SHARECROPPERS OR SHREWD CAPITALISTS?

PROJECTIONS OF THE U.S. CURRENT ACCOUNT,

INTERNATIONAL INCOME FLOWS, AND NET INTERNATIONAL DEBT

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Abstract

Large and increasing U.S. international deficits and debt have led to an apparent conventional wisdom that the United States will pay an increasing share of total U.S. output over time to service the growing international debt. This paper presents a detailed framework and analysis of the issues surrounding the question of whether the U.S. is, in fact, on track to be a society of "sharecroppers" or rather is actually more consistent with being a society of "shrewd capitalists." The base scenario projects that the U.S. likely will experience continued growth in its net international debt position, but with a relatively small cost of servicing that debt in terms of the associated net international income flows. Alternative scenarios based on other analysts' projections are presented to illustrate the reliability of the modeling framework and to show how alternative future paths for key variables affect the outcomes. The expanded detail of the analysis provides insights into how the underlying relationships affect the final result. In particular, valuation changes – and notably valuation changes beyond those resulting from exchange rate changes – have played, and likely will continue to play, a large role in the determination of the U.S. net international investment position. In general, the results indicate that there is a higher likelihood for the U.S. international financial position to be "sustainable" and manageable – even if persisting trade deficits were to occur – than is typically considered to be the case.

I. INTRODUCTION

Over the past decade the U.S. trade and current account deficits and issues concerning the "sustainability" of those deficits over time have attracted increased attention. The U.S. has continuously run a trade deficit in every year of the past 3 decades and the current account has been in deficit every year since 1982 – with the temporary one-year exception of 1991 when the United States received transfers for reimbursement of costs for the 1990-91 Persian Gulf War. Over the past decade, the U.S. trade and current account deficits have increased steadily relative to the size of the economy, rising from the 1 percent to 1½ percent of GDP range in 1995 to the 6 percent to 7 percent of GDP range by the end of 2005. Coinciding with these ongoing flow deficits, the U.S. net international investment position has declined from -6 percent of GDP in 1995 to around -21 percent of GDP by the end of 2005.[1]

The large and increasing international deficits and debt for the United States have led many analysts to focus on the potential dire consequences that could result. Numerous recent studies – including those by Cline (2005), Edwards (2005), Eichengreen (2006), Blanchard, Giavazzi and Sa (2005), Higgins, Klitgaard, and Tille (2005), Mann (2004), Obstfeld and Rogoff (2004, 2005), Roubini and Setser (2005) – describe the challenging outlook for the U.S. international trade and financial balances.[2] Obstfeld and Rogoff (2005, p. 71) argue that:

> Thus any correction to the trade balance is likely to entail a very large change in the real effective dollar exchange rate: our baseline figure, which assumes a moderate speed of adjustment and that the world's major regions all return to current account balance, is 33 percent. … [S]hould adjustment take place very abruptly … the

[1] See CBO (2004) for a discussion of historical trends.

[2] A full review of the literature is beyond the scope of this paper. For further reference, Mann (1999) and Cline (2005) provide broader review and discussion of the literature. A particularly good resource for ongoing research is the Current Account Sustainability collaborative project sponsored by the Center for World Affairs and the Global Economy of the University of Wisconsin-Madison. Readers are referred to the website: http://currentaccount.lafollette.wisc.edu/home.htm

> potential fall in the dollar is much larger than our baseline estimate of 33 percent, primarily because sticky nominal prices and incomplete pass-through hamper adjustment.

Edwards (2005) argues that the U.S. current account deficit isn't sustainable and that a substantial adjustment is likely to occur in the near future, with adverse effects on real growth in the United States. Blanchard, Giavazzi and Sa (2005) present a model with results that lead them to anticipate further depreciation of the dollar at a small and steady rate, and with the bulk of the depreciation occurring relative to Asian countries. Projections from the Cline (2005), Higgins, Klitgaard, and Tille (2005), and Roubini and Setser (2004) studies – that show a broad range of possible outcomes – are examined later in the paper.

Warren Buffett (2005) made a somewhat provocative claim in a letter he sent to shareholders when he claimed the United States was on track to becoming a "sharecropper society"

> Large and persisting current account deficits produce an entirely different result. As time passes, and as claims against us grow, we own less and less of what we produce. In effect, the rest of the world enjoys an ever-growing royalty on American output. … This annual royalty paid the world – which would not disappear unless the U.S. massively underconsumed and began to run consistent and large trade surpluses – would undoubtedly produce significant political unrest in the U.S. Americans would still be living very well, indeed better than now because of growth in the economy. But they would chafe at the idea of perpetually paying tribute to their creditors and owners abroad. A country that is now aspiring to an "Ownership Society" will not find happiness in – and I'll use hyperbole here for emphasis – a "Sharecropper's Society." But that's precisely where our trade policies, supported by Republicans and Democrats alike, are taking us. (Buffett (2005), p. 20)

Indeed, a general "conventional wisdom" appears to accept the view that the United States is inevitably headed toward a situation of ever-growing negative international income flows. For example, Geithner (2006) states:

> Nevertheless, going forward, the scope for positive net factor payments from abroad and sizable valuation effects is limited. The U.S. trade deficit is now roughly the size of the current account deficit, and U.S. net interest earnings have fallen to quite low levels. The continuing buildup in liabilities should soon push U.S. net investment income balances into deficit, with progressively larger net transfers of income to the rest of the world. In that event, net income flows will begin to boost the nation's current account deficit instead of reducing it, reinforcing the deterioration in net liability position of the United States. (Geithner (2006)).

Certainly, it seems likely that if the U.S. were to experience an ever-growing trade deficit and dramatic increases in net international debt, the situation most likely would be viewed as unsustainable and net international income flows would turn sharply negative and grow in magnitude in coming years. Even so, many analysts apparently have adopted that as the default view – that it is inevitable that the United States will see its net international income flows turn increasingly negative in coming years, and that the result is inevitable simply because the United States has a growing net international debt, growing both in nominal dollar terms and relative to the size of the economy. This view is represented by the reported simulations of Higgins, Klitgaard, and Tille (2005):

> The simulations highlight an important point: even if the U.S. current account deficit narrows substantially in the years ahead, income payments to foreign investors are likely to take up a growing fraction of U.S. income. (Higgins, Klitgaard, and Tille (2005), p. 6)

A closer look at the behavior of net international *income* flows for the United States over the past decade – continuing positive even while the net international investment position has become

increasingly negative (that is, increasing U.S. international debt) – calls into question the apparent conventional wisdom of the high likelihood of having ever-rising costs of servicing the debt relative to GDP. In contrast to that view, the discussion, analysis, and scenarios presented in this paper suggest that the result of the United States becoming a "sharecropper society" is not necessarily the inevitable outcome. The relationships and analysis also help to explain why the U.S. has continued to run positive net international income flows over the past 2 decades despite the growing net international debt position.[3] The view of a higher likelihood of a benign outcome results from the combination of a number of factors: (1) the general outlook of private forecasters for gradual improvement in the U.S. trade deficit over the next decade; (2) the likely persisting relationship that the U.S. historically has received higher rates of return on assets abroad than are paid to foreign owners of assets in the United States; (3) the heavier weighting of U.S. portfolios of assets abroad in higher earning assets relative to portfolios of foreign-held assets in the United States; and (4) the often-ignored relationship that U.S.-owned assets abroad increase in value by substantially more than foreign-owned assets in the United States – even beyond exchange rate valuation changes – mitigating the negative financial flows that are the mirror of trade deficits.[4]

This paper presents a detailed framework and analysis of the issues surrounding the question of whether the U.S. is, in fact, on track to be a "sharecropper society" or rather is actually more consistent with being a "society of shrewd capitalists." A base scenario shows that under the above conditions the U.S. would be on track to have continued growth in its net international debt position, but with a relatively small cost of servicing that debt in terms of the associated net international income flows. Alternative scenarios based on other analysts' projections are also presented to

[3] Cooper (2004) views the U.S. current account as "not only sustainable" but also "perfectly logical," and Greenspan (2003) stated: "Should globalization be allowed to proceed and thereby create an ever more flexible international financial system, history suggests that current imbalances will be defused with little disruption."

[4] Gourinchas and Rey (2005a, 2005b) and Tille (2005) examine issues related to the last two relationships – the rate of return differential and the role of asset valuation changes – with a primary focus on the role of valuation effects from exchange rate changes. Gourinchas and Rey cite the "exhorbitant priviledge" and the role of the U.S. as "world venture capitalist."

illustrate the reliability of the modeling framework and to show how alternative future paths for key variables would affect the outcome. This analysis differs from many earlier studies because of the explicit presentation of the detailed components, data, and relationships that lie behind the accounting for the U.S. current account, international debt position, and net factor income flows. Many studies use simplified behavioral relationships that don't capture key accounting relationships because the focus of the studies is on specific theoretical and behavioral relationships. This analysis provides insights into how the underlying relationships affect the final result. In particular, valuation changes – and notably valuation changes beyond those resulting from exchange rate changes – have played a large role historically in the determination of the net international investment position; absent evidence to the contrary, they should be expected to continue to do so in the future. These factors have been an important part of the explanation behind the observed historical relationship of continued positive net international income flows even while the U.S. has continued to run current account deficits and the net international investment position has turned negative. The "other" largely unidentified valuation changes in the accounts have accounted for an offset of about one-fourth to one-third of the total net financial flows over time, helping to keep the U.S. net international investment position less negative than otherwise would be the case.[5] In general, accounting for the variety of relationships, the results indicate that there is a higher likelihood for the U.S. international financial position to be "sustainable" and manageable – even if persisting trade deficits were to occur – than is often considered to be the case.

[5] Gourinchas and Rey (2005) find that "stabilizing valuation effects contribute as much as 31% of the external adjustment." Their valuation effects are more broadly defined than those presented by the Bureau of Economic Analysis and used in this paper, including the effects of the differing rates of return on U.S.-owned assets abroad and foreign-owned assets in the United States.

II. THE FRAMEWORK AND DESCRIPTIVE EQUATIONS

This section provides a detailed framework for analysis of U.S. international investment flows and positions, and a description of the historical behavior of the key components.[6] In the framework, upper case letters generally refer to "stock" variables (usually end-of-period values); lower case letters generally refer to "flow" variables (i.e., x_t is the flow for variable x during period t, from the end of period t-1 to end of period t); and Greek letters generally refer to effective rates of return. The data used come from the Bureau of Economic Analysis (BEA); information on the data and sources is presented in the Data Appendix.[7]

U.S. net international investment position:

An equation showing the determinants of the net international debt position is:

$$(1) \quad I_t^{NET} = I_{t-1}^{NET} + f_t^{NET} + p_t^{NET} + e_t^{NET} + o_t^{NET}$$

where:

I_t is the international investment position at the end of period t;

f_t is international financial flows during period t;

p_t is price change effects on valuation during period t;

[6] In this paper, the analysis is used to project the current account, net international income flows, and the net international investment position for a given (real) trade deficit projection. As such, behavioral equations for the trade flows and the trade deficit are not presented. A richer model would explicitly model the trade flows, with exchange rates and domestic and foreign real GDP or income growth as exogenous variables, for example. Those behavioral relationships are not included as the focus of the analysis is to illustrate the role of specific and detailed relationships underlying the accounting methodology and their importance for determining the likely future paths for international financial flows and positions.

[7] The international investment data used in this paper use direct investment valued at current cost. As discussed in Nguyen (2006), "BEA emphasizes the current-cost method, because the estimates prepared using the current-cost method are comparable with BEA's current-cost estimates of the net stock of fixed assets and consumer durable goods and with the Federal Reserve Board's estimates of domestic net worth (the sum of tangible assets located in the United States, including plant and equipment, inventories, and land). Furthermore, BEA's calculation of direct investment income includes a current cost adjustment to depreciation; this adjustment converts depreciation as reported on company financial statements to the preferred economic accounts measure, which is based on the current cost, rather than on the historical cost, of assets." As such, the current cost numbers are compatible with the NIPAs for analyzing net income flows relative to GDP and in the national income accounting – a primary focus of this paper.

e_t is exchange rate effects on valuation during period t;

o_t is "other" effects on valuation during period t;

NET superscript designates net amounts (U.S. – foreign);

US superscript designates a U.S. variable (i.e., for U.S.-owned assets abroad);

FOR superscript designates a foreign variable (i.e., for foreign-owned assets in the United States).

In the following discussion, the relationships underlying the determination of net international financial flows – the first flow variable in the right hand side of equation (1) – are discussed first, with descriptions of the current account, components of international income flows, and effective rates of return on the various assets. Following that, the discussion returns to the other variables on the right hand side of equation (1) – the changes in asset values resulting from price changes, exchange rate changes, and "other" changes.

Net international financial flows for the U.S.:

Net international financial flows are the sum of the current account balance, the narrowly-defined capital account balance, and the statistical discrepancy:

(2) $f_t^{NET} = ca_t + k_t + stat_t$

where:

ca_t is the current account balance (flow) during period t;

k_t is the narrowly defined capital account balance (flow) during period t;

$stat_t$ is the statistical discrepancy in the international accounts (flow) during period t.

Current account balance:

The current account balance is comprised of the trade balance, net unilateral transfers, and net income flows:

(3) $ca_t = (x_t - m_t) + t_t + (y_t^{US} - y_t^{FOR})$

where:

$x_t - m_t$ is the flow of net exports of goods and services (exports minus imports) – the trade (im)balance – for the U.S. economy;

t_t is international transfers ("unilateral current transfers" in the international transactions accounts and "current taxes and transfer payments to the rest of the world, net" in the National Income and Product Accounts (NIPAs));

$y_t^{US} - y_t^{FOR}$ is net income flows, with y_t^{US} income receipts on U.S. assets and labor abroad and y_t^{FOR} income payments from the U.S. to foreign owners of assets and labor in the U.S.

In practice, the data show that unilateral transfers are a negative contributor for the current account, but they are relatively small and stable relative to the economy and income flows. Generally, the predominant factor in the determination of the current account balance from year to year is the net export flow – that is, the trade deficit.

International investment assets:

U.S. investment in foreign assets is comprised of various specific components, including direct investment, bonds, corporate stocks, nonbank and bank claims, and U.S. government official reserve assets and other assets:

(4) $I_t^{US} = D_t^{US} + B_t^{US} + S_t^{US} + N_t^{US} + A_t^{US} + O_t^{US} + G_t^{US}$

where :

I_t^{US} is the value of U.S. international investment assets at the end of period t;

D_t^{US} is U.S. direct investment in foreign private assets;

B_t^{US} is U.S. investment in foreign bonds;

S_t^{US} is U.S. investment in foreign corporate stocks;

N_t^{US} is U.S. claims on unaffiliated foreigners reported by U.S. nonbanking concerns;

A_t^{US} is U.S. claims reported by U.S. banks;

O_t^{US} is U.S. official reserve assets abroad;

G_t^{US} is U.S. Government assets abroad, other than official reserve assets.

