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THE USA AS THE 'DEMANDER OF LAST RESORT' AND THE IMPLICATIONS FOR CHINA'S CURRENT ACCOUNT

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Abstract. The present paper evaluates the current account patterns of 69 countries during 1981–2006. We identify an asymmetric effect of the USA as the 'demander of last resort': a 1% increase in the lagged US imports/GDP is associated with a 0.3% increase in current account surpluses of countries running surpluses, but results in insignificant changes in the current accounts of countries running deficits. The impact of US demand variables is larger on the current accounts of developing countries than that of OECD countries. We also contemplate China's current account over the next 6 years, and project a large drop in its current account/GDP surpluses.

1. INTRODUCTION

The published literature dealing with global imbalances focuses attention on the enigma of the 'poor' financing the 'rich', as exemplified by the patterns of China and the USA's current account balances during the 1990s and the early 2000s.[1] The onset of the subprime crisis, its deflationary impact on the USA and the resultant recessionary pressure facing other countries indicate that the previous patterns are unsustainable.[2] We evaluate this conjecture using panel regressions that account for the USA's role as 'demander of last resort', controlling for other variables suggested in the literature. As China is expected to be a key player in the adjustment of global imbalances, we also assess the degree to which China's current account patterns are explained by our panel regressions, and project possible future Chinese current account paths.

The variables suggested in the literature include economic performance (e.g. GDP/capita growth and levels), economic structure and openness (e.g. trade

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[1] Further discussions on the sustainability of global imbalances can be found in Dooley *et al.* (2004), Cooper (2005), Caballero *et al.* (2006), Roubini (2006), Setser (2006), Edwards (2004, 2005, 2007), Obstfeld and Rogoff (2005), Ju and Wei (2007a), Chinn and Ito (2007) and Aizenman and Sun (2008).

[2] See the IMF's *World Economic Outlook* (October 2008) for a discussion of the challenges facing the global economy and recent current account patterns. Aizenman and Jinjarak (forthcoming) provide some international evidence on the impact of the current account deficit on the appreciation of real estate markets.

openness and composition of exports, financial openness and external wealth), demographic variables (e.g. age dependence), exchange rate regimes and liquidity, sudden stops history, among others (see IMF (2008) for further discussion and detailed references). As the USA has played a pivotal role as the 'demander of last resort' during recent decades, it makes sense to add lagged the US current account deficit to the list of variables explaining current account patterns of other countries.[3] We identify a large but asymmetric effect of the US role as the demander of last resort: a 1% increase in the lagged US imports/GDP is associated with a 0.3% increase in the current account surpluses of countries running surpluses, but results in insignificant changes to the current accounts of countries running deficits.[4] We control for all these variables in panel regressions of 69 countries during 1981–2006. Overall, not more than 80% of the variation is accounted for by regressions that include fixed effects, and China's fixed-effect coefficient is insignificant. Ranked according to economic impact on China's current account (% of GDP), the most important variable is the lagged US current account deficit, followed by China's GDP growth, trade openness, bank credits/GDP, age dependency, net foreign assets/GDP, financial openness and commodity exports/GDP.

We apply the regression analysis to project the future patterns of China's current account under two extreme scenarios. The first case is where all the conditioning variables would be impacted by one standard deviation shocks during the next 6 years in ways that would *increase* China's current account surplus: as would occur if global and domestic booms were to take place. The second scenario is the opposite, where all the conditioning variables would be impacted by one standard deviation shocks in ways that would *decrease* China's current account surplus: as would be the case if a global and domestic recession were to take place. These two scenarios provide us with a band of plausible future paths. We compare the resultant band with the latest *World Economic Outlook* (IMF 2008) forecast of China's future current account, and determine that the *World Economic Outlook* projections may be overly optimistic, forecasting the continuation of high current account surpluses. We conclude with a discussion of these results.

2. DATA AND ESTIMATION

Our data on current account balances and macroeconomic factors cover years 1981–2006. Most of the data (details documented in Appendix I) are taken from the World Development Indicators(www.worldbank.org), the International Investment Positions (www.imf.org), the External Wealth of Nations (http://www.tcd.ie/iiis/pages/people/planedata.php) and the *World Economic*

[3] Aizenman and Sun (2008) report that during recent years the US current account deficit ascended to well above half of the global current account deficits.

[4] Similar results apply to current accounts: a 1% increase in the lagged US current account deficit is associated with 0.5% increase in current account surpluses of countries running surpluses, but with insignificant changes in current account deficits of countries running deficits.

Outlook (IMF 2008), supplemented with Chinn and Ito's (2006) capital account openness index, Shambaugh's (2004) pegged exchange rate indicators, and our own calculated deviation from purchasing power parity implied by the penn effects (see Aizenman 2008) and sudden-stop indicators.[5] In addition, we restrict the sample to countries with at least ten annual observations to allow for panel estimation and subsequent division of the whole sample into sub-periods and country groups. Although we try to include as many countries possible, some variables such as the net foreign asset are available for a limited number of countries. While this set of variables is a variant of those used by Chinn and Prasad (2003), Gruber and Kamin (2007), and the IMF (2008), the variables represent the same macroeconomic factors in their studies and are selected to maximize our country coverage. After pooling all the relevant variables, we have 69 countries (of which 21 are OECD, as tabulated in Appendix II).

