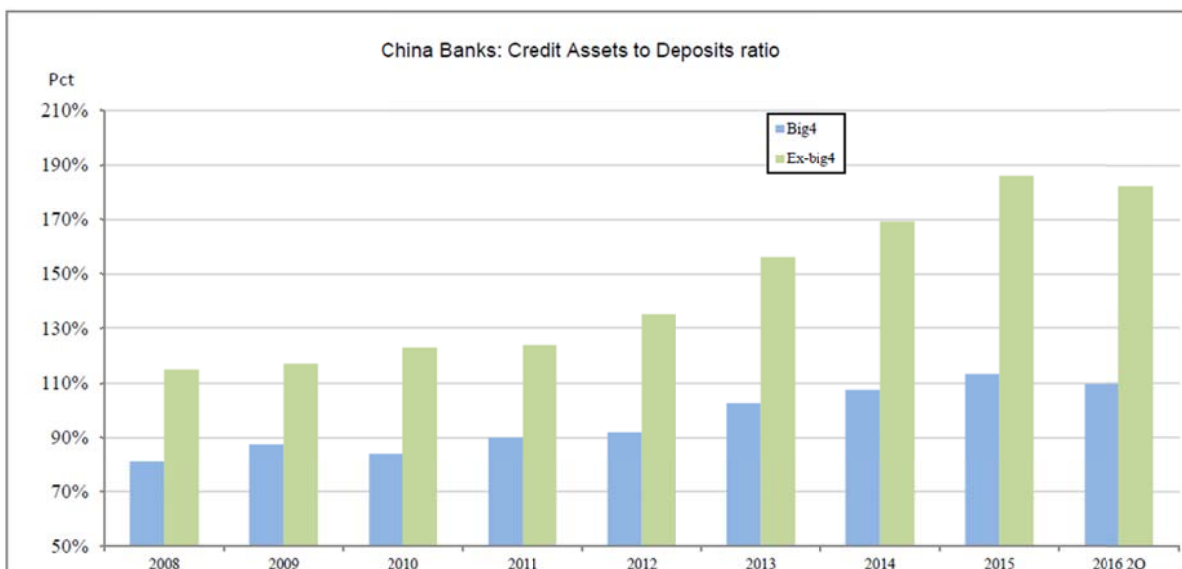
Through shadow banking instruments, banks successfully expanded credit without violating the regulatory capital requirements. Taking a simple tier one capital to assets ratio, the Big Four banks had a ratio of 7.4 % against 6.2 % for the rest. However, once this ratio is adjusted for unconsolidated assets, the tier one to asset ratio for the smaller banks becomes as low as 4.4 %. This would decline further once under-provisioning is taken into account.



(Source: Wigram Capital Advisors, and various annual reports)

Leverage and Liquidity

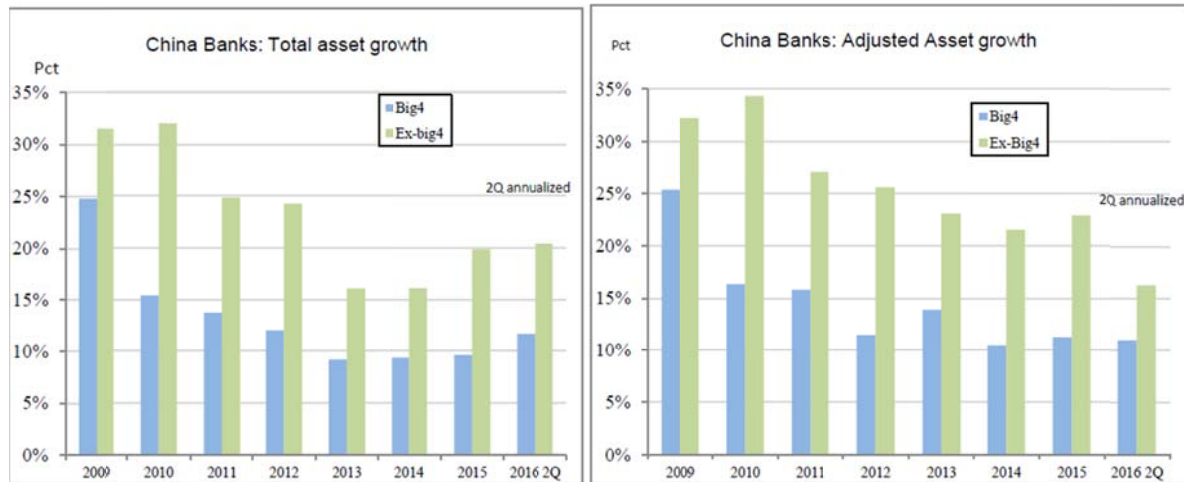
Given the backdrop of the lack of capital and provisions, the question is how we think about leverage and liquidity. The metric we have arrived at is a measure of credit assets to deposits. Credit assets include loans and shadow loans; that is, investment and debt receivables, BAs and LCs, as well as unconsolidated assets. The point of looking at credit assets to deposits is to identify how dependent banks are on non-deposit liabilities, principally WMPs and short term paper. For the Big Four banks credit assets to deposits in 2015 reached 104 %, up significantly from 80 % in 2010, but still a conservative number. In contrast, for the other bank the ratio reached 180 % in 2015, up from 121 % in 2010. This shows a concerning reliance on short-term non-deposit funding.



(Source: Wigram Capital Advisors, and various annual reports)

Growth in China's banking sector and credit expansion

China's banking sector has expanded rapidly in recent years. Reported asset growth for ex-Big Four banks is 16.7 % in 2015. However, if the unconsolidated assets are included, the asset growth becomes 20 %. Outside of the Big Four banks, once unconsolidated assets are included, the annual growth in total assets has exceeded 20 % every year since 2008. The Big Four banks have maintained a steady and conservative growth rate, but the ex-Big Four banks have grown aggressively through shadow banking.



(Source: Wigram Capital Advisors, and various annual reports)

We have attempted to reconcile the banks' balance sheet data we have assembled with the official measures of banks assets and credit.

The total on-balance sheet assets of the 103 banks in our survey – including the policy banks – amounted to Y170tn for 2015. Our sample represents 85 % of the banking system reported by the CBRC and PBOC, and this ratio is consistent across the various components. For this reason we take 0.85 as the divisor to move from our sample to an estimate of total assets and liabilities, as well as the components.

Using this divisor, our estimate of banking sector assets in 2014 and 2015 is Y174tn and Y199tn, in line with the PBOC depository corporation total assets measure of Y172tn and Y199tn respectively. If we include off-balance sheet credit assets, which as noted we define as comprising BAs and LCs, as well as unconsolidated assets, the size of the banking system rises to Y245tn – or 360 % of GDP.

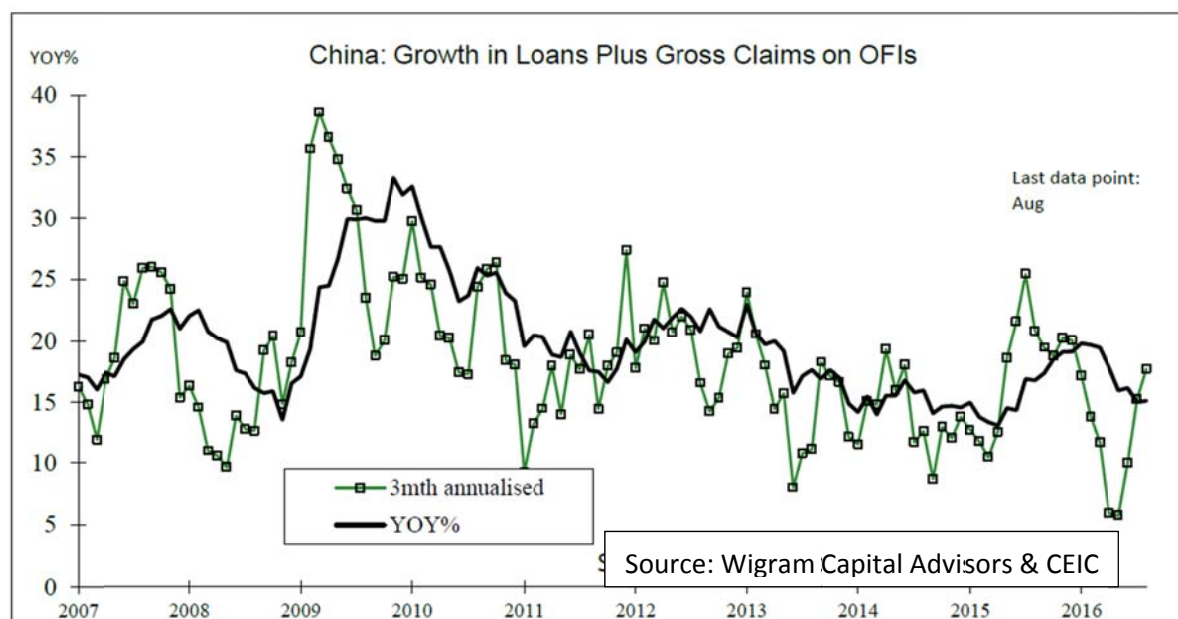
What we are ultimately interested in, though, is credit risk. The benchmark has been the depository corporation survey, published by the PBOC. Balance sheet (ii) – the on-balance sheet shadow financing book - is consistent with what the PBOC reports on the asset side as claims on other financial and depository corporations, and on the liability side as deposits of other financial and depository corporations. While these items are usually seen as interbank assets and liabili-

ties, we believe this only represents a small portion of the total amount (around Y6tn out of Y50tn).

Y tn		2010	2011	2012	2013	2014	2015
WCA Survey	Bank assets – survey (103 banks)	82.8	97.0	115.3	131.1	147.6	169.9
	Including BA+LC & unconsolidated assets				154.5	177.5	208.9
	Bank assets (WCA est - 85% divisor)	97.5	114.1	135.6	154.3	173.6	199.9
	Adjusted bank asset (WCA est – 85% divisor)				181.8	208.9	245.9
DC survey	Total bank assets	96.2	113.8	133.7	152.5	172.2	199.2
GDP	Nominal GDP				59.0	64.1	67.7
	Total adjusted bank asset as % of GDP				308%	326%	363%

Balance sheet (iii) – the off-balance sheet shadow financing book - does not appear in any of the official PBOC data, and remains the ‘secret’ balance sheet, outside of the once-a-year Annual Report, which our project has focused on.

The conclusion is that our bank database reconciles with the Depository Corporation (DC) survey data. The best monthly proxy for credit in balance sheet (i) and balance sheet (ii) is the measure of loans plus gross claims on OFI. This is what we regard as broad credit, although it excludes off-balance sheet assets. As seen in the chart below, growth in broad credit has grown rapidly over 2015 and 2016.

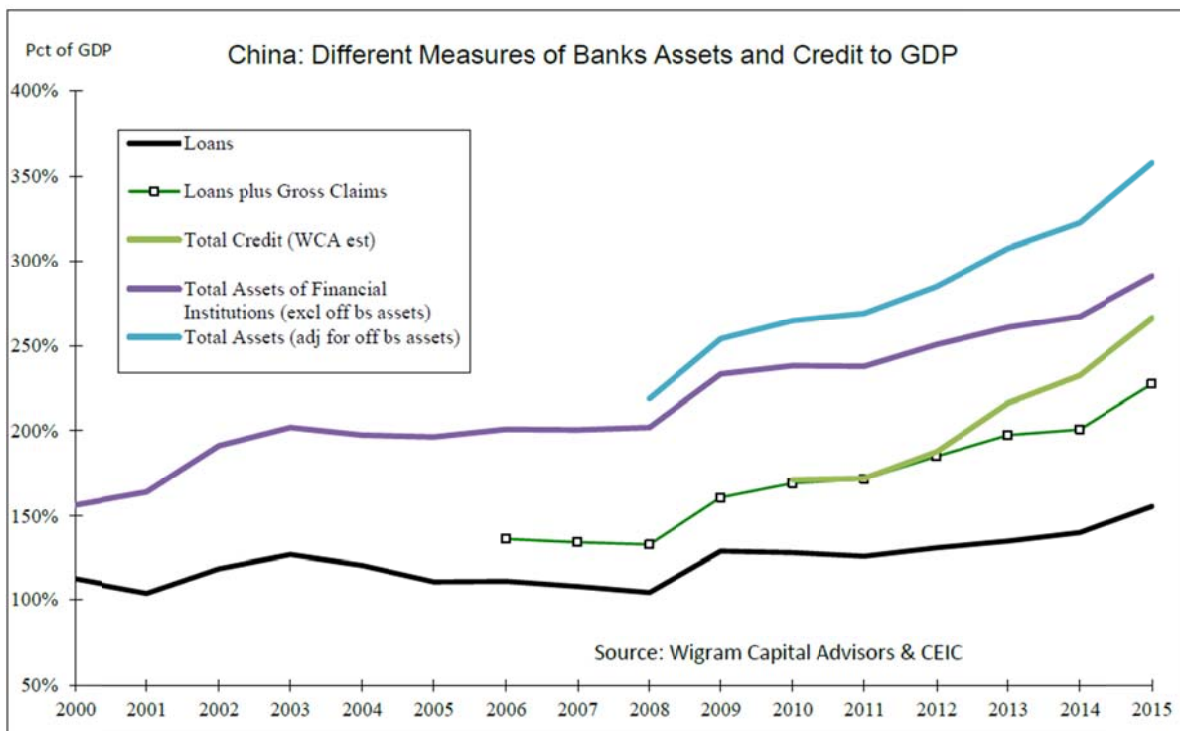


(Source: Wigram Capital Advisors, and CEIC)

We estimate that credit to GDP ended 2015 at around 270 % of GDP – higher than most estimates. The key to this conclusion is the significance of the size of the off-balance sheet unconsolidated assets. We have also come up with a new measure of bank liquidity, which we term broad credit to deposit ratio. This is in order to identify banks' increased reliance on short-term paper. This ratio has risen from 103 % in 2010 to 147 % in 2015.

Table 4: Total credit as % of GDP (Ytn)

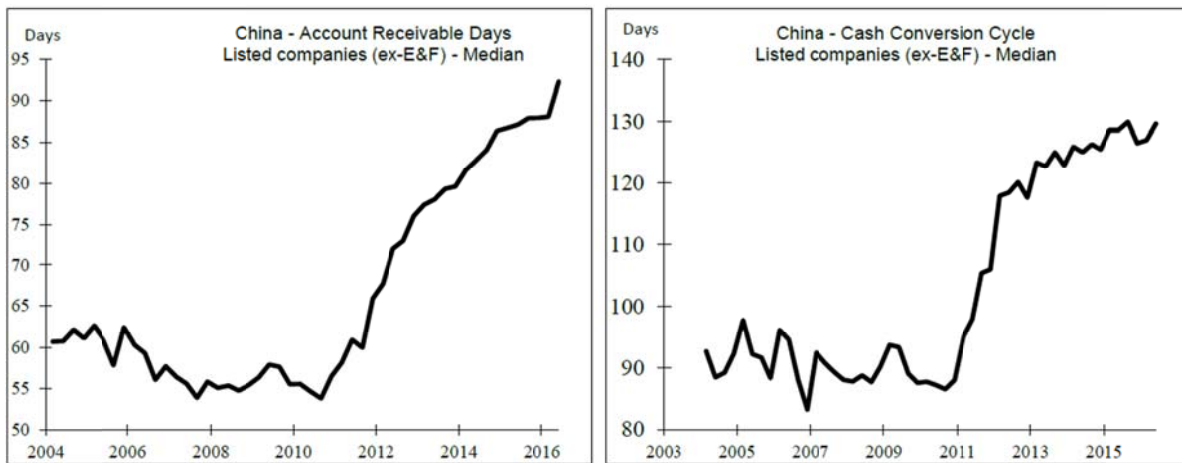
103 banks Y tn	2010	2011	2012	2013	2014	2015
Loans	44.2	51.4	59.2	68.0	75.6	85.8
Financial & Debt Receivables	8.8	9.3	13.4	17.3	21.1	27.8
Off balance Assets	9.0	12.8	15.6	23.3	30.1	39.2
Total Credit	62.3	73.6	88.3	108.7	126.9	153.1
85% Divisor	75.0	91.1	110.0	131.7	153.5	184.0
Credit to GDP	184%	190%	206%	223%	240%	272%



(Source: Wigram Capital Advisors, and CEIC)

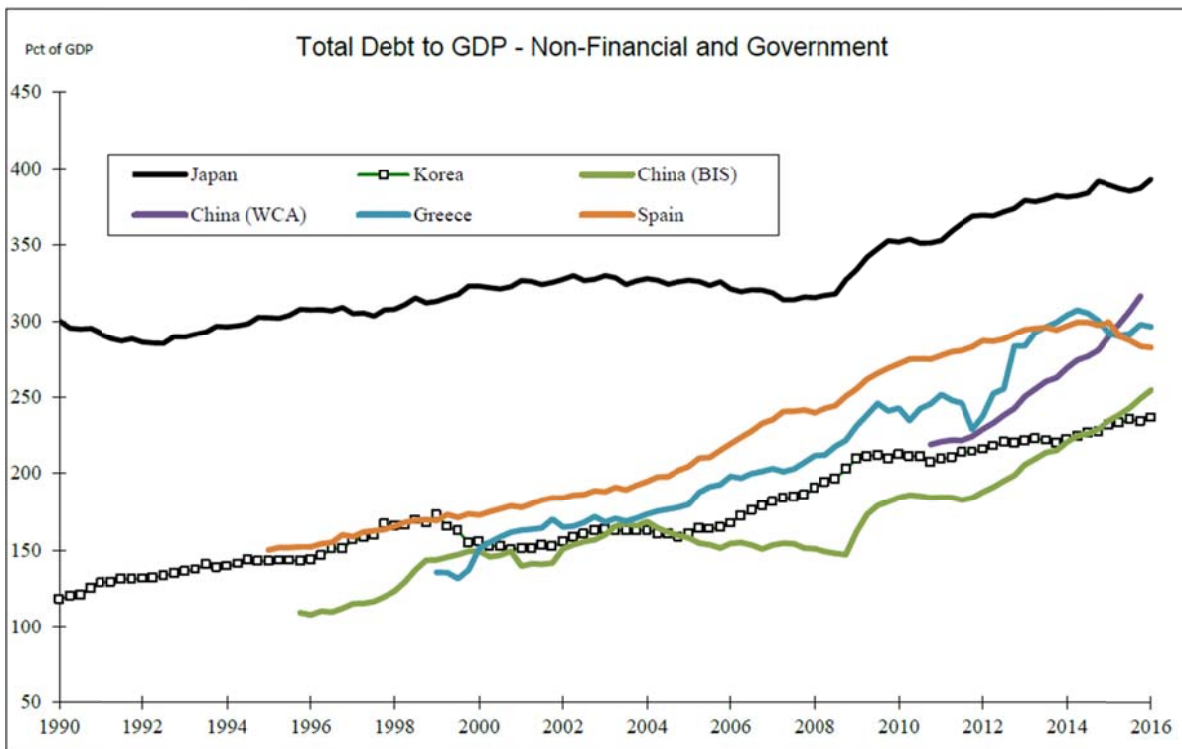
The other key takeaway from this project is how inter-connected the banking system is with the industrial sector. Including the other forms of non-loan credit, exposure to the corporate sector represents 85 % of total credit. In Asia, the only economy where we have seen such high ratios was in Korea in the mid-1990s. As such, the ongoing corporate slowdown poses a significant risk to the banking

sector. The expanding shadow banking system has in effect increased the banks' exposure to the industrial downturn.



(Source: Wigram Capital Advisors, and Bloomberg)

Slowing revenue growth has gone hand in hand with deteriorating working capital indicators. The median accounts receivable days of listed companies increased drastically to 92 days, leading to the increase in median cash conversion cycle to 130 days in 2Q 2016. Weak working capital indicators represent a rising risk for Chinese banks.



(Source: Wigram Capital Advisors, and BIS)

Despite the sharp expansion in credit in 2015, China's economy has continued to slow. Real GDP growth in 2016 has been tracking at 6.7% YOY, the lowest growth rate since 2001. Downside risks continue to accumulate, and the banks

are poorly positioned to cope with an environment of deteriorating asset quality. The challenge for China is how to deleverage and return the banks to a sustainable position, while maintaining growth.

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Peter Bofinger

German Council of Economic Experts

Peter Bofinger (GCEE) provides an assessment of the transformation process that has engulfed the Chinese economy throughout the last years. In addition, he discusses the various implications this transformation has on the rest of the world economy.



CHINA: NEW NORMAL OR OLD ABNORMAL?¹

How normal is the „new normal“?

Numerous indicators signal that China is in the midst of a **difficult transformation process**. Economic growth – which had been in double digits for years – has slowed considerably, as have advances in productivity. Considerable excess capacity has developed in major industrial sectors, and the corporate sector has accumulated worryingly high levels of debt in relation to GDP. Moreover, China's private investment growth slowed considerably in the first half of 2016, while foreign trade (in US dollars) is declining. The financial sector is marked by a growing shadow banking system. Stock prices temporarily took some sharp declines and the foreign exchange reserves of China's central bank have decreased by one fifth from the June 2014 high.

All in all, China's state-regulated transition to a **“new normal”**, as Chinese president Xi Jinping refers to the current phase with considerably slower growth, is accompanied by fundamental structural changes, which could have more serious repercussions for the global economy and thus also for Germany.

Present growth model not viable for the future

China's **economic growth** has slowed considerably in the recent past. While the Chinese economy was still growing at around 10 % annually at the start of the decade, only around 6.5 % growth is expected for 2016. This slowdown is a reflection of **deeper transition processes**:

- China's leaders have aimed their growth strategy at changing the **structure of growth** for a number of years now. On the demand side, policy focuses on reducing the high investment ratio in favour of private consumption. This process is reflected on the supply side in less growth in the manufacturing sector and more in the services sector.

¹ This contribution is based on a chapter published in the Annual Report 2016/17 of the German Council of Economic Experts.

- The extraordinarily **sharp rise in lending volume** relative to economic output is a threat to financial system stability.
- Moreover, the increasing efforts to **reduce pollution** are negatively impacting economic growth.

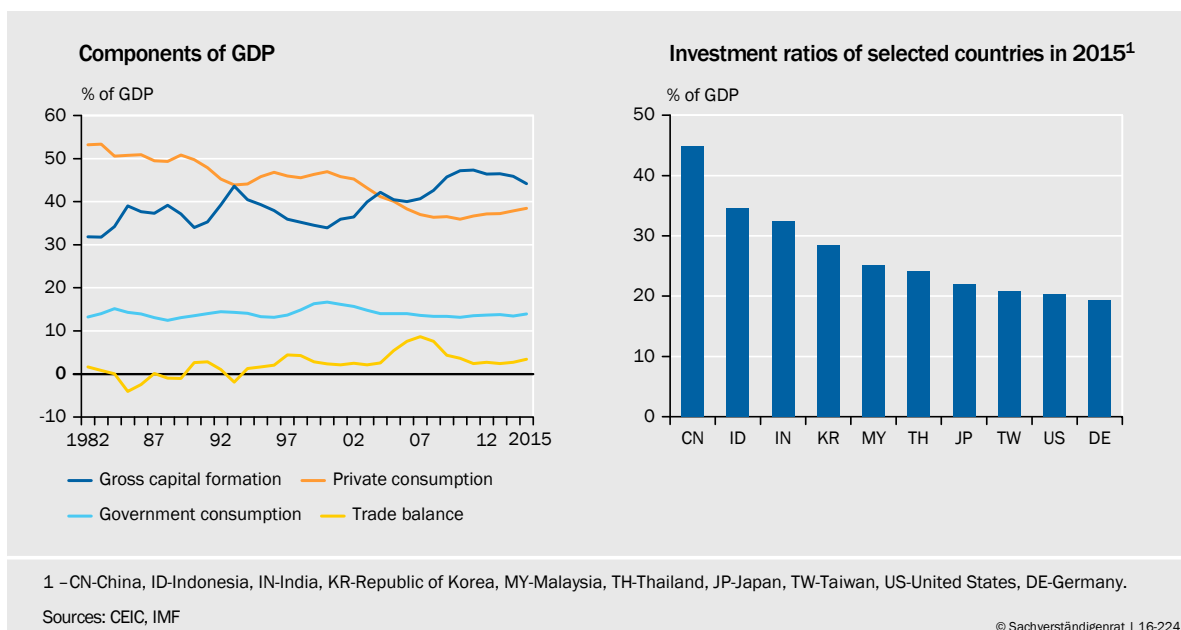
The “Great Recession” of 2008/09 and the softer demand that ensued in advanced economies forced China to shift its focus from heavily export-driven growth to primarily **domestic growth**. [↪ CHART 1 LEFT](#) This was accomplished by heavily increasing **capital formation**, above all in the basic materials industry, residential construction and infrastructure. The country's investment ratio, which was already high, thus rose further still, and remains – at a current 43 % – very high by international standards, despite a slight decrease since 2013. [↪ CHART 1 RIGHT](#) This is also true when comparing it with investment ratios achieved by other countries in earlier stages of their growth processes.

The strong increase in past years in investments in real estate and the basic materials industry above all took a great toll on the Chinese economy's **efficiency**. Whereas it took three renminbi of investment capital to generate one additional renminbi of GDP in 2007, it took six in 2015; the incremental capital output ratio (ICOR) has thus risen markedly. As a result, the contribution of total factor productivity (TFP) to growth has declined. No further rise in TFP at all was noted for 2013 or 2014 (Garnaut, 2016).

