Balance of Payments Imbalances

Alan Greenspan

Washington, D.C. • 2007

ISSN 0252-3108

Editor: Michael Harrup
Cover design and production: IMF Multimedia Services Division
Typesetting: Choon Lee

Contents

Page

Foreword v

Opening Remarks
Andrew Crockett 1

Balance of Payments Imbalances
Alan Greenspan 2

Appendix: Supporting Data. 15

Questions and Answers 17

Biography 27

The Per Jacobsson Lectures. 29

The Per Jacobsson Foundation 32

Foreword

The 2007 Per Jacobsson Foundation Lecture was delivered by Dr. Alan Greenspan, former Chairman of the Board of Governors of the Federal Reserve System of the United States, at the IFC Auditorium in Washington, D.C., on October 21. Sir Andrew Crockett, Chairman of the Board of Directors of the Per Jacobsson Foundation, chaired the event.

The lecture was delivered in conjunction with the Annual Meetings of the Boards of Governors of the International Monetary Fund and the World Bank, as is traditionally the case. Per Jacobsson Foundation events, which include not only lectures but also occasional symposia on topics in finance, economic policy, and international cooperation, are also sometimes held in the context of the Annual General Meeting of the Bank for International Settlements (BIS) in Switzerland.

The Per Jacobsson Foundation was established in 1964 to commemorate the work of Per Jacobsson (1894–1963) as a statesman in international monetary affairs. Per Jacobsson was the third Managing Director of the IMF (1956–63) and had earlier served as the Economic Adviser of the BIS (1931–56). Per Jacobsson Foundation lectures and contributions to symposia are expressions of personal views and intended to be substantial contributions to the field in which Per Jacobsson worked. They are distributed free of charge by the Foundation. Further information about the Foundation may be obtained from the Secretary of the Foundation or may be found on the website, www.perjacobsson.org.

Opening Remarks

ANDREW CROCKETT

Good afternoon, ladies and gentlemen, and welcome to this Per Jacobsson lecture. The Per Jacobsson Foundation was established, as you probably know, more than 40 years ago in honor of the third Managing Director of the IMF, Per Jacobsson, who, prior to his tenure at the IMF, had been, for maybe two decades, chief economist at the BIS.

Since 1964, there have been annual lectures in this series, which have, fortunately for us, brought us a very distinguished range of speakers. I see from the audience today that there is considerable anticipation for this year's speaker.

On my left is Leo Van Houtven, who is the President of the Foundation. I am Andrew Crockett and I chair the Board of Directors of the Foundation.

Our guest this afternoon really needs no introduction. Before his current career in the media—[Laughter]—he served for nearly two decades as Chairman of the Federal Reserve Board. And as many of you will know, before that he chaired President Ford's Council of Economic Advisors. He has also served on a number of very important commissions in the public sector and had a distinguished career as a business economist.

I do not think there is any need for me to say more. You have come here to hear what he has to say. So, without any further ado, let me ask Alan Greenspan to address us. [Applause]

Balance of Payments Imbalances

ALAN GREENSPAN

Considering the nature of the title of my paper, I am incredibly impressed that there are so many people who wish to hear what I have to say on this subject.

Thank you, Sir Andrew and Mr. Van Houtven.

The financial crisis that erupted on August 9 was an accident waiting to happen. Credit spreads across all global asset classes had become compressed to clearly unsustainable levels. Something had to give. If the crisis had not been triggered by a mispricing of securitized U.S. subprime mortgages, it would have eventually erupted in some other sector or market. The candidate of many analysts in recent years has been a dramatic and abrupt unwinding of America's huge current account deficit, with all sorts of extraordinary aftermaths as a consequence. To date this has not happened. But fear-laden concerns put that deficit on the agenda of virtually every international gathering I attended as Fed chairman and since.

Unless protectionist forces drain the flexibility of the international financial system, I do not view the ultimate unwinding of America's current account deficit, amounting to 6 percent of our GDP, as a cause for undue alarm. Apprehensions about the U.S. external deficit are certainly not groundless. At some point, foreign investors will balk at increasing the share of dollar-denominated assets in the portfolios they hold. There obviously is a limit to the extent that U.S. financial obligations to foreigners can reach. And perhaps the recent decline in the U.S. dollar and shrinkage of the current account deficit is an indication that America is approaching that limit.

In 2006, the financing of the deficit siphoned off almost three-fifths of all the cross-border savings[1] of the 67 countries that ran

[1]The sum of the balances of those countries that have surpluses.

current account surpluses in that year. Developing countries, which accounted for nearly half the value of those surpluses, were apparently unable to find sufficiently profitable investments at home that overcame market and political risk. The United States a decade ago likely could not have run up today's near–$800 billion annual deficit for the simple reason that we could not have attracted the foreign savings to finance it. In 1995, for example, total cross-border saving was less than $300 billion.

But the reason I conclude that the persistently growing U.S. current account deficit does not have seriously negative consequences for the U.S. economy is that those deficits are a small part of a far larger but less-threatening, ever-expanding specialization and division of labor that is irreversibly evolving in our increasingly complex global environment.

Pulling together the pieces of evidence—anecdotal, circumstantial, and statistical—strongly suggests, to me at least, that the current account deficit is best viewed as a segment of a broader set of rising deficits and offsetting surpluses that reflect transactions of U.S. economic entities—households, businesses, and governments—mostly within the borders of the United States.

The long-term updrift in this broader swath of unconsolidated deficits and mostly offsetting surpluses of economic entities has been persistent but gradual for decades, probably generations. However, the component of that broad set that captures only the net foreign financing of the imbalances of the individual U.S. economic entities, our current account deficit, increased from negligible in the early 1990s to 6.2 percent of our GDP by 2006.

What data we have suggest that the rise in America's current account deficit as a percentage of GDP since early this decade is, to a large extent, the result of American business and government's turning to foreign sources of deficit funding in place of domestic funding, and not predominantly the result of an acceleration in the secular uptrend in economically stressful company or government imbalances. Household borrowing, incidentally, from abroad to finance shortfalls in cash flow has always been negligible.

In my judgment, policymakers have been focusing too narrowly on foreign claims on U.S. residents rather than on all claims, both foreign and domestic, that influence economic behavior and can be a cause of systemic concern. It is the level of debt, not the source of its financing, that should engage us. Our conventional tabulations are often too loosely rooted in the obsession of the mercantilists of the early eighteenth century to achieve a surplus in their balance of payments which brought them gold in settlement, then the mistaken standard of the wealth of the nation.

Were we to measure financial net balances of much smaller geographic divisions, such as the individual American states or Canadian provinces, which we do not, or of much larger groupings of nations, such as South America or Asia, the trends in these measures and their seeming implications could be quite different from those extracted solely from the conventional nation-delineated measure of current account balance.