Following the literature, we estimate

$$CAB_{it} = X'_{it-1}\beta + C_i + \phi DEMAND_{USA,t-1} + \varepsilon_{it}; C_i \equiv \{c_1, \ldots, c_{69}\} \quad (1)$$

where CAB_{it} is the current account balances (as % GDP) of country i at time t, and X_{it-1} is a vector of lagged macroeconomic factors, $C_i \equiv \{c_1, \ldots, c_{63}\}$ is a vector of country fixed effects, and $DEMAND_{USA,t-1}$ is the lagged US demand (as % of GDP). This empirical specification links the current account to the variables suggested by saving-investment framework, augmented with institutional and policy variables. The innovation is the inclusion of the US demand variable (measured by current account deficit, final consumption, household consumption, and imports (as % GDP)) since the USA acted frequently as the demander of the 'last resort.' Another frequently cited notion is that due to the growing size of China, the size of the US current account deficit might impact China's ability to run surpluses (see also Aizenman and Sun 2008).[6] Although the lagged US current account/GDP is more endogenous than the other measures of lagged US demand, we will run a battery of regressions using each of the four measures (as the motivation is to identify the US role as 'demander of last resort'), with particular attention to consumption/GDP and import/GDP ratios.

Some preliminary statistics are in order. By comparing the contemporaneous correlations between current account balances (as % of GDP) and the macroeconomic variables of China and other developing countries, we can see several structural differences (i.e. foreign exchange reserves, per capita GDP, age dependency, domestic credit by banking sector, capital account openness and

[5] For literature supporting the effects of these macroeconomic factors on the current accounts, see Cavallo and Frankel (forthcoming) for sudden-stop indicators; Helliwell (2004), Higgins (1998), De-Santis and Lührmann (2006) and Taylor (2002) for the effect of aging on current accounts; Chamon and Prasad (2007) for the impact of age dependency and saving of households in China; and Chinn and Prasad (2003), Chinn and Ito (2007), Aguiar and Gopinath (2007) and Gruber and Kamin (2007) for standard determinants of the current accounts.

[6] Note that if one takes the saving-glut argument literally, then the causality would be reversed. See Chinn and Ito (2007) for more discussion.

trade openness). These differences suggest that the Chinese experience could be unique, possibly because of China's size, its rapid takeoff, and other unique characteristics. We will try to account for these structural differences using various estimation techniques and alternative specifications. To make sure all the variables in our estimation are of the same order of integration, we apply several unit root and cointegration tests. The panel cointegration test of Westerlund (2007) under the null hypothesis of no cointegration between current account/GDP and other variables can be rejected by at least one of the test statistics at the 1% level.[7] For the Chinese series, the Kwiatkowski *et al*. (1992) test suggests that the null of trend stationary cannot be rejected at appropriate lags for all the variables.[8] We also apply to the Chinese series a cointegration test between the current account and other variables (following Johansen and Juselius 1990) and test the null hypothesis that there is no cointegrating relationship between the current account and each of the variables. The likelihood-ratio test suggests that the null of no cointegration with the current account can be rejected for the explanatory variables in our estimated model.[9]

2.1. *Baseline results and alternative specifications*

We provide the regression estimates using both the annual and 5-year average panel data. Tables 1 and 2 present our baseline results with annual data. We include a lagged current account because studies using annual data tend to find evidence of serial correlation in the panel. Our estimation performs reasonably well and explains approximately 80% of the current account variation from 1981 to 2006.[10] The explanatory variables are robust across the specifications can be categorized by their effects on the current account surpluses as follows:

- Positively: lagged current account, net foreign assets to GDP,[11] domestic credit to GDP, trade openness, sudden stops of capital inflows, the US

[7] The rejection is weak for GDP per capita, GDP growth and population growth.

[8] In contrast to the Kwiatkowski *et al*. (1992) test, the Dickey–Fuller test cannot reject the null hypothesis that China and the US current accounts/GDP contain a unit root over the sample period; both series are I(1). The residual series from fitting the Chinese series on the US series are not stationary. This may reflect the low power of the test, suggesting that the relationship between the USA and China's current account balances to GDP cannot be explained by a simple cointegration, in isolation of other conditioning macroeconomic factors. It is also consistent with the conjecture that the current account/GDP ratio follows a unit-root process if its value stays within a certain range, but reverts to its long-run equilibrium when the current account/GDP ratio exceeds some threshold values (see Ju & Wei 2007b).

[9] Using the Engle–Granger test, the null can be rejected for foreign exchange reserves, GDP per capita, age dependency ratio, trade openness and US imports.

[10] We note that the inclusion of a lagged current account exposes our estimation to the dynamic panel problem. However, according to Judson and Owen (1999), with $N = 69$ and $T = [10, 26]$ any difference between the performance (RMSE) of our estimation and other estimators tends to be small (see their table 2).

[11] The net foreign asset position at time t is the initial position plus the cumulative current account and cumulative net capital gains on cross-border positions.

Table 1. Annual data estimation of current account balances to GDP and macroeconomic factors: All countries