The problems of the primarily investment-driven growth can be seen in the substantial **excess capacity** in important industrial sectors, particularly the steel industry (raw steel), where production capacity was expanded by 77 % in the period from 2008 to 2014 (European Union Chamber of Commerce in China, 2016). [↪ CHART 2 LEFT](#) There are considerable problems, especially in the **real estate sector**. Although brisk housing demand continues in Beijing and Shang-

↪ CHART 1

Components of China's GDP and comparison of investment ratios across countries



↪ CHART 2

Capacity utilisation and inventory ratio for real estate in China



hai, a large stock of unsold properties has accumulated in the economically weaker cities (Tier III and Tier IV cities). ↪ CHART 2 RIGHT

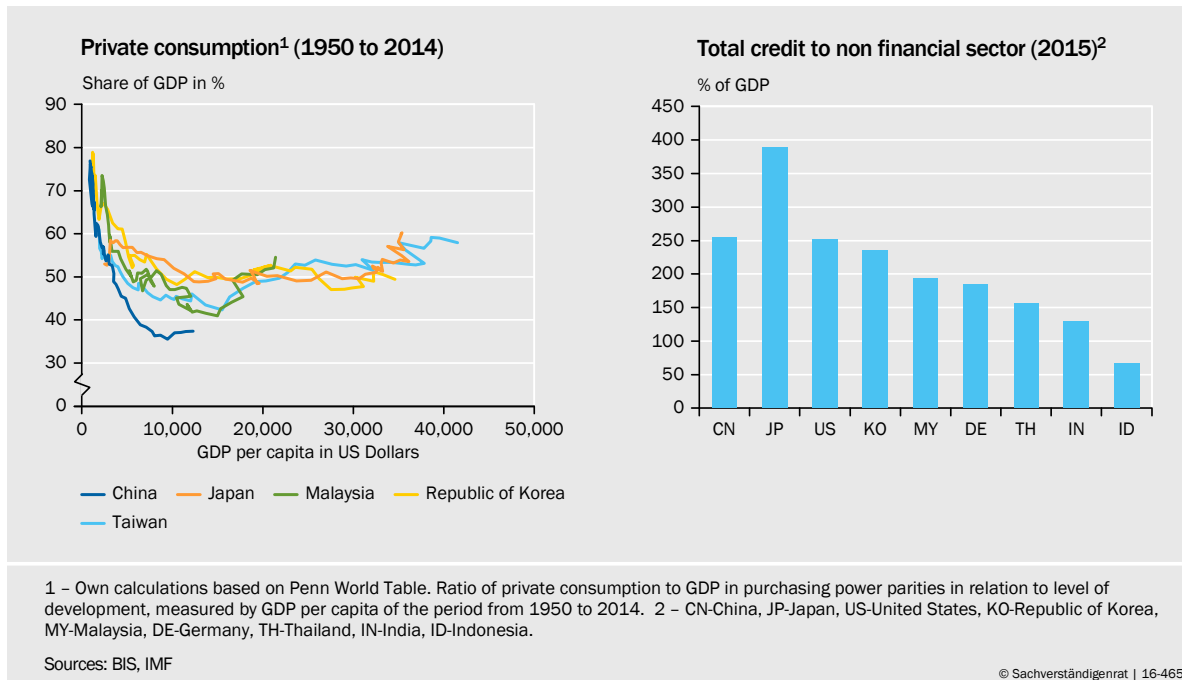
The **share of private consumption** in aggregate demand is unusually low. Despite a very high saving ratio of private households by international standards, the increase in final consumption expenditure lagged behind overall economic growth in the boom years. Chinese household consumption's share of GDP, which still stood at around 45 % in the 1990s, has decreased considerably in the past decade. At the latest figure of around 37 %, it lags far behind that of other emerging markets and almost all highly developed economies. ↪ CHART 3 LEFT The low propensity to consume is reflected in a low share of the service sector in aggregate value added in an international comparison.

In addition to a one-sided focus on capital formation, China's growth is characterised by **unusually high lending growth** on an international scale. ↪ CHART 4 LEFT With total debt of some 250 % of GDP, China is among the particularly highly indebted countries ↪ CHART 3 RIGHT compared to others at similar levels of development. ↪ CHART 4 RIGHT The **credit-to-GDP gap** calculated by the Bank for International Settlements (2016) is, at 30.1, significantly higher than the threshold value of 10 used as an early warning indicator for financial crises.

Private sector debt has increased, to **shadow banks** in particular. These were established mainly by banks, with the aim of circumventing deposit rate ceilings and regulatory requirements. Investor confidence in shadow bank products is likely based above all on the assumption that as the large state-owned banks are very active in this area, the government would offer a bailout in the event of a crisis (Dang et al., 2015).

↘ CHART 3

Private consumption and total credit non financial sector in selected countries



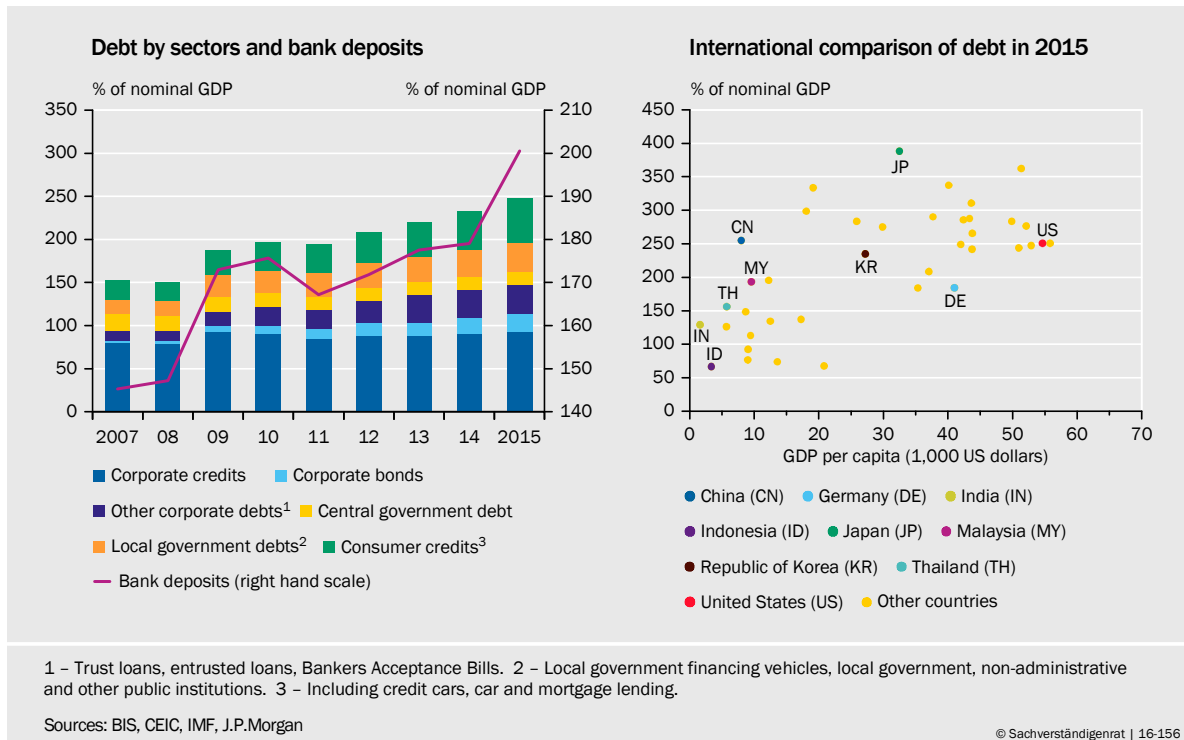
The shadow banks are in turn an important funding source for **local government financing vehicles** (LGFVs), with which local governments can avoid the prescribed debt ceilings. The dramatic growth of this form of debt can be traced back to the Chinese government's strategy after the worldwide economic crisis in 2008. It attempted – quite successfully in principle – to overcome the global recession and resulting global economic slowdown by means of increased public investment. The central government, however, was not prepared to take primary charge of executing such projects itself and funding them accordingly via bonds. Instead, it left execution up to local governments, which could only raise funds by taking out loans and issuing securities via special purpose vehicles. The Chinese government is reforming the financing of local governments since 2014.

Other weaknesses in the Chinese economy include the persistently large share of **state-owned enterprises** (SOEs), which generate around 20 % of industry revenues. State-owned conglomerates constitute 45 of the top 50 companies in terms of revenue. SOEs dominate primarily in the service sector. They generate revenue contributions of over 60 % in the postal and telecommunications sector as well as in architecture and engineering services. Restraints on competition protect numerous areas of the economy and enable monopoly or oligopoly rents (OECD, 2015).

SOEs are, on average, **less profitable** than private enterprises, but have higher levels of debt. According to calculations by the Unirule Institute of Economics (2015) based on around 18,000 state-owned enterprises and 335,000 private companies, the return on assets of SOEs is negative across the board once state subsidies are factored out. Likely reasons for their low profitability lie in the lack of competition and poor governance of these businesses, along with the provision of public goods and social welfare.

CHART 4

Debt and bank deposits in China



The Chinese economy is characterised by the **state's strong influence** on economic processes by way of its highly interventionist industrial policy. This is particularly evident in the great political importance of the five-year plans. These are no longer to be understood as plans in the sense of production control in a planned economy. Nevertheless, the 13th Five-Year Plan published in March 2016 for 2016 to 2020 contains very specific and detailed projects in the areas of infrastructure and technological innovation. For example, the plan comprises no fewer than 75 priority areas of technology for which specific technologies and products are named. China has more than 780 state-backed investment funds with which to achieve these targets, of which as many as 300 were formed in 2015 alone.

The prominent role of the state in the economic process should be viewed against the backdrop of a political system dominated by the **Communist Party**. The system therefore lacks the democratic legitimation and control of political decision-making processes. Shambaugh (2016) describes China's current political model as “hard authoritarianism”. In this environment, both state-owned and private enterprises depend on good relations with the state apparatus in order to gain access to state-generated rents. The state's influence thus extends far beyond SOEs (Milhaupt and Zheng, 2016).

Will the transformation succeed?

The necessity of a transformation in the Chinese economy has long been under discussion. As far back as 2007, the then prime minister Wen Jiabao described Chinese economic growth as “unstable, unbalanced, uncoordinated and unsustainable”. Market-oriented economic reforms were called for at the third Plenary

Session of the 18th Central Committee of the Communist Party of China (CPC) in the autumn of 2013. The 13th Five-Year Plan published in March 2016 once again focuses on efforts to reduce the importance of heavy industry and investment, instead promoting services, innovation, environmental protection and the social security network. The plan attaches great importance to “**supply-side economics**”, which for China means first and foremost measures to eliminate excess capacity in the industrial and real estate sectors.

However, the fundamental problem with the quite ambitious Five-Year Plan is that the **government** is unwilling to question its **strong role** in the economic process. For Kennedy and Johnson (2016), this is reflected in particular in the detailed requirements on technological innovation. The Chinese government targets SOEs to this end, encouraging them as “national champions” to bolster China's technological base and global position (Kroeber, 2016). Chinese President Xi recently highlighted the fact that the party's leadership in state-owned enterprises is a major political principle, and that that principle must be insisted on (New York Times, 2016).

In addition to the central government, the pending transformation measures also depend greatly on decision-makers at **provincial and local level**. China is anything but a monolith. In fact the country has five administrative divisions, with 31 provinces and autonomous regions, 334 prefectures, 2,852 counties and around 47,000 townships and villages.

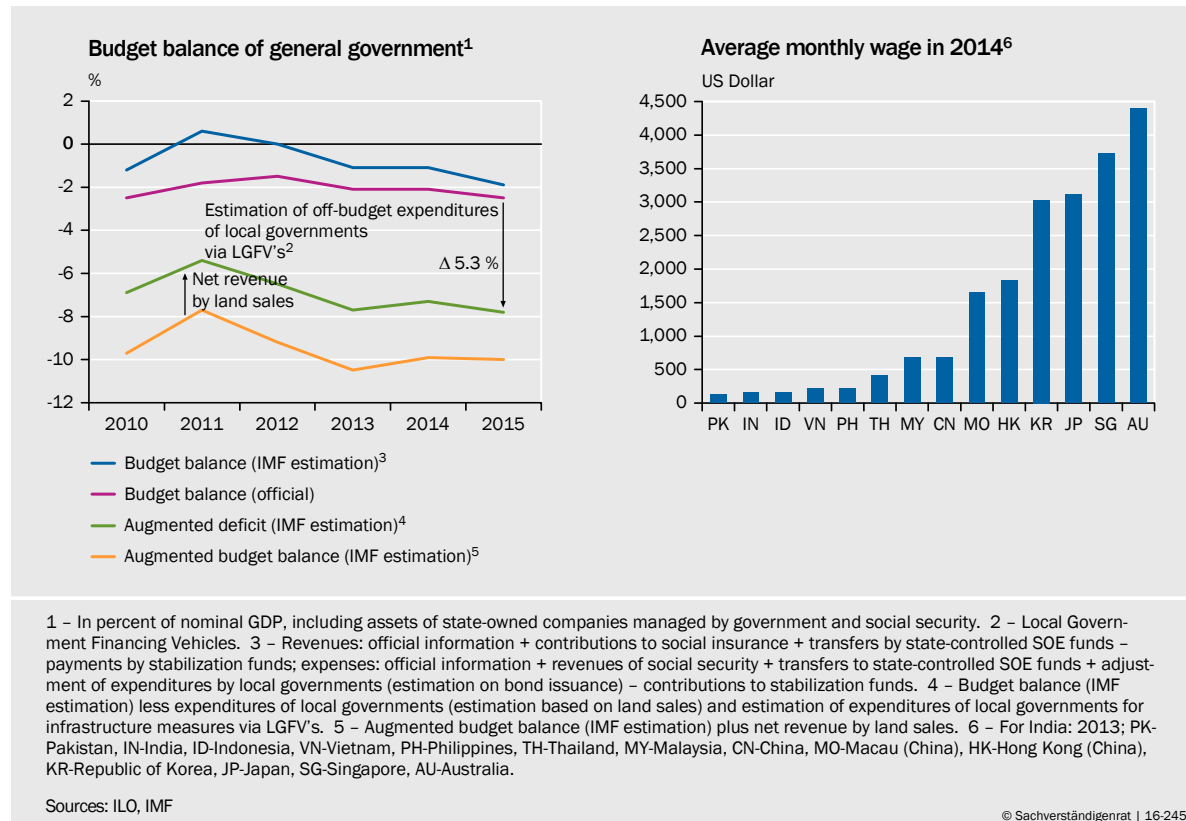
The local governments have proved a major stumbling block for comprehensive reforms. They control the state-owned enterprises (SOEs) at this level and have their own local state banks. Their fundamental problem is that they are completely **underfunded** for the tasks they have been assigned. They are responsible for 80 % of public spending, but only receive 40 % of tax revenues (Lo, 2015).

According to calculations by the International Monetary Fund (IMF), local governments have been reporting a **deficit** of around 5 % of GDP for years. [↪ CHART 5 LEFT](#) In the past they funded this deficit through indirect loans via special purpose vehicles or from the proceeds from leasing land. Around a fifth of the income of local governments has come from these sources in recent years. The problem with regular income at county level is that a large share of it comes from taxes levied from local businesses. The revenue from value-added tax and income tax is much lower.

There is considerable **resistance to fundamental reforms** at local government level, primarily due to the insufficient funding. Given the high dependency on income from leasing land, local governments are keen to continue to heavily promote construction and property purchases. [↪ CHART 6](#) Moreover, the great importance of income from the taxation of local businesses means that the local governments do all they can to keep SOEs afloat. The state-owned local banks are a key tool in this regard, granting the businesses a **soft budget constraint**, as was evident during the years of the country's planned economy. Woo (2016) sees this as an important explanation for the high levels of excess capacity in heavy industry.

↘ CHART 5

Augmented public balance in China and international comparison of monthly wages



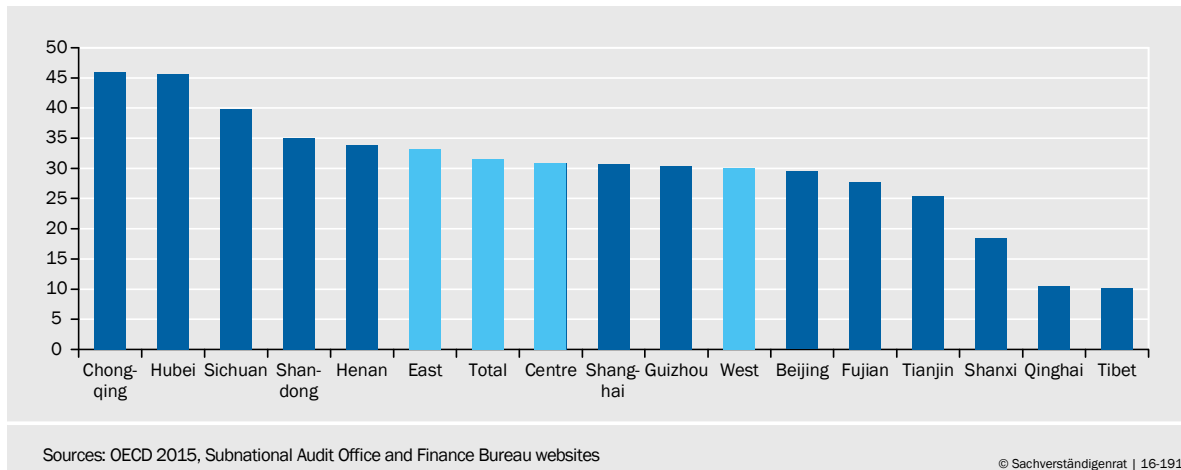
The lack of willingness of local governments to close unprofitable businesses is not least due to the fact that local officials are assessed based on the economic growth generated in their region, which is often easiest to achieve by way of loan-financed investments. The quality of the growth plays a secondary role here (Milhaupt and Zheng, 2016).

In addition, these incentive mechanisms and the insufficient funding for local governments result in **local protectionism** (European Union Chamber of Commerce, 2016a). The European Chamber of Commerce in China therefore asserts that China does not have a real single internal market, but rather a patchwork of regional markets with very specific and often informal trade and investment barriers.

In addition to the problem of implementing structural reforms in a quasi-federal system, there is the question of the extent to which consumption can even compensate for a decrease in the investment ratio without resulting in a noticeable slump in growth. A notable reduction in the investment ratio requires **disproportionately strong growth in private and state consumption**. If the government is to achieve its target annual growth rate of more than 6.5 % by 2020, a hypothetical decrease in the proportion of gross capital formation to GDP to 40 % would need – in terms of figures – an increase in the average consumption ratio to around 57 % in 2020. Consumption would therefore have to increase by about 9 % every year for the next few years, whereas investment could not increase by more than around 3.5 % annually (Wang and Zhou, 2016). An expansion of this scale in private consumption would require a combination

↘ CHART 6

Revenue from land-right sales in % of sub-national fiscal revenues (2013)



of very high wage increases and a reduction of the private households' saving ratio.

- Real wages in China have risen substantially in recent years compared to other countries, putting its wage level far above that of other emerging markets in the Asia-Pacific. ↘ CHART 5 RIGHT Attempting to expand private consumption even further than GDP through significant wage increases would not be without consequences for China's **international competitiveness**.
- Private consumption could also be boosted through an improved **social security network**. This would reduce the need for retirement saving, which is particularly high in China given its demographic change shaped by the one-child policy. China is a long way behind middle-income countries (such as Russia and South Africa) in terms of spending on healthcare, education and social security in relation to GDP.

Higher government spending could be financed through a **reform of the tax system** (Lam and Wingender, 2015) The system is currently heavily dependent on value-added tax and social security contributions, with income tax playing a comparatively small role. The tax system provides few redistributive effects. The Gini coefficient of market income is almost identical to that of household income (Zhang, 2016). Improving the progressivity of income tax, including services in value-added tax, and introducing a property tax and an environmental tax would significantly boost revenue for better state services according to Lam and Wingender (2015).

The **transition of the Chinese economy** is likely to be a very drawn-out process based on previous experience. Naughton (2016) concludes that the economic reforms announced in November 2013 have failed to transform China into more of a market economy. Fears of negative short-term effects on economic growth have blocked the implementation of key reforms and actually further increased state influence over the economy.

The new normal: Kicking the can down the road

This conclusion has been substantiated by the **developments seen in 2016**. The increase in private investment in the first eight months of 2016 was unusually low, which likely reflects the high uncertainty surrounding the country's economic prospects. **Public investment** was quickly expanded to counterbalance this. The increase was primarily attributable to an expansion of infrastructure projects and public-private partnerships for local and central government, but also dates back to a reclassification of non-state owned enterprises to SOEs in January 2016. [↪ CHART 7 LEFT](#)

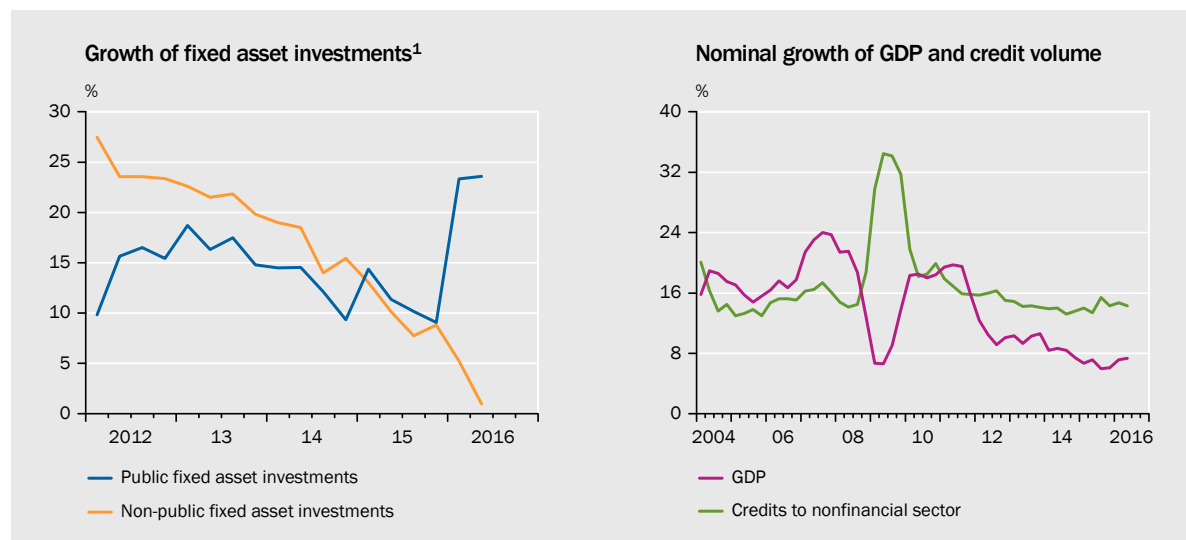
Again, this additional public demand was debt-financed. This means that the credit volume once again rose stronger than nominal GDP. [↪ CHART 7 RIGHT](#) It is thus clear that aspiring to achieve growth objectives at any price does not solve the fundamental problems of the Chinese economy, but instead continues to postpone them.

The Chinese economy is therefore facing a difficult **challenge**. The government's target growth by 2020 is more than 6.5 % annually. If the saving and investment ratios remain high, it is likely that the disparity between production capacity and consumer demand will continue to grow and productivity will develop even more unfavourably than it has done to date (Wang and Zhou, 2016). However, if high growth rates are to continue, a declining investment ratio will require a significant increase in productivity.

Shambaugh (2016) sees the problem here that the political and social systems might not be open enough to promote the **creativity and innovation processes** necessary for national economies to succeed in the 21st century. This applies in particular to schools and universities, where critical thinking is often undesired.

[↪ CHART 7](#)

Growth of fixed asset investments and credit volume in China



1 – Annual comparison. The development in Q1 of 2016 is partially due to a major reclassification of January 2016 between state-owned and private enterprises, which was caused by the government Bail-out in 2015.

Source: CEIC

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China has become a brake for global trade

Further development in China is accompanied by **considerable uncertainty** for the global economy. This applies to the effects of the scarcely increasing trade with the rest of the world, particularly for commodity-exporting countries and the Asian region.

For the real economy the developments in China translated primarily into a marked decline in the **current account balance** for the world economy, initiated by the sharp fall in exports in 2009. While a record surplus of 10.0 % of GDP was achieved in 2007, 2015 saw a mere 2.7 %. This reflects the transition from what had been heavily export-driven growth to growth driven by the domestic market.

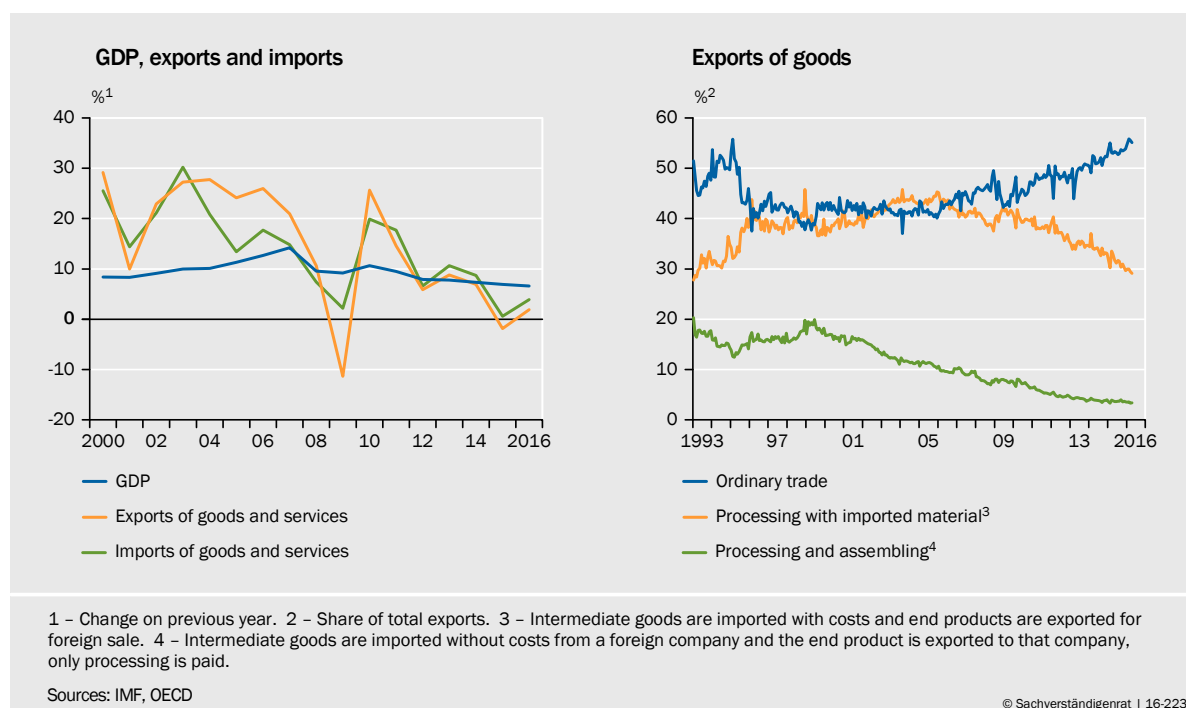
However, the demand effects emanating from this adjustment process for the world economy also have gradually diminished. Growth in real exports and imports of goods and services has lagged considerably behind the growth of the Chinese economy in the past two years. Exports actually declined in 2015. This has consequently resulted in a **decoupling** of foreign trade and economic growth in China. Asian countries and those exporting commodities have been the most affected. [↪ CHART 8 LEFT](#)

The weak foreign trade is likely due in part to the decrease in industry's contribution to GDP and the concurrent rise in that of the service sector. **Import intensity**, i.e. the import propensity of final demand, at 15 % for private consumption, is lower than for gross capital formation (24 %) or exports (23 %).