Charts 1 and 2 show the historical series from 1976 to 2005 for the various asset shares of the total value of U.S. holdings of foreign assets. Chart 1 shows the direct investment share of total U.S. assets; Chart 2 shows the shares for the financial assets. The charts show how the U.S. portfolio allocation of foreign assets has changed over the past 3 decades. Chart 1 shows that 30 years ago direct investment accounted for half of all U.S. foreign investment. By the mid-1980s, direct investment was less than a third of the total, and by 2005, it was about one-fourth. Financial asset shares have increased over the past 30 years, with stocks and bonds combined rising from less than 10 percent of the total in the early 1980s to about 40 percent by the end of 2005. The stocks share of total U.S. assets abroad increased from less than 2 percent in the early 1980s to more than 33 percent in 1999, before falling back to 21 percent in 2002 with the worldwide equity market correction of 2000-2002. By 2005, the stocks share had increased again, to more than 30 percent of the total. Bank claims on foreigners played a much greater role in the past, running steadily at more than one-third of the total during the 1980s, but have been in the 20 to 25 percent range in the past decade. It is also interesting to note that U.S. government official and other assets combined have declined from the range of about 20 percent to 25 percent of the total in the late 1970s to less than 5 percent by the end of 2004.[8]

An analogous equation applies to foreign-owned assets in the United States:

[8] See Griever, Lee and Warnock (2001) and Bertaut and Griever (2004) for more information on the measurement of international financial investment flows and the changing asset allocations over time; this note also applies to the following discussion for foreign-owned asset allocations.

$$(5) \quad I_t^{FOR} = D_t^{FOR} + B_t^{FOR} + S_t^{FOR} + C_t^{FOR} + N_t^{FOR} + A_t^{FOR} + O_t^{FOR}$$

where definitions apply as for the definitions for the U.S. investment assets above, only for foreign holdings in the United States, with the addition of C_t^{FOR} defined as the value of foreign holdings of U.S. currency.

Charts 3 and 4 show the asset allocation shares over time for foreign assets in the United States. Some similarities exist between the behavior of the U.S. and foreign asset shares. The share of foreign assets in the United States in stocks and bonds has increased from the 10 percent to 15 percent range in the late 1970s and early 1980s to reach nearly 35 percent by the end of 2005. Bank claims accounted for a greater share in the mid-1980s at around 30 percent, but have been a lower share between 15 percent and 20 percent over the past decade. The official asset share has declined markedly, from more than 40 percent of the total in the late 1970s to about the 13 to 18 percent range over the past decade. But a substantial difference exists for the direct investment asset share for U.S. and foreign-owned assets (comparing Charts 3 and 1). Whereas the U.S. direct investment abroad share was initially high and declined sharply in the late-1970s and early-1980s, the foreign direct investment in the U.S. share increased from a lower share, but generally the movement was less pronounced. Also, U.S. direct investment assets abroad have been a greater share of the total (at or above 25 percent) than has been the case for foreign direct investment assets in the U.S. (in the 15 to 20 percent range over the past decade). Both direct investment share series have shown a very slight downward trend over the past twenty years, reflecting the increasing shares for financial assets discussed above.[9]

International income flows:

The equation for U.S. income receipts from abroad is:

[9] See CBO (2005(a)) for discussion of shifts in allocations for foreign-owned assets in the United States.

(6) $$y_t^{US} = y_t^{US,D} + y_t^{US,B} + y_t^{US,S} + y_t^{US,N+A} + y_t^{US,O+G} + y_t^{US,w}$$

where y_t^{US} is the U.S. income receipts from abroad for period t, with the second superscript for the right-hand-side variables representing the asset source (e.g., $y_t^{US,D}$ is U.S. income receipts on direct investment abroad). The last term on the right hand side, $y_t^{US,w}$, is U.S. income receipts from employee compensation abroad. Generally, for the United States, income flows for employee compensation are relatively small.

The income flow for foreign payments can be presented as:

(7) $$y_t^{FOR} = y_t^{FOR,D} + y_t^{FOR,B} + y_t^{FOR,S} + y_t^{FOR,N+A} + y_t^{FOR,O} + y_t^{FOR,w}$$

where $y_t^{FOR,w}$ is income payments from the U.S. to foreigners for employee compensation. However, in practice, adjustments must be made to account for the difference in coverage for asset levels and income payments for foreign owners of assets in the United States. Specifically, U.S. Treasury bills are held as both foreign official assets and as private assets. Also, the identified "government income payments" line includes interest payments for both U.S. Treasury security and U.S. agency bonds. These issues will be described further in the discussion on effective rates of return for foreign assets in the United States presented below.

Effective rates of return on assets:

For this analysis, the average effective rate of return is defined as the identified income flow for an asset divided by the previous period end-of-period stock value of the asset. For example, the effective rate of return for U.S. direct investment abroad is:

(8) $$\rho_t^{US,D} = \frac{y_t^{US,D}}{D_{t-1}^{US}}$$

U.S. international income receipts can then be represented as:

$$(9) \quad y_t^{US} = \rho_t^{US,D} D_{t-1}^{US} + \rho_t^{US,P} (B_{t-1}^{US} + S_{t-1}^{US} + N_{t-1}^{US} + A_{t-1}^{US}) + \rho_t^{US,O+G} (O_{t-1}^{US} + G_{t-1}^{US}) + y_t^{US,w}$$

where $\rho_t^{US,P}$ is the effective rate of return on "other private investments" – bonds, stocks, banking and nonbanking claims – beyond direct investment, and $\rho_t^{US,O+G}$ is the effective rate of return on the combined U.S. official reserve assets and other government assets abroad.[10] Analogously, the equation for U.S. income payments abroad can be represented as:

$$(10) \quad y_t^{FOR} = \rho_t^{FOR,D} D_{t-1}^{FOR} + \rho_t^{FOR,P} (B*_{t-1}^{FOR} + S_{t-1}^{FOR} + N_{t-1}^{FOR} + A_{t-1}^{FOR}) + \rho_t^{FOR,T} T_{t-1}^{FOR} + y_t^{FOR,w}$$

where B* is foreign private holdings of corporate and U.S. agency bonds (but not U.S. Treasury securities), and T is the combined private and official holdings of U.S. Treasury securities.

Effective rates for direct investment: Chart 5 shows the effective rates of return for U.S. direct investment abroad, $\rho_t^{US,D}$, and for foreign direct investment in the United States, $\rho_t^{FOR,D}$. The chart shows the increasingly-recognized fact that the effective rate of return on U.S. direct investment abroad has historically been much higher than for foreign direct investment in the United States. Casual empiricism shows that the rates of return on direct investment are sensitive to the cyclical performance of the economy, with the effective rate for foreign investment in the United States being more sensitive to the cycle than the rate for U.S. direct investment abroad. Part of that lesser sensitivity for the effective rate for U.S. investors simply reflects the diversified investment across a variety of countries whose cycles would not synchronize precisely with the U.S. cycle. In contrast, foreign investments in the United States are primarily subject to the U.S. cycle. Eliminating the recession and near recession years and using returns during "established expansion" years, the

[10] This compilation by type corresponds with the presentation of the time series of data available from the Bureau of Economic Analysis. Shorter time series exist for components of private asset income, e.g., dividends for stocks, interest for bonds, banking and other liabilities. Given the availability of data and the need to observe the behavior of the asset returns over time (as will be seen later), the combined "other private asset" income and effective returns data are used in this analysis.

average effective rate of return for U.S. direct investment assets abroad has been 10.3 percent compared to the much lower 4.9 percent for foreign direct investment assets in the United States.[11]

Effective rates for other private receipts on investment: Chart 6 shows the historical series for the effective rates of return for other private receipts on investment for U.S.-owned assets abroad, $\rho_t^{US,P}$, and for foreign assets in the United States, $\rho_t^{FOR,P}$. The series represent the rates derived from incomes for dividends for stocks, interest on bonds, and interest on bank and nonbank claims. The series for the foreign income covers a shorter time period because of the need to adjust the series to include payments for income on U.S. agency debt (series begins in 1991). U.S. agency debt is included in the private stock of assets but the income flow is included in the U.S. government payments. To allow for the proper comparisons for the effective rates of return and for the calculations, the income for agency securities is subtracted from the U.S. government payments and added to the payments for other (non FDI) private assets. Also, foreign private holdings of U.S. Treasury securities are subtracted from the privately held assets so as to have the proper comparison to the income payment flow. Chart 6 also shows a plot of the 3-month Treasury bill rate (dotted line), revealing the close relationship between the behavior of short-term U.S. interest rates and the effective rates of return.[12] It is interesting to note the close relationship between the magnitudes of the domestic and foreign rates of return for income receipts and payments. The result likely stems from the predominant role of interest-bearing assets (bonds, securities, bank assets) in the portfolios and the close relationship between domestic and foreign interest rates (arbitrage) once currency adjustments are made.

[11] Mataloni (2000), Hung and Mascaro (2004), CBO (2005(b)), and Cline (2005) are among the studies that have examined the issues and possible relationships that lie behind the higher rates of return for U.S. direct investment assets abroad relative to the returns for foreign direct investment assets in the United States.

[12] The estimated relationship between interest rates and the effective rates of return is used in the analysis and projections presented later in the paper.