The choice of the appropriate geographical unit for measurement should depend on what we are trying to find out. I presume that, in most instances, at least in the policy setting, we seek to judge the degree of economic stress that could augur significantly adverse economic outcomes. We should require data on financial balances at the level of detail at which economic decisions are made: individual households, businesses, and governments. Those data are the equivalent of current account balances, but at the level of individual economic entities where leverage and stress are experienced, and hence, where actions and trends that may stabilize economies originate.

National borders, of course, do matter, at least to some extent. Debt service payments on foreign loans ultimately must be funded from exports of tradable goods and services or from capital inflows, whereas domestic debt has a broader base from which it can be serviced. For a business, cross-border transactions can be complicated by legal risks and a volatile exchange rate, but generally these are difficulties not outside most normal business risk.

It is true that the market adjustment process seems to be less effective or transparent across national borders than within them. Prices of identical goods at nearby locations but across borders, for example, have been shown to differ significantly, even when denominated in the same currency.[2] Thus, cross-border current

[2]The persistent divergence subsequent to the creation of the euro of many prices of identical goods among member countries of the euro area is analyzed in John H. Rogers, "Monetary Union, Price Level Convergence, and Inflation: How Close Is Europe to the

account imbalances impart a degree of economic stress that is likely greater than that stemming from domestic imbalances only. But in a flexible economy, are any of these as significant as we tend to make them?

I do not deny that nation-defined current account imbalances do have important implications for exchange rates and terms of trade. But I suspect the measure is too often used to signify some more generic malaise, especially in the context of the so-called twin American deficits, with reference to our politically determined federal budget deficit, which has quite different roots and policy requirements than those of the market-determined current account balance.

This afternoon, I should like, first, to turn to the narrower issue of the current account balance and then proceed to the broader issue of dispersion of unconsolidated economic entities and its implications.

The economic literature of recent years is filled with explanations of the possible causes of outsized U.S. current account deficits or their algebraic equivalent, an excess of domestic investment over domestic savings.[3] To me the most persuasive explanations are a major decline in home bias and a concurrent

United States?" International Finance Discussion Paper 740 (Washington: Board of Governors of the Federal Reserve System, 2002). For the case of U.S. and Canadian prices, see Charles Engel and John H. Rogers, "How Wide Is the Border?" *American Economic Review,* Vol. 80 (1996), pp. 1112–25.

[3]Single-factor "causes" such as falling savings and rising federal deficits are often so interactive that it is difficult to disentangle them. For example, a rise in household saving, *other things equal,* would lower a country's current account deficit. But other things are never equal. A rise in household saving implies a fall in household spending—and perhaps, as a consequence, a decline in corporate saving as profits decline. And the associated fall in profit taxes would lower government saving, and on and on. Since all the components of saving and investment are so intertwined, causal relationships are obscure. Most foreign and many U.S. analysts point to the burgeoning U.S. budget deficit as the primary cause of our current account imbalance. But over the past decade the fiscal balance has at times veered in directions opposite from the direction of the current account deficit. As our budget was building surpluses between 1998 and 2001, for example, our current account deficit continued to rise. Some argue that the heavy purchases of U.S. Treasury obligations by other countries' monetary authorities, first Japan and then China, to suppress their exchange rates have elevated the dollar's foreign exchange value relative to what it would have been without intervention and thereby played a role in the huge increase in U.S. imports (from 13 percent of U.S. GDP in early 2002 to 17 percent in early 2007). There is doubtless some truth in that, but the impact of official efforts to manipulate exchange rates, in my experience, is often exaggerated.

significant acceleration in U.S. productivity growth. Home bias is the parochial tendency of investors to choose to invest their savings in their home country, even though this means passing up more risk-adjusted profitable foreign opportunities. When people are familiar with an investment environment, they harbor less uncertainty, and hence, less risk than they do for objectively comparable investments in distant, less-accessible environs.

A decline in home bias is reflected in savers' increasingly reaching across national borders to invest in foreign assets. This engenders a marked rise in current account surpluses among some countries and an offsetting rise in deficits of others. For the world as a whole, of course, exports must equal imports, savings must equal investment, and the world consolidated current account balance is always zero.

Home bias was very much in evidence globally for the first half century following World War II. Domestic saving was directed almost wholly toward domestic investment. In that world of exceptionally strong home bias, external imbalances were small. However, starting in the mid-1990s, home bias began to decline perceptibly. The global weighted correlation coefficient between national savings rates and domestic investment rates, a measure of the degree of global home bias,[4] declined from around 0.95 in 1993, where it had hovered since 1970, to an estimated 0.74 in 2005 (Figure 1).[5]

The advance of information and communications technologies that effectively shrank the time and distance that separate markets around the world, and a dismantling of restrictions on

[4]The seminal work on this issue by Martin Feldstein and Charles Horioka a quarter century ago ("Domestic Savings and International Capital Flows," *Economic Journal,* Vol. 90 [1980], pp. 314–29) implied that global savings are inefficiently distributed to investment, meaning that savers are bearing too much risk for the returns they achieve and that countries with high-potential investment projects are getting less financing than they could productively employ. Savers tend, to their own detriment, to overdiscount foreign returns. Such suboptimal allocation of capital lowers living standards everywhere.

[5]If in every country saving equaled investment, that is, 100 percent home bias, the correlation coefficient would be 1.0. If the amount of domestic saving bore no relationship to the amount and location of investments (no home bias), the coefficient would be zero. Obviously, if domestic saving exactly equaled domestic investment for every country, all current accounts would be in balance, and there would be no dispersion of balances. Thus, the existence of current account imbalances requires the correlation between domestic saving and domestic investment—which reflects the degree of home bias—to be less than 1.0.

cross-border capital flows that significantly reduced the perceived risk of reaching out across sovereign borders, muted uncertainty. Those trends more or less coincided with the boost to competitive market capitalism resulting from the demise of central planning, an issue that I develop at length in my new book.[6]

Gross domestic income, as a consequence, rose significantly across the developing world. Consumption, inhibited in part by unresponsive financial infrastructures, lagged, propelling the developing world's saving rate to 33 percent of GDP in 2006, up from 22 percent in 1992. Investment opportunities in the developing world, however, evidently were not adequate to absorb the new surge in saving, and hence investors, now less daunted by the uncertainties of distance, sought investments in the developed world, especially in the United States.

In short, vast improvements in information and communications technologies and rule of law and the enhanced protection of foreigners' property rights have greatly extended investors' geographic horizons, rendering foreign investment less risky than it appeared in earlier decades. Doubtless, the worldwide decline in credit-risk spreads, to which I alluded earlier, was also a factor.