Another explanation could be that China aspires to use more domestic intermediate goods in production. Calculations by the Organisation for Economic Co-

↪ CHART 8

Foreign trade and economic growth in China



operation and Development (OECD, 2016) show that the share of imported intermediate goods in Chinese exports has declined since 2005 . [↘ CHART 8 RIGHT](#) Thus a **renationalisation of production** is taking place, along with a move up the value chain.

Moreover, **significant barriers** to export persist with respect to China. China levies average customs duties of around 10 % on German products. However, the duty is considerably higher on some product categories. Import duties on cars and automotive products range between 19 % and 25 %, and on food (wine and wheat) climb as high as 65 %. In addition to tariff barriers to trade, government regulations and legal uncertainty are further major obstacles to trade with China. In a survey by the German Chamber of Commerce in China (2015), approximately 60 % of European companies in China rate protectionism and legal uncertainty as the major risks in that country.

Consequently, there is only partial truth in the statement that China is the **world's major growth engine**. While China continues to drive global growth to a very large extent, the declining export and import volumes posted in 2015 and the feeble increases for 2016 mean that China's trading partners will experience only limited positive effects from the still high growth levels in that country.

Export market China: losing momentum

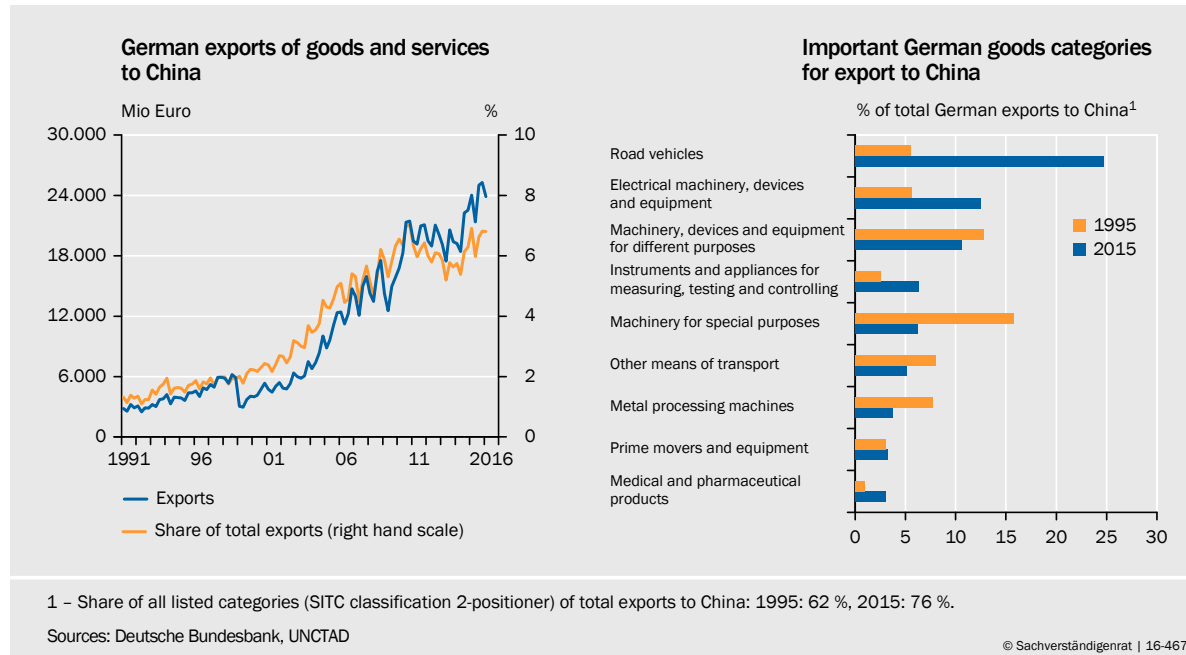
As the world's second-largest economy and most populous country, China has served the German economy as a rapidly expanding sales market for many years. [↘ CHART 9 LEFT](#) However, momentum has slowed considerably in recent years. German exports to China declined in 2015 for the first time. The **decoupling** of China's economic growth from its foreign trade trajectory, which can be seen at global level, is thus affecting Germany. [↘ CHART 8 LEFT](#)

China's investment-driven growth and rising standard of living have had particularly positive effects on German exports. In 2014, motor vehicles and various types of machinery as well as measuring, testing and control instruments comprised more than two thirds of German export goods to China. [↘ CHART 9 RIGHT](#) However, China's import volume of **consumer goods** has been almost twice as high as that of capital goods for some years now. Germany's export of services to China plays a lesser role. Its share in total German exports to China amounted to only around 10 % in 2014.

In terms of **import intensity** of Chinese final demand (including indirect effects via intermediate products), gross capital formation and exports contain a greater share of imports than private and public consumption. The evaluation of 2011 input-output tables indicates that total Chinese consumption includes around 15 % of global and 1 % of German imports. For gross capital formation, the share is significantly higher at 24 % and 2 % respectively. A shift in the Chinese growth model to relying less on investment and more on consumption would thus have a negative impact on German exports, the structure of investment and consumption remaining equal.

↘ CHART 9

German exports of goods and services and important German goods categories for export to China



That said, import intensity of capital formation for individual segments such as mechanical engineering (0.7 %), production of computer equipment and devices, electrical and optical equipment and automotive manufacturing (0.4 % each) is higher than, for instance, for production of textiles, clothing, leather goods and shoes (0.002 %) or in construction (0.01 %).

China as a location for production and sales

China was considered an attractive business location in the past, primarily due to its low labour costs and comparatively good infrastructure. Given the fact that the wage level has since risen considerably, the incentive to produce in China is largely found in the **sales opportunities** in Chinese markets, which continue to expand at a fast pace. Only one third of German companies in China now cite lower production costs as the reason for their presence in China (German Chamber of Commerce in China, 2015). This response also reflects the rising costs due to higher energy prices. The average price of electricity rose by approximately 40 % (in domestic currency) from 2001 to 2011 (China Energy Group, 2014) and is likely to rise further in future due to environmental problems. The BCG cost index (2015) indicates a loss in international competitiveness due to higher costs.

With rising production costs, the **regulatory framework** (ease of doing business) remains a fundamental problem with China as a location; it still remains very unfavourable despite some improvements. The World Bank has ranked China 84th of a total of 189 countries, based on this factor. It scored particularly poorly in terms of “protecting minority investors” and “starting a business”.

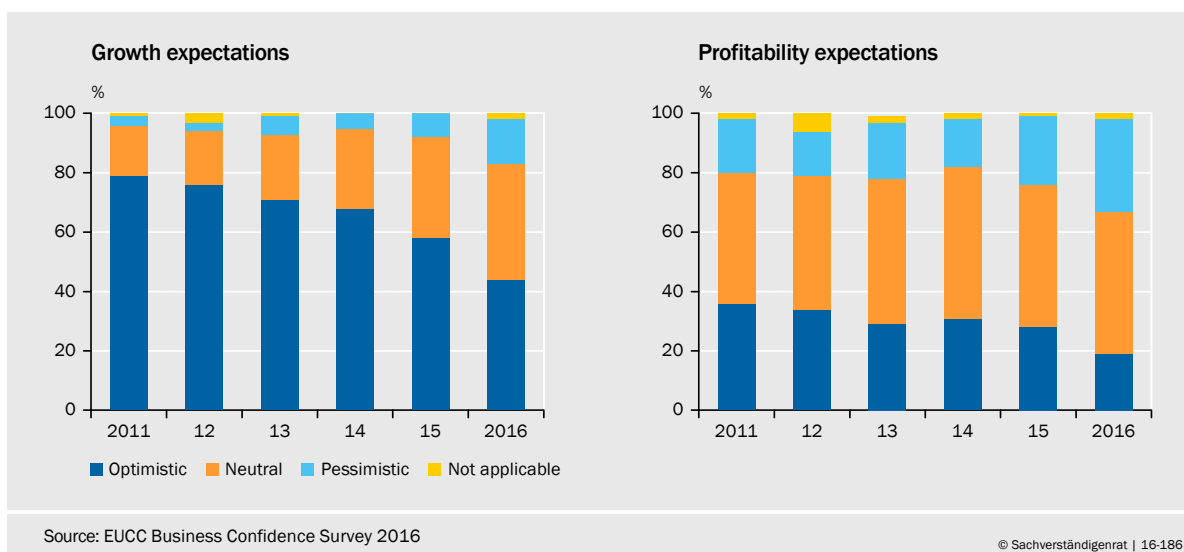
The general uncertainty about the Chinese economy's prospects has markedly affected European companies' **expectations** of their growth opportunities and

their earnings outlook. In 2011, nearly 80 % of companies surveyed still expressed optimism about growth in their economic sectors in China; in 2016, just half of that figure held such an optimistic outlook. [↪ CHART 10 LEFT AND RIGHT](#) More than 50 % of the European companies surveyed complained that they are disadvantaged in China compared to domestic competitors.

A **more cautious assessment of opportunities in China** can also be seen in German companies' direct investments there. After strong expansion in the past two decades, these have recently stagnated. At 4.4 %, direct investment in China comprises only a relatively small proportion of Germany's foreign direct investment. A large portion of German companies' investments likely stem from reinvested profits from their current Chinese business.

[↪ CHART 10](#)

Economic expectations of European companies operating in China in their own economic sector



Investment restrictions require the creation of joint ventures in many sectors; the share of foreign capital in such companies may not exceed 50 %. One major requirement for market entry in these cases is access to foreign technology (“quid pro quo”; Holmes et al., 2015). Consequently, one of the main problems of joint ventures is that protection of intellectual property in China is inadequate (Bosshard et al., 2010). In the 2016 International Property Rights Index ranking, China placed 56th among 128 countries in terms of intellectual property rights, with patent protection scoring particularly poorly.

From “Made in China” to “Created in China”

It is already obvious today that China will produce an ever larger share of value-added domestically. Thus, the country will continue to move up the value chain. The new motive is “**Created in China**”, rather than “Made in China”.

As is already evident in the slowdown in German exports to China, China's move up the global **value chain** is likely to particularly affect final products from

Germany, which constitute approximately half of German exports to that country. The automotive, pharmaceuticals and rubber and plastic goods sectors, above all, still export a large number of final products.

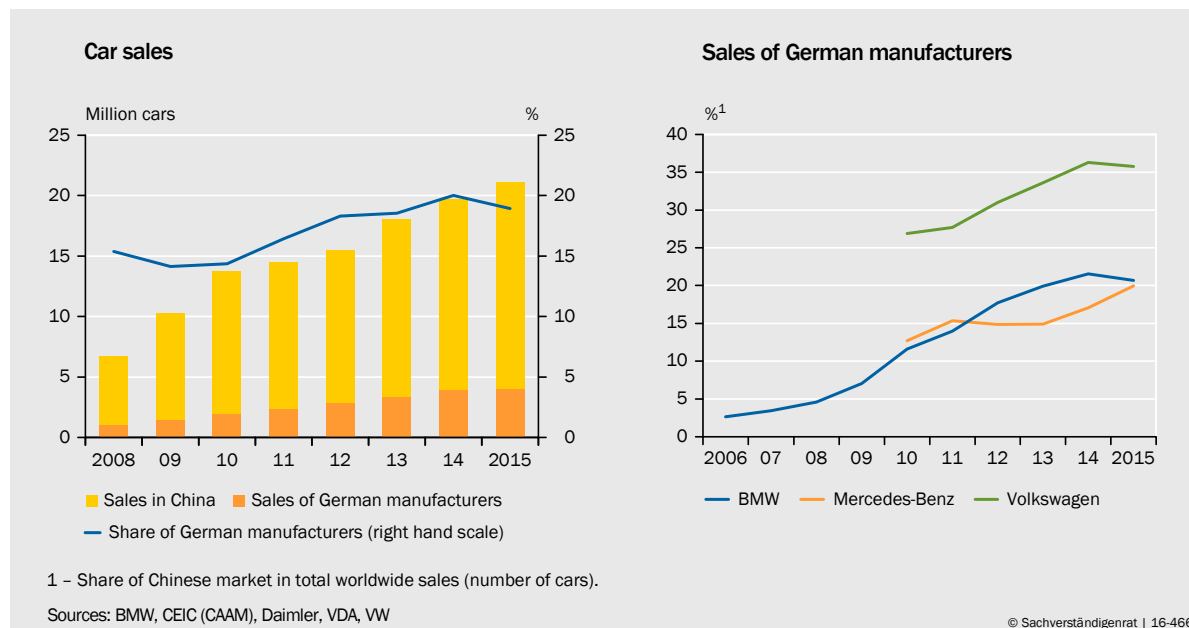
These processes can easily be seen in the **automotive sector**. The share of finished passenger cars in total German exports to China fell from 17 % to 14 % between 2010 and 2015, whereas the share of parts and accessories in this sector rose from 7 % to 11 % during the same period. This is largely due to the sharp increase in German automobile manufacturers' local production. However, according to the German Association of the Automotive Industry (VDA), it is also due in part to an increasing shift in Chinese automobile manufacturers' demand for higher quality components from German manufacturers.

China is the **largest and fastest-growing automobile market**, as well as the most important automobile manufacturer. The number of passenger cars sold in China increased more than six-fold from 2005 to 2015 (EY, 2016b). The potential for growth remains high; whereas Germany has 552 cars for every 1,000 residents, China has only 103 (Federal Statistical Office, CEIC). According to the VDA, sales of 21 million new cars are expected for 2016. [↪ CHART 11](#) China has become the most important sales market for German automobile manufacturers. In 2015, sales to China comprised around 20 % of total global sales for BMW and Mercedes-Benz and around 35 % for Volkswagen. The market share of German cars in China rose continuously for quite some time. However, slower sales in 2015 resulted in a decline from 20 % to 18.9 %. [↪ CHART 11](#)

For years, cars, car parts and accessories constitute the most important German export product group by far at a constant figure of around 25 %. Due to even greater **outsourcing of vehicle production** to China, however, German car exports have been decreasing for several years.

↪ CHART 10

Car sales in China



The Chinese regulatory framework only permits German manufacturers to operate in China in the form of joint ventures with Chinese companies. The Chinese government aims to further increase the **domestic share of production** by means of its local content requirements. According to CEIC, 98.7 % of cars sold in China in 2015 were manufactured there as well. Production in China focuses mainly on small cars and imports of medium-sized and luxury vehicles as well as SUVs. Sales of premium car manufacturers are particularly disadvantaged through import duties and taxes.

The Chinese government has placed high priority on promoting the automobile market in the past few years, with a particular focus on **e-mobility**, and an annual sales goal of five million electric cars (around one fifth of total sales in China in 2015) by 2020. This could negatively affect German manufacturers' sales as the competitive edge in knowledge enjoyed by foreign manufacturers in this market segment is comparatively small.

China as an investor

Chinese companies have considerably stepped up their **foreign direct investment**. They are already among the most important foreign investors in some African and Asian countries. Chinese investors have most recently pursued larger activities in the EU and the USA. However, their share in aggregate foreign direct investment stocks in these regions has been very low to date.

China provides broad support to its companies' activities abroad via **state-owned development banks**. The Export-Import Bank of China and China Development Bank manage a combined credit volume of US\$550 billion, which is approximately four times the World Bank's credit volume (approx. US\$150 billion). The banks increasingly grant direct loans to governments and companies in developing countries in order to reinforce China's position. Even aid to countries in crisis, such as in Latin America, is extended through those development banks.

China's largest share of foreign direct investment is in Asia (around 10 %), followed by Latin America (6 %) and Africa (5 %). It has been repeatedly pointed out, particularly as regards **Africa**, that China hopes to secure access to important resources through foreign direct investment (Buckley et al., 2007; Cheng and Ma, 2007). There are, however, other views as well. For one thing, China's share of total foreign direct investments may be increasing but it is still very small, and these investments are strongly dominated by a few major takeovers by state-owned enterprises in connection with natural resources. For another, Chen et al. (2015) show that Chinese investment behaviour in Africa in terms of resources does not differ from that of western countries. From 2012 to 2015, the share of Chinese corporate takeovers in mining and minerals and in oil and gas worldwide plummeted from nearly 50 % to approximately 10 % (EY, 2016a). Instead there has been a substantial increase in the ICT, automobile and transport, and financial services sectors.

In 2014, China held its largest foreign direct investment stock in the **EU** in Luxembourg (US\$16 billion), the UK (US\$13 billion) and France (US\$8 billion), according to the Ministry of Commerce China (MOFCOM). Consequently, the largest stocks are in leasing, commercial services and financial intermediation. Manufacturing comes in third place at a volume of US\$9 billion in 2014.

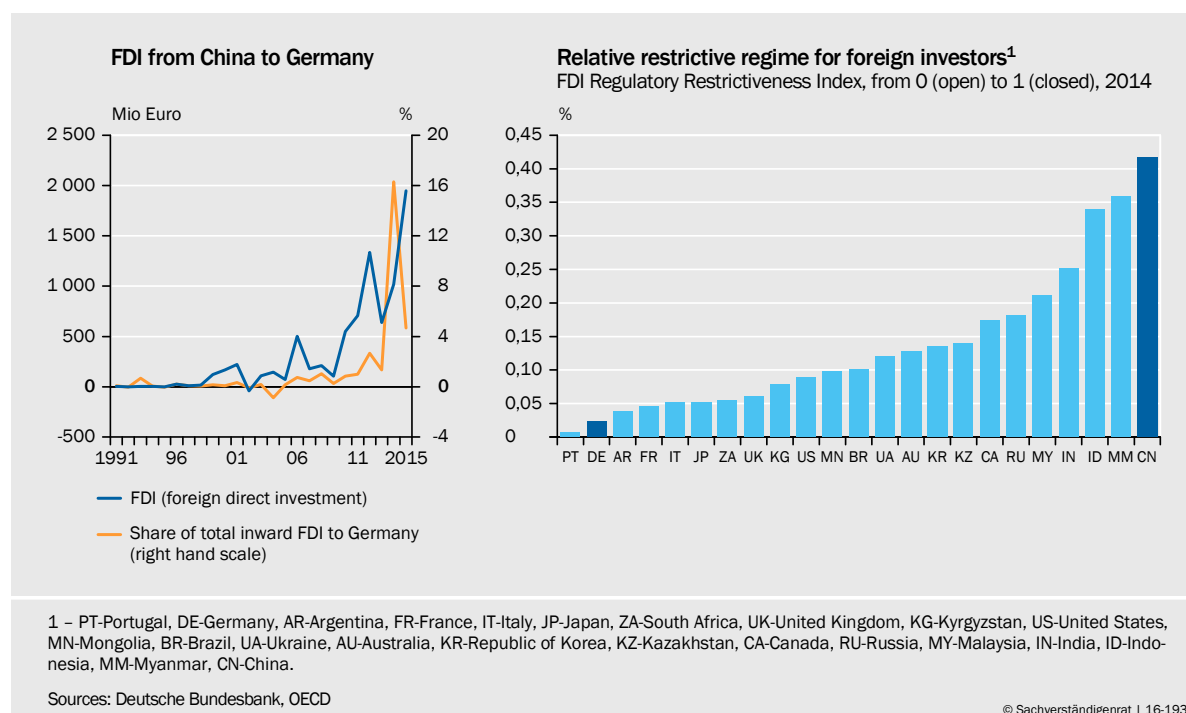
Chinese **foreign direct investment flows in to Germany** stood at around €2 billion in 2015, which in turn, however, only constitutes a small proportion (4.7 %) of total net foreign direct investments in Germany compared to investments from other regions. [↪ CHART 12 LEFT](#) By comparison, the proportion of foreign direct investments by Switzerland is 14.4 %, by the EU28 60.8 %, and by the USA 28.1 %.

Chinese takeovers of German companies drew a great deal of attention in the media in 2016 due to the Chinese takeover of robot manufacturer Kuka. There are discussions as to the potential threat posed by Chinese government attempts to procure key technologies and know-how from developed countries by means of state-owned enterprises. In fact, 74 % of China's 50 companies with the largest volume of investments abroad are state-owned enterprises (MOFCOM, 2015).

The companies participating in the survey by the European Union Chamber of Commerce in China (2016) cited the **lack of reciprocity** in foreign direct investment as a serious problem. Foreign companies' access to the Chinese market is heavily obstructed. Frequently, their only options are to issue a license to a Chinese company, set up a joint venture with a Chinese partner or allow themselves to be acquired by a Chinese investor. In terms of restrictiveness regarding foreign direct investment, Germany ranks among the most open and China the least. [↪ CHART 12 RIGHT](#)

↪ CHART 12

FDI from China to Germany and FDI Restrictiveness Index



Conclusion

The Chinese economy is in a difficult **period of transformation**. The unavoidable transition from growth driven by heavily credit-financed investment to growth driven by private consumption and services is bound to involve some friction. The global economy has noted this in the significant slowdown in China's exports and imports. Transition in this manner has resulted in a decoupling of Chinese foreign trade while the Chinese economy continues to grow at a relatively fast pace. Despite high excess capacities in sectors such as industry and construction, and a debt level that continues to rise in relation to economic output, an abrupt economic slump is nevertheless highly unlikely even if a certain risk of financial crisis persists.

The Chinese government remains more than willing to administer a heavy dose of demand stimulation to achieve scaled-back but still ambitious growth targets at any price. In principle, they are still within reach, given the large direct and indirect **influence of the government on the economy** and the financial system. However, adhering to growth generated by credit-financed, largely government-driven investment may be to the detriment of a fundamental transformation of the economic system. Whether China can succeed in asserting its competitiveness on international markets in the medium and long term while still tending to more strictly limit basic civil liberties remains questionable.

The impacts of the transformation in China affect the German economy, in particular. German exports to China have recently posted very little increase, after the dramatic growth recorded from 2008 to 2012. They have actually shown a negative tendency since the end of 2014. This reflects the increasing importance of German car brands being produced in China, in addition to **less import-intensive growth**. Chinese steel manufacturers' overcapacities also have a negative impact on German manufacturers. Overall, China's importance to the German economy is far greater than the proportion of exports to China in relation to total exports would suggest, which is at a constant 6 % for some years now.

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Pekka Sinko

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Finland



As growth in China has decelerated and continues to change its composition, this might exert important consequences on China's trading partners. Pekka Sinko (EC Finland) discusses these issues with a particular focus on the case of Finland.

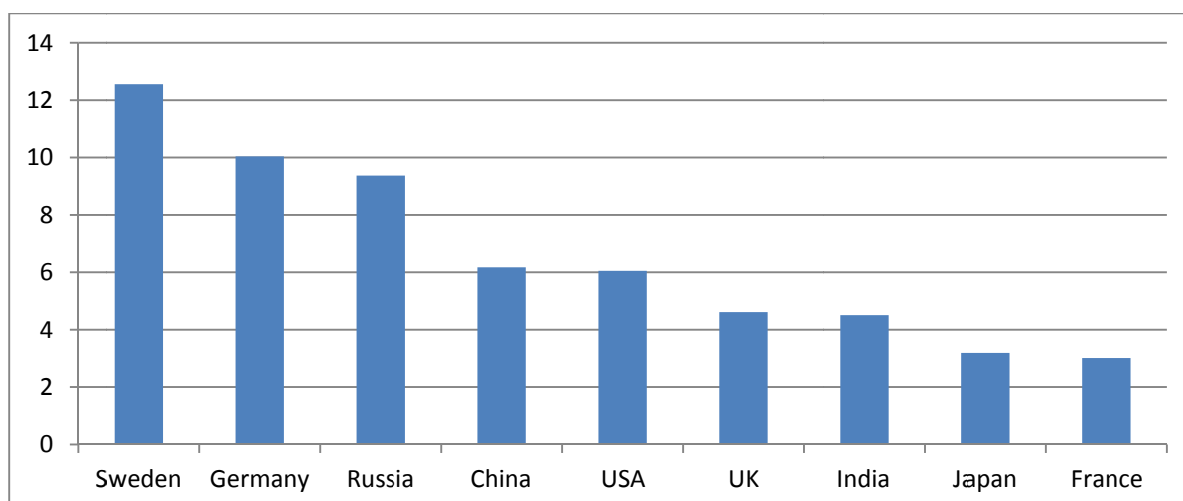
DIRECT AND INDIRECT EFFECTS OF CHINESE FINAL DEMAND – CASE FINLAND

China is the second largest economy in the world and has become an important trading partner and determinant of the economic development even for many European countries. Much of China's growing influence is through participation to the so called global value chains. Owing to these interdependencies, the envisaged slowdown of growth and a structural change in China – towards more consumption and less investment – has evoked concerns in many countries. So how dependent are we really on China?

China as an important trading partner for Finland

The traditional approach to this question is to look at the bilateral import and export statistics. In case of Finland, China ranked as the 4th most important trading partner when measured by either exports or by imports (figure 1). Altogether exports to China made up roughly 6 per cent of total Finnish exports, which is not that impressive. By this measure Finland seems to be much more dependent on countries like Sweden, Germany and Russia.

Figure 1: The most important destination countries of Finnish gross exports 2011, per cent of total exports. Data source: Statistics Finland.



Although this approach gives us correct information of the trade flows between the two countries, it is not a good measure for the influence of China on the economy of Finland. There are two main reasons for this. First of all, exports (and imports as well) are recorded in terms of gross output which means we do not know how much domestic value added (determinant of Finnish GDP) is embodied in a certain amount of exports from Finland to China. Second, a large part of Chinese demand for Finnish products and services may be indirect in the sense that they are embodied as intermediate inputs in the third countries' exports to China. This indirect influence of Chinese demand does not show up in bilateral trade statistics. Emergence of global value chains has accentuated these potential biases and rendered traditional trade statistics less useful - for this purpose.

