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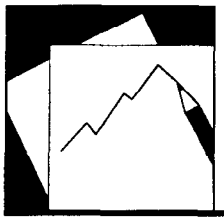

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The Impact of Cyclical Factors on the U. S. Balance of Payments

Magda Kandil and Joshua Greene

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The Impact of Cyclical Factors on the U. S. Balance of Payments

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Abstract

Real GDP growth and real effective exchange rate (REER) appreciation appear cointegrated with the current and financial accounts of the U.S. balance of payments. On this basis, we estimate reduced form equations showing that expected changes and shocks to real GDP, the REER, energy prices, and growth in emerging market economies and other industrial countries explain much of the short-term variation in the U.S. current account balance, with the balance worsening as real GDP, energy prices, and the REER increase. In addition, foreign direct investment rises with real growth, while stock market prices affect the composition of capital inflows.

JEL Classification Numbers: F3; F4

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I. Introduction

The United States has experienced current account deficits exceeding 1 percent of GDP during all but two of the years since 1981 (Table 1). In 1999, the current account deficit reached 3.7 percent of GDP. In 2000, it increased again, to 4.5 percent of GDP, and some projections show the current account deficit rising further over the next decade (Mann, 2001). Although the levels experienced thus far are not large compared to those experienced by some industrial countries, such as Australia, New Zealand, and many developing countries, they are high compared to the current account balances of the larger industrial countries (Table 2). Thus, questions have arisen about the sustainability of current account deficits exceeding 4 percent of GDP over the medium to long term in the sense of Milesi-Ferretti and Razin (1996), meaning that they can be maintained without need for drastic changes in domestic macroeconomic policy.[2] For example, Obstfeld and Rogoff (2001), writing before the start of the 2001 recession in the United States, argued that the U.S. current account balance was quite likely to reverse by 2010, predicting that a rapid adjustment could lead to a real depreciation of the dollar by more than 20 percent.

Contemporary economic theory views the analysis of current account sustainability as a medium-term issue, turning on the ability of countries to generate sufficient current account surpluses in future years to offset present deficits. One strand of the recent literature has thus focused on medium-term analysis of the sort provided by Chinn and Prasad (2000) and Faruqee and Debelle (2000). These studies have identified such factors as the ratio of the government budget balance and net foreign assets to GDP, relative income, the dependency ratio, and financial deepening as affecting the current account balance over the medium and longer term. Another strand of the literature has emphasized the relationship between the ratio of the income elasticities of U.S. exports and imports and that of relative growth rates for the U. S. and its main trading partners, arguing that the two ratios tend to converge over long time periods (Arora, Dunaway, and Faruqee, 2001, citing Krugman, 1989). A third strand emphasizes the role of relative productivity growth and its impact on net capital flows in explaining current account movements over the medium term. For example, simulations using the IMF's MULTIMOD model suggest that the United States's large current account deficits could persist for some time if productivity growth remains much higher in the U.S. than in other major countries, but diminish quickly if the productivity growth differential narrows sharply. See Arora, Dunaway, and Faruqee (2001).

The medium-term approach, however, abstracts from the shorter term impact of business cycles and related macroeconomic and financial variables, such as stock market performance, on the current account balance. Similarly, it does not allow measurement of these factors on the accompanying capital and financial accounts of the balance of payments. Faruqee and

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[2] The IMF's Executive Board, for example, questioned the sustainability of the U.S. external current account deficit over the longer term during the IMF's 2001 Article IV Consultation with the United States (International Monetary Fund, 2001b).

Debelle (1996), for example, have observed that the business cycle, as measured by the output gap and the real exchange rate, had significant short-term effects on the current account balance for a number of industrial countries during the 1971–93 period. Freund (2000) has noted that, in industrial countries, a common pattern during the 1980–97 period was for the current account deficit to begin reversing after reaching a level of about 5 percent of GDP and to continue improving over a period of several years. The reversal typically accompanied a slowing in the real GDP growth rate, which Freund interprets as meaning that strong income growth led to a current account deficit, while a growth slowdown or recession usually accompanied an improvement in the balance to a more sustainable level. In addition, most countries experienced a decline in the national savings rate before the reversal, and a drop in the investment rate afterwards (with no further change in the savings rate). This coincides with the view that current account worsening and improvement are usually counter-cyclical. Besides the growth effects, the average country experienced a cumulative real depreciation of about 20 percent beginning in the year before the maximum current account deficit.

Data for the United States also suggest a strong cyclical influence on the balance of payments. As Chart 1 indicates, the current account balance has often recorded surpluses during recessions, such as 1974–75, 1980, and 1991, and deficits during periods of strong economic growth (e.g., 1994–99). However, the relationship is not exact, since some boom years (e.g., 1973) have recorded surpluses, while some recession years (e.g., 1982) have recorded deficits. Similarly, the financial account of the balance of payments and the magnitude of foreign direct investment have also varied over the business cycle. For example, both grew strongly during the last half of the 1990s, when U.S. economic growth began to exceed that of other industrial countries, arguably triggering capital inflows to the United States.

Because cyclical factors seem to have a major impact on the U.S. balance of payments, it seems worthwhile analyzing the effect of these variables in a more systematic way. This includes studying the impact of these variables not only on the external current account, but also on the capital and financial accounts, which have been instrumental in financing the country's large current account deficits. Many analysts have argued that the ability of the United States to sustain large current account balances during the past decade has turned on the willingness of foreign investors to place substantial investment funds in the United States. This may reflect the lower capital-output ratios and higher returns to capital observed in the United States than in most other industrial countries during the last half of the 1990s (see Arora, Dunaway, and Faruqee, 2001; Cooper, 2001, and McKinnon, 2001). Since the growth in productivity often mirrors business cycles, analysis may show that cyclical factors also have an impact on the capital and financial accounts of the balance of payments.

This paper follows a two-step procedure. First, cointegration analysis is used to confirm that cyclical factors bear a long-term relationship to the current account and the financial account (the main element of the capital and financial account) of the U.S. balance of payments. Second, the paper estimates a series of reduced form equations in differenced form, using both annual and quarterly data, for the current account balance, the financial account balance,

and important components of each balance, using a number of macroeconomic indicators reflecting the state of the business cycle as explanatory variables. These include not only a measure of economic growth, but also other factors that vary cyclically, such as inflation, energy prices, and returns on financial assets. In addition, following work by Kandil (2000) on other macroeconomic indicators, the paper examines the effect of positive and negative shocks to these and other cyclical variables on components of the balance of payments.

To anticipate the results, the empirical work confirms that cyclical factors have a significant impact on the current account balance, with higher real growth, a more appreciated real exchange rate, and higher energy prices having the expected negative impact on the current account balance. In addition, shocks to certain variables have asymmetric effects on the current account balance. Although cointegration indicates a positive long-term relationship between the financial account balance and both real GDP and the real exchange rate, reduced form equations suggest that these variables affect mainly the composition of capital inflows, rather than the size of the overall balance.

The rest of the paper is organized as follows. Following a theoretical discussion of the models in section II, section III reports the cointegration analysis of the current and financial accounts. Section IV reports the results of the reduced form equations, looking both at annual and quarterly data over the 1960–2000 period and quarterly data during the periods 1990–2000 and 1995–2000, using the last two to assess claims about changes in the determination of these accounts during recent years. Section V summarizes the main findings in the paper.

II. Modeling Cyclical Effects on the U. S. Balance of Payments: Theory

As noted in the previous section, the literature suggests that the main components of the balance of payments, in particular the current account balance, are sensitive to cyclical economic factors. To test this hypothesis, we use the following procedure. First, we test for cointegration between key cyclical factors and the main elements of the balance of payments, to examine the long-term correlations between these two sets of variables. Next, we estimate a series of reduced form equations relating the current account balance, its main components, and the main components of the capital and financial account balance to a series of macroeconomic variables that are cyclically sensitive. To track business cycles, these models are estimated on a short-term basis, using either annual or quarterly data. Because data on foreign economic growth are available only on an annual basis, and the results are stronger, we prefer models based on annual data, although we also examine models using quarterly data.

As a further test of cyclical factors on current and capital and financial accounts of the balance of payments, for the annual models we disaggregate selected explanatory variables into expected values and deviations from these values, looking separately at positive and negative shocks to determine whether or not the effect of shocks is symmetrical, i.e., whether

or not positive and negative shocks have similar effects on the dependent variables.[3] Thus, we estimate equations relating our dependent variables (labeled Y) to a series of explanatory variables, some of which (labeled X) are entered as "actual" (in fact, instrumented) values and the others (labeled Z) are disaggregated into expected (i.e., forecast) values and positive and negative deviations from these expected values:

$$Y_t = f(X_{i,t}, E(Z_{j,t}), PosZ_{j,t}, NegZ_{j,t}),$$

where the $X_{i,t}$ variables appear as "actual" values and the $Z_{j,t}$ variables are disaggregated into expected values $E(Z_{j,t})$ and positive and negative shocks, $PosZ_{j,t}$ and $NegZ_{j,t}$. For quarterly estimates, we omit disaggregation and model each dependent variable as the sum of distributed lags of the explanatory variables entered in the equation.

Equations like the above are estimated both for the current and financial account balances and their main components. As explanatory variables, we use cyclically sensitive macroeconomic indicators reflecting the following analysis.

A. Current Account

Both economic theory and the work of other researchers suggest that the current account of the U.S. balance of payments should be sensitive to domestic economic conditions. As noted earlier, Freund (2000) has commented that the current account balances of most industrial countries have responded to changes in real GDP growth rates, with deficits typically widening during the expansionary part of a business cycle and contracting or becoming surpluses as real GDP growth declines. Thus, we would expect real growth to have a negative impact on the current account balance, raising imports of goods and services. Higher inflation should also worsen the current account balance, raising imports and reducing exports as competitiveness declines. The same should apply to higher energy prices, since the United States is a net energy importer. Various foreign variables should also be expected to affect the current account balance. Higher foreign growth rates should spur U.S. exports of goods and services, other things being equal. Variables affecting the real prices of tradables should also affect the external current account balance. Thus, the real effective exchange rate of the dollar should have an impact, with a real appreciation eventually worsening the current account balance (by reducing exports and increasing imports) and a

[3] One benefit from examining separately the impact of macroeconomic shocks and forecastable events on the balance of payments is that the two phenomena may affect the same variable over different time periods. Shocks are random components of an observed variable that have, by construction, a zero mean. Thus, they should have only temporary effects on a variable that cancel out over time. Forecastable events, by comparison, are more likely to have longer lasting effects on a variable. Decomposing a variable into forecasted and shock elements allows testing whether an observed relationship between two variables reflects mainly temporary, or also longer lasting, effects.

real depreciation improving it. In the short run, however, if the economy is highly dependent on imports, the effects may be opposite (indicating a "J-curve" effect of changes in the real effective exchange rate). Interest rates may also affect the current account balance by changing net interest payments. In addition, the actual and predicted performance of stock markets in the United States may affect the current account, if stock market performance is positively related to the real exchange rate, in the sense that higher stock prices may trigger net capital inflows, leading to an appreciation of the real exchange rate and a worsening of the current account balance.[4] Thus, there may be collinearity between the two variables, making it hard to identify their separate effects in a single regression.[5]

B. The Capital and Financial Account

The impact of cyclical factors on the capital and financial account of the balance of payments may be harder to predict than the current account, for a variety of reasons. U.S. financial institutions play a key role in providing financing to other countries. Thus, *net* financial inflows to the United States also reflect, to a significant degree, the financial circumstances of other economies. Nevertheless, one might expect the capital and financial account to respond positively both to current and to expected real economic growth in the United States, both reflected in current growth rates. This reflects the importance of both direct investment and financial investments by foreigners from abroad to the United States. Similarly, the capital and financial account might also depend on real growth in the United States *relative* to that in other economies. This could be incorporated by including measures of real GDP growth in other country groups, such as non-U.S. industrial countries and selected emerging market economies. Finally, since official reserves are limited, there might be an inverse relationship between the current account and the capital and financial account, with the latter becoming more positive as the former deteriorates. One implication might be that net inflows in the capital and financial accounts essentially finance current account deficits, since there is a limit to reducing official reserves. However, an inverse relation could result if capital inflows lead to a real appreciation of the U.S. dollar that worsens the current account balance.