Although world trade as a percentage of GDP has been expanding for more than a half century, only since the early 1990s has expanding trade been associated with the emergence of ever-larger U.S. current account deficits matched by corresponding widening of the aggregate external surpluses of many of our trading partners, most especially China.[7] To get a sense of how widely cross-border current account balances have dispersed, I calculated the absolute sum of all countries' current account imbalances, irrespective of sign, as a percentage of world nominal GDP. That ratio hovered between 2 and 3 percent between 1980 and 1996. By 2006, it had risen to almost 6 percent (Figure 2).

Decreasing home bias is the major determinant of wider global surpluses and deficits. But differences in risk-adjusted rates of return, reflecting different rates of productivity growth, seem to

[6]Alan Greenspan, *The Age of Turbulence: Adventures in a New World* (New York: Penguin, 2007).

[7]By 2006, large current account surpluses had emerged: China ($250 billion), Japan ($170 billion), Germany ($147 billion), Saudi Arabia ($96 billion), and Russia ($95 billion). Large deficits, in addition to that of the United States ($811 billion), included Spain ($106 billion), the United Kingdom ($77 billion), Italy ($45 billion), and Australia ($41 billion).

have been a contributor as well. Rates of return are clearly a key factor in determining to which countries excess savings are directed for investment. Since 1995, the greater rates of productivity growth in the United States, compared with still-subdued rates abroad, apparently produced correspondingly higher risk-adjusted expected rates of return that fostered a disproportionate rise in the global demand for U.S.-based assets. In addition, U.S. history of more than two centuries of protection of foreign property rights also helps to explain why such a large percentage of cross-border savings has been directed to the United States.[8]

A far more important question, however, is whether the seemingly inevitable adjustment of the U.S. external accounts will be benign or, as many fear, entail an international financial crisis compounded by a dramatic fall in the dollar. I am far more inclined toward a more benign, market-determined outcome in which financial factors—exchange rates, interest rates, and the prices of assets—change but the real economy—economic activity and employment—is sustained.

My lessened concern rests on the fact that current account balances, as I noted earlier, are only part of a larger set of forces balancing the world's saving and investment. And that larger set of forces is not exhibiting the degree of economic stress implicit in the current account deficit. The broader context does raise the extent of debt leverage, an issue to which I will return shortly.

The evolution of the world economy during the past century has enabled the scale of sustainable financial surpluses and deficits of individual households, businesses, and governments,[9] including those that involve cross-border flows, to persistently increase. Owing to the never-ending expansion of the division of labor, as

[8]Many investors in the developing world judge that U.S. law protects their property more effectively than the property protections of their own countries.

[9]When a household spends more than its income on consumption and investments such as a house—that is, more cash going out than coming in—it is designated by economists as a financial deficit household. (Investments can of course be negative; for example, a sale of an existing house or inventory liquidation.) It is a net borrower, a liquidator of financial assets, or both. A household that saves through accumulation of financial assets or through a reduction in debt is called a financial surplus household, reflecting its positive cash flow. Similar designations are applied to businesses and governments—federal, state, and local. When consolidated, these deficits and surpluses for all U.S. residents are reduced to a residual which is Americans' net new claims on, or net new debt to, foreigners, that is, with minor qualifications, our current account surplus or deficit, respectively.

I document later, the ratios of both financial surpluses and deficits of individual U.S. economic entities relative to their incomes, on average, have been on the rise for at least a century and, more likely, far longer, a process that has apparently not accelerated despite a massive increase in globalization in recent decades.

For most of that period, the rising deficits of most U.S. resident economic entities were almost wholly matched by surpluses of other resident economic entities. Our national current account balances were thus small.[10] What is special about the past decade is that the global decline in real long-term interest rates that resulted in significant capital gains on homes and other assets has fostered a large increase in U.S. residents' purchases of foreign-produced goods and services willingly financed, net, by foreign investors.

Over time, an ever-growing proportion of U.S. households, businesses and governments, both federal and local, have funded their capital investment from sources other than their own household incomes, corporations' internal funds, or government taxes. In early America, almost all of that financing originated within U.S. financial institutions, and in that case almost all within U.S. commercial banks. The persistent rise in both U.S. household and business assets and liabilities relative to income for more than a half century (Figure 3), as I note later, is also a function of a widening division of labor but in addition irreversible capital deepening.

The evidence of increasing dispersion of surpluses and deficits is impressive, especially in recent decades. A detailed calculation by Federal Reserve Board staff, employing data from more than 5,000 nonfinancial U.S. corporations for the years 1983 to 2004, found that growth in the sum of deficits of those corporations where capital expenditures exceeded cash flow persistently outpaced the growth in corporate value added. The sum of surpluses and deficits, disregarding sign, as a ratio to a proxy for total nonfinancial corporate value added exhibited an average annual increase of 3.5 percent a year.[11]

---

[10]One exception was America's post–Civil War current account deficits, largely reflecting foreign financing of the vast railroad network that consumed much of U.S. economic activity through the end of the century.

[11]The surpluses (and deficits) are measured as income before extraordinary items, plus depreciation, minus capital expenditures. The proxy for corporate value added is gross margin, or sales less cost of goods sold.

Reliable data on the dispersion of the financial deficits of U.S. economic entities, aside from nonfinancial corporations, are sparse. A separate and far less satisfactory calculation of only partly unconsolidated financial balances of individual economic entities, relative to nominal GDP, exhibits a rise over the past half century in the absolute sum of surpluses and deficits that is almost 2 percentage points per year faster than the rise in nominal GDP (Figure 4). The rise, however, is interrupted by a decline between 1987 and 1997, a possible consequence of the credit problems of the early 1990s and the collapse of the savings and loan industry.

The measure charted in Figure 4 estimates saving less investment balances among eight consolidated sectors recorded in U.S. macroeconomic statistics: households; corporations; nonfarm, noncorporate businesses; farms; state and local governments; the federal government; finance; and the rest of the world. I include the rest-of-the-world sector because it measures surpluses or deficits of U.S. residents, even though they reflect the accumulation of net claims on, or obligations to, foreigners. The other seven sectors reflect net claims on, or obligations to, domestic residents only.

Since consolidation generally reduces dispersion, the dispersion of individual economic units presumably has been rising even more rapidly relative to income over the years than the results of this eight-sector model.[12] Importantly, these data suggest that although this measure of total dispersion, domestic and foreign, has steadily increased in the past decade relative to GDP, the increase in the dispersion of the imbalance of economic entities

---

[12]Additional evidence that surpluses and deficits of resident economic entities of the United States have indeed been rising relative to incomes over the past century is found in the increase in assets of financial intermediaries relative to nonfinancial assets and to nominal GDP. It is these financial institutions that have largely intermediated to match the financial surpluses and deficits of U.S. residents. Consequently, the size of these institutions can act as a proxy for such surpluses and deficits. Indeed, one can surmise that it has been the need to intermediate these expanding surpluses and deficits that has, over the generations, driven the development of our formidable financial institutions.