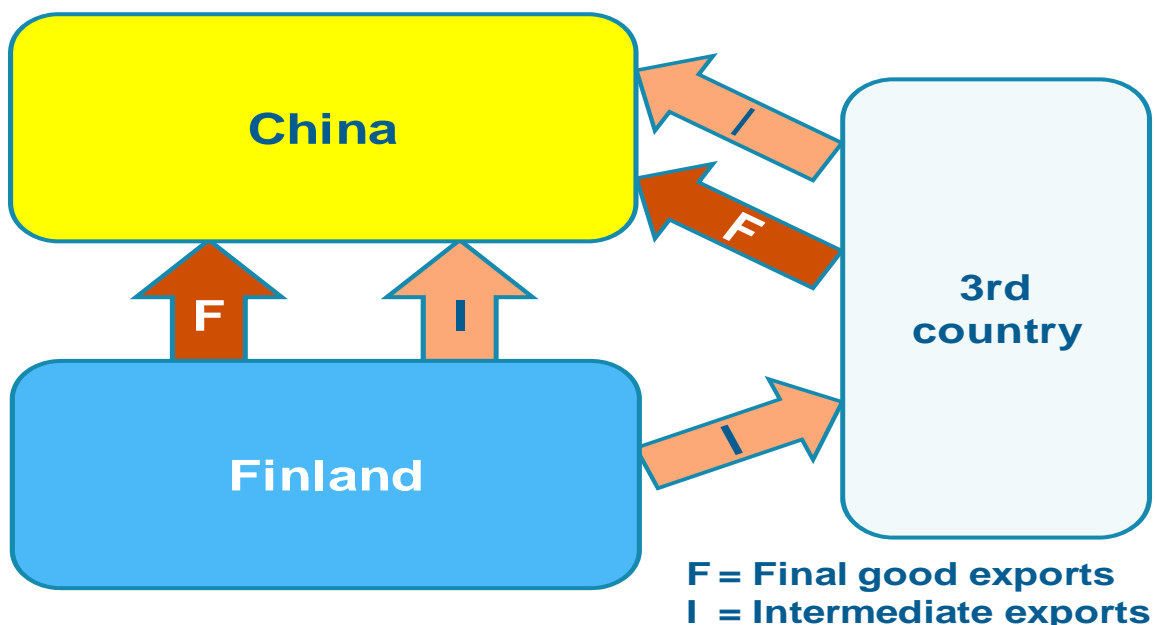
An alternative and more profound picture can be achieved through the use of international input-output data that allows for the interdependencies arising through the global value chains. This approach corrects for two potential flaws in the traditional method:

- Avoids double counting by focusing on value added rather than gross output
- Allows for indirect influence through third countries

Before going to the details of this analysis, let us consider the actual trade patterns between Finland and China. Focusing on the exports side, we can distinguish between four alternative channels through which Chinese final demand can influence the GDP in Finland (figure 2):

- Direct exports of *final demand* products & services to China (channel 1)
- Direct exports of *intermediary* products & services to China (channel 2)
- Exports of *intermediary* products to third countries to be used for their *final demand* exports to China (channel 3)
- Exports of *intermediary* products to third countries to be used for their *intermediary* exports to China (channel 4)

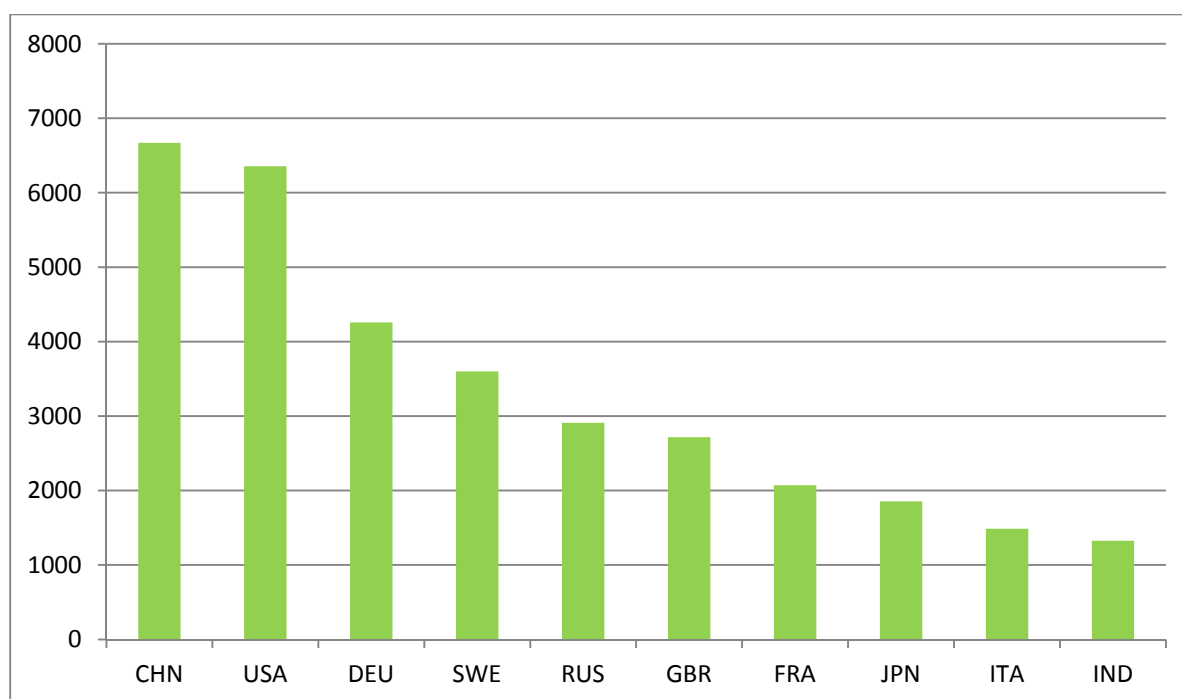
Figure 2: Alternative channels through which Chinese final demand feeds into the Finnish GDP.



International input-output tables allow us to take account of all these direct and indirect channels in determining the influence of China on Finnish economy. Our analysis utilizes the data of The World Input-Output Database (WIOD)¹. The starting point of analysis here is not the bilateral trade flows per se but rather the final demand in China that will give rise to both direct and indirect trade flows between the two countries.

Applying the Leontief inverse and expressing the data in value added terms, the WIOD-data can be used to produce the so called VAX-matrix² that reveals the interdependencies between countries in value added terms. This analysis reveals that the influence of China on Finland is much higher than suggested by the bilateral trade statistics. In fact, when one takes account of the indirect effects and focuses on the value added contents of exports, China turns out to be the single most important foreign influent of Finnish economy (figure 3).

Figure 3: Foreign final demand contribution to GDP of Finland by country 2011, million USD. Data source: WIOD.



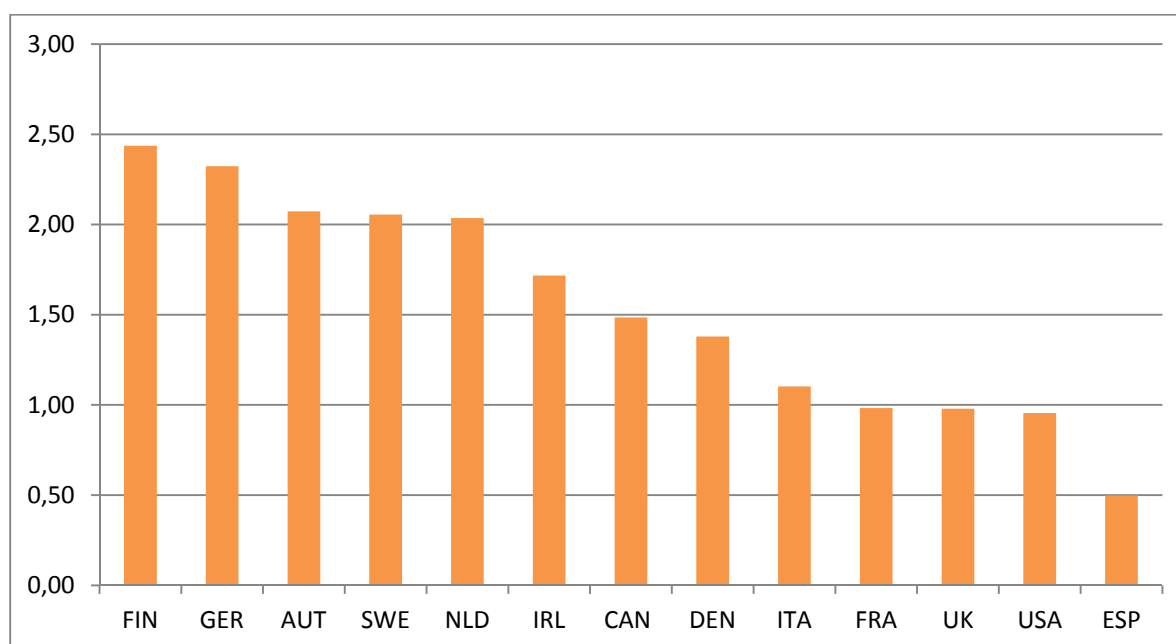
Production of valued added in Finland that serves the final demand in China corresponded to approximately 7 billion USD and makes up to 3 per cent of GDP in 2011. A straightforward implication is that a 10 percent annual growth in Chinese final demand would have a positive impact on Finnish GDP of a magnitude of $\frac{1}{4}$ per cent of GDP. Notably, Finland is almost equally dependent on US economy whereas the link to the final demand of Sweden and Russia is much weaker – even though their share in exports is higher (as illustrated in figure 1).

¹ If not stated otherwise, all the results presented in this paper are based on the data extracted from The World Input-Output Database (WIOD) provides time-series of world input-output tables for 40 countries worldwide covering the period from 1995 to 2011 (http://www.wiod.org/new_site/home.htm). For more details see Timmer et al. (2015).

² See Johnson & Noguera (2012) for more detailed description of how VAX-matrix is constructed.

Relative to GDP, Finland's dependency on China in 2011 was among the highest in Europe with Germany also ranking high in this respect (figure 4).

Figure 4: GDP induced by Chinese final demand, % of total GDP, 2011. Data source: WIOD, OECD.



The role of different channels of influence

Having identified the influence of Chinese final demand on the GDP of Finland it would be of interest to know how much of this is related to the various channels depicted in figure 2 above. Focusing on Chinese final demand alone, we can find out how much of China's influence is related to exports of Finnish final goods to China (channel 1) and how much is related to other countries' final goods exports to China (channel 3). The rest is then related to the exports of intermediaries to China either by Finland itself or by other countries (channels 2 and 4 above). As it turns out, exports of intermediary products – either directly or through 3rd countries – is by far the most important channel for GDP repercussion from China to Finland making up about $\frac{3}{4}$ of the total effect.³

Exports of Finnish final goods to China accounts for some 17 per cent of the total impact of Chinese final demand on Finnish GDP. This figure may sound surprisingly low but is quite in line with other advanced small European economies such as Sweden (17) and Austria (18). On average the role of direct final goods exports seems to be more important for bigger countries such as Germany (34), France (32) and Italy (30).

As for the effect through final goods exports of third countries, which accounts 7 per cent of the total impact, we focus our attention to the country structure of this indirect effect. It turns out that for Finland – similar to many other European countries – the most important mediator country in this respect is Germany.

³ At the moment, it was not possible to distinguish between these two channels in the data to evaluate their relative importance.

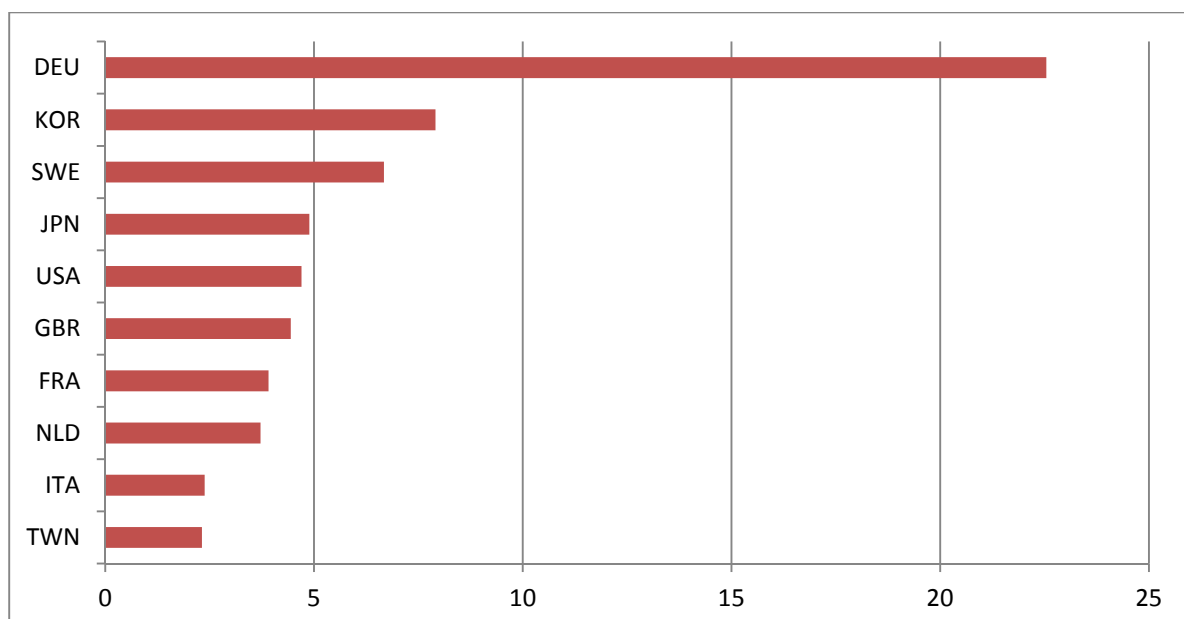
More than 20 per cent of this indirect effect comes from the Finnish value added embodied in the German final goods shipped to China (figure 5). More generally, countries with geographical proximity to China seem to stand out in this ranking (Korea, Japan, Taiwan).

Concluding remarks

The results presented in this paper are based on relatively straightforward calculations based on international input-output tables that are publicly available through the WIOD-database. While providing a powerful tool to explore the interconnections between national economies the approach has its limitations that should be kept in mind when interpreting the results. First, owing to the complexity of the underlying national statistics, international input-output tables are available only with a considerable time lag, presently 4-5 years. This may be a problem if the structure of the economy and foreign trade is changing fast. Second, the analysis performed is static in the sense that it in effect locks the production structure (at level of 35 industries) of the annual input-output table and applies it to all final demand transactions considered. This means that e.g. one unit of chemicals and chemical products (ISIC 3 24) exported from Finland to either China or USA has a similar effect on Finnish GDP. Whether this is a serious limitation depends on how differentiated the Finnish exports to China and USA are at the product level.

Finally, the analysis does not allow for potential final demand interconnectedness between countries. In other words, when considering the effects of Chinese final demand on Finland, we do not take into account the simultaneous effects on final demand in Germany (or any other country) due to higher GDP there and the induced final demand repercussions to Finland. In this respect the analysis provides a first round approximation of the longer run total effect that is likely to be somewhat larger.

Figure 5: Finnish VA embodied in final goods exports to China by third countries. Percentage share of total by exporting country (for top 10 countries), 2011. Data source: WIOD.



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Session 2:
**Challenges for economic
growth in advanced
economies**

Motoshige Itoh

Council on Economic and Fiscal Policy, Japan

Motoshige Itoh (CEFP) contributed to the conference with a discussion of Japan's experience of a protracted phase of low growth.



JAPAN'S CHALLENGES TO BOOST ECONOMIC GROWTH

Japanese people have been suffering from serious deflation mind. Japan's nominal GDP was higher in 1997 than now. It is not very easy to change people's mind and behavior. However, Prime Minister Abe is providing some kind of psychological effect on people's mind. When Mr. Abe became our prime minister three and a half years ago, he tried to reverse the process the other way around with so-called "Three Arrows" approach. First, he succeeded to realize very dramatic monetary easing policy so that we can shift the economy from deflation to inflation. Also, he tried to accelerate the demand so that Japan's nominal GDP growth would go up.

But still, unfortunately, Japan is facing another serious factor; ageing. As in the Figure on Page 1 in my presentation, it is common to other advanced countries because baby-boomers started retiring recently. But Japan's case is too extreme because we were so successful in birth control in 1950's. We had very large number of babies during the "baby boomers" and experienced its sudden drop. Moreover, Japanese people live longer. That is why our society is rapidly ageing.

Another important topic is slowdown in innovation and technological diffusion to boost economy. As you may know, Prof. Robert Gordon pointed out that Total Factor Productivity of the United States suddenly dropped in 1980's. Japan is maybe 10 years behind. Our TFP was very high until 1980's but we experienced the bubble burst and then TFP kept very low since then.

The most important target for Abenomics is to stimulate demand. There are three tools; monetary policy, fiscal policy and supply side reform policy, what we call the Growth Strategy. In the case of Japan, we pushed forward with monetary easing policy very strongly. This was because we had already accumulated huge amount of debt and did not have much capability of fiscal stimulation and because people around Prime Minister believed that deflation is a monetary phenomenon and that monetary policy should be the first thing we had to think about.

Now, we also understand supply side policy is very important. However, supply side policy does not have immediate effect, even if we have very successful reform. It takes some time for the result to be reflected in economy. One can identify many indicators such as stock prices, employment numbers, government revenue, and corporate profitability dramatically improved. Everybody was very excited at the beginning of Abenomics. But unfortunately, consumption and investment is very slow to move maybe because of strong influence of legacy of deflation or aging population or another reason.

We are now in the process of adjusting the policies. We now started thinking more highly on fiscal policy. Of course, monetary policy is very important but even though the Bank of Japan supplies base money to the market, Japan's banking sector deposit the money to the central bank, only to circulate base money between the central bank and the banking sector. We have to transmit that kind of monetary policy to expanding expenditures, expecting that consumption and investment is eventually catching up. I think it is necessary now to focus more on the role of fiscal policy. We decided to implement more fiscal stimulus and to postpone the increase of the planned consumption tax rate by two and a half years.

I also would like to speak briefly about the Growth Strategy, or our supply side policies. Before Mr. Abe became prime minister, we had 6 prime ministers in 6 years; we had a different prime minister every year. That was the reality of Japan's politics at that time. It is almost impossible to consider very long lasting or consistent reform under that kind of political situation. It is good for us that one prime minister remains in that position.

We do have some progresses of the growth strategy because of the stabilization of political condition. I listed some of the successes we achieved, as in Page 3 of my presentation. One is corporate governance reform. We achieved very big scheme change of corporate governance structure and it started changing the behavior of management and policies of board members and so forth. People started to concern more about efficiency of investment and management and so on than ever before.

Second is corporate tax reform. Japan and the United States were number one and number two highest countries in terms of corporate tax rate. We had many discussions in the past to explore the possibility for corporate tax to be reduced to some level, but politically it was very difficult. However, thanks to the initiative of Prime Minister Abe, we finally cut our corporate tax rate as the same level as that in German or French and we are not number one anymore. I am not sure how big this result would influence, but I am sure that will provide long lasting influence on the behavior of corporate investment or movement of capital.

Third is TPP, which is still under process of effectuation. Of course, TPP is very important for the global value chain of Asia and the Pacific. However, in a sense, more important for Japan, I think, is the fact that a lot of discussion about internal reforms especially in agriculture area were brought about during the negotiation of TPP. Japanese agricultural sector is famous for very protective behavior. If you look at the reality, about 9 % of farmers are providing more than 60 % of

our farm product. We have had very rapid structural change, but still 90 % of farmers which produce only 30-40 % of our farm products is politically very strong. So, TPP negotiation is a kind of process of political change so that the government can influence or emphasize more promotion of competitiveness rather than protection of the traditional farmers.

PPP/PFI is an effective way to invite private money in Japan. If you come to Japan and look at Japanese airport, you may find that the increasing number of airports now invite private money not only in management. That kind of use of private management is very important reform in Japan.

Labor market reform is also under progress. This is the most difficult part because there are different political interests. But I have to emphasize that unemployment rate is quite low and that the ratio of job offers divided by job seekers is the highest level in the last 23 years. This kind of very tight labor market probably is the most important factor for promoting structural change of labor market reform. The role of government is the promotion of that kind of change. That kind of transformation of labor market is really vital to promote the growth.

Let me briefly discuss the fiscal reform. Japan is facing very serious fiscal problem now. We have to distinguish three different aspects of fiscal consolidation. Firstly, Japan is still running quite large amount of budget deficit. Secondly, our society is very rapidly ageing and we are expecting huge amount of fiscal burden of social security not now but in future such as in 10 or 15 years. Thirdly, we have already accumulated huge amount of debt. Deficit, ageing, and debt. We have to deal with these three problems separately.

The most important and immediate target is to shrink deficit. Abe administration has a target of making the primary balance deficit to 0 or even achieve primary surplus by FY2020. There are three policy measures to achieve this. One is tax increase. Second is the change of deflation into mild inflation or increasing nominal GDP so that we can have large tax revenue. Third is the expenditure reform.

One of the achievements of Abenomics is a substantial increase in tax revenue thanks to nominal GDP increases. Stopping deflation is important not only for itself but also for shrinking budget deficit. The balancing is very difficult because if we increase tax, that may have a negative effect on the inflation rate. The government is still trying to set a very good balance between economic stimulation and tax increase. One solution we have just decided is the postponement of increase of consumption tax rate until Oct 2019. It is very interesting timing because target for our fiscal consolidation surplus is FY2020.

Because the government has decided not to increase consumption tax rate until FY 2019, what we can do now is the reform in expenditure side. Social security expenditure will continue to increase. Therefore, expenditure reform is very important for the future. Also I have to emphasize we are doing well about the social security system so far. Although Japan is the most ageing society, our expenditure on medical over GDP is controlled in a very low level while we also retain a long life expectancy.

Finally, I have a question for you. When we are talking about adjusting debt to GDP ratio, we have two options; one is shrinking the numerators by producing budget surplus so that we can decrease government debt; the other is expanding a denominator by increasing nominal GDP. Of course, both are important. But it is very difficult to have a large amount of surplus in budget. Thus, expanding denominator, nominal GDP, is very important in the long run so that Japan can achieve the stabilization of debt over GDP ratio. We are still in the process of adjusting deflation economy into more mild inflation economy for that purpose.

Thank you very much for listening.

Jay C. Shambaugh

Council of Economic Advisers, United States

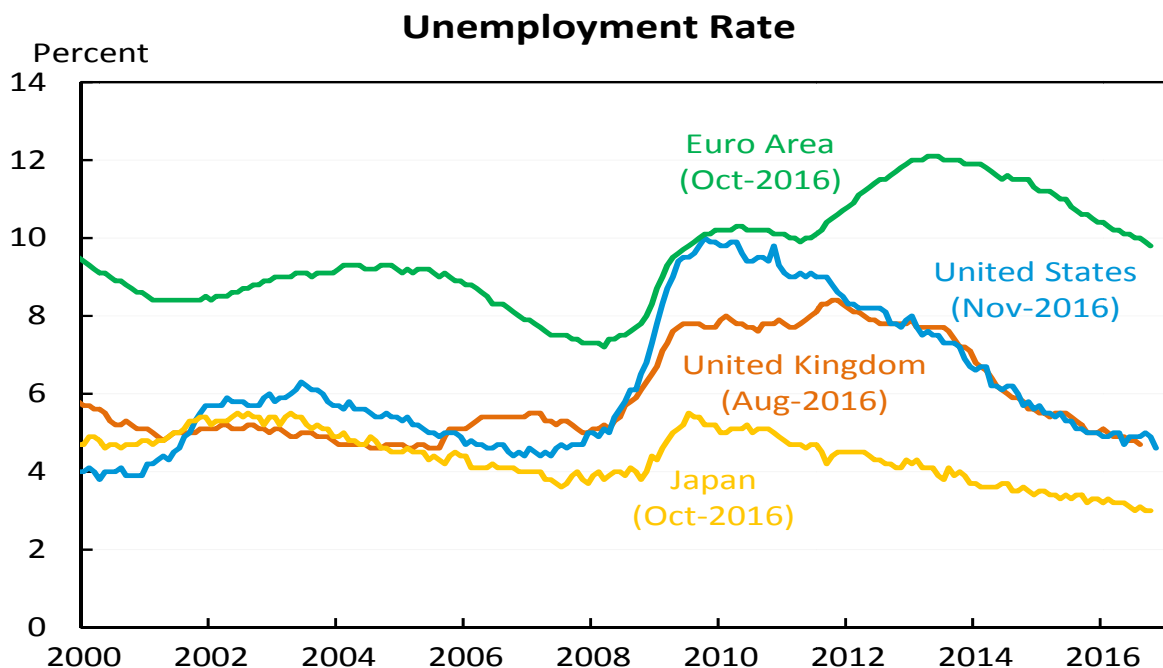
Starting from the observation that global growth has been disappointing once and again throughout the last years, Jay C. Shambaugh (CEA) discusses the reasons behind these developments, sorting out potential demand-side and supply-side factors, and emphasizing the role of weak demand.



DEMAND AND GLOBAL GROWTH

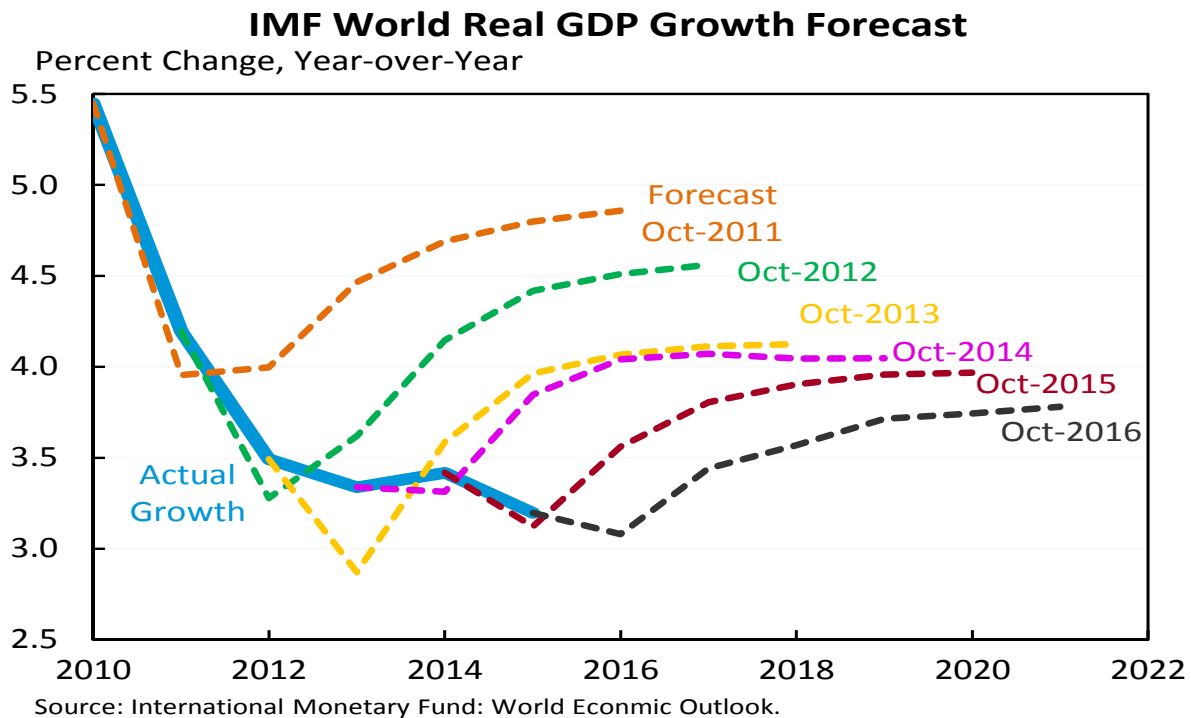
In 2008-9, the world suffered one of the largest global financial crises in history. First in the United States and then in Europe, financial institutions approached collapse, asset prices crashed, and house prices continued the decline they had begun a few years earlier. Initial estimates were that damage would be contained since the wealth losses on subprime mortgages did not appear large enough to derail the world economy. Rapidly, though, the compromised nature of financial systems became apparent, risk aversion spiked, and both lending and spending shrank.

