

US Economy: Flying with one engine

- This is the first medium-term macroeconomic outlook for the US economy based on the **Kingston Financial Balances Model (KFBM)**, developed at Kingston University.
- The KFBM is used for **medium-term projections of US sectoral financial balances** (private, government and rest of the world) in order to assess the sustainability of different demand configurations and to spot instabilities early on.
- The global economy faces a **weak pattern of effective demand**, due to a slowdown in China and commodity exporting countries and an unsuccessful export-based recovery in Europe. That trend will constrain US growth and deteriorate the US external position.
- Weak global demand and slowing US growth at an average annualized rate of 2.4% are the cornerstones for the baseline scenario. Based on that we projected a **US current account deficit** of 4.0% by the end of 2018 corresponding to a trade deficit of 4.3% or \$900 billion.
- In an **alternative scenario** we explore the effect of an appreciation of the US dollar and a further slowdown in global GDP growth. The result is a current account deficit of 4.7%, a trade deficit of 5%, which implies a 1.4% private sector deficit, magnitudes only seen between 1998 and 2001 and in 2007, episodes which preceded situations of great financial distress.
- Both scenarios demonstrate that the US economy is on an unsustainable path. Although US private sector deficits might still in the short-run support national and global growth rates, the **lack of global demand** and the already **high leverage levels** of the US private sector make a sustained US expansion highly unlikely. **We thus remain cautious about US medium-term outlook.**

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Flying with one engine

1. Introduction

As a stock-flow-consistent (SFC) model the KFBM tracks all major stocks and flows of the US economy

This is the first report on the US economy based on the *Kingston Financial Balances Model* (KFBM). The KFBM is a medium-term macroeconomic forecasting model developed at the economics department of Kingston University. The intention is to build a medium-sized model which on the one hand remains easily tractable but on the other hand is appealing due to its realistic assumptions and underpinnings. The KFBM belongs to the family of stock-flow-consistent (SFC) models. SFC models ensure that all real and financial flows that take place in one period accumulate into (real and financial) stocks at the end of that period. This is achieved through the quadruple-entry bookkeeping principle, which says that at the macroeconomic level every transaction leads to four entries in different accounts across sectors: a debit and a credit entry for each sector involved in the transaction. Thus SFC modelling corresponds to the double-entry bookkeeping accounting frame used in the corporate world, but extended to all sectors involved in the recorded transaction, and not only the individual firm. This sense of realism enables the KFBM to keep track of the net asset positions of the sectors of the economy (firms, households, government and rest of the world) and to detect any unsustainable accumulation of liabilities early on.

The aim of the KFBM is to provide medium-term forecasts of the sectoral balances, instead of short-term predictions of individual variables

The KFBM is the basis for reports on the development of the US economy published twice a year. What the KFBM is not about is to provide another set of short term US GDP forecasts. We believe there are already enough people involved in this activity. Although the KFBM is able to forecast GDP, our baseline scenario in this report relies on the forecast of domestic income (consumption, investment and public expenditures) from the Congressional Budget Office (CBO). Using the latter, we forecast export and import expenditures and the sectoral balances of the US economy. These balances are then used to assess the sustainability of current US development and the credibility of announced spending plans of the public sector. In summary, rather than focusing on GDP forecasts, the KFBM will be used to judge the credibility of existing forecasts and to assess the sustainability of current economic trends.

Global demand has been trending downwards in 2015, and we expect this trend to persist in 2016...

As in the years leading to the Global Financial Crisis of 2007, the global economy faces a weak pattern of effective demand. The Eurozone is still posting weak growth figures; 'Abenomics' has fallen short of expectations in Japan; commodity-exporting emerging economies have been suffering over the last year from a bearish commodity market and China will face, sooner or later, a disruptive rebalancing process. These trends are expected to continue in 2016. In addition, the real effective exchange rate of the US dollar has been strengthening progressively over the last year and a half, placing an additional burden on the US external accounts. Furthermore, we think that the recent stance taken by the Fed at the December meeting about interest rates (coupled with the opposite stance of other central banks around the world) will only help to reinforce this trend in global currency markets. In this release we focus on the evolution of the current account against the background of these developments in the world economy. The question is thus whether the global

... with a substantial negative effect on the US current account over the medium-term

Lack of global demand and still high leverage in US private sector make unlikely for the global economy to 'fly with one engine' relying on US internal demand

The fundamental accounting identity states that the sum over all sectoral balances equals 0. Expenditures of one sector are revenues for another

economy can 'fly with one engine' (US internal demand) or not, as it happened in the years leading to the Global Financial Crisis.

The baseline scenario takes as given the Congressional Budget Office's projections of US growth and fiscal outcomes as well as the IMF's projections of global growth and presents the medium term implications for the current account and private sector balance. Based on these assumptions we project a current account deficit of 4.0% of GDP by the end of 2018, up from 2.7% in the third quarter of 2015, which implies a trade deficit of 4.3%, or \$900 billion in absolute terms and a private sector deficit of 0.7%.¹ The baseline scenario thus indicates that the US economy is on an unsustainable path by reaching high deficits in the current and private sector account. The alternative scenario incorporates a modest but sustained appreciation of the US dollar and weaker growth of the US's main trading partners. Under these more conservative assumptions, which we deem highly plausible, the current account deficit soars to 4.7% (5.1% trade deficit, \$1 trillion in absolute terms), implying a 1.4% private sector deficit. Private sector deficits of this magnitude historically have only occurred prior to the 2001 and 2007 financial crises.