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[4] Mercereau (2001) also finds that the stock market affects current account performance. In his model, expectations of higher future stock prices raise present-period consumption because of consumption smoothing, weakening the current account balance in the present.

[5] Besides these variables, we also examined the effect of shocks to government spending and to the money supply, as a way of testing the impact of fiscal and monetary policy on the current and financial accounts of the balance of payments. Unlike Chinn and Prasad (2000), we did not find significant effects from these variables, at least in the context of our annual models.

C. Procedures, Variables, and Data

To examine the different hypotheses regarding the current and the capital and financial accounts, reduced form equations were estimated for both the aggregate balances and for important components of each account.

For the current account, equations were estimated for the current account balance, exports and imports of goods, and exports and imports of services. For the capital and financial account, equations were estimated for the financial account balance, total financial inflows, total financial outflows, total inflows by foreign parties other than governments, inflows for foreign direct investment, inflows for holdings of nongovernment securities, and inflows for liabilities of banks and other financial institutions, the latter representing mostly accumulations of deposits and certificates of deposit at U.S. banks. Because amounts in the capital account were small, no equations were estimated for the combined capital and financial account.[6] Tests indicated that the external sector balances and the different explanatory variables had unit roots in levels but not in first differences, so the equations were estimated using first differences. Because the current and financial account balances could take negative values, they were estimated as changes in levels. The components of these balances were estimated as changes in logarithms, however. Table 3 contains a list of the dependent variables, while data sources appear in Appendix I.

To isolate the effects of key variables, a basic set of equations was estimated using the changes in the following as explanatory variables: real GDP, the GDP deflator, an index of energy prices, the real effective exchange rate of the U.S. dollar, and weighted averages of real GDP in emerging market economies and of industrial countries other than the United States.[7] [8] [9] To illustrate asymmetries in the effects of positive and negative shocks to

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[6] In the U.S. balance of payments, the capital account includes estimates of debt forgiveness by the U.S. government, transfers of assets by immigrants to the United States (comparable transfers by emigrants are excluded, because of insufficient data), and sales and acquisitions of some nonproduced, nonfinancial assets (transactions in natural resources and a few large transactions in other types of such assets). See IMF (2001a, p. 365). Because the relevant items are small, the capital account in the U.S. balance of payments is also small.

[7] To determine whether trade liberalization affected the results, the equations were also estimated using dummies for each of the three major postwar rounds of tariff negotiations—the Kennedy, Tokyo, and Uruguay rounds. Only the Kennedy round dummy (years from 1969 onward) had a significant coefficient in any of the equations, and then only for exports and imports of goods. Accordingly, the equations reported include no trade round dummies.

[8] We relate the nominal values measured in the balance of payments to both real variables and price indices (such as changes in real GDP and in the GDP deflator) rather than just nominal variables (such as nominal GDP), to shed more light on the sources of cyclical fluctuations in the dependent variables.

individual variables, actual changes for certain variables were replaced by expected values and positive and negative shocks.[10] Several equations also tested for the impact of U.S. stock market prices, as measured by Standard & Poor's index of 500 stocks listed on the New York Stock Exchange. Table 3 also includes a list of the explanatory variables used in the equations.

The various equations were estimated using both annual and quarterly data.[11] The annual equations were estimated over the period 1960–2000, while those with quarterly data were estimated over the 1960–2000 period and for 1990–2000 and 1995–2000, to see if new trends in the data appeared during the 1990s. Appendix II describes in detail the econometric methodology.

The annual equations had the following form, sometimes including a stock price variable, with one set of explanatory variables entered as actual changes (shown below with the subscript "i") and a second set (shown with the subscript "j") decomposed into expected changes and positive and negative shocks (positive and negative differences from the expected changes):

$$DY_t = b_0 + \Sigma_{i,t}\, b_i\, DX_{i,t} + \Sigma_{j,t}\, c_j\, E(DZ_{j,t}) + \Sigma_j\, d_{j,t}\, PosZ_{j,t} + \Sigma_j\, h_{j,t}\, NegZ_{j,t} + u_t,$$

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[9] The list of industrial countries includes Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom. The set of emerging market economies was chosen based on data availability and relevance of the U.S. balance of payments. The economies included are Argentina, Brazil, Chile, Colombia, Cyprus, Hong Kong SAR, Hungary, Israel, Korea, Mexico, Oman, Saudi Arabia, Singapore, South Africa, Thailand, Turkey, Uruguay, and Venezuela. For both industrial and emerging market groups, the index was constructed as a geometric weighted average of real output in each economy, such that the log of the average equals a weighted sum of the log of real output in each economy. The weights were determined by the ratio of each economy's output to total output in the group.

[10] The technique for deriving expected changes in variables is described in Appendix II. Positive and negative shocks were calculated as the excess or shortfall of actual from expected values of the variables.

[11] Data were drawn mainly from the Bureau of Economic Analysis, U.S. Department of Commerce (BEA). The quarterly equations did not include measures of real GDP in other economies. The various balance of payments indicators and key macroeconomic indicators come from the BEA. Data for the real effective exchange rate (REER) of the U.S. dollar were drawn from the IMF's REER database. Other data are from the International Financial Statistics (IFS) data base. See Appendix I for more details.

Where:

DY_t represents the first difference in one of the dependent variables (the current account balance, financial account balance, or the log of one of their major components);

$DX_{i,t}$ represents the change in the i-th explanatory variable X, entered as a difference in its actual value from the previous year, without decomposition;

$E(DZ_{j,t})$ represents the expected value of the change in the decomposed j-th explanatory variable Z;

$PosZ_{j,t}$ represents positive shocks to the j-th explanatory variable Z;

$NegZ_{j,t}$ represents negative shocks to the j-th explanatory variable Z; and

u_t is a disturbance term.

The reduced form equations are estimated without an error correction term, because the right-hand side variables are not jointly cointegrated with the dependent variable. No single cointegrating vector can thus be identified to include as an error correction term in the short-term reduced-form equations.[12]

Depending on the equation, one or more sets of explanatory variables were decomposed into expected values and positive and negative shocks from these values. In some versions of the equations the two external variables (EMERG—the index of real GDP in emerging market economies, and OTHERIND—the index of real GDP in other industrial countries) were decomposed. This specification is the basic model. In others, the four domestic variables (GDPR—real GDP, GDPDEF—the GDP deflator, ENERGY—the index of energy prices, and REER—the real effective exchange rate of the U.S. dollar), sometimes along with the stock market variable (STOCK), were decomposed.

The quarterly estimates involved distributed lag equations with the following form:

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[12] Cointegration tests indicate that there is a common trend between each of the current account balance and the financial account balance and *selected* explanatory variables in the model (see Section III for details). Nonetheless, there is no cointegration vector that combines each dependent variable and *all* explanatory variables in any of the estimated models. Hence, it was not necessary to account for an error correction term in the model specification of the reduced-form equations.

$$DY_t = b_0 + b_1 \sum_{i=0}^{n} DGDPR_{t-i} + b_2 \sum_{i=0}^{n} DGDPDEF_{t-i} + b_3 \sum_{i=0}^{n} DENERGY_{t-i} + b_4 \sum_{i=0}^{n} DREER_{t-i}$$
$$(+b_5 \sum_{i=0}^{n} DSTOCK_{t-i}) + u_t,$$

where:

DY_t represents the first difference in one of the dependent variables (the current account balance, the financial account balance, or one of their major components);

$\sum_{i=0}^{n} Z_{t-i}$ represents a two- or four-quarter distributed lag of the i-th explanatory variable (DGDPR, DGDPDEF, DENERGY, DREER, and, in some equations, DSTOCK) as defined above, with n =2 for the 1995-2000 period and 4 otherwise; and

u_t is a disturbance term.

Before undertaking this analysis, however, the endogeneity of potential explanatory variables must be addressed.[13] The reduced form equations explaining the current and financial accounts are estimated jointly with equations that approximate agents' forecasts of decomposed variables in the model, using three stage least squares (3SLS). Instrumental variables are used to proxy the endogenous variables in the model, including the real effective exchange rate of the U.S. dollar during the current period (see Appendix II for details). Instruments include the *lagged* value of the first-difference of the logarithms of real output, the price level, broad money supply, federal government expenditure, and the real exchange rate of the U.S. dollar.[14]

III. Cointegration Results

Before estimating the reduced form equations described above, we tested for cointegration between the main domestic economic variables and the current and financial account balances. This test indicates whether our cyclical variables bear a long-term relationship to these key balances. The results are summarized in Table 4.

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[13] Net exports, for example, are an important component of GDP, although in the U.S. the sum of exports and imports of goods and nonfactor services only equals about 25 percent of GDP.

[14] These instruments are functions of *lagged* endogenous variables in the system and thus do not depend on the current value of estimated variables for the current and financial accounts.

For both the current and financial account balances, two combinations of variables were tested: one including the current or financial account balance, real GDP, the real effective exchange rate (REER), the index of energy prices, and the GDP deflator; and one with the first four of these variables, i.e., excluding the GDP deflator. In the case of the current account balance, chi-square statistics suggested that only the current account balance and real GDP were cointegrated, with the expected negative relationship, when all five explanatory variables were included. However, when only the first four variables were included, chi-square statistics indicated that all four variables belonged in the cointegrating vector, with real GDP, energy prices, and the REER all bearing a negative and significant relationship with the current account balance. For the financial account balance, the combination with five variables showed only the GDP deflator and energy prices as cointegrated, with a positive relationship. The test with four variables, however, showed that the financial account balance, real GDP, and the REER were cointegrated, with real GDP and the REER positively related to the financial account balance.