Effective rates for other government assets and official reserves: Chart 7 shows the historical series for the effective rates of return for official reserves and other government assets. As discussed above, the data for the effective foreign rate covers the shorter period as a result of properly accounting for payments on agency debt and for Treasury security assets. The chart also shows a fitted series for the foreign effective rate (for U.S. interest payments on Treasury securities) of return resulting from a regression on the 3-month Treasury bill rate (Tbill) and the 10-year lagged value of the Treasury 10-year note yield (Tnote). The estimated regression equation (with standard errors beneath the coefficient estimates) is:

```
Foreign effective rate(t) = 0.86 + 0.17*Tbill(t-1) + 0.77*B(L)*Tnote(t)
                            (0.75) (0.15)              (0.10)

            Adj. R-squared = 0.95; SEE = 0.27; Sample: 1991-2005
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where B(L) represents a distributed lag of the current and one-lag values. In practice, the effective rate of return also would be dependent on any changes in the weighting of the foreign-held portfolio of Treasury securities across the term structure (and as interest rates vary across the term structure), but the close relationship between the fitted and actual values in the estimated equation indicates that the fixed regression relationship is quite accurate as a predictor of the foreign government effective rate of return.

Asset valuation changes:

Equation (1) presented above shows the accounting for determining the international investment position, comprised of the financial flows (discussed above) and changes in asset

valuations resulting from changes in prices, changes in exchange rates, and "other" changes.[13] In this section, the historical behavior of the various valuation changes is examined.

Asset valuation changes from price changes: Chart 8 shows the historical series for asset valuation changes resulting from changes in prices relative to the prior period's end-of-period value for both U.S. assets abroad and foreign assets in the United States. Similar patterns are observed for the two series. The chart shows the larger increases in asset valuations in the mid- to late-1990s and the subsequent declines during the 2000-2002 period, likely associated with the rise in equity valuations and their subsequent declines – a phenomenon apparently related to the "bubble" in equity markets and its bursting (e.g., Greenspan (1996, 2002(a), 2002(b))). Chart 9 shows the close relationship for the historical series of the change in valuation from price changes for foreign-owned assets in the United States and the percentage change (December to December) for the Wilshire 5000 index. The least-squares regression results are:

$$\text{Price valuation effect}(t) = \underset{(0.30)}{-0.29} + \underset{(0.016)}{0.170}\ \%\Delta\ \text{Wilshire 5000}(t)$$

R-squared = 0.89 SE = 1.01 Sample: 1989-2005

Chart 10 shows the analogous relationship for the change in valuation from price changes for U.S.-owned assets abroad in comparison to the percentage change in valuation of foreign equities (December to December).[14] The least squares estimation results are:

[13] Tille (2005) presents a detailed discussion of the historical behavior of valuation changes, with a particular focus on the change in valuation resulting from exchange rate changes. He states: "Over the last three years, the [net international investment position] has remained steady despite the U.S. running a large current account deficit. This apparent puzzle is explained by the direct impact of exchange rate movements on the [net international investment position]. … [T]he U.S. owns a large amount of assets denominated in foreign currencies. The dollar value of these assets mechanically increases when the dollar depreciates." Gourinchas and Rey (2005a, 2005b) also explicitly address the role of valuation effects. The analysis of this paper highlights the important role of valuation changes from price changes and "other" effects in addition to the exchange rate valuation effects.

[14] An index of equity valuation was constructed from equity indexes for 10 countries, with the relative weightings determined by the share of U.S. investment in foreign countries. The 10 countries for which sufficiently-long equity time series were available included Canada, United Kingdom, Netherlands, Japan, Mexico, France, Singapore, Australia, Hong Kong, and Spain.

$$\text{Price valuation effect}(t) = \underset{(0.29)}{0.21} + \underset{(0.018)}{0.257}\ \%\Delta\ \text{Foreign equity value}(t)$$

$$R\text{-squared} = 0.94 \quad SE = 1.01 \quad \text{Sample: } 1991\text{-}2005$$

Note that the price change valuation effects show up as being closely related to the changes in equity valuations even though the international investment position data being used is on a current cost and not market value basis for direct investment. Separate examinations of the data for direct investment at market value show an even more pronounced effect and relationship to the equity valuation changes – as should be expected.[15]

Asset valuation changes from exchange rate changes: As described by the BEA, the change in asset valuations from exchange rate changes that occur during a period "Represents gains or losses on foreign-currency-denominated assets and liabilities due to their revaluation at current exchange rates." Chart 11 shows the change in valuation of U.S.-owned assets abroad resulting from changes in exchange rates expressed as a percent of the prior period end-of-period level value. The chart also shows, for comparison, the change in the exchange value of the dollar (using the Federal Reserve's major currencies index (Federal Reserve Board of Governors (2005)). As observed in the chart, an obvious (inverse) relationship exists between the exchange value of the dollar and the (dollar) valuation of U.S.-owned assets abroad. A regression of the relationship using ordinary least squares yields the following results:

$$\text{Exchange valuation effect}(t) = \underset{(0.181)}{-0.070} - \underset{(0.026)}{0.359} * \%\Delta\ \text{Exchange Rate}(t)$$

$$R\text{-squared} = 0.93;\ SEE = 0.75;\ \text{Sample: } 1989\text{-}2005$$

[15] BEA defines the measures as follows. Direct investment position at current cost "values the direct investors' shares of the affiliates' investment in plant and equipment, using the current cost of capital equipment; in land, using general price indexes; and in inventories, using estimates of their replacement cost." Direct investment position at market value is "the value of direct investors' equity in, and net outstanding loans to, their affiliates, in which the equity portion of the position is valued at current stock market prices. This measure revalues direct investors' equity based on indexes of stock market prices."

where the "Exchange valuation effect" on the left-hand-side is the change in valuation due to exchange rate changes expressed as a percent of the prior period's end-of-period asset valuation. The value of foreign assets in the United States also is (slightly) affected by exchange rate changes (not shown in a chart); the estimated regression using ordinary least squares is:

$$\text{Exchange valuation effect}(t) = \underset{(0.027)}{0.017} - \underset{(0.004)}{0.055} * \%\Delta \text{ Exchange Rate}(t)$$

$$R\text{-squared} = 0.93;\ SEE = 0.11;\ \text{Sample: } 1989\text{-}2005$$

The change in valuation for foreign-owned assets in the United States from changes in exchange rates occurs primarily for corporate and other bonds and for direct investment (small effect), i.e., small shares of those assets in the United States are denominated in foreign currencies.[16]

Asset valuation changes resulting from "other" sources: The final component of the asset valuation changes effects occurs for "other" sources. As described by the BEA, the "other" category "Includes changes in coverage, capital gains and losses of direct investment affiliates, and other adjustments to the value of assets and liabilities." Discussions with BEA staff indicate that the source of much of this "other" valuation change is simply unidentified. Chart 12 shows the historical series for the percent changes in valuation attributable to the "other" valuation changes; over the past 17 years, these "other" changes have, on average, accounted for a 2 percentage point difference per year in the percentage valuation changes for U.S. owned assets abroad and foreign-owned assets in the United States. At such historical average rates, these "other" changes represent about $200 billion a year for the current flows – or on average about 25 percent of the net financial flows. Consider the past 5 years: net financial flows averaged $561 billion per year; the "other" valuation change for U.S. owned assets abroad averaged $96 billion; and "other" changes for foreign-owned

[16] The regression relationships are used later in the paper for making projections of the valuation changes for given assumptions about exchange rate changes.

assets in the United States averaged -$38 billion. That is an average net effect for the "other" valuation changes of $134 billion, or 24 percent of the total net financial flow. Over the 1989-2005 period, "other" valuation changes represented, on average, 34 percent of the net financial flows – a very large percentage offset to the financial flows.

The large size of these "other" valuation changes reveals, in a sense, a captured form of the "dark matter" in the net international investment position. Hausmann and Sturzenegger (2005) argue that unidentified asset valuations that would justify the international income flows are "dark matter" that exist but aren't properly measured or accounted for. Their argument is based on unobserved value for the stocks (levels) of international assets. Here, the "other" valuation changes are large, primarily unidentified *changes* in the valuations of the asset stocks. These "other" valuation changes are implicit "dark flows" of sorts, flows that can be observed but are of largely unidentified source. Because they are observable, however, they differ from the unobserved "dark matter" of Hausmann and Sturzenegger (2005). One possible source for these "other" valuation flows might be "better value for the money" investing for U.S. owned assets abroad and "poor value for the money" investing by foreign owners of assets in the United States. That is, reported valuations differ from what would be consistent with the reported financial flows, so the "other" valuation category captures those differences. Cline (2005, p. 262), one of the few analysts to explicitly recognize and account for these "other" valuation changes, identifies them as "statistical 'manna from heaven.'"[17]

The persisting nature and the large size of the valuation changes historically – for exchange rates, prices, and "other" – show that they should not be ignored in analyses of the behavior of international income flows, the current account, and the net international financial position.

[17] Bertaut and Griever (2004) discuss the large discrepancies in international financial data and efforts to improve measurement.

Other components and bridge equations to NIPA measures:

Other components within the relationships must also be accounted for in the system, including the narrowly-defined capital account balance (equation 2), the statistical discrepancy (equation 2), international income payments and receipts for employee compensation (see equations 9 and 10) and international transfers – "unilateral current transfers" in the international transactions accounts and "current taxes and transfer payments to the rest of the world, net" in the NIPAs (see equation 3). Also, one of the primary interests in conducting this analysis is to provide information for the effect of the international debt and income relationships on domestic U.S income. The comprehensive measurement of income and production for the U.S. economy occurs in the NIPAs. However, the Bureau of Economic Analysis (BEA) uses different methodologies and accounting for the construction of the estimates of international income flows, net exports, and other measures in the international transactions accounts and in the NIPAs. Those differences must be properly accounted for in constructing estimates and making projections.

In this analysis, most of these additional relationships are accounted for through straightforward equations to bridge from one measure to another, or to represent the trend relationships observed historically. Most of the additional components are relatively small compared to the major components addressed above. For example, current taxes and transfers in the NIPAs have fluctuated in a fairly narrow band as a percent of GDP – around 0.5 to 0.7 percent of GDP (with the one exception of 1991 when the U.S. received foreign funds for contributions toward the costs of Operation Desert Storm in Kuwait and Iraq). Income receipts and payments for employee compensation also are small and tend to grow with overall economic activity. In the projections presented below, values for these measures generally are assumed to grow with U.S. nominal GDP. The differences between NIPA and international transaction account total income payments and receipts also are assumed to grow with nominal GDP. The statistical discrepancy in the international transactions accounts generally has fluctuated around zero, with the average value as a percent of

GDP over the past 15 years near zero. In the projections, the statistical discrepancy is assumed to be zero.

III. BASE CASE: BLUE CHIP PROJECTIONS AND EXTENDED HISTORICAL RELATIONSHIPS AND TRENDS

This section presents a "base case" for projections of the U.S current account, net international income flows, and net international investment position. The base case projection generally assumes the continuation of historical relationships and trends for key parameters, investment portfolio shares, and effective rates of return. The projection period is 2006-2016. The base case uses projections for GDP and net export flows based on the average of private forecasters as represented by the "consensus" projection of the *Blue Chip Economic Indicators* (2006).[18] The path for the exchange value of the dollar is a 5½ percent depreciation during 2006 and a 1 percent depreciation in 2007, derived from the projections reported in the Blue Chip International Consensus Forecasts section of the *Blue Chip Economic Indicators* (2000).[19] Beyond 2007, depreciation is assumed to persist through 2016 – based on an informal review of the exchange rate assumptions of a small selection of private forecasters – but with the *rate* of depreciation declining at a geometric rate by 10 percent per year across the remaining years of the simulation. At those rates, the cumulative depreciation in the value of the dollar over the next decade is an additional 12 percent, a depreciation

[18] The Blue Chip Economic Indicators reports projections for real net exports. Nominal values for net exports consistent with those reported real values were calculated by estimating relationships between changes in import and export price indexes and the change in the exchange value of the dollar and the price of crude oil (refiners acquisition cost, imported) over time, and also through projecting the nominal *level* of imports consistent with the projected level of nominal GDP. In the projections, oil prices were assumed to be "flat" in real terms at $60 per barrel (note that the PIRAC tends to be lower than the benchmark West Texas Intermediate crude price).

[19] Nineteen of the 53 forecasters that are respondents for the Blue Chip consensus U.S. forecast participate in the international consensus forecast, along with three other forecasters. Hence, a substantial overlap exists for the forecasters making the net export forecast and the exchange rate forecasts. End of year values for exchange rates are reported for a variety of countries and exchange rate zones in the *Blue Chip Economic Indicators*. Available values for countries in the Federal Reserve's major country index were used to calculate the implied resulting change in that index, adjusting weights to account for missing country (Switzerland and Sweden) exchange rates. The projection for the exchange rates in *Blue Chip Economic Indicators* is for the current year (2006) and for one-year ahead (2007).

that initially may appear to be on the low side of that expected to be consistent with a "sustainable" U.S. current account position. However, the 12 percent projected depreciation is in addition to the 23 percent depreciation of the dollar (relative to major currencies) that occurred from early 2002 through 2005, which would bring the total depreciation to about 32 percent. Additional Blue Chip numbers used for making the base projection include the Treasury bill interest rate and the 10-year Treasury note yield.

Some analysts may consider the use of Blue Chip projections for a steady reduction in the net exports deficit relative to GDP to be overly optimistic. In practice, macroeconomic forecasters generally use the narrowing of the net export gap to generate part of the spending growth in the trend-growth projections given the relationships of other spending components of GDP: in particular, a projection of a rising personal saving rate from near zero generally means consumption spending will grow at a slower rate than GDP. The reduction in the net export deficit is a natural part of identifying the source of the additional spending growth. Also, the Blue Chip outlook – particularly the 10-year projection – is by nature a projection with "smooth" adjustment of key variables. If an adjustment is expected to occur at some time in the future in the projection – but little information exists as to exactly when – a smooth adjustment process with gradual changes over time to attain the adjustment becomes the best projection by default. Ultimately, for the purposes of this paper and the larger debate about the outlook for the sustainability of the U.S. current account and international debt positions, the Blue Chip projections establish a "private forecaster consensus" for the expected changes over the next decade that generates a useful benchmark for comparison.

Asset share assumptions:

Projections for the shares of direct foreign investment assets relative to total assets for U.S.-owned assets abroad and for foreign-owned assets in the United States are assumed to follow the extended trends of the 1983-2005 period (shown in Charts 1 and 3). In each case, the path of the

share of assets is assumed to follow (approximately) the estimated trend of the past 2 decades – an ongoing gradual decline in the direct foreign investment share of the total. For the financial assets, approximate historical trends were assumed to continue. In particular, continued, gradual rising shares for corporate stocks and bonds were assumed to occur.

Effective rates of return projections:

Chart 13 shows the effective rates of return on direct investment; the base projection assumes the persistence of a spread between the rates of return for U.S. and foreign investment similar to what has existed historically. For U.S.-owned direct investment assets abroad, the ultimate rate of return in the projection is assumed to be 10.0 percent, compared to the relevant historical average of about 10.3 percent. For foreign-owned direct investment assets in the United States, the ultimate rate of return is assumed to be 5.25 percent, above the established expansion average of 4.9 percent. The assumed rates for the projection are somewhat more conservative than the historical averages for making the projections.[20]

Chart 14 shows the historical and projected effective rate of return for other private assets. The projected effective rates of return are based on the estimated relationships between the effective rates and the 3-month Treasury bill rate and the 10-year Treasury note yield.[21] For the effective rate for U.S.-owned other private investment assets abroad, the estimated equation using ordinary least squares is:

[20] The "established expansion averages" are used for reference in order to not create an obvious downward bias against returns on foreign-owned assets in the United States – which would make higher net international income flows for the United States even more likely in the projections. An examination of the charts and the historical data reveals the very low rates of return for foreign-owned direct investment during U.S. recession periods. The base projection by nature is assumed to apply to a scenario with the U.S. economy in a continued expansion – reflecting the Blue Chip projections – with the economy growing at roughly its potential rate. A regression of the foreign effective rate on the current and first lagged values of GDP growth, and a dummy for the post-1995 period, generated an adjusted R-squared of 0.76 and projected values for the effective foreign rate declining to about 4.8 percent (based on Blue Chip GDP growth projections) – a result matching the historical expansion period average and somewhat lower than assumed for the projections.

[21] The close relationship between U.S. and foreign interest rates is shown in Chinn and Frankel (2005).

```
Effective Rate U.S. Other Private Investment(t) =

                  0.979 + 0.373*Tbill(t) + 0.667*Tnote(t)
                 (0.484) (0.096)          (0.125)


      Adj. R-squared = 0.95; SEE = 0.41; Sample: 1988-2005
```

The analogous equation for the effective rate of return for foreign-owned other investment assets is:

```
Effective Rate Foreign Other Private Investment(t) =

                 -0.235 + 0.317*Tbill(t) + 0.559*Tnote(t)
                 (0.338) (0.059)          (0.080)


