

The Exchange Value Of The Dollar And The U.S. Trade Balance: A Partial Equilibrium Empirical Investigation

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ABSTRACT

The recent depreciation of the dollar against major currencies of the world, notably the euro, has kindled discussion on the causes of this phenomenon and the possible outcomes should it continue. Many politicians blame the rising U.S. current account deficit and some economists have questioned the sustainability of the current account deficit. This paper examines the relationship between the U.S. current account balance, the net U.S. international investment position, and the exchange value of the dollar. Our results show that there is a relationship between the exchange value of the dollar and the current account balance. However, our results do not show that the current account balance is solely responsible for changes in the exchange value of the dollar. This is not surprising given the many influences currently under investigation as possible explanations for the recent behavior of the dollar.

INTRODUCTION

The exchange value of the dollar has been falling against major world currencies since early 2003, roughly 10 quarters (Dept. of Commerce). This bears directly of the sustainability of the growing current account deficit. Increasingly, questions are being raised about the vulnerability of the United States to a financial crisis precipitated by the crash of the dollar. In other words, will foreign investors tire of holding in their portfolios a large percentage of U.S. assets they see as increasingly vulnerable? Are the U.S. budget and trade deficits the result of profligate spending on the part of the U.S. government and American consumers, thereby requiring borrowing from abroad in larger amounts into the indefinite future? This paper seeks to examine the recent behavior of the exchange value of the dollar, the current account deficit, and the international investment position. If we do find that these variables are responsible for the decline in the exchange value of the dollar, we are in a better position to evaluate the sustainability of the current account deficit. This paper proceeds first by looking at the existing literature on this recent development regarding the exchange value of the dollar. This follows with a discussion of our model, our methodology, our results, and finally, our conclusions.

EXISTING LITERATURE

The U.S. current account deficit stands close to six percent of GDP (U.S. Dept. of Commerce). Several related theories have emerged to answer the central question as to the sustainability of the U.S. current account deficit. Not surprisingly, geopolitics plays a significant role in this debate. A useful starting point for our discussion may be the definition of a “sustainable” current account deficit offered by Mann (2002). “A current account deficit is sustainable at a point in time if neither it, nor the associated foreign capital inflows, nor the negative net international investment position are large enough to induce significant changes in economic variables, such as consumption or investment or interest rates or exchange rates.” An additional point is added by the author. “For industrial countries, a

ratio of current account deficit to GDP of somewhere between 4 and 5 percent appears to be associated with the onset of economic forces (including a monetary policy response, a reduction in income and, in some cases, a real depreciation) that reduce consumption and particularly investment and change the trajectory of the current account and return it to sustainable territory.” (Mann, 2002; Freund, 2000; Chinn and Prasad, 2000). By this definition, the U.S. current account deficit has breached the boundaries of sustainability and the declining exchange value of the dollar, and perhaps the recent decision by the Fed to raise interest rates, reflects the market forces that will return it to sustainable territory.

One model blames the recurrence of the twin deficits in the U.S. for the declining value of the dollar. According to this theory profligate spending by the U.S. government combined with the tax cuts of 2001 have led to a rising government budget deficit. Combine this with the U.S. recovery since 2001 and spend happy American consumers, throw in higher oil prices and the U.S. trade deficit combines to create the “twin deficits” of the 1980’s. The argument continues that foreigners are tiring of financing U.S. spending and diversifying their portfolios, notably into Euros (Business Week, 7/10/04). The dollar began to decline in order to continue to encourage foreigners to finance the twin deficits. From a political perspective this view was summarized by German Chancellor Gerhard Schroder in a November, 20, 2004 address to U.S. Treasury Secretary Snow and other economic policy makers from the Group of 20 nations. “The euro-dollar rates are a cause for concern...It can be found in the double deficit in the U.S. – the deficit in the federal budget and the current account.” (Business Week, 12/6/04).

An alternative theory and the one espoused by U.S. Treasury Secretary Snow is a “growth deficit” in the rest of the world. This argument certainly has merit. Marquez and Ericsson, (1993) show that growth in national income is a major drive in trade flows. Imports will grow faster when national income is growing faster than that of the rest of the world and when the relative price of imports to domestic goods falls. This is certainly the case in the U.S. today. Over the past ten years, net real wealth in the United States has risen 57percent. “The implication: Despite pessimists’ fears, the U.S. is not drawing down national wealth to pay for imports. As long as that stays true, big foreign deficits are sustainable (Business Week, 5/23/05). As long as productivity continues to grow at its current pace, the current account deficit is sustainable and the downward trajectory of the dollar reflects market forces at work to correct its size. In this scenario, the dollar is not in danger of “crashing” because the dollar is still considered the anchor currency for the world.

Supporting this hypothesis are studies on the income elasticity of imports for goods and services in the U.S. compared to the same statistic for foreign countries. Hooper, Johnson, and Marquez (1998) found that long run foreign income elasticity of demand for U.S. exports was 0.8 while the same statistic for the United States with regard to foreign imports was 1.8. Houthakker and Magee, 1969; Cline, 1989; Wren-Lewis and Driver, 1998, all found that this difference is consistent over estimation periods, data, and econometric techniques. When combined with the supposition that the U.S. is growing faster than the rest of the world, we get the well known result that the dollar will depreciate and/or the trade deficit will widen (Krugman, 1985; Marris, 1985; Krugman and Baldwin, 1987; Obstfeld and Rogoff, 2000).

It is doubtful that the “twin deficits” are the causal variable behind the declining dollar. In fact, Leachman and Bill (2002), and Hasson and Skaggs (1996) find that the “twin” deficit link is weak and time specific. Furthermore, the twin deficit link that persisted during the 1980’s was broken during the 1990’s, and has only recently resurfaced. More likely, a closer examination of the U.S. current account balance itself may indicate its’ size and variability to be a response to a set of international economic changes over the last decade that have resulted in the current situation under investigation. One increasingly important variable is China and the yuan’s managed peg of 8.3-1 to the U.S. dollar. Some other Asian countries are following China’s example. China is now third behind Canada and Mexico among the largest trading partners to the U.S. (Business Week, 5/30/05). The yuan-dollar peg keeps Chinese goods cheap relative to U.S. and European goods, thus creating markets for their products and concomitantly, jobs for their very large population. The corollary then, is that the Chinese along with other Asian countries are content to fill their portfolios with U.S. assets to keep the downward pressure on their own currencies and vibrant foreign markets for their products (Kuttner, 2005).

Fed Chairman Alan Greenspan (2003) along with Fed Governor Ben S. Bernanke (2005) offer us “not to worry about the trade deficit” based on what they call the world “savings glut.” Due to the complexity of global financial markets as well as the aging populations of European countries and Japan, foreign investors will continue to hold dollars and U.S. assets. In addition, dollars are the preferred currency because of the perceived weakness of Asian economies as evidenced by the financial crises experienced by many of them over the past decade. This keeps U.S. interest rates low and the gradual decline in the dollar will eventually encourage foreign investors to spend their dollar holdings on U.S. products, thus reducing the trade deficit.

Dooley, Folkerts-Landau, and Garber (2003) suggest that the current arrangements with Asian countries resemble the Bretton Woods system of fixed exchange rates following WWII. This export led growth model asserts that just as Europe did following WWII, Asians hold their export earnings in low-yielding dollar assets. This inflow of Asian capital keeps U.S. interest rates low and consumption high. This is the same conclusion offered by Greenspan and Bernanke, albeit in different terms. There are differences of course between the post WWII era and the current one, not the least of which is that then the U.S. ran a current account surplus and was a net creditor to the rest of the world. Now, the United States is the world’s biggest debtor creating a fear among some that the dollar will lose its’ role as the world’s anchor currency.

This paper investigates the relationship between the dollar and the current account in a partial equilibrium framework assuming some variables as constant. While the partial equilibrium model may suffer some shortcomings by assuming many other variables as constant, it is more appropriate for the present paper. The present paper is not a complete model of exchange rate determination, rather it attempts to isolate and investigate the relationship between the current account deficit and the exchange rate of the dollar. This particular relationship has been the focus of many academic articles, policy discussions, and the popular media. As such, some statistical model adequacy criteria such as the coefficient of determination may not reflect strong statistical relationships in estimated regressions.

METHODOLOGY

The econometric tools used in this paper are simple regression analysis and the vector autoregressive technique (VAR). Cointegration tests are performed to confirm the relationship between the current account and the exchange value of the dollar. To measure the daily and monthly volatility of the exchange value of the dollar, we employ a GARCH (1,1) model. The remainder of this section explains each component of the methodology used in this paper.

Vector Autoregressive Models And Impulse Response Functions

VAR models are the best tools to investigate shock transmission since they provide information on impulse response analysis. A series of vector error correction models (VECM) constitute the mainstay of our empirical analysis. VAR or VECM models are particularly suitable for this type of a study because they allow for examining the effects of a shock to one endogenous variable on the remaining endogenous variables of the model.

Zellner and Palm (1974), Zellner (1979), and Palm (1983) show that any linear structural model can be written in the form of a vector autoregressive moving average multivariate time series model (VARMA) whose coefficients are combinations of the structural coefficients. These researchers show that under mild regularity conditions a VARMA model can be written as a VAR model. Therefore, a VAR model serves as a flexible approximation to the reduced form of any wide variety of simultaneous structural models. To paraphrase, the reduced forms of traditional simultaneous models are special cases of VAR models.

VAR models are typically smaller than structural models and therefore require less data. In addition they do not use economic theory in their specification. The procedure used in this paper is as follows. We use VAR models in conjunction with the Akaike’s Information Criteria (AIC) to determine the dimensionality of equations of the system.

This system of equations can be written in compact matrix notation as follows:

$$\begin{bmatrix} 1 - \alpha_{11}(L) & -\alpha_{12}(L) \\ -\alpha_{21}(L) & 1 - \alpha_{22}(L) \end{bmatrix} \begin{bmatrix} FP_t \\ RD_t \end{bmatrix} + \begin{bmatrix} \beta_1 \\ \beta_2 \end{bmatrix} = \begin{bmatrix} u_{1t} \\ u_{2t} \end{bmatrix} \tag{1}$$

where $\alpha_{11}(L)$ through $\alpha_{22}(L)$ are n-th order scalar polynomials in the lag operator L, where $\alpha_{ij}(L) = \sum_{k=1}^m a_{ij} L^k$, and $L^k x_t = x_{t-k}$, and m is the lag length specified. Variables FP_t and RD_t represent forward premium and interest rate differential, respectively, β_i , model constants, and $u_t = [u_{1t} \ u_{2t}]$ is a vector of white noise residuals process.

A final consideration in using the VAR model is the choice of the order of the process, p. Without a formal method, the selection of lag order in a VAR model will be arbitrary and could lead to specification error (See Fair and Schiller (1990), and Funke (1990)). Several criteria, similar to those used in the distributed lag models, are suggested to determine the model dimension (see Judge, et al. (1985) and Lutkepohl (1985)). In this paper, the minimum Akaike (1974) Information Criteria (AIC) determines the optimum lag length (see Judge, et al. (1988)). It can be shown that the GLS estimators of the coefficients are identical to the OLS estimators under the above assumption regarding the residuals.

VAR models are routinely used to perform impulse response analysis, which allow us to measure the various period impact of the u_{t-i} on each variable. Impulse response analysis requires a vector moving average (VMA) representation of a VAR. The VMA allows us to trace out the time path of the various shocks on the variables of the VAR system. Consider the VMA process given by

$$\begin{bmatrix} FP_t \\ RD_t \end{bmatrix} = \begin{bmatrix} \bar{FP} \\ \bar{RD} \end{bmatrix} + \begin{bmatrix} \phi_{11}(i) & \phi_{12}(i) \\ \phi_{21}(i) & \phi_{22}(i) \end{bmatrix} \begin{bmatrix} \varepsilon_{FPt-i} \\ \varepsilon_{RDt-i} \end{bmatrix} \tag{2}$$

The sets of coefficients $\phi_{kj}(i)$ are called the impulse response functions. For example $\phi_{12}(0)$ is the instantaneous impact of a one-unit change in ε_{RDt} on FP_t . Similarly, $\phi_{12}(1)$ is the one period response of FP_t to one unit change in ε_{RDt-1} . The accumulated effect of unit impulses in ε_{RDt} on FP_t for example, can be computed by summing the coefficients of the impulse response function. Thus, the effect of ε_{RDt} on the FP_t after n periods is given by

$$\sum_{i=0}^n \phi_{12}(i).$$

To produce reliable VAR estimates and impulse response analysis, variables of the model are required to be stationary, i.e., not have unit roots. A brief discussion of these tests follows.

Unit Root Tests

Table 1 reports the findings of the ADF (Dickey and Fuller (1979)) tests of unit root. The ADF entails estimating $\Delta x_t = \alpha + \beta x_{t-1} + \sum_{j=1}^L \gamma_j \Delta x_{t-j} + u_t$ and testing the null hypothesis that $\beta=0$ versus the alternative of $\beta<0$, for any x. The lag length j in the ADF test regressions are determined by the Akaike Information Criterion

(AIC). Two variations of the ADF regressions are estimated: with trend and intercept and with no trend variable. The purpose of this approach is to insure that the test results are robust in the presence of drifts and trends. For the ADF tests the MacKinnon (1990) critical values are used. Accepting the null hypothesis means that the series under consideration is not stationary and a unit root is present.

Table 1
Summary Statistics

Market	Mean	σ	SK	K	ADF	PP	JB	Q(24)	Q ² (24)
Exchange Rates	100.10	12.55	1.13	4.11	-2.66	-2.05	31.56***	614.07***	597.59***
RCAB	-37.30	38.92	-1.03	12.83	-0.63	-0.46	21.43***	822.92***	267.34***
%Change in									
Exchange Rates	-0.10	3.1	-0.20	5.18	-3.84	-8.25	3.18	45.38***	42.53**
RCAB/RGDP	-0.004	0.004	-0.31	8.40	-1.81	-1.62	4.43*	691.03***	8.76
Percentage Change									
(RCAB/ RGDP)	-0.13	3.8	4.74	57.79	-5.06	-10.36***	15078.29***	31.82	10.10
RIIP	-50.69	57.922.13	-1.31	4.47	-0.98	-4.96	44.74***	448.75***	126.69***
RIIP/RGDP	-0.006	1.006	-0.48	2.89	-2.08	-6.35	4.62*	287.28***	108.70***

Notes: ***, **, * represent significance at 1, 5, and 10 percent levels.

Granger Causality Tests

Once the stationarity of each series is verified, bivariate Granger causality tests are performed to investigate the causal relationship between the two variables. The standard Granger (1969, 1980) causality test examines whether past changes in one stationary variable X_t help predict current changes in another stationary variable Y_t , beyond the explanation provided by past changes in X_t itself. If not, then X_t does not “Granger cause” Y_t . By reversing the position of variables X and Y, the causality in the opposite direction is tested. More formally, let θ and ψ represent the set of past values of Y and bivariate series Y_t and X_t together, respectively. That is:

$$\theta = (Y_{t-1}, Y_{t-1}, \dots, Y_{t-n}), \quad \psi = (Y_{t-1}, Y_{t-2}, \dots, Y_{t-n}, X_{t-1}, X_{t-1}, \dots, X_{t-n}).$$

Also, let $\sigma^2 (Y_t/\psi)$ and $\sigma^2 (Y_t/\theta)$ represent the prediction error of R_t at time t based on the past values of Y_t and X_t , and based on the values of Y_t itself. If $\sigma^2 (Y_t/\psi) < \sigma^2 (Y_t/\theta)$, then the information contained in set θ improves the prediction of the current value of X compared with the information content of the set of past values of X alone. Therefore, we say X_t “Granger causes” Y_t . If the above inequality does not hold, then X_t does not Granger cause Y_t . The Granger causality test is used because the evidence reported in Geweke et al. (1983) shows that it outperforms other causality tests in a series of Monte Carlo experiments. We perform this test in the context of the VAR model proposed in equation (1).

Generalized Autoregressive Conditional Heteroscedastic Model Or GARCH (1,1)

Autoregressive Conditional Heteroscedastic (ARCH) models are well developed in the literature. Therefore, our discussion in this paper is quite brief. The origins of the ARCH and GARCH models may be traced back to the observation that asset returns demonstrate volatility clustering. It is well known that large returns are often followed by large returns, both in the positive and negative directions. As a way to model volatility clustering without estimating a large number of coefficients, Bollerslev (1986) suggested the Generalized Autoregressive Conditionally Heteroscedastic, or GARCH model. This family of models allow for volatility clustering over time by expressing conditional variance as follows:

$$h_t = \alpha_0 + \alpha(L)\varepsilon_{t-i}^2 + \beta(L)h_{t-i}, \quad (1)$$

where $\alpha(L)$ and $\beta(L)$ are polynomials in the lag operator L . Analogous to ARIMA(p,q), this class of models are called GARCH (p,q), where p and q are the orders of polynomials $\alpha(L)$ and $\beta(L)$. The most commonly used GARCH model is the simple GARCH (1, 1), which is written as:

$$h_t = \alpha_0 + \alpha_1 \varepsilon_{t-1}^2 + \beta_1 h_{t-1} .$$

We also employ the basic GARCH (1,1) model in the empirical section of our investigation.

DATA

The data set for this paper is retrieved from the U.S. Department of Commerce, Bureau of Economic Analysis. The quarterly data set consists of the U.S. Current Account Balance in billions of dollars, the U.S. International Investment Position, and GDP for the period spanning the first quarter of 1975, through the third quarter of 2004. Variables under study were converted to real terms using the implicit GDP deflator. The index of the exchange value of the dollar is taken from the Board of Governors of the Federal Reserve System. It is computed from the daily weighted average of the foreign exchange value of the U.S. dollar against the G.5 foreign exchange rates. Using the daily data for the exchange rate of the U.S. dollar from January 1995 through January 2005, we also estimate the average volatility of the dollar by estimating a GARCH (1,1) model for the daily data. Table 1 provides a summary of all the data for the empirical analysis

EMPIRICAL RESULTS

The dollar index for the period under consideration has a positive mean. It also exhibits high skewness and excess kurtosis, inconsistent with samples from normal distributions. The high coefficient of kurtosis accompanied by significant linear and nonlinear dependencies shown by the Q (24) and $Q^2(24)$ may indicate that there is nonlinearity in the distribution of the exchange value of the dollar and some variation of GARCH models may be more suitable to analyze the exchange rate. Averages of the real current account balance and the ratio of the real current account balance to real GDP are negative. The same is true of the U.S. international investment position. However, the standard deviation for both of these variables is large relative to the mean indicating a significant degree of variation in the two variables. The international investment position of the U.S. is expected to deteriorate as the current account continues to stay in deficit.

Table 2 presents correlation coefficients between the changes in the value of the dollar with respect to two variables of interest. The correlation coefficient between the percentage change in the dollar's exchange rate and the real current account deficit relative to the GDP, and the real international investment balance relative to GDP are the highest in the 1970s and 1990s. However, even for the entire sample, this correlation is quite high. Examination of the correlation coefficients show that the fluctuations in the value of the dollar may be related with the two measures of the U.S. liabilities stemming from its international trade accounts. Thus, the current account fluctuations (a flow measure) eventually contribute to the changes in the U.S. international investment position (a stock measure). Therefore, it is plausible that both of these measures are related to the fluctuations in the value of the dollar. In the remainder of our empirical investigation, we focus on the changes in the current account rather than the international investment position.

Table 3 reports the results of two estimated regression models. In both regression equations, the average monthly volatility is regressed on some measure of the current account deficit to be explained shortly. The average volatility of the dollar is derived from the daily volatility. The daily volatility is obtained from a GARCH (1,1) model which is fit to the daily exchange rates of the dollar over the period of 1995- 2005. The monthly volatility of the U.S. dollar exchange rate is then computed by averaging the daily volatility measures from the variance equation of the GARCH (1,1) model. Panel I of Table 3 presents the coefficient estimates of the GARCH (1,1) model.

Table 2
Correlation Coefficients Between the Ratio of the Current Account
The U.S. International Investment Position and the Percentage Change in the Value of the Dollar

	RCAB/RGDP	RIIP/RGDP	Sample
% Change in The Dollar	0.260	0.326	Entire sample
	0.625	0.623	70s
	-0.092	0.015	80s
	0.413	0.460	90s
	0.296	0.154	00

The first regression of panel II of Table 3 examines the relationship between the monthly dollar volatility and the real current account balance as a percentage of the real GDP. The coefficient of the current account balance in this equation is positive and statistically significant showing that the dollar volatility rises as the ratio of the current account deficit as a percentage of the real GDP rises. Note that for the period of 1995 through 2005 the current account has consistently shown a deficit for almost all the months under consideration.

Table 3
Panel I
GARCH(1,1) Model of Dollar’s Daily Volatility

Market	α	β	R ²	F
Dollar	0.102 (2.201) ***	0.99 (23757.6) ***	0.99	863294.2 ***
Variance Equation	Const	ARCH	GARCH	
Dollar	0.002 (1.581) ***	0.038 (5.973) ***	0.960 (143.584) ***	

Notes: ***, **, * represent significance at 1, 5, and 10 percent levels. The variance of the GARCH (1,1) model is written as :

$$\sigma^2 = \alpha_0 + \alpha_1 \varepsilon_{t-1}^2 + \alpha_2 \sigma_{t-1}^2$$

where ε is the residual from equation (7). The results are based on expected future spot rates based on *ex ante* actual data.

Panel II
Volatility of the Dollar and Current Account Fluctuations Dollar Volatility = $\alpha + \beta(\text{CAB}) + u$

Explanatory Variable	α	β	R ²	F
RCAB/RGDP	0.114 (2.57) **	15.80	0.06	5.079 **
$\Delta(\text{RCAB/RGDP})$	0.014 (0.56)	-12.46 (0.43) ***	0.002	0.18

Notes: ***, **, * represent significance at 1, 5, and 10 percent levels.

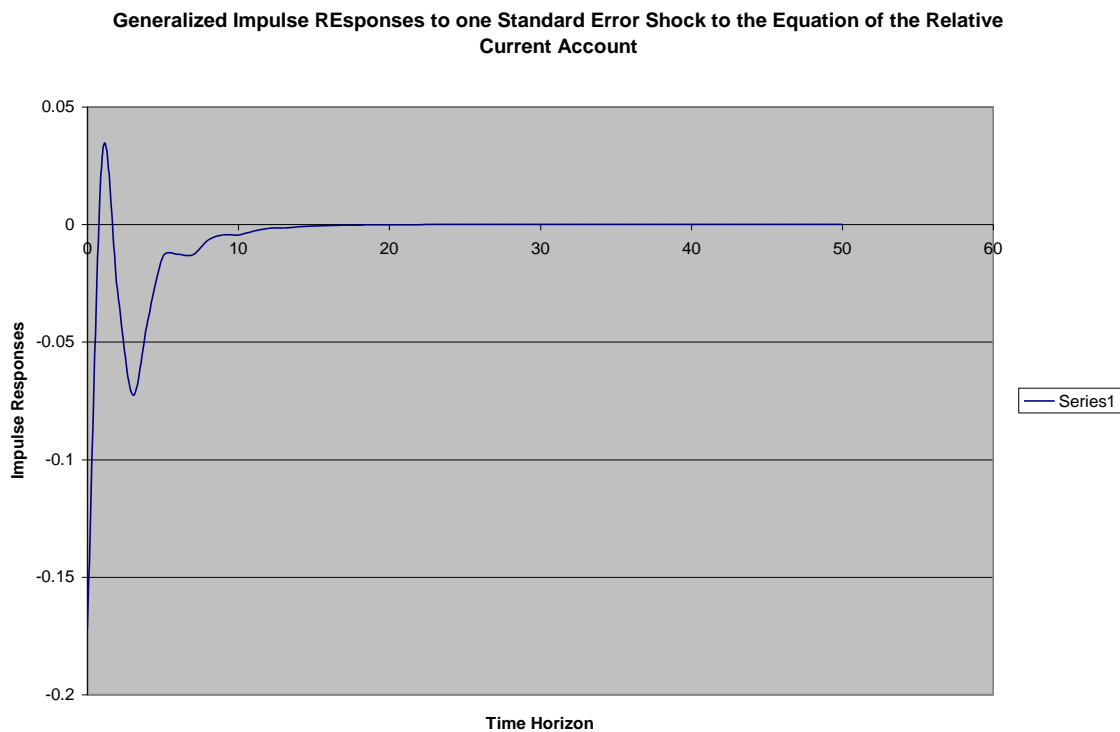
The second equation of Panel II of Table 3 repeats the same exercise as the previous one with the change in the current account as a percentage of real GDP as the explanatory variable. The estimation findings from the second regression equation of the volatility of the dollar on this latter version of the current account deficit produces statistically insignificant coefficients and both the R² and the F statistic values fall drastically as well. The conclusion is that the exchange value of the dollar is sensitive to the current account balance relative to the GDP rather than the changes in the current account deficit.

In order to examine the long-run equilibrium relationship between the exchange rate of the dollar and the current account balance as a percentage of the GDP we performed the Johansen and Juselius cointegration test. A vector Autoregression model of order four between the two variables is estimated. The order of the VAR is determined on the basis of AIC (Akaike Information Criterion) and SBC (Schwarz Bayesian Criterion). We find that according to the λ_{\max} λ_{trace} tests there is one cointegrating vector between the two variables. This finding bolsters our previous analysis that there is a relationship between the exchange value of the dollar and the current account balance. However, the Granger causality test fails to show that the current account balance is solely responsible for changes in the exchange value of the dollar. The finding of the Granger causality test is not surprising as causality is a more robust relationship than correlation.

Figure 1 illustrates the effects of shocks to the current account deficit/surplus as a percentage of GDP on the exchange value of the U.S. dollar. It is clear that the impact of these shocks is to increase the volatility of the dollar which lasts approximately ten months before stabilizing. This finding corroborates our statistical findings on the volatility of the dollar reported earlier. Furthermore, the impulse response function reinforces our cointegration test results.

Figure 1

This figure illustrates the effects of shocks to the current account deficit/surplus as a percentage of GDP on the exchange rate of the U.S. dollar. It is clear that the impact of these shocks is increased volatility of the dollar which lasts approximately ten months before dying down. This finding corroborates our statistical findings of the volatility of the dollar reported earlier. Furthermore, the impulse response reinforces the cointegration test results.



(1) Because estimated VAR models are underidentified, an identification restriction, the Choleski decomposition, is usually imposed. Choleski decomposition imposes a potentially important asymmetry on the system. Thus, changing the order of variables in impulse response analysis could produce different impulse responses (see Enders 1995). To avoid the problems associated with the ordering of variables, often generalized impulse responses (koop, et al. 1996) are employed.

Table 4
LR Test of Block Granger Non-Causality in the VAR

	χ^2	LL
Ho: Current Account does not cause the Dollar Lag order of VAR model is 4. List of deterministic and/or exogenous variables, Intercept, Trend.	3.14	592.36

***, **, * represent significance at 1, 5, and 10 percent levels.

Table 5
Exchange Rate of the Dollar and the Current Account Balance as a Percentage of GDP

Cointegration with unrestricted intercepts and unrestricted trends in the VAR.
Cointegration LR Test Based on Maximal Eigenvalue) of the Stochastic Matrix

Null	Alternative	Statistic	95% Critical Value	90% Critical Value
		λ_{\max}		
r = 0	r = 1	19.80 **	18.33	16.28
r ≤ 1	r = 2	6.89	11.54	9.75

Cointegration with unrestricted intercepts and unrestricted trends in the VAR.
Cointegration LR Test Based on Trace (λ_{trace}) of the Stochastic Matrix.

Null	Alternative	Statistic	95% Critical Value	90% Critical Value
		λ_{trace}		
r = 0	r ≥ 1	26.70 **	23.83	21.23
r ≤ 1	r = 2	6.89	11.54	9.75

The lag order in the cointegrating VAR model is 4. List of variables included in the cointegrating vector are EXR (the exchange value of the dollar and CABGDP (current account balance relative to the GDP) List of eigenvalues in descending order are 0.16 and 0.05. ***, **, * represent significance at 1, 5, and 10 percent levels.

SUMMARY AND CONCLUSIONS

We employ a partial equilibrium analysis to investigate the relationship between the exchange rate of the dollar and the current account deficit in the U.S. Our analyses of the monthly data for the period spanning 1975 through 2004 show that the current account deficit and the dollar’s fluctuations are correlated for the entire period of the study as well as several sub-periods. Estimated monthly volatility of the dollar derived from a GARCH (1, 1) model and based on daily observations reveal that the volatility of the dollar is positively correlated with the current account deficit relative to the GDP. The long-run equilibrium relationship between the two variables is also verified by cointegration tests. However, Granger causality test fails to corroborate a causal relationship between the exchange rate of the dollar and the current account balance. Our future research intends to broaden our model to include other variables discussed in the current literature.

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