Structural and Cyclical Factors behind Current-Account Balances

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ABSTRACT/RÉSUMÉ

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Global external imbalances widened persistently over the last several years and have narrowed abruptly over the course of the financial crisis. Understanding the extent to which structural or cyclical factors may have driven these patterns is important to assess the likely evolution of global imbalances going forward, as well as the potential adjustment that can be achieved through changes in policy. This paper assesses the link between structural and cyclical factors and current-account balances using a panel of 94 countries from 1973 to 2008. We find that the medium-term evolution of global external imbalances can be related in large part to structural factors including cross-country differences in demographics, fiscal deficits, oil dependency and intensity, stage of economic development, financial market development, and institutional quality. Part of the narrowing in current-account balances since the financial crisis appears to be related to various cyclical factors including changes in output growth, oil prices, and exchange rates, and may be expected to reverse alongside the economic recovery.

JE classification codes: L; F32; F41
Keywords: Current account; global imbalances

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Les facteurs structurels et cycliques derrière l'évolution des comptes courants

Des déséquilibres externes mondiaux se sont élargis constamment au cours des dernières années et puis se sont réduits abruptement au cours de la crise financière. Comprendre dans quelle mesure des facteurs structurels ou cycliques ont conduit ces évolutions est important pour évaluer l'évolution probable des déséquilibres mondiaux à l'avenir, ainsi que l'ajustement potentiel qui peut être réalisé par des changements de la politique. Cette étude évalue les facteurs structurels et cycliques qui influencent des balances courantes en utilisant un panneau de 94 pays de 1973 à 2008. Nous constatons que l'évolution à moyen terme des déséquilibres externes mondiaux a été conduite en grande partie par des facteurs structurels comprenant des différences internationales dans la démographie, les déficits publics, la dépendance et l'intensité en pétrole, le niveau de développement économique, le développement des marchés financiers, et la qualité institutionnelle. Une partie du rétrécissement des équilibres de compte courant depuis la crise financière semble être liée à de divers facteurs cycliques comprenant des changements dans la croissance de la production, le prix du pétrole, et les taux de change, et pourrait s'inverser avec la reprise économique.

Classification JEL : L ; F32 ; F41
Mots clefs : comptes courants ; déséquilibres mondiaux

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STRUCTURAL AND CYCLICAL FACTORS BEHIND CURRENT-ACCOUNT BALANCES

by

Calista Cheung, Davide Furceri and Elena Rusticelli[1]

1.   Introduction

1.   The persistent widening of global external imbalances over the last several years has reversed abruptly over the course of the financial crisis. The size of global imbalances, measured as the sum in absolute terms of all current-account balances, almost halved between mid-2008 to mid-2009. If the factors driving these changes were temporary, global imbalances would likely widen again in the medium term. In contrast, to the extent that recent improvements reflected structural changes, the reduction of global imbalances could be expected to persist over the medium term. Understanding the degree to which structural versus cyclical developments have driven the pattern of external imbalances is therefore necessary to assess the likely evolution of global imbalances over the medium term, as well as the potential adjustment that can be achieved through changes in policy. Such adjustments may be important for ensuring a sustained recovery from the crisis while preventing future ones from occurring, in line with the G20 objective to "promote more balanced current accounts and support open trade and investment to advance global prosperity and growth sustainability".

2.   This paper investigates how structural and cyclical factors may explain current-account balances across a panel of 94 industrialised and developing countries. The main findings are that a significant part of the evolution of global external imbalances can be related to structural factors including cross-country differences in demographics, fiscal positions, oil dependency and oil intensity, stage of economic development, financial market development, and institutional quality. These factors account reasonably well for cross-country differences while capturing broad medium-term trends in global external imbalances. Our results support the hypothesis that the pattern of widening global imbalances in the years leading up to the crisis reflects in part the flow of financial capital from emerging economies with excess savings and under-developed financial markets towards economies perceived to possess more efficient institutions and financial systems. Wealth effects have also likely contributed importantly to the external deficits of countries that experienced asset price booms as a result of under-regulated finance industries. Furthermore, rising oil prices have played an important role in the widening of imbalances for countries with relatively high oil intensity as well as economies that depend heavily on oil exports. Part of the narrowing in current-account balances since the financial crisis appears to be related to various cyclical factors including changes in output growth, oil prices, and exchange rates, and may be expected to reverse alongside the economic recovery.

3.   The rest of the paper is organised as follows: section 2 discusses the potential factors driving global patterns in external balances; section 3 describes the empirical strategy; section 4 discusses the results; and section 5 concludes.

2.   Assessing the drivers of global current-account balances

4.   Global imbalances began to widen persistently around the late-1990s to exceed 5% of world GDP in 2008 from about 2% in 1996 (Figure 1).[2] Over this period the United States accounted for the bulk of total deficits, with its share peaking above 70% in 2002 (from 36% in 1996), before tapering off to about 40% by 2008. World surpluses have been distributed across five major areas: China, oil-exporting countries, Germany, Japan, and Emerging Asia.

Figure 1. Global current-account balances

Per cent world GDP
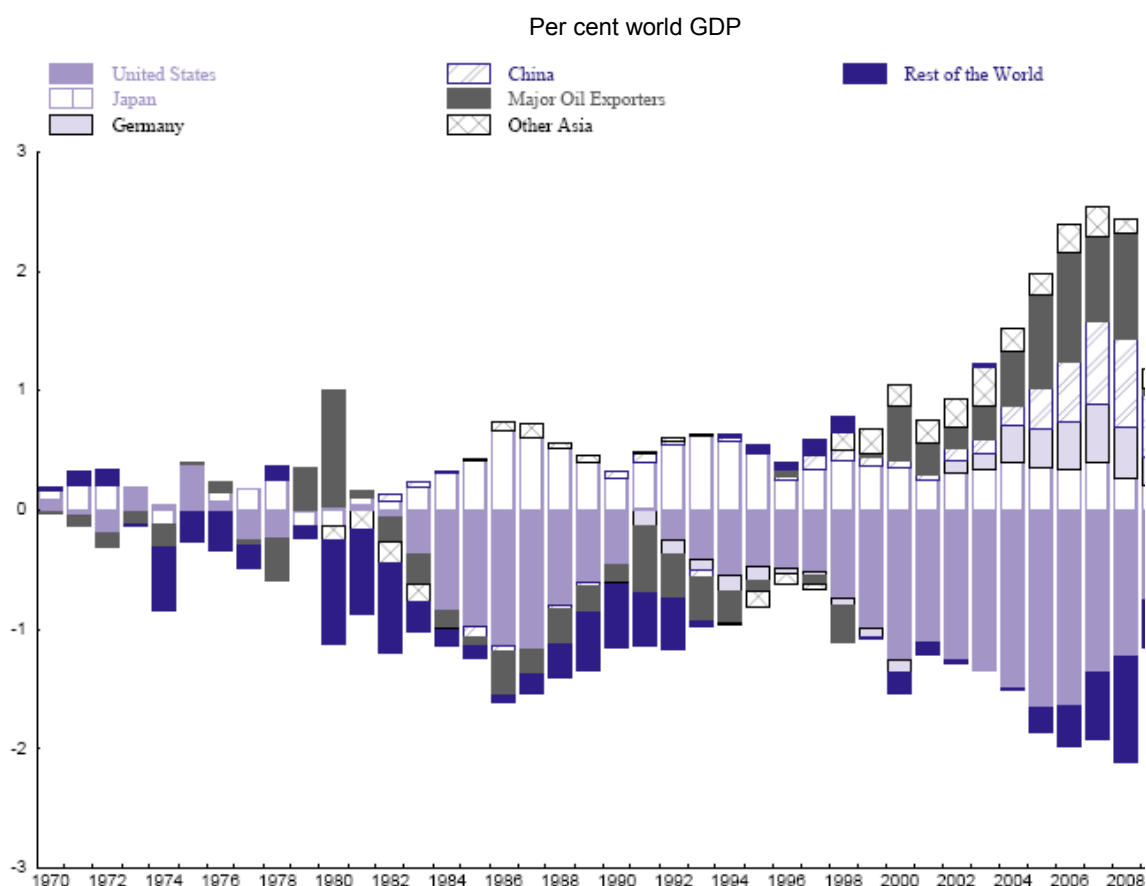
5.   This magnitude of sustained external balances was unprecedented, and sparked intense discussion among academics and policymakers over the potential causes and the risks of a disorderly unwinding. These imbalances appeared to reflect a number of interconnected imbalances and distortions that caused the financial crisis, including wide saving and investment imbalances, excessive foreign reserve accumulation, asset price bubbles, excess liquidity and under-pricing of risk. Since a country's current account is the sum of the trade balance and net income from abroad, or equivalently the difference between national savings and investment, it varies with the determinants of savings-investment balances as well as factors that affect the country's attractiveness as a destination for foreign capital flows.

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2.   Data used in this paper are from November 2009 *OECD Economic Outlook* No.86 database (EO86).

6.   In general, current account balances are endogenous outcomes from a general equilibrium in which exchange rates and other economic variables are jointly determined. Our empirical analysis is therefore undertaken from a partial equilibrium perspective. The following factors have been forwarded in the literature and are considered in the empirical analyses described in the next section (see Table A1 for data sources and Table A2 for descriptive statistics):

- *Fiscal balance and public goods provision:* an increase in the public deficit can lower national savings in the absence of a complete Ricardian offset from private savings. The persistently-swelling public deficit in the United States since 2000 has been argued to be a key driving force behind the economy's large current-account deficit, known as the "twin deficit" proposition. Most empirical studies have found a positive relationship between fiscal balances and current-account balances.[3] Additionally, the impact of budget deficits on current-account balances may depend on how fiscal expenditures are allocated. In particular, higher social spending could lower saving rates in emerging and developing economies through an insurance effect. Relatively low public provision of health care and social security is a factor commonly used to explain high levels of precautionary savings in China and emerging Asia.[4] If higher social expenditures are funded by higher taxes, the redistribution of income across households with different average propensities to consume may also affect aggregate saving rates. In the absence of high quality data on social spending levels across developing countries, proxies used are the ratio of total government expenditures to GDP and public health expenditures per capita. The budget-deficit-to-GDP ratio and government revenues to GDP ratio are also included.