Both scenarios demonstrate that the US economy is on an unsustainable path even under optimistic assumptions about global demand and the US dollar exchange rate. If private sector deficits indicate another round of household borrowing, the US might be able to achieve high growth rates in comparison to other high income countries but on a shaky foundation. Although the US in the short run may display a better performance than many analysts expect, we remain cautious about its medium-term outlook.

The remainder of the report is structured as follows. Section 2 presents the key concepts of the financial balances approach as well as some fundamental insights it provides. Section 3 introduces the KFBM itself, while in Section 4 we discuss the main world economic trends relevant to our projections. We stress the lack of global demand, given mainly by lacklustre European performance and further deterioration in China and other developing economies. Section 5 presents our two scenarios for the US economy. Section 6 concludes.

2. The Financial Balances Approach

At the heart of the financial balances approach lies the simple truism that the expenditure of an economic unit is the revenue of another. When all economic units are grouped together into institutional sectors, this accounting identity states that an excess of current outlays and capital expenditures over the income of one particular sector has to be exactly matched by an excess of income over expenditures in the rest of the sectors. If we assume, for convenience, that the economy is divided in three institutional sectors, private (comprising households, non-financial and financial corporations), government (federal plus local) and rest of the world, the accounting identity can be stated as:²

¹ Like any statistical forecast these numbers are subject to a certain degree of uncertainty and thus are rounded in order to avoid the impression of a misleadingly high degree of precision.

² For a detailed derivation of the identity starting from the definition of GDP, see Zezza (2009).

$$(S - I) + (T - G) - CA = 0$$

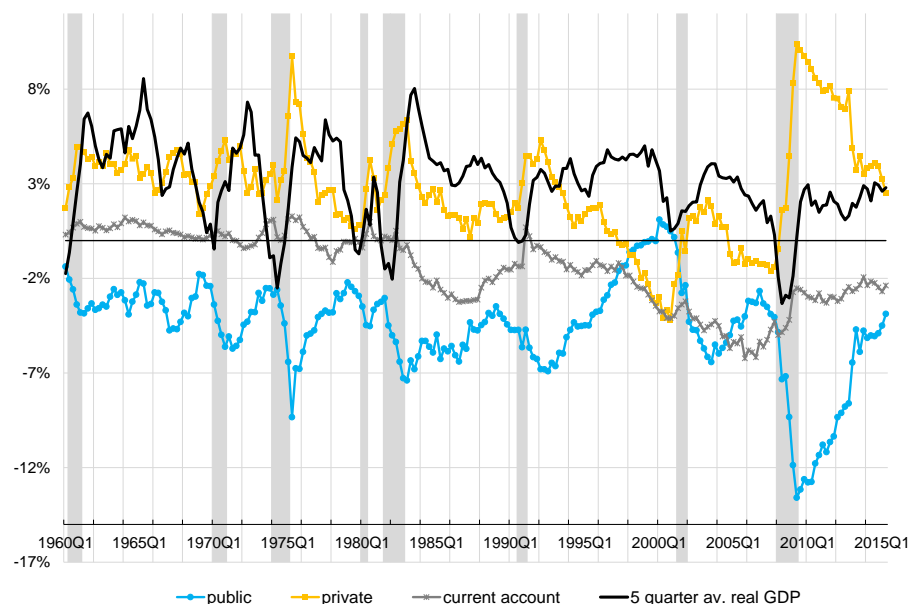
All sectors cannot be in surplus at the same time

Where $(S - I)$ is the private sector financial balance, $(T - G)$ is the balance of the government sector and CA is the current account balance. Moreover, S is gross saving of the private sector, I is gross investment (fixed plus inventories plus valuables), T are taxes less subsidies less other government net transfers to other sectors and G is government spending. It is obvious from the equation that the three sectors cannot be in surplus at the same time – a fact often forgotten, especially when it comes to fiscal policy discussions.

One of the stylized facts about the US economy is the persistent deficit in the current account over the last decades

The evolution of the sectoral financial balances in the US can be seen in Exhibit 1. Up to the eighties, the US economy was characterized by a balanced current account, even enjoying minor surpluses in individual years. Since then, the current account has been in a chronic deficit position, peaking at 6% of GDP just before the crisis of 2007-2008. The ability of the US to finance these sustained current account deficits depends on the US dollar and its dominant role in the world economy and the depth and attractiveness of US capital markets (McKinnon, 2013). On the other hand, some economists argue that the dollar has been an ‘exorbitant burden’ (Pettis, 2014), reducing the international competitiveness of the US manufacturing sector and its competitiveness. In any case, since the Global Financial Crisis the current account position recovered from its previous peak, partly due to a historically weak currency. However, this recovery of the current account will not continue, as our forecasts will show.

Exhibit 1: The sectoral financial balances in the US, and real GDP growth, 1960q1 – 2015q3



Source: Bureau of Economic Analysis and own elaboration. Shaded areas indicate recession.

Government deficits should be regarded in a broader sectoral

US federal as well as local governments have been almost permanently in deficit in the last 55 years, except for a short period during the Clinton administration. Public deficits exploded during the Global Financial Crisis and

perspective, which have important implications for the other sectors

normalized since then but still remain around 4% of GDP. A narrow-minded focus on the unsustainability of government deficits, however forgets that these deficits are necessary for the private sector to repair its balance sheets (Koo, 2015).