      Adj. R-squared = 0.95; SEE = 0.24; Sample: 1991-2005
```

The projected effective rates of return in Chart 14 show relatively flat projections for 2007 and beyond, reflecting the flat pattern for the Blue Chip projection for interest rates.

Chart 15 shows the projections for the effective rates of return for income receipts and payments for government assets based on the available data. The projected effective rate for foreign government assets in the United States shows a marked increase, reflecting the Blue Chip projection of higher interest rates and the estimated relationship between the effective rate and interest rates (the estimated equation is presented above in the discussion for Chart 7).

Valuation change projections:

Chart 16 shows the projections for the changes in valuations from "price changes." The values shown for the first projection year – 2006 – are based on the actual changes in equity index values during 2006 (through the end of August as this is being written) and the estimated

relationships presented earlier: a positive price change valuation effect for U.S.-owned assets abroad for 2006 as a result of a nearly 8 percent increase in the foreign equity index through August 2006; and a negligible effect for foreign-owned assets in the United States as the Wilshire 5000 index was nearly flat through the end of August 2006. The remaining years of the projections for the price change valuation effects are based on an assumption of trend annual increases in equity values by 5¼ percent – with equal equity gains for both U.S. and foreign markets. Using the estimated relationships between equity value increases and the price change valuation rates presented earlier, the assumption of 5¼ percent growth in equity values results in a price change valuation rate of 1.48 percent per year for U.S.-owned assets abroad and 0.66 percent for foreign-owned assets in the United States. The assumption of a 5¼ percent increase annually essentially assumes that broad equity values will increase with nominal GDP over time in the United States.[22] Note that if one were to assume higher equity gains in foreign markets than in the U.S., then the price valuation effects would move even more in favor of U.S.-owned assets abroad.[23]

Chart 17 shows the projections for changes in valuations from changes in exchange rates and the assumed projection for the change in the value of the dollar. As described above, the projected change in the exchange value of the dollar is derived from the Blue Chip international forecasts for 2006-2007, and thereafter by an assumed gradual decline in the rate of depreciation over subsequent years, with a total depreciation over the 10-year projection of just over 15 percent. As shown in Chart 17, small valuation increases occur for U.S.-owned assets abroad resulting from the decrease in

[22] Total equity returns would be higher by the amount of dividends and share repurchases; that would be consistent with a total (nominal) return to equities of around 7 to 8 percent per year in the United States.

[23] Historically, the price valuation effect for U.S. owned assets abroad (average of 2.1 percent over 1991-2005) has exceeded the price valuation effect for foreign owned assets in the United States (1.5 percent average) despite the higher equity gains in the United States (average of 11 percent per year) than abroad (7 percent). The larger estimated coefficient for the price valuation effect relative to the equity price changes for the U.S. relative to foreign likely results from the larger portfolio share for equities for U.S. owned assets abroad than for foreign assets in the United States.

the exchange value of the dollar. A small exchange rate valuation effect also occurs for foreign-owned assets in the United States (not shown).[24]

Chart 18 shows the assumed projections for "other" valuation effects based on extrapolations of the final values from the historical series from the Hodrick-Prescott (1980, 1997) filter with a smoothing parameter value of 400. The choice of the smoothing parameter value of 400 generates gradual downward trends (in absolute value) for the projections and a gradual narrowing of the difference between the U.S. and foreign "other" valuation effects over the projection; by 2016 the difference is 0.7 percentage point, much narrower than the 2.0 percentage point historical spread.[25]

Current account and net international debt and income projections:

Charts 19, 20 and 21 show the results for the base case for the key aggregate variables – net exports, the current account balance, the net international investment position, and net international income flows. Chart 19 shows the projections for net exports (derived from the Blue Chip (2006) projections) and the derived base case projection for the current account. With the declining net export deficit and the derived net international income flows, the current account deficit is projected to decline over the next decade, from about 6¾ percent of GDP in 2006 to 4½ percent in 2016. Chart 20 shows the base case projection for the international investment position for the United States, with net debt increasing from 21 percent at the end of 2005 to 42 percent of GDP in 2016. Finally, Chart 21 shows that, despite the large current account deficits and the increases in the U.S. net international debt, the projected net international income flows (on a NIPAs basis) decline only gradually through the end of the projection period in 2016 when the net flow is at -0.7 percent of GDP.

[24] The estimated relationships for the exchange rate valuation effects were shown in the discussion for Chart 11 above.

[25] Results for other values of the smoothing parameter were examined, but the value of 400 generated more economically plausible results. The assumed path for the other valuation effect generates a "conservative" projection relative to the observed historical averages and the results of this analysis. If historical averages were assumed to persist unabated, the projection of negative net income flows would be dampened even further.

The results for the base case projection show that, with private analysts' expected performance of the economy, interest rates, exchange rates and net exports – and using the historical basis for the variety of relationships in the international accounts – the expected U.S. current account is on a relatively sustainable path. Despite the ongoing current account deficits and the increase in the net international debt position – a doubling in magnitude relative to GDP – the United States would be able to finance the international deficits and international debt at a net cost of less than a penny on a dollar of GDP. These relationships also help to explain why the United States continued to run a positive net international income flow for so many years despite the growing U.S. net international debt position.

IV. Reproductions and Comparisons for Other Projections and Views

Other recent analyses present projections of the U.S. international investment position and current account balance using a variety of alternative assumptions and modeling frameworks. Many of the analyses are based on the assumptions of no change in the exchange value of the dollar and that the U.S. trade and current account deficits will persist, and many projections do not account for detailed valuation changes. Table 1 shows the base case projection results for the year 2016 and reproductions of the alternative analyses considered in this paper, using the modeling framework presented here.

Higgins, Klitgaard, and Tille (2005)

Higgins, Klitgaard, and Tille (2005) (also referenced below by "HKT") used varying assumptions about the future performance of the trade and current account deficits in a framework employing historically-based asset returns, but not asset valuation effects. Three alternative scenarios were presented. For their first scenario – a scenario that fixed the current account at about 6 percent of GDP – based on the relationships in their framework, they find that:

> Under this scenario, U.S. net foreign liabilities as a percentage of GDP would rise from 22 percent – their level in 2004 – to 65 percent by 2015 … Payments on the growing U.S. net liability position would near 1.2 percent of GDP by 2015. (Higgins, Klitgaard, and Tille (2005), p. 6)