Since 1946, the assets of U.S. financial intermediaries, even excluding the outsized growth in mortgage pools, have risen 1.8 percent a year relative to nominal GDP. From 1896 (the earliest date of comprehensive data on bank assets) to 1941, assets of banks, by far the predominant financial intermediaries in those years, rose 0.6 percent a year relative to GDP.

within U.S. national borders appears to have slowed. Thus, while, since the mid-1990s, the overall dispersion of imbalances of U.S. economic entities has continued to grow, an increasing proportion of deficits of U.S. households, businesses, and governments has been financed from foreign rather than domestic sources.

This is certainly obvious in the financing of our federal budget deficit and of business capital expenditures.[13] In short, the expansion of our current account deficits during the past decade appears to largely reflect the shift in trade and financing from within the borders of the United States to cross-border trade and finance. If so, does this matter? Does it matter importantly, for example, whether a U.S. resident corporation finances its capital outlays from foreign rather than domestic sources?[14] With some qualifications, the stress on U.S. economic entities has arguably increased little with the shift in the source of their financing. The rise in the ratio of imbalances—the absolute sum of foreign and domestic—to GDP is a much more modest and less threatening trend over the past decade than that exhibited by its foreign component, the current account only.

Decisions to finance domestic U.S. capital investment by borrowing from U.S. or foreign lenders are often a matter of convenience and can usually be reversed at small cost. It is almost always the level of debt of economic entities, not the geographic location of the lender, that creates stress. Implicit in a widening dispersion of financial surpluses and deficits of individual economic entities is the expectation of increasing cumulative deficits

[13]Between 1995 and 2006, the proportion of nonfinancial corporate liabilities owed to foreigners rose markedly as a percentage of total nonfinancial corporate liabilities. The proportion of U.S. Treasury obligations owed to foreigners rose from 23 percent to 44 percent over those years. Foreign lending to U.S. households has always been negligible.

[14]Many U.S. businesses, for example, previously purchased components from domestic suppliers but have switched in recent years to foreign suppliers. These companies generally view domestic and foreign suppliers as competitive in the same way that they view domestic suppliers as competing with each other. Moving from a domestic to a foreign source affects international balance of payments bookkeeping but arguably not macroeconomic stress. To be sure, firms and workers that lose sales will be adversely affected, at least until they can be reemployed in more competitive uses. But that is no different from the fallout from domestic competition. The one significant difference in a shift to cross-border suppliers is the effects of exchange rates during the adjustment process and beyond. From the perspective of individual stress, however, those effects are similar to those of a change in price of a key purchased component.

for some entities and, hence, a possible accelerating rise in debt as a share of income or its equivalent, GDP.[15]

From 1900 to 1939, nonfinancial private debt in the United States rose almost 1 percentage point faster per year on average than nominal GDP. World War II and its aftermath inflated away the real burden of debt for a while. The debt-to-GDP ratio, accordingly, declined. The updrift in the ratio, however, resumed shortly thereafter. And from 1956 to 2006, nonfinancial business debt rose 1.7 percentage points faster at an annual rate than gross nonfarm business product.

The trend toward intracountry dispersion of financial imbalances is likely occurring not only in the United States, but in other countries as well. The existence of such a trend is suggested by the rise in unconsolidated nonfinancial debt of the major industrial economies, excluding the United States, over the past three decades, which has exceeded the growth of GDP by 1.6 percentage points annually. A rising debt-to-income ratio for households or of total nonfinancial debt to GDP is not, in itself, a measure of stress. It is largely a reflection of dispersion of the growing financial imbalance of economic entities that, in turn, reflects the irreversible updrift in division of labor and specialization.

Both non-financial-sector assets and debt have risen faster than income over the past half century worldwide. But in the United States, at least, debt is rising faster than assets. That is, debt leverage has been rising. Household debt as a percentage of assets, for example, reached 19.3 percent by the end of 2006, compared to 7.6 percent in 1952. Nonfinancial corporate liabilities as a percentage of assets rose from 28 percent in 1952 to 54 percent by 1993, but retreated to 43 percent by the end of 2006 as corporations embarked on a major program to improve their balance

[15]The tie, of course, is exact only if some economic entities always ran a deficit and the remainder always ran a surplus. Then, cumulating the deficits would yield the change in unconsolidated debt outstanding and cumulating surpluses would yield the change in assets. If that were true, we could infer the degree of dispersion from estimates of unconsolidated assets and liabilities. Indeed, during the past half century, with the exception of the unusual period 1986–91 when the collapse of the savings and loan industry distorted the debt figures, the rate of change in both assets and liabilities relative to nominal GDP did rise. That in itself is not proof of rising dispersion, but it is merely another statistic that is consistent with my presumption of a rise in dispersion which over the long run has exceeded the rise in nominal GDP.

sheets. The net rise, however, over the whole half century is still quite impressive.

It is difficult to judge how problematic this long-term increase in leverage is. Since risk aversion is presumably innate and unchanging, the willingness to take on increased leverage over the generations likely reflects an improved financial flexibility that enables leverage to increase without increased objective risk, at least up to a point.[16] American commercial bankers in the immediate post–Civil War years perceived the necessity to back two-fifths of their assets with equity. Less was considered too risky. Today's bankers are comfortable with a tenth. Nonetheless, bankruptcy is less prevalent today than 140 years ago.

The same trends hold for households and businesses. Rising leverage appears, in large part, the result of massive improvements in technology and infrastructure, not significantly more risk-inclined humans or arguably objective risk. Obviously, a surge of debt leverage above what the newer technologies can support invites crises, as many analysts now currently fear. I am not sure where the tipping point is, but we can be sure there is one. For example, our subprime mortgage market was clearly seen as overleveraged, as home price inflation came to a halt in the United States.

Globalization is changing many of our economic guideposts. It is probably reasonable to assume that the ratio of worldwide dispersion of the financial balances of unconsolidated economic entities to world nominal GDP will continue to rise as increasing specialization and division of labor, and ever more sophisticated finance and capital deepening, spread globally. Whether the component reflecting dispersion of world current account balances continues to increase as well is a more open question. Such an increase would imply a further decline in home bias. But in a world of nation-states, home bias can decline only so far. Thus, the degree of global current account dispersion would also stabilize, as indeed it may already have done.[17]

[16]I differentiate objective risk from perceived risk because the latter may be mistaken.

[17]The correlation coefficient measures of home bias have dramatically slowed their rate of decline since 1999 (see Figure 1), while the measures of dispersion have increased (see Figure 2).

If the current disturbing drift toward protectionism is contained, and markets remain sufficiently flexible, changing terms of trade, interest rates, asset prices, and exchange rates should cause U.S. savings to rise relative to domestic investment without undermining either production or employment. This would reduce the U.S. need for foreign finance and reverse the trend of the past decade toward increasing reliance on funds from abroad.