The cointegration results suggest that real GDP, energy prices, and the REER have a negative long-term relationship with the current account balance, while real GDP and the REER have a positive long-term relationship with the financial account balance. The cointegration results indicate that the relations between variables are long lasting. Hence, domestic conditions have long-run implications for the current account deficit and its sustainability. Real GDP growth and dollar appreciation seem necessary for the sustainability of the current account deficit, because they generate the inflow of financial assets to finance the widening deficit. The significance of the error correction term indicates the importance of cyclical fluctuations between variables in the short run. Hence, understanding the relation between the financial and current accounts in the long run requires a thorough investigation of cyclical fluctuations in the short run.

IV. Results from Reduced Form Equations

A. Basic Model with Decompositions

The basic model includes domestic variables and two indices of output growth in selected emerging markets and other industrial countries. All domestic variables enter the model in first-difference form. Each index of output growth in other countries is decomposed into three components: an anticipated growth component, a positive shock, and a negative shock. Results appear in Tables 5a and 5b, which report regressions for the balances and key components of the current account and financial accounts, respectively. Because the current and financial account balances are entered as first differences in levels, coefficients in these regressions cannot be interpreted as elasticities, unlike the case for the other dependent variables.

Table 5a shows that, in this specification, changes in real GDP and the real effective exchange rate both have negative and significant coefficients. These results imply that growth in real GDP and a more appreciated real exchange rate correspond to a weaker current account balance, as expected. Surprisingly, however, positive movements in real

GDP in emerging market economies and other industrial countries do not correspond to a stronger U.S. current account. The coefficients for the expected values of these variables and positive shocks to them are all negative, although significant only for positive shocks to GDP in emerging economies. That is, the growth in emerging markets' output is consistent with an increase in U.S. imports relative to exports. This result may mean that GDP growth in other economies is less important as a determinant of the U.S. current account balance than real growth or real exchange rate movements in the United States for these other groups of economies. Most other variables have insignificant effects on the current account balance.

The equations for exports and imports of goods, and to a lesser extent, exports of services, help explain the results of the equation for the current account balance. The equations for exports of goods and of services both have negative and significant coefficients for changes in the real effective exchange rate (DREER), suggesting that an appreciation of the real exchange rate worsens the current account balance by depressing exports. The equation for imports of goods has a positive and significant coefficient on changes in real GDP (DGDPR), implying that higher real GDP growth worsens the current account balance by raising imports. Both sets of results conform to theoretical predictions. A few other variables have significant coefficients in other equations, but most are insignificant. Hence, fluctuations in real GDP growth and the real effective exchange rate seem to be the primary determinants of cyclical fluctuations in the current account balance of the U.S.

Table 5b shows that the basic equations, with EMERG and OTHERIND decomposed, do a poor job of explaining the financial account and its most important components. Most coefficients are insignificant, and the R^2 statistics for the equations are low. Thus, the macroeconomic variables and decompositions here do little to explain movements in the financial account.

Table 6 reports the results of equations for the current account balance and its main components in which the four main domestic economic variables—GDPR, GDPDEF, ENERGY, and REER—are decomposed, while EMERG and OTHERIND are entered as changes in "actual" (instrumented) values. We report this specification to demonstrate the robustness of our previous findings with respect to model specification. Further, we seek to investigate possible asymmetry in the effects of domestic variables on components of the current and financial accounts. This specification does a better job at explaining variations in the current account balance and key components. In addition, it supports some conjectures regarding movements in the financial balance.

Compared to the results of Table 5a, all the equations in Table 6 have noticeably higher R^2 statistics, and many of the new variables are significant at the 10 percent level or better. In the equation for changes in the current account balance, the expected value of changes in real GDP has the anticipated negative sign and is again quite significant. This reflects positive and highly significant coefficients on expected changes in real GDP in the equations for imports of goods and of services. This result is consistent with a long-lasting effect of domestic real conditions on imports and the current account balance. Thus, the deterioration in the current account balance reflects the role of higher real GDP in raising expected imports

of goods and, this time, of services. Positive shocks to real GDP growth in the United States tend to improve the current account balance, reflecting a positive effect on changes in exports that exceeds the positive effect on changes in imports. However, negative shocks also improve the current account balance, as evident by the negative and statistically significant coefficient. The reduction in imports exceeds that of exports during economic downturns. Thus, there is clear asymmetry in the effects of fluctuations in real GDP growth on the current account balance of the U.S, resulting from fluctuations in exports. Overall, the results indicate that the inverse relationship between the current account and the business cycle in the U.S. is particularly evident during recessions.

Table 6 also shows that expected appreciations in the real exchange rate have a negative effect on the current account balance, consistent with theoretical expectations and the result in Table 5a. On the other hand, higher expected energy prices have a positive but insignificant effect on changes in the current account balance. This is consistent with a significant increase in exports when anticipated energy prices rise, as the equation for exports of goods suggests.[15] However, positive shocks to energy prices have a significant negative effect on the current account balance, reflecting a greater impact on imports than on exports. Since the United States is a net energy importer, higher-than-expected energy prices should coincide with a weaker current account balance. This is consistent with a larger positive coefficient on imports compared to exports in response to higher-than-expected energy prices. That is, the quantity demanded of energy imports is inelastic with respect to the rise in prices. Hence, the value of imports is rising. Surprisingly, unexpectedly low energy prices also worsen the current account, as evident by the positive and statistically significant coefficient. Both exports and imports behave asymmetrically in the face of energy price shocks. U.S. exports do not decline with the reduction in energy prices. Moreover, imports do not decrease, despite the reduction in energy prices. Hence, there appears to be a tendency for the quantity of energy imports demanded to rise in response to an unexpected reduction in prices. The model specification in Table 6 also demonstrates that positive changes to real GDP in emerging markets are significantly related to a weaker current account balance. Higher real GDP growth in other industrial countries is positively and significantly related both to higher goods exports and to higher goods imports. However, the coefficient in the equation for exports of goods is noticeably larger than that on imports, suggesting that the main effect of higher growth in other industrial countries is to raise U.S. exports, despite the results in Table 5a.

Estimating the financial balance with the specification that decomposes domestic variables yields no better results than those of Table 5b. The results are available on request.

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[15] This surprising result may reflect higher imports from the U.S. by oil-exporting countries when energy prices increase.

B. Effect of Stock Market Prices

As a way of improving the results for the financial balance, Tables 7a, 7b, 8a, and 8b report the effect of adding a variable for U.S. stock market prices to the previously estimated models. The stock market variable has a powerful impact on a number of these equations, sharply increasing the R^2 statistics, particularly for certain equations in the financial account.

Table 7a reports the model for the current account and its main components, using the stock market variable and decompositions of the variables for emerging markets and other industrial countries. Adding the stock market variable does not affect the impact of changes in real GDP, for which the coefficient remains negative and significant at the 5 percent level. The coefficients for the change in stock market prices are negative and significant at the 10 percent level in the export and import equations. The negative sign in the export equation could reflect the role of higher stock prices in appreciating the real exchange rate, thus reducing the competitiveness of exports. The negative sign on the import equation may reflect, for example, a shift from consumption to financial investment activity when stock prices are higher.

Table 7b shows that the strongest effects of stock market prices appear in equations for certain components of the financial account, for which the R^2 statistics increase noticeably, both for the financial account balance and for most of its main components. Moreover, there is evidence that stock prices affect the composition of net capital flows to the United States. Adding the stock market variable has a negative effect, significant at the 10 percent level or better, on foreign holdings of U.S. official assets, foreign direct investment, and other financial liabilities of the United States. In addition, it has a positive and highly significant effect on foreign holdings of nonofficial U.S. securities, which include stocks. Thus, higher stock prices appear to raise foreign acquisitions of private U.S. securities at the expense of net inflows for official securities, foreign direct investment, and deposits or certificates of deposit in U.S. financial institutions.

Tables 8a and 8b show the results of regressions in which the main domestic economic variables—real GDP, the GDP deflator, energy prices, the real exchange rate, and stock market prices—are decomposed. This specification yields high R^2 statistics for exports and imports of goods, but otherwise the results are hardly better than those in the previous decomposition. As in earlier specifications, expected changes in real GDP are negatively correlated with the current account balance, reflecting higher imports of goods and, now, services (Table 8a). Expected changes in stock prices are negatively and significantly related to exports of goods, probably reflecting the role of higher stock prices in appreciating the exchange rate. Higher real GDP growth, price inflation, and real exchange rate appreciation are positively related to higher imports. So, too, are shocks to energy prices, which have an

asymmetric effect on imports. Thus, imports continue to grow, despite a reduction in energy prices.[16]

In the financial account (Table 8b), anticipated real growth is positively and significantly related to higher levels of foreign direct investment. This result suggests the long-lasting effect that real growth has on the flow of FDI into the U.S. In addition, higher stock prices are positively and significantly related to higher foreign acquisitions of nonofficial securities, again conforming to expectations. Positive shocks to stock prices also tend to reduce foreign holdings of official U.S. assets. This result coincides with the view that foreign investors change their allocations of assets in line with changes in relative yields of different securities.

C. Regressions with Policy Variables

In addition to the above regressions, we also estimated several equations using such policy variables as short-term interest rates and government expenditure.[17] Adding the change in the interest rate on 91-day U.S. Treasury bills, for example, had no significant impact on equations for the current account balance, although a change in the interest rate had a small but positive and significant impact on changes in exports (Table 9a). Decomposing the interest rate into expected values and shocks had a similar impact. Exports rise when interest rates are higher, which usually occurs during expansions.

Although equations for the financial account that included interest rates had low R^2 statistics, the interest rate variable had a negative impact on changes in the financial balance, with the coefficient on expected interest rates (when decomposed into expected values and positive and negative shocks) significant at the 5 percent level (Table 9b). Evidently, higher short-term interest rates do not stimulate demand for U.S. financial assets. In contrast, changes in real GDP are positively related to the financial account balance. Changes in foreign direct investment (FDI) are also positively and significantly related to changes in actual and expected interest rates, implying higher FDI when interest rates are higher and economic conditions are stronger. Similarly, the positive and significant coefficient for negative shocks to interest rates suggests that FDI is lower when interest rates are unexpectedly low. In these cases higher interest rates may signal a strong economy, while unexpectedly low interest rates signal a weaker economy.

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[16] As indicated before, the dependency of the U.S. economy on energy imports is evident in two directions. Quantity demanded is inelastic with respect to a price increase. Hence, import value increases despite the rise in energy prices. Nonetheless, quantity demanded increases as prices decline. Hence, import value increases in response to a reduction in energy prices.