Line 2 in Table 1 shows a reproduction for their first scenario, using the path of trade deficit as the basis of comparison. Adjusting assumptions to roughly match those employed by HKT (including a trend down in the net export share to 4.0 percent of GDP in 2015), the framework of the present analysis – constrained to have no valuation changes as in the HKT analysis – generates similar results: a net international investment position of -63 percent of GDP in 2015, and net international income flows of -1.7 percent of GDP at that horizon. This comparison confirms the operation of the model employed here relative to that of HKT, even showing somewhat larger net income effects. Line 3 in the table shows the results from incorporating the price and "other" valuation effects. The results show that ignoring valuation effects leads to a potential overstatement of the likely U.S. net foreign debt position and net international income flow deficit for the given path of the trade deficit. The full specification reduces the effect on the U.S. net international debt level by nearly one-half of the change from the 2005 level, and the net international income flow is substantially less negative (-1.0 percent of GDP compared to -1.7 percent of GDP).

Lines 4 through 7 present reproductions and comparisons for two additional scenarios from HKT. Scenario 2 assumed a steady decline in the trade and current account deficits – in their analysis the current account deficit was assumed to decline to 2.5 percent of GDP in 2015. The reproduction reported in line 4 of Table 1 used their projected trade deficit decline to 1.1 percent of GDP, and generated the resulting current account deficit of 2.7 percent of GDP, again similar to that of the HKT analysis. For their scenario 2, HKT projected a U.S. net international debt position of 48.3 percent of GDP in 2015 and a net income flow of -0.8 percent of GDP; the reproduction in line 4 of Table 1 shows a similar result with net debt at 45.0 percent of GDP and net income flows at -0.9

percent of GDP. Line 5 shows the projection with the inclusion of the price and "other" valuation effects. Including the valuation effects results in smaller debt and income effects: net debt is much lower at 27 percent of GDP and net income flows are nearly in balance at -0.2 percent of GDP.

The third scenario from HKT assumed the same current account path as in their second scenario, but with an elimination of the differential between U.S. and foreign rates of return – i.e., an increase in the rates of return on foreign-owned assets in the United States to a level equivalent to the rates on U.S.-owned assets abroad. The reproduction reported in line 6 of Table 1 again is a close match for the HKT results. The results reported in line 7 show that including valuation effects again leads to a much less severe result for the net debt and net income flows.

Cline (2005)

Cline (2005) used a more detailed model that accounts for valuation effects – including the largely undefined, but persisting, "other" valuation effects – as well as modeling specific asset classes and returns. Cline presented alternative base cases for which the paths vary as a result of alternative assumptions about domestic and foreign import and export elasticities. His "preferred" base case showed a path for the trade balance that remains relatively flat relative to GDP, in the range of roughly 5.0 to 5.5 percent of GDP over his 2005-2010 projection horizon. Cline's estimate for the U.S. net international investment position under those assumptions is for it to deteriorate to 50 percent of GDP in 2010. Using the model of the analysis for this paper and reproducing Cline's base case results – no exchange rate valuation changes after 2005, a net export path at about 5.5 percent of GDP, and the continued historical values and trends (as described above) – yields a U.S. net international investment position of -42 percent of GDP in 2010 (see line 8 of Table 1). The net international income flow is at -0.7 percent of GDP in 2010. Line 9 of Table 1 presents an extension

of the Cline base case to 2016, showing an increase in the U.S. net debt position to about 67 percent of GDP and the net international income flows at -1.8 percent of GDP.[26]

Cline presents alternative scenarios, one of which yields a reduction in the trade and current account deficits relative to GDP, based on assumptions of a relative increase in foreign growth and a decline in the value of the dollar. The reproduction for that Cline alternative scenario is shown in line 10 of Table 1, based on the decline in the trade deficit to 1.9 percent of GDP in 2010. Cline's results show a decline in the current account deficit to 2.9 percent of GDP in 2010 and a net debt position of 29.8 percent of GDP. It included a decline in the value of the dollar by 10 percent in 2006 and another 10 percent in 2007. In addition to the "other" valuation effects, valuation effects for exchange rate changes were explicitly in his model and the effects of the dollar depreciation are included in the projections. The results in line 10 show similar projections for the current account deficit at 2.9 percent of GDP and the net debt position at 28 percent of GDP. Net income flows are at -0.2 percent of GDP in 2010. Line 11 shows the results for an extension of the projection to 2016 (trade deficit continuing at -1.9 percent of GDP); the net debt level relative to the economy rises to about 33 percent of GDP, the current account deficit is roughly flat at 3.0 percent of GDP, and the net income flow comes in at -0.4 percent of GDP.

Roubini and Setser (2004)

Roubini and Setser (2004) present several scenarios for alternative views of the outlook for net international debt and the current account. Lines 12 through 17 of Table 1 show results for reproductions and comparisons for their base case and a "modest adjustment" alternative.

[26] No alternative comparisons are presented for the Cline cases as he employs a model that includes "other" valuation effects and historically-based rates of return, very similar to the present analysis. The primary difference between the analysis of this paper and that of Cline is the role of price valuation effects – effects that would only marginally affect the presented results. The Cline results are reproduced here to further illustrate the reliability of the model used in this paper and to present his results for comparison to the others shown in the table.

The Roubini and Setser (henceforth RS) base case assumed that (1) the real exchange value of the dollar remains unchanged, (2) the U.S. economy continues to grow strongly relative to foreign economies (continuing what occurred over the past decade and a half), and (3) rates of return on foreign-owned assets in the United States rise and eventually exceed those for U.S.-owned assets abroad (contrary to the historical norm). Line 12 shows a reproduction of the RS base case, with the trade deficit at 8 percent of GDP in 2015, rates of return on foreign-owned assets in the United States exceeding those on U.S.-owned assets abroad, no change in the exchange rate, and no "other" or price valuation changes. The projection shows an increase in the U.S. net international debt position to about 107 percent of GDP (similar to the RS result) and an increase in the current account deficit to 14.5 percent (similar to the RS result of about 16 percent).[27] The net income flow is projected to reach -5.7 percent of GDP (similar to the RS result of somewhat beyond -6 percent). As RS acknowledge: "In our judgment, the deterioration in the U.S. external accounts implied by the baseline scenario is too rapid to be viable" (Roubini and Setser (2004), p. 33). Line 13 shows the effect of including price and "other" valuation effects throughout the projection. With the valuation effects, the projected increase in U.S. net international debt is reduced by about one-fourth (a 67 percentage points of GDP increase versus an 85 percentage point increase). U.S. net income flows are less negative with the inclusion of the valuation effects, at -5.0 percent of GDP. If the assumed dramatic change in effective rates of return is not included and closer to historical relationships are assumed to persist instead (line 14), the effect on the U.S. net debt position is reduced further, reaching about 71 percent, much lower than the 107 percent level with the adverse rate of return assumptions and no valuation changes. The effect on U.S. net income flows is dramatically lower without the adverse assumptions, at -1.8 percent of GDP in 2015.