Thank you very much. [Applause.]

You will excuse me if I put a postmortem on my piece. I stipulated that I am basically of the opinion that this is not a huge problem. But if the pernicious drift toward fiscal instability in the United States and elsewhere is not arrested and is compounded by a protectionist reversal of globalization, the current account deficit adjustment process could be quite painful for the United States and our trading partners. I think this suggests how critically important it is for those of us who are involved in the international community to be acutely aware of how dangerous protectionism is in undermining the flexibility of not only the global system, but our internal economies, as well.

And unless we address that problem, if it arises, I do not think we fully understand how significant a major blow to world economic prosperity, especially in the emerging nations, such a reversal could be. And I truly hope we are acutely aware of what dangers arise, as they arise, and bring whatever power a group such as this can bring to bear to turn such trends around.

Thank you. It has been a pleasure being with you today.

Appendix: Supporting Data

Figure 1. GDP-Weighted Global Average Correlation Coefficient: Savings to Investment

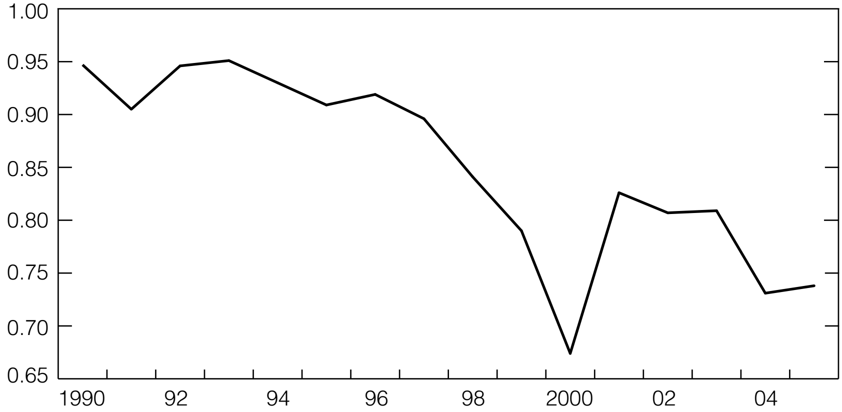


Figure 2. Absolute Sum of Current Account Balances, All Countries

(In percent of world GDP)

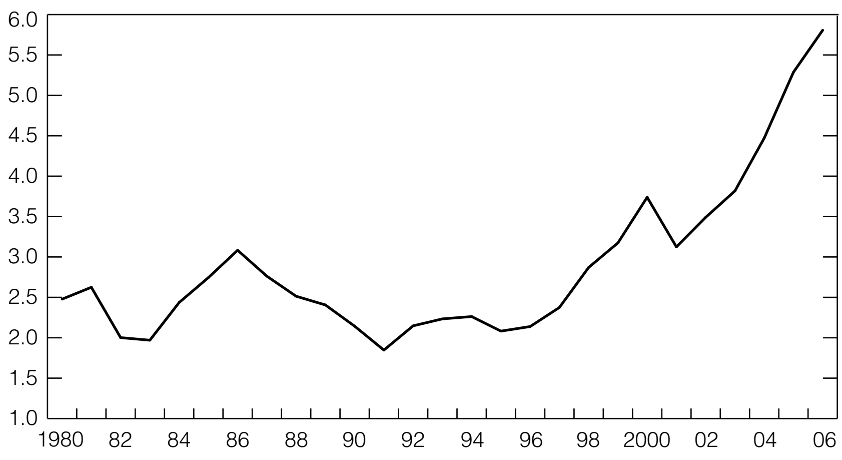


Figure 3. Liabilities of U.S. Corporate Business and Households

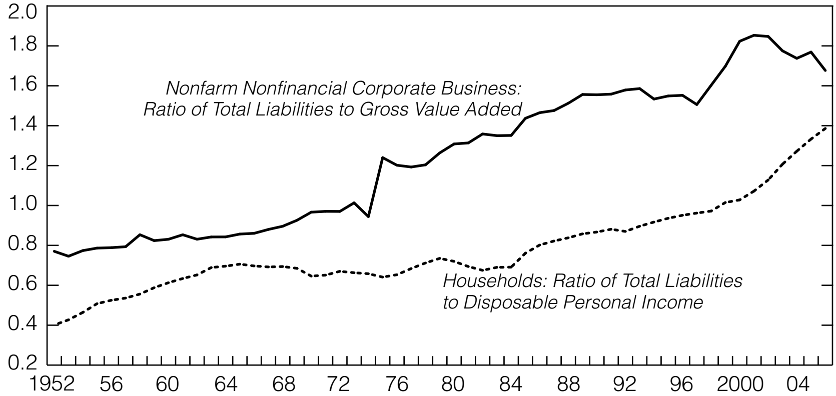
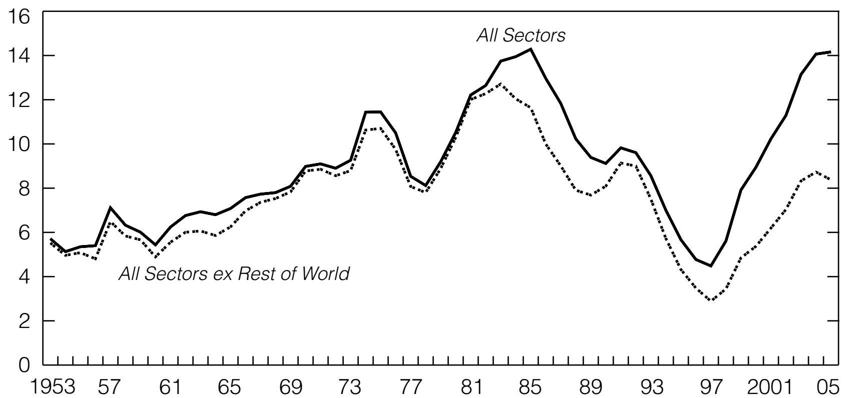


Figure 4. Absolute Sum of U.S. Sector Saving Less Capital Expenditure

(In percent of GDP, 3-year moving average)



Questions and Answers

ANDREW CROCKETT: Thank you very much, Alan. We have some time for questions, and in a moment I will ask the audience if they would like to put questions.

Perhaps, however, I might take the privilege of the chair and put the first question. One of the things that is surprising about today's current account imbalances is the extent to which it is the poorer countries that seem to have the surpluses and the rich countries that have the deficits. And also, that the source of the financing, at least from developing and emerging countries, is often in the form of holdings of central banks or investments of central banks and sovereign wealth funds controlled by governments. Does this, in your view, call into question the benign basis of the decline in home bias and the growth in U.S. productivity, because of the degree of interference in market forces?