[17] We examined the effect of government expenditure, rather than the fiscal balance, because outlays are more discretionary than the overall balance, which incorporates revenues and thus is more endogenous to the business cycle (because most taxes are revised infrequently and are thus more heavily determined by cyclical conditions).

Including government expenditure in the equations had no significant effect on the current account balance, although shocks to government expenditure were positively and significantly related to imports, in line with the findings for real GDP. (Tables are available on request.) While shocks to government spending had no significant impact on the overall financial balance, positive shocks had a positive and significant relationship with foreign capital inflows, while negative shocks were significantly related to higher foreign outflows. The former observation is consistent with the view that higher government spending, as part of higher real GDP and possibly higher interest rates, weakens the current account balance, thus requiring more capital inflows. Similarly, capital outflow increases as government spending falls unexpectedly.

D. Regressions with Quarterly Data

Regressions with quarterly data were estimated using, as explanatory variables, two- or four-quarter distributed lags of those variables available on a quarterly basis: changes in real GDP, the GDP deflator, energy prices, and the real effective exchange rate. In one variant a four-quarter distributed lag of stock market prices was also included. The regressions were estimated over the entire sample period (the first quarter of 1960 through the third quarter of 2000, i.e., 1960(I) – 2000(III)) and for two portions of the last decade, 1990(I) – 2000(III) and 1995(I) – 2000(III), in the last case using two-quarter distributed lags. The latter two sets of regressions were estimated to explore whether the rise in global capital movements during the 1990s caused a significant change in the reduced form relationships underlying the current and financial accounts of the balance of payments. The results of the regressions, reported in Tables 10 through 12, differed somewhat, depending on the observation period. In addition, the quarterly regressions for the entire period yielded somewhat different results from those using annual data. Nevertheless, some broad trends emerge from the quarterly regressions, in general confirming those using annual data.

As regards the current account, the quarterly regressions confirm that increases in real GDP, higher energy prices, and a more appreciated real exchange rate all have a negative effect on the current account balance, although the significance of these effects differs, depending on the time period. For the entire sample period and the 1990–2000 decade, energy prices and the real exchange rate have a significant, downward impact on the current account. For the years 1995–2000, the energy price variable remains significant, while the real exchange rate does not. This may reflect the trends in these variables during this period. The current account balance deteriorated most notably during 1998–2000, while the REER appreciated steadily through 1997, depreciated slightly during 1998, and resumed its appreciation during 1999 and 2000. As regards real GDP, the coefficient is negative during all three periods, but significant only during 1995–2000. On a quarterly basis, the relationship between real growth and the current account balance may have been less pronounced during the years before

1995, which was toward the beginning of the most recent period of strong growth and rising current account deficits in the United States.[18]

Contrary to expectations and, in contrast to annual results, the GDP deflator has a positive and significant effect on the current account balance in the quarterly equations. If some time is needed to shift purchases between domestic and foreign sources, during a quarter higher U.S. prices might simply raise export earnings relative to import payments.

Equations for the financial account performed much worse than those using annual data and are not shown here. None of the regular variables proved significant in any equation. Adding the stock market variable changed the signs of some coefficients, but this variable proved significant only in the equation for foreign holdings of nonofficial U.S. securities, where it entered with a positive sign. Thus, the quarterly equations shed no additional light on the role of key macroeconomic or financial variables on the financial account of the United States.

V. Conclusions

The goal of this paper has been to assess the cyclical sensitivity of key components of the U.S. balance of payments, using short-term models relating these components to such variables as real GDP growth, the inflation rate, the real exchange rate, energy prices, and real growth in various trading partners. Theory and past research suggest that the current account balance responds to the business cycle. To the extent that the U.S. draws capital inflows that respond to the state of the U.S. economy and its financial markets, the capital and financial accounts may also be cyclically sensitive.

To address these issues, we have tested whether key domestic macroeconomic variables are cointegrated with the current and financial account balances, to see whether significant long-term relationships exist between these balances and the different explanatory variables. In addition, we have estimated a variety of short-term, reduced form equations for the current account balance, the balance of the financial account, and their main components, relating each of these items to cyclically sensitive macroeconomic aggregates and indices, including indices of real economic growth in other countries. To test for asymmetrical responses to shocks, most of the equations have included the decomposition of certain variables into expected changes and positive and negative deviations from these expected values.

Cointegration results confirm long-term relationships between cyclical factors on the one hand and the current and financial accounts, on the other. Over the long run, real GDP, energy prices, and the real effective exchange rate (REER) are each negatively and significantly related to the current account balance. In addition, real GDP and the REER are positively and significantly related to the financial account. This could be the reverse

[18] Quarterly data have cyclical noise and are subject to frequent revisions, which may disguise correlations that are significantly displayed using annual data.

implication of the results for the current account balance. Because increases in these variables worsen the current account, and official reserves are finite, increases in these variables should also lead to larger net financial inflows. While our findings do not indicate the direction of causality, they point to a negative long-run correlation between the current and financial accounts in the face of changes in real GDP and the REER. This is consistent with the ability of the U.S. economy to sustain a significant current account deficit over a long period, although the magnitude of that deficit cannot be directly determined.

The reduced-form regressions indicate that cyclical factors have a stronger effect on short-term fluctuations in the current account than in the capital and financial account. This finding suggests the robustness of capital inflows in the face of short-term fluctuations. Hence, financial investment in the U.S. appears to be of long-term nature, attesting to investors' confidence in the strong fundamentals underlying the U.S. economy in the long run.
In line with earlier studies, our empirical work shows that the current account balance is negatively and significantly related to increases in real GDP and the real effective exchange rate (REER) of the U.S. dollar. This reflects a stronger positive response of imports than exports to increases in real GDP, and a greater negative effect of real exchange rate appreciation on exports than imports. Actual and expected changes in energy prices do not bear so robust a relationship with the current account balance. While positive shocks to energy prices tend to weaken the current account, the account does not improve in the face of negative shocks. The former result is consistent with the U.S. being a net energy importer. Growth in selected emerging market economies and in other industrial countries also appears relevant, although less important, compared to domestic conditions, in determining cyclical fluctuations in the current account. In general, the current account improves with the growth in other industrial countries and deteriorates with the growth in selected emerging market economies. The latter result could reflect reverse causality.

The empirical work in this paper has been less successful in explaining cyclical movements in the external financial account, the main component of the capital and financial account of the balance of payments. The main result from the regressions is to corroborate that foreign direct investment appears positively related to increases in real GDP, while gains in stock market prices coincide with more foreign investment in nonofficial securities in the United States.

As noted earlier, the results of this paper will not in themselves determine the sustainability of the current account. However, the cyclical sensitivity of the capital and financial account may give some indication that the U.S. can sustain a considerable current account deficit during periods of above-average economic growth.

Table 1. United States: Current Account Balance, 1981–2000

(in percent of GDP)

Year	Current Account Balance
1981	0.2
1982	-0.4
1983	-1.3
1984	-2.5
1985	-3.0
1986	-3.4
1987	-3.4
1988	-2.4
1989	-1.8
1990	-1.4
1991	0.1
1992	-0.8
1993	-1.3
1994	-1.7
1995	-1.5
1996	-1.7
1997	-1.7
1998	-2.5
1999	-3.7
2000	-4.5

Sources: IMF, *International Financial Statistics Yearbooks*, 1998 and 2001.

Table 2. Current Account Deficits in the United States and Selected Other Countries, 1990–2000

(in percent of GDP)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
United States	-1.4	0.1	-0.8	-1.3	-1.7	-1.5	-1.7	-1.7	-2.5	-3.7	-4.5
Japan	1.5	2.0	3.0	3.1	2.8	2.2	1.4	2.2	3.2	2.5	...
Germany	3.2	-1.0	-0.9	-0.7	-1.0	-0.8	-0.3	-0.1	-0.2	-1.0	...
United Kingdom	-3.4	-1.5	-1.7	-1.7	-0.2	-0.5	-0.1	0.8	-0.1	-1.4	-1.7
France	-0.8	-0.5	0.3	0.7	0.5	0.7	1.3	2.8	2.8	2.6	...
Italy	-1.5	-2.1	-2.4	0.8	1.3	2.3	3.3	2.8	1.7	0.7	...
Canada	-3.4	-3.8	-3.7	-3.9	-2.3	-0.7	0.6	-1.6	-1.8	-0.4	1.8
Australia	-5.2	-3.6	-3.7	-3.3	-5.1	-5.4	-3.9	-3.1	-5.0	-5.7	-4.1
New Zealand	-3.4	-2.8	-2.7	-1.7	-4.6	-5.1	-6.0	-6.6	-4.9	...	-5.5
Switzerland	3.0	4.5	5.8	7.6	6.6	7.0	7.2	10.5	9.4	...	...

Source: International Monetary Fund, *International Financial Statistics Yearbook* (2001).

Table 3. Variables Used in Regressions

Dependent Variables[1]	
Dcbal	Change in the U.S. external current account balance
Dexport	Change in U.S. exports of goods
Dimport	Change in U.S. imports of goods
Dsexport	Change in U.S. exports of services
Dsimport	Change in U.S. imports of services
Dfbal	Change in the U.S. external financial account balance
Doutflow	Change in outflows in the U.S. external financial account
Dinflow	Change in inflows in the U.S. external financial account
Dofasset	Change in non-official foreign holdings of U.S. official assets
Dinv	Change in foreign direct investment in the United States
Dofussec	Change in non-official foreign holdings of U.S. securities other than U.S. Treasury securities
Dofusliab	Change in non-official foreign holdings of U.S. liabilities reported by U.S. banks
Explanatory Variables	
DGDPR	Change in real GDP, in percent (first difference of log of real GDP)
DGDPdefl	First difference in the percent change of the U.S. GDP deflator.
Denergy	Change in the index of prices of crude oil exports of petroleum exporting countries
Dr	Change in the nominal interest rate on 91-day U.S. Treasury securities
Dreer	Change in the real effective exchange rate (trade weighted) of the U.S. dollar
Demerg	Change in the index of real GDP growth in 15 emerging market countries
Dothind	Change in the index of real GDP growth in non U.S. industrial countries
Dstock	Change in value of Standard & Poor's composite 500 stock index

[1] Except where indicated otherwise, variables are in current U.S. dollars. Changes represent the first difference of the indicated variable (annual or quarterly, depending on the equation). Except for Dcbal and Dfbal, which are changes in levels, other variables are changes in logarithms. Data sources for the variables are reported in Appendix II.

Table 4. Results from Cointegration Tests

I. Estimates of Cointegrating Vectors					
Curr. Acct. Bal.	*Cbal*	*GDPR*	*GDPdefl*	*Energy Pr*	*REER*
Vector	-1.00*	-0.27*	-341.9	0.82	-0.78
Chi-sq. stat.	9.76	11.03	0.31	0.57	0.11
Vector	-1.00*	-0.22*		-1.09*	-3.05*
Chi-sq. stat.	13.18	14.24		4.95	10.16
Fin. Acct. Bal.	*Fbal*	*GDPR*	*GDPdefl*	*Energy Pr*	*REER*
Vector	-1.00	0.44	7097.70*	-29.18*	5.57
Chi-sq. stat.	0.41	1.72	8.16	8.05	0.44
Vector	-1.00*	0.13*		0.14	1.72*
Chi-sq. stat.	13.74	7.99		0.17	8.47

II. Estimates of Error-Correction Models				
	dCbal	*dCbal*	*dFbal*	*dFbal*
EC(-1)	54.30*	-56.43*	155.66*	101.80*
	(2.43)	(-2.58)	(4.89)	(2.63)
dCbal(-1)	0.33^	0.49*		
	(1.80)	(2.52)		
dCbal(-2)		0.14		
		(0.76)		
dFbal(-1)			-0.96*	-0.01
			(-5.93)	(-0.03)
dFbal(-2)				0.22
				(0.76)
dGDPR(-1)	-0.01	0.02	-0.19*	-9.18
	(-0.34)	(0.48)	(-2.91)	(-0.12)
dGDPR(-2)		0.04		-29.24
		(0.79)		(-0.40)
dGDPdef(-1)	-2117.4*		-7623.60*	
	(-3.09)		(-4.37)	
dEnergy(-1)	4.51*	2.92*	1.91	-1.71
	(4.81)	(3.72)	(1.37)	(-0.99)
dEnergy(-2)		-2.28*		-1.40
		(-2.61)		(-0.90)
dReer(-1)	-2.19*	-0.60	-0.32	-0.05
	(-4.16)	(-0.76)	(-0.39)	(-0.04)
dReer(-2)		2.06*		-0.38
		(2.44)		(-0.23)
Intercept	166.05*	445.48*	163.11*	-588.79*
	(2.43)	(2.56)	(4.62)	(-2.50)
R^2	0.60	0.66	0.63	0.52
F statistic	7.79*	6.00*	8.70*	3.23*

* denotes significance at the 5 percent level

^ denotes significance at the 10 percent level

dX(-1) denotes the lagged first difference in X, i.e., X(-1) - X(-2)

dX(-2) denotes the lagged second difference in X., i.e., X(-2) - X(-3)

Table 5a. Regressions of the Current Account Balance and Its Main Components:

Decompositions of Changes in Real GDP for Emerging Markets and Other Industrial Countries 1/

Dep. Var.	Constant	DGDPR	DGDPdefl	Denergy	Dreer	E(Demerg)	E(Dothind)	Pos Emerg	Neg Emerg	Pos Othind	Neg Othind	R2
Dcbal	51.45	-788.86*	-214.09	64.79	-173.4*	-4.15	-58.77	-8.78*	3.74	-1.62	774.79	0.42
	(1.49)	(-2.60)	(-0.64)	(1.02)	(-2.12)	(-0.95)	(-0.12)	(-2.48)	(1.17)	(-0.00)	(0.80)	
Dexport	0.011	0.50	0.11	0.54*	-0.51*	0.013	0.67	0.0007	-0.0025	1.97	3.71^	0.73
	(0.16)	(0.83)	(0.17)	(4.32)	(-3.16)	(1.51)	(0.68)	(0.10)	(-0.40)	(1.36)	(1.94)	
Dimport	-0.041	2.14*	0.33	0.47*	-0.28	0.0085	(0.35)	0.0047	-0.0077	2.014	1.08	0.67
	(-0.58)	(3.38)	(0.47)	(3.54)	(-1.63)	(0.92)	(0.33)	(0.64)	(-1.15)	(1.31)	(0.53)	
Dsexport	0.029	0.082	0.91^	0.027	-0.23^	0.0036	(0.58)	0.0031	-0.0021	-0.69	-0.24	0.47
	(0.60)	(0.19)	(1.93)	(0.30)	(-2.01)	(0.58)	(0.81)	(0.62)	(-0.46)	(-0.66)	(-0.18)	
Dsimport	0.0065	0.78	1.038^	0.085	-0.032	0.0082	0.014	0.0023	-0.01^	-0.97	3.13^	0.43
	(0.12)	(1.58)	(1.93)	(0.82)	(-0.24)	(1.15)	(0.02)	(0.40)	(-1.98)	(-0.81)	(1.98)	

1/ For definitions of variables, see Table 3. E(X) denotes expected change in the variable X. Pos and Neg entries represent shocks to the indicated variables.

Figures in parentheses are t-statistics.

* denotes significance at 5 percent level.

^ denotes significance at the 10 percent level.

All dependent variables are in log first difference, except for Dcbal, which measures the change in current account balance.

Table 5b. Regressions of the Financial Account Balance and Important Components:
Decompositions of Changes in Real GDP for Emerging Markets and Other Industrial Countries 1/

Dep. Var.	Constant	DGDPR	DGDPdefl	Denergy	Dreer	E(Demerg)	E(Dothind)	Pos Emerg	Neg Emerg	Pos Othind	Neg Othind	R^2
Dfbal	20.41	369.05	-550.66	120.16	-37.37	-1.53	-908.47	5.65	-3.97	1103.2	-905.76	0.17
	(0.35)	(0.84)	(-0.97)	(1.11)	(-0.27)	(-0.20)	(-1.06)	(0.94)	(-0.73)	(0.88)	(-0.55)	
Dinflow	0.022	6.96	-3.18	1.071	-0.37	0.047	-7.76	0.0087	-0.052	4.90	-11.67	0.06
	(0.02)	(0.89)	(-0.37)	(0.66)	(-0.17)	(0.42)	(-0.60)	(0.10)	(-0.63)	(0.26)	(-0.47)	
Doutflow	(-0.051)	0.20	-0.47	0.34	-1.50	0.096	-2.30	0.00079	-0.022	5.30	-2.37	0.11
	(-0.08)	(0.04)	(-0.08)	(0.29)	(-1.00)	(1.19)	(-0.25)	(0.01)	(-0.38)	(0.39)	(-0.13)	
Dofasset	0.35	2.21	0.99	0.56	0.88	0.034	-7.53	-0.016	0.025	10.49	23.12	0.17
	(0.38)	(0.24)	(0.12)	(0.34)	(0.42)	(0.31)	(-0.52)	(-0.18)	(0.30)	(0.55)	(0.85)	
Dinv	0.012	7.09	1.60	1.54	-0.94	0.12	-8.57	0.0047	0.0016	1.68	35.60^	0.41
	(0.02)	(1.22)	(0.25)	(1.27)	(0.60)	(1.47)	(-0.89)	(0.07)	(0.03)	(0.12)	(1.92)	
Dofussec	0.83	-6.90	14.11	-5.76^	3.61	-0.93	-8.42	-0.072	0.19	-19.31	-10.34	0.22
	(0.50)	(-0.45)	(0.90)	(-1.94)	(0.94)	(-0.45)	(-0.33)	(0.43)	(1.23)	(-0.53)	(-0.22)	
Dofusliab	0.91	1.30	-5.87	1.76	2.075	0.18	-30.82	-0.016	0.069	60.2	29.97	0.30
	(0.43)	(0.06)	(-0.32)	(0.51)	(0.46)	(0.77)	(-1.02)	(-0.08)	(0.37)	(1.58)	(0.53)	

1/ For definitions of variables, see Table 3. E(X) denotes expected change in the variable X. Pos and Neg entries represent shocks to the indicated variables.
Figures in parentheses are t-statistics.
* denotes significance at 5 percent level.
^ denotes significance at the 10 percent level.
All dependent variables are in log first difference, except for Dfbal, which measures the change in financial account balance.

Table 6. Regressions of the Current Account Balance and Its Main Components:
Model with Decomposition of Changes in Real GDP, GDP Deflator, Energy Prices, and Real Effective Exchange Rate 1/

Dep. Var.	Constant	E(DGDPR)	E(DGDPdefl)	Pos GDPR	Neg GDPR	Pos Defl	Neg Defl	E(Denergy)	E(Dreer)	Pos energ	Neg energ	Pos Reer	Neg Reer	Demerg	Dothind	R^2
Dcbal	44.16	-1332.19*	-655.24	1002.32	-1786.10*	1800.58	-2299.98	122.04	-359.55*	-289.08*	393.74*	-191.31	-112.8	-2.94*	423.38	0.70
	(1.84)	(-3.77)	(-1.68)	(1.47)	(-2.87)	(1.14)	(-1.23)	(1.58)	(-2.70)	(-2.48)	(2.67)	(-0.73)	(-0.67)	(-2.14)	(1.62)	
Dexport	0.0062	0.40	-0.47	3.16^	0.0055	0.42	5.68	0.53*	-0.58^	0.67*	-0.19	-0.42	-0.22	0.000085	1.60*	0.77
	(0.10)	(0.45)	(-0.48)	(1.84)	(0.00)	(0.11)	(1.21)	(2.73)	(-1.73)	(2.30)	(-0.51)	(-0.64)	(-0.51)	(0.02)	(2.43)	
Dimport	-0.11*	2.68*	0.82	3.64*	1.71	0.52	4.69	0.22	0.037	1.22*	-0.35	0.044	-0.48	0.00072	1.25*	0.84
	(-2.37)	(3.77)	(1.05)	(2.65)	(1.37)	(0.33)	(1.24)	(1.41)	(0.14)	(5.19)	(-1.18)	(0.08)	(-1.40)	(0.26)	(2.37)	
Dsexport	0.072	0.0063	0.39	1.14	-0.69	1.22	2.57	0.14	-0.095	-0.027	-0.057	-0.30	-0.46	0.0016	-0.19	0.55
	(1.64)	(0.01)	(0.55)	(0.92)	(-0.61)	(0.42)	(0.75)	(0.99)	(-0.39)	(-0.12)	(-0.21)	(-0.63)	(-1.49)	(0.65)	(-0.41)	
Dsimport	-0.072	2.12*	1.47^	1.72	-0.79	-4.82	7.42^	0.047	0.37	0.40	-0.61^	0.85	-0.31	0.00027	0.12	0.52
	(-1.46)	(2.91)	(1.83)	(1.22)	(-0.62)	(-1.48)	(1.93)	(0.30)	(1.36)	(1.66)	(-2.01)	(1.57)	(-0.90)	(0.09)	(0.22)	

1/ For definitions of variables, see Table 3. E(X) denotes the expected value of variable X. Pos X represents the excess of X over its expected value, while Neg X represents the shortfall from its expected value.
Figures in parentheses are t-statistics.
* denotes significance at the 5 percent level.
^ denotes significance at the 10 percent level.
All dependent variables are in log first difference, except for Dcbal, which measures the first difference of the current account balance.

Table 7a. Regressions of the Current Account Balance and Its Main Components, with Stock Market Variable: Decompositions of Changes in Real GDP for Emerging Markets and Other Industrial Countries 1/

Dep. Var.	Constant	DGDPR	DGDPdefl	Denergy	Dreer	E(Demerg)	E(Dothind)	Dstock	Pos Emerg	Neg Emerg	Pos Othind	Neg Othind	R^2
Dcbal	-0.054	-1.496*	0.684	-0.276	0.173	0.008	2.386	-0.022	-0.010	0.012^	1.981	0.791	0.62
	(-0.66)	(-2.82)	(0.92)	(-1.72)	(0.95)	(1.70)	(1.14)	(-0.27)	(-1.45)	(2.06)	(1.41)	(0.47)	
Dexport	-0.119	-0.697	2.018	-0.069	0.017	0.006	6.20^	-0.274^	0.004	0.018^	5.145*	5.226^	0.91
	(-0.94)	(-0.84)	(1.72)	(-0.28)	(0.06)	(0.73)	(1.89)	(-2.21)	(0.01)	(1.88)	(2.32)	(2.00)	
Dimport	0.071	1.392	0.738	0.369	-0.033	-0.015	1.459	-0.283^	0.019	0.002	1.001	5.739^	0.87
	(0.48)	(1.45)	(0.55)	(1.27)	(-0.10)	(-1.68)	(0.38)	(-1.97)	(1.47)	(0.19)	(0.39)	(1.90)	
Dsexport	-0.005	-0.870	1.875	-0.311	-0.005	0.013	1.639	-0.070	-0.007	0.012	-0.128	1.810	0.57
	(-0.04)	(-1.08)	(1.66)	(-1.28)	(-0.02)	(1.70)	(0.52)	(-0.58)	(-0.62)	(1.26)	(-0.06)	(0.72)	
Dsimport	0.202	0.453	0.843	0.062	-0.157	-0.006	-3.058	-0.219	-0.005	-0.002	-2.473	5.931*	0.70
	(1.67)	(0.57)	(0.76)	(0.26)	(-0.58)	(-0.80)	(-0.98)	(-1.85)	(-0.49)	(-0.27)	(-1.17)	(2.38)	

1/ For definitions of variables, see Table 3. E(X) denotes the expected value of variable X. Pos X represents the excess of X over its expected value, while Neg X represents the shortfall from its expected value. Figures in parentheses are t-statistics.

* denotes significance at the 5 percent level.

^ denotes significance at the 10 percent level.

All dependent variables are in log first difference, except for Dcbal, which measures the change in the current account balance.

Table7b. Regressions of the Financial Account Balance and Important Components, with Stock Market Variable: Decompositions of Changes in Real GDP for Emerging Markets and Other Industrial Countries 1/

Dep. Var.	Constant	DGDPR	DGDPdefl	Denergy	Dreer	E(Demerg)	E(Dothind)	Dstock	Pos Emerg	Neg Emerg	Pos Othind	Neg Othind	R^2
Dfbal	135.98	1334.30*	-1503.05	368.79^	-323.50	-9.71	-3683.12	10.14	7.09	-11.87	-2320.88	-1883.75	0.57
	(1.42)	(2.14)	(1.70)	(1.94)	(-1.50)	(-1.70)	(-1.48)	(0.11)	(0.86)	(-1.67)	(-1.39)	(-0.95)	
Dinflow	0.17	0.50	5.21	-0.49	1.81	0.011	-9.81	-1.16	0.11	-0.015	-1.09	25.09	0.30
	(0.13)	(0.05)	(0.39)	(-0.16)	(0.55)	(0.13)	(-0.28)	(-1.01)	(0.92)	(-0.14)	(-0.05)	(0.87)	
Doutflow	-2.22^	-7.98	22.57	-3.52	1.44	0.039	48.39	0.089	0.12	0.027	35.06	15.94	0.54
	(-1.87)	(-0.84)	(1.84)	(-1.24)	(0.48)	(0.51)	(1.54)	(0.08)	(1.11)	(0.27)	(1.70)	(0.60)	
Dofasset	-0.61	-1.94	19.64*	-2.33	4.22^	0.013	3.84	-1.58*	0.21*	0.012	6.70	54.56*	0.75
	(-0.71)	(-0.28)	(2.22)	(-1.14)	(1.94)	(0.23)	(0.17)	(-2.08)	(2.67)	(0.17)	(0.45)	(2.86)	
Dinv	-0.75	1.00	18.90*	-1.98	1.53	-0.016	15.69	-1.38^	0.084	0.083	15.18	45.12*	0.85
	(-0.93)	(0.15)	(2.27)	(-1.02)	(0.75)	(-0.30)	(0.73)	(-1.94)	(1.13)	(1.24)	(1.09)	(2.51)	
Dofussec	-7.72*	12.51	39.13	-7.31	8.18	-0.08	191.56*	6.93*	0.38	0.045	39.22	-85.36	0.78
	(-3.04)	(0.61)	(1.49)	(-1.20)	(1.27)	(-0.48)	(2.84)	(3.09)	(1.63)	(0.21)	(0.89)	(-1.51)	
Dofusliab	2.58	-17.45	16.93	-3.19	8.28	0.14	-89.11	-6.12*	0.36	0.041	20.58	141.06*	0.75
	(0.76)	(0.67)	(0.55)	(-0.45)	(1.05)	(0.77)	(-1.03)	(-2.38)	(1.17)	(0.16)	(0.39)	(2.32)	

1/ For definitions of variables, see Table 3. E(X) denotes expected change in the variable X. Pos and Neg entries represent shocks to the indicated variables.
Figures in parentheses are t-statistics.
* denotes significance at 5 percent level.
^ denotes significance at the 10 percent level.
All dependent variables are in log first difference, except for Dfbal, which measures the change in the financial balance.

Table 8a. Regressions of the Current Account Balance and Its Main Components, with Stock Market Variable:
Model with Decomposition of Changes in Real GDP, GDP deflator, Energy prices, Real Effective Exchange Rate, and Stock Market Index 1/

Dep. Var.	Constant	E(DGDPR)	E(DGDPdefl)	Pos GDPR	Neg GDPR	Pos Defl	Neg Defl	E(Denergy)	E(Dreer)	Pos Energy	Neg Energy	Pos REER	Neg REER	E(Dstock)	Pos Stock	Neg Stock	Demerg	Dothind	R^2
Dcbal	0.054	-2.635*	-0.633	0.631	-1.006	-0.064	-2.508	0.030	-0.449	-0.589^	0.422	-0.098	0.047	0.016	0.072	-0.952	0.001	1.564	0.90
	(1.01)	(-3.54)	(-0.59)	(0.41)	(-1.08)	(-0.02)	(-0.81)	(0.13)	(-1.98)	(-2.67)	(1.75)	(-0.21)	(0.17)	(0.13)	(0.31)	(-1.71)	(0.48)	(1.83)	
Dexport	-0.122	-0.252	3.771^	-0.399	-1.781	-10.667	15.303*	-0.422	0.061	-0.077	-0.343	1.272	-0.148	-0.536^	-0.132	-0.558	0.006	4.568*	0.97
	(-1.35)	(-0.20)	(2.08)	(-0.16)	(-1.13)	(-1.86)	(2.93)	(-1.09)	(0.16)	(-0.21)	(-0.85)	(1.61)	(-0.32)	(-2.57)	(-0.34)	(-0.60)	(1.60)	(3.18)	
Dimport	-0.224*	3.477*	2.726*	2.258	0.516	-1.742	9.547*	-0.179	0.625*	1.301*	-0.632*	0.764	-0.351	-0.123	-0.218	0.279	0.002	2.626*	0.99
	(-4.66)	(5.20)	(2.82)	(1.65)	(0.61)	(-0.57)	(3.43)	(-0.86)	(3.08)	(6.58)	(-2.93)	(1.82)	(-1.44)	(-1.11)	(-1.05)	(0.56)	(1.12)	(3.42)	
Dsexport	-0.016	0.876	-0.061	0.153	-0.963	4.806	4.064	0.400	0.402	0.246	-0.729	0.091	-0.250	0.210	-0.469	1.070	0.008^	0.676	0.89
	(-0.21)	(0.80)	(-0.04)	(0.07)	(-0.70)	(0.95)	(0.89)	(1.17)	(1.20)	(0.76)	(-2.05)	(0.13)	(-0.63)	(1.15)	(-1.37)	(1.31)	(2.43)	(0.54)	
Dsimport	-0.100	4.248*	1.232	4.756	-2.040	-7.603	9.103	0.166	0.682	0.384	-0.533	0.590	-0.805	-0.214	0.508	-0.220	-0.000	-1.684	0.86
	(-0.93)	(2.86)	(0.57)	(1.56)	(-1.09)	(-1.11)	(1.47)	(0.36)	(1.51)	(0.87)	(-1.11)	(0.63)	(-1.49)	(-0.87)	(1.10)	(-0.20)	(-0.10)	(-0.99)	

1/ For definitions of variables, see Table 3. E(X) denotes the expected value of variable X. Pos X represents the excess of X over its expected value, while Neg X represents the shortfall from its expected value.

Figures in parentheses are t-statistics.

* denotes significance at the 5 percent level.

^ denotes significance at the 10 percent level.

All dependent variables are in log first difference, except for Dcbal, which measures the change in the current account balance.