Financial balances can improve our understanding of widely-reported income measures such as GDP

With only two exceptions, at the beginning of the 2000s and then in 2006-07, the financial balance of the private sector has remained in surplus due to large surpluses of the household sector since the 1960s. This pattern however began to change in the 1990s when the financial balance of the household deteriorated. With the current account in deficit and a deteriorating private balance the public sector could reduce its deficits and even reach the mentioned surplus. The wars in Afghanistan and Iraq however quickly led to an increase in the deficit in the early 2000s.

Finally, the sectoral financial balances give additional insights when used together with GDP growth time series. In principle, GDP growth is compatible with various constellations of the sectoral financial balances. It can be the result of robust private sector expenditures coupled with a poor performance in the balance of payments and a small fiscal deficit. Although such a growth scenario very likely would be hailed by many analysts, the sectoral financial balances point out the unsustainability of such a demand configuration. The period before the 2007 crisis is such an example. Despite historically low public deficits a major economic crisis erupted. The reason was the unsustainable deficit position of the private sector which was driven by the falling household saving rate and dampened by the corporate sector actually turning into a net lender between 2001 and 2006. Thus, real flow measures such as GDP are much more informative when used together with the information distilled from the sectoral financial balances.

The KFBM with its focus on exact accounting lies in the tradition of Cowles-Commission-style models and...

3. The Kingston Financial Balances Model (KFBM)

The KFBM is built around the idea that the projection of the sectoral financial balances matters for a thorough understanding of the medium-term challenges the US will face. However, the KFBM is not the first macroeconomic model that relies on thorough accounting. Traditional Keynesian models, developed in the spirit of the Cowles Commission, account for the real flows of the economy (although they often do not take into account financial stocks and revaluation flows). Fair (2009) is a more recent example. These models are still used by many think tanks and government agencies worldwide.

... shares some features with the Goldman Sachs and the Casadio & Paradiso models, which forecast financial balances directly

On the other hand, models that use the financial balances approach are not so common. To our knowledge, the model of the Levy Institute, the model of Goldman Sachs (GS model) (Hatzius, 2003, 2005, 2006) and the model developed by Casadio & Paradiso (2009) (CP model) are the only ones that follow this approach for the US economy. The main difference between our approach and the approach taken by GS and CP is that they directly project the sectoral financial balances based on an econometric specification. In other words, they estimate a statistical relationship for each balance (one for the non-financial corporate balance, for households and for the current account), so their models are small, with not more than six equations. However by doing so they rely on a purely statistical relationship to determine sectoral financial balances which are the outcome of the interaction of real and financial flows. In contrast we rely on statistics to predict the real components (exports and

imports) and rely on our thorough accounting structure to derive the financial balances. This adds complexity to the model, but allows for a more detailed analysis.

The Levy model is closer to our model given their thorough accounting setup

In this sense, our approach is closer to the one advocated by the Levy Economics Institute, which uses a social accounting (SAM) matrix to track all flows occurring between sectors (Zezza, 2009). As in our case, their model also features sectoral balance-sheets (a missing feature in GS and CP) to gather real and financial stocks, and thus it can incorporate feedback loops between financial stocks and flows – in technical parlance, the model is stock-flow consistent.³

So far, the discussion has focused on accounting and on why the financial balances are an important magnitude to track. But nothing has been said about economic behaviour and what drives changes in these balances. In our model, the change in the balances is given by the individual behaviour of every component of the sectoral financial balances. The main flow variables of our model can be found in Table 1, which shows the flow matrix we use to track the flows occurring across sectors based on the National Income and Product Accounts (NIPA).

Sectoral cash inflows are represented with a positive sign; cash outflows with a negative sign

Table 1: A simplified version of the sectoral flow matrix of the KFBM

Flow-Matrix	Private Sector		Government	Foreign	Total
	Current	Capital			
Private expenditure	$+PX_s$	$-PX_d$			0
Government expenditure	$+G_s$		$-G_d$		0
Exports	$+X$			$-X$	0
Imports	$-M$			$+M$	0
GDP [memo]	$[GDP]$				-
Income before tax	$-Y$	$+Y_p$	$+Y_g$		0
Net taxes on prod. and imports	$-NT_s$		$+NT_d$		0
Net Rents		$+NR_p$	$-NR_g$	$-NR_w$	0
Taxes		$-T_p$	$+T$	$-T_w$	0
Net current transfers		$+NCT_p$	$-NCT_g$	$+NCT_w$	0
Net capital transfers (and net assets)		$-NK_p$	$+NK_g$	$+NK_w$	0
Change in net worth		$-NAFA$	$+PSBR$	$-CA$	0
Total	0	0	0	0	0

Source: Own elaboration

³ Stock-flow-consistency is not a new idea in economics. In fact, the importance of accounting consistency was already stressed by James Tobin and Wynne Godley back in the 1970s. A financial balances model may or may not be fully stock-flow consistent (as in the case of GS and CP models); its only requirement is that the accounting at the level of the sectoral financial balances is consistent. In other words, stock-flow modelling implies tighter accounting requirements (not only for flows, but for stocks and revaluations as well) than a financial balances model. A comprehensive introduction to SFC modelling can be found in Godley and Lavoie (2007).