	OLS with annual data and country fixed effects				
Current account balance (% of GDP)	1	2	3	4	5
	Estimate (standard error)	Estimate (standard error)	Estimate (standard error)	Estimate (standard error)	Estimate (standard error)
Lagged dependent variable	0.666 (0.020)***	0.673 (0.020)***	0.668 (0.020)***	0.668 (0.020)***	0.674 (0.020)***
Net foreign asset (% of GDP)	0.010 (0.002)***	0.010 (0.002)***	0.010 (0.002)***	0.011 (0.002)***	0.010 (0.002)***
Foreign exchange reserves (% of GDP)	–0.048 (0.016)***	–0.044 (0.016)***	–0.050 (0.017)***	–0.055 (0.017)***	–0.044 (0.016)***
GDP per capita, PPP (thousand)	–0.046 (0.023)**	–0.030 (0.022)	–0.050 (0.024)**	–0.078 (0.028)***	–0.030 (0.022)
Growth of GDP, PPP (annual %)	–0.083 (0.019)***	–0.082 (0.019)***	–0.080 (0.019)***	–0.079 (0.019)***	–0.082 (0.019)***
Age dependency ratio	–0.059 (0.016)***	–0.069 (0.016)***	–0.057 (0.017)***	–0.042 (0.018)**	–0.069 (0.016)***
Population growth (annual %)	0.135 (0.085)	0.123 (0.085)	0.132 (0.085)	0.145 (0.085)*	0.123 (0.085)
Ores and metals exports (% of exports)	–0.026 (0.022)	–0.023 (0.023)	–0.024 (0.022)	–0.022 (0.022)	–0.023 (0.023)
Fuel exports (% of exports)	–0.014 (0.009)	–0.013 (0.009)	–0.014 (0.009)	–0.013 (0.009)	–0.013 (0.009)
Domestic credit by banking sector (% of GDP)	0.006 (0.003)*	0.007 (0.003)**	0.007 (0.003)*	0.007 (0.003)**	0.007 (0.003)**
Capital account openness index	0.005 (0.080)	0.033 (0.081)	0.010 (0.080)	–0.049 (0.084)	0.030 (0.080)
Pegged exchange rate indicator	–0.076 (0.210)	–0.069 (0.211)	–0.062 (0.210)	–0.040 (0.210)	–0.068 (0.211)
Merchandise trade (% of GDP)	0.021 (0.007)***	0.022 (0.008)***	0.021 (0.007)***	0.018 (0.008)**	0.022 (0.007)***
Average days to clear exports through customs	0.045 (0.095)	0.044 (0.095)	0.039 (0.095)	0.020 (0.095)	0.042 (0.095)
Average times firms spent with tax officials	0.163 (0.273)	0.274 (0.271)	0.152 (0.276)	–0.006 (0.287)	0.271 (0.271)
Sudden stop at year t; CA-L.CA > 0.03GDP	5.791 (0.224)***	5.812 (0.225)***	5.797 (0.224)***	5.778 (0.224)***	5.811 (0.224)***
Sudden stop within the previous 5 years	0.196 (0.177)	0.220 (0.177)	0.222 (0.177)	0.206 (0.176)	0.218 (0.177)
US current account deficit (% of GDP)	0.145 (0.055)***				
US final consumption (% of GDP)		0.015 (0.050)			
US household consumption (% of GDP)			0.152 (0.071)**		
US imports (% of GDP)				0.142 (0.049)***	
Adjusted R^2	0.8002	0.7992	0.7999	0.8004	0.7994
Observations	1430	1430	1430	1430	1430

CAB_{it} is the current account balance (as % GDP) of country i at time t, X_{it} is a vector of macroeconomic factors, as outlined in the Appendix I, C_i is a vector of country fixed effects, and $DEMAND_{USA,t-1}$ is the lagged US demand (as % of GDP). The constant term and country indicators are not reported. Standard errors are in parentheses. ***, ** and * signify statistical significant at the 1, 5 and 10% levels, respectively.

current account deficit, US final consumption, US household consumption and US imports
- Negatively: foreign exchange reserves, growth of GDP and age dependency ratio.

Table 2 shows that the impacts of these macroeconomic factors differ between countries running current account deficits (specification 4) and countries running surpluses (specification 8). Essentially, the influence of US imports is significant only for the countries running surpluses. To confirm these findings, we also run the estimation with a non-overlapping panel of 5-year data. The US imports/GDP is found to be positive and statistically significant, particularly for the countries running surpluses.[12] We will subsequently use specification 4 in Table 1 (and specifications 4 and 8 in Table 2) with US imports/GDP as the preferred specification. First, these specifications offer higher explanatory power than the other specifications. Second, because we include the lagged US current account, the coefficient estimates will be consistent if the lagged US current account is orthogonal to the lagged own-country current account, which seems unlikely. It would be appropriate to use US consumption or US imports, which may be less endogenous than the US current account deficit. Based on the performance of our estimation, we will use the US imports/GDP as the key measure of US demand in the following sections.

Overall, the main findings are robust across country groups and sample periods. We also find that the frequently cited negative impact of age dependency is significant for the subsample of developing countries in the 1995–2006 period, suggesting that the current account adjustment related to demographic change applies beyond the OECD population. Interestingly, the impact of US demand variables is larger on the current account of developing countries than the current account of OECD countries, supporting the enigma of the poor economies financing the rich ones.[13] Comparing developing countries in surplus and those in deficit (see Table 3), we find that the developing countries in surplus are more affected by the size of the US current account deficit/GDP than those in deficit (the coefficient estimate is equal to 0.478, compared to 0.151 for the developing countries in deficit). Using a random-effects model as another possible specification, we find that the coefficient estimate on the US imports/GDP variable continues to be positive and significant for the surplus countries.[14] We also verify the robustness of the main results to interacting Chinn–Ito's capital account openness with the lagged US import and the lagged US current account variables.[15] The main results are robust to this modification: the direct effect of lagged US imports (or lagged US current account) unchanged as a result of the interaction. For the lagged imports/GDP, the interaction term negatively affects the current account/GDP deficit

[12] We test the residuals (as suggested in Wooldridge (2002) and find no serial correlation.

[13] See, for example, Alfaro *et al*. (2008).

[14] Results are available upon request. The Breusch and Pagan Lagrange multiplier test for random effects suggests that the random effects are not needed.

[15] We thank Jeff Frankel for suggesting this robustness analysis.

Table 2. Annual data estimation of current account balances to GDP and macroeconomic factors – surplus versus deficit countries

	OLS with annual data and country fixed effects							
	Countries running current account deficit				Countries running current account surpluses			
Current account balance (% of GDP)	1	2	3	4	5	6	7	8
	Estimate (standard error)	Estimate (standard error)					Estimate (standard error)	Estimate (standard error)
Lagged dependent variable	0.647 (0.035)***	0.652 (0.035)***	0.650 (0.035)***	0.648 (0.035)***	0.675 (0.051)***	0.683 (0.052)***	0.672 (0.051)***	0.672 (0.051)***
Net foreign asset (% of GDP)	0.013 (0.002)***	0.012 (0.002)***	0.012 (0.002)***	0.013 (0.002)***	−0.009 (0.008)	−0.008 (0.008)	−0.011 (0.008)	−0.007 (0.008)
Foreign exchange reserves (% of GDP)	−0.040 (0.023)*	−0.040 (0.023)*	−0.040 (0.023)*	−0.044 (0.023)*	−0.068 (0.030)**	−0.066 (0.030)**	−0.075 (0.030)**	−0.078 (0.030)**
GDP per capita, PPP (thousand)	−0.123 (0.031)***	−0.114 (0.031)***	−0.117 (0.032)***	−0.131 (0.036)***	0.021 (0.042)	0.047 (0.040)	−0.001 (0.044)	−0.066 (0.057)
Growth of GDP, PPP (annual %)	−0.111 (0.024)***	−0.113 (0.024)***	−0.112 (0.024)***	−0.111 (0.024)***	−0.050 (0.036)	−0.045 (0.036)	−0.046 (0.035)	−0.044 (0.035)
Age dependency ratio	−0.045 (0.021)**	−0.052 (0.020)**	−0.051 (0.021)**	−0.042 (0.023)*	−0.132 (0.035)***	−0.149 (0.034)***	−0.117 (0.036)***	−0.081 (0.042)*
Population growth (annual %)	0.238 (0.113)**	0.229 (0.114)**	0.230 (0.114)**	0.239 (0.114)**	−0.033 (0.135)	−0.038 (0.135)	−0.014 (0.134)	−0.010 (0.134)
Ores and metals exports (% of exports)	−0.028 (0.025)	−0.028 (0.025)	−0.028 (0.025)	−0.027 (0.025)	−0.092 (0.080)	−0.078 (0.079)	−0.091 (0.079)	−0.095 (0.079)
Fuel exports (% of exports)	−0.008 (0.011)	−0.006 (0.011)	−0.007 (0.011)	−0.007 (0.011)	−0.048 (0.017)***	−0.046 (0.017)***	−0.044 (0.017)**	−0.045 (0.017)***
Domestic credit by banking sector (% of GDP)	0.017 (0.005)***	0.018 (0.005)***	0.018 (0.005)***	0.018 (0.005)***	−0.001 (0.006)	0.000 (0.006)	−0.002 (0.006)	−0.003 (0.006)
Capital account openness index	0.079 (0.098)	0.099 (0.098)	0.097 (0.098)	0.067 (0.104)	−0.110 (0.191)	−0.056 (0.191)	−0.104 (0.189)	−0.217 (0.196)
Pegged exchange rate indicator	−0.186 (0.261)	−0.177 (0.262)	−0.178 (0.262)	−0.165 (0.262)	0.159 (0.460)	0.186 (0.461)	0.177 (0.457)	0.146 (0.456)

Table 2. Continued

	OLS with annual data and country fixed effects							
	Countries running current account deficit				Countries running current account surpluses			
Current account balance (% of GDP)	1	2	3	4	5	6	7	8
Merchandise trade (% of GDP)	0.021	0.022	0.022	0.021	−0.006	−0.002	−0.005	−0.014
	(0.010)**	(0.010)**	(0.010)**	(0.010)**	(0.015)	(0.015)	(0.014)	(0.015)
Average days to clear exports through customs	−0.028	−0.006	−0.010	−0.037	0.059	0.088	0.051	−0.050
	(0.072)	(0.071)	(0.073)	(0.079)	(0.184)	(0.186)	(0.183)	(0.188)
Average times firms spent with tax officials	0.093	0.117	0.110	0.055	−0.143	−0.190	−0.093	−0.077
	(0.279)	(0.280)	(0.281)	(0.288)	(0.146)	(0.144)	(0.148)	(0.148)
Sudden stop at year *t*; CA-L.CA > 0.03 GDP	5.325	5.319	5.323	5.310	6.531	6.614	6.470	6.493
	(0.265)***	(0.266)***	(0.265)***	(0.266)***	(0.489)***	(0.489)***	(0.488)***	(0.484)***
sudden stop within the previous 5 years	0.137	0.152	0.153	0.148	0.037	0.071	0.112	−0.011
	(0.206)	(0.206)	(0.206)	(0.206)	(0.407)	(0.412)	(0.407)	(0.405)
US current account deficit (% of GDP)	0.094				0.194			
	(0.066)				(0.121)			
US final consumption (% of GDP)		–0.009				0.049		
		(0.060)				(0.106)		
US household consumption (% of GDP)			0.022				0.351	
			(0.087)				(0.150)**	
US imports (% of GDP)				0.052				0.313
				(0.058)				(0.116)***
Adjusted R^2	0.7348	0.7342	0.7342	0.7344	0.6988	0.6968	0.7013	0.7028
Observations	1007	1007	1007	1007	423	423	423	423

CAB_{it} is the current account balances (as % GDP) of country i at time t, X_{it} is a vector of macroeconomic factors, as outlined in Appendix I, C_i is a vector of country fixed effects, and $DEMAND_{USA,t-1}$ is the lagged US demand (as % of GDP). The constant term and country indicators are not reported. Standard errors are in parentheses. ***, ** and * signify statistical significant at the 1, 5 and 10% levels, respectively. CA-L.CA, first-difference in the size of current account.

Table 3. Deficit versus surplus developing countries

	Response to US current account deficit (% GDP)		Response to US imports (% of GDP)	
	Deficit developing countries	Surplus developing countries	Deficit developing countries	Deficit developing countries
Current account balance (% of GDP)	1	2	3	4
	Estimate (standard error)	Estimate (standard error)	Estimate (standard error)	Estimate (standard error)
Lagged dependent variable	0.762 (0.033)***	0.649 (0.073)***	0.764 (0.033)***	0.681 (0.072)***
Net foreign asset (% of GDP)	0.015 (0.002)***	–0.001 (0.009)	0.015 (0.002)***	0.005 (0.009)
Foreign exchange reserves (% of GDP)	–0.070 (0.022)***	–0.051 (0.037)	–0.074 (0.023)***	–0.095 (0.039)**
GDP per capita, PPP (thousand)	–0.042 (0.054)	0.085 (0.126)	–0.046 (0.055)	0.033 (0.124)
Growth of GDP, PPP (annual %)	–0.080 (0.026)***	–0.005 (0.048)	–0.079 (0.027)***	0.010 (0.046)
Age dependency ratio	–0.033 (0.011)***	–0.049 (0.025)**	–0.032 (0.011)***	–0.028 (0.025)
Population growth (annual %)	0.279 (0.117)**	0.133 (0.172)	0.280 (0.117)**	0.139 (0.168)
Ores and metals exports (% of exports)	–0.004 (0.008)	–0.022 (0.028)	–0.003 (0.008)	–0.016 (0.027)
Fuel exports (% of exports)	–0.002 (0.006)	0.010 (0.012)	–0.000 (0.007)	0.011 (0.011)
Domestic credit by banking sector (% of GDP)	0.008 (0.003)**	0.010 (0.007)	0.009 (0.003)***	0.013 (0.007)*
Capital account openness index	0.129 (0.083)	–0.357 (0.170)**	0.113 (0.085)	–0.337 (0.166)**
Pegged exchange rate indicator	0.073 (0.250)	0.153 (0.550)	0.069 (0.250)	0.262 (0.539)
Merchandise trade (% of GDP)	0.003 (0.007)	–0.005 (0.012)	0.003 (0.007)	–0.006 (0.011)
Average days to clear exports through customs	0.045 (0.039)	–0.071 (0.086)	0.042 (0.039)	–0.113 (0.085)
Average times firms spent with tax officials	0.003 (0.056)	–0.029 (0.091)	0.001 (0.056)	–0.058 (0.089)
Sudden stop at year *t*; CA-L.CA > 0.03GDP	5.937 (0.302)***	8.072 (0.729)***	5.938 (0.303)***	8.098 (0.710)***
Sudden stop within the previous 5 years	–0.272 (0.237)	–0.453 (0.661)	–0.250 (0.238)	–0.190 (0.650)
US current account deficit (% GDP)	0.151 (0.078)*	0.478 (0.168)***		
US imports (% of GDP)			0.074 (0.046)	0.409 (0.097)***
R^2	0.7291	0.6612	0.7287	0.6768
Observations	701	209	701	209

CAB_{it} is the current account balances (as % GDP) of country i at time t, X_{it} is a vector of macroeconomic factors as outlined in the Appendix I, C_i is a vector of country fixed effects, and $DEMAND_{USA,t-1}$ is the lagged US demand (as % of GDP). Constant term and country indicators are not reported. Standard errors are in parentheses. ***, ** and * signify statistical significant at the 1, 5 and 10% levels, respectively. PPP, purchasing power parity. CA-L.CA, first-difference in the size of current account.

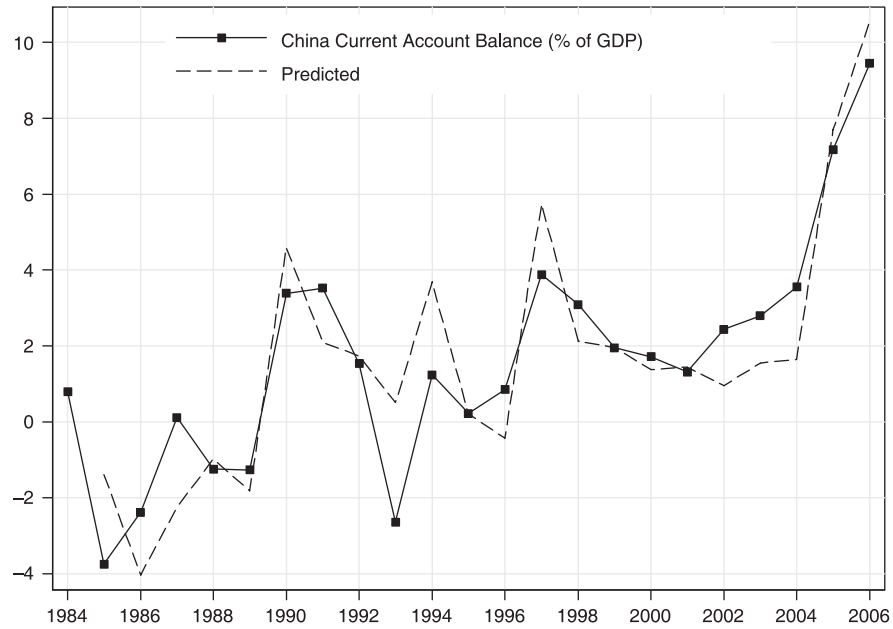

Figure 1. The predicted versus actual current account balances (% of GDP) of China, with the USA as the 'demander of last resort': annual data. This figure plots on the vertical axis the predicted values and on the horizontal axis the actual values of the current account balances (% of GDP), based on specification 4 in Table 1. The estimating equation is $CAB_{it} = X'_{it-1}\beta + C_i + \phi DEMAND_{USA,t-1} + \varepsilon_{it}$; $C_i \equiv \{c_1, \ldots, c_{69}\}$; *where* CAB_{it} *is the current account balance (as % GDP) of country i at time t,* X_{it} *is a vector of macroeconomic factors as outlined in the Appendix I,* C_i *is a vector of country fixed effects, and* $IMP_{USA,t-1}$ *is lagged US imports (as % of GDP). The correlation is 0.8885*

developing countries, and positively affects the current account/GDP of surplus OECD countries. Noting that the Chinn–Ito measure in our sample is bounded between (–1.8, 2.5), these interactive effects are of a second order magnitude relative to the direct effect.

2.2. *China's current account surpluses*

We now focus on China. Figure 1 plots the predicted current account balances for China based on our preferred specification 4 in Table 1. The actual values are mostly larger than those predicted using our estimation, suggesting that for one or several of the conditioning variables, a significant part of China's current account remains unexplained throughout most of the period. This also implies a potential nonlinear effect, or that there is a unique, time persistent Chinese effect, not captured by the conditioning variables. By examining the country fixed effects from the baseline specification 4 in Table 1 for the annual

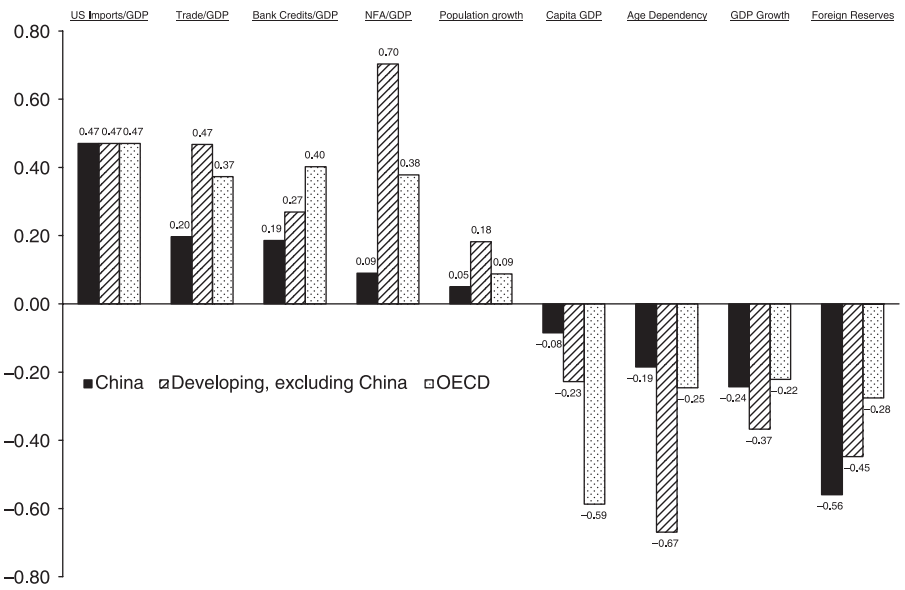

Figure 2. Economic significance of a one standard deviation (+1 SD) change in current account surpluses (% of GDP). This figure presents the effects of +1 SD change in macroeconomic factors, based on the coefficient estimates from specification 4 in Table 1 for the annual data. The +1 SD effects are calculated by multiplying each of the coefficients by 1 SD of the variable for each country group. For instance, the coefficient estimate of net foreign assets/GDP is 0.011; the one SD of NFA/GDP for developing countries excluding China is 63.929; the economic significant of +1 SD change inNFA/GDP on the current account surpluses of developing countries excluding China is $0.011 \times 63.929 = 0.703$

data, we find that the country fixed effects in both specifications for China are statistically insignificant; during the 1981–2006 period, Japan, Switzerland and Norway that registered significantly large country-fixed effects.[16] To examine the relative importance of the various conditioning variables in accounting for the current account adjustment, Figure 2 presents the effects of a one standard deviation (+1 SD) change in macroeconomic factors. Based on the coefficient estimates from specification 4 in Table 1 for annual data in the top panel, the effects are calculated by multiplying the regression coefficient by one SD of the variable for each country group. For instance, the coefficient estimate (specification 4 in Table 1) of net foreign assets/GDP is 0.011; the one SD deviation of NFA/GDP for developing countries excluding China is 63.929; the economic significance of a +1 SD change of NFA/GDP on the current account surpluses of developing countries excluding China is $0.011 \times 63.929 = 0.703$. For each of the macroeconomic factors, we can see in Figure 2 that their economic impact

[16] Figures are available upon request.

on the current accounts of China tend to be smaller than their impact on the current accounts of other developing countries and the OECD (except that of the foreign exchange reserves). The +1 SD increase of the US imports/GDP has +0.47% impact on the ability to run the current account surpluses of China as well as other country groups. Ranked by their economic significance (in absolute terms) on China's current account (% of GDP), the most important variable is the US imports/GDP (+0.47%), followed by foreign reserves/GDP (–0.56%), GDP growth (–0.24%), trade/GDP (+0.20%), bank credits/GDP (+0.19%), age dependency (–0.19%), net foreign assets/GDP (+0.09%), capita GDP (–0.08%) and population growth (+0.05%).

2.3. *Possible adjustments*

Figure 3 plots China's current account balances during 1984–2006, together with our projections of the 'good' and 'bad' scenarios for the years 2007–2013, supplemented by the IMF's *World Economic Outlook* (October 2008) forecast. Based on the estimation results (specification 8) in Table 2 and the projections of each macroeconomic factor x_i from the Chinese data 1984–2006, the line with marker '+' plots the 'good 1 SD scenario', where each of the conditioning variables gets a 1 SD shock that will *increase* the current account surplus (if the impact of a variable x_i on the current account balance is +, then the shock to x_i is +1 SD, if the impact of x_i on the current account balance is negative, then the shock to x_i is –1 SD). The second scenario is the opposite, the 'bad 1 SD scenario', where each of the conditioning variables gets a 1 SD shock that will *reduce* the current account surplus. In essence, we set $t = 2006$; in the 'good scenario' we assume that during $t + 1$, $t + 2$, $t + 3$, . . . , $t + 7$, each year 1 SD 'good shocks' will materialize. Similarly, in the 'bad 1 SD scenario' we assume that in each of the subsequent years, 1 SD 'bad current account shocks' will materialize. For the 'bad 1 SD scenario', we find that China's current account to GDP will be between 1 and 2% in surplus. In contrast, in the 'good 1 SD scenario', China's current account surplus will fluctuate around 8–9%, which is lower that the estimates in the IMF's *World Economic Outlook* (October 2008). For both the good and bad scenarios, China's current account surpluses are expected to decline over the 2008–2013 periods.

What is the impact of halving the US deficit? The US deficit was $US731bn in 2007 (approximately 5.3% of US GDP in 2007). Based on the preferred specification 8 in Table 2 using 1981–2006 annual data, the coefficient estimate of the US imports is 0.313, statistically significant at the 1% level. This implies that halving the present US current account deficit/GDP via imports will translate into a $(2.65\% \times 0.313) = 0.83\%$ reduction in China's current account surpluses/GDP, equivalent to $US27.2bn. Using our estimates, we can evaluate the combined effect of a 1% US GDP import reduction on the balances of all the countries running current account surpluses. We apply specification 8 in Table 2, and estimate the aggregate current account adjustment. The level of the 'US import drop equivalent to 1% of US GDP' is $US138bn. This adjustment would induce a drop in China's current account surplus of

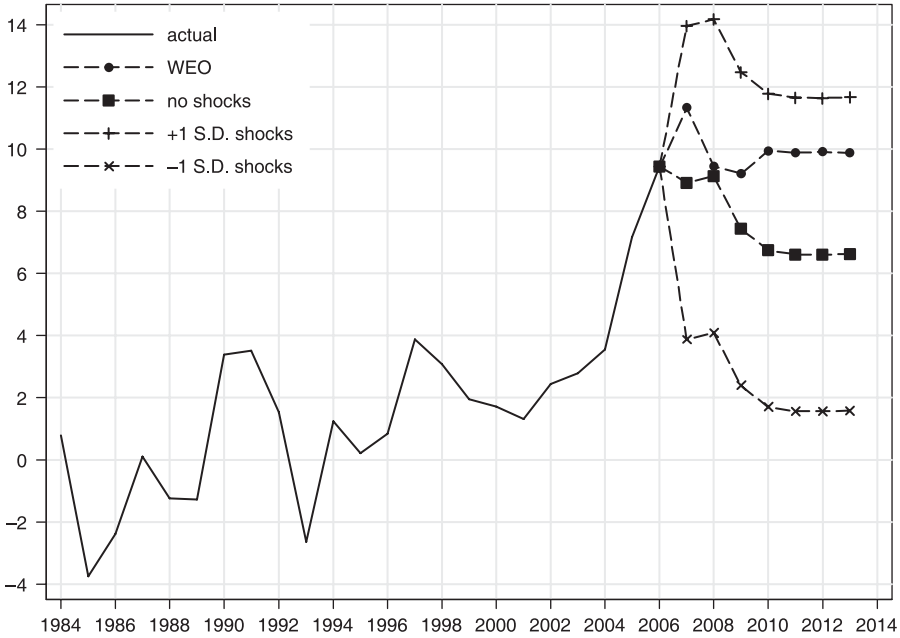

Figure 3. Projection of china's current account balances, 2007–2013. This figure plots the actual and projected current account balances (% of GDP) for China for years 2007 to 2013. Results are based on the baseline results (specification 8) in Table 2 and the projection of each x_i from the automatic lag selection using the actual data from 1984 to 2006. The line with marker '+' plots a best 1 standard deviation (SD) scenario, where each of the conditioning variable gets a 1 SD shock that will increase the current account surplus (if the impact of a variable x_i on the current account balance is +, then the shock to x_i is +1 SD; if the impact of x_i on the current account balance is negative, then the shock to x_i is –1 SD). The second measure is the opposite, the 'worst 1 SD scenario', giving the configurations of the x_i with the 1 SD shocks that will minimize the current account balance

$US10.3bn, developing countries excluding China of $US22.4bn, and OECD countries of $US43.1bn, which sums up to a drop in total global surpluses of approximately $US75.7bn.[17]

3. CONCLUDING REMARKS

Our analysis confirms the importance of the lagged US current account deficit in explaining the current account patterns of other countries. Our projections of the current account of China over the next 6 years include a range of current

[17] Lane and Milesi-Ferretti (2008) and Curcuru *et al.* (2008) note that owing to mismeasurement of net financial inflows, the US current account deficit could have been overestimated by as much as 0.6% per year. The mismeasurement in financial flows and merchandise trade could be even more important to China. A more complete investigation into this issue is beyond the scope of our study.

account/GDP surpluses bounded between 12 and 14% at the high end, and 1–2% at the low end. In contrast, the latest *World Economic Outlook* is in the range of 10–11%, well above our baseline projections of 6–9%. Although we are unable to comment directly on the IMF approach that provided this relatively high projection, the deflationary pressure triggered by the US financial crisis suggests that the *World Economic Outlook* (October 2008) forecast might be off the mark, possibly because it ignores the global recession impact of the present crisis, and the pivotal role of the USA as the 'demander of last resort.'

Indeed, one may argue that even in the absence of the recent financial crises, the anomaly of large countries growing much faster than the global mean, while running large and growing current account surpluses, leads to instability. This may follow from the global adding-up property, where the sum of all current accounts is zero (up to statistical discrepancies). This anomaly can continue only as long as the deficit countries that grow, on average, at a much lower rate than China, accommodate China by the needed increase in their current account deficit/GDP. The USA played this role of 'demander of last resort' during 1990–2005, accommodating Chinese surpluses. The recent financial crisis may hasten the unwinding of the current account enigma, initiating recessionary pressure that induces the unwinding of the US current account deficit. This conjecture is in line with Aizenman and Sun (2008), who report that during 1966–2005, excluding the USA, the length of current account deficit spells is negatively related to the relative size of a country's GDP. While one may argue that the EU would replace the USA as a 'demander of last resort', there are no signs pointing in that direction. The EU's aggregate current account (as % of GDP) was, on average, close to zero during 1990–2005, possibly reflecting political economy factors that constrained the EU's external borrowing. Short of changing these factors, the case for the emergence of new 'demanders of last resort', mitigating the drop in China's current account surpluses, remains dubious. Consequently, one expects that China's future current account surpluses may be constrained by the global adjustment, reducing them well below the 10% benchmark. The large fiscal stimulus of China announced in November 2008 is fully consistent with our reading that its projected lower current account surpluses would require new demand sources.