- *Demographics:* demographic transitions may be an important factor driving diverging saving patterns across countries. The life-cycle hypothesis suggests that the saving behaviour of households varies with age and is hump-shaped, reflecting higher levels of borrowing at younger phases, increased saving during the productive years, and a return to dissaving at the retirement age. This implies that countries with relatively high proportions of young and elderly households would tend to run current-account deficits, and is supported by several empirical studies.[5] The main variables tested include youth and old-age dependency ratios.

- *Stage of economic development: s*tandard neo-classical theory suggests that developing countries with low capital-labour ratios will import capital from advanced economies and run current-account deficits, such that capital flows "downhill". In recent years, the opposite pattern has been observed in cross-border capital flows, giving rise to the "Lucas paradox". Lucas (1990) explains that capital flows to emerging economies have been lower than expected because of domestic distortions that lower the risk-adjusted returns to capital. These distortions may include under-developed financial markets or weak institutions, discussed below, and may explain why

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3.   Chinn and Ito (2008) and Gruber and Kamin (2007) report medium-term elasticities of between 0.09-0.15, and Bussière *et al.* (2005) find long-run elasticities of between 0.21-0.38.

4.   Feng *et al.* (2009) show that the pension reform for enterprise employees in China implemented in the late 1990s lowered pension wealth and raised household savings. Chamon and Prasad (2008) also argue that the rising private burden of expenditures on health care has contributed to the increase in saving rate over the past decade. Furceri and Mourougane (2009) found that for OECD countries an increase of 1% in social spending (assuming unchanged public deficit) may decrease household saving rates by 0.8% as a percentage of GDP. Assuming the same magnitude of effect for China and unchanged levels of public deficit, this would imply that if social spending in China (currently around 5% of GDP) increases to half the OECD average level (which is close to 20%) household saving rates may decrease by 4 percentage points, which would ultimately decrease current-account balance by 4% of GDP, in absence of any offsetting effects.

5.   See for example, Chinn and Prasad (2003), IMF (2005). Gruber and Kamin (2007), Chinn and Ito (2008).

financial capital tends to flow "uphill".[6] Nonetheless, it has been observed that foreign direct investment continues to flow "downhill" (Prasad *et al.*, 2006) towards poor countries, resulting in small net flows (Ju and Wei, 2006).[7] The variable used to proxy for the stage of economic development is the relative (to the United States) income per capita. Since there may be nonlinear effects, such that the marginal impact on current-account balances increases for larger relative income gaps, the squared relative income per capita is also included.

- *Level of financial development and integration:* a common explanation for widening global imbalances is that emerging economies have "bypassed" their inefficient financial markets by exporting their excess capital to countries with more sophisticated financial markets (Ju and Wei, 2006), contributing to a global "savings glut" (Bernanke, 2005). If the explanation is correct, improved financial deepening could lower the saving rates in these economies, and imply a negative relationship between financial development and current-account balances. This negative relationship would be reinforced if expanding financial intermediation reduces the need for precautionary savings by removing borrowing constraints. However, there may be an opposite effect of financial deepening on current account balances. Traditionally, financial market development has been viewed to encourage savings by lowering transaction costs and facilitating risk management, implying a positive influence on the current account. Empirical results are rather mixed, and appear to depend on the set of countries and measure used to proxy financial deepness.[8] The various indicators tested are: *i)* private credit as share of GDP; *ii)* stock market capitalisation as a share of GDP; *iii)* stock market turnover as share of GDP; *iv)* the growth rate of stock market capitalisation as share of GDP; *v)* private bond market capitalisation as share of GDP; *vi)* liquid liabilities as a share of GDP; *vii)* a financial liberalisation index; *viii)* financial openness index; and *ix)* dummy variables to identify financial, banking, and currency crises.

- *Net foreign assets to GDP ratio:* part of the transfer in savings from some emerging economies towards international capital markets reflects the accumulation of official foreign reserves as part of a fixed exchange rate policy. In particular, several emerging Asian countries have built large foreign exchange reserves since the Asian currency crisis of the late-1990s, in order to promote export-led growth by limiting real exchange rate appreciation, as well as to insure against future balance-of-payments crises. Additionally, since 2002 sustained oil-price increases have driven the surge in foreign reserves of several oil-exporting countries, many of which are emerging economies with fixed nominal exchange rates. These developments have led China and many oil exporters to become major net creditors in world markets. A country's net foreign asset (NFA) position directly affects its net investment income, and therefore current-account movements.[9] However, since the stock of NFA is determined by the sum past current account balances, only the initial (lagged) stock level is included.

- *Quality of institutions:* one explanation for the Lucas paradox of capital flowing "uphill" is that weak institutions lower the risk-adjusted return to capital in developing countries (Alfaro *et al.*, 2005). The quality of legal and regulatory systems may also affect a country's level of financial

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6.   One potential explanation for the Lucas paradox is that underdeveloped financial markets limit the ability of emerging economies to absorb foreign capital (Prasad *et al.*, 2006).

7.   In China, for example, large FDI inflows are largely offset by significant financial outflows towards predominantly industrial economies outside of Asia (Andersen and Johnson, 2004).

8.   Chinn and Prasad (2003) find that the ratio of M2 to GDP is positively associated with current-account balances, while Gruber and Kamin (2007) find that the ratio of private credit to GDP is insignificant, and Chinn and Ito (2008) find they are important only for industrialised countries.

9.   Based on both cross-sectional and panel regressions, Chinn and Prasad (2003) find a positive impact of initial NFA positions on current-account balances, in particular for debtor countries.

development (Levine *et al.,* 2000). The variables tested are measures of: *i)* corruption; *ii)* political risks, *iii)* polity (democracy) score; *iv)* voice and accountability, *v)* political stability; *vi)* government effectiveness; *vii)* regulatory quality; *viii)* rule of law; *ix)* control of corruption; *x)* financial freedom; and *xi)* investment freedom.

- *Oil intensity/dependency:* the effect of oil price fluctuations on current-account balances depends on several factors. Most importantly is whether a country is a net exporter or a net importer of oil. The size of the impact would then vary with how intensively a nation uses oil in its economy (for an importer), or with the relative importance of oil production in its economy (for an exporter). The greater the oil intensity of an importer, the slower demand may adjust to oil price changes, leading to larger responses in the current account. The persistence of the change in oil price may also affect the response of current-account balances. For example, oil exporters might save more of a given increase in revenue if it is perceived to be temporary, but consume more if it is viewed to be permanent.[10] The variables used to indicate a country's oil intensity or dependency are volumes of oil consumption per capita and volumes of oil production as a share of GDP, each multiplied by oil prices to obtain values.

- *Growth*: countries with high productivity growth may attract international capital flows because they are expected to produce higher rates of return. Per capita real GDP growth is used as a proxy for productivity growth.

- *Trade openness*: widening current-account positions could result in part from increasing globalisation, which raises cross-border trade and financial flows. A country's openness to trade, measured as total exports and imports as a share of GDP, may reflect such rising globalisation, but also trade or industrial policies that could affect its current account.

7. Since the financial crisis, current-account balances have narrowed substantially worldwide. This reduction may simply reflect the transitory collapse of world trade resulting from the globally-synchronised contraction in demand (Baldwin and Taglioni, 2009), which would reverse as the global economy recovers. Indeed, Kandil and Greene (2002) and Freund (2000) find that cyclical factors such as changes in real output and real exchange rates determine in large part short-term fluctuations in the current accounts of industrialised countries.

3. Empirical strategy

8. The approach used to assess the effect of structural determinants on current-account balances follows the methodology proposed by Chinn and Prasad (2003),[11] where current-account balances are regressed on a set of macroeconomic, financial and institutional variables. In particular, we estimate:

$$CA_{it} = \alpha + \beta X_{it} + \theta D_{it} + \delta F_{it} + \gamma P_{it} + \varepsilon_{it} \qquad (1)$$

where CA is the current-account balance expressed as share of GDP, X is a vector of macroeconomic and demographic variables, F is a vector of financial development indicators, and P is a set of institutional variables.

9. The sample covers 94 countries (30 OECD and 64 developing countries) for the period 1973-2008.[12] The panel dataset is not balanced, meaning that for some variables the length of the series varies by

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10. Such behaviour would depend on the horizon for oil reserve depletion, whether oil reserve funds exist, and how they are managed.

11. See also Gruber and Kamin (2007, 2009) and Chinn and Ito (2007, 2008).

12. See Table A3 for a list of countries.

country due to missing data (usually during the 1970s). In addition some of the (institutional) variables are only available since the last two decades, and were thus dropped from the preferred specifications after their statistical significance was tested.

10.   Since current-account balances are relative measures and their movements depend on developments in the rest of the world, all the explanatory variables (with the exception of net foreign assets and dummy variables) are converted into deviations from their GDP-weighted world mean.

3.1   Structural current-account positions

11.   To assess the "structural" factors behind current-account balances, we focus on medium-term trends in all of the variables and estimate via OLS:

$$\overline{CA_{it}} = \hat{\alpha} + \hat{\beta}\overline{X_{it}} + \hat{\theta}\overline{D_{it}} + \hat{\delta}\overline{F_{it}} + \hat{\gamma}\overline{P_{it}} \tag{2}$$

where $\overline{X}$, $\overline{D}$, $\overline{F}$, $\overline{P}$ are the medium-term trend values of the explanatory variables in equation (1). To approximate these trend values, we use non-overlapping five-year averages of all variables, which allow us to iron out cyclical fluctuations while limiting the possibility of measurement errors.

3.2   Saving and investment

12.   A country's current account is the difference between national savings and investment, and therefore varies with the determinants of saving-investment balances. To better understand the influence of macroeconomic, demographic, financial and institutional variables on current-account balances, it is thus helpful to distinguish between their effects via saving and investment channels. For this purpose, the structural equations are re-estimated separately for saving and investment shares of GDP (de-meaned relative to world averages):

$$\overline{S}_{it} = \alpha^S + \beta^S \overline{X}_{it} + \theta^S \overline{D}_{it} + \delta^S \overline{F}_{it} + \gamma^S \overline{P}_{it} + \varepsilon_{it} \tag{3}$$

$$\overline{I}_{it} = \alpha^I + \beta^I \overline{X}_{it} + \theta^I \overline{D}_{it} + \delta^I \overline{F}_{it} + \gamma^I \overline{P}_{it} + \varepsilon_{it} \tag{4}$$

3.3   Cyclical current-account dynamics

13.   Over the course of the business cycle, current-account positions may diverge remarkably from their medium-term structural balances. These divergences may arise because of cyclical movements in the same macroeconomic, demographic, financial and institutional drivers away from their medium-term values, or because of fluctuations in other factors that affect the current account over short-term horizons only.

14.   To assess the short-term drivers of current-account balances, we estimate a dynamic version of equation (1) with the cyclical components of each variable, as represented by a "~":

$$\widetilde{CA_{it}} = \hat{\alpha} + \rho\widetilde{CA_{it-1}} + \hat{\beta}\widetilde{X_{it}} + \hat{\theta}\widetilde{D_{it}} + \hat{\delta}\widetilde{F_{it}} + \hat{\gamma}\widetilde{P_{it}} + \varphi K_{it} \tag{5}$$

15.   The cyclical components of each variable are derived by removing the medium-term trend component from the series. In particular, they are constructed as the annual deviations from their five-year

(overlapping) averages.[13] The short-run equation additionally includes the lagged current-account balance, and a vector K_{it} of other variables that do not affect structural positions but exert some short-term influence on the current account. The dynamic panel is estimated using the GMM estimators of Arellano and Bond (1991) and Arellano and Bover (1995), which produce consistent estimates of the parameters in the presence of unobserved heterogeneity and simultaneity caused by correlation between the regressors and the error term. The consistency of the estimates depends on the validity of the instrumental variables set, which is tested via the Sargan test of over-identifying restrictions.

4. Results

4.1 Structural current accounts: baseline specification

16. Estimation results for a baseline specification are shown in Table 1. The first column reports the results when all countries are included in the estimation with time fixed effects.[14] Given the large degree of heterogeneity across the diverse set of countries, columns 2 to 5 compare the results when the sample is restricted to industrialised countries, developing countries, as well as the full and developing country samples excluding Africa.

17. Fiscal deficits have a significantly negative relationship with current-account balances across all country samples. Overall, a 1 percentage point increase in the fiscal deficit is associated with a 0.15 percentage point increase in the current-account deficit, although instrumental variable (IV) estimations suggest this impact could be closer to 0.2.[15] The magnitude of the coefficient is in line with previous studies, and a value less than one points to crowding-out effects in the behaviour of private agents. Including proxies for relative social spending levels did not appear to add any significant information.[16]

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13. Similar to the "structural" current account estimations, the medium-term trends are proxied using five-year averages of the series. However, rather than using five-year non-overlapping averages we use five-year moving averages in order to avoid creating artificial steps into the series.

14. Fixed effects redundancy tests suggest that both time fixed effects and country fixed effects are significant. Estimations with country fixed effects are not reported since they would absorb much of the cross-country variation that we are attempting to explain. In particular, including them tends to eliminate the statistical significance of the NFA, age dependency, and relative income variables.

15. Instrumental variable estimations were performed given the potential endogeneity between fiscal balances and current-account balances. Various instruments were tested including a wide set of political variables from the World Bank DPI database, as well as a measure of government effectiveness. According to Staiger and Stock (1997), government effectiveness was found to be a relatively strong instrument. The IV estimates confirm the robustness of the reported coefficient.

16. Proxies used to test for possible effects of relative social spending levels on current-account positions were per capita health expenditures and government expenditures as a share of GDP. Estimations including government expenditures along with the fiscal deficit variable resulted in a coefficient with the wrong sign. Health expenditures per capita was found to be statistically significant only for the sample of developing countries excluding Africa, but rendered the fiscal deficit variable insignificant. It is likely that these measures are highly correlated with other variables already included in the equations, such as relative income per capita, age dependency ratios, or fiscal deficits.

Table 1. Medium-term current account: baseline specifications, time-fixed effects

1973-2008

	[1]	[2]	[3]	[4]	[5]
	Full sample	Full sample ex-African countries	Industrial	Emerging and developing	Emerging and developing ex-Africa
NFA/GDP (initial)	5.032 (7.27)***	4.069 (5.43)***	4.936 (2.46)***	4.926 (5.98)***	3.485 (3.55)***
Deficit/GDP	-0.151 (-2.96)***	-0.108 (-2.74)***	-0.118 (-1.58)	-0.136 (-2.20)**	-0.095 (-2.09)**
Old-age dependency ratio	-0.094 (-1.56)	-0.075 (-1.23)	-0.075 (-0.84)	-0.102 (-1.14)	-0.067 (-0.75)
Youth dependency ratio	-0.046 (-2.29)**	-0.049 (-2.03)**	-0.111 (-1.41)	-0.044 (-1.85)*	-0.048 (-1.66)
Relative income	0.848 (0.99)	1.450 (1.67)*	2.683 (2.13)**	-24.575 (-2.54)***	-14.890 (-1.52)
Relative income squared	-0.025 (-0.01)	0.266 (0.14)	-2.728 (-1.12)	-24.808 (-2.01)**	-15.643 (-1.39)
Growth	9.004 (0.93)	-1.250 (-0.12)	-31.496 (-1.12)	11.167 (1.05)	-0.624 (-0.55)
Openness	0.011 (1.57)	0.016 (2.67)***	0.035 (3.47)***	0.010 (0.95)	0.012 (1.16)
Oil consumption value per capita	-0.001 (-0.08)	-0.003 (-0.32)	-0.039 (-1.57)	0.016 (3.77)***	0.026 (4.02)***
Oil production value/GDP	0.120 (4.86)***	0.155 (5.38)***	0.240 (4.12)***	0.106 (4.33)***	0.135 (4.63)***
Adjusted-R^2	0.481	0.492	0.507	0.510	0.551
Number obs.	403	339	157	246	182
F-test, time effects	5.37***	5.10***	1.96*	3.95***	3.72***

Note: Dependent variable is the current-account balance (as a per cent of GDP). T-statistics computed using robust standard errors in parentheses. *,**,*** Significant at 10%, 5% and 1%, respectively. The estimates for the time fixed effects and the constant are not shown.

18.   Demographics have been a significant driver of patterns in current-account balances. Consistent with the life-cycle hypothesis, higher proportions of both elderly and youth in a country's population lead on average to lower current-account balances, although only the coefficient on the youth dependency ratio is statistically significant. Youth dependency ratios appear particularly important for developing countries, whereas neither elderly nor youth dependency ratios are significant for industrialised countries (although the coefficients remain negative and similar in orders of magnitude). The lack of significance for the industrialised country sample may reflect that demographic factors do not vary widely across industrialised countries.

19.   Countries more open to trade tend to run higher current-account balances, although this factor is insignificant for developing countries. A higher initial NFA position is associated with higher current-account balances across all country groups, whereas there appears to be no significant relationship between relative income growth and current-account patterns.

20.   Countries with important oil-producing sectors tend to have higher current-account balances, although the effect appears to be larger for industrialised countries than for developing countries. The positive coefficient likely reflects the effects of rising oil prices over the sample period, and that oil-exporting countries have tended to save a large part of their income windfall to smooth consumption intertemporally.[17] The observed tendency for oil producers to use revenue gains to increase savings rather than consumption may reflect that oil price increases prior to 2002 were mostly temporary in nature. For the oil price increase since 2002, Ruiz and Vilarubia (2007) and Higgins *et al.* (2006) find that major oil exporters have recycled roughly half of income gains into higher imports and half into higher savings. The portion directed towards imports exceeds that in previous episodes of similar oil price increase, and may reflect perceptions of its more permanent nature.[18]

21.   Higher per capita oil consumption is associated with lower current-account balances only in industrialised countries, but the impact is not statistically significant. This could signify that demand tends to adjust to oil price changes over the medium term, thereby neutralising the impact to the current account. Alternatively, the insignificant coefficient could reflect that oil consumption patterns are to some extent already embodied in the relative oil production variable. Since the variables are constructed relative to world averages, very low values of relative oil production may signify that a country is a net importer of oil, such that the coefficient on the variable captures some impact of net oil imports.

22.   The relationship between the stage of economic development and current accounts is less clear. For the full sample (excluding Africa) the results suggest a positive and significant coefficient in line with the neo-classical theory that relatively rich countries tend to export capital and run surpluses. However, the results are mixed when we split the sample into industrialised countries and emerging and developing countries, with a positive effect for industrialised countries but a negative one for emerging and developing countries. This latter relationship is statistically insignificant when African countries are excluded, and could reflect that emerging economies at higher stages of development tend to be larger recipients of foreign direct investment.

23.   The factors identified thus far can explain reasonably well the direction of current-account patterns in several countries, in particular those with relatively large contributions to global imbalances: the United States, United Kingdom, Germany, Japan, China, and Emerging Asia excluding China (Figure 2).[19] For the most recent 2004-08 period, they can account for the entire US deficit, almost three-quarters of the surplus in Emerging Asia and almost half the surpluses in Japan and China, but less than one-quarter of the surplus in Germany and the deficit in the United Kingdom. Furthermore, the actual current-account surpluses for China and Germany exceed the upper standard error band for the prediction.

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17.   In the absence of any change in oil prices, it is not clear that large oil producers would tend to run current-account surpluses, nor that large oil consumers would tend to run external deficits.

18.   Another possibility is that under-developed financial markets have also played a role in driving capital outflows, and therefore, external surpluses, of the OPEC countries in our sample. Although lack of data prevented us from assessing the importance of these factors, it is possible that the relative oil production variable is picking up some of this effect. If so, the estimated impact of oil on current account positions may be overstated.

19.   Here, Emerging Asia includes Hong Kong, India, Indonesia, Malaysia, Philippines, and Thailand. OPEC countries are not shown due to lack of data on two-thirds of the member countries.