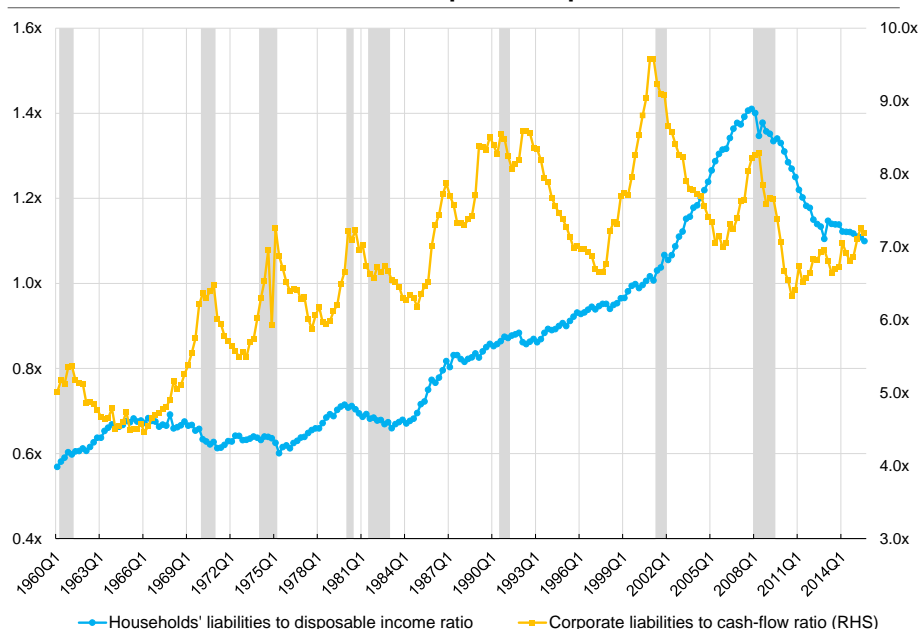
Due to a lack of space, we will only report the strategy we use to model exports and imports in the external sector accounts. In future issues we will explore the strategy followed in other items. The details can be found in Box 1. Note, however, that the model is subject to constant development and improvements and thus the details of such estimations may change in future issues of the report.

4. World economic outlook

Weak global demand in developed economies in 2015 and 2016. US via its trade deficit in the role of global demand engine

As in the years leading to the Global Financial Crisis of 2007, the global economy faces a lack of effective demand. Even though the Eurozone grew faster in 2015 around 1.5% compared to 0.9% in 2014 and contracting in 2013 and 2012 the outlook is still bleak. At the same time 'Abenomics' in Japan is falling short of expectations with the Japanese economy contracting slightly in 2014 and expectedly only growing by 0.6% in 2015. While Mexico is expected to display a better performance compared to the Eurozone and Japan, the other main trading partner of the US, Canada, has been severely hit by the plunge in oil prices. In any case, both countries are benefiting from trade surpluses with the US. Thus the US continues to act as a primary demand creation machine for its trading partners, finding itself in a similar role as before the crisis. So far not only have US trading partners benefitted, but also the domestic economy seems relatively robust as has been demonstrated by moderate but continued job creation.

Exhibit 2: Households' liabilities-disposable income and corporate liabilities-cash flow ratios, 1960q1 – 2015q3



Source: Bureau of Economic Analysis and own elaboration. Shaded areas indicate recession. Notes: households' liabilities comprise debt securities, loans and trade debt. Corporate liabilities refers to non-financial corporations and exclude equity from the calculations. Cash-flow is defined as net savings plus depreciation.

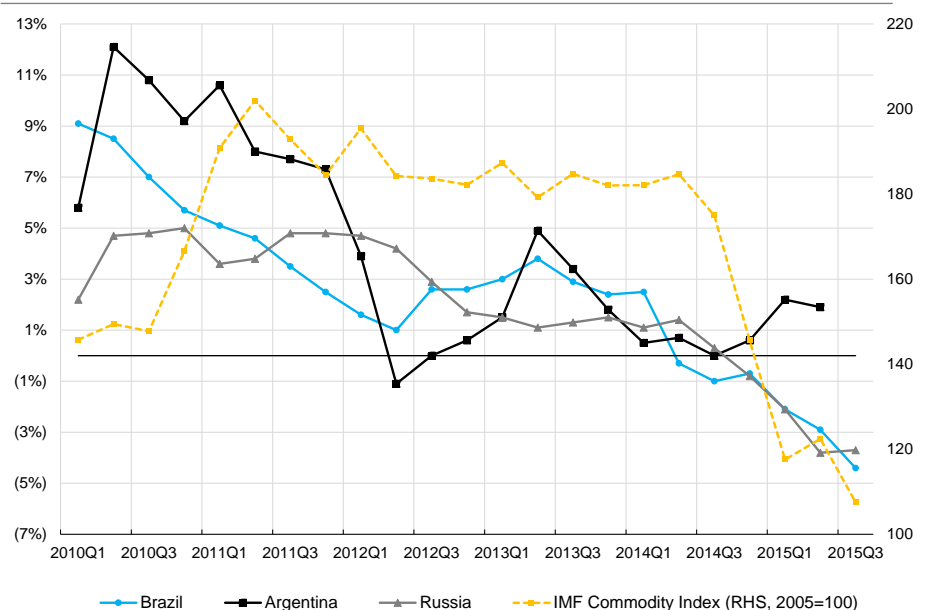
The US household sector is still deleveraging while corporate liabilities are rising since 2012

Deleveraging in the private sector has been taking place since the crisis in 2007, especially in the case of the household sector (see Exhibit 2). The leverage levels reached by the household sector were unprecedented by historical standards, and although their balance sheets look definitively better than eight years ago, leverage levels are still high and a sustained economic expansion would be needed for further deleveraging. On the other hand, corporate profits have been booming over the last eight years (no doubt helped by massive government deficits), reaching all-high levels as a share of GDP. This has enabled corporations to deleverage as well, although this trend has not been as consistent as in the case of households and, in our view, recent developments in the national (such as a dwindling government deficit and weak investment expenditures) and global economy (as stronger exchange rates and weaker global growth) will put further pressure on corporate profits (relative to GDP) over the short/medium-term, reducing thus corporations' ability to generate cash-flows. All in all, this means that the private sector in the US only has a limited capacity to take on additional liabilities in a sustainable way over the medium term.

Commodity prices at record lows will prevent growth impulse from commodity exporting countries

Commodity-exporting emerging economies have been suffering over the last year and a half from a bearish commodity market and, in many cases, the external imbalances accumulated over the last cycle (e.g. Brazil) have aggravated the situation (see Exhibit 3). The optimistic outlook of the last few years of never-ending growth in the developing economies have led to excess capacity in the commodity industry. Coupled with a slowing Chinese economy, commodity prices will remain low in the short-run. Furthermore we believe that commodity markets will not recover in 2016 and 2017 and thus the commodity industry (and the countries most exposed to it) will face a bumpy road until excess supply is reduced.

Exhibit 3: Real GDP growth rates of selected developing economies, 2010q1 – 2015q3



Source: OECD, IMF and own elaboration. Note: the commodity price index includes both fuel and non-fuel price indices.

The Chinese rebalancing process will be tougher than many analysts expect and most likely will result in considerably lower growth rates

Although the industrial slowdown in China has already been felt by many emerging economies, the Chinese economy faces its own challenges because it still has to go through deep changes if it wants to move from an investment-led economy to a consumption-led one. Although such changes will surely be welcomed by its main trading partners over the long term, over the short/medium term China will have to choose between unappetising policy options. In particular, we believe that Beijing will find it hard to complete the rebalancing process in a smooth and quick way (e.g. 5 years), given the numbers at stake: with investment levels between 45-50% of GDP, rebalancing requires the investment (consumption) share to decline (increase) by 5 percentage points each year if one assumes a target investment-to-GDP ratio of 30%, which would imply unrealistically high growth rates of consumer expenditures.

Because less investment means less profits,⁴ the already highly-leveraged capital-goods and commodity industries will find the rebalancing process to be a tough challenge. The way Beijing will square the circle remains to be seen, but for us the conclusions are: i) the longer it takes Beijing to handle this issue, the tougher the rebalancing will eventually be and ii) we should not expect remarkable Chinese growth figures over the medium-term, because, unlike 2007, China now has reached its debt capacity limits and has little room to manoeuvre.

5. Medium-term scenarios for the US economy: flying with one engine

GDP growth and fiscal projections from the CBO are the starting point for our baseline scenario

Our medium-term scenarios for the US economy rely on the Congressional Budget Office (CBO) fiscal projections, published in the August 2015 report.⁵ The CBO projections deal with the fiscal revenues and expenses at the federal level, usually covering a timespan of (at least) a decade. Because the federal deficit figures published by the CBO are not consistent with NIPA definitions, we use the 'NIPA Translation of the Budget' published by the BEA⁶ to reconstruct the federal accounts for the short-term (2016, in our case) and then extrapolate the series based on CBP GDP growth rate forecasts. The use of the CBO projections for the baseline scenario of our report does not mean that we believe this will be the actual path the economy will take in the future. It rather allows us to discuss what would happen in the US economy if this scenario became true. In particular, this approach has successfully been followed by the Levy Institute for several years now (Godley, *et al.* 2005; Godley, *et al.* 2008; Papadimitriou, *et al.* 2015), showing that in general CBO forecasts are not always consistent on a system-wide basis. On the other hand, the CBO projections are a convenient expedient to forecast some fiscal items that are difficult to predict and for which we do not claim to have a major forecasting expertise. Table 2 summarises the main assumptions adopted for the baseline scenario, taking into account that our forecasting period runs from 2015Q4 to 2018Q4⁷.

⁴ For an explanation of the Levy-Kalecki profit equation, see Levy *et al.* (2008). For the implications of the Chinese rebalancing process for the cash-flow of the corporate sector, see López Bernardo & López Martínez (2015).

⁵ Congressional Budget Office (2015).

⁶ Ludwick & Tsehay (2015)

⁷ Note that Papadimitriou *et al.* (2015) use a qualitatively similar set of assumptions for their simulations. Apart from fundamental model differences (they estimate a private expenditure function which we do not), Papadimitriou *et al.* (2015) also assume a constant exchange rate in their baseline,

Current CBO projections are extremely optimistic about the short-term performance of the current account

The CBO expects the federal deficit to grow as a share of GDP from 2017 onwards, mainly due to rising mandatory spending, namely Social Security and Medicare (Congressional Budget Office, 2015, p. 4). Domestic income growth is projected by the CBO up to 2017. From 2017 onwards the CBO assumes that the external balance of goods and services will be zero – quite an adjustment for a two-year period. In addition, the CBO assumes upward trending interest rates; we will discuss the implications for the exchange rate below.

Table 2: Main assumptions for the baseline scenario

	2016	2017	2018
Real domestic income growth ^{a)}	3.4%	2.7%	2.2%
Inflation	1.6%	2.0%	2.0%
Government deficit, as % of GDP ^{b)}	3.2%	3.1%	3.3%
US' trading partners' GDP growth	3.2%	3.2%	3.2%
US real effective exchange rate (2010=100)	112	112	112

Source: Congressional Budget Office. a) we extrapolate the CBO's assumption of a balanced balance of payments in 2017 to 2018. b) our projected federal deficits as a % of GDP are slightly different, due to the use of the BEA budget translation in 2016.

Taking CBO fiscal projections as given the baseline scenario predicts a substantial deterioration of the US current and trade account...

For the baseline scenario we assume that the exchange rate will remain at its level from the third quarter in 2015. In addition we use the projections of the IMF World Economic Outlook for the income of the US's main trading partners. We will relax both assumptions in the alternative scenario. The main reason we choose the exchange rate to be constant is to check what the US current account trajectory would be given the rather optimistic assumption of a prolonged weak dollar. The forecasts of the sectoral financial balances in the baseline scenario can be seen in Exhibit 4. We project a sustained deterioration of the current account, reaching 4.0% of GDP by the end of 2018. This corresponds to a trade deficit of 4.3%, which in absolute terms amounts to roughly \$900 (Exhibit 5). Historically the US trade deficit peaked in the third quarter of 2006 at 5.8% of GDP corresponding to \$805 billion. For the relation between the current and trade account we assume that primary income flows (interest and dividend payments as well as reinvested earnings) stay roughly constant relative to GDP. Historically reinvested earnings are becoming more and more important for the US current account reflecting increased international operations of US corporations due to globalization and the attempt to avoiding paying US tax rates on these profits. Short term changes in legislation have the potential to heavily influence these flows over the medium term, making predictions difficult and thus we chose to keep them constant.

world growth in line with IMF projections and federal government deficits from the CBO. As a result of these differences, outcomes differ. Papadimitriou *et al.* (2015) forecast a public deficit of more than 5% by 2018, compared to 3.3% in our model. Also in the alternative scenario they assume a 25% appreciation of the US Dollar while the alternative scenario in this report only assumes 7%. For further comparison see the report.

Box 1. Econometric Model

Estimating Export and Import Demand Functions with Autoregressive Distributed Lag (ARDL) Models

The forecast of the current account balance is based on estimated long run export and import demand functions. The chosen framework is the Autoregressive Distributed Lag (ARDL) model which can be reparametrized to an easy to interpret Error Correction (EC) form as displayed in Table 1. Lag order selection is based on the Akaike information criterion and Newey-West heteroskedastic and autocorrelation robust standard errors are used for the export function. The advantage of the ARDL approach is that it works regardless of the presence of unit roots (Shin & Pesaran, 1999) while testing for the existence of a cointegrating long run relationship is still possible.

The long run elasticities are presented in Table 1. The model for exports (X_t) includes a measure of foreign demand (Y_t^f) which consists of the GDP of the US' most important trading partners weighted by their trade shares in 2013⁸ and an index of the real effective exchange rate in indirect quotation (EX_t). The model for imports (M_t) includes domestic income (Y_t) which consists of private consumption, investment and government expenditures, the index of the real effective exchange rate (EX_t) and exports (X_t) in order to capture the import of intermediate goods by export industries. Logarithms are taken of all variables. The results are well in line with the findings in the relevant literature and the main coefficients are highly statistically significant as indicated by the reported t-statistics. Based on the bound testing procedure introduced by Pesaran et al. (2001) the null hypothesis of no long run relationships (i.e. no cointegration) is rejected for both models as indicated by the test statistics exceeding the critical values (reported in the bottom of the table) as well as the high t-statistics on the adjustment terms.

The income elasticities obtained from the estimations are 1.2 and 1.5 for exports and imports respectively. This provides some evidence for a structural problem in the US current account: If the import elasticity exceeds its export counterpart in a situation of equal income growth in the US and its main trading partners the result will be a current account deficit. A 10% appreciation of the real effective exchange rate leads in the long run to a reduction in exports by 5.5%. With respect to imports the direct effect is an increase by 1.4% and the indirect effect through exports amounts to an additional increase of imports by 0.7%.

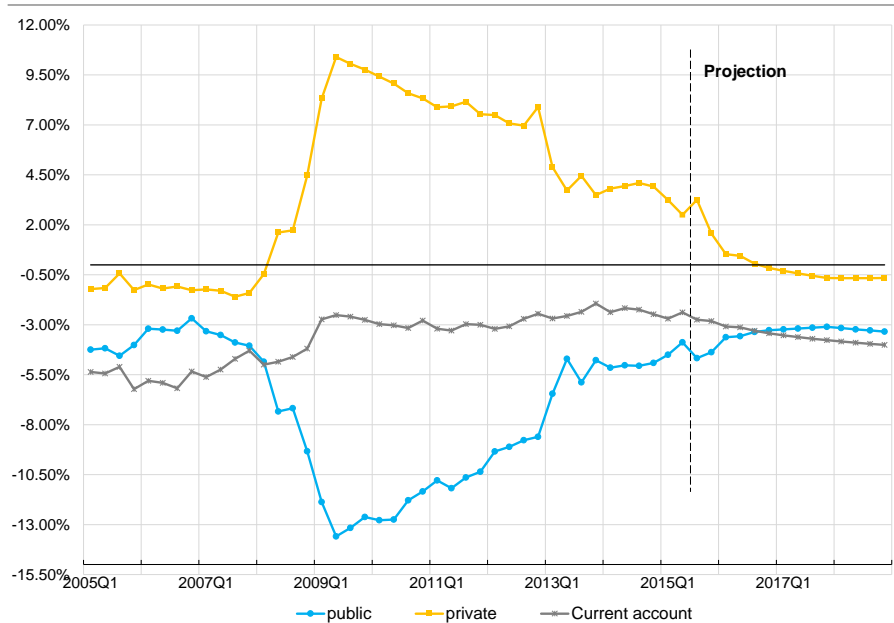
We restrict the sample for our estimation to the last 15 years, beginning in 2001q1 because we believe that there is a structural break in trade dynamics. This hypothesis is not only supported by formal econometric tests (multiple structural break point testing) but also by the fact that trade growth trends slowed down considerably in the 2000s compared to the previous decades. Using a sample going back until the 1980s would mix up these different periods. By relying on a shorter sample some precision in the estimations is lost, however we avoid potentially severe biases if fundamentally different periods were combined.

Table 1: Estimated export and import demand functions

	exports (ΔX_t)		imports (ΔM_t)	
	ARDL(4,2,0)		ARDL(4,2,1,3)	
	coeff	t-stat	coeff	t-stat
Y_{t-1}^f	1.22	17.50		
Y_{t-1}			1.51	10.32
EX_{t-1}	-0.55	-3.11	0.14	1.46
X_{t-1}			0.13	2.12
constant	-0.42	-0.31	-8.54	-7.29
adjustment	-0.20	-6.16	-0.41	-6.90
N	59		59	
sample	2001q1 - 2015q3		2001q1 - 2015q3	
F-stat. bound	10.84		8.75	
critical val. bound	5.00		4.66	
DW	2.04		2.12	

⁸ We are thankful to Gennaro Zezza for providing us with this series.

Exhibit 4: Baseline scenario, main financial balances as a % of GDP, 2005q1 – 2018q4



Source: Bureau of Economic Analysis, CBO and authors' estimates.

... implying a private sector deficit by the end of 2018

Given the CBO forecast of the fiscal stance, the KFBM predicts a 0.7% deficit in the private sector financial balance, which enters negative territory in the fourth quarter of 2016. The issuance of net liabilities that takes place in the private sector from the end of 2016 to the end of 2018 implies that foreigners accumulate US private assets of doubtful quality at a very fast pace – as it happened already between 1997-2000 and 2005-2006. In our opinion, the real danger for the US economy is not a recession before the end of 2016 (which could occur, but given the small sectoral imbalances of the last few years it would be of a short nature), but a sustained deterioration in the current account that would lead again to the massive creation of toxic private liabilities. In other words, the longer the current account keeps deteriorating prior to a recession, the deeper the recession will be.

The alternative scenario assumes a 7% appreciation of the US dollar and 0.8 percentage points lower global growth...

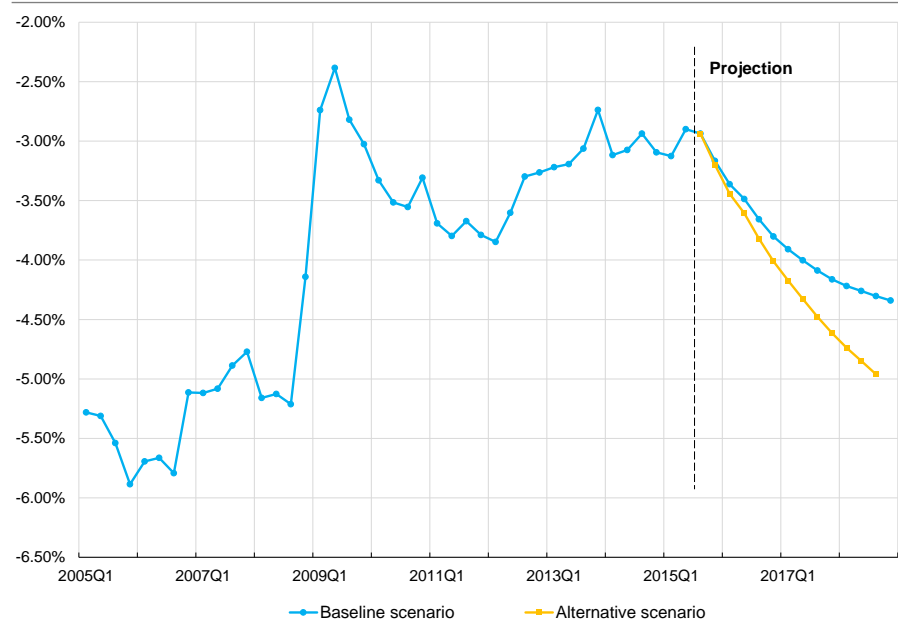
For the alternative scenario we assume a linear 7% appreciation of the real effective exchange rate from the fourth quarter of 2015 to the fourth quarter of 2016 and a reduction of 0.8 percentage points in main trading partners' annualised GDP growth. The first assumption reflects: i) our belief that the divergence between the Fed and the ECB in terms of monetary policy will weigh on the short-term path of exchange rates and ii) that given the CBO projected path for interest rates, a 7% appreciation is conservative. On the other hand, we do not attempt to accurately forecast the exchange rate over the short-term. As we said, we rather assume a moderate increase based on the historical evolution of the dollar exchange rate.