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Appendix I. Data sources

Variable	Database	Database Code	Sample Code
Current account balance (% of GDP)	WDI	BN.CAB.XOKA.GD.ZS	cab_gdp
Net foreign asset (% of GDP)	EWN; IIP	79LADZF . . . ; 79AADZF . . .	nfa_gdp
Foreign exchange reserves (% of GDP)	EWN; IIP	79AKDZF . . .	fxres_gdp
GDP per capita, PPP (constant 2005 international $; thousand)	WEO	PPPPC	_gdc_cons_ppp
Growth of GDP, PPP (constant 2005 international $)	WEO	PPPGDP	_gdp_cons_ppp_gro
Age dependency ratio (dependents to working-age population)	WDI	SP.POP.DPND	age_dep
Population growth (annual %)	WEO	LP	pop_gro
Ores and metals exports (% of merchandise exports)	WDI	TX.VAL.MMTL.ZS.UN	ores_exp
Fuel exports (% of merchandise exports)	WDI	TX.VAL.FUEL.ZS.UN	fuel_exp
Domestic credit provided by banking sector (% of GDP)	WDI	FS.AST.DOMS.GD.ZS	dcr_bank_gdp
Capital account openness index	Menzie Chinn and Hiro Ito	kaopen	kaopen
Pegged exchange rate indicator	Jay Shambaugh	jspeg	jspeg
Merchandise trade (% of GDP)	WDI	TG.VAL.TOTL.GD.ZS	trade_gdp
Average time to clear exports through customs (days)	WDI	IC.CUS.DURS.EX	_time_cus
Average number of times firms spent in meetings with tax officials	WDI	IC.TAX.METG	_time_tax
Sudden stop at year *t*; CA-L.CA > 0.03GDP	Authors' calculation	NA	ss0
Sudden stop within the previous 5 years	Authors' calculation	NA	ss5
US current account deficit (% of GDP)	WDI	BN.CAB.XOKA.GD.ZS	usa_cab_gdp_def
Deviation from PPP implied by penn effects	Authors' calculation	NA	penn

EWN, external wealth of nations; IIP, international investment positions; NA, not applicable; PPP, purchasing power parity; WDI, world development indicators; WEO, *World Economic Outlook* (IMF 2008). CA-L.CA, first-difference in the size of current account.

Appendix II. Countries (69) and sample period for the estimation

OECD	Country code	Country name	Sample period		OECD	Country code	Country name	Sample period	
	ARG	Argentina	1981	2006		KEN	Kenya	1981	2004
*	AUS	Australia	1981	2006	*	KOR	Korea	1981	2006
*	AUT	Austria	1981	2006		LKA	Sri Lanka	1981	2004
	BEN	Benin	1982	2002		MAR	Morocco	1981	2006
	BGD	Bangladesh	1982	2004		MDG	Madagascar	1981	2004
	BGR	Bulgaria	1996	2006		MEX	Mexico	1981	2006
	BOL	Bolivia	1981	2006		MUS	Mauritius	1990	2006
*	CAN	Canada	1981	2006		MWI	Malawi	1981	2002
*	CHE	Switzerland	1996	2006		MYS	Malaysia	1981	2006
	CHL	Chile	1981	2006		NER	Niger	1981	2005
	CHN	China	1984	2006		NIC	Nicaragua	1981	2005
	CMR	Cameroon	1982	2004	*	NLD	Netherlands	1981	2006
	COL	Colombia	1981	2006	*	NOR	Norway	1981	2003
	CRI	Costa Rica	1981	2006	*	NZL	New Zealand	1981	2006
*	DEU	Germany	1981	2006		OMN	Oman	1981	2004
*	DNK	Denmark	1981	2006		PAK	Pakistan	1981	2006
	DOM	Dominican Republic	1981	2001		PAN	Panama	1981	2006
	ECU	Ecuador	1981	2006		PER	Peru	1982	2006
	EGY	Egypt, Arab Republic	1981	2006		PHL	Philippines	1981	2006
*	ESP	Spain	1981	2006		POL	Poland	1990	2006
*	FIN	Finland	1981	2006	*	PRT	Portugal	1981	2006
*	FRA	France	1981	2006		PRY	Paraguay	1991	2006
*	GBR	UK	1981	2006		SEN	Senegal	1981	2004
	GHA	Ghana	1981	2004		SLV	El Salvador	1981	2006
*	GRC	Greece	1981	2006	*	SWE	Sweden	1981	2005
	GTM	Guatemala	1981	2004		SYR	Syrian Arab Republic	1981	2004
	HND	Honduras	1981	2004		THA	Thailand	1981	2006
	IDN	Indonesia	1981	2006		TUR	Turkey	1981	2006
	IND	India	1981	2005		TZA	Tanzania	1997	2006
*	IRL	Ireland	1981	2006		UGA	Uganda	1994	2006
*	ISR	Israel	1981	2006		URY	Uruguay	1981	2006
*	ITA	Italy	1981	2006	*	USA	USA	1981	2006
	JAM	Jamaica	1981	2006		VEN	Venezuela, RB	1981	2006
	JOR	Jordan	1981	2006		ZAF	South Africa	1981	2006
*	JPN	Japan	1981	2006					