[27] Roubini and Setser show results for 2012 but the results for 2015 shown here are estimated from charts they present with results through 2015.

The reproduction of the RS "modest adjustment" scenario is shown in line 15 of Table 1. The U.S. trade deficit is assumed to remain at about 5 percent of GDP throughout the projection, and composite effective rates of return are assumed to roughly equalize for foreign-owned and U.S.-owned assets. The dollar is assumed to depreciate by about 6 percent over 2006-2007. No valuation effects are included. The U.S. net debt position increases to about 80 percent of GDP in 2015, the current account deficit increases to 9.7 percent of GDP, and net income flows decline to -4.1 percent of GDP (results generally similar to those shown by RS). As occurred in the prior cases, the inclusion of valuation effects and historically-based rates of return reduce the projected debt and current account estimates, and dramatically reduce the effect on the net income flows. Line 17 shows that with the full model specification and rates closer to historical averages, the net income flow is much smaller, at -1.1 percent of GDP in 2015.

Comparisons to the Buffet "sharecropper" calculations:

For further comparison, let's consider the "back of the envelope" calculation from Buffett (2005):

> "Should we continue to run current account deficits comparable to those now prevailing, the net ownership of the U.S. by other countries and their citizens a decade from now will amount to roughly $11 trillion. And, if foreign investors were to earn only 5% on that net holding, we would need to send a net of $.55 trillion of goods and services abroad *every year* merely to service the U.S. investments then held by foreigners. At that date, a decade out, our GDP would probably total about $18 trillion (assuming low inflation, which is far from a sure thing). Therefore, our U.S. family would then be delivering 3% of its annual output to the rest of the world simply as a tribute for the overindulgences of the past." (Buffett (2005), p. 20

A scenario was run with a persisting current account deficit in the 5½ percent to 6½ percent of GDP range. The nominal GDP level based on Blue Chip assumptions reaches $21 trillion in 2015, the current account deficit rises gradually from just below $800 billion in 2005 to about $1.6 trillion by 2015, and the U.S. net international debt rises to $11 trillion. Buffet's calculations point to net debt at more than 60 percent of GDP and net income payments of $0.55 trillion, or about 3 percent of GDP. The estimates presented here for comparison produce a net income payment of about $240 billion ($0.240 trillion) in 2015 – just over one percent of GDP – about one-third the size of that assumed by Buffet. Further, the base case of this paper is even less onerous, with debt rising to $8.7 trillion (41 percent of GDP) and net income flows at -$147 billion (-0.7 percent of GDP) in 2015. Paying one cent of a dollar of GDP or less to service a net debt position in the range of $8 trillion to $11 trillion – 35 to 45 percent of GDP – may be more of a mark of a "shrewd capitalist" society than of a "sharecropper" society.

Additional discussion:

The analysis presented here is based on the use of exogenous projections for the U.S. trade deficit and the exchange value of the dollar. The primary purpose of the analysis is to show the importance of fully accounting for all of the relationships in the determination of the financial flows in the international accounts, especially for the resulting net income flows. As discussed briefly earlier in the paper, some may view the base case presented above, with its use of the Blue Chip projections of a declining value of the dollar and a decline in the trade deficit relative to the size of the economy, as optimistic or essentially "assuming away the problem." The base case projection simply uses the average of private forecasts and, with the other relationships identified in this analysis, allows for a useful benchmark.

Also, consider the process of adjustment that could occur for reducing the U.S. trade deficit and the implications of that for the accounting relationships in the determination of the current

account and the net international investment position. Some analysts argue that a very large exchange rate adjustment will be required to achieve a decline in the U.S. trade deficit to lower, more "sustainable" levels. As shown in this analysis and in Tille (2005) and Gourinchas and Rey (2005a, 2005b), a depreciation of the exchange value of the U.S. dollar would have beneficial effects on the U.S. international debt position as a result of financial valuation effects independent of the role of the exchange rate in international trade flows. In such a situation, additional offsetting relationships could occur through the role of price valuation effects. For example, a scenario with a substantial decline in the value of the dollar – and presumably relatively weaker U.S. real growth – could also be consistent with a decline in the rate of growth of U.S. equity values relative to growth in foreign equity values. Based on the relationships described in this paper, slower growth in U.S. equity values relative to foreign equity values would generate price valuation change effects that would raise the value of U.S.-owned assets abroad relative to foreign-owned assets in the United States – helping to reinforce further the reduction in the U.S. net debt position.

Nonetheless, this analysis should not be interpreted as implying that U.S. international financial deficits and debt will resolve even if future international economic performance continues at the trends of the recent past – that is, persisting stronger growth in the United States relative to foreign countries and continued growing trade deficits. Rather, the broad set of results for the reproductions and comparisons shows that, with the use of proper accounting and historically-consistent rates of return, the likely negative effects from persisting imbalances are not as severe as many have assumed. Even with the more severe base case of Roubini and Setser (2004) – which the authors even consider to not be viable – with the U.S. trade deficit rising over the next decade to about 8 percent of GDP, the expanded modeling of this paper with historically-based asset returns shows the U.S. net international income flows at the more modest level of -1.8 percent of GDP by 2016. If the rates of return on foreign-owned assets in the United States were to rise substantially relative to those on U.S.-owned assets abroad then there would be the potential for a significant

adverse effect on U.S. net international income flows. Yet, there is little or no evidence to suggest that such a reversal of the long-established historical pattern of the substantial higher rates on U.S.-owned assets abroad is expected to happen, even with a scenario with a declining value of the dollar.[28] Nonetheless, this is an area of potential future research that this paper highlights as being of particular importance.

The relationships and analysis presented in this paper also can be important for addressing the implications of U.S. government budget deficits and relationships to U.S. international financial flows and positions. For example, Rubin, Orszag, and Sinai (2004) argue that

> "Under the conventional view, ongoing budget deficits decrease national saving, which reduces domestic investment and increases borrowing from abroad. …The external borrowing that helps to finance the budget deficit is reflected in a larger current account deficit, creating a linkage between the budget deficit and the current account deficit. … the increase in the current account deficit (which requires that more of the returns from the domestic capital stock accrue to foreigners) … reduce[s] future national income, with the loss in income steadily growing over time."

This quote essentially is another version of the "conventional wisdom" identified earlier in the paper that effectively assumes that the growing U.S. international debt position requires that the U.S. will face large and growing net international income deficits. The results of this paper show that the "costs" in terms of future international income flows from current account deficits are likely not as large as typically perceived to be the case. Nonetheless, such an observation in this context should not be perceived as dismissing the importance of Federal budget restraint.