... yielding a current account deficit of 4.7% by 2018 and a private sector deficit of 1.4%

Exhibit 6 depicts the projection of the financial balances in the alternative scenario. The current account now reaches a deficit of 4.7% by the end of 2018, implying a 1.4% private sector deficit (similar deficits only seen in the

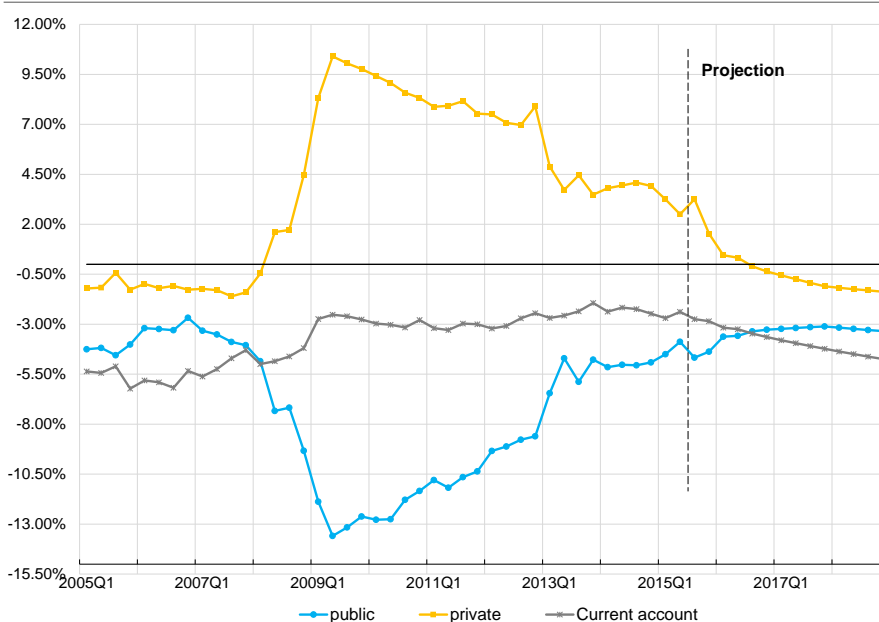
periods prior to the 2001 and 2007 financial crises). On the other hand, the trade balance (Exhibit 5) worsens by almost 1% of GDP reaching a deficit of 5.1% (roughly corresponding to \$1 trillion in absolute terms). Thus under the more realistic assumption of a dollar appreciation and a slowdown in global demand, the US economy will suffer from a major current account deficit in the near future. Based on the assumption of a stable public deficit around 3% of GDP, this implies an even larger private sector deficit compared to the baseline scenario, which will lead to mass issues of doubtful private debt. Keeping in mind that a private sector deficit so large only occurred prior to the biggest financial crisis after the Second World War leaves a very pessimistic outlook. It is important however that this gloomy prediction rests on the assumption that the government sector will not increase its deficit over the forecasting period.

Exhibit 5: Baseline and alternative scenario, trade balance as a % of GDP, 2005q1 – 2018q4



Source: Bureau of Economic Analysis, CBO and authors' estimates.

Exhibit 6: Alternative scenario, main financial balances as a % of GDP, 2005q1 – 2018q4



Source: Bureau of Economic Analysis, CBO and authors' estimates.

6. Summary and conclusions

The recent global economic developments will have far-reaching consequences for the US in the medium-term. Although the US has been able to expand at a moderate pace over the current business cycle with a reasonable current account position, for at least three reasons we expect this situation to change over the medium term. First, China will face greater than expected difficulties in rebalancing its economy towards a consumption-led growth model and thus contributing to weak global demand and continued low commodity prices. Second, as a direct result commodity exporting countries will not recover from the poor performance displayed in 2015. Third, in a world of lacklustre global demand the European export focussed growth strategy will not be successful. Since all three developments are likely to strengthen the dollar against the major global currencies, this will put further pressure on US growth prospects. Thus it will be difficult for the US to keep growing at rates higher than 2% without a substantial deterioration in the current account.

For the baseline scenario we assume the income of the US' trading partners to grow at 3.2% annually until 2018, which is broadly in line with IMF forecasts, in the context of a US dollar effective exchange rate at its level from the third quarter in 2015. Domestic income growth and the fiscal stance are adopted from CBO projections. The baseline scenario thus provides a benchmark for the US current account performance independent of exchange rate movements and given one accepts CBO and IMF forecasts. Based on these assumptions the KFBM predicts a current account deficit of 4.0% in the fourth quarter of 2018 and a private sector deficit of 0.7%.

The alternative scenario incorporates what we deem more realistic assumptions about the global economy. Since we think the negative growth implications of the Chinese rebalancing process are underestimated while prospects about an export-led recovery in Europe are overly optimistic, the assumptions of the baseline scenario are changed in two ways. First, US trading partners' income growth is reduced to 2.8% from 3.2%. Second, a modest 7% appreciation of the US dollar until the end of 2018 is introduced. This revised set of assumptions results in a current account deficit of 4.7% and a private sector deficit of 1.7% in the fourth quarter of 2018.

Against the background of weak global demand and highly indebted consumer and corporate sectors the US faces a period of mediocre growth and increasing instability

Both scenarios demonstrate that the US economy is on an unsustainable path even under optimistic assumptions about global demand and the US dollar exchange rate. If private sector deficits indicate another round of household borrowing, the US might be able to achieve high growth rates in comparison to other high income countries, but on a shaky foundation. That said, it is important to note that the predicted deterioration of the private sector balances depends on the assumption of relatively stable fiscal deficits slightly above 3% of GDP. There is still the possibility that the next US administration will tolerate considerably higher deficits in case of a severe global downturn which in turn could prevent the private sector from sliding into negative territory. We thus remain very cautious about the possibility that the US can fly with one engine.

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