Table 8b. Regressions of the Financial Account Balance and Important Components, with Stock Market Variable:
Model with Decomposition of Changes in Real GDP, GDP Deflator, Energy Prices, Real Effective Exchange Rate, and Stock Market Index 1/

Dep. Var.	Constant	E(DGDPR)	E(DGDPdefl)	Pos GDPR	Neg GDPR	Pos Defl	Neg Defl	E(Denergy)	E(Dreer)	Pos Energy	Neg Energy	Pos REER	Neg REER	E(Dstock)	Pos Stock	Neg Stock	Demerg	Dothind	R^2
Dfbal	52.16	1966.21	-944.90	1894.58	448.85	1624.38	-1838.16	89.93	117.53	539.27	83.18	-958.72	-116.76	-1.54	192.99	381.48	-4.49	-2397.53	0.71
	(0.52)	(1.42)	(-0.47)	(0.67)	(0.24)	(0.26)	(-0.32)	(0.21)	(0.28)	(1.32)	(0.19)	(-1.10)	(-0.23)	(0.01)	(0.45)	(0.37)	(-1.02)	(-1.51)	
Dinflow	-0.031	7.67	-4.21	12.47	22.64	14.64	-28.07	0.34	1.13	7.06*	-0.10	-8.44	-1.36	0.85	-0.54	0.092	-0.021	-1.56	0.43
	(-0.04)	(0.73)	(-0.35)	(0.61)	(1.41)	(0.32)	(-0.53)	(0.15)	(0.29)	(2.18)	(-0.03)	(-1.12)	(-0.29)	(0.74)	(-0.24)	(0.04)	(-0.57)	(-0.22)	
Doutflow	-0.059	-1.45	-4.38	8.64	16.84	28.79	-2.79	1.60	-4.26	3.39	-3.22	-4.30	-1.16	1.70	0.066	-0.006	-0.014	-0.72	0.38
	(-0.07)	(-0.14)	(-0.37)	(0.43)	(1.06)	(0.65)	(-0.05)	(0.71)	(-1.11)	(1.06)	(-0.83)	(-0.58)	(-0.25)	(1.49)	(-0.03)	(-0.00)	(-0.39)	(-0.10)	
Dofasset	0.61	-13.53	-15.45^	34.13*	8.43	66.67*	-80.96*	1.24	-3.84	3.27	0.82	-0.11	-0.16	-0.79	-3.85*	2.80	-0.01	9.72	0.78
	(0.95)	(-1.33)	(-1.98)	(2.28)	(0.75)	(2.29)	(-2.34)	(0.83)	(-1.44)	(1.49)	(0.33)	(-0.02)	(-0.05)	(-0.81)	(-2.25)	(1.67)	(-0.44)	(1.71)	
Dinv	-1.87*	28.54*	15.10	29.24	-10.26	-78.02	107.06^	-1.58	4.97	6.47^	-7.82^	7.58	1.27	0.71	0.58	-2.54	0.041	6.94	0.58
	(-2.16)	(2.52)	(1.17)	(1.33)	(-0.59)	(-1.60)	(1.87)	(-0.65)	(1.20)	(1.86)	(-1.86)	(0.93)	(0.25)	(0.58)	(0.24)	(-0.97)	(1.05)	(0.89)	
Dofussec	0.26	-5.59	8.84	-43.20	9.43	194.04*	2.67	-2.90	-4.02	-9.52^	-1.76	-15.32	14.07^	4.29*	5.21	6.41	-0.016	-4.36	0.77
	(0.19)	(-0.32)	(0.45)	(-1.29)	(0.36)	(2.63)	(0.03)	(-0.78)	(-0.64)	(-1.81)	(-0.28)	(-1.24)	(1.85)	(2.29)	(1.39)	(1.62)	(-0.28)	(-0.37)	
Dofusliab	-0.37	-16.64	-13.39	98.27*	-12.80	34.95	-229.94*	-2.53	2.75	8.07	8.13	2.64	-2.83	-2.78	-8.30	-0.038	0.096	25.41	0.77
	(-0.18)	(-0.51)	(0.54)	(2.06)	(-0.30)	(0.37)	(-2.08)	(-0.52)	(0.33)	(1.10)	(0.91)	(0.16)	(-0.24)	(-0.91)	(-1.53)	(-0.01)	(1.28)	(1.38)	

1/ For definitions of variables, see Table 3. E(X) denotes the expected value of variable X. Pos X represents the excess of X over its expected value, while Neg X represents the shortfall from its expected value.
Figures in parentheses are t-statistics.
* denotes significance at the 5 percent level.
^ denotes significance at the 10 percent level.
All dependent variables are in log first difference, except for Dfbal, which measures the change in the financial account balance.

Table 9a. Regressions of the Current Account Balance and Its Main Components: Basic Model with Interest Rate 1/

Dep. Var.	Constant	DGDPR	DGDPdefl	Denergy	Dreer	Demerg	Dothind	Dr	E(Dr)	Pos r	Neg r	R^2
Dcbal	14.58	-595.22*	-146.48	50.92	-145.07^	-2.69^	226.31	4.26				0.34
	(0.70)	(-2.27)	(-0.50)	(0.84)	(-1.89)	(-1.81)	(0.71)	(1.04)				
Dcbal	5.24	-555.46^	-337.14	108.52	-207.70*	-2.53	419.30		-6.22	13.23	-1.23	0.41
	(0.23)	(-1.97)	(-0.97)	(1.47)	(-2.35)	(-1.64)	(1.19)		(-0.83)	(1.57)	(-0.15)	
Dexport	0.062^	-0.17	0.16	0.26*	-0.46*	-0.00061	0.60	0.03*				0.80
	(1.86)	(-0.42)	(0.34)	(2.71)	(-3.75)	(-0.26)	(1.17)	(4.55)				
Dexport	0.072^	-0.27	-0.057	0.29*	-0.46*	-0.001	0.76		0.028*	0.029^	0.031^	0.82
	(1.95)	(-0.59)	(-0.10)	(2.40)	(-3.20)	(-0.41)	(1.33)		(2.33)	(2.11)	(2.26)	
Dimport	-0.0016	1.77*	0.61	0.31*	-0.26	-0.00038	0.28	0.011				0.63
	(-0.04)	(3.20)	(1.00)	(2.41)	(1.61)	(-0.12)	(0.42)	(1.22)				
Dimport	0.036	1.43*	0.82	0.22	-0.13	-0.0013	0.16		0.022	-0.014	0.034^	0.68
	(0.78)	(2.51)	(1.16)	(1.46)	(-0.73)	(-0.40)	(0.23)		(1.48)	(-0.84)	(1.98)	
Dsexport	0.086*	-0.15	0.76^	0.021	-0.28*	-0.00062	-0.48	0.0062				0.46
	(2.84)	(-0.38)	(1.79)	(0.24)	(-2.52)	(-0.29)	(-1.03)	(1.03)				
Dsimport	0.038	0.60	0.97^	-0.033	-0.069	-0.0027	-0.24	0.0067				0.29
	(1.00)	(1.28)	(1.85)	(-0.31)	(-0.50)	(-1.03)	(-0.41)	(0.91)				

1/ For definitions of variables, see Table 3. E(X) denotes the expected value of variable X. Pos X represents the excess of X over its expected value, while Neg X represents the shortfall from its expected value. Figures in parentheses are t-statistics.

* denotes significance at the 5 percent level.

^ denotes significance at the 10 percent level.

All dependent variables are in log first difference, except for Dcbal, which measures the change in the current account balance.

Table 9b. Regressions of the Financial Account Balance and Important Components: Basic Model with Interest Rate 1/

Dep. Var.	Constant	DGDPR	DGDPdefl	Denergy	Dreer	Demerg	Dothind	Dr	E(Dr)	Pos r	Neg r	R^2
Dfbal	-18.34	694.89^	-210.31	125.05	-15.27	2.20	-52.71	-12.73^				0.16
	(-0.55)	(1.66)	(-0.45)	(1.30)	(-0.12)	(0.92)	(-0.10)	(-1.94)				
Dfbal	-34.22	816.45^	-637.96	237.68*	-128.12	2.25	287.54		-29.72*	4.65	-25.24^	0.26
	(-0.94)	(1.82)	(-1.15)	(2.02)	(-0.91)	(0.92)	(0.51)		(-2.50)	(0.35)	(-1.87)	
Dinflow	0.071	5.65	-0.86	0.86	-0.26	-0.001	-3.71	-0.047				0.03
	(0.14)	(0.87)	(-0.12)	(0.58)	(-0.14)	(-0.03)	(-0.47)	(-0.47)				
Doutflow	0.43	-5.17	-0.99	-0.48	-1.33	-0.0022	-2.76	0.10				0.12
	(1.20)	(-1.14)	(-0.20)	(-0.46)	(-1.00)	(-0.08)	(-0.50)	(1.43)				
Dofasset	-0.12	-0.93	4.07	-1.23	1.98	0.031	5.44	0.092				0.10
	(-0.21)	(-0.12)	(0.51)	(-0.74)	(0.94)	(0.77)	(0.52)	(0.75)				
Dinv	0.021	4.35	1.28	-0.60	-0.42	0.014	-1.89	0.19*				0.39
	(0.05)	(0.91)	(0.24)	(-0.55)	(-0.30)	(0.52)	(-0.33)	(2.55)				
Dinv	0.27	2.59	5.85	-1.70	0.71	0.0084	-5.21		0.31*	-0.037	0.42*	0.45
	(0.65)	(0.50)	(0.92)	(-1.26)	(0.45)	(0.30)	(-0.81)		(2.25)	(-0.24)	(2.71)	
Dofussec	0.037	-4.58	16.01	-5.34^	3.97	0.047	-7.20	0.019				0.18
	(0.04)	(-0.37)	(1.21)	(-1.94)	(1.15)	(0.71)	(-0.49)	(0.10)				
Dofusliab	-1.045	6.73	10.19	-1.82	5.00	0.11	15.19	0.00035				0.12
	(-0.84)	(0.42)	(0.63)	(-0.53)	(1.14)	(1.33)	(0.72)	(0.00)				

1/ For definitions of variables, see Table 3. E(X) denotes the expected value of variable X. Pos X represents the excess of X over its expected value, while Neg X represents the shortfall from its expected value. Figures in parentheses are t-statistics.

* denotes significance at 5 percent level.

^ denotes significance at the 10 percent level.

All dependent variables are in log first difference, exept for Dfbal, which measures the change in the financial account balance.

Table 10. Regressions of the Current Account Balance and Its Main Components: Quarterly Data, 1960(I) – 2000(III) 1/

Dep. Var.	Constant	DGDPR	DGDPdefl	Denergy	Dreer	R^2
Dcbal	-1.98^	-4.55	165.00*	-39.28*	-77.34*	0.19
	(-1.71)	(-0.06)	(2.35)	(-2.11)	(-3.11)	
Dexport	-0.0061	1.60*	1.44*	0.10	-0.58*	0.27
	(-0.58)	(2.35)	(2.22)	(0.58)	(-2.55)	
Dimport	-0.0066	2.34*	1.87*	0.031	-0.19	0.36
	(-0.70)	(3.86)	(3.29)	(0.20)	(-0.94)	
Dsexport	0.018	-0.40	1.09	-0.12	-0.43	0.10
	(0.92)	(-0.31)	(0.89)	(-0.37)	(-1.00)	
Dsimport	-0.0042	1.52*	1.34*	-0.13	-0.14	0.24
	(-0.57)	(3.21)	(2.95)	(-1.09)	(-0.89)	

1/ Explanatory variables are 4-quarter distributed lags of the quarterly changes in the specified variables. For definitions of variables, see Table 3. Figures in parentheses are t-statistics.
* denotes significance at the 5 percent level.
^ denotes significance at the 10 percent level.
All dependent variables are in log first difference, except for Dcbal, which measures the change in current account balance. Reported coefficients are the sum of the distributed lag coefficient of the current and lagged values of each explanatory variable.