In the wake of the global financial crisis, the real economy in many countries contracted sharply and unemployment rates shot up. One piece of good news is that in many countries, those unemployment rates are back down to pre-crisis levels. Obviously, Europe has had specific challenges as the euro area crisis sent a second shock wave through the economy and a second spike in unemployment rates.



Source: Eurostat; Bureau of Labor Statistics; Ministry of Health, Labour & Welfare.

Despite the improvements in unemployment rates, though, global growth has often been disappointing. After a brief recovery from the crisis, the world has settled into a slower pace of growth. Time and again world economic growth has fallen short of expectations. In fact, in each forecast for the last six years, the IMF has had a less optimistic view of global growth, but despite those reduced expectations, every time, global growth has come in even more disappointing. In the most recent forecast, the IMF predicts less of a bounce as somewhat lowered expectations have sunk in (IMF, 2016).

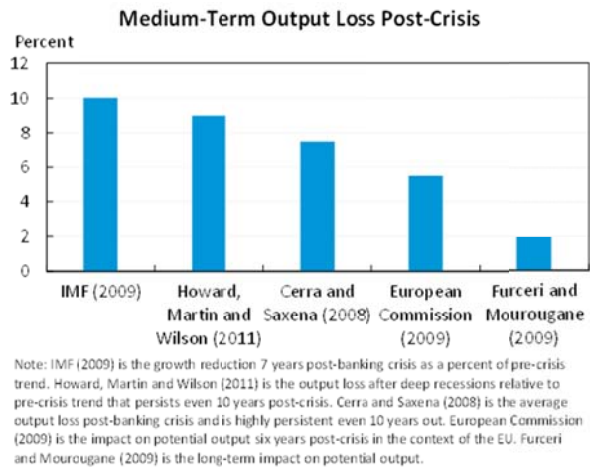
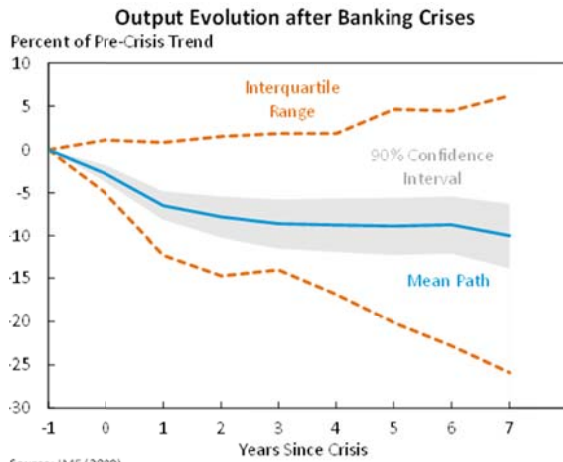


Why did global growth disappoint

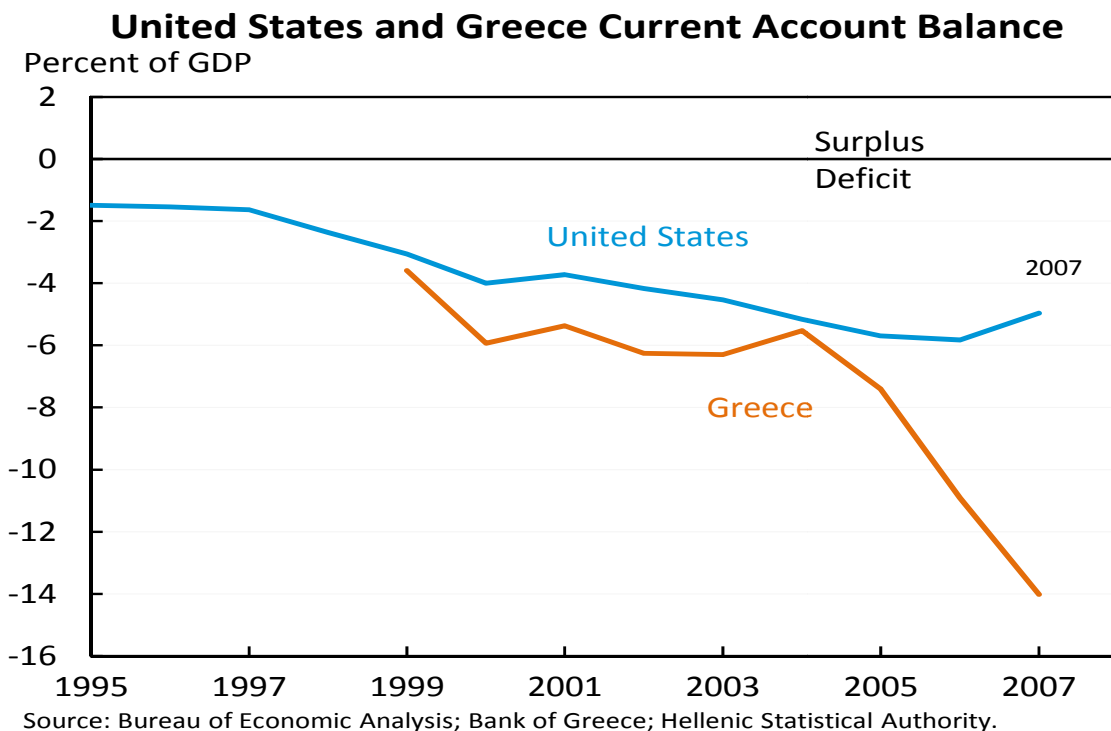
Financial crises often have long shadows. Depending on the assumptions one uses, researchers have found sizable output losses from trend for many years later. Others, though, have found little average loss in the medium run, implying that countries do often bounce back out of a crisis. Countries have had a wide array of experiences following crises, some depreciating sharply and then relying on foreign demand to bounce out of a financial crisis rapidly, others taking aggressive policy actions, and others facing extended protracted slowdowns with output never really recovering.

Even the studies that show a loss on average from a financial crisis show a considerable variety of outcomes. A well-known IMF study (2009) suggesting countries faced sizable medium-run damage on average also found that roughly one third of countries were growing above their prior trend seven years later. That is, not only did they not face a loss, they were doing better than would have been expected before the crisis. Other work (see for example Cecchetti et al., 2009) finds many countries recover to trend after a crisis in the medium term. Recent work by Christina and David Romer (2015) expanded the types of episodes un-

der investigation to look at financial distress, not just recessions that include financial distress. They find a wide range of outcomes that on average are only moderate and are often temporary.



If growth has simply settled at a new permanently lower level, the key policy question is how to adjust to this new outlook. If, though, there is substantial demand slack or untapped supply opportunities in the global economy, policy may steer us back toward sustained, robust growth. While there are a number of reasons we may expect global growth to be lower over time than it was pre-crisis, it is important to emphasize that just because a crisis occurred does not mean output growth was unsustainably fast prior to the crisis.



Some have argued that we – consumers, governments – were simply living beyond our means, and thus output growth must be lower going forward. But, just because some were saving too little or spending too much does not mean that output growth must be lower. It may be – and it was the case – that some were consuming too much. For example, the Greek government was borrowing over 10 percent of GDP prior to the crisis. The Greek economy was borrowing 14 percent of GDP from the rest of the world. Millions of Americans were spending more than they were earning and the personal saving rate in the United States fell to 2.6 percent in 2005, relative to its average in the 1980s and 1990s of 8.0 percent. As a whole, the U.S. economy borrowed almost 6 percent of GDP from the rest of the world in 2006.

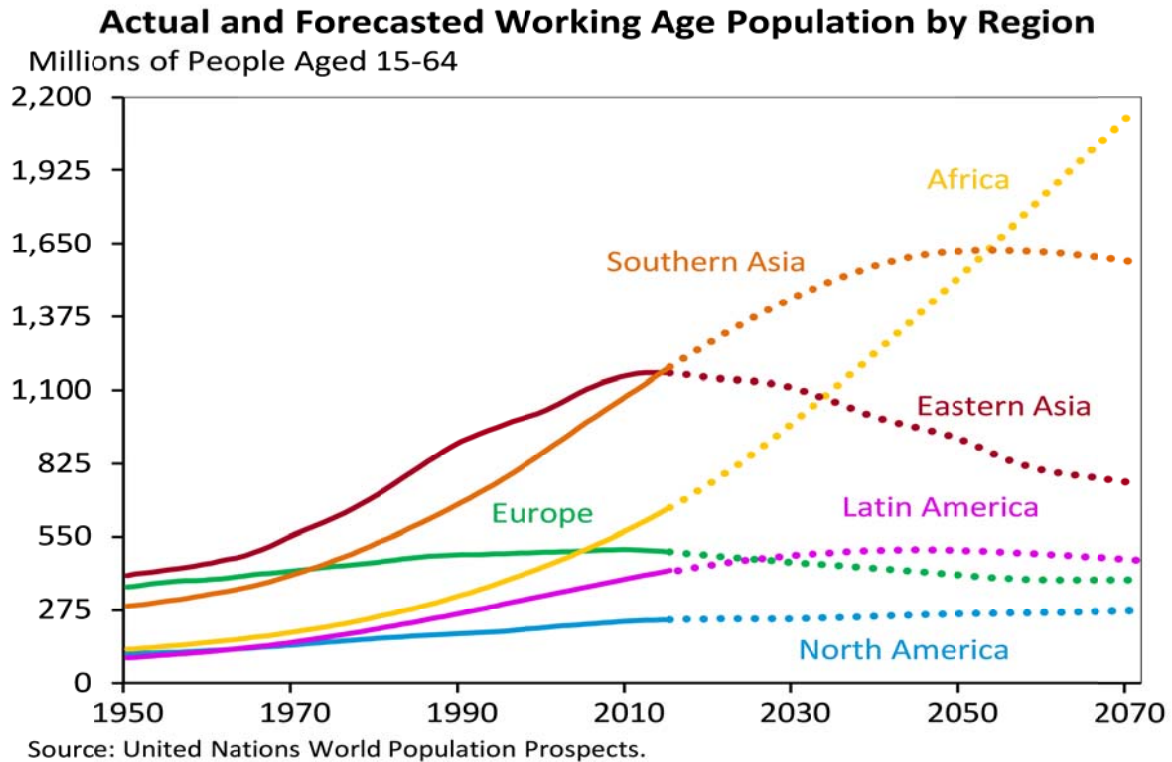
There is a reason to believe that this spending, and this borrowing, was not sustainable. There is no reason, though, that the United States or Greece could not make the same amount of output it did at that time. The allocation of demand, both within and across economies may have required adjustment, but neither the output nor the pace of output growth necessarily did. The United States was over-consuming, not over-producing. That is, there is no reason that output or production needed to adjust. And yet, when the crisis struck, output fell sharply, output growth during the recovery has not yet reached its trend rate, and world growth has slowed notably.

So, if global growth didn't have to slow down, why did it?

The first thing to note is that there are in fact perfectly sensible reasons global output growth has slowed. The most notable reason is demographics.

From 1953-2007, the U.S. working-age population grew 1.4 percent a year, fundamentally underpinning substantial output growth by adding new workers and consumers into the economy each year. Added to that was the cultural shift that brought many more women into the labor force; in part as a result of this shift, the U.S. labor force was growing 1.7 percent per year over that time period. Since 2008, the working-age population has grown just 0.5 percent per year. The U.S. fertility rate did not fall suddenly to zero in the last few decades; rather, it was so high during the baby boom 65 years ago that baby boomers' retirement has substantially slowed the growth of our labor force, creating a headwind for overall economic growth.

This is not a uniquely U.S. experience. The working-age population is shrinking in Europe, in Japan, and in East Asia more broadly. The working-age population is falling even in China. Global working-age population growth has slowed from 1.8 percent in the 1990s to 1.3 percent since 2007.

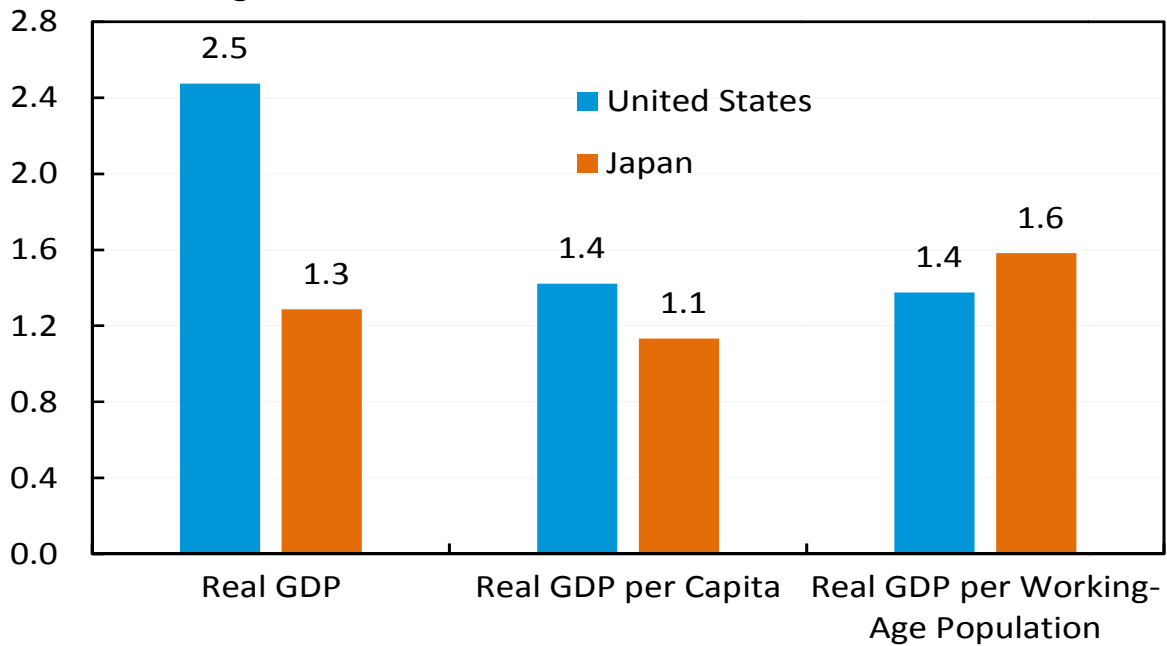


The experience of Japan and the United States highlights the importance of demographics and how declining demographics can weigh on output growth. Looking simply at headline real GDP growth, the U.S. economy substantially outperformed the Japanese economy from 1989 to 2013. Simply scaling by population, though, the growth rates look quite similar. The U.S. economy was still growing faster, but not substantially so. Scaling by the working age population, though, Japan's economy actually grew slightly faster. This highlights two issues. First, it is important to take demographics into account when trying to evaluate the growth rate of the economy (see Shambaugh, 2016b) for more details on the current U.S. recovery). Second, even if a country is performing reasonably well on a working age population basis, it may be dangerously close to recession unless steps are taken to support growth.

Demographics is not destiny, though. Participation rates matter a great deal as well. The United States has experienced a significant long-term decline in prime-age male labor force participation over the past sixty years. This has been mirrored in other G7 economies. The United States also has experienced a recent downturn in prime-age female labor force participation. Encouraging more labor force participation would help shore up economic growth, and in particular support growth in countries where demographics are weighing on growth.

Real GDP Growth and Demographic Trends, 1989-2013

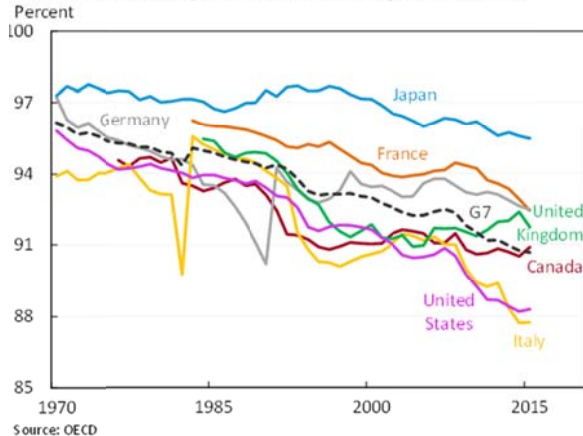
25-Year Average Annual Growth Rate



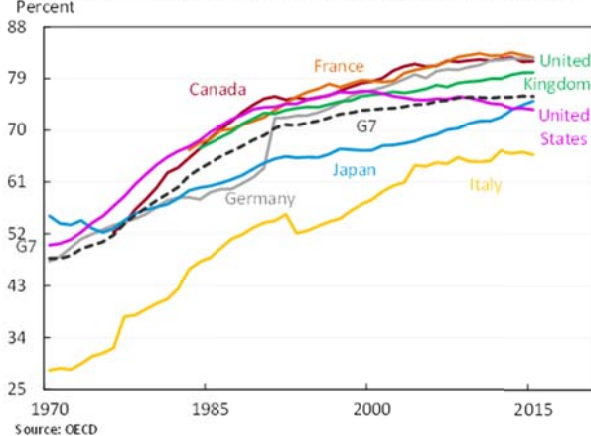
Note: Working age population is defined as those aged 15 to 64.

Source: U.S. Bureau of Economic Analysis; Japan Cabinet Office; World Bank; CEA calculation.

Labor Force Participation Rate of Men Ages 25-54, 1970-2015

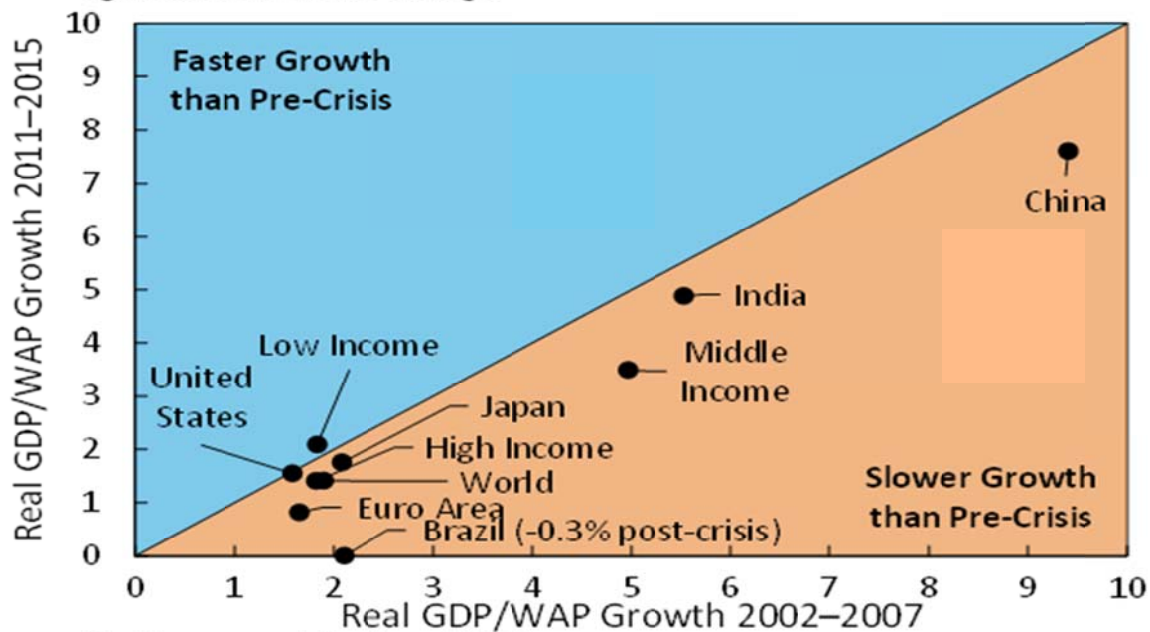


Labor Force Participation Rate of Women Ages 25-54, 1970-2015



But, growth has not simply slowed entirely in line with working-age population growth. In nearly every country, growth per working-age population has slowed as well. Europe, China, India, and middle income countries have all had growth per working-age population slower in the post crisis period of 2011-2015 than in the pre-crisis era. By this measure, the United States does fairly well, with roughly the same growth in both periods. However, given the hole that the world economy was still in during 2011, providing the potential space for a strong bounce back, one would have expected faster growth since then. Since the unemployment rate was falling over that time, one would have expected growth higher than its typical rate. But world economic growth has just been disappointingly slow.

Real GDP per Working Age Population (WAP), Pre- vs. Post-Crisis Average Annual Percent Change



Note: Working age population is aged 15-64.

Source: World Bank; CEA calculations.

So, why else, beyond demographics has global growth been slow?

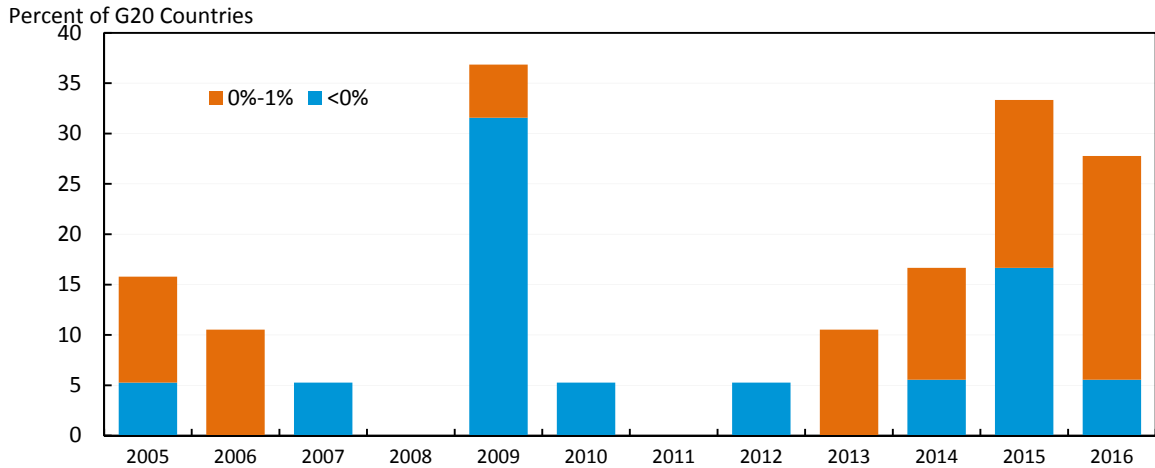
In some places, there is clear evidence of low demand relative to productive capacity. In the euro area, the unemployment rate is still considerably elevated relative to its pre-crisis level and some major emerging market countries like Brazil are in recession. In other places, the unemployment rate shows less obvious slack in the economy and yet growth has been persistently slower than desired or forecasted. But inflation has been quite low and there appears to be room for more workers to enter the labor force suggesting upside potential for faster growth.

Inflation has not just been low in the United States. In fact, inflation in the United States – while below the Federal Reserve's target – has generally been faster than in many other major advanced economies. All around the world, inflation rates have been stubbornly low. Inflation was less than 1 percent in almost one-third of the G20 economies over the twelve months ended in September 2016. The share of G20 economies with near zero or negative inflation has grown steadily in recent years. It was only around 5 percent in 2012 before jumping up over 30 percent in 2015, and it is still close to 30 percent a year later (in the 12 months through September 2016).

This suggests that demand, not supply, has been the binding constraint on growth. If supply were constrained, but demand surging, we would expect prices of goods and services to face upward pressure. Instead, the price of commodities has been falling sharply over the last few years and a large number of major countries are facing less-than-desired inflation. Those falling commodity prices are in part due to supply changes in some products (in particular a surge in oil

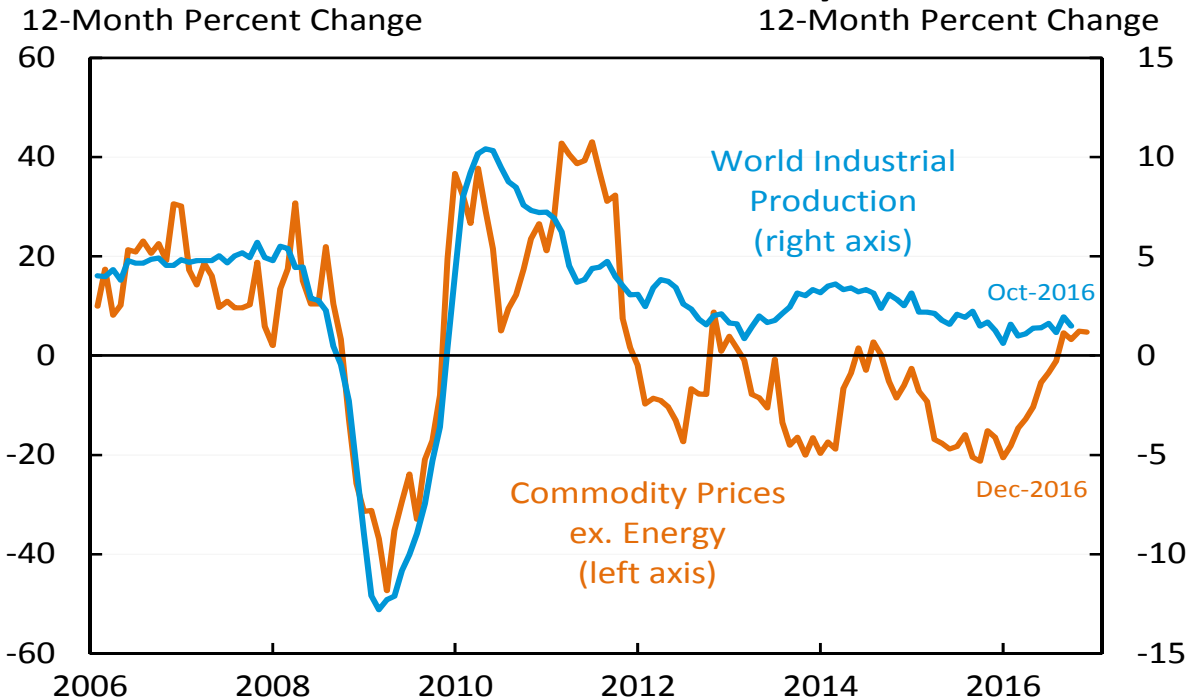
production in places like North America), but they also tend to track industrial production growth worldwide, and as industrial production growth has slowed and economic growth around the world has slowed, commodity prices have fallen.

Consumer Price Inflation in G-20 Countries over the 12 Months Ended in September



Note: Due to data availability, Argentina is not included in Sep-2014 and Sep-2016. Data for Australia are on a quarterly basis through Q3. Data exclude the European Union.
Source: IMF; National Sources; Haver Analytics.

World Industrial Production and Commodity Prices, 2006–2016



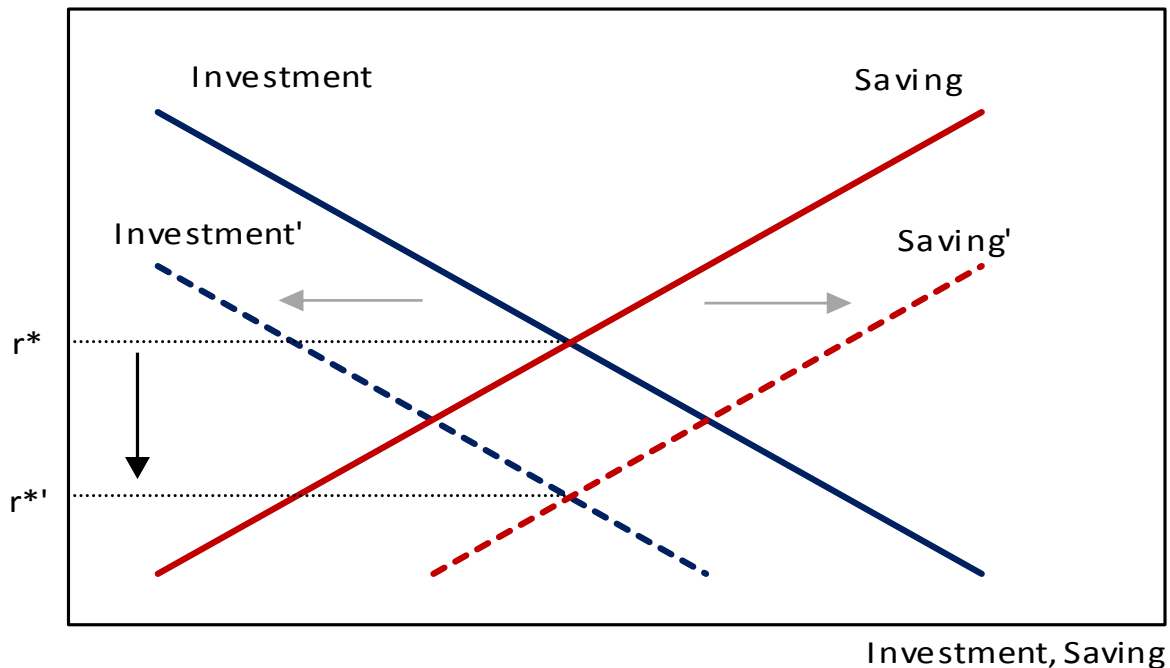
Source: Netherlands Bureau of Economic Policy Analysis; Bloomberg Professional Service.

Looking at interest rates provides another example that demand seems to be weak in the global economy. Long term bond yields have been falling steadily for the last few decades. Low nominal and real interest rates around the world are hard to reconcile with an assessment that suggests supply not demand is the

binding constraint on world growth. A simple model of saving and investment would suggest that falling interest rates are consistent with outward shifts in the saving schedule (a global savings glut) and / or a shift in in the investment schedule (a global investment drought). Some combination of the two would be quite likely. In either case, the lower interest rates would reflect less demand in the economy for goods and services due to lower consumption or investment.

Simple Model of Saving and Investment

Real Interest Rate



At the same time, the fact that the unemployment rate has fallen in many countries (including the United States) demonstrates that employment has broadly recovered. So, if more people are working, why has output growth remained low? The answer is that hours worked have recovered to trend much better than GDP. Across the advanced economies, labor productivity has slowed in the past decade when compared to the decade prior.

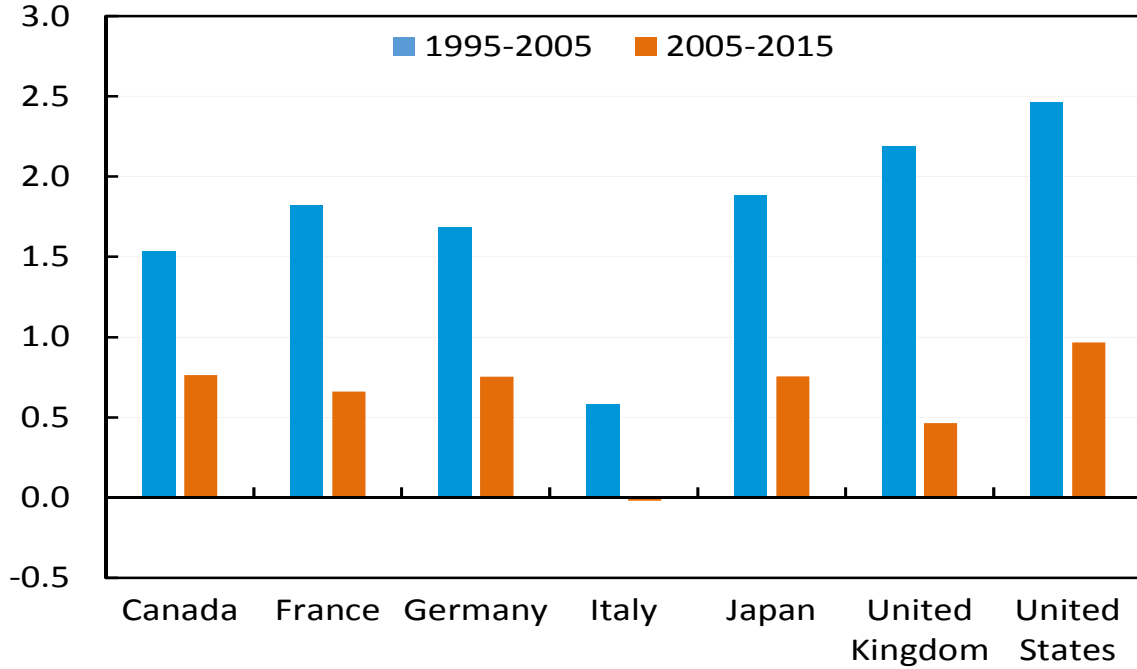
Some of this may be tied to demographics (Shambaugh, 2016b), as at least in the United States it appears a shifting age distribution within the labor force may be holding back productivity growth. It may also be that the rapid employment growth over the last 5 years has meant that incorporating new workers has temporarily slowed productivity at the margin because new entrants tend to be less productive workers, at least at first. But, in the United States, a sharp drop in capital deepening has been a major source of the productivity slowdown, which is a manifestation of the low business investment environment. In the United States from 2011-2015, capital intensity growth was negative.

Total factor productivity growth was lower than typical as well, but it is both volatile and tends to mean-revert, with periods of low growth typically followed by periods of faster growth and vice versa. In addition, the low level of investment

in recent years may mean that newer innovations that would lift TFP have not been fully put in place yet. Over time, the solid R&D investment currently taking place should help lift TFP growth back to its previous pace. The drop in capital intensity is larger, and the absolute decline in capital per worker over the past five years has not previously occurred in the postwar period.

Labor Productivity Growth in the G-7

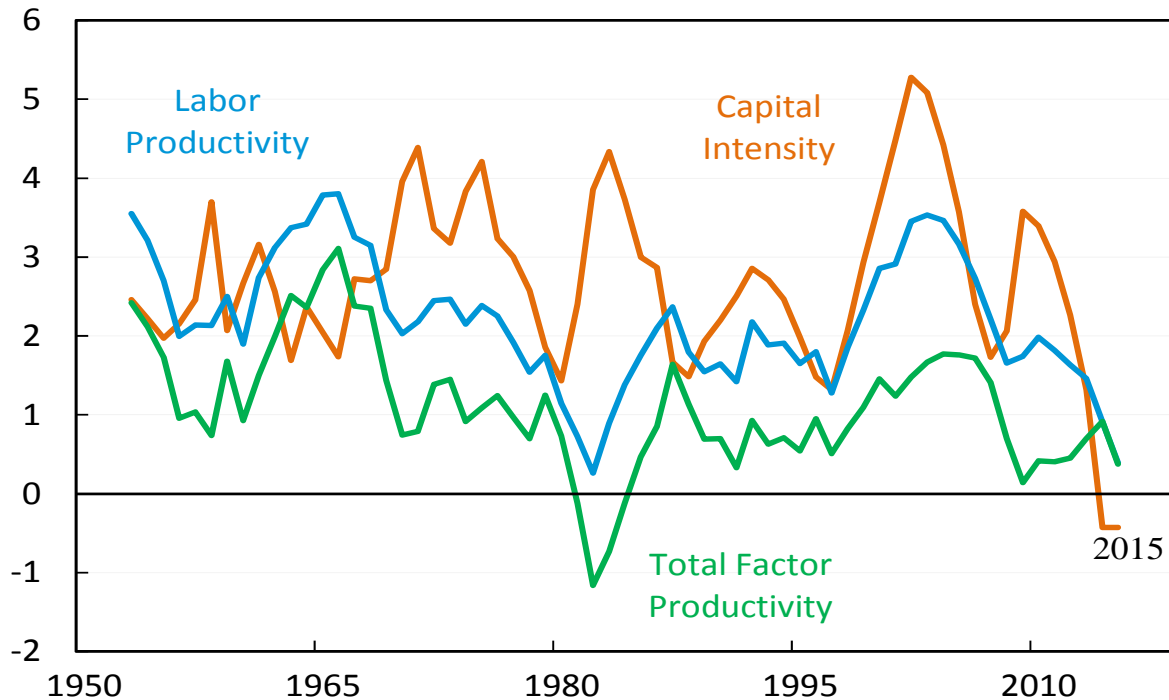
Average annual growth in labor productivity, percent



Source: The Conference Board, Total Economy Database; CEA calculations.

Labor Productivity and Major Components, 1953–2015

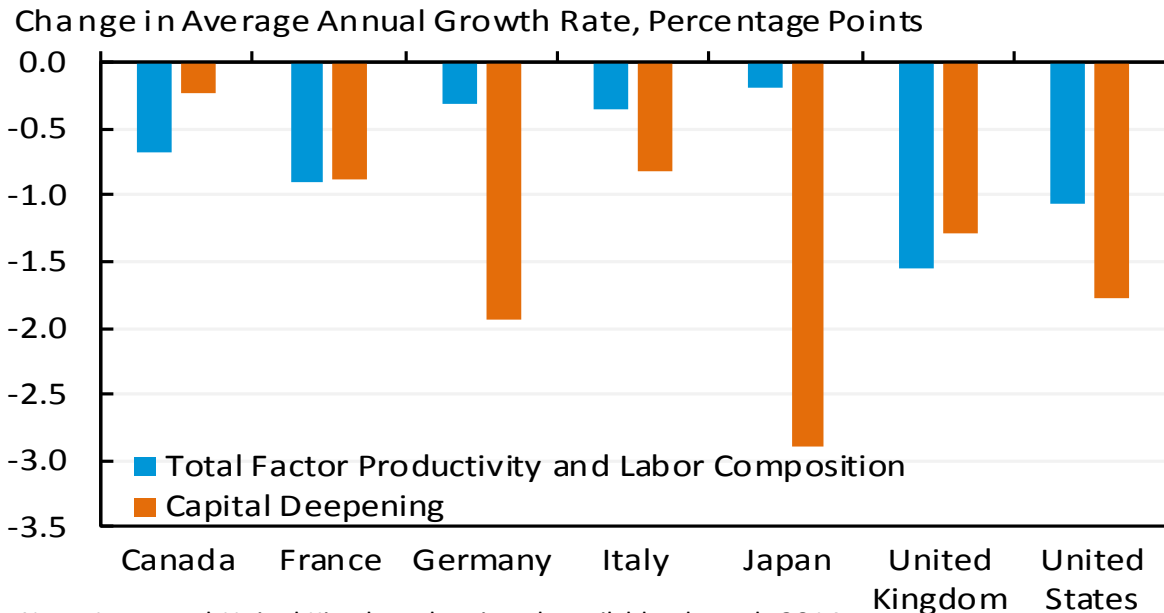
Percent Change, Annual Rate (Five-Year Trailing Average)



Source: Bureau of Labor Statistics, CEA calculations.

And, it is not, by any means, unique to the United States. The slowdown in capital deepening from its pace in 1994-2004 to 2004-2014 was in fact larger in Germany, Japan, and the UK than it was in the United States.

Change in Growth in Components of Productivity in the G-7, 1995–2005 to 2005–2015



The lack of capital deepening in the United States and elsewhere highlights the dual role of the lack of investment growth. Low investment growth directly feeds into lower aggregate demand, but it is also holding back aggregate supply over time. The low investment, though, looks less puzzling in light of slow global growth. “Accelerator” models, where investment growth responds to the change in GDP growth, have done a reasonable job fitting the data over this recovery. (See CEA 2017 for a more detailed discussion).

There are certainly other candidate explanations for slower investment growth: reduced expectations due to lower productivity growth, uncertainty, financial constraints, changes in risk attitudes. In CEA analysis, financial measures are statistically significant over time, but do not explain the recent slowdown in investment. Uncertainty measures do not explain the slowdown either once growth is taken into account. There may be other long term factors weighing on investment growth over time – for example a shift from investment oriented industries towards services where capital to output ratios are lower, but there is not a sharp break in such trends that would suggest such a slowdown as has been seen in capital deepening recently.

One way to interpret this lack of investment and capital deepening is as part of a negative cycle. Demand is low, which makes investment low, which generates low productivity. Lower productivity growth feeds back into reduced expectations, lower investment and hence lower demand. (See Shambaugh, 2016a, for a more detailed discussion.)

We see evidence that low demand is the brake on investment in surveys of businesses across the world. Concern over sales is consistently one of the top problems cited by U.S. businesses, and surveys of European small businesses note that “Securing demand for their products remains the dominant concern for SMEs” (ECB, 2015). Without higher demand, firms simply will not choose to invest.

Large firms are increasingly global in their orientation. In fact, in a recent survey, global firms ranked insufficient global demand as a more important barrier to investment than insufficient domestic demand (OECD, 2015). Hence, these firms’ investment depends not just on their view of the local or national economy, but also on the growth rate of the global economy.

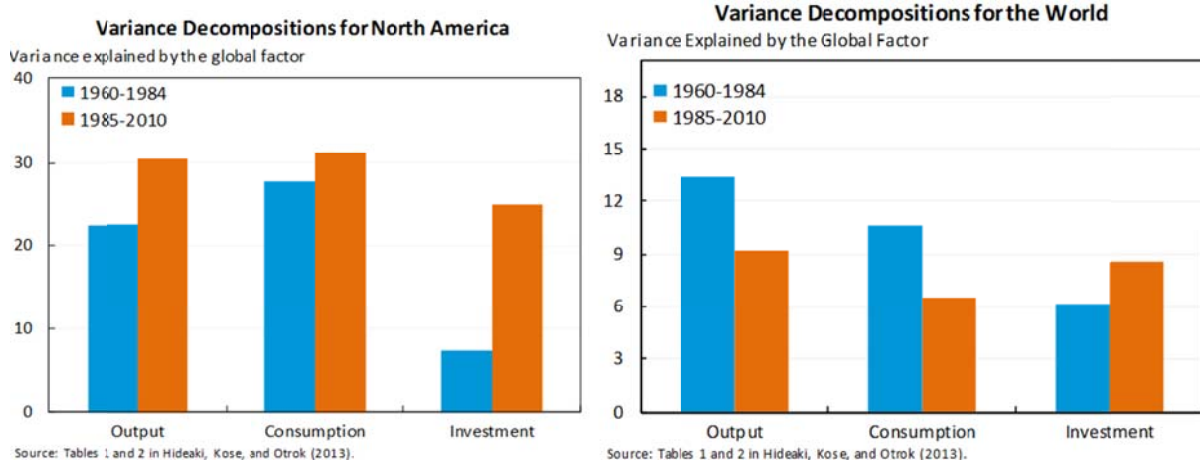
Three recent studies by prominent economic organizations suggest this might be the right interpretation. Research from the Bank of France studying 22 advanced economies found that demand deficiency could explain up to 80 percent of the shortfall in investment across countries (Bussière, Ferrara, and Milovich, 2015). Uncertainty was also an explanatory factor, but demand was far and away the driving force. The authors relied on growth forecasts as a measure for expected demand and showed how these forecasts drove investment levels. In addition, they looked both at expected domestic growth and expected growth of imports in a country’s trade partners. This measure of global demand is also a significant predictor of investment levels, demonstrating the importance of shortfalls in global growth for investment levels.

The Organization for Economic Cooperation and Development has also considered the importance of global demand recently (OECD 2015). Using a different set of time-series econometric techniques, it too found support for the accelerator model – that demand is a key driver of short-run investment dynamics – and also found that global growth, not just domestic growth, played a significant role.

Looking back further, we see other evidence of this. Researchers for years have been interested in the extent to which there is simply a dominant global GDP cycle or whether regional or individual country factors mattered. The great shock of this most recent financial crisis did not damage emerging-market countries in a way that large recessions in the advanced world did in the past. This led to questions of whether there had been decoupling between economic fortunes across countries or types of economies. This may sound exactly the opposite of the case I have laid out so far insofar as it suggests that countries are not as dependent on global growth as in the past. CEA analysis using accelerator models also finds that global growth has an impact on investment (CEA, 2017).

A study by researchers at the IMF (Hirata, Kose, and Otrok, 2013) examines this hypothesis, but also sheds light on how investment is impacted by global influences. This work uses a process called dynamic factor analysis to pick up the common component driving trends in output, consumption, and investment across a wide range of more than 100 countries. In fact, that work does suggest that the amount of output variance that can be explained by a global factor is declining when comparing the period from 1960-1984 with 1985-2010. The au-

thors focus on the fact that the global factor explains less of output volatility, but the regional factor explains more. There are two interesting pieces of evidence in that analysis that are relevant. The first is while that pattern is true for the world as a whole, it is not true for North America. The global factor has a greater impact on output today than previously for North American countries.



Even across the full sample, where the global factor explains less of output growth, the global factor explains more of changes in investment. The notion of a globally influenced investment cycle appears more important, even as output is less correlated today than in the past.

Global demand at the zero lower bound

The global nature of the slowdown in both growth and investment has had a unique aspect for the last few years: not only has global growth been persistently slow, this is happening despite global central banks lowering their policy rates to – or even below – zero. That is, many parts of the world economy have been operating at what economists often call the zero lower bound (or more recently the effective lower bound).

A long line of economic research examines how global demand operates differently at the zero lower bound. Literature on this stretches back to Keynes who noted that in a liquidity trap, the allocation of demand across countries becomes more important (Keynes, 1936). The idea is that when demand is in short supply, countries underproviding demand relative to their output are in some sense acting in a predatory manner by capturing demand from other countries.¹ More recently, Eggertsson et al. (2016) have fleshed out these ideas in a fully specified modern macro model. They use a specific framework tied to the idea of secular stagnation, but as Summers (2015) has noted elsewhere, one really does not need to be too specific about the framework. Many frameworks generate similar results.

¹ This is something Paul Krugman has commented on many times over the last 7 years. See Krugman (2016) for a recent example.

Models of secular stagnation posit that demand is permanently, or nearly permanently, too low for a variety of reasons (shifts in the nature of production, demographics, etc.), and that barring persistent deliberate attempts to increase demand, growth will disappoint. Alternatively, the savings glut idea posed by Ben Bernanke suggests some set of countries have shifted their desired level of saving in a way that increases the level of world saving, pushing down the world real interest rate (Bernanke, 2014). Models focused on debt overhang (recently highlighted in a global context by Ken Rogoff) argue that individuals, firms, and governments are less willing to spend because they have compromised balance sheets due to too much borrowing in the past. Thus, demand is lower until balance sheets are improved (barring some policy action). The crucial issue in these frameworks is the notion that global demand is too weak even when interest rates are at or near zero.

In this case, a lack of demand in one country has very different impacts on other countries compared to “normal” times. To understand this, think first of such normal times. Feyrer and Shambaugh (2012) demonstrate how an exogenous shock to saving by the government in the United States transmits around the world. While part of that shock might be absorbed in changes in investment and saving by other actors in the United States, roughly half of the shock spills around the globe. If the United States as a whole saves more, some other country must be saving less. As it turns out, the global savings and investment tend to line up. Thus, in normal times, as in a liquidity trap, changes to saving and investment in one country have spillovers around the world.

If there is an increase in saving in a country outside of the United States in normal times, there is no reason to think a change in saving in that country transmits one-for-one to the United States. Rather one would think such a shock would spill roughly evenly around the world. If the U.S. economy were to face less demand from a country abroad, that would leave it with a demand shortfall, but one might normally expect global real interest rates to adjust down. In those normal times, one would think that the U.S. central bank would largely be able to offset this shock in a way that would increase demand in the United States. Thus, this increase in savings abroad would tend to lead to a decrease in savings (or increase in consumption) or an increase in investment in the United States. A large current account surplus in one country might affect savings decisions in other countries, but not the total level of output.

When there is a global lack of demand and central banks are already trying to do as much as they can, though, the situation appears to be different. In this case, a decrease in demand (or increase in saving vs. investment, or most simply, an increase in the current account) in a country abroad would mean a reduction in demand to the home country. But, if the central bank is not able to offset this by stimulating demand, the reduction in demand simply reduces output.

Hence, global macro when interest rates are effectively at zero appears to operate differently. Demand is in a sense a finite and precious commodity. One country taking action to increase demand can spillover positively to the rest of the

world, but trying to increase demand for your own products from the rest of the world, without trying to increase demand in your own country, can be predatory.

In this sense, global growth has two key impacts on a country beyond those in normal times. There is clearly an impact of global growth on exports – for example U.S. export growth tracks trade-weighted foreign GDP growth quite well – or the way global shocks can spill through financial markets. But there are other ways a given country is affected by global growth when at or near the zero lower bound. First, lower global growth can lower investment at home and hence have both a negative impact on demand in the near term and on productivity through less capital deepening. Second, lower global growth may be difficult to offset due to the near-zero interest rates around the world.

None of these challenges need be permanent. The troubling cycle of low demand leading to low investment leading to low productivity growth causing lower expectations and lower demand can itself turn around and become a virtuous cycle. But, shifting the cycle will require concerted action across a range of countries. As global demand is such a key part of the investment decision, it is hard for any one country to execute liftoff on its own.

Where are Demand Shortfalls?

Looking around the world, one way to look at the extent of demand slack is to look at the current account. As the current account can be defined as savings minus investment, it stands as a measure of whether domestic demand is larger or smaller than domestic production. The target current account at any one point in time may not be zero for a given country as differences in demographic patterns, investment needs, or other factors may change the optimal level of borrowing or lending to the rest of the world. Sizable current account surpluses over and above sustainability targets calculated by the IMF, though, may suggest a lack of demand relative to other countries in the global economy. Given the issues at or near the zero lower bound described above, it is harder for other countries to insulate from that demand shock at the effective lower bound. Many major economies have current account surpluses well in excess of their sustainability target, suggesting room to expand domestic demand.

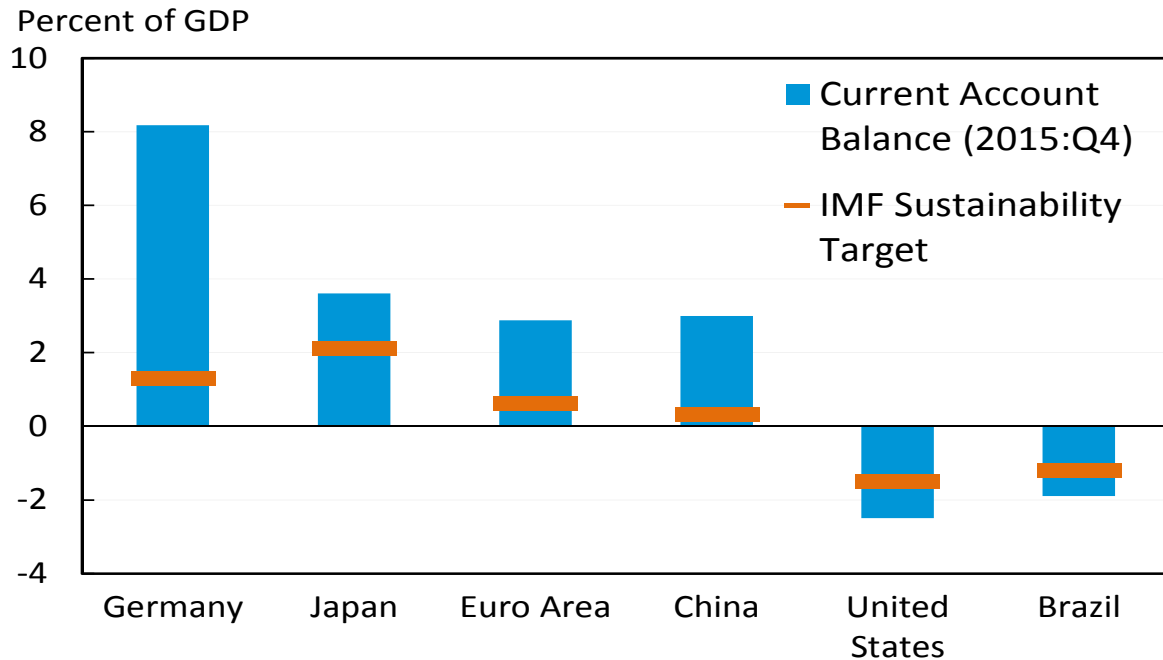
Recognizing Importance of Demand and Using Policy

Policymakers have been highlighting this lack of demand recently. Statements from the IMF and OECD have been far more positive about the importance of lifting demand and using fiscal policy to do so in particular. There may be constraints in some places based on the way institutions are designed (Furman, 2016), but this simply raises the importance of reforming structures to make sure fiscal policy can be deployed when necessary.

Throughout 2016, the G20 has expressed a desire to see more growth and a recognition that that growth will likely require supportive macroeconomic policy. The G20 declaration in Shanghai in February said, “The global recovery continues, but it remains uneven and falls short of our ambition for strong sustaina-

ble, and balanced growth we will use all policy tools – monetary, fiscal, and structural – individually and collectively to achieve these goals” (G20, 2016).

Current Account Balance as a Share of GDP, 2015



Note: The IMF Sustainability Target is the current account balance necessary to stabilize the nonfinancial account; targets as of 2015.

Source: International Monetary Fund (IMF); National Sources via Haver Analytics.

Different countries may require different paths. For some countries, including the United States, infrastructure investment remains below needs and could be increased in a way that supports supply growth as well as demand. This is one reason the Obama Administration has made a number of proposals for increased infrastructure investment. In other countries, the shortfall in private investment demand may be paramount, in which case policies that support business investment that can lift both productivity growth and demand would be helpful. Still other countries – especially those where domestic demand is notably below supply – may need consumer-oriented stimulus and policies that support consumption to make sure that they are contributing to global demand.

