Projecting China's Current Account Surplus

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For several years China has run persistent current account surpluses that have been widely seen as the most serious single source of global imbalances on the surplus side, and mirrored by persistent systemically large US current account deficits on the other side. In recent years, however, both imbalances have shown moderation (figure 1). China's surpluses have posed questions of international policy rules, because they have reflected in part an unwillingness to allow the exchange rate to appreciate sufficiently to act as an effective equilibrating mechanism. Exchange rate intervention resulted in a massive buildup of international reserves, which rose from $615 billion at the end of 2004 to $3.2 trillion at the end of 2011 (IMF 2012a).

EXCHANGE RATE TRENDS

As shown in figure 1, in 2009 and again in 2011 there were substantial reductions in China's current account surplus. Although many had dismissed the 2009 reduction as solely the consequence of a collapse in global demand caused by the

global recession, Cline (2010) estimated that a substantial part of the reduction in the surplus reflected a lagged effect of the real effective appreciation of the renminbi that took place from mid-2005 to mid-2008.

As shown in figure 2, the real effective exchange rate rose by nearly 20 percent from 2005 to August 2008 when the government suspended the policy of gradual appreciation. Because the safe-haven effect boosted the dollar in late 2008 through early 2009, the renewed tie of the renminbi to the dollar resulted in still further real effective appreciation through the first quarter of 2009. Thereafter the dollar eased again and the renminbi fell along with it. By mid-2010, Chinese authorities once again removed the fixed tie to the dollar and began to allow gradual appreciation. As indicated in the figure, there was a new phase of effective appreciation that went modestly further than the peak of early 2009. By February 2012, the effective rate stood 27.4 percent above its 2005 full-year average.

When figures 1 and 2 are viewed together, and if allowance is made for lags from the exchange rate to trade outcomes, there is a strong implication that the rise in the real effective rate of the renminbi after 2005 contributed to the decline in the current account (as a percent of GDP) after 2007.

TRENDS IN OIL TRADE

Another factor that seems to have played a role, however, is the value of net oil imports. As shown in table 1, the value of China's net oil imports rose from 1.1 percent of GDP in 2003 to 2.23 percent in 2007. The total current account surplus rose from 2.8 percent of GDP to 10.1 percent, or by 7.3 percent of GDP, so the non-oil current account surplus rose by even more, 8.4 percent of GDP. With high prices in 2008, net oil imports reached 2.79 percent of GDP. In that year, the rise in the oil deficit by 0.56 percent of GDP accounted for about one-half of the reduction in the overall surplus (from 10.1 percent of GDP to 9.1 percent.) With the return of high prices in 2011, net oil imports were once again back up to 2.76 percent of GDP, and once again the rise in the oil import

Figure 1   Current account balance as percent of GDP: China and the United States
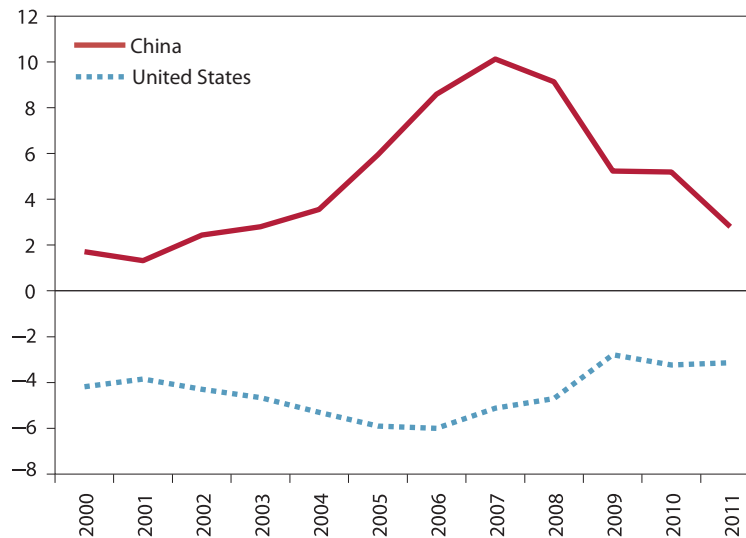
Source: BEA (2012), SAFE (2012).

bill coincided with a reduction in the overall surplus. Overall, from 2007 to 2011 the rising oil import bill contributed about one-half percent of GDP to the reduction in the current account surplus. Although this influence was modest, it was not inconsequential.

CAPITAL SERVICES

Just as the oil sector may cause divergences in the current account from trends that might otherwise be expected based on the exchange rate and growth, for China it would be expected that there should be a rising trend in net capital services as the economy has increasingly built up net foreign assets. As table 2 shows, from the early 2000s until the end of the decade there was an upswing in the capital services account from a deficit of about 1.3 percent of GDP (2000–01) to a small surplus (+0.16 percent average in 2007–10). However, there was a swing back into deficit in 2011, as payments on liabilities surged to about $155 billion while earnings on assets fell slightly to $128 billion. The table also reports year-end stock levels of international assets and liabilities, as well as the implied average rates of return. The decline in the return on foreign assets, from 4.5 percent in 2007 to 3.1 percent in 2011, reflected the decline in US and other international interest rates associated with the global recession. It is also evident that the return on China's external liabilities has systematically exceeded that

on its assets, reflecting the dominance of direct investment in liabilities versus government bonds (US Treasuries) in assets. China has the mirror image of the favorable asymmetry that the United States enjoys in higher returns on its external assets (where direct investment and portfolio equity dominate) than on its liabilities (where debt dominates).

STATISTICAL ESTIMATES

The separate determinants of oil trade and net capital services suggest that a useful approach in explaining China's current account balance is to model the current account stripped of these two components, and then to add in the effects of oil and capital income. Table 3 reports time series on the real exchange rate; domestic and foreign growth; and the non-oil non-capital services current account as a percent of GDP (NONKCA). The table also shows world growth at market exchange rates (the proper concept when measuring effective international demand) and domestic growth for China.

Following Cline (2010), the dependent variable for the external balance, in this case NONKCA, can be regressed on the lagged real effective exchange rate and a variable that captures world demand growth and (in principle) domestic demand growth, as well as on a time trend. An initial test indicated, however, that the coefficient for a demand variable that includes both world and Chinese growth turned out to

Figure 2   Real effective exchange rate, renminbi (2005=100)
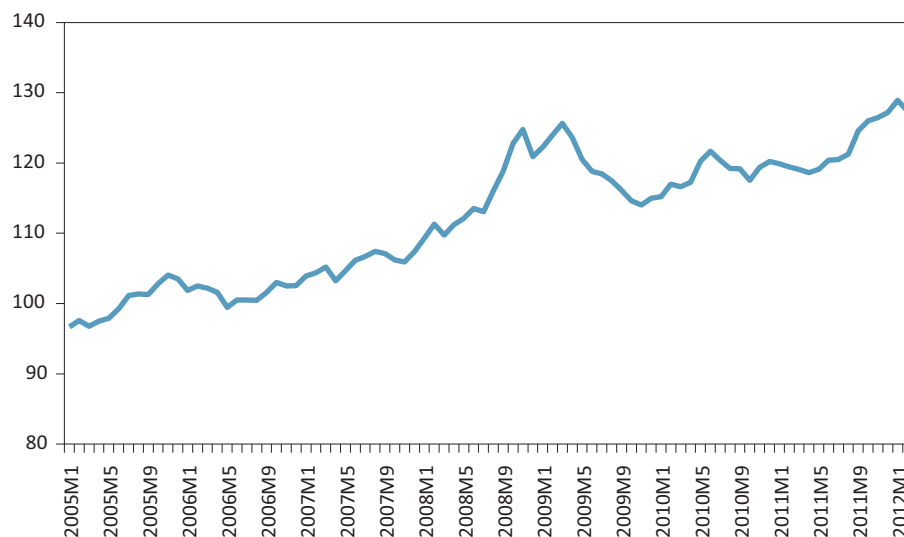
Table 1   China's oil trade

	Volume: imports (million barrels per day)	Values (billions of US dollars)				Net imports (percent of GDP)
		Imports	Exports	Net imports	GDP	
2000	1.477	14.8	2.1	12.7	1,198	1.06
2001	1.477	11.7	1.4	10.3	1,325	0.78
2002	1.662	12.8	1.3	11.5	1,454	0.79
2003	2.031	19.8	1.7	18.2	1,641	1.11
2004	2.769	33.9	1.3	32.6	1,932	1.69
2005	2.954	47.9	2.7	45.2	2,257	2.00
2006	3.323	66.4	2.7	63.7	2,713	2.35
2007	3.692	79.7	1.7	78.0	3,494	2.23
2008	3.877	129.0	3.0	126.0	4,520	2.79
2009	4.246	88.9	2.2	86.7	4,991	1.74
2010	4.800	134.96	1.6	133.3	5,878	2.27
2011	5.354	195.1	1.9	193.2	7,300	2.76

Table 2   Capital services account (billions of US dollars and percent)

	Income	Payments	Net	Percent of GDP	Assets	Liabilities	RORA	RORL
2000	12.3	26.5	−14.2	−1.18				
2001	9.1	27.7	−18.61	−1.40				
2002	7.7	22.3	−14.67	−1.01				
2003	14.8	22.8	−8	−0.49				
2004	18.5	22.7	−4.15	−0.21	933	653		
2005	35.6	53.2	−17.6	−0.78	1,229	816	3.81	8.15
2006	50.3	57.7	−7.4	−0.27	1,690	1,050	4.09	7.07
2007	76.2	72.7	3.5	0.10	2,416	1,228	4.51	6.92
2008	92.5	81.2	11.3	0.25	2,957	1,463	3.83	6.61
2009	99.4	99.3	0.1	0.00	3,457	1,946	3.36	6.79
2010	131	112.8	18.2	0.31	4,126	2,335	3.79	5.80
2011	128	154.9	−26.9	−0.37			3.10	6.63

RORA = rate of return assets (percent); RORL = rate of return liabilities (percent)

Source: SAFE (2012), IMF (2012a).

Table 3   Influences on the current account excluding oil and capital services, 2000–11

	CA	NONKCA	R*	R*L	gw	gc
	(percent GDP)		(index)		(percent)	
2000	1.71	3.96	108.53	111.61	4.3	8.4
2001	1.31	3.49	113.20	108.51	1.6	8.3
2002	2.44	4.23	110.58	110.87	1.9	9.01
2003	2.80	4.39	103.32	111.89	2.7	10.0
2004	3.55	5.46	100.54	106.95	3.9	10.1
2005	5.94	8.72	100.00	101.93	3.5	11.3
2006	8.58	11.20	101.57	100.27	4.0	12.7
2007	10.13	12.26	105.58	100.79	4.0	14.2
2008	9.12	11.66	115.29	103.58	1.5	9.6
2009	5.23	6.97	119.21	110.44	−2.3	9.2
2010	5.19	7.15	118.67	117.25	4.0	10.3
2011	2.80	5.78	121.88	118.94	3.0	9.5

CA = current account balance as percent of GDP; NONKCA = non-oil non-capital-services current account as percent of GDP; R* = real effective exchange rate; R*L = lagged R*; gw = world growth at market exchange rates; gc = China's growth

*Source:* Tables 1 and 2, IMF (2011), IMF (2012a).

be extremely small and insignificant.[1] A better econometric result was obtained when only world growth is included. The estimated equation is:

1) $NONKCA = 46.82 - 0.410\ R^*L + 0.269\ gw + 0.621\ T$;
      (8.4) (−8.0)   (1.6)   (7.0)
  Adj. $R^2 = 0.896$

where *NONKCA* is the non-oil non-capital-services current account balance as a percent of GDP, *R*L* is the lagged

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1. The variable was: *gc–gw*, the difference between world growth and Chinese growth.

Figure 3   Actual and predicted non–oil non–capital–
services current account surplus as percent
of GDP
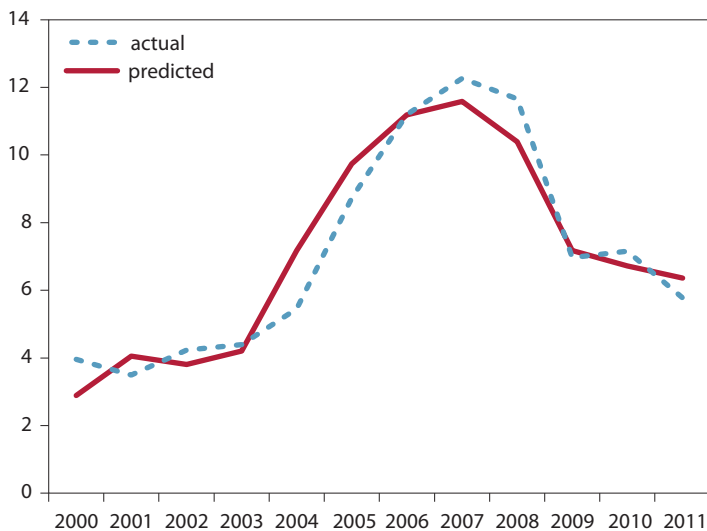
Source: Author's calculations.

exchange rate (average of prior two years), *gw* is the IMF (2011) estimate of world growth with GDP weighted at market exchange rates, and *T* is a time variable starting at 1 in 2000 and rising to 12 in 2011. The adjusted R^2, or degree of explanation adjusted for degrees of freedom, is high at 89 percent, as reflected in the relatively close overall fit of the predicted value to the actual value for the non-oil current account balance (figure 3). The *t*-statistics in parentheses indicate that the coefficient on the lagged real exchange rate is highly significant, as is the coefficient on the time trend.[2] The coefficient on foreign growth falls short of the usual 5 percent level for significance, but has the right sign, is of a plausible magnitude, and is significant at the 15 percent level.

The exchange rate coefficient indicates that on average over the period, an increase by 1 percent in the lagged real exchange rate had an impact on the non-oil non-capital-services current account balance of 0.44 percent of GDP.[3] This impact estimate may be on the high side (the corresponding

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2. For 13 observations, the threshold for significance at the 5 percent level is a *t*-statistic of 2.16. Application of White's test suggests that heteroskedasticity is not a problem, and robust *t*-statistic tests confirm significance of the exchange rate and time variables.

3. The average for R*L over the period was 108.6, so a 1 percent change amounted to 1.086 units on the lagged exchange rate index. Multiplied by the coefficient 0.410, this change translates to a change in the non-oil current account by 0.44 percentage points.

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parameter used in Cline and Williamson, 2011a, is 0.30). For foreign growth, a 1 percentage point increase translates to 0.27 percent of GDP increase in the (non-oil non-capital-services) current account surplus. Considering that exports of goods and services were an average of 31 percent of GDP over the period (IMF 2012a, 2011, SAFE 2012), this estimate is approximately consistent with an income elasticity of unity for foreign demand for Chinese exports.

The time trend of an increase in the non-oil non-capital-services current account surplus by 0.62 percent of GDP annually is smaller than the 0.78 percent estimate in Cline (2010). This trend is still substantial, and reflects the Balassa-Samuelson effect, whereby the rising relative productivity of tradable goods in an emerging market economy means that its trade surplus will tend to increase over time if not offset by trend appreciation of the real exchange rate. More specifically, evaluated with the 2011 level of the lagged exchange rate index as the base, the time trend of 0.62 percent of GDP per year implies the need for the real effective exchange rate to appreciate by 1.3 percent annually to avoid an increase in the current account surplus relative to GDP.[4]

DECOMPOSING THE SURPLUS REDUCTION

Equation 1 and tables 1 and 2 provide a basis for identifying the components of the reduction in the current account surplus from its peak in 2007 to its much more moderate level in 2011. As set forth in table 4, the total reduction in the current account surplus amounted to 7.3 percent of GDP. The rise in the oil deficit contributed 0.53 percent of GDP. The main estimates of the table apply equation 1 to estimate the impact of the exchange rate and foreign growth. When the coefficient on the exchange rate, –0.410, is applied to the change in the (lagged) real exchange rate index by 18.16 index points (from 100.8 to 118.9), the result is an estimated contribution of 7.45 percent of GDP reduction in the current account surplus. World growth at market exchange rates was higher by about 1 percentage point in 2007 (at 3.97 percent) than in 2011 (at 2.96 percent), and applying the coefficient from equation 1, the consequence would have been a reduction of 0.27 percent of GDP in the surplus. From table 4, net capital services ironically contributed a downswing of 0.47 percent of GDP, an aberration from the long-term trend in the opposite direction caused by the decline in return on

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4. That is, with the 2011 R*L index at 118.9, a 1 percent real appreciation represents 1.189 units on the index. Applying the exchange rate coefficient in equation 1 (–0.41), the result is a reduction in the current account surplus by 0.487 percent of GDP. To offset the upward drift of 0.62 percent of GDP per year thus requires annual appreciation by 0.62/0.49 = 1.27 percent per year.

Table 4 Composition of the reduction in the current account surplus from 2007–11 (percent of GDP)

	Equation 1	Alternate
Surplus, 2007	10.13	
Surplus, 2011	2.76	
Change in surplus	−7.37	
Impact of balance on oil	−0.53	
Impact of real renminbi appreciation	−7.45	[−5.4]
Impact of world growth	−0.27	[−3.0]
Impact of capital services	−0.47	
Impact of time trend	2.48	
Subtotal, impacts:	−6.24	[−6.92]
Unexplained	−1.13	[−0.45]

Source: Author's calculations.

assets from the international boom year of 2007 to the weak-recovery year of 2011. For its part, the time-trend raised the surplus by an estimated 2.48 percent of GDP over the four-year interval. In the main estimates, the net influence of these five influences amounts to −6.24 percent of GDP, a reduction that is smaller than the total observed reduction by an unexplained 1.13 percent of GDP. This unexplained change equals the (absolute) sum of the discrepancies between the predicted and actual outcomes in 2007 (underpredicted) and 2011 (overpredicted) observable in figure 3.

Table 4 also includes a set of alternative estimates for the impact of the exchange rate and foreign growth, shown in brackets. In this case, the exchange rate impact parameter is set at −0.3 percent of GDP for a 1 percent real effective appreciation, the parameter used in Cline and Williamson (2011a). The 18 percent rise in the lagged real exchange rate variable from 2007 to 2011 thus generates a reduction of 5.4 percent of GDP in the current account surplus, about three-fourths as large as in the main estimate.

With respect to foreign growth, the reduced-form specification of this influence in equation 1 may fail to capture the cumulative effect of several years of slow world growth, because only the foreign growth rate for the year in question is included. Real growth of world product at market exchange rates was an average of 3.24 percent annually in 2000–07 but only 1.54 percent annually in 2008–11 (IMF 2011). Cumulating the annual reduction of 1.7 percent over four years, world output was 7 percent lower in 2011 than it would have been if growth had continued at its 2000–07

rate. Applying a plausible income elasticity of 1.5 for world demand for China's exports, in 2011 the level of exports would have been 10.5 percent higher than the actual outcome, an increment that amounts to $219 billion (goods and services) or 3 percent of 2011 GDP. The alternative estimate is thus much larger than the equation estimate in the case of the impact of the slowdown in global growth. The amount of the surplus reduction left unexplained is smaller than in the main estimates.

Overall, table 4 indicates that the largest source of the decline in China's current account surplus has been the appreciation of its exchange rate. Sluggish world growth also played a role, estimated to be only modest in the estimates based on equation 1 but a bit over half as large as the exchange rate impact in the alternative estimate. To a much smaller degree, a rising oil import bill has also played a role, and in 2011, so did the unusually low return on foreign assets.

The influence of the exchange rate also implies that there is more adjustment in the pipeline. The final exchange rate signal underlying the predicted outcomes in figure 3, because

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of the lag, is the average for 2009–10, an index of 118.9. The rate rose further to 121.9 in 2011 and, not shown in the table, to 128.1 in the first two months of 2012. So there is another 7.7 percent effective real appreciation in the pipeline for the lagged real exchange rate even if the renminbi remains unchanged at its effective level of early 2012. Given the parameters discussed above, the consequence would be the further narrowing of the surplus by some 2 to 3 percent of GDP. This lagged influence would be working against the time trend that increases the surplus, and against the likely reversion to higher earnings on foreign assets, but would be reinforced by any trend toward higher oil imports.

PROJECTING THE CURRENT ACCOUNT

China's current account balance can be projected using equation 1 for the non-oil non-capital-services current account (NONKCA) and then adding in separate projections of oil trade and the capital services balances.

Table 5 Projection of the non–oil non–capital–services current account (NONKCA)

	GDP (billions of US dollars)	R*L (real exchange rate index 2005 = 100)	gw (percent)	NONKCA:	
				(percent GDP)	(billions of US dollars)
2011	7,300	118.9	2.96	6.36	464
2012	8,089	120.3	2.46	6.30	509
2013	8,993	125.0	3.05	5.14	463
2014	9,986	128.1	3.87	4.71	471
2015	11,080	128.1	3.97	5.36	594
2016	12,305	128.1	4.01	5.99	731
2017	13,082	128.1	4.00	6.61	865

R*L = lagged R*; gw = world growth at market exchange rates; NONKCA = non-oil non-capital-services current account

Source: Author's calculations. See text. (Corrected May 14, 2012).

Table 6 Projected net imports of oil, 2011–17

	Consumption	Production	Imports	Price (US dollars)	Value (billions of US dollars)	Percent GDP
	(million barrels per day)					
2011	10	4	6	102.1	193	2.65
2012	10	4.1	5.9	102.5	191	2.36
2013	11	4.1	6.9	110.6	241	2.68
2014	11	4.1	6.9	116.8	254	2.55
2015	12	4	8	122.5	309	2.79
2016	13	4.1	8.9	122.3	343	2.79
2017	13	4.1	8.9	126.8	356	2.72

Source: EIA (2011b), EIA (2012), SAFE (2012).

Excluding Oil and Capital Services

Table 5 reports elements of a projection through 2017 of the NONKCA. The table first shows the dollar value of China's GDP, based on the actual outcome for 2011 (NBSC 2012) and then applying the proportionate growth path for dollar GDP in the September 2011 International Monetary Fund (IMF) *World Economic Outlook* (and simply extrapolating to 2017 from 2016; IMF 2011).

The lagged real exchange rate variable assumes that there is no further change in the real effective rate from the average in the first two months of 2012. World growth at market exchange rates is from IMF (2011) except that the estimates are reduced by 0.7 percent in 2012 and 0.6 percent in 2013 based on the more recent WEO update (IMF 2012b).[5]

There is a decline in the NONKCA by about 1.6 percent of GDP from the 2011 model-based estimate to 2014, before this surplus rises back slightly above the 2011 percent of GDP by 2017. The causes of this path are the further appreciation in the lagged real exchange rate (the pipeline effect noted above), on the one hand, versus the time trend, on the other. For the period as a whole the two approximately offset each other.

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5. Note also that the time variable for equation 1 begins at 12 for 2011 and reaches 18 in 2017.

Oil Trade

The US Energy Information Agency (EIA 2011b) has projected the oil production and imports for China shown in table 6. Imports are expected to rise from 6 million barrels per day in 2011 to 8.9 million barrels per day by 2017. The agency also projects the average price of imported oil for the United States, which is applied here as indicative of the world price (EIA 2012). This price is expected to remain unchanged at $102 per barrel in 2012 and then rise to $127 by 2017. Multiplication of the average price by the number of barrels per year yields an import value that is modestly higher than the actual net import value for 2011 ($224 billion rather than $193 billion). The value series shown in the table adjusts the product of import volume times price downward by this ratio (193/224) to obtain the estimate of China's net oil import value through 2017.

There is a striking constancy in the resulting estimate of the ratio of net oil import value to GDP, at slightly over 2.5 percent of GDP throughout the period. Even though oil import volume rises almost 50 percent over the period, and the price rises 24 percent, the value of China's GDP rises so rapidly that there is no change in the ratio of the net import value to GDP. Thus, the nominal dollar value of GDP rises almost 80 percent from 2011 to 2017 (table 5).

Capital Services

Projection of the elements of table 2 above provides a basis for projecting the balance on capital services. The end of year foreign liabilities equal the prior year value as adjusted for inflation, plus the inflow of direct investment. The inflation adjustment applies 4 percent annual inflation to the share of equity (direct investment and stock) in external liabilities, which stands at 72 percent.[6] For external assets, the end-year figure equals the previous year's level adjusted for inflation (this time with only a 9 percent share), plus the current account surplus, plus the excess of inward direct investment over outward direct investment.[7]

With estimates of the stock of foreign assets and liabilities in hand for the prior year, the capital services for the current

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6. At the end of 2010, foreign direct investment (FDI) in China was $1.48 trillion and equity securities were $206 billion, with total liabilities at $2.34 trillion. Chinese FDI abroad was $310.8 billion and equity securities abroad were $63 billion, with total foreign assets at $4.13 trillion (IMF 2012a).

7. Suppose that the current account is zero and inflation is zero. Foreign liabilities rise by the amount of inward direct investment. The inflow builds up reserves. Foreign assets rise by the amount of outward foreign investment. The reserve buildup from FDI inflow is cut back by the amount of reserves needed to finance the outward direct investment.

year are obtained by multiplying the stocks by the rates of return. It is assumed that by 2014 the return on assets abroad returns to 4 percent, and that for liabilities the rate of return remains at the recent level of 6.7 percent.

> **Ironically, China's capital services account remains in small deficit through 2017, despite the growing net international investment position**

Ironically, China's capital services account remains in small deficit through 2017, despite the growing net international investment position (NIIP). The NIIP rises from $1.89 trillion at the end of 2011 to $2.59 trillion at the end of 2017. However, the adverse differential rate of return leaves net earnings persistently negative, although at small amounts.

Current Account

Table 8 reports the resulting projections of the current account deficit as a percent of GDP, for 2011 through 2017. Figure 4 displays the same projections, with the actual outcome shown for 2011. Overall the current account surplus remains in a range of 2 to 4 percent of GDP.

The projections show a persistently lower current account surplus than in the period of 2005–10. Even so, at least the 2012 forecast may be on the high side, considering that the model over projects the 2011 outcome by about 0.6 percent of GDP. The low point in the projection, about 2 percent of GDP in 2013–15, reflects the completion of the lagged influence of the exchange rate appreciation. The increase to about 4 percent of GDP by 2017 reflects the resumption of the dominance of the trend term.

SHORT-TERM TRENDS

In 2012, the current account surplus could be substantially lower than the level projected in table 7, in view of a simple "momentum" calculation extrapolating recent trends. For the two quarters 2011:4 and 2012:1, exports of goods and services rose 11.1 percent above the level a year earlier, while imports of goods and services rose 13.5 percent. If these two rates are applied to the full-year 2011 base levels ($2.09 trillion exports, $1.90 trillion imports), the result is an expected surplus on goods and services amounting to $164 billion. For 2003–11, the average ratio of the surplus on goods

Table 7   Projected capital services (billions of US dollars)

	Income	Payments	Net	Assets	Liabilities	RORA	RORL	Direct investment:	
								Inward	Outward
2011	128	155	−26.9	4,513	2,622	3.1	6.6	220.1	49.7
2012	154	176	−22.2	5,003	2,933	3.4	6.7	234.5	57.6
2013	185	196	−11.4	5,414	3,267	3.7	6.7	249.8	66.8
2014	217	219	−2.3	5,836	3,627	4.0	6.7	266.1	77.4
2015	233	243	−9.6	6,326	4,015	4.0	6.7	283.5	89.8
2016	253	269	−16.0	6,926	4,433	4.0	6.7	302.0	104.1
2017	277	297	−20.0	7,640	4,882	4.0	6.7	321.7	120.7

RORA = rate of return assets (percent); RORL = rate of return liabilites (percent)

Source: Author's calculations.

Table 8   Projected current account balance

	NONKCA	Oil	Capital services	Total	Level (billions of US dollars)
	(percent of GDP)				
2011A	5.78	−2.65	−0.37	2.76	201.7
2011M	6.36	−2.65	−0.37	3.34	243.9
2012	6.30	−2.36	−0.27	3.66	296.4
2013	5.14	−2.68	−0.13	2.34	210.7
2014	4.71	−2.55	−0.02	2.14	214.1
2015	5.36	−2.79	−0.09	2.48	275.3
2016	5.99	−2.79	−0.13	3.07	378.3
2017	6.61	−2.72	−0.15	3.74	489.0

NONKCA = non-oil non-capital-services current account; A = Actual; M = Model

and services to the overall current account surplus was 85.8 percent. Applying this ratio, the "momentum" estimate for the 2012 current account surplus would be $191 billion or 2.36 percent of GDP, lower than the table 8 projection by 1.3 percent of GDP. Consensus private forecasts have recently placed the 2012 current account surplus at $236 billion, or 2.9 percent of GDP, also lower than the table 8 projection of 3.66 percent of GDP (Blue Chip 2012). On the basis of recent trends, then, the projected surplus path in table 8 and figure 4 is more likely to err in the direction of overstatement than understatement (at least in the near term).

ALTERNATIVE SCENARIOS

It is useful to consider two types of alternatives to the main projections. The first is an alternative based on the more conservative parameter for the exchange rate impact used in

Cline and Williamson (2011a).[8] The second is an alternative premised on a continued commitment in Chinese exchange rate policy to allow gradual real appreciation. From June 2010 when the government once again allowed the exchange rate to move, until December 2011, the real effective exchange rate appreciated by 4.5 percent (IMF 2012a). This pace amounts to an annual rate of 3 percent.

Table 9 and figure 5 report the resulting current account projections as a percent of GDP for these alternative scenarios. Whereas the baseline estimate using equation 1 projects a return to a surplus of almost 4 percent of GDP by 2017 ("Base" in the figure), applying the more conservative exchange rate impact parameter results in a higher surplus at 5.37 percent of

8. The alternative parameter, −0.3 percent of GDP change in current account for 1 percent real effective appreciation, translates to a change of the exchange rate coefficient in equation 1 to −0.252, as well as a change in the constant term to 28.11, for consistency with the 2011 predicted level of NONCKA.

Figure 4   Current account balances as percent of GDP: oil, capital services, non–oil non–capital–services, and total 2000–11 actual and 2012–17 projected
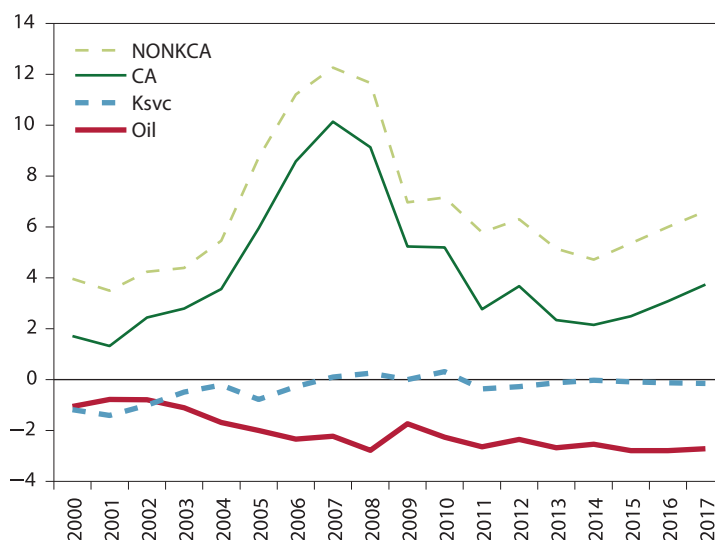
NONKCA = non–oil non–capital–services current account; Ksvc = capital services;
CA = current account balance as percent of GDP

Source: Author's calculations, SAFE (2012), Customs (2012).

GDP in 2017 ("Alt1"). In sharp contrast, if the exchange rate coefficient in equation is applied but it is assumed that the real effective exchange rate remains at its January-February level for the rest of 2012 and then appreciates at an annual pace of 3 percent per year, then the current account swings into deficit by 2016, and the deficit reaches about 2 percent of GDP by 2017 ("Alt2").[9] Finally, when both variants are combined (more conservative exchange rate parameter, continued appreciation of the renminbi), by 2017 the current account remains in surplus but at a considerably lower level than in the baseline, at only 1.68 percent of GDP. Both the table and the figure also indicate the "momentum" projection for 2012 discussed above, as a reminder that the surplus for 2012 could be significantly smaller than in the model-based projections.

CONCLUSION

In the September 2011 issue of the IMF's *World Economic Outlook* (WEO), the Fund projected that China's current account surplus would decline to no lower than 5.2 percent of GDP in 2011 and

thereafter would rise again to 7.2 percent of GDP by 2016 (IMF 2011). Although lower than the peak level of 10 percent of GDP in 2007, this range remained sufficiently high to be likely to cause continued policy confrontation about China's exchange rate practices involving intervention to prevent appreciation of an undervalued exchange rate. The actual outcome in 2011, a surplus of only 2.8 percent of GDP, was thus a significant policy surprise. A central question is whether the unexpected reduction was transitory or whether instead a new and lower range for the trajectory of the current account surplus is likely to remain more permanent. When the IMF issues its spring WEO in late April 2012, analysts and policymakers will learn whether and by how much the Fund has downscaled its estimate of the future path of China's current account surplus.

This note has sought first to explain the reduction in the surplus, and second to project the medium-term path for the current account. The statistical model relating the current account excluding oil and capital services provides a basis for decomposing the sources of the reduction of the surplus from 2007 to 2011. The lion's share of the reduction came from the substantial real appreciation of the exchange rate. More modest contributions also came from higher world oil prices, slower world growth, and an erosion in the capital services account

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9. The January-February real effective rate was already 5.1 percent higher than the average for 2011.

Table 9   Alternative current account projections (percent GDP)

	Base	Alt1	Alt2	Alt3	Momentum
2012	3.66	3.88	3.66	3.88	2.36
2013	2.34	3.30	2.34	3.30	
2014	2.14	3.63	1.36	3.14	
2015	2.48	4.02	0.07	2.53	
2016	3.07	4.65	−1.07	2.10	
2017	3.74	5.37	−2.25	1.68	

Base = baseline; Alt1 = lower exchange rate coefficient; Alt2 = continued renminbi appreciation;

Alt3 = both effects combined; Momentum = recent-trend forecast

Source: Author's calculations.

Figure 5   Current account balance under alternative scenarios (percent GDP)
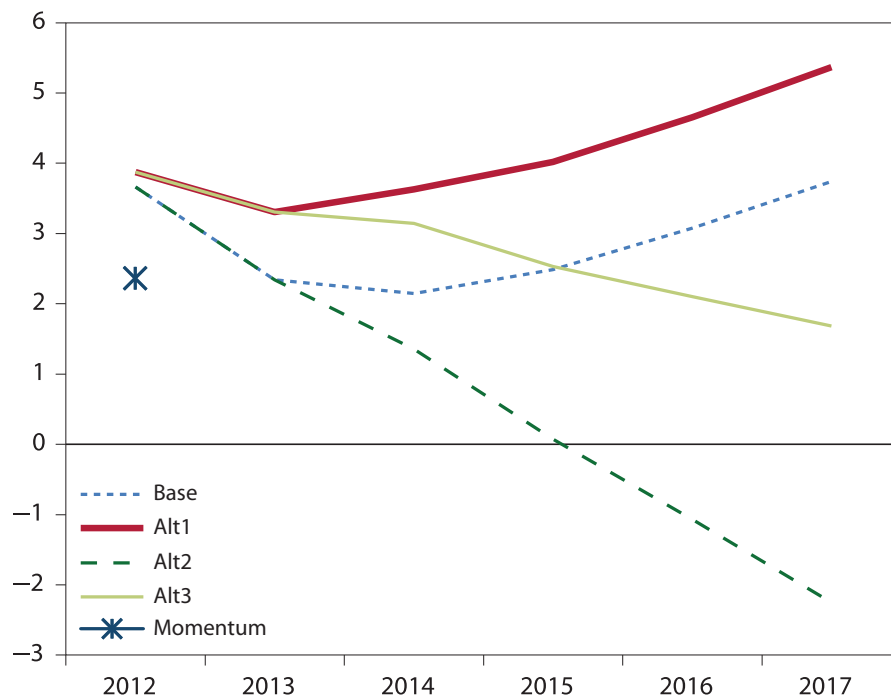
Base = baseline; Alt1 = lower exchange rate coefficient; Alt2 = continued renminbi appreciation; Alt3 = both effects combined; Momentum = recent–trend forecast

Source: Author's calculations.

associated with the decline in foreign interest rates (table 4). When special projections of the oil import bill and capital services are combined with projections of the statistically estimated model under the assumption of a constant real exchange rate at the level of early 2012, the result is that there does indeed seem to be a lasting reduction in the current account surplus, which now seems likely to remain within a range of 2 to 4 percent of GDP over the next six years, far below the range of about 5 percent to 10 percent in the period of 2005–10.

Application of the more conservative exchange rate impact coefficient in Cline and Williamson (2011a) yields a moderately higher current account surplus of 5.4 percent by 2017. A reasonable range for the current account by that time would thus be a surplus of about 4 to 5 percent of GDP (in the absence of further exchange rate change), following reductions to about 2 to 3.5 percent in 2013–14. The policy experiment in which the real effective level of the renminbi continues to rise at 3 percent annually shows that the result would be shift China into approximate current account balance by 2017 (in a range of ±2 percent of GDP, depending on the exchange rate impact parameter used).

Some would argue that the presence of exchange intervention and reserves build-up by a major surplus country remain contrary to the spirit of international financial cooperation, even if the surplus is considerably smaller relative to GDP than in earlier years. In particular, although Cline and Williamson (2011b) apply a threshold of 3 percent of GDP as the perimeter designating whether a currency is at its fundamental equilibrium rate or instead is undervalued (3 percent surplus) or overvalued (3 percent deficit), others have argued that China should not be running a surplus at all (see e.g., Goldstein and Lardy 2006). Moreover, the fact that China's GDP is rising rapidly as a share of the world economy means that even at just 3 percent of GDP its surplus could be large relative to global imbalances.[10] These considerations suggest that an exchange rate path continuing the pace of real effective appreciation begun in June 2010 would go a long way toward reducing the problems for global imbalances posed by China's current account surplus.

POSTSCRIPT

After this policy brief was completed, the IMF released its spring *World Economic Outlook*, which included estimates placing China's current account surplus at 2.3 percent of GDP in 2012, 2.6 percent in 2013, and 4.3 percent in 2017, a range consistent with the analysis here. IMF (2012c, 211).

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10. Thus, by 2016 China's GDP is projected in IMF (2011) to amount to 12.9 percent of world product at market exchange rates. By running a surplus of just 3 percent of GDP at that time China would thus be posing the need for all other countries to run offsetting deficits averaging 0.44 percent of GDP, a large consequence from the actions of a single nation.

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