[28] For example, Gagnon (2005) reports that bond yields in industrial countries do not tend to rise in response to sudden currency depreciations, and that bond yields do not appear to be particularly sensitive to changes in net purchases of a country's bonds by foreigners.

IV. SUMMARY AND POSSIBLE DIRECTIONS FOR RESEARCH

The analysis and results presented in this paper generally show that the outlook for the U.S. current account appears to be more "sustainable" than typically considered, at least in terms of the costs to the U.S. economy of servicing its net international debt. The base case presented in this analysis – based on the likely expected performance of key measures in the international investment accounts – shows gradual improvement in U.S. trade and current account deficits, but deterioration in the U.S. net international investment position (an increase in U.S. international debt) relative to the size of the economy. An important result in the base projection, however, is that the cost of servicing the U.S. net international debt remains relatively low – at less than one cent per dollar of GDP.

Alternative projections that show dramatic increases in the U.S. net international debt position combined with large costs of servicing that debt relative to the size of the economy generally are dependent on assumptions that are at odds with long-standing historical relationships, as well as methodologies that do not account for key relationships. Specifically, projections that attain a significant adverse result employ one or more of the following: (1) assumed paths for net exports that are much worse than the consensus of private forecasters, or even recognized as unlikely to occur; (2) reversal of long-standing relationships for the relative U.S. and foreign effective rates of return on international investments; and (3) incomplete detail in the accounting relationships used in the projections, especially not accounting for important and ongoing broad valuation effects that substantially temper the negative effects on the U.S. international investment position.

Although differing views may exist for the assumed values for key variables presented in this paper, ultimately care must be taken that results are based on as much available information as possible in observed historical relationships and likely future trends, and on the proper accounting methods for the determination of the U.S. net international income flows and the U.S. net international investment position. Barring a sustained increase in the trade deficit relative to the size of the U.S. economy – and without reversals of the long-maintained relative rates of return but with

the proper accounting for persisting valuation effects – projections of U.S. net international income flows should be expected to be relatively benign in magnitude relative to the size of the U.S. economy over the next decade. That is, the cost of servicing the U.S international debt is likely to remain at a relatively low and manageable level. That outlook appears to be more in line with the U.S. being a society of "shrewd capitalists" than a society of "sharecroppers."

REFERENCES

BERGSTEN, C. FRED AND JOHN WILLIAMSON, *Dollar Adjustment: How Far? Against What?* Institute for International Economics, NOVEMBER 2004

BERTAUT, CAROL C. AND WILLIAM L. GRIEVER, "Recent Developments in Cross-Border Investments in Securities," *Federal Reserve Bulletin*, Winter 2004.

BLANCHARD, OLIVIER, FRANCESCO GIAVAZZI AND, FILIPA SA, "The U.S. Current Account and the Dollar," *Brookings Papers on Economic Activity*, 1:2005.

BLUE CHIP ECONOMIC INDICATORS, Aspen Publishers, New York, NY, October 2006.

BUFFETT, WARREN, Letter to shareholders, March 2005, available at: www.berkshirehathaway.com/letters/2004ltr.pdf

BUREAU OF ECONOMIC ANALYSIS, U.S. International Transactions: Fourth Quarter 2005, March 16, 2006.

CHINN, MENZIE AND JEFFREY FRANKEL, "The Euro Area and World Interest Rates, manuscript, January 2005.

CLINE, WILLIAM R.. *The United States as a Debtor Nation*, Institute for International Economics, Washington, DC, 2005.

CONGRESSIONAL BUDGET OFFICE, "The Decline in the U.S. Current Account Balance Since 1991," *Economic and Budget Issue Brief*, August 6, 2004.

CONGRESSIONAL BUDGET OFFICE, "Recent Shifts in Financing the U.S. Current Account Deficit," *Economic and Budget Issue Brief*, July 12, 2005(a).

CONGRESSIONAL BUDGET OFFICE, "Why Does U.S. Investment Abroad Earn Higher Returns Than Foreign Investment in the United States?" *Economic and Budget Issue Brief*, November 30, 2005(b).

COOPER, RICHARD, "America's current account deficit is not only sustainable, it is perfectly logical." *Financial Times*, November 1, 2004.

EDWARDS, SEBASTIAN, " Is the U.S. Current Account Deficit Sustainable? And if not How Costly is Adjustment Likely to Be?" *Brookings Papers on Economic Activity*, 1:2005.

EICHENGREEN, BARRY, "The Blind Men and the Elephant," *Issues in Economic Policy*, The Brookings Institution, January 2006.

FEDERAL RESERVE BOARD OF GOVERNORS, "Indexes of the Foreign Exchange Value of the Dollar," *Federal Reserve Bulletin*, Winter 2005.

GAGNON, JOSEPH E., "Currency Crashes and Bond Yields in Industrial Countries," International Finance Discussion Papers, Federal Reserve Board of Governors, Number 837, August 2005.

GEITHNER, TIMOTHY F., "Policy Implications of Global Imbalances," Federal Reserve Bank of New York, Remarks at the Global Financial Imbalances Conference at Chatham House, London, January 23, 2006.

GOURINCHAS, PIERRE-OLIVIER AND HELENE REY, "International Financial Adjustment," NBER Working Paper No. 11155, February 2005(a).

GOURINCHAS, PIERRE-OLIVIER AND HELENE REY, "From World Banker to World Venture Capitalist: The US External Adjustment and The Exorbitant Privilege," paper presented at NBER Conference on G7 Current Account Imbalances: Sustainability and Adjustment, July 2005(b)

GREENSPAN, ALAN, "The Challenge of Central Banking in a Democratic Society," Remarks, At the Annual Dinner and Francis Boyer Lecture of The American Enterprise Institute for Public Policy Research, Washington, D.C., December 5, 1996

GREENSPAN, ALAN, "Economic Volatility," Remarks, At a Symposium sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming, August 30, 2002(a).

GREENSPAN, ALAN, "Issues for Monetary Policy," Remarks, Before the Economic Club of New York City, December 19, 2002(b).

GREENSPAN, ALAN, Remarks, At the 21st Annual Monetary Policy Conference, Consponsored by the Cato Institute and *The* Economist, Washington, D.C., November 20, 2003.

GRIEVER, WILLIAM L., GARY A. LEE, AND FRANCIS E. WARNOCK, "The U.S. System for Measuring Cross-Border Investment in Securities: A Primer with a Discussion of Recent Developments," *Federal Reserve Bulletin*, October 2001.

HIGGINS, MATTHEW, THOMAS KLITGAARD, AND CEDRIC TILLE, "The Income Implications of Rising U.S. International Liabilities," *Current Issues in Economics and Finance*, Federal Reserve Bank of New York, December 2005.

HAUSMANN, RICARDO AND FREDERICO STURZENEGGER, "U.S. and Global Imbalances: Can Dark Matter Prevent a Big Bang?" Working Paper, Kennedy School of Government, November 2005.

HODRICK, R. J., AND PRESCOTT, E. C., "Post-war U.S. business cycles: An Empirical Investigation." Discussion paper 451, Carnegie-Mellon University, 1980. Published in *Journal of Money, Credit and Banking*, Feb. 1997.

HUNG, JUANN H. AND ANGELO MASCARO, "Return on Cross-Border Investment: Why Does U.S. Investment Abroad Do Better?" Technical Paper Series 2004-17, Congressional Budget Office, December 2004.

MANN, CATHERINE, *Is the U.S. Trade Deficit Sustainable?* Washington: DC: Institute for International Economics, 1999.

MANN, CATHERINE, "Managing Exchange Rates: Achievement of Global Re-Balancing or Evidence of Global Co-Dependency," *Business Economics*, July 2004.

MATALONI, RAYMOND J., "An Examination of the Low Rates of Return of Foreign-Owned U.S. Companies," *Survey of Current Business*, Bureau of Economic Analysis, U.S. Department of Commerce, March 2000.