Evidence over the last 8 years has shown that especially when interest rates are at or near the zero lower bound, supporting demand-oriented policies have been positive for growth, and in many cases can lift growth to partially offset any increase in debt to GDP ratios. Slow growth has many causes, but it can also be self-reinforcing by holding back investment and subsequently productivity growth. Policy can play an important role in making sure global growth does not repeatedly fall short of its possibilities.

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Laura van Geest

CPB Netherlands Bureau for Economic Policy
Analysis

Laura van Geest (CPB) uses several examples from the realm of trade policy issues, such as TTIP and Brexit, to explain how the CPB uses its model infrastructure to assess the economic implications of policy decisions.¹



OPEN BORDZÜERS

Introduction

In the recent past, free trade, the internal market and the free movement of persons have become more of a topic for debate. TTIP, Brexit and the refugee flows and its implications for the Schengen borders come to mind. The implications of policy choices in this area are interesting for the Netherlands and for the EU at large.

The Model

At CPB, we analyze these type of trade issues with WorldScan, a trade model, encompassing 33 countries and 21 sectors, a general equilibrium model with an economic underpinning.² The model uses the following assumptions: (1) higher trading costs lead to higher prices and lower demand; (2) capital goods display limited mobility across countries and sectors; labor displays only limited mobility across sectors. The results for various countries are dominated by openness to trade. In analyzing the effects, you can take account of trade effects or you can also allow for innovation effects that could result from higher trade. Empirical evidence for innovation effect exists, but remains limited. CPB therefore tends to analyze policies both with and without innovation effects.

The Cases

Three cases are analyzed: the case of a Leave vote in the UK, the collapse of the Schengen Agreement in the aftermath of large refugee flows and a successful completion of the TTIP negotiations.

¹ I would like to thank Johannes Bollen for his help in preparing this text.

² Worldscan is extensively described in Lejour et al. (2006). "WorldScan: A Model for International Economic Policy Analysis," CPB Document 111.

Figure 1: Worldscan³

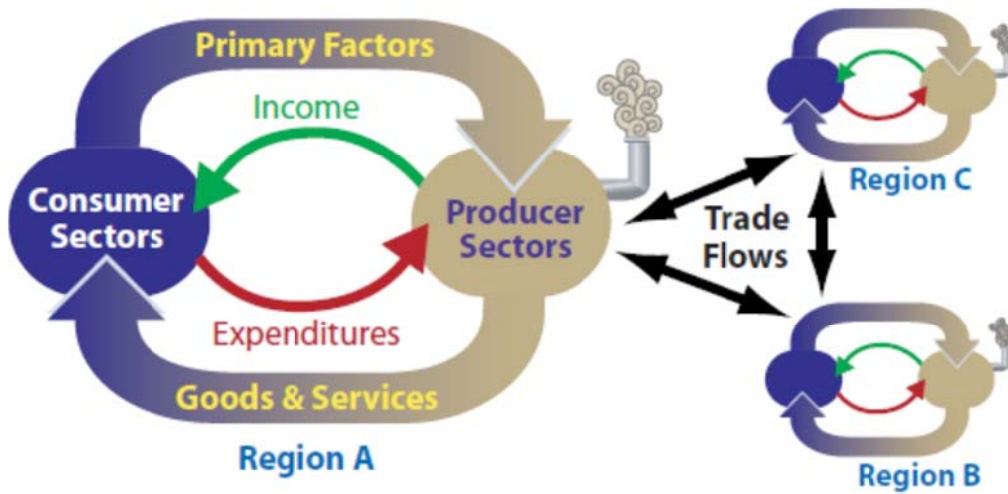
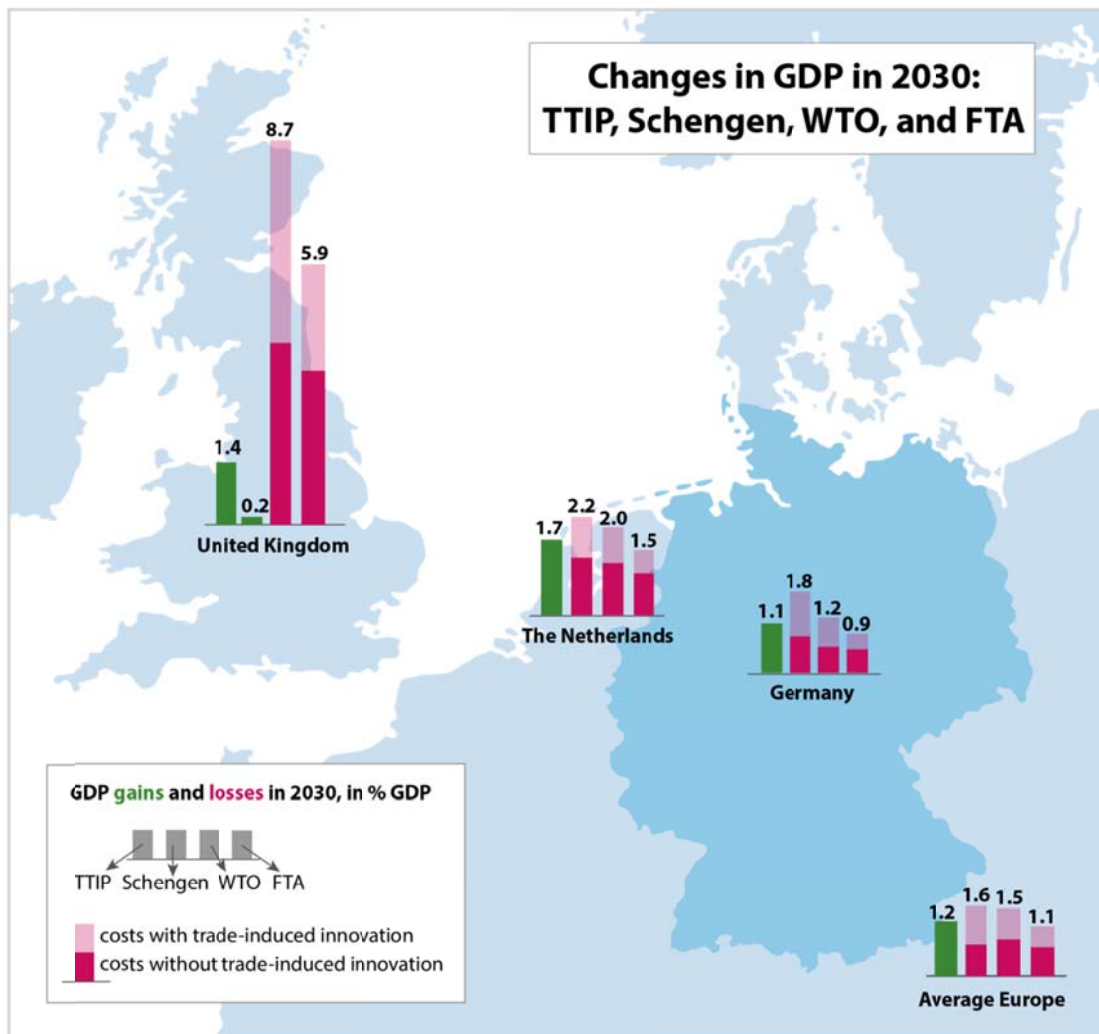


Figure 2: Changes in GDP



³ This picture is taken from Paltsev, et. al (2005), "The MIT EPPA Model" JPR Series, MIT, Cambridge, USA.

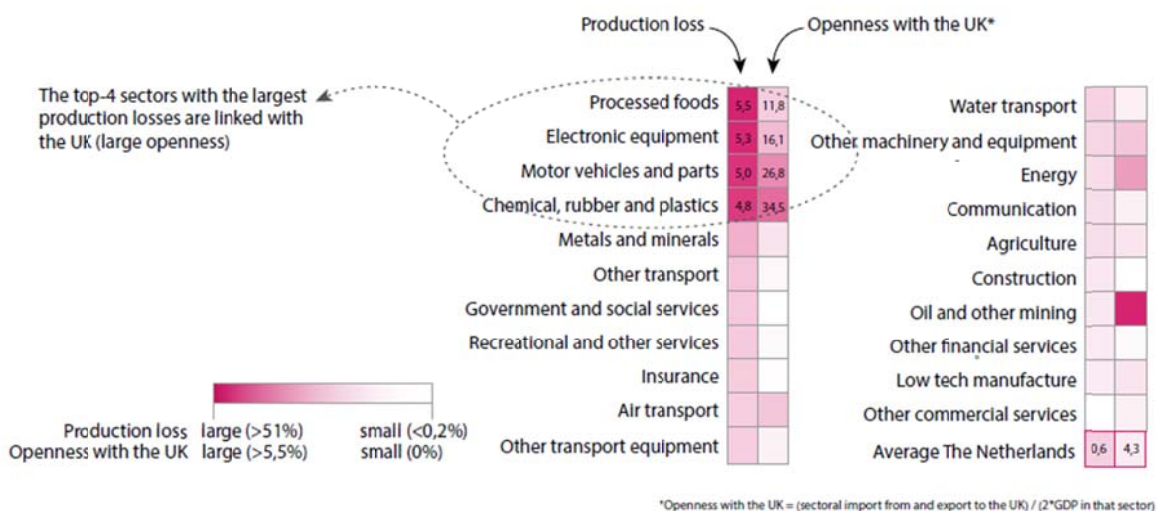
Brexit

The UK referendum resulted in a Leave vote yesterday. In the run up to the referendum, we undertook a scenario analysis. As it is unclear what a future Brexit arrangement will look like, two approaches are analyzed⁴, a trade arrangement modeled on the (new) trade arrangement between Canada and the EU (with non-trade barriers (NTB's) amounting to 6 % and nominal tariffs of 0 %) and a more classical WTO arrangement (NTB's of 13 % and nominal tariffs of 3 %). It is assumed that Brexit will take place two years after the Brexit referendum and the invocation of art 50 and that the full effects will be realized after 10 years.

The analysis shows that Brexit will entail losses in GDP across the EU and across sectors. The varying degrees in which countries and sectors are affected may be reflected in the negotiations, once Article 50 is invoked.

The losses are highest for the UK and its closest trading partners (e.g. Ireland, Netherlands). Long term losses in GDP for the UK amount to 4.1 % of GDP, Netherlands 1.2 % of GDP and the EU 0.8 % of GDP. These effects more or less double if you allow for possible innovation effects. These effects fall in the middle of the range of estimates by other institutions. Job losses are highest in exposed sectors, like food, electronic equipment, motor vehicles and parts, chemical, rubber and plastics. In the short run, uncertainty can lead to additional (temporary) GDP losses that will evaporate once this uncertainty will be resolved. These losses can be approached using the volatility in the Vix as a proxy for economic uncertainty (a change of 2 standard deviations would lead to a temporary GDP loss of 0.3 % of GDP) and an index for political uncertainty.

Figure 3: Production Losses in 2030 in the Netherlands



⁴ <http://www.cpb.nl/sites/default/files/omnidownload/CPB-Background-Document-June-2016-Trade-effects-of-brexit-for-the-netherlands.pdf>

Collapse of Schengen Borders

With the increased flows of refugees in the latter part of 2015, border controls were tightened, giving rise to a debate about the continued free flow of persons and goods across the Schengen borders. The effects of reinstalling the Schengen Borders have been approached using the estimates of the gains of the abolition of the Schengen Borders, i.e. a decrease in import prices of 3 percent⁵. GDP loss for the EU 28 amounts to 0.7 % of GDP, and differ across countries and sectors, varying according to the degree of openness.

Figure 4: Reinstalling Schengen Borders, Changes in GDP in 2030

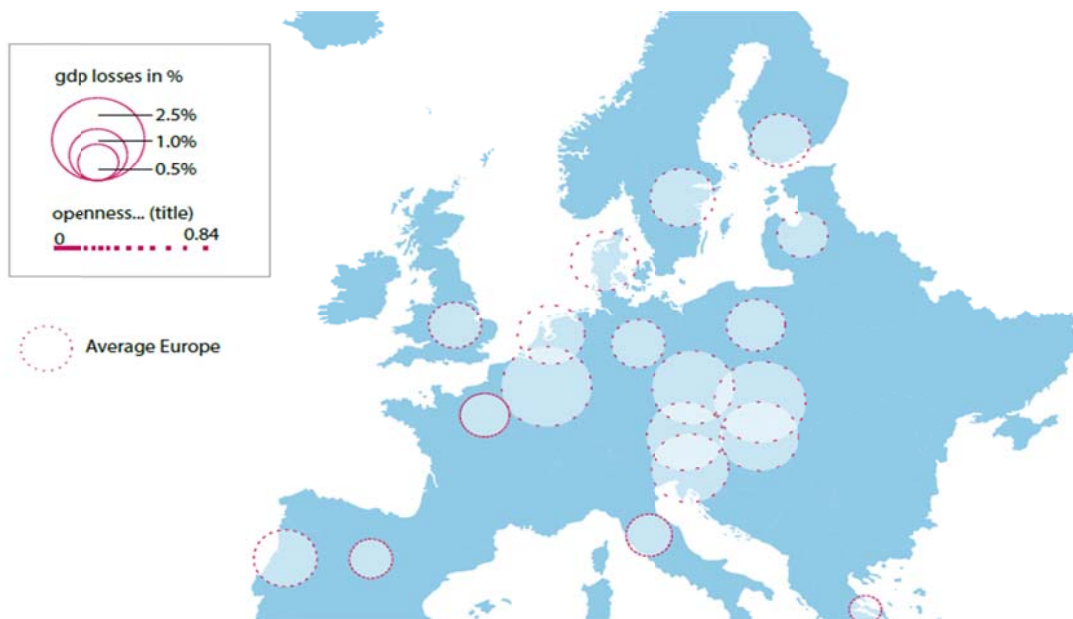
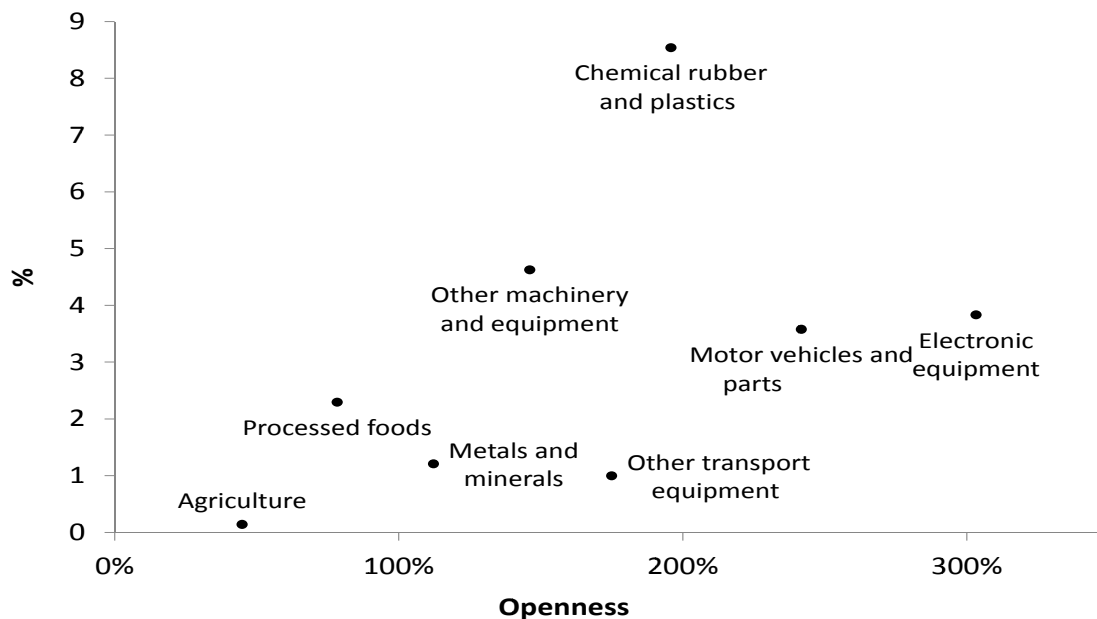


Figure 5: Sectoral Impact of reinstalling Schengen Borders in 2030 (y-as = production losses EU28)



⁵ Results are based on <https://www.cpb.nl/sites/default/files/CEP2016-kader-pag-29.pdf>

TTIP Negotiations

The negotiations on TTIP are still underway. It is a topic covering a broad range of issues. The CPB analyses focuses solely on one aspect, the possible GDP gains. It does not aim to provide a full blown assessment of a potential TTIP deal. TTIP aims to boost trade through the elimination of tariffs, the reduction of non-tariff barriers through regulatory cooperation and other border rules. In our simulation, we assume that existing tariffs of 3 % are fully abolished, that NTBs are reduced by 50 % (NTB's go down to 14 %). This will lead to GDP gains of 1.7 % of GDP for the Netherlands, 1.2 % of GDP for the EU and 0.9 % of GDP for the US.⁶

Conclusions

Trade liberalization has brought major economic gains. Issues on national identity and sovereignty, the division of the gains and migration and refugee flows have led to a renewed debate. These analyses shed some light on the economic aspects of these debates.

⁶ <https://www.cpb.nl/sites/default/files/omnidownload/dp-331-possible-economic-effects-of-ttip-for-the-netherlands-and-the-EU.pdf>

Mostafa Askari

Assistant Parliamentary Budget Officer, Canada

In his presentation, Mostafa Askari (CBO Canada) discusses possible reasons for the apparent lack in the stability and strength of economic growth in advanced economies since the start of the current century, with a special eye on the Canadian experience.



POTENTIAL GROWTH IN ADVANCED ECONOMIES

As the overarching theme for this conference is challenges for economic growth in advanced economies, my presentation discusses the more specific question why we have not seen stable and strong growth in advanced economies since the start of the 21st century. The framework I am going to use to address this issue is the evolution of potential output and its key drivers (capital, labour and TFP) in advanced economies since 2000. While actual economic growth can deviate from potential output growth in the short run, over time real GDP tends to converge to its potential level and therefore growth, on average, does not deviate from potential growth.

In the first part of the presentation I will review the evolution of potential output in advanced economies highlighting the factors that have underpinned the trend decline in potential growth. In the second section, I will review Canada's experience since 2000, drawing a parallel to developments in the rest of the advanced economies. This presentation leads to three key observations:

- There has been a downward trend in potential output growth in advanced economies since 2000 owing mainly to population ageing.
- In advanced economies there has been a reallocation of resources from manufacturing to services, leading to weaker aggregate productivity growth
- The Canadian experience validates the first two observations

Global Experience

Here I borrow heavily from an excellent analysis of potential output presented by the International Monetary Fund (IMF) in its April 2015 World Economic Outlook. Figure 1 depicts potential growth and its composition in advanced economies over three distinct periods:

First, the period before the 2008 financial crisis. Potential output growth decelerated slightly, averaging about 2½ with almost equal contribution from labour, capital and productivity. During this period TFP growth slowed slightly, likely because progress in information and communication technology was slowing

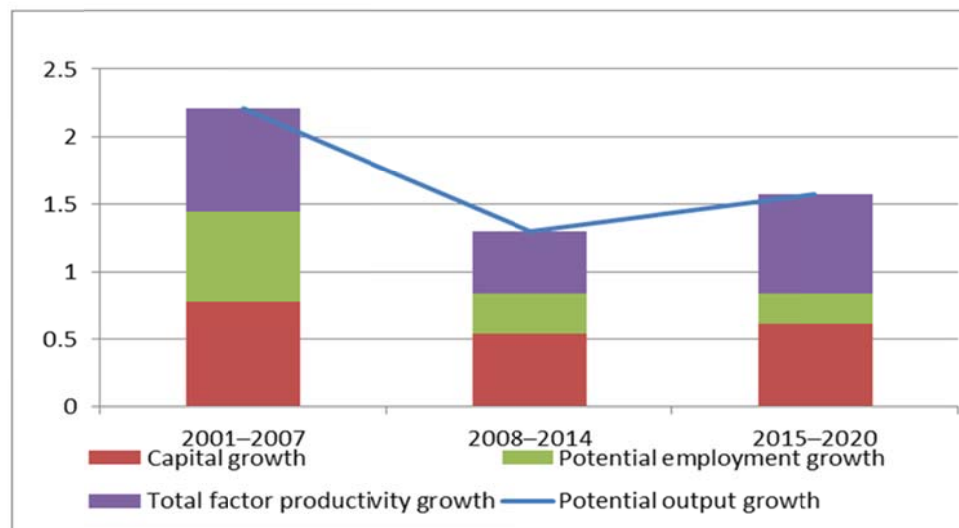
down and resources continued to be reallocated from high productivity sectors (manufacturing) to lower productivity sectors (services). Labour contribution also slowed down during the period, reflecting population ageing.

Second: the period after the financial crisis. Following the 2008 crisis potential growth declined significantly both in advanced and emerging economies and most economies have not seen a return to pre-crisis growth path. While the slowdown was partly structural and unrelated to the financial crisis there is evidence and analysis that indicate that the financial crisis may have had a more permanent effect on the global economy.

Labour contribution dropped significantly partly due the undergoing demographic transition and partly due to the substantial rise in cyclical unemployment and the resulting hysteresis effect. The sharp drop in economic activity in most advanced economies following the financial crisis led to a precipitous drop in investment and a fall in the contribution of capital to potential growth in the aftermath of the financial crisis.

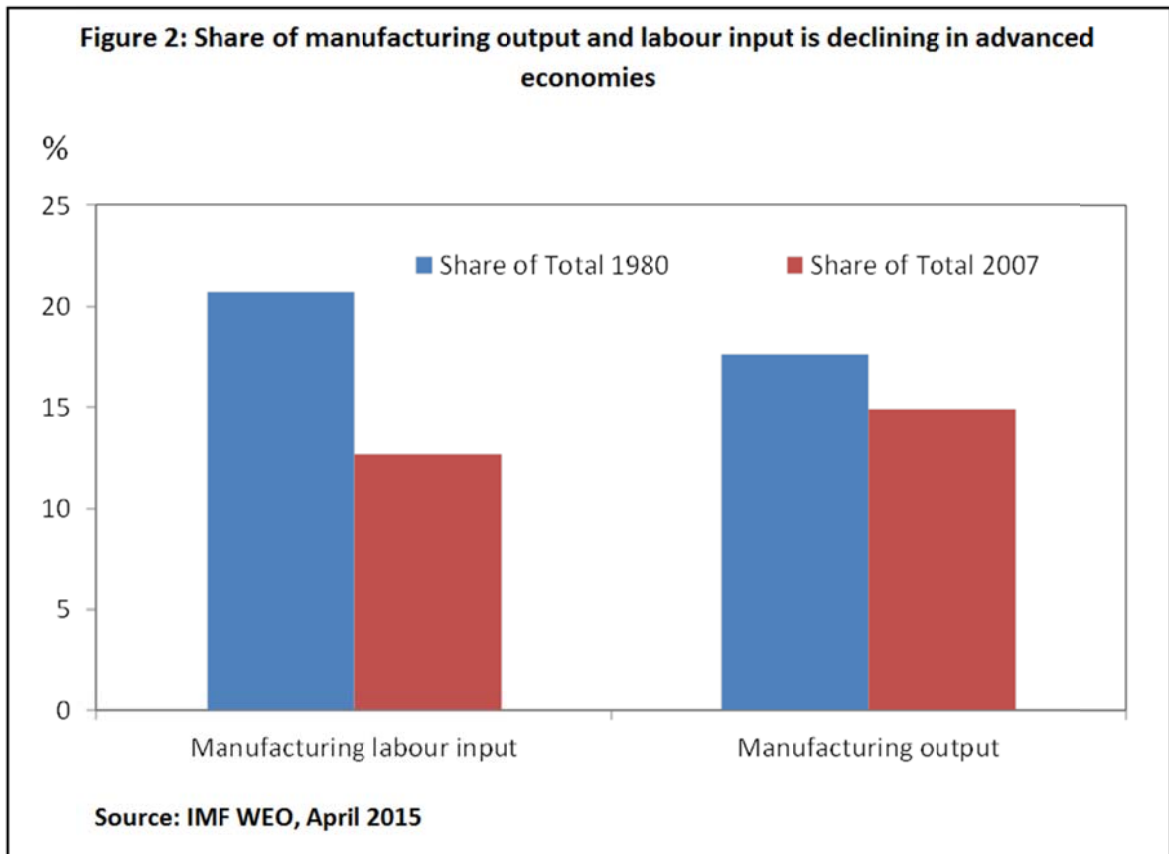
Figure 1: Potential growth is trending down

Advanced economies (%)



Source: IMF WEO, April 2015

Third, growth prospects over the period 2015-20. I should note that while the IMF outlook of April 2015 is somewhat dated, developments since then would unlikely change the broad picture. According to the IMF outlook labour input in most advanced economies will continue to see its contribution decline owing to the demographic transition while capital and TFP growth will recover.

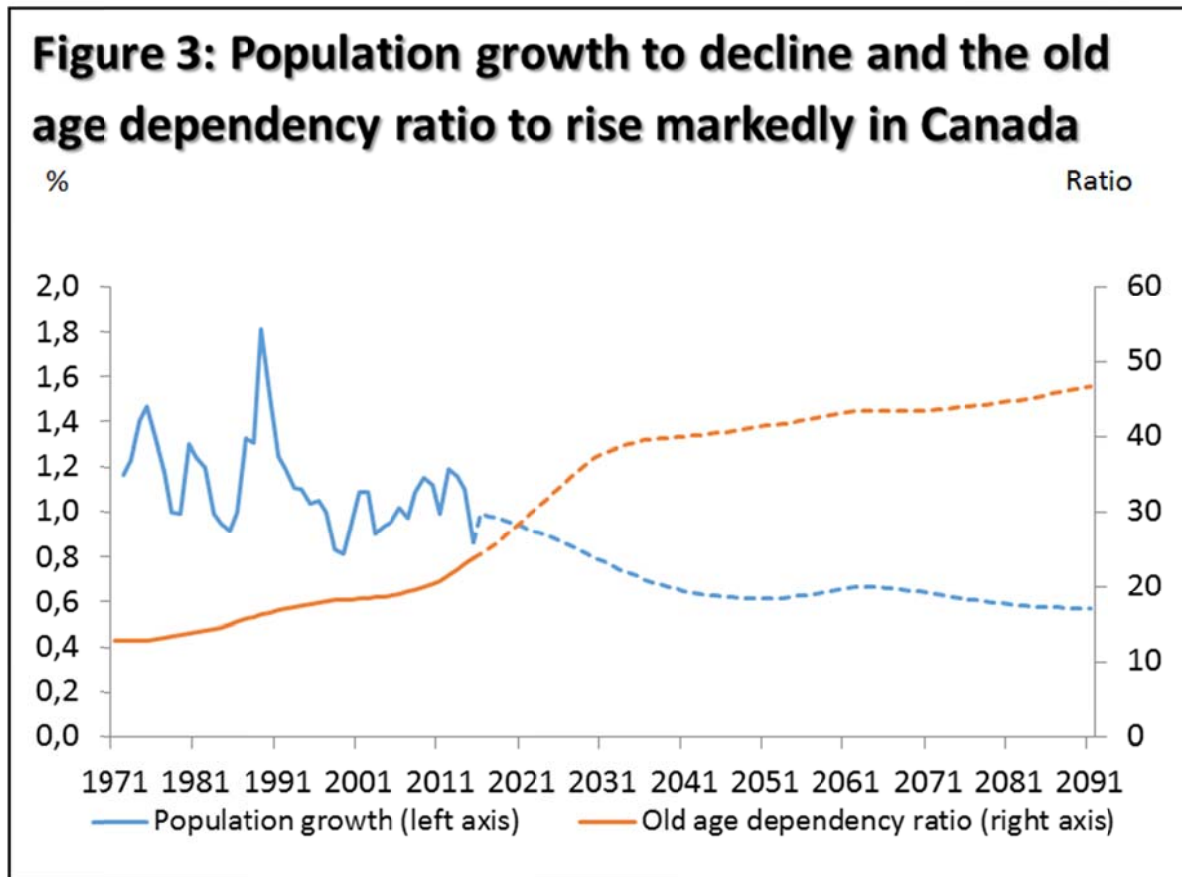


The overall conclusion is that there is a trend decline in potential growth in advanced economies, due to the ageing of the population and a steady change in the composition of output from the goods sector to the services sector. This latter point is depicted in Figure 2. In advanced economies the share of manufacturing output in total output and the share of manufacturing labour input in total labour input declined from 1980 to 2007 and data since 2007 indicate that this trend continued in most advanced economies. Two key reasons for this phenomenon are: First, high value-added and high productivity products are cheaper to produce in emerging economies. Second, advanced economies have become more service oriented as per capita income has increased.

Canadian Experience

In Canada, population ageing has been ongoing and is expected to intensify over the next 15 years. Population growth is projected to decline from 1.1 per cent annually, on average, over the past ten years to 0.6 per cent by 2041 as the contribution of natural increase (the difference between births and deaths) falls (Figure 3). The old age dependency ratio (the ratio of individuals 65 years of age and over relative to the population between 15 to 64 years of age) is projected to rise from 23.8 per cent in 2015 to 40.0 per cent by 2040. Thereafter, the ratio is projected to continue to rise at a slower pace, reaching 43.5 per cent by 2065 and 46.6 per cent by 2090. Expressed differently, there were 4.2 persons between the ages of 15 to 64 for every individual 65 years of age and over in 2015. By 2040, this ratio is projected to fall to 2.5 and continue to decline, reaching 2.1 by

2090—half of its current level. This has contributed to a decline in growth of the labour force, which is expected to continue and intensify in the future, leading to a weaker labour input.

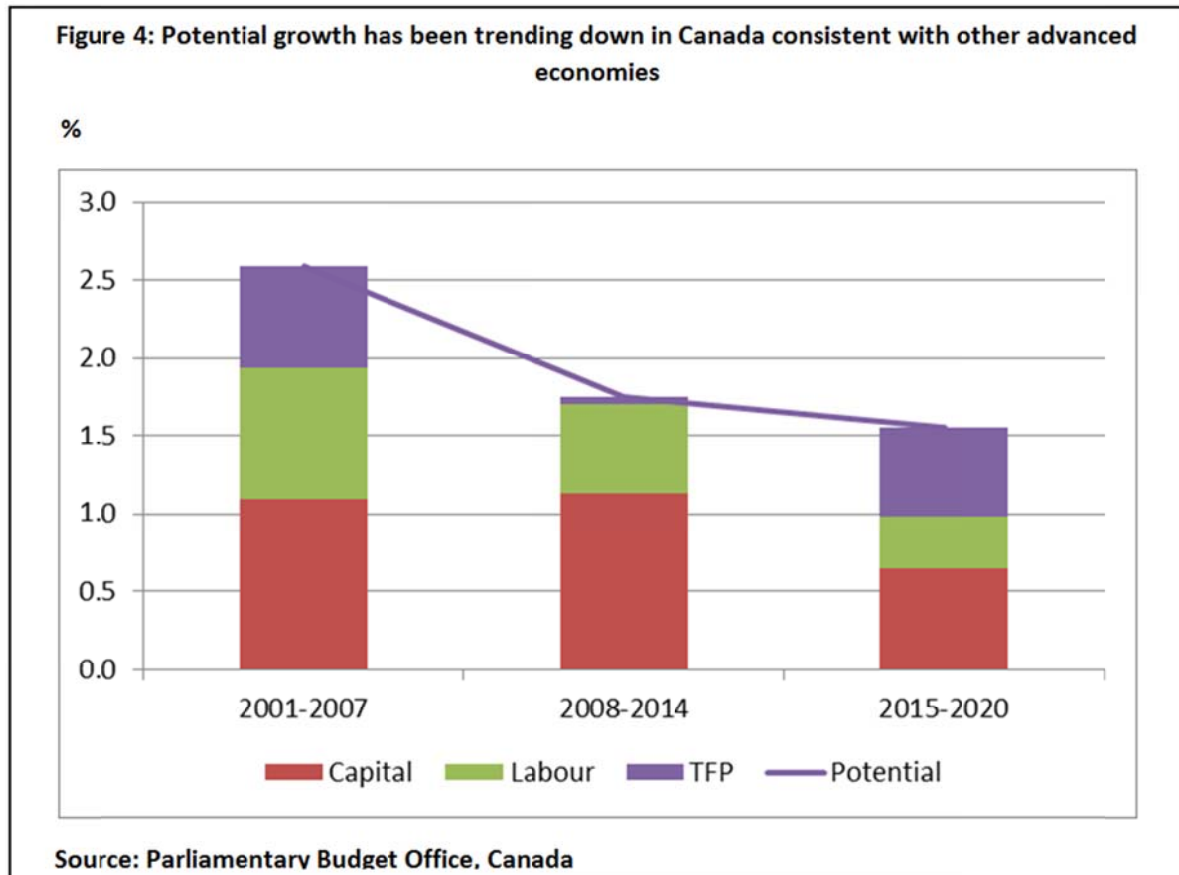


Like other advanced economies, in the period before the 2008 financial crisis Canada experienced relatively strong potential growth with contribution from all the three factors (Figure 4). After the 2008 financial crisis TFP growth was reduced to almost zero as labour productivity collapsed. This is different from most other advanced economies and hard to explain. The trend decline in labour contribution continued reflecting demographic factors and capital contribution slightly increased, likely as a result of continued strength in investment in the non-conventional oil sector.

Potential growth over the 2015-20 period reflects the impact of the 2014 oil price shock. In late 2014 and 2015 investment in the energy sector dropped significantly. Beyond 2015, it is expected that investment will increase in the non-energy sector and recover somewhat in the energy sector as oil prices are expected to gradually recover from their lows in 2015. The expected increase in capital labour ratio should also boost TFP growth raising it closer to what is considered a steady state TFP growth rate in Canada.

The key message is that Canada experienced a sharp decline in potential output growth in the post financial crisis period and this trend is expected to continue in the future, leading to an average potential growth of only 1.5 percent. Labour

input is expected to contribute only 0.4 percentage points to potential growth due to population ageing.



Concluding remarks

Advanced economies, including Canada, are experiencing a trend decline in potential growth, constraining growth in per capita income and living standards. The common cause appears to be demographic factors. With low fertility rates, rising life expectancies and the transition of baby boomers to retirement, advanced economies' populations are ageing rapidly, limiting potential growth. Government policies cannot reverse demographic developments in any meaningful way. To improve potential for growth the focus has to be on improving labour productivity.

Economists generally agree on policies that boost productivity such as lower taxes, less stringent regulations, freer trade, higher education, etc. Canada has implemented most of these policies over the past 30 years but has not experienced sustainable improvements in its productivity performance.

Volker Wieland

German Council of Economic Experts

In his note, Volker Wieland (GCEE) critically discusses recent attempts to estimate the equilibrium real interest rate and argues that it would be premature to declare the evidence for its possible decline conclusive.



MONETARY POLICY, EQUILIBRIUM INTEREST RATES AND SECULAR STAGNATION

Introduction

In recent years an increasing number of research studies are seeking to estimate the current level and trend of the equilibrium real interest rate. Examples include Justiniano and Primiceri (2012), Barsky et al. (2014), Curdia et al. (2015), Curdia (2015), Laubach and Williams (2015) and Beyer and Wieland (2015). These analyses are based on macroeconomic models. Most of them find that estimates of the equilibrium real interest rate have declined in recent years to a level not seen in decades. In 2014 and 2015, the estimates for a medium-run equilibrium interest rate using the Laubach-Williams method comes to around 0 % for the United States.

These results have potentially important implications for monetary policy as discussed in Beyer and Wieland (2015), Dupor (2015), Hamilton et al. (2015) and Lubik and Matthes (2015). For example, the equilibrium rate estimate is used as a benchmark for the appropriate monetary policy stance in Yellen (2015, 2017) and as empirical evidence for a secular stagnation in Summers (2014). In this note, I point out that estimates of short-run or medium-run real equilibrium interest rate are subject to a very large degree of uncertainty and very sensitive to technical assumptions. There are good reasons to think that these estimates suffer from omitted variable bias. More evidence about robustness is needed before they should be used to determine the appropriate policy stance.

Very high uncertainty of equilibrium interest rate estimates

Equilibrium concepts differ in terms of the relevant time horizon (short-, medium- and long-term horizon). Studies that use New Keynesian DSGE models to estimate time-varying equilibrium real interest rates have focused on simulating the path of a short-term equilibrium rate. This is the rate that would materialize if the aggregate price level would react flexibly to cyclical fluctuations (Woodford, 2003). The actual real rate of interest deviates from this equilibrium rate due to wage and price rigidities. This short-run equilibrium rate is highly volatile. It varies with cyclical shocks and disturbance (Barsky et al., 2014; Curdia et

al., 2015). It could even exhibit greater variation than the actual real interest rate. Thus, it is not surprising that estimates of short-run equilibrium rates that are called “natural” rates have move far into negative territory following the recession of 2008/2009.

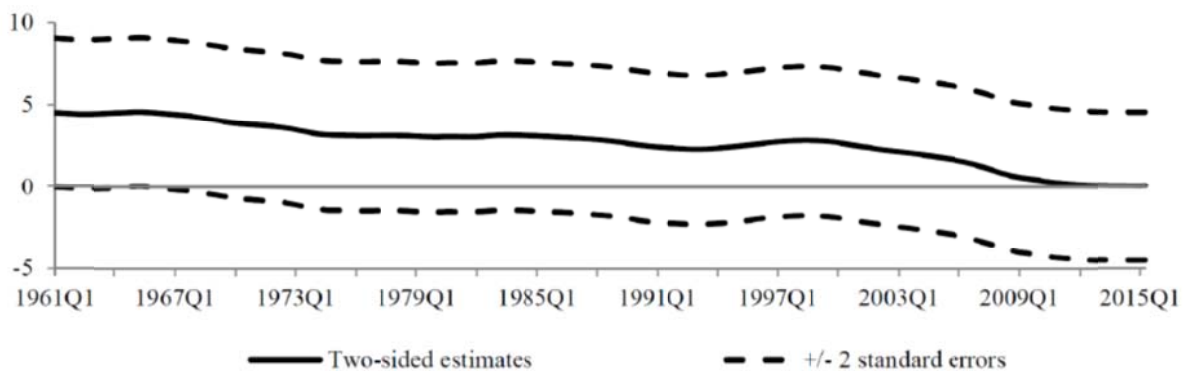
Barsky et al. (2015) and others recommend that monetary policy sets the central bank rate equal to this natural rate. Thereby the central bank would ensure that real output is equal to the level that would occur under flexible prices. In other words, this monetary policy focuses almost exclusively on closing the (flexible-price) output gap. It is a highly model-dependent concept that varies substantially depending on which model is used for its estimation.

Other econometric approaches aim to estimate a medium-run equilibrium interest rate, which accounts for various factors that change only slowly. The most frequently cited approach is the methodology of Laubach and Williams (2003) (LW in the following) recently updated by Williams (2015). The factors meant to be taken into account include temporary changes in households’ time preference and propensity to save, as well as changes in fiscal policy and in the rate of technological progress or total factor productivity growth. Estimates obtained with this methodology are shown in [CHART 1](#). The underlying model is a simple aggregate demand and Phillips curve framework.

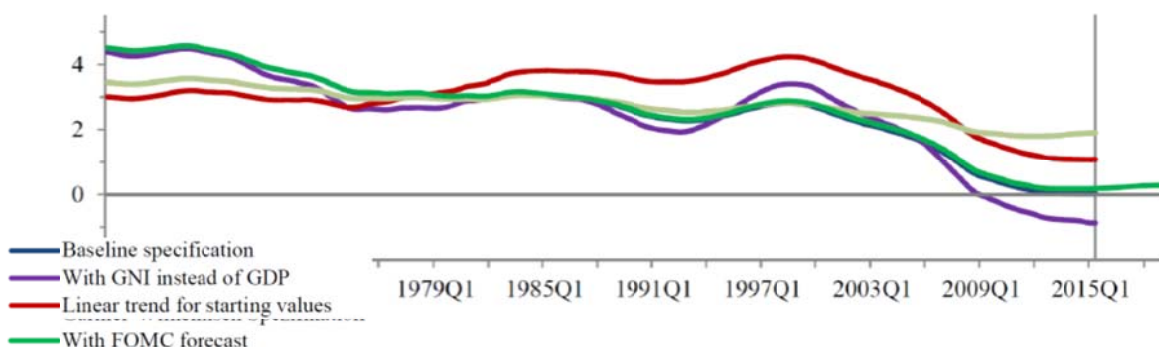
↳ CHART 1

Estimates for medium-term equilibrium interest rates of the United States (Source: Beyer and Wieland, 2015)

(a) Uncertainty (about 2-sided LW estimates)



(b) Sensitivity analysis



Unfortunately, estimates of these medium-run equilibrium rates are very imprecise. The average standard errors indicate a very broad potential range of likely values. [↪ CHART 1A](#) Furthermore, the sensitivity study conducted by Beyer and Wieland (2015) shows that the estimates vary greatly with presumably merely technical assumptions concerning the econometric specification: [↪ CHART 1B](#) In addition to the baseline LW specification, they estimate the equilibrium rate for the United States with gross national income (GNI) instead of GDP data, with differing starting values for trend growth, with data extended to include FOMC forecasts and with differing signal-to-noise ratios. The latter determine the relationship between the fluctuations of GDP growth and its trend, and between fluctuations in temporary factors and the output gap.

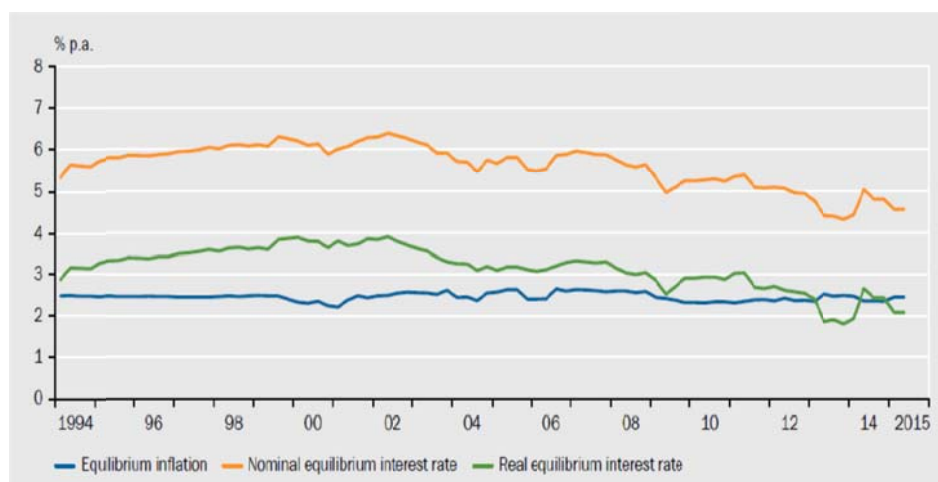
Beyer and Wieland (2015) also use the simplified econometric specification of Garnier and Wilhelmsen (2009). This specification imposes restrictions on the dynamics of temporary factors. The high degree of uncertainty surrounding all these equilibrium rate estimates highlight the need for more robust empirical evidence before adjusting monetary policy in response to such estimates.

Estimates of the long-term equilibrium interest rate have not changed as much as those of the LW medium-run equilibrium rate. The long-term equilibrium interest rate corresponds to the interest rate level that materializes once all business cycle fluctuations and other temporary influences subside. It is related to long-run potential or steady-state growth. The well-known Taylor (1993) rule for monetary policy uses the long-term equilibrium interest rate as a benchmark. [↪ CHART 2](#) shows long-term equilibrium interest rate estimates for the United States obtained by recursively estimating the widely-used structural macroeconomic model of Smets and Wouters (2007) over 20 year windows.

The estimate of the long-run equilibrium rate obtained with the 1994 vintage of U.S. data (covering the period from 1974 to 1994) is about 3 %. Subsequently, the estimates obtained from moving data windows of 20 years length decline towards a level of a bit above the 2 % mark. Thus, estimates of the long-run equilibrium rate with this model vary little and remain well above zero.

[↪ CHART 2](#)

States. Recursive estimation with the Smets-Wouters-Model (2007), 20-year-window (Source: Annual Report GCEE, 2015)



Implications for Monetary Policy

Laubach and Williams (2003) motivated the need for estimating equilibrium rates as an input in simple rules for monetary policy such as the Taylor (1993) rule. Accordingly, Yellen (2015) argues as follows: “... the prescription offered by the Taylor rule changes significantly if one instead assumes, as I do,... that the economy’s equilibrium real federal funds rate... is currently quite low by historical standards... the Taylor rule is

$$R_t = RR^* + \pi_t + 0.5(\pi_t - 2) + 0.5Y_t \quad (1)$$

where R denotes the federal funds rate, RR^* is the estimated value of the equilibrium real rate, π is the current inflation rate, and Y_t is the output gap.

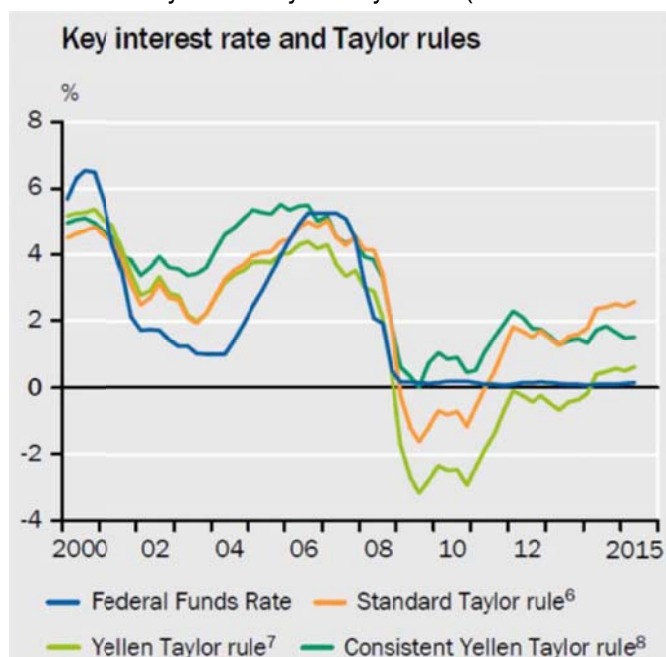
If RR^* is assumed to equal 2 %... then the Taylor rule would call for the nominal funds rate to be set a bit below 3 %. But if equal 0 % then the rule’s current prescription is less than 0.5 %.”

Thus, if one simply replaces the equilibrium federal funds rate of 2 % in the Taylor rule with 0 %, the recommended setting for the funds rate declines by two percentage points. However, there is uncertainty and disagreement regarding the level of the equilibrium rate. Moreover, calculations such as in Yellen (2015) are incomplete and potentially misleading because they do not incorporate other shifts – such as changes in potential GDP – that are associated with the estimated shifts in r^* (Taylor and Wieland, 2016).

Logic and consistency would suggest that if one inserts the estimated equilibrium rate obtained with the Laubach-Williams methodology, one also uses the respective output gap estimated with this methodology (Annual Report, GCEE, 2015) as in. [↪ CHART 3](#) These calculations show that the consistent use of LW esti-

↪ CHART 3

Alternative ways to modify the Taylor rule (Source: Annual Report GCEE, 2015)



mates of equilibrium real interest rate and output gap in the Taylor rule changes the policy prescription relative to the Yellen (2015) version of the Taylor rule. The interest rate prescriptions increases by about 2 percentage points. Thus, it offsets the impact of the lower RR^* .

Monetary policy as a possible source of omitted variable bias

The monetary policy conducted by the Federal Reserve in the aftermath of the financial crisis and the recession of 2008/09 may itself be the main reason why interest rates have been so low since the global financial crisis. Yet, the monetary policy rule is not part of the aggregate demand and Phillips curve model used by Laubach and Williams. Thus, there may be an omitted variable problem because sustained deviations from past monetary policy practice are not explicitly accounted for as a source of low interest rates.

Possible reasons for omitted variable bias are illustrated by Taylor and Wieland (2016) with the following three relationships common to macroeconomic models: The first relationship is the intertemporal substitution equation (aggregate demand) that relates the percentage deviation of real GDP from potential GDP to the deviation of the real interest rate from the equilibrium rate:

$$y - y^* = -\beta(r - r^*). \quad (2)$$

The second relationship is about price adjustment. It is represented as a linear equation, this time between the rate of inflation and the gap between real GDP and potential GDP

$$\pi = \pi(-1) + \theta(y - y^*). \quad (3)$$

In this equation, y being equal to y^* is consistent with price stability.

Model-based studies such as Laubach and Williams (2003) or Barsky et al. (2014) use versions of these two relationships to find the equilibrium real rate of interest r^* . As discussed in Taylor and Wieland (2016) the equilibrium rate may be estimated as follows: If one knew potential GDP (y^*), then a seemingly reasonable method for finding r^* would be to see if equation (2) generates an output gap ($y - y^*$) that is different from what is predicted, $P(y - y^*)$, based on information on the right hand side. If there is a difference, then one must adjust r^* up or down until it gives the correct prediction. Of course, y^* is also unknown, but equation (3) can be used to help find it following the same logic used to find r^* : If π is not equal to the prediction, $P\pi$, from equation (3), then adjust y^* .

Taylor and Wieland (2016) suggest the following omitted variable problem. Suppose that another variable, or several variables, can shift the intertemporal relationship in equation (2) around. For example, costly regulations might lower the level of investment demand associated with a given real interest rate. This would mean that rather than equation (2) we would have equation (2')

$$y - y^* = -\beta(r - r^*) - \alpha x^*, \quad (2')$$

where the variable x^* could represent a variety of influences on real GDP from regulations that negatively affect investment to tax policies that negatively affects consumption. With equation (2'), if one finds that $y - y^*$ is lower than the

prediction $P(y-y^*)$, then the implication is not necessarily that the estimate of r^* is too high and must be lowered. Now there is the possibility that x^* is too low and must be raised. In other words, the possibility of an omitted variable that is not in the macro model makes it more difficult to find the equilibrium rate.

There is an additional problem of omission which makes it even more difficult to find r^* . According to most macro models, there is also a financial sector and a central bank reaction function which create another relationship. To capture this, a monetary policy rule is added to the model which makes the nominal interest rate and thus the real interest rate endogenous:

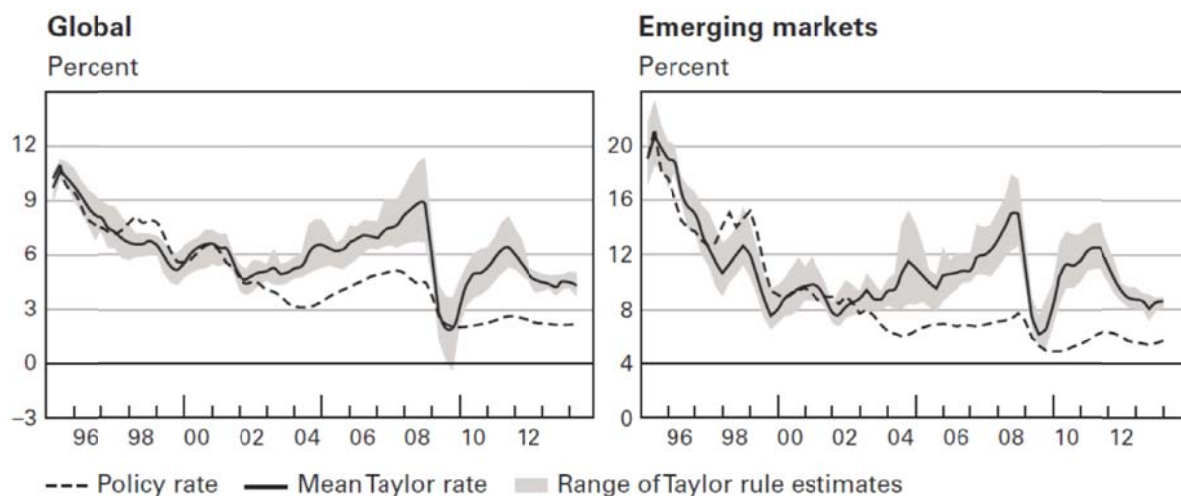
$$i = \pi + 0.5(\pi - 2) + 0.5(y - y^*) + r^* + d^*, \quad (4)$$

where i is the nominal interest rate set by the central bank and d^* is a possible deviation from the policy implied by the rule. As with equations (2) and (3), if i is not equal to the prediction π , then one can adjust r^* , but one can also adjust d^* . In fact, given what has happened to monetary policy in recent years around the globe it would be a big mistake not to consider this.

↘ CHART 4 shows how large and significant the variable d^* has been around the world recently when the policy rule is the Taylor rule and r^* is calibrated with respect to estimated trend of output growth.

↘ CHART 4

The Global Great Deviation in Central Bank Policy Rates
 ((Source: Shin (2016) update of Hofmann and Bogdanova (2012))



Concluding remarks

There has been a lot of good research on the question on whether r^* has been declining. However, the results are still inconclusive and the estimates are much too uncertain to incorporate them into policy rules in the ways that have been suggested. Furthermore, there is evidence that contradicts the hypothesis that there has been a significant decline in the equilibrium rate. Instead, the perceived decline found in recent studies may well be due to shifts in regulatory policy and monetary policy that have been omitted from the research.

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