Figure 2. Baseline specification predicted medium-term current-account balances[1]
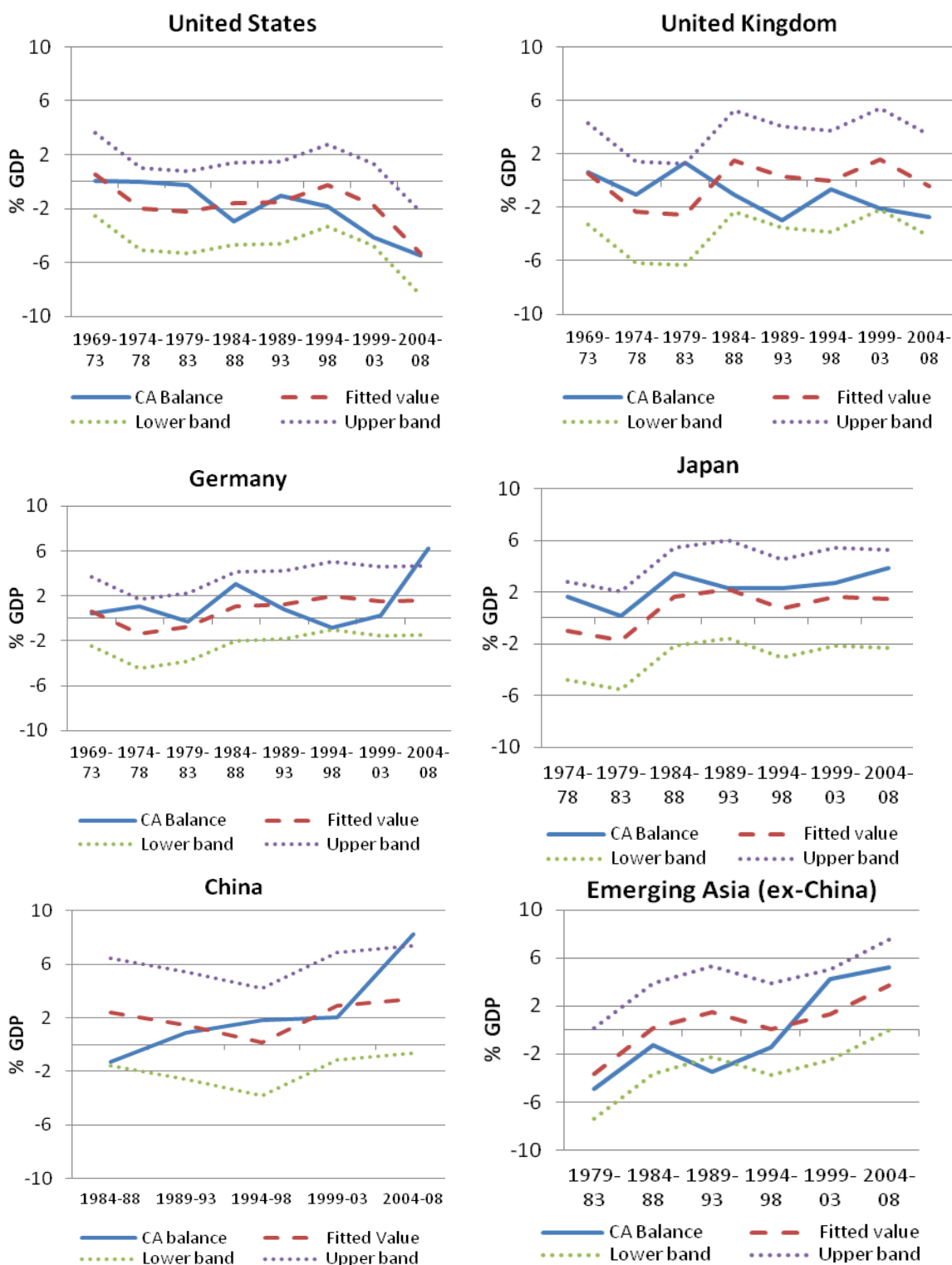
1.   Based on equation [1] of Table 1 for the United Kingdom, Japan, and Emerging Asia, equation [3] for the United States and Germany, and equation [4] for China.

4.2   Structural current accounts: the role of financial development and institutional quality

24.   Other structural factors that may influence current-account balances in the medium term are institutional quality and financial development. Among the institutional variables tested (listed in section 2) the only variable that was statistically significant is regulatory quality.[20] This measure summarises a wide set of structural indicators including: price controls, competitive environment, trade barriers, labour and product market liberalisation, regulatory burdens, ownership restrictions, investment climate, legal regulation, and tax effectiveness.[21] In particular, higher values of this variable indicate greater ability of a country's policy and regulatory framework to promote private-sector development.

25.   Regarding the indicators of financial deepness, most of the variables tested (included individually given the high correlations among them) were found to be statistically significant. Among these variables, the variable that provided the best fit and largest country coverage was private credit (as a share of GDP).[22] Since private credit and regulatory quality are highly correlated, the variables are included separately in the specification.

26.   Overall, regulatory quality and financial market development (as measured by the share of private credit to GDP) were found to have overall negative and statistically significant relationships with current-account balances (Table 2).[23] This result is consistent with the findings of Kennedy and Slok (2005) as well as Gruber and Kamin (2007). The negative relationships may be interpreted in several ways, with the relevance of each explanation varying by country. For some countries the negative relationship may reflect the "bypass effect" of capital flowing from emerging economies towards countries perceived to possess more efficient institutions or financial markets. Additionally, improved institutions and financial markets lower the need for precautionary savings, thereby reducing current-account balances. For other countries, the private credit variable may be capturing wealth effects more so than efficient financial markets. This latter interpretation may be most relevant for the current accounts of industrialised countries that experienced asset price booms, which reflected easy credit conditions and excessive household borrowing that lowered household saving rates. Rather than a reflection of efficient financial markets, these developments resulted in large part from what has since been revealed as overly-lax regulation of the finance industry in a number of countries.

27.   An interesting result is that both the private credit variable and regulatory quality variables are statistically significant for the full sample estimations, but insignificant when samples are restricted to industrialised versus developing countries.[24] This may reflect that the differences in financial development and regulatory quality are likely small among industrialised countries or among developing countries, but are important between the two groups. Moreover, if current-account patterns reflect a "bypass effect"

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20.   The full set of results is available from the authors upon request.

21.   For OECD countries it is highly correlated with the OECD's PMR indicator (with a correlation coefficient of -0.65).

22.   Variables such as stock market capitalisation and the financial liberalisation index were also statistically significant but provided inferior equation fit. In contrast, the financial openness index and financial integration index were found to be insignificant.

23.   Including the regulatory quality variable results in a larger coefficient on the fiscal deficit variable (which is due to the correlation between these two variables), although this difference is not statistically significant.

24.   Furthermore, for the industrialised country sample, including the regulatory quality variable does not produce very sensible results -- the coefficient on regulatory quality is close to zero and insignificant, and including this variable causes the coefficient on the oil production variable to switch signs and that on the fiscal deficit variable to multiply fivefold.

through financial capital flows, this would be best captured in estimations that include both groups of countries. However, the equation that fits actual current-account balances best varies with the country.[25]

Table 2. Medium-term current account: institutions and financial development, time-fixed effects

1994-2008

	[6]	[7]	[8]	[9]	[10]	[11]
	Full sample	Industrial	Emerging and developing	Full sample	Industrial	Emerging and developing
NFA/GDP (initial)	4.974 (4.97)***	3.722 (1.63)	4.907 (4.55)***	5.106 (7.41)***	5.097 (2.57)***	5.111 (6.23)***
Deficit/GDP	-0.370 (-2.78)***	-0.819 (-2.91)***	-0.316 (-2.03)**	-0.170 (-3.06)***	-0.123 (-1.64)	-0.165 (-2.27)**
Old-age dependency ratio	-0.114 (-1.03)	0.267 (1.49)	-0.195 (-1.38)	-0.086 (-1.47)	-0.096 (-1.02)	-0.088 (-0.91)
Youth dependency ratio	-0.094 (-2.85)***	-0.352 (-1.67)	-0.098 (-3.04)***	-0.056 (-2.65)***	-0.116 (-1.45)	-0.048 (-1.79)*
Relative income	1.076 (0.64)*	5.024 (2.03)**	-17.953 (-1.45)	1.712 (1.95)**	3.030 (2.21)**	-25.340 (-2.64)***
Relative income squared	-1.844 (-0.54)	-9.613 (-2.13)**	-12.124 (-0.86)	0.587 (0.31)	-2.303 (-0.97)	-23.929 (-1.97)**
Growth	18.011 (1.13)	-59.132 (-1.23)	26.111 (1.52)	7.650 (0.80)	-32.570 (-1.14)	10.140 (0.96)
Openness	0.009 (0.90)*	0.032 (2.07)**	0.010 (0.70)	0.013 (0.91)*	0.034 (3.32)***	0.014 (1.46)
Oil consumption value per capita	-0.001 (-0.09)	-0.014 (-0.48)	0.013 (3.06)***	0.000 (0.00)	-0.038 (-1.56)	0.014 (3.42)***
Oil production value/GDP	0.137 (2.89)***	0.024 (0.18)	0.140 (2.87)***	0.126 (5.02)***	0.225 (3.18)***	0.117 (4.65)***
Private credit/GDP				-1.601 (-1.99)**	-0.865 (-0.88)	-0.929 (-0.81)
Regulatory quality	-1.399 (-2.65)***	0.577 (0.34)	-1.130 (-1.17)			
Adjusted-R^2	0.502	0.635	0.545	0.493	0.508	0.520
Number obs.	190	66	124	394	157	237
F-test, time effects	1.73	3.54**	2.38*	4.69***	2.00*	4.17***

Note: Dependent variable is the current-account balance (as a per cent of GDP). T-statistics computed using robust standard errors in parentheses. *,**,*** Significant at 10%,5% and 1%, respectively. The estimates for the time-fixed effects and the constant are not shown.

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25.   The full sample estimates (equations [6] and [9]) track best the current-account balances for the United Kingdom, Japan, China and Emerging Asia, whereas the industrialised country sample estimates (equation [10]) fit best for the United States and Germany, and these predictions are displayed in Figure 3.

28.   Compared to the baseline, including regulatory quality and private credit variables helps explain a larger part of the external balances over 2004-08 for each of the key economies (Figure 3), but the relative importance of each factor varies by country. Over 2004-08, the specification that includes the regulatory quality variable (first column of Figure 3) appears to better track the current-account position of China, whereas the equations that incorporate private credit perform better for the United States, the United Kingdom, Germany, Japan, and Emerging Asia. However, it is worth noting that for China, limitations of private credit data may mean that this variable does not effectively reflect levels of financial market development in the country.[26] It is thus possible that the implied impact of poor regulatory quality on China's external balance may be picking up the effects of financial market under-development in the region on capital flows (particularly if the two factors are inextricably linked). To understand what is driving these results, it is helpful to decompose the contributions from each factor to current-account balances, as shown in Figure 4.

29.   For China and other Emerging Asian countries, such decompositions suggest that relatively low regulatory quality and financial market inefficiency have contributed considerably to their surpluses in recent years. However, these effects have been partly offset by the negative contribution from relative income. One interpretation of these results is that the region's relatively early stage of economic development has attracted FDI inflows, but these have been more than offset by capital outflows "bypassing" its weak institutions and underdeveloped financial system towards countries perceived to possess more efficient regulatory and financial systems. These inefficient institutions and financial markets may have also boosted levels of precautionary savings in China and other Emerging Asia. Self-insurance behaviour appears to have heightened in emerging Asian countries following the Asian currency crisis, which induced higher corporate and household saving rates (ADB, 2009).[27] This factor, which the equations would likely not capture, may explain the in-sample under-prediction of Emerging Asia's surplus over the 1999-2003 period.

30.   Demographics have also contributed noticeably towards the surpluses of China and Emerging Asia in the last five years. Over this period, initial NFA positions began to contribute positively towards current-account surpluses in these regions, which may reflect an acceleration in the pace of foreign reserve accumulation (although this effect would not be fully captured, given the use of initial NFA positions).[28] A considerable portion of China's external surplus over the 2004-08 period remains unexplained, and may reflect other factors not captured by the variables. For instance, relatively low social spending may have motivated households to maintain high levels of precautionary savings.[29] To test for this effect, the per capita public health expenditures variable was included in the equations. The variable was found to be significant only for the sample of developing countries excluding Africa, but rendered the fiscal deficit variable insignificant. However, this specification provided a worse fit relative to the results presented.

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26.   A large part of private credit data for China likely reflects in credit to state-owned enterprises within the non-government sector.

27.   Medina, Prat, and Thomas (2010) find that the Asian currency crisis led to a permanent shift in the saving behaviour of the affected countries, which raised the desired net foreign asset position and hence equilibrium current-account balances.

28.   According to McKinnon and Schnabl (2009), official foreign reserve accumulation in China accelerated following the exchange rate regime change in 2005.

29.   Additionally, Wei and Zhang (2009) attribute up to half of the increase in household saving rates since 1990 to the rising proportion of males in the population resulting from the one-child policy, which has motivated greater wealth accumulation to better compete in the marriage market.

Figure 3. Predicted medium-term current-account balances with private credit and regulatory quality

a) with regulatory quality[1]

b) with private credit[2]

Figure 3. Predicted medium-term current-account balances with private credit and regulatory quality (cont'd)

a) with regulatory quality[1]

b) with private credit[2]
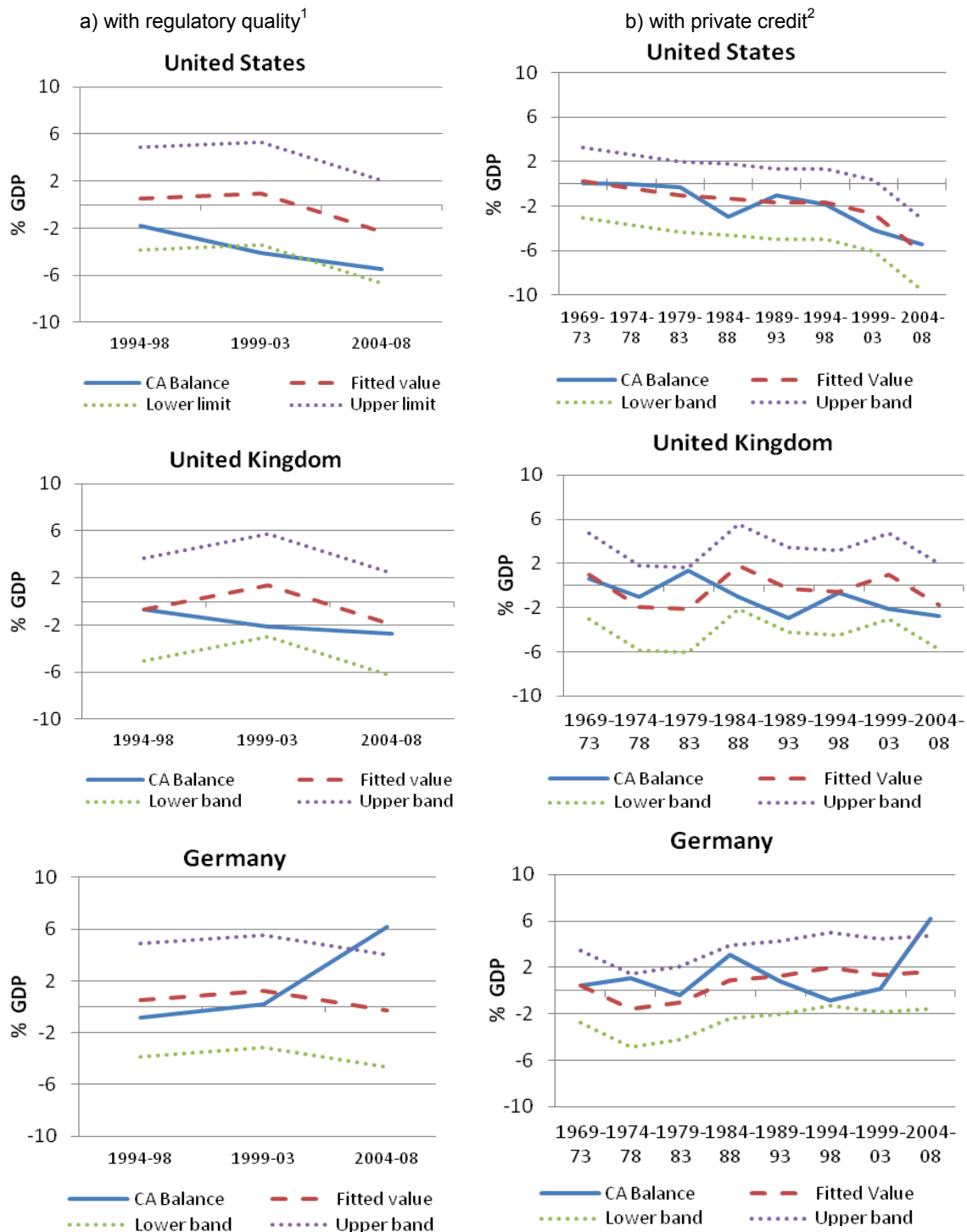
1. Based on Table 2 equation [6].
2. Based on Table 2 equation [9] for United Kingdom, Japan, China and Emerging Asia, and equation [10] for United States, Germany.

Figure 4. Decomposition of medium-term current-account balances

United States

United Kingdom

Figure 4. Decomposition of medium-term current-account balances (cont'd)

Germany

Japan

Figure 4. Decomposition of medium-term current-account balances (cont'd)

China

Emerging Asia (ex-China)
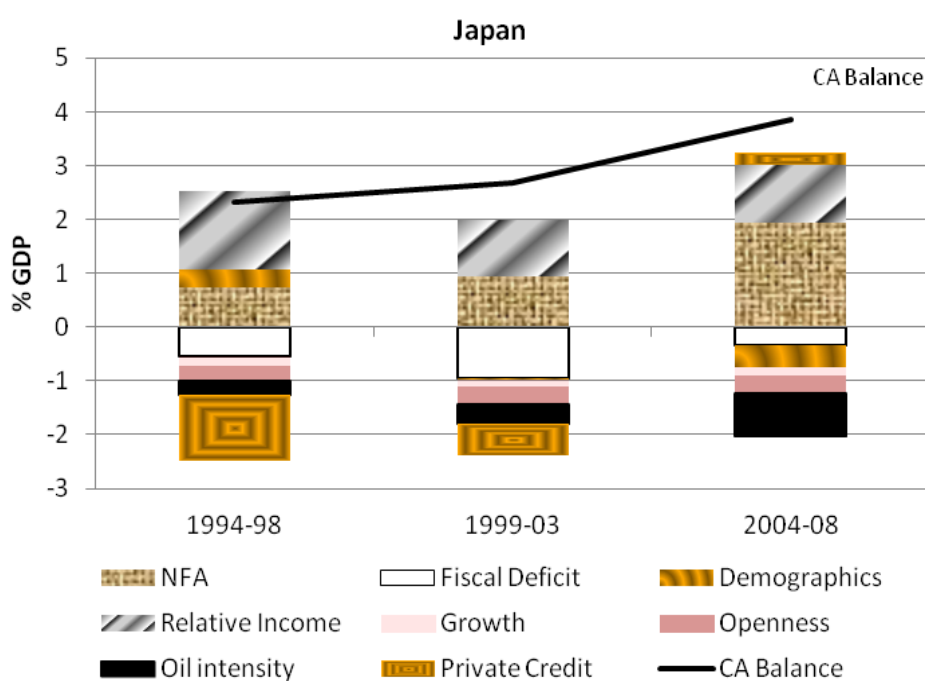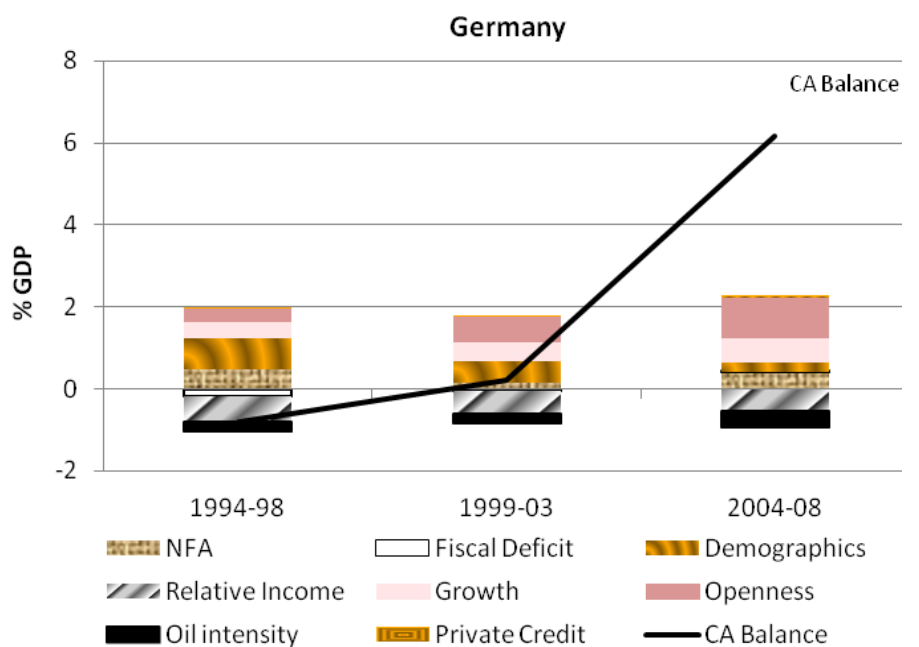
31.   For the United States and the United Kingdom, private credit appears to have contributed importantly to their external deficits since 2004. This effect may reflect two interrelated developments. One is 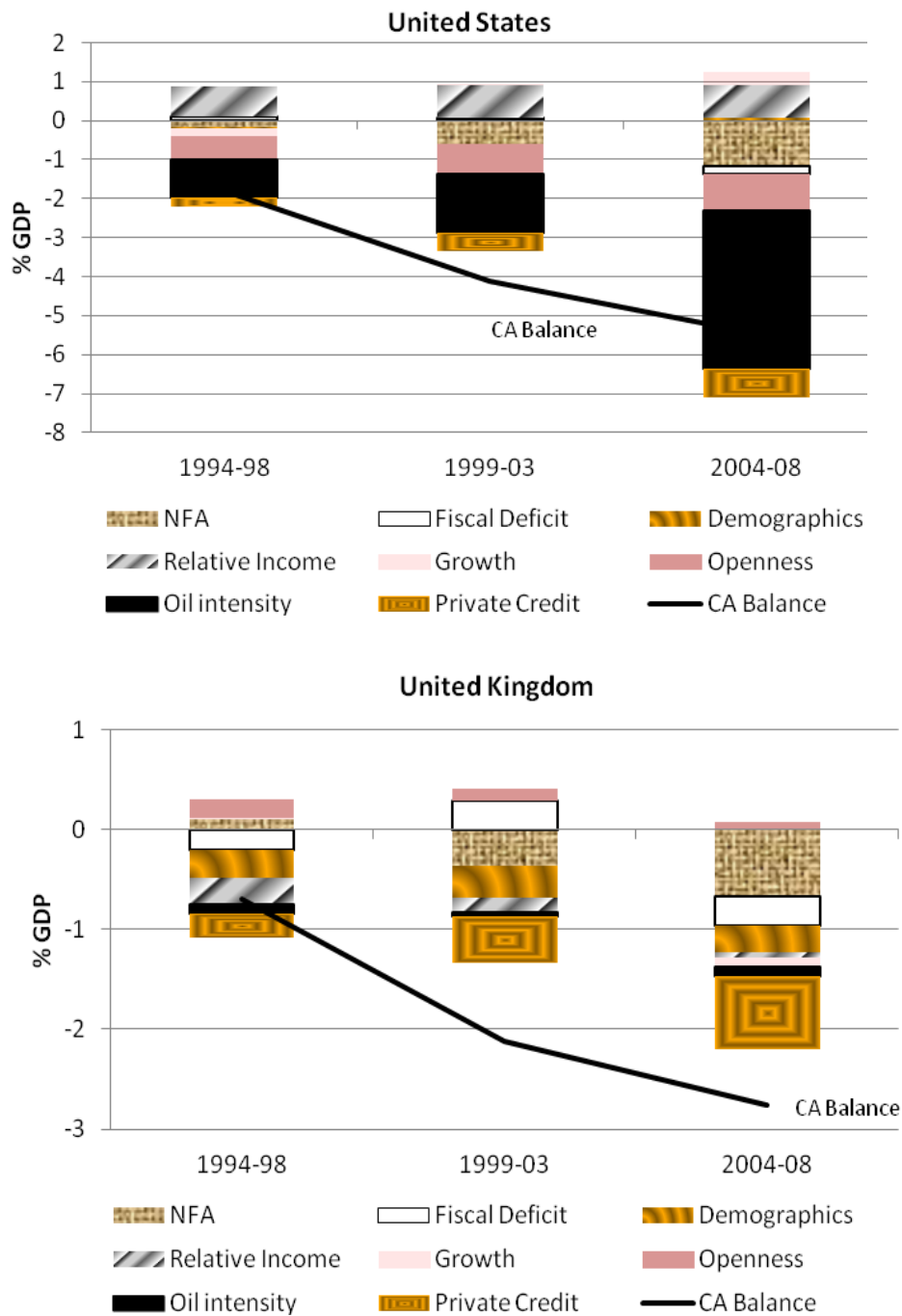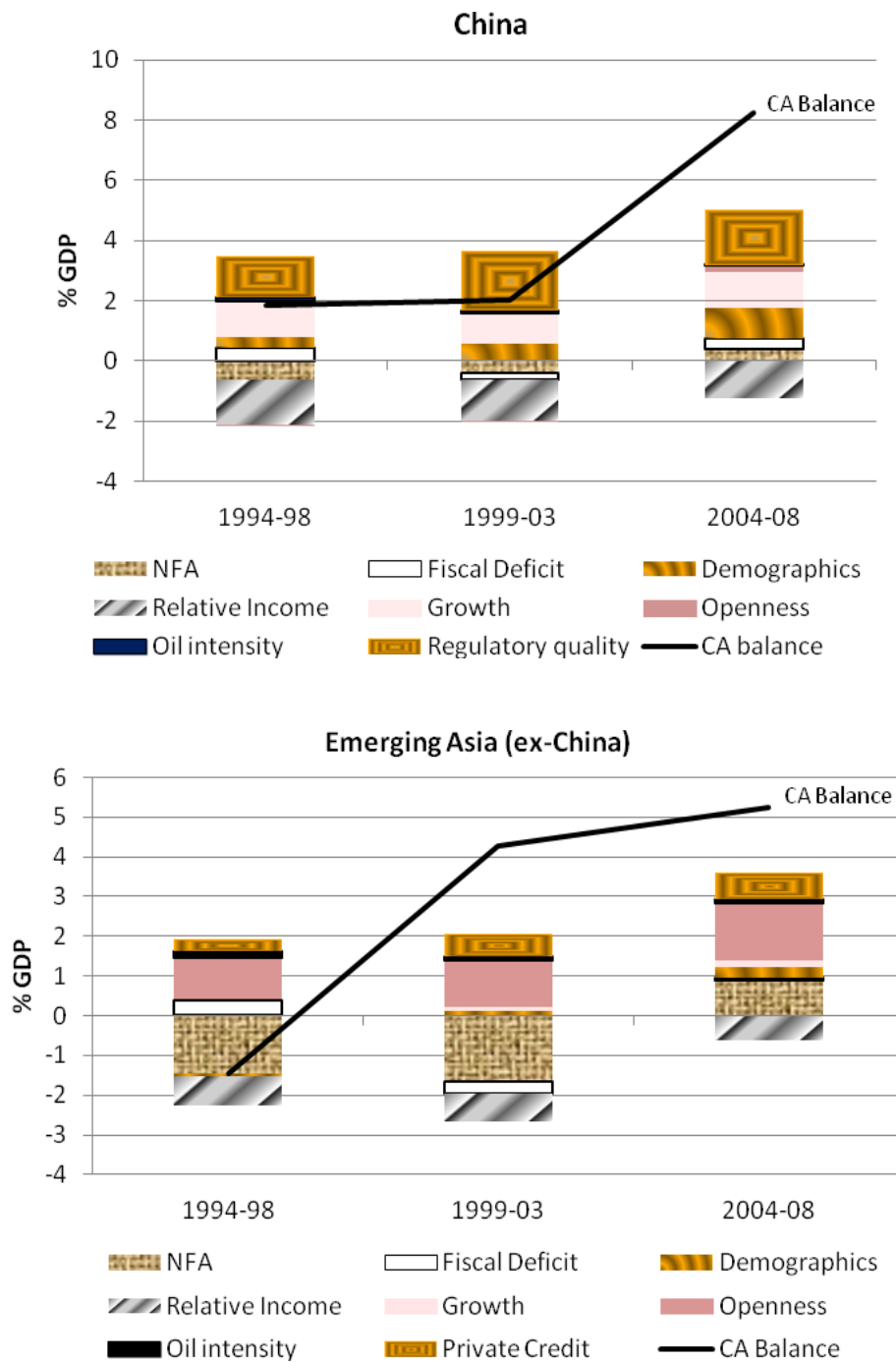that relatively advanced financial systems in these countries made them prime recipients of capital flows from emerging economies with excess savings and underdeveloped financial markets. The second is that the deep but under-regulated finance industries in the United States and the United Kingdom fuelled asset price bubbles and stimulated excessive household borrowing and corresponding declines in saving rates. The results suggest that a return to private borrowing levels observed over the preceding 1999-2003 period could shave about 0.3 percentage points of GDP off the external deficit of the United States, and about 0.8 percentage points of GDP from that of the United Kingdom, assuming everything else equal. For the United Kingdom, the fiscal deficit has become a more important element of its external deficit over the 2004-08 period. The lagged effect of diminishing NFA positions over this period has also played a considerable role in the deficits for both countries.

32.   For the United States, net oil consumption appears to explain the largest part of its current-account deficit, as well as much of the increase in external deficit in 2004-08 relative to the preceding five years. Over this period, net oil consumption explained over 4 percentage points of GDP of the US external deficit, almost triple its contribution compared to the preceding five years. Higher oil prices explain the bulk of this rise in contribution, but the oil intensity of consumption also rose relative to the rest of the world over this period and accounted for about 0.2 percentage point of the increase. It is possible that this variable is also picking up the effect of rising oil revenues that has led major oil exporters with under-developed financial markets to export excess capital to the United States. If so, the impact of oil intensity on the US external deficit would be over-stated.

33.   For Germany and Japan, neither private credit nor regulatory quality appears to have played a noticeable role in their external surpluses. For Japan, initial NFA positions have contributed most positively recently, followed by relative income which may reflect the counterpart to the effects of FDI flows into China and Emerging Asia discussed above.[30] Although demographics began to weigh down on Japan's external balance in 2004-08, they have continued to contribute positively to that of Germany, albeit at a diminishing rate over time. A sizeable portion of Germany's surplus in 2004-08 cannot be explained, which may reflect in part an upward correction in household saving rates in response to below-equilibrium savings since the late-1990s or country-specific factors (Hüfner and Koske, 2010). Additionally, Germany's surplus may reflect in part the effects of wider imbalances distributed among euro area countries that are not specifically addressed in this framework.[31]

4.3   Saving and investment

34.   To better understand how the different variables influence the current account, we attempt to identify their separate effects on saving and investment. Estimation results for equation (3) and (4) on the full sample are reported in Table 3. The first three columns report, respectively, the results for the saving equation from the baseline specification, the baseline augmented by regulatory quality, and the baseline augmented by private credit. The last three columns report the corresponding results for the investment equation.

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30.   Japan has been an important source of export-linked FDI capital and technological transfer for emerging Asia since the 1970s, and most recently for China (Andersen and Johnson, 2004).

31.   Measures of export competitiveness were also tested for the sample of industrialised economies, but were found to be statistically insignificant and did not improve the fit for Germany.

Table 3. Medium-term saving and Investment, time-fixed effects

Full sample

	Saving			Investment		
	[12]	[13]	[14]	[14]	[16]	[17]
NFA/GDP (initial)	1.442 (1.49)	1.093 (0.67)	1.356 (1.36)	1.385 (2.17)**	0.822 (0.83)	1.154 (1.77)**
Deficit/GDP	-0.406 (-4.05)***	-0.750 (-3.64)***	-0.480 (-4.93)***	-0.071 (-1.40)	-0.165 (-1.26)	-0.089 (-1.61)
Old-age dependency ratio	-0.538 (-5.06)***	-0.455 (-2.85)***	-0.506 (-4.78)***	-0.151 (-1.81)*	-0.222 (-1.89)*	-0.151 (-1.87)*
Youth dependency ratio	-0.329 (-7.90)***	-0.367 (-5.08)***	-0.307 (-7.25)***	-0.149 (-5.53)***	-0.200 (-4.20)***	-0.119 (-4.48)***
Relative income	2.373 (1.82)*	2.170 (0.84)	2.018 (1.50)	-0.005 (-0.00)	-0.372 (-0.23)	-0.145 (-1.30)
Relative income squared	4.815 (1.57)	-0.205 (-0.04)	2.909 (0.92)	10.901 (3.69)***	8.669 (2.33)**	8.605 (2.95)***
Growth	58.361 (3.07)***	82.232 (2.38)**	46.686 (2.41)**	88.605 (6.69)***	59.568 (2.52)**	79.301 (5.94)***
Openness	0.034 (3.50)***	0.033 (2.13)**	0.036 (3.71)***	0.009 (1.35)	0.006 (0.65)	0.008 (1.12)
Oil consumption value per capita	-0.004 (-0.26)	-0.003 (-0.18)	-0.006 (-0.38)	-0.000 (-0.02)	-0.004 (-0.24)	-0.004 (-0.24)
Oil production value/GDP	0.328 (7.95)***	0.328 (3.40)***	0.347 (8.08)***	0.129 (4.72)***	0.050 (0.93)	0.137 (4.90)***
Private credit/GDP	-	-	0.576 (0.51)	-	-	2.849 (3.19)***
Regulatory quality	-	-1.622 (-0.96)	-	-	-0.981 (-0.96)	-
Adjusted-R^2	0.505	0.493	0.514	0.391	0.282	0.381
Number obs.	416	192	400	416	192	400
F-test, time effects	2.81***	1.42	2.70***	7.46***	1.52	6.16***

Note: Dependent variables are deviations of saving and investment shares (as a per cent of GDP) from their respective world weighted means. T-statistics computed using robust standard errors in parentheses. *,**,*** Significant at 10%,5% and 1%, respectively. The estimates for the time-fixed effects and the constant are not shown.

35.   The results suggest that the variables have distinct effects on saving and investment that are consistent with their overall impact on current-account positions. Fiscal deficits significantly and negatively affect national saving, but have no significant impact on investment, suggesting that crowding-out effects are larger for investment than for consumption. Higher age dependency ratios tend to lower current-account positions because they significantly reduce saving more than investment. The positive relationship between trade openness and current-account positions appears to arise because countries more open to trade tend to save more as a share of GDP, with no statistically significant implications for investment. Countries with more important oil-producing sectors tend to have higher current-account balances because higher oil revenues tend to boost saving more than investment. As previously discussed, this behaviour may reflect the largely temporary nature of oil price increases over the majority of the sample.

36.   Higher levels of private credit tend to encourage investment more than saving, which is consistent with their negative effect on current-account balances. As discussed before, the expected relationship between this variable and saving is ambiguous, and although private credit is found to have a positive impact on saving based on the full sample estimations, this relationship is not statistically significant. Meanwhile, restricting the sample to industrialised countries (not shown) causes the coefficient to become negative, which is consistent with the wealth effects hypothesis. Since regulatory quality would presumably influence the current account through its impact on capital flows, its expected effects on saving or investment are not clear. Although the variable appears to be negatively associated with both saving and investment, the relationships are not statistically significant.

4.4   Short-term cyclical dynamics

37.   To assess the drivers of current-account balances at the business cycle frequency, we first remove the medium-term trend component of each variable to obtain the annual deviations of each variable from its five-year moving average. We then estimate the equations on these annual series, including additionally the lagged transitory component of the current account, and lagged changes in the logarithm of the real effective exchange rate (based on relative consumer price indexes).[32] Although several of the variables move very slowly (such as age dependency ratios and regulatory quality) and are not expected to contain cyclical components, they are nonetheless tested in the estimations for completeness. The estimations are performed using GMM on data transformed via first differences (Arellano and Bond, 1991) to correct for the likely correlation between unobserved country-specific factors and the explanatory variables.[33] An alternative transformation that uses orthogonal deviations (Arellano and Bover, 1995) is also tested to verify the robustness of the results.[34]

38.   Estimates for the full sample of countries as well as the full sample excluding Africa are reported in Table 4a for the variables found to be statistically significant.[35] As expected, transitory movements in age dependency ratios and regulatory quality do not affect the current account significantly over the short run, so these variables were removed from the equations. For the share of oil production in GDP and per capital oil consumption variables, initial estimations produced coefficients that were either statistically insignificant or incorrectly signed. The variables were thus split up to account for separate volume and price effects over the cycle. The cyclical oil price series was interacted with a variable to indicate whether the country is a net importer or net exporter of oil.[36]

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32.   Other variables tested include short-term interest rates and output gaps, but were found to be insignificant.

33.   This method uses moment conditions in which lags of the dependent variable and first differences of the explanatory variables are used as instruments for the first-differenced equation. After testing for strict exogeneity, three lags of the current-account balance were included as dynamic period-specific instruments together with the first order differences of all explanatory variables previously transformed. The validity of government effectiveness as an instrumental variable was also tested but this time rejected. White period robust standard errors were used to correct for serial correlation.

34.   This latter technique assures the validity of the instrumental variables by an imposed orthogonality between lagged values of the dependent variable and the error term.

35.   Restricting the sample to industrialised countries led to an insufficient number of observations to perform the GMM estimations. The lagged NFA/GDP variable was excluded because it produced a coefficient of the incorrect sign, which likely reflects its correlation with the lagged current account and exchange rate.

36.   The latter measure was constructed as the trend share of net oil consumption volumes (net of production) in GDP, relative to world averages. The measure would thus be positive for countries with larger than average shares of oil imports in output (with values increasing with the oil intensity of the economy). Negative values would be associated with countries with larger than average shares of oil exports in GDP. Using this measure allows the weight of the oil price variable to vary with the relative importance of oil in the country's economy, and produced superior fit relative to employing simple dummy variables.

Table 4a. Short-term current account, time-fixed effects[1]

Annual deviations from five-year average	First-difference transformation		Orthogonal deviation transformation	
	[18]	[19]	[20]	[21]
	Full sample	Full sample ex-Africa	Full sample	Full sample ex-Africa
(CA/GDP)$_{t-1}$	-0.125 (-5.19)***	-0.138 (-4.16)***	-0.160 (-12.15)***	-0.088 (-1.43)
Growth	-18.638 (-6.87)***	-29.163 (-9.84)***	-16.972 (-5.09)***	-24.600 (-3.66)***
Openness	0.102 (8.15)***	0.101 (2.91)***	0.080 (6.37)***	0.122 (2.12)**
Oil consumption volume per capita	-8.535 (-7.83)***	-9.979 (-7.22)***	-7.059 (-9.52)***	-6.110 (-3.91)***
Oil production volume/GDP	14.425 (6.72)***	11.305 (1.89)*	8.677 (4.05)***	9.449 (0.63)
Oil price*weight[2]	-0.794 (-37.04)***	-0.892 (-16.36)***	-0.880 (-41.88)***	-0.868 (-10.36)***
Private credit			-2.742 (-1.94)*	-6.449 (-2.29)**
ΔREER$_{t-1}$	-4.166 (-4.23)***	-7.866 (-5.29)***	-3.384 (-3.70)***	-7.385 (-1.79)*
S.E. of regression	2.356	2.114	1.809	1.738
Number obs.	371	316	371	316
Sargen's test p-value	0.27	0.49	0.29	0.38

1. Dependent variable is the annual deviation of the current-account balance (as a share of GDP) from five-year moving average. T-statistics computed using robust standard errors in parentheses. *,**,*** Significant at 10%, 5% and 1%, respectively. The estimates for the time fixed effects and the constant are not shown.
2. Weight defined as trend share of net oil consumption volumes (net of production) in GDP, relative to world averages.

39.   The results suggest that transitory movements in relative output growth, exchange rates, oil prices, oil consumption and production, and openness appear to bear the most consistently significant influence on current-account balances in the short run. Lower output growth and past real exchange rate depreciations are associated with positive short-term changes in the current account. This result likely reflects the short-term relationship between changes in output growth, exchange rates, and trade, and is consistent with the findings of Kandil and Greene (2002) and Freund (2000). Short-term increases in oil prices tend to lower current-account balances for net oil importers, while raising them for net oil exporters. Transitory increases in private credit may also lower external balances in the short run, but the statistical significance of this effect depends on the method of transformation. Cyclical movements in the current account appear to be mildly persistent, with a coefficient of about 0.2 on the lagged value.

40.   The coefficients are of the same sign as their medium-term counterparts but are less precisely estimated and should thus be viewed with some caution given the greater amount of measurement error in the annual data. Nonetheless, applying the coefficients to recent quarterly data would suggest that a sizeable portion of the narrowing in current-account balances between mid-2008 and mid-2009 may be

explained solely by transitory movements in relative output growth, oil prices, and exchange rates over this period (Table 4b).[37]

Table 4b. Implied contributions of cyclical factors to current-account movements from mid-2008 to mid-2009

Percentage points

	Change in CA/GDP from mid-2008 to mid-2009	Sum of implied contributions of cyclical factors
United States	+2.4	+1.5
United Kingdom	+0.4	+0.5
Germany	-2.6	+0.8
Japan	-0.6	-0.7
China	-2.3	-0.4

Note: Implied contributions derived by applying coefficients from equation [21] of Table 4a to changes in all variables from 2008Q2 to 2009Q2, except for the following because of lack of data: private credit, oil consumption volumes per capita and oil production volumes as a share of GDP. For a given country, the transitory components of relative output growth and openness are approximated as the deviations (over the period) from their world means, relative to the long-term average values of these deviations.

5.   Conclusions

41.   Global external imbalances widened persistently over the last several years and have narrowed abruptly over the course of the financial crisis. Understanding the extent to which structural or cyclical factors have driven these patterns is important to assess the likely evolution of global imbalances going forward. This paper investigates the structural and cyclical factors behind current-account balances across a panel of 94 industrialised and developing countries. We find that the evolution of global external imbalances has been driven in large part by structural factors including cross-country differences in demographics, fiscal deficits, oil dependency and intensity, stage of economic development, financial market development, and institutional quality.

42.   Our results support the hypothesis that the pattern of global imbalances over recent years reflects in part the flow of financial capital from emerging economies with under-developed institutions and financial markets and excess savings towards economies perceived to have more efficient institutions and financial systems. This phenomenon appears more relevant for explaining the external positions of certain countries including China, Emerging Asia, the United States, and the United Kingdom, but less important for others such as Germany and Japan. Moreover, such under-developed financial systems may have boosted precautionary savings in these emerging economies. Wealth effects have also likely contributed importantly to the external deficits of countries that experienced asset price booms as a result of under-regulated finance industries, notably the United States and the United Kingdom. Furthermore, rising oil prices have played an important role in the widening of imbalances, in particular for the deficit of the United States and for the surpluses of major oil exporters. A large part of the most recent narrowing in current-account balances since the financial crisis may be explained by various cyclical factors including transitory changes in output growth, exchange rates, and oil prices, and may be expected to reverse alongside the economic recovery.

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37.   For a given country, the transitory components of relative output growth and openness are approximated as the deviations (over the period) from their world means, relative to the long-term average values of these deviations.

43.   Our results suggest that targeted policy reforms could help reduce global imbalances over the medium term. This includes policies to improve regulatory frameworks and financial markets in emerging economies. A shift away from export-led growth strategies in China and Emerging Asia could also reduce the incentives for reserve accumulation. The significant role of dysfunctional financial regulation behind the surge in private borrowing levels in the United States and the United Kingdom suggest that policies to reform financial regulation would encourage deleveraging and reduce the external deficits of these countries over the medium term.

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ANNEX

Table A1. Data sources

Variables	Source
Dependent variables	
Current account/GDP	OECD/WDI
National saving/GDP	OECD/WDI
Capital formation/GDP	OECD/WDI
Macroeconomic Determinants	
Net Foreign Assets/GDP	Lane and Milesi-Ferretti (2006)
Trade openness (X+M)/GDP	OECD/WDI
GDP per capita	OECD/WDI
GDP growth	OECD/WDI
Output volatility based on absolute deviation of HP (6.25) cyclical components	OECD/WDI/authors
Real effective exchange rate volatility	IFS
Short-term interest rates	IFS
Fiscal balance/GDP	OECD/WEO
Cyclically adjusted fiscal balance/GDP	OECD
Public health expenditures per capita	WHO
Inflation	OECD/WDI
Oil prices	OECD (Brent)
Oil production volumes/GDP	IEA
Oil consumption volumes per capita	IEA
Demographic Determinants	
Youth dependency ratio	WDI
Old dependency ratio	WDI
Financial Determinants	
Financial integration index	Lane and Milesi-Ferretti (2006)
Private Credit/GDP	Beck *et al.* (2007), IFS
Stock market capitalisation/GDP	Beck *et al.* (2007)
Market turnover/GDP	Beck *et al.* (2007)
Growth rate of (stock market capitalisation/GDP)	Beck *et al.* (2007)
Private bond market capitalisation/GDP	Beck *et al.* (2007)
Financial crises dummy	Leaven and Valencia (2008)
Financial liberalisation index	Abiad *et al.* (2008)
Capital openness index	Chinn and Ito (2009)
Institutional Determinants	
Financial freedom:	Fraser Institute
Investment freedom	Fraser Institute
Political Risks	Heinsz (2007)
Voice and accountability	Kaufmann *et al.* (2007)
Political stability	Kaufmann *et al.* (2007)
Government effectiveness	Kaufmann *et al.* (2007)
Regulatory quality	Kaufmann *et al.* (2007)
Rule of law	Kaufmann *et al.* (2007)
Control of corruption	Kaufmann *et al.* (2007)
Corruption	WDI
Polity score	Polity IV

Table A2. Data descriptive statistics*

Variables	Number of observations	Mean	S.D	United States (mean)	China (mean)
Dependent variables					
Current account/GDP (%)	3004	-2.5	6.8	-1.9	2.3
National saving/GDP (%)	4199	18.7	12.5	18.0	38.0
Capital formation/GDP (%)	4196	21.9	8.0	19.2	33.3
Macroeconomic determinants					
Net Foreign Assets/GDP	3067	-0.3	0.5	-0.0	0.0
Trade openness (X+M)/GDP (%)	3562	67.9	44.4	20.5	33.4
Relative income (US = 1)	4457	0.2	0.3	1.0	0.0
Per capita income growth (%)	4122	1.2	2.1	3.2	7.5
Fiscal balance/GDP (%)	2293	2.8	5.8	3.1	1.8
Government revenue/GDP	2295	0.3	0.1	0.3	0.2
Government expenditures/GDP	2293	0.3	0.1	0.3	0.2
Oil prices (US$)	4702	20.1	19.0		
Oil production volumes (Mt)/GDP ($ billion)	2900	0.3	0.7	0.0	0.3
Oil consumption volumes (Mt) per capita	2886	1.0	1.1	3.3	0.1
Demographic determinants					
Youth dependency ratio	4557	64.7	23.6	37.6	53.3
Old dependency ratio	4557	10.0	6.1	17.4	8.7
Financial determinants					
Private credit/GDP	3693	0.4	0.4	1.2	0.9
Stock market capitalisation/GDP	1386	0.4	0.5	1.1	0.2
Market turnover/GDP	1356	0.5	0.6	1.1	1.4
Private bond market capitalisation/GDP	619	0.3	0.3	0.9	0.0
Institutional determinants					
Political risks	3155	0.4	0.3	0.8	0.0
Voice and accountability	760	0.0	0.9	1.3	-1.5
Political stability	760	0.0	0.9	0.5	-0.2
Government effectiveness	760	0.2	1.1	1.8	0.0
Regulatory quality	760	0.2	0.9	1.5	-0.3
Rule of law	758	0.1	1.0	1.6	-0.4
Control of corruption	752	0.2	1.1	1.7	-0.4
Polity score	4025	-0.1	14.8	10	-7.4

Note: * The statistics are based on unweighted sample of annual data for each variable.

Table A3. Country list

Industrial	Developing and emerging	
Australia	Algeria	Mexico
Austria	Argentina	Morocco
Belgium	Bahrain	Nepal
Canada	Bangladesh	Niger
Denmark	Benin	Nigeria
Finland	Bolivia	Pakistan
France	Botswana	Panama
Germany	Brazil	Papua New Guinea
Greece	Burkina Faso	Paraguay
Iceland	Burundi	Peru
Ireland	Cameroon	Philippines
Italy	Chad	Rwanda
Japan	Chile	Senegal
Netherlands	China	Seychelles
New Zealand	Colombia	Sierra Leone
Norway	Congo,Republic	Singapore
Portugal	Costa Rica	South Africa
Spain	Cote d'Ivoire	Sri Lanka
Sweden	Dominica	Swaziland
Switzerland	Ecuador	Syria
United Kingdom	Egypt	Taiwan,
United States	El Salvador	Thailand
	Gabon	Togo
	Gambia,	Trinidad and Tobago
	Ghana	Tunisia
	Guatemala	Turkey
	Haiti	Uganda
	Honduras	Uruguay
	Hong Kong	Venezuela,
	India	Zambia
	Indonesia	Zimbabwe
	Iran	
	Jamaica	
	Jordan	
	Kenya	
	Korea	
	Madagascar	
	Malawi	
	Malaysia	
	Mali	
	Mauritania	
	Mauritius	

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