NGUYEN, ELENA L., "The International Investment Position of the United States at Yearend 2005," *Survey of Current Business*, July 2006.

OBSTFELD, MAURICE AND KENNETH ROGOFF, "The Unsustainable US Current Account Position Revisited," NBER Working Paper No. 10869, October 2004.

OBSTFELD, MAURICE AND KENNETH ROGOFF, "Global Current Account Imbalances and Exchange Rate Adjustments," *Brookings Papers on Economic Activity*, 1:2005.

ROUBINI, NOURIEL AND BRAD SETSER, " The US as a Net Debtor: The Sustainability of the US External Imbalances," manuscript, November 2004.

RUBIN, ROBERT E., PETER R. ORSZAG, AND ALLEN SINAI, "Sustained Budget Deficits: Longer-Run U.S. Economic Performance and the Risk of Financial and Fiscal Disarray," Paper presented at the Allied Social Science Associations Annual Meetings, January 4, 2004, San Diego, CA.

TILLE, CEDRIC, "Financial Integration and the Wealth Effect of Exchange Rate Fluctuations," Federal Reserve Bank of New York, Staff Report No. 226, October 2005.

DATA APPENDIX

Updates for the U.S. international investment position data and information are presented each year at mid-year by the Bureau of Economic Analysis (e.g., see Nguyen (2006)). Historical data are available from the Bureau of Economic Analysis website.

International Investment Position, Yearend Positions, 1976-2004:

Source: Bureau of Economic Analysis, U.S. Department of Commerce, additional estimates, Table 2. Website address: http://www.bea.gov/bea/di/intinv04_t2.xls

Components of Changes in the International Investment Position, 1989-2004:

Source: Bureau of Economic Analysis, U.S. Department of Commerce, additional estimates, Table 3. Website address: http://www.bea.gov/bea/di/summarytablesv2.xls

U.S. International Transactions Data:

Source: Bureau of Economic Analysis, U.S. Department of Commerce: Website address: http://www.bea.gov/bea/di/home/bop.htm

National Income and Product Accounts data:

Source: Bureau of Economic Analysis, U.S. Department of Commerce. Data used include gross domestic product, imports of goods and services, exports of goods and services, income receipts from the rest of the world, income payments to the rest of the world. Website address: http://www.bea.gov/bea/dn/nipaweb/index.asp

Interest rates:

Source: Federal Reserve Board of Governors. Historical data website address:

http://www.federalreserve.gov/releases/h15/data.htm

Foreign exchange value of the dollar:

Source: Federal Reserve major currencies index (Federal Reserve Board of Governors (2005). The value used is the monthly average for December of each year, an end of period value to correspond with the end of period values for the asset valuations. Website address:

http://www.federalreserve.gov/releases/h10/summary/

Blue Chip Economic Projections:

Blue Chip Economic Indicators is published monthly with the average ("consensus") of about 53 private forecasters' projections for key macroeconomic indicators. Twice a year (March and October), the "consensus" annual projections for a 10-year projection are presented.

Equity indexes:

Equity index values for U.S. (Wilshire 5000) and international (Canada, United Kingdom, Netherlands, Japan, Mexico, France, Singapore, Australia, Hong Kong, Spain) obtained from Haver Analytics data bases.

Chart 1
U.S. Direct Foreign Investment Assets Abroad
As Percent of Total U.S. Assets Abroad

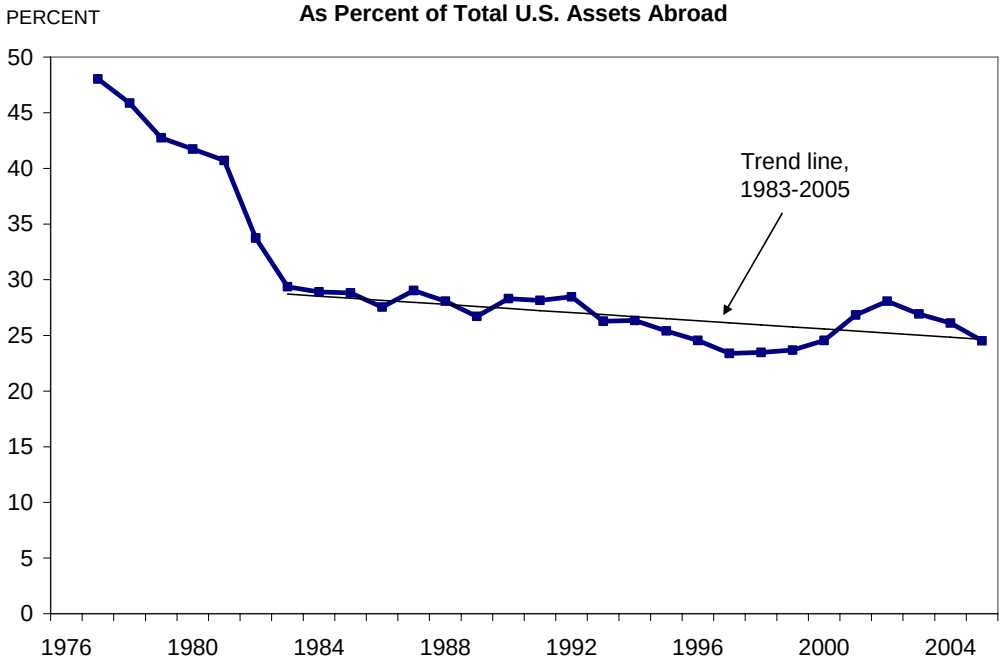


Chart 2
U.S. Holdings of Assets Abroad as Percent of Total

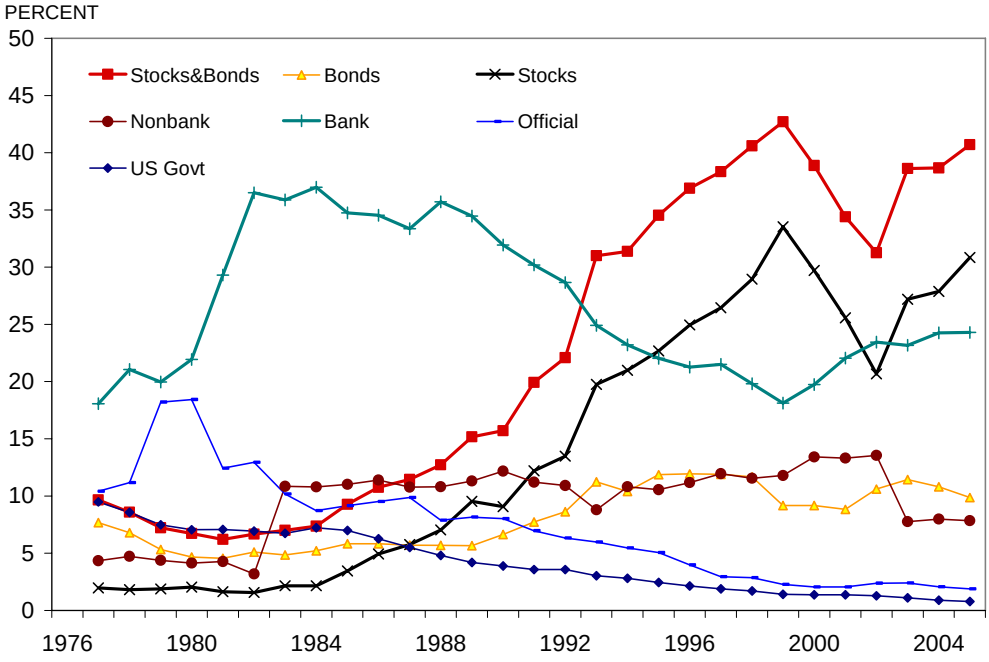


Chart 3
Foreign Direct Investment Assets in U.S.
As Percent of Total Foreign Assets in U.S.

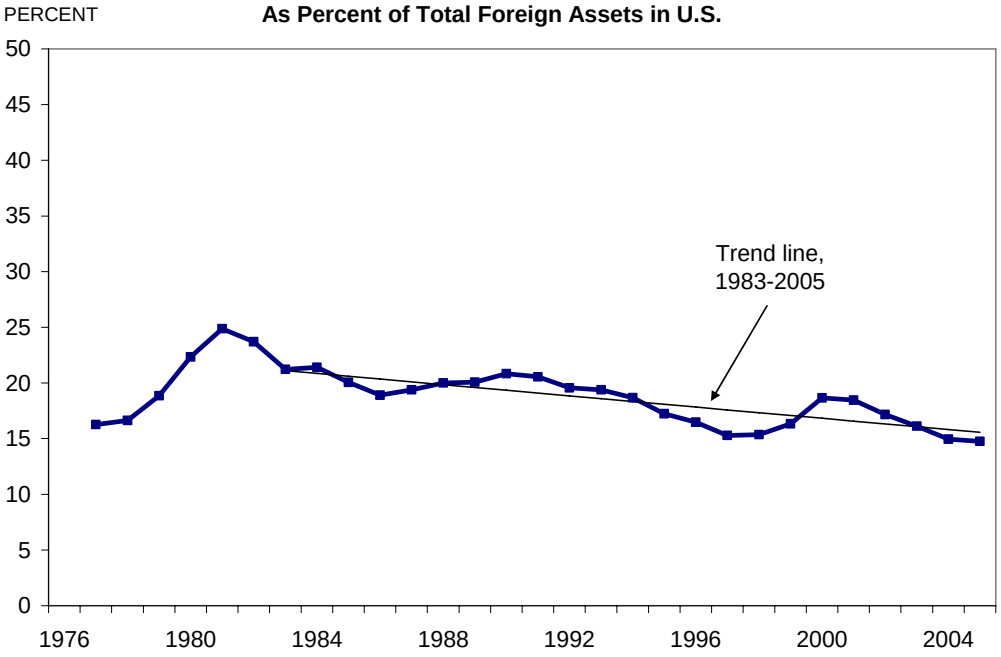


Chart 4
Foreign Asset Holdings in the U.S. as Percent of Total

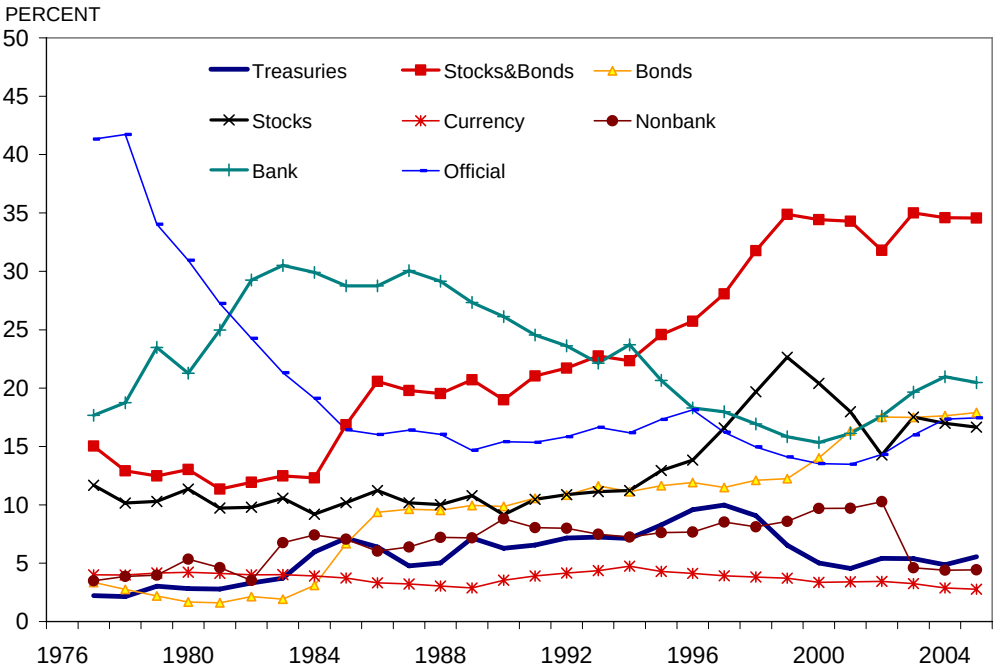


Chart 5
Effective Rates of Return on Direct Investment

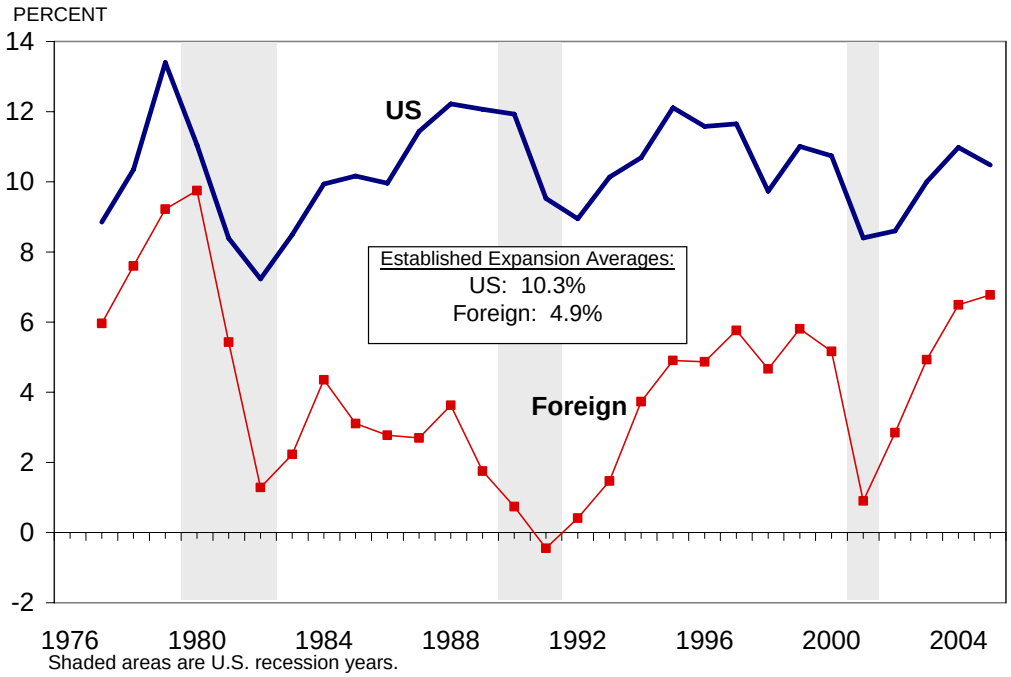


Chart 6
Effective Rates of Return on Other Private Investment

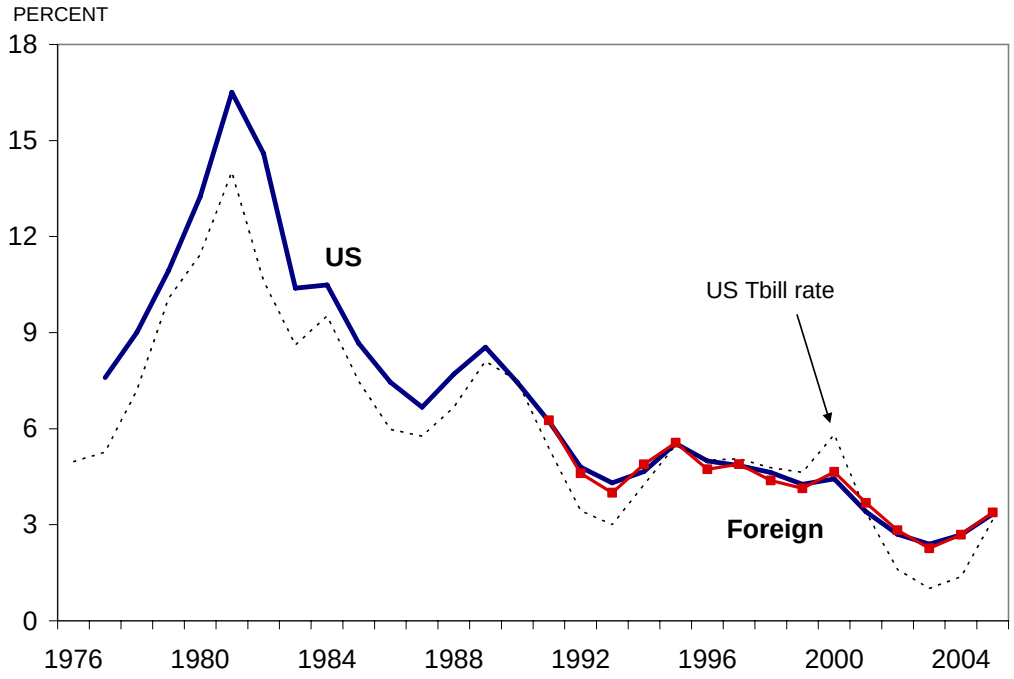


Chart 7
Effective Rates of Return for Government Receipts and Payments

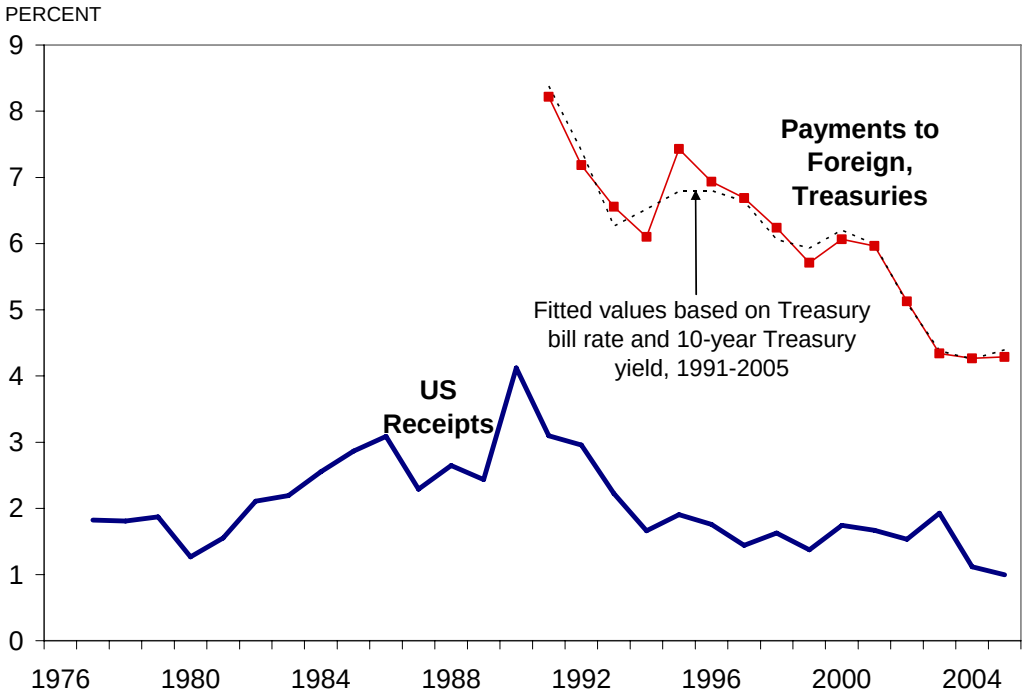
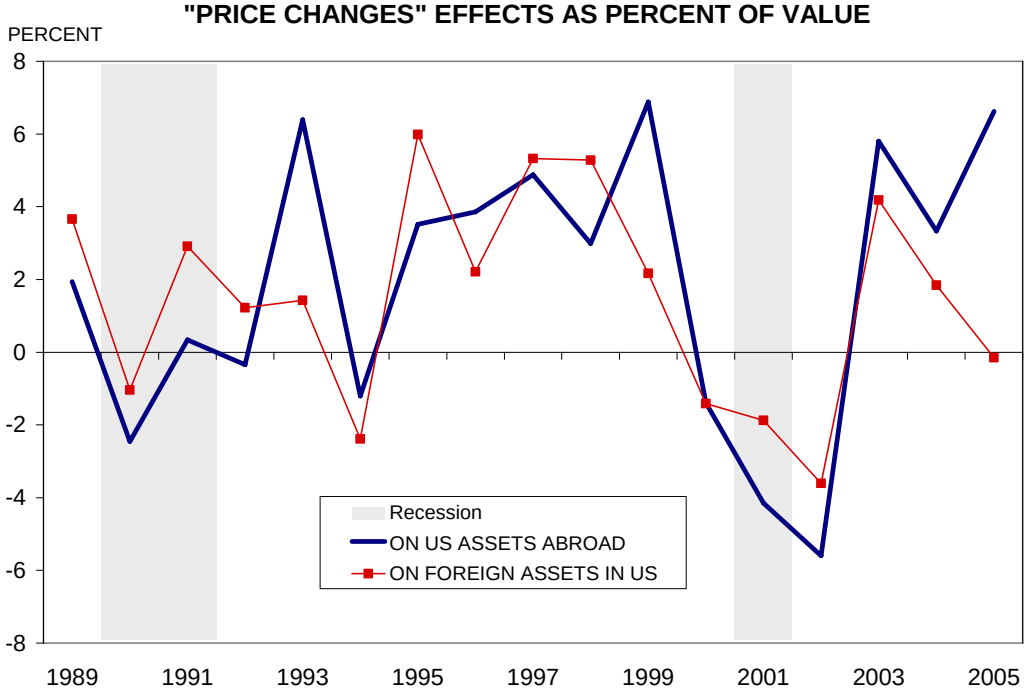


Chart 8
"PRICE CHANGES" EFFECTS AS PERCENT OF VALUE



Shaded areas are U.S. recesion years.

Chart 9

US EQUITY INDEX (WILSHIRE 5000) CHANGE AND PRICE VALUATION EFFECT FOR FOREIGN ASSETS IN THE US

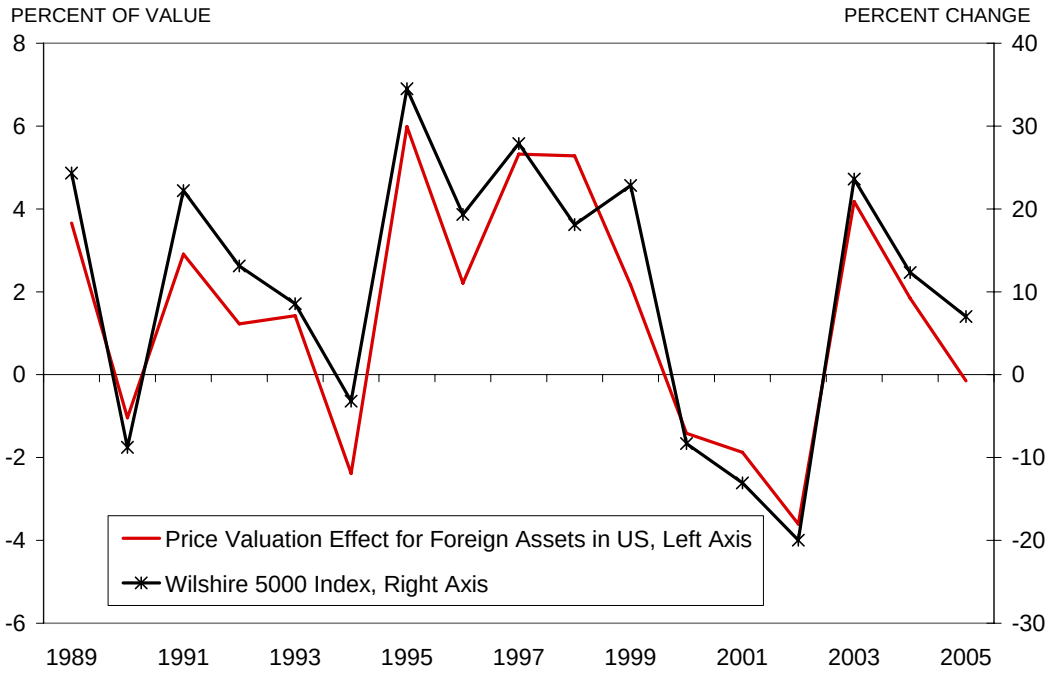


Chart 10

FOREIGN EQUITY INDEX CHANGE AND PRICE VALUATION EFFECT FOR US-OWNED ASSETS ABROAD

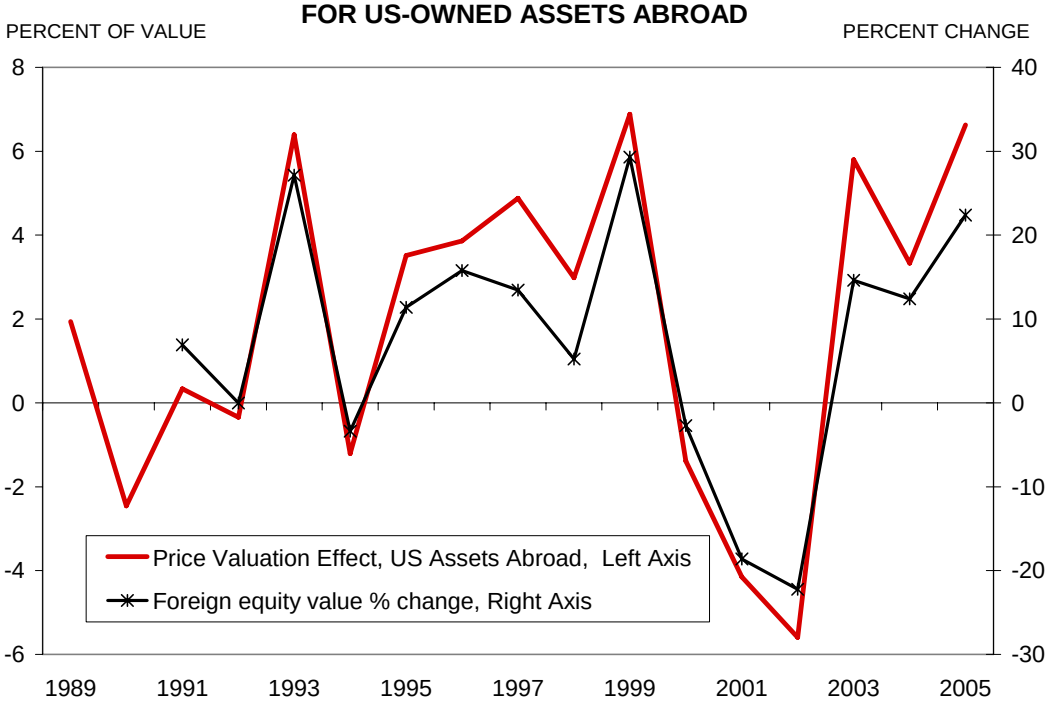


Chart 11

VALUATION CHANGE FROM EXCHANGE RATES FOR US ASSETS ABROAD AND CHANGE IN VALUE OF DOLLAR

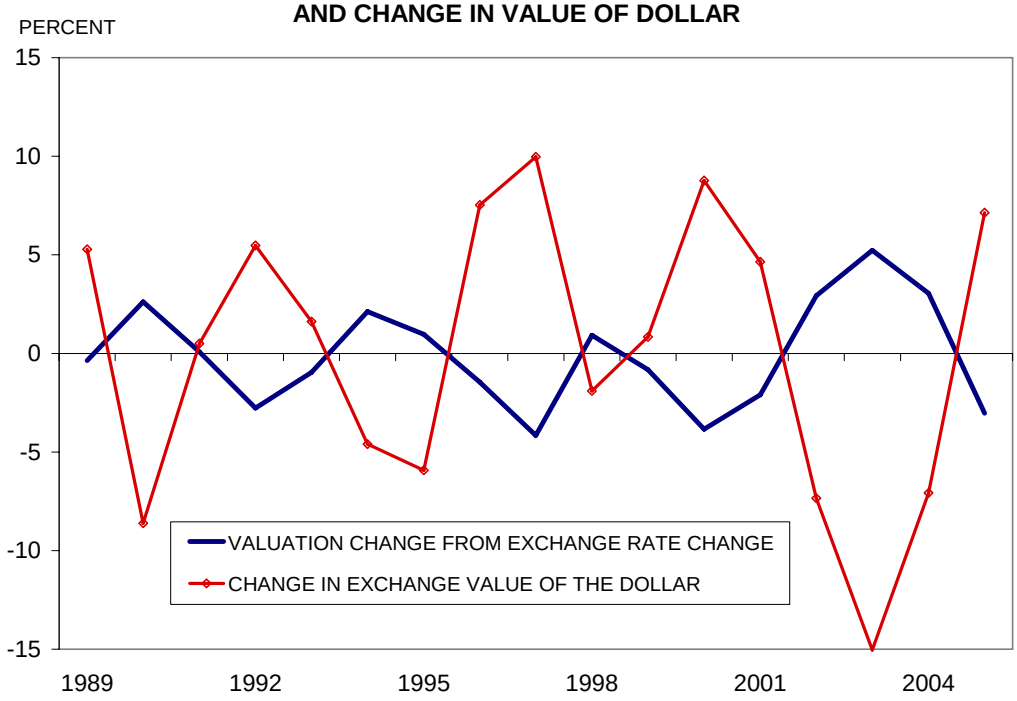
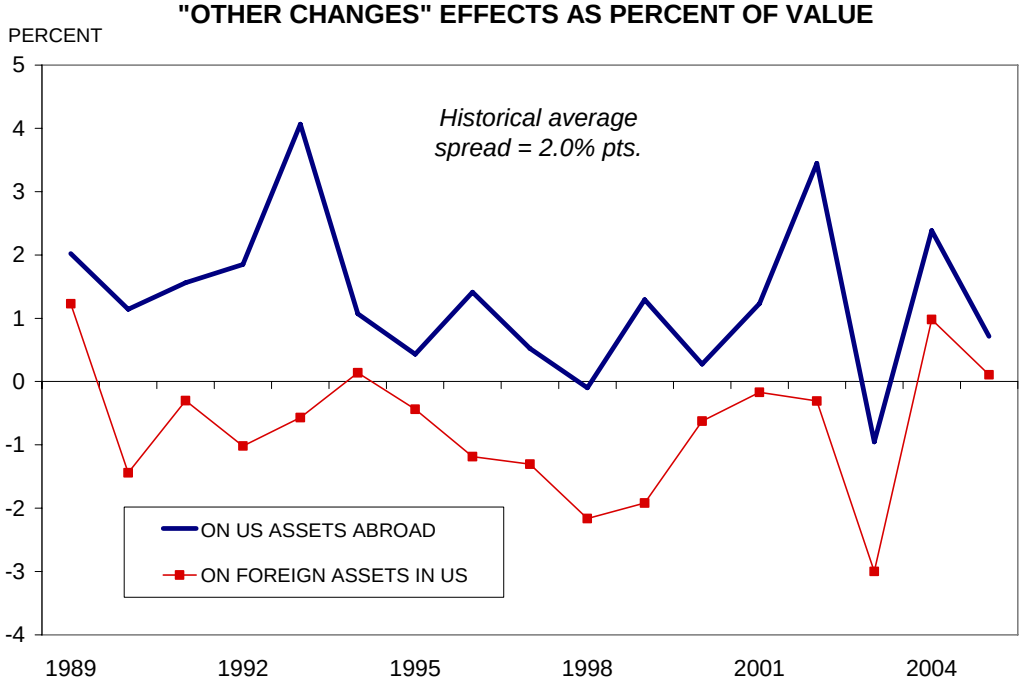


Chart 12

"OTHER CHANGES" EFFECTS AS PERCENT OF VALUE



Charts for Base Case Projection Assumptions

Chart 13

Effective Rates of Return on Direct Investment

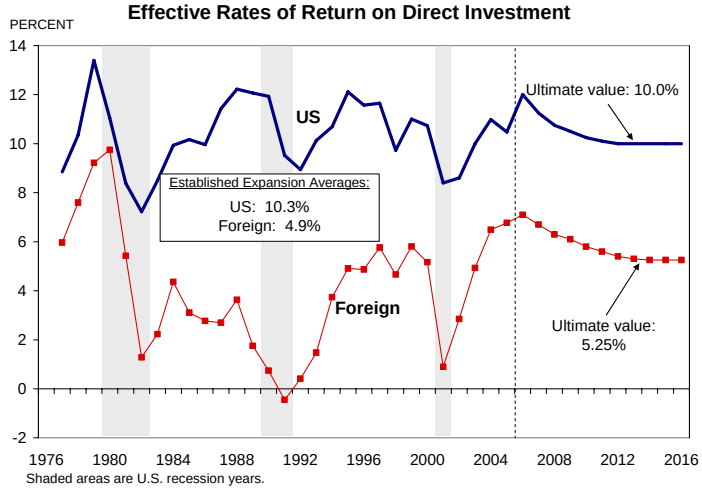


Chart 14

Effective Rates of Return on Other Private Investment

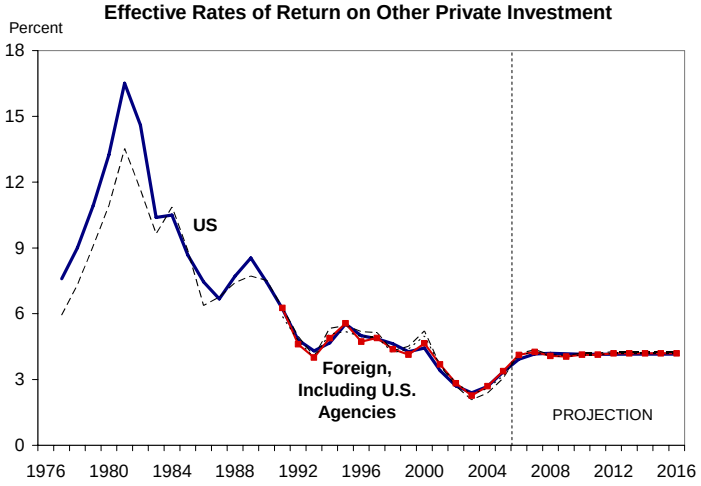


Chart 15

Effective Rates of Return for Government Receipts and Payments

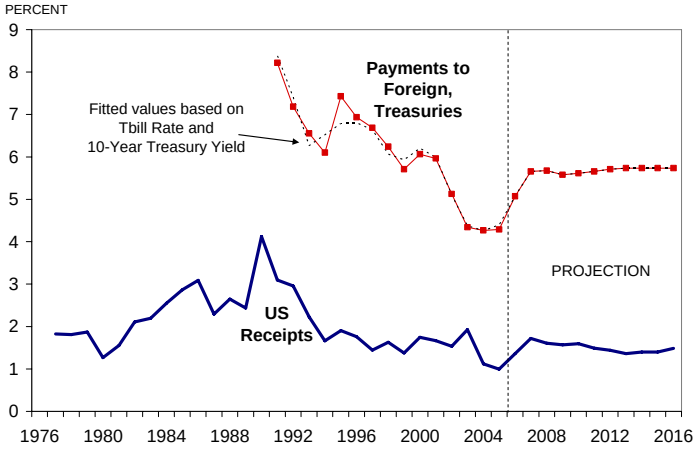


Chart 16

"PRICE CHANGES" EFFECTS AS PERCENT OF VALUE

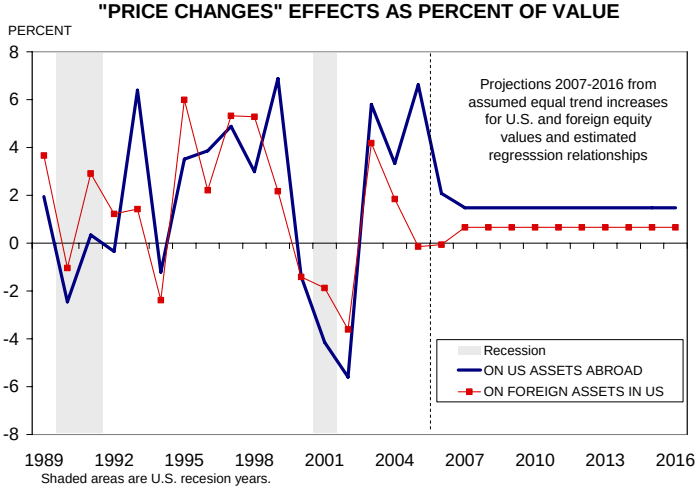


Chart 17

EFFECT OF CHANGE IN EXCHANGE RATES FOR VALUE OF US ASSETS ABROAD AND CHANGE IN VALUE OF DOLLAR

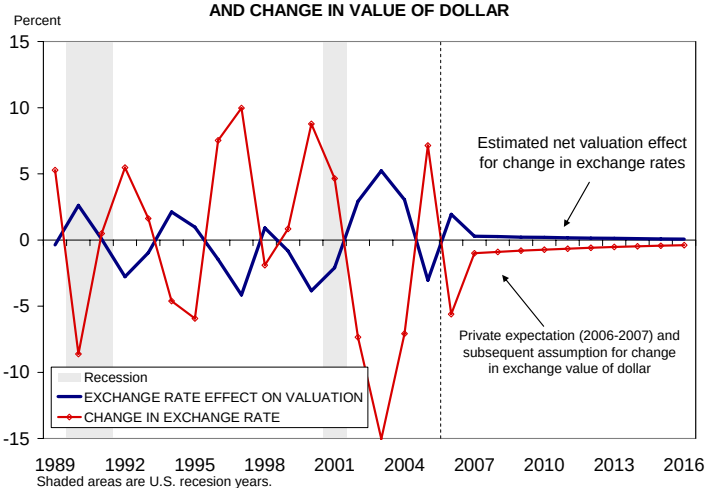


Chart 18

"OTHER CHANGES" EFFECTS AS PERCENT OF VALUE

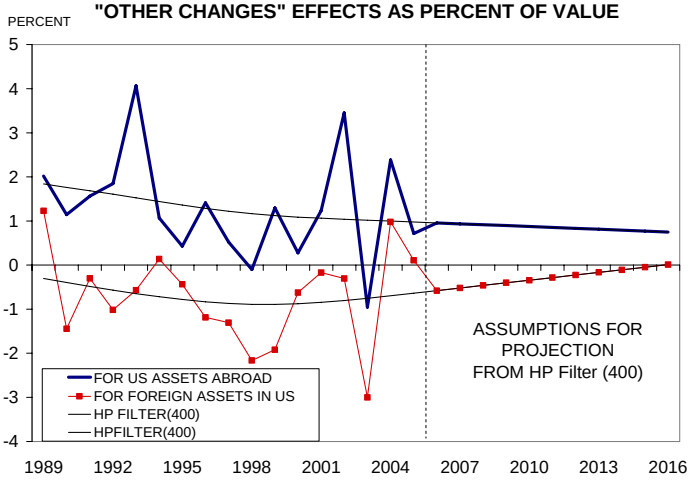
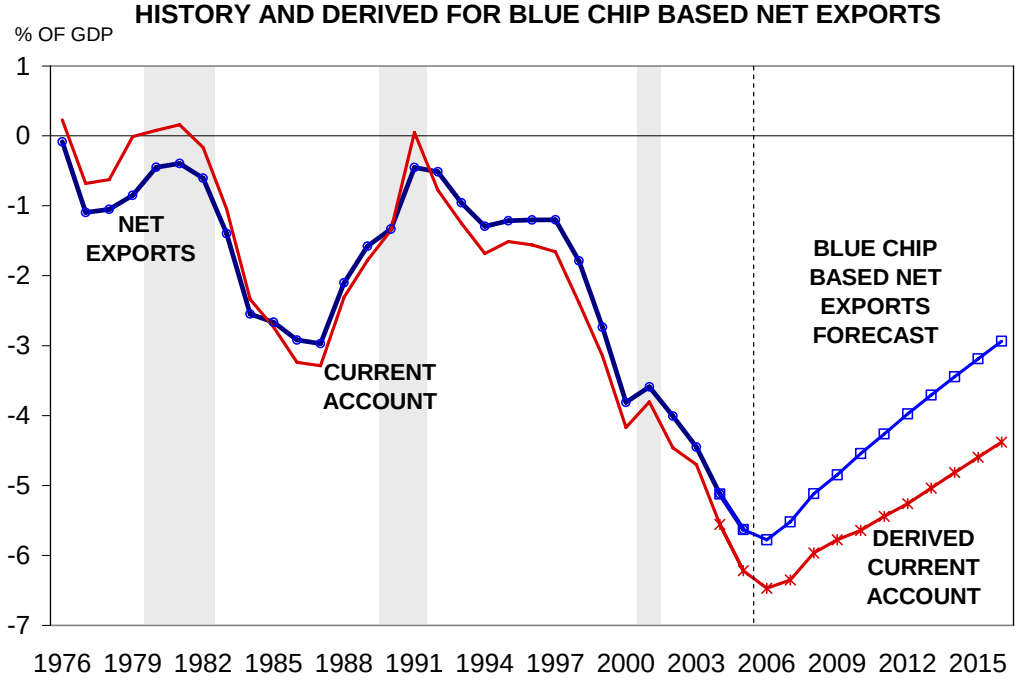


Chart 19

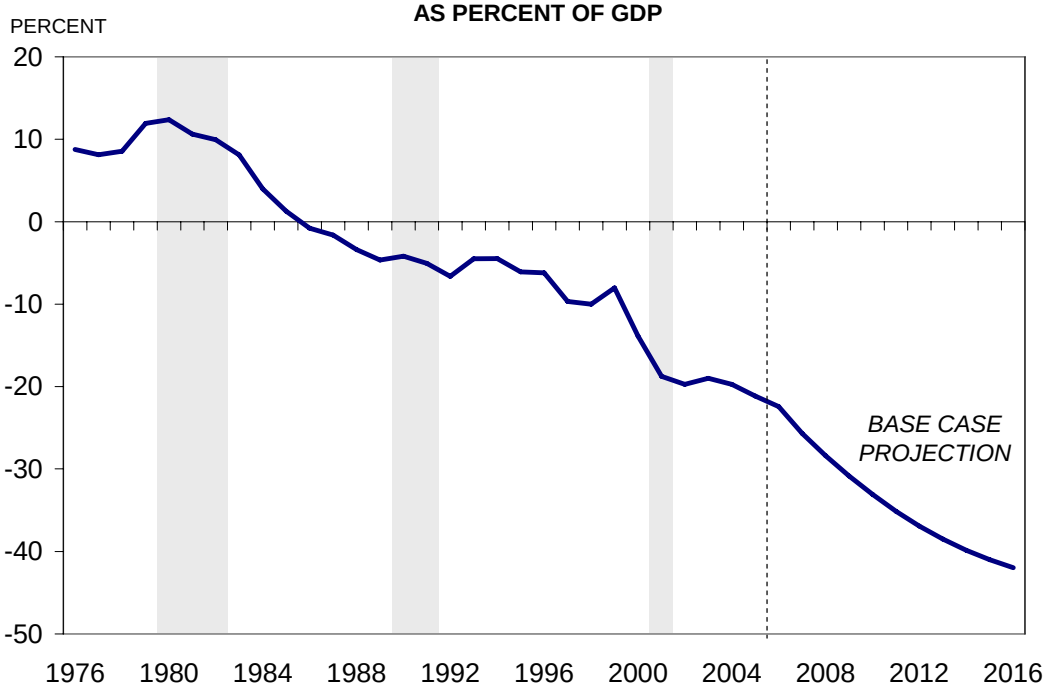
NET EXPORTS AND CURRENT ACCOUNT:
HISTORY AND DERIVED FOR BLUE CHIP BASED NET EXPORTS



Shaded areas are U.S. recesion years.

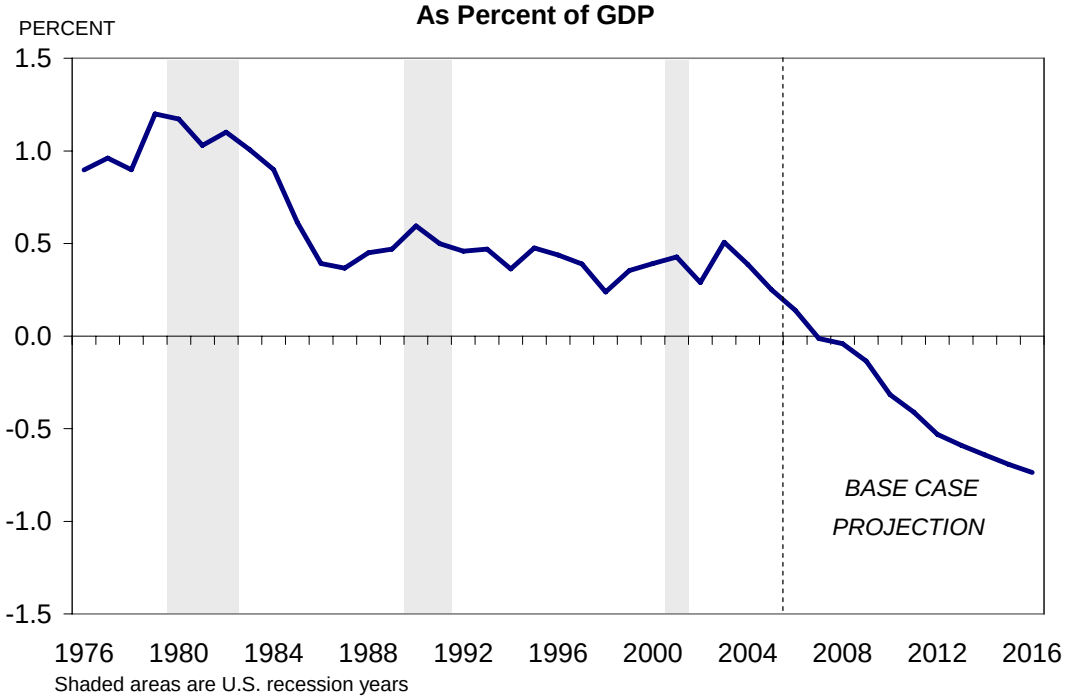
Chart 20

U.S. NET INTERNATIONAL INVESTMENT POSITION
AS PERCENT OF GDP



Shaded areas are U.S. recession years

Chart 21
U.S. Net Factor Income Receipts (NIPAs)
As Percent of GDP



Shaded areas are U.S. recession years

Table 1 -- Results for Alternative Simulations of U.S. Net International Investment Position and Flows

	Simulation (Year)	Net Exports (% of GDP)	Rates of Return on Direct Investment		Valuation Effects?	Projected Exchange Rate Depreciation?	Current Account (% of GDP)	U.S. Net Debt Level (% of GDP)	U.S. Net Income Flows (% of GDP)
			U.S.	Foreign					
1	Base Case (2016)	-2.9	10.00	5.25	YES	YES: -12% over 10 years	-4.4	-42.0	-0.7
Reproductions and Comparisons:									
	Higgins, et al Scenario 1 (2015)								
2	Reproduction	-4.0	10.00	5.25	NO	NO	-6.4	-63.3	-1.7
3	With full relationships	-4.0	10.00	5.25	YES ("other", price)	NO	-5.7	-47.9	-1.0
	Higgins, et al Scenario 2 (2015)								
4	Reproduction	-1.1	10.00	5.25	NO	NO	-2.7	-45.0	-0.9
5	With full relationships	-1.1	10.00	5.25	YES ("other", price)	NO	-2.0	-26.8	-0.2
	Higgins, et al Scenario 3 (2015)								
6	Reproduction	+0.1	10.00	10.00	NO	NO	-2.6	-47.1	-1.9
7	With other valuation effects	+0.1	10.00	10.00	YES ("other", price)	NO	-1.7	-29.5	-1.1
	Cline Base								
8	Reproduction (2010)	-5.5	10.00	5.3	YES -- "other" (No price or exchange rate effect)	NO	-7.0	-41.7	-0.7
9	Extension (2016)	-5.5	10.00	5.4	YES -- "other" (No price or exchange rate effect)	NO	-8.0	-66.9	-1.8
	Cline Alternative								
10	Reproduction (2010)	-1.9	10.00	5.4	YES (no price)	YES: 10% in 2006; 10% in 2007	-2.9	-28.2	-0.2
11	Extended (2016)	-1.9	10.00	5.4	YES (no price)	YES: 10% in 2006; 10% in 2007	-3.0	-32.7	-0.4
	Roubini and Setser Base (2015)								
12	Reproduction	-8.0	7.0*	8.0*	NO	NO	-14.5	-106.5	-5.7
13	With valuation effects	-8.0	7.0*	8.0*	YES ("other", price)	NO	-13.7	-88.5	-5.0
14	With full relationships	-8.0	10.00	5.0	YES ("other", price)	NO	-10.5	-71.0	-1.8
	Roubini and Setser Modest Adjustment (2015)								
15	Reproduction	-5.0	9.0**	7.8**	NO	YES -- 6% over 2006-07	-9.7	-79.8	-4.1
16	With valuation effects	-5.0	9.0**	7.8**	YES	YES -- 6% over 2006-07	-9.0	-64.4	-3.4
17	With full relationships	-5.0	10.00	5.0	YES	YES -- 6% over 2006-07	-6.7	-51.8	-1.1
18	***2005/Historical Values******	-5.6	10.3	4.9			-6.2	-21.2	+0.2

* Also, U.S. interest rate difference relative to foreign rates increased by about 1-1/2 percentage points; foreign composite effective rate of return ends up about 1 percentage point higher than U.S composite rate.

** Also, U.S. interest rate difference relative to foreign rates increased by about 1 percentage point; composite effective relative rates of return end up about equal.

*** All values for end of year 2004 except rates of return which are historical averages.