Table 11. Regressions of the Current Account Balance and Its Main Components: Quarterly Data, 1990(I) – 2000(III) 1/

Dep. Var.	Constant	DGDPR	DGDPdefl	Denergy	Dreer	R^2
Dcbal	21.09	-1142.91	-2368.29	-200.42*	-392.46*	0.67
	(1.05)	(-1.15)	(-1.07)	(-2.18)	(-2.26)	
Dexport	-0.06	4.93	6.83	0.04	-0.12	0.50
	(-0.79)	(1.32)	(0.82)	(0.12)	-(0.18)	
Dimport	-0.073	6.48*	7.76	0.25	0.12	0.76
	(-1.33)	(2.38)	(1.28)	(1.00)	(0.25)	
Dsexport	0.015	0.80	-0.89	-0.11	0.23	0.56
	(0.23)	(0.25)	(-0.12)	(-0.37)	(0.41)	
Dsimport	0.037	-1.43	-1.63	-0.12	-0.64	0.47
	(0.39)	(-0.31)	(-0.16)	(-0.28)	(-0.79)	

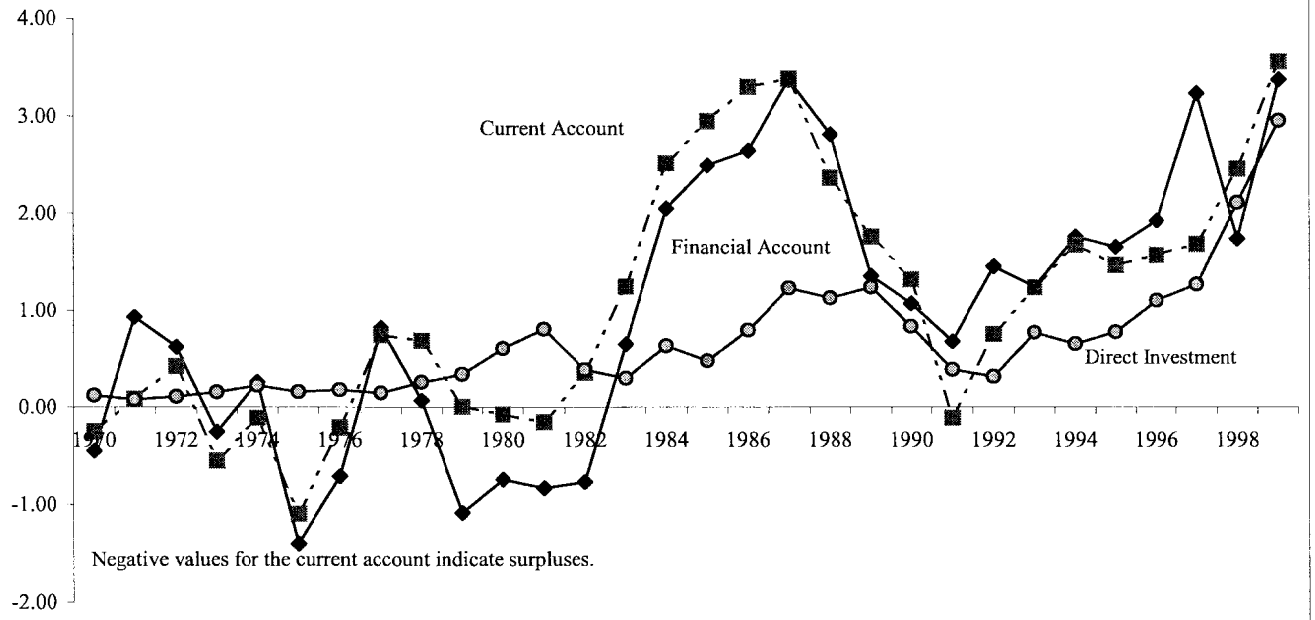
1/ Explanatory variables are 4-quarter distributed lags of the quarterly changes in the specified variables. For definitions of variables, see Table 3. Figures in parentheses are t-statistics.
* denotes significance at the 5 percent level.
All dependent variables are in log first difference, except for Dcbal, which measures the change in current account balance. Reported coefficients are the sum of the distributed lag coefficient of the current and lagged values of each explanatory variable.

Table 12. Regressions of the Current Account Balance and Its Main Components: Quarterly Data, 1995(I) – 2000(III) 1/

Dep. Var.	Constant	DGDPR	DGDPdefl	Denergy	Dreer	R^2
Dcbal	4.90	-1660.25*	1977.05	-114.56*	-136.55	0.79
	(0.49)	(-2.60)	(1.47)	(-2.64)	(-1.52)	
Dexport	-0.094*	2.81	19.21*	-0.027	-0.48	0.79
	(-2.44)	(1.14)	(3.69)	(-0.16)	(-1.38)	
Dimport	-0.10*	7.46*	12.92*	0.24^	-0.04	0.77
	(-3.43)	(3.78)	(3.09)	(1.78)	(-0.13)	
Dsexport	0.03	-4.52	6.21	-0.80*	-0.21	0.57
	(0.43)	(-1.10)	(0.71)	(-2.84)	(-0.36)	
Dsimport	0.002	0.51	2.52	0.01	0.22	0.71
	(0.06)	(0.29)	(0.67)	(0.04)	(0.88)	

1/ Explanatory variables are 2-quarter distributed lags of the quarterly changes in the specified variables. For definitions of variables, see Table 3. Figures in parentheses are t-statistics.
* denotes significance at the 5 percent level.
^ denotes significance at the 10 percent level.
All dependent variables are in log first difference, except for Dcbal, which measures the change in current account balance. Reported coefficients are the sum of the distributed lage coefficient of the current and lagged values of each explanatory variable.

Chart 1: Current Account Deficit, Financial Account Balance, and Direct Investment as Percent of GDP



Data Description and Sources

The following U.S. data come from the *International Financial Statistics* (IFS) data base:

Exchange rate for the U.S. dollar: real effective exchange rate.
Government spending: federal (central) government expenditure and investment.
Private investment: private fixed capital formation.
Consumption: private consumption.
Aggregate demand: gross domestic product.
Output: GDP at 1996 prices.
Interest rate: Average interest rate on 91-day (13-week) U.S. Treasury securities.
Money supply: Value of broad money (M2) at year end.

Other series from the IFS data base include real output, as measured by real GDP, for other industrial countries and selected emerging economies.

Balance of payments data for the U.S. come from Table 1, *U.S. International Transactions*, Bureau of Economic Analysis, U.S. Department of Commerce. All data are in millions of dollars and seasonally adjusted. Details are as follows:

Exports of goods and services and income receipts, line 1.
Exports of goods and services, line 2.
Goods exports, line 3.
Services exports, line 4.
Income receipts, line 12.
Imports of goods and services and income payments, line 18.
Imports of goods and services, line 19.
Goods imports, line 20.
Services imports, line 21.
Income payments, line 29.
U.S.-owned assets abroad, net (increase/financial outflow(-)), line 40.
Foreign-owned assets in the U.S., net (increase/financial inflow (+)), line 55.
Non-official foreign assets in the U.S., net, line 63.
Direct investment, line 64.
Non-official holdings of U.S. securities, other than U.S. Treasury securities, line 66.
Non-official holdings of U.S. liabilities reported by U.S. banks, line 69.
Financial account balance, lines 40+55.
Balance on goods, line 71.
Balance on services, line 72.
Balance on goods and services, line 73.
Balance on income, line 74.
Balance on current account, line 76.

Stock market prices are measured by Standard & Poor's composite index of 500 stocks listed on the New York Stock Exchange, as provided through the Data Stream data base.

Econometric Methodology

To estimate the empirical models, we form proxies for forecasted growth in real GDP, the GDP deflator, the interest rate (3-month U.S. Treasury bill rate), the exchange rate (real effective exchange rate of the U.S. dollar), an index of U.S. stock market prices (the Standard & Poor's index of 500 stock prices), an index of real output in selected emerging market countries, and an index of output in industrial countries other than the United States. Following the endogeneity test suggested by Engle (1982), anticipated changes are generated by taking the fitted values of reduced form equations in which the explanatory variables include a constant and lagged values of the first-difference of the log value of each of the money stock, real output, the price level, the nominal wage, an index of energy prices, government spending, the interest rate, the exchange rate, and the indices of real output in emerging market economies and non-U.S. industrial countries. Shocks to each of the forecasted variables are generated by subtracting these forecasts from the actual values of these variables.

The index of energy prices is exogenous, according to the results of Engle's (1982) test. Obtaining a proxy for ex ante forecasts of energy price inflation is complicated by the assumption that the generating process experienced a structural change between 1973 and 1974, which is supported by the results of a formal test suggested by Dufour (1982). For both the period 1960–73 and the period 1974–2000, the generating process is modeled as an autoregressive process. Shocks to the change in the energy price index are then formed by subtracting these forecasts from the actual change.

The maintained hypothesis for estimation is that agents are rational and that the information set used to specify the proxy for expectation is the same as the set used by agents. Given these assumptions, Pagan (1984,1986) showed that the use of regression proxies requires an adjustment of the covariance matrix of estimators of the parameters of the model containing expectational variables. A simple alternative is to estimate the expectation equations jointly with the rest of the model, thus avoiding the first-stage regression proxies. Therefore, it becomes necessary to estimate the model using 3SLS. The instrument list for estimation includes *lagged* values of the first-difference of the short-term interest rate; and *lagged* values of the first-difference of the log of each of real output, the price level, the money supply, government spending, the real exchange rate, and the current as well as lagged values of the energy price index. The paper's evidence is robust with respect to variation in variables and lags in the forecast equations or the list of instruments.

The number of lags in the forecast equations and list of instruments varies with the frequency of the data for model estimation. For annual estimation, the number of lags is two. For quarterly estimation, the number of lags is four. The results are robust with respect to changes in the lag length or list of variables.

The results of Engle's (1982) test for serial correlation are consistent with the hypothesis that the error term in the estimated empirical models is serially correlated in some cases. To filter out serial correlation, the empirical models using annual data are multiplied through by the

filter $(1-\rho L)$, where ρ is the serial correlation parameter and L is the lag operator. For quarterly estimation, the error term is assumed to follow an autoregressive process of order four. Hence, the empirical models are transformed through the filter $(1 - \rho_1 L - \rho_2 L^2 - \rho_3 L^3 - \rho_4 L^4)$, where ρ is the estimate of the serial correlation parameter and L^i is the lag operator such that $L^i x_t = x_{t-i}$. Reported estimates are after transformation, to eliminate serial correlation. The error terms in the transformed models are serially uncorrelated, according to the results of Engle's (1982) test.

The positive and negative shocks are defined for joint estimation, following the suggestions of Cover (1992), as follows:

$$\text{Neg } Z_t = \tfrac{1}{2} \{abs(\text{Shock}_t) - \text{Shock}_t\}$$

$$\text{Pos } Z_t = \tfrac{1}{2} \{abs(\text{Shock}_t) + \text{Shock}_t\}$$

where Shock_t is a randomly distributed event, i.e., i.i.d, uncorrelated with and orthogonal to variables in the information set, and Neg Z_t and Pos Z_t are its negative and positive components. Shocks are distributed symmetrically with a zero mean, indicating an equal probability of observing positive and negative shocks over the sample period.

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