ALAN GREENSPAN: I think you are raising an important issue. Clearly, if you listen to the discussions around these various different sovereign funds, the reason they are there, obviously, is that you have this huge accumulation of dollar and euro assets, sovereign assets, whose rate of return has been quite low. And there has been considerable political pressure within governments to somehow engage in some of the rewards that apparently have been emerging in recent years, up until very recently. And so the pressure has been, why should we accept a 3 or 4 percent rate of return when in the private sector you can get 10 or 15 percent?

The problem here, obviously, is that the risk-adjusted rate of return is the same. There is a question here about equities as differentiated from debt, but I think there is a false view of what is possible here. At the end of the day, these various different types of funds, over a long period of time, should not significantly gain anything in the debt area, because although they will find they can get higher rates of return, with the defaults that are going to arise, they will eventually end up where they were before.

There is a difference, actually, in equity holdings, in the sense that the data do show that, over the very long run, rates of return on equities are persistently higher than those on credit instruments; and the reason, apparently, is that holding equities, if you invest and do not sell at any time, will historically yield you a rate of return above risk-adjusted rates of return on credit instruments. But if you allow anybody to start trading the equities, that disappears.

The evidence is fascinating. In the United States—and I think it is true in Europe and elsewhere as well—equity mutual funds yield less than indexed funds that track the S&P 500, for example. The reason is that there is a risk aversion within the human species, and that includes the most sophisticated investment advisors, which inevitably, when they are under pressure on the down side of the cycle, induces them to sell usually at the bottom. And that creates a terrible problem.

So I am less optimistic about the actual prevalence of these funds because I think they are going to find fairly quickly they are not what people think they are, and especially for a lot of reasons that a lot of analysts have been arguing: the rates of return in the next 15 years are not going to be anywhere near what they were in the last 15. There is going to be discouragement in these funds, and my suspicion is that they will fade eventually.

But I agree with you, in the interim, to the extent that they are employed for political purposes, it raises a very serious question about the stability of the system and the necessity of a market competitive system's being independent of politics. Once you get crony capitalism or any other parts of it into market economies, the quality of the performance declines measurably.

Question: *May I ask Dr. Greenspan: His new paradigm for the less-worrying balance of payments surpluses and deficits, does that extend to currency and particularly the U.S. dollar, which is not only the national currency of the United States, but also the main reserve currency for the world, in a continued plunge? Does that* *not draw into question the very validity of paper money, or have things changed since 1931?*

ALAN GREENSPAN: Things have changed since 1931; I will grant you that. First, I think we ought to realize that there is a general syllogism that people employ which I find inadequate, which is: the current account deficit in the United States is large; therefore, the dollar has to decline as a consequence. The problem with the argument is that, if you take the euro-dollar exchange rate, it is quite conceivable to me that a substantial part of the decline of the dollar or the rise in the euro from 1.10 to, say, 1.35 was in anticipation—in fact, a forecast and a discounting—of today's level of the current account balance. In other words, if you say that the dollar is going to go from 1.43, which it just got to, up to 1.60 or whatever, if you are saying that that is because of the current account balance now, that is double counting. We already had it.

Let me say there is a very real debate that is going on in the currency community about the ability to forecast exchange rates. I know Ted Truman is here, and I know he will remember this, but the Federal Reserve tried at one point several years ago to forecast the dollar-euro exchange rate. And I can assure you the Federal Reserve has more information than anybody else on intervention and holdings by currencies, and we put all the data together and assigned two or three of the top econometricians at the Board—essentially the top econometricians in the country—and said, "Here is the database. Forecast." They came back and said the forecast capability had the same accuracy as forecasting the toss of a coin. It means half of the people who engage in foreign currency speculation come out right.

I was fairly recently at an investment banking group where the main people there were the foreign exchange traders, so I said, "How many of you have had successful records over the last six months?" And everybody's hand went up. And I said to myself, "Where are all the people who are not here?" All I can say is that there is a deep-seated requirement on the part of all of us to forecast exchange rates, stock prices—everything. This is a very tough forecast, because these markets are so efficient that all of the information is there. The only people who can make money do it by chance—remember that if you have a million coin tossers, you will get a thousand who at the end of, say, 10 consecutive tosses come up with 10 heads: you will always find in a random group of people a significant number who are very successful because the population which you are working from is so large.

So, I merely wish to say, it is very easy to look at balance of payments data and currency flows and the like and come up with a forecast, and you will be right half the time.

***Question:** Dr. Greenspan, have you, did you, do you see a need to put into place creative destruction, given the current economic scenarios and some of the things you mentioned today?*

ALAN GREENSPAN: I assume you mean by "put into place creative destruction," do you think we ought to have a global market system? I am not quite sure what the point of the question is. Have I got it right?

***Question:** Well, yes, you do. At what point would you say we need to do something different than what we are doing in today's market?*

ALAN GREENSPAN: Well, I can answer that in several different ways. We have been doing different things for quite a long period of years, and many of them just turned out to be awful. So, I think that the issue always rests in a capitalist market economy which, as you point out, has its roots and its necessities in creative destruction because, remember, it is only creative destruction that creates higher standards of living because, by definition, creative destruction is essentially moving the capital from less-productive, obsolescent industries to cutting-edge technology-related industries. And moving a body of capital from the lower-output-per-hour-type industries to higher-productivity industries obviously raises the average.

And it is only the average increase in productivity which generates higher standards of living. There is no other way that we have found, and that includes having oil in the ground or gold somewhere. Adam Smith was right. The wealth of nations is essentially determined by productivity, and productivity can be advanced only, in a broad economy such as those which we deal with, by a form of competitiveness, and that creates creative destruction.

As I say in the book I have just written, there is a very significant problem here in regard to the destruction part because, remember, when you move the capital from the less-productive industries to the more, you also have to move people. And there has always been a major problem in the fact that there are losers as well as winners. How to handle that problem has always been critical and necessary in order to maintain a viable market system.

But the truth of the matter is, there is no other system which has worked as well. Does capitalism or globalization work perfectly? Of course not. It has a lot of downsides, it has a lot of problems associated with it. But it is always "in comparison with what?" because every system which has ever been devised has to deal with innate human nature, which is at root the fundamental driving force of all economic activity. And there are certain qualities that we have which we do not particularly like, but nonetheless this is what creates booms and busts and euphoria and fear and all that stuff. Other systems do not handle it anywhere near as well as does market capitalism.

Question: *Dr. Greenspan, in your argument current account imbalances can be somehow addressed by market forces. However, fiscal imbalances are a different kind of animal. The roots of the problems here are different. I would like to have your views on fiscal imbalances in the United States, Social Security, health care, and to what extent these balances may affect growth in the United States and overseas.*

ALAN GREENSPAN: Well, fiscal balances in general are, by their nature, politically determined, and not subject to market forces.

We have a very serious problem in the United States in the sense that the demographics, like those in most of the countries represented in this room, are going to turn quite negative. The critical issue we have in the United States is our Medicare entitlement, which is easy to finance with the level of retirees that currently exists; but, when you double them, and you realize that we are not dealing with a defined-benefit program but essentially an in-kind type of entitlement, it is very difficult to conclude that the real resources needed are going to be generated by the labor force that is coming after the so-called baby boom generation, which is going to grow very slowly and whose productivity growth cannot exceed, say, 3 percent a year, if history is any guide. And that means that the actual real resources to meet that Medicare problem may not, in fact, be there for all the people who are currently, or will be, entitled.

And this is an issue we have not addressed. Republicans and Democrats in the United States have agreed on this issue: their agreement is to do nothing, and that is not going to get us anywhere. I think that if that has a significant impact on the United States, its impact will be felt by the rest of the world.

Question: Do you consider today's losses incurred in financial turbulence—the elimination of froth produced by financial engineering, which had lost some link with productivity growth—part of your creative destruction?

ALAN GREENSPAN: One of the fascinating things about recent years is the extent to which the finance industries throughout the world have gained increasing shares of national income. This is especially true in the United States. There are mixed data for the rest of the world; the problem is the data. But it is very clear in the United States that the share of national income is rising, and the reason it is rising is that the purpose of finance, as we are all aware, is to create the most efficient means of moving a nation's savings into productive capital investment which creates growth in productivity and standards of living.

And, regrettably, throughout the world, a very substantial portion of the world's savings are wasted. But, in the United States, because we have all of these financial products and these innovations and various institutions, we, for reasons I get into in the book I have just written, have an extraordinary capability to move the sparse savings that we have—and they are sparse, even including the savings we import or borrow from abroad, which is our current account balance. We have maximized the use of our savings because we have a highly efficient financial system, and that has created a maximum use, an effective use of the savings; and, therefore, the incomes of people who are in the financial system have been enhanced because they are part of something that has created a higher level of GDP and productivity and standards of living.

In general, I would say that the financial engineering that has been going on has been a positive; but, remember that, as with all new products, some of them fail. I think, for example, some of the variations of collateralized debt obligations or special investment vehicles or various very peculiar types of financial structures which have become very prominent in the last four or five years are about to disappear from the scene. They have been tried. They have failed. And the failure is basically that investors have been misled as to what the values of these types of products were.

And right at the moment—for example, let me take one obvious case—the amount of securitization of subprime U.S. mortgages is now almost zero after being approximately 20 percent of total originations in the United States, and the reason is that they failed.

Now, I am not saying that it is never going to rise again—frankly, I hope it comes back, in part, because I think subprime mortgages have served a very useful purpose in this country—but there is nothing carved in stone which says that every new ingenious financial product that is the result of some brilliant mathematicians is worthwhile. And, indeed, lots of inventions are awful. They fail, and they deserve to fail. And that is part of the creative destruction process, which I think is good, not bad.

Question: *I would be very, very interested to hear your thoughts on China's current account surplus. You were talking about how the division of labor and change and specialization mean the U.S. current account deficit does not matter. But one could argue that Asia's financial markets, China's financial markets, are not deep enough to allow domestic savings to be translated into domestic demand in Asia, including China. But the specialization that has contributed to the current account deficit in the United States presumably is going to continue to contribute to the current account surplus in China. Does that mean that we should all get used to a continuing rising current account surplus in China, and does it matter, or what is the implication?*

ALAN GREENSPAN: I think not. As you know, even though the data are questionable, the official numbers say that the Chinese savings rate is close to 50 percent, compared, for example, to the industrialized world, where it is under 20 percent.

There are two reasons. Basically, the underlying social safety net in China is fragmented and poor, and, as a consequence, people have to save for their retirement. And, as populations age in societies without safety nets, an ever-increasing proportion of income gets saved just to provide for retirement because the population is aging.

Secondly, there is, as you point out, a still very weak financial system in China, and they have not been able to deal with the types of financial innovation that are going on in the developed world. We have seen considerable improvements. But remember that, for a very long period of time, under a centrally planned economy, Chinese banks were not banks in any sense that we recognize them; they were basically institutions which transferred claims from one state agency to another. They have come a long way since then, but they have not yet developed a securities market, they have not really developed anything that would resemble the type of lending structure that would enable people to borrow and spend in advance of income, which is, of course, what most of the developed world has, and one of the reasons why savings rates there are far lower.

In addition, as is true in all countries, emerging and industrial, when incomes are rising rapidly, a disproportionate amount is saved, and that is true in China and in their current account surplus. That is going to change. I do not know how soon or when or by what means, but I would suspect that the 50 percent savings rate is coming down very dramatically at some point. The current account balance—which, remember, is only a relatively recent phenomenon in China—is probably going to shrink considerably.

But, for the short term, the near term, it is hard to see any significant changes because when you grow at 10 percent a year, when you have an economy that large, and coming off from such a low base, there is an awful lot of room on the upside.

Question: *Dr. Greenspan, they say that hindsight is wonderful. Do you have any observations on the comments that have been made that taking interest rate or federal funds down to 1 percent has not* *only encouraged a huge swath of subprime borrowers to take on mortgage financings that they cannot afford in a higher-interest-rate environment, but has encouraged perhaps overconsumption throughout the rest of society which has exacerbated the current account deficit, which would otherwise be at a lower level if a more even level of interest rate policy had been pursued?*

ALAN GREENSPAN: It depends on whether you think that economic activity is driven by the overnight funds rate or, as most econometric models will demonstrate, by maturities in the area of 5 to 15 years. There is no question that central banks—not only in the United States, but pretty much around the world—have lowered their rates very considerably. But the housing boom—and, I must say, the subprime boom in the United States was derived directly from the housing boom or bubble—is the result, as it has been in more than two dozen countries around the world, of a very significant decline in real long-term interest rates globally. The decline in long-term interest rates is matched, where mortgage markets exist, by significant declines in mortgage interest rates, which, in turn, have always been a key factor in the rise in prices of homes. And, as a consequence of that, you have a situation in which every single major country, with the exception of Japan and Germany, has had a dramatic increase in the market price of homes.

When you plot them right on top of the other, they look virtually the same with respect to when it started and when it ended. And the result that you come up with is a full explanation of what the subprime market was all about without advertence to the short-term rate of interest, which we moved down to 1 percent for a very good reason. We had been extraordinarily concerned that the type of corrosive deflationary forces which had gripped Japan seemed to be possibly emerging in the United States. The forecast was that that was not going to happen. But the general conclusion was that, if it happened, it would be extremely corrosive, and because inflationary pressures were clearly subdued, we believed that we could move rates down without short-term risk. But we knew there were longer-term risks, and that is the reason why we started to move the rates back very aggressively in 2004.

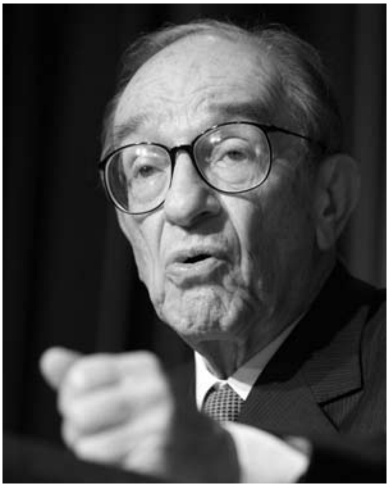
And what we demonstrated is what we learned subsequently, namely, that central banks around the world have essentially lost control over the markets beyond maybe three or four or five years out. In other words, there is no evidence that we at the Fed had the capability of affecting mortgage interest rates because, as we moved short-term rates higher in 2004, 2005, and beyond, we did not affect long-term rates. Mortgage rates—in fact, the 30-year fixed-rate mortgage was flat, and the vast majority of mortgages outstanding in the United States were fixed-rate mortgages.

So, it was a potential hypothesis that the Federal Reserve's short-term interest rate move created some inflationary bubble. But we have far more persuasive evidence of what caused it, and so we have at this particular stage an overdetermination of the results. If, indeed, it is short-term interest rates that created the housing bubble in the United States, what created the bubble in the European countries, in Spain, Ireland, in the U.K., in Canada, and in Australia? I could list for quite a long time. When you have a single explanation, which is, as I tried to point out in my book, that we are dealing with the consequences, the geopolitical consequences, of the end of the cold war, which, for reasons I get into, induced a very major increase in economic growth among those countries with high propensities to save and which inevitably was the cause of long-term real interest rates' declining around the world.

And, therefore, I do not deny there is a possibility that in going as low as we did we would have negative consequences. And, indeed, I was making similar statements at the time. I hoped it was not true, but recognized it was a potential cost. In retrospect, I must say, as an economist, I find the global explanation far more persuasive.

ANDREW CROCKETT: This lecture is followed by a reception upstairs. Before I invite to you join us upstairs, please join me in thanking Alan Greenspan for a most fascinating talk and discussion.

ALAN GREENSPAN: Thank you very much. [Applause]



Alan Greenspan

Dr. Alan Greenspan served as Chairman of the Board of Governors of the Federal Reserve System from 1987 to January 31, 2006. He was appointed to that position by President Ronald Reagan and reappointed by Presidents George H.W. Bush, Bill Clinton, and George W. Bush.

Dr. Greenspan was born in 1926 in New York City. He received a B.S. (summa cum laude), an M.A., and a Ph.D., all from New York University.

From 1954 to 1974 and from 1977 to 1987, Dr. Greenspan was Chairman of Townsend-Greenspan & Co., Inc., an economic consulting firm in New York City. From 1974 to 1977, he served as Chairman of the President's Council of Economic Advisers under President Ford, and from 1981 to 1983, as Chairman of the National Commission on Social Security Reform.

Before his appointment to the Federal Reserve Board, Dr. Greenspan served as a director of numerous corporations, including J.P. Morgan, Mobil, Aluminum Company of America (Alcoa), General Foods, and Capital Cities/ABC.

Dr. Greenspan has received honorary degrees from Harvard, Yale, Pennsylvania, Notre Dame, Leuven, and Edinburgh universities. He received the Legion of Honor (Commander) from France, became an honorary Knight Commander of the British Empire, and received the Medal of Freedom, the United States' highest civil award.

Dr. Greenspan heads Greenspan Associates LLC, a consulting firm in Washington, D.C., and is the author of *The Age of Turbulence,* published in September 2007.

The Per Jacobsson Lectures

2007 *Balance of Payments Imbalances*. Lecture by Alan Greenspan.

2006 *Asian Monetary Integration: Will It Ever Happen?* Lecture by Tharman Shanmugaratnam (Singapore).

Competition Policy and Monetary Policy: A Comparative Perspective. Lecture by Mario Monti (Bern).

2005 *International Financial Institutions: Dealing with New Global Challenges*. Lecture by Michel Camdessus.

2004 *The U.S. Current Account Deficit and the Global Economy*. Lecture by Lawrence H. Summers.

Some New Directions for Financial Stability? Lecture by C.A.E. Goodhart, CBE (Zurich).

2003 *The Arab World: Performance and Prospects*. Lecture by Abdlatif Yousef Al-Hamad (Dubai).

2002 *The Boom-Bust Capital Spending Cycle in the United States: Lessons Learned*. Lecture by E. Gerald Corrigan.

Recent Emerging Market Crises: What Have We Learned? Lecture by Guillermo Ortiz (Basel).

2001 No lecture took place due to the cancellation of the Annual Meetings of the IMF and the World Bank.

2000 *Ten Years On—Some Lessons from the Transition*. Lecture by Josef Tošovský (Prague).

Strengthening the Resilience of Financial Systems. Symposium panelists: Peter B. Kenen, Arminio Fraga, and Jacques de Larosière (Lucerne).

1999 *The Past and Future of European Integration—A Central Banker's View*. Lecture by Willem F. Duisenberg.

1998 *Managing the International Economy in the Age of Globalization*. Lecture by Peter D. Sutherland.

1997 *Asian Monetary Cooperation*. Lecture by Joseph C.K. Yam, CBE, JP (Hong Kong SAR).

1996 *Financing Development in a World of Private Capital Flows: The Challenge for International Financial Institutions in Working with the Private Sector*. Lecture by Jacques de Larosière.

1995 *Economic Transformation: The Tasks Still Ahead*. Symposium panelists: Jan Svejnar, Oleh Havrylyshyn, and Sergei K. Dubinin.

1994 *Central Banking in Transition*. Lecture by Baron Alexandre Lamfalussy (London).

Capital Flows to Emerging Countries: Are They Sustainable? Lecture by Guillermo de la Dehesa (Madrid).

1993 *Latin America: Economic and Social Transition to the Twenty-First Century*. Lecture by Enrique V. Iglesias.

1992 *A New Monetary Order for Europe*. Lecture by Karl Otto Pöhl.

1991 *The Road to European Monetary Union: Lessons from the Bretton Woods Regime*. Lecture by Alexander K. Swoboda (Basel).

Privatization: Financial Choices and Opportunities. Lecture by Amnuay Viravan (Bangkok).

1990 *The Triumph of Central Banking?* Lecture by Paul A. Volcker.

1989 *Promoting Successful Adjustment: The Experience of Ghana.* Lecture by J.L.S. Abbey.

Economic Restructuring in New Zealand Since 1984. Lecture by David Caygill.

1988 *The International Monetary System: The Next Twenty-Five Years.* Symposium panelists: Sir Kit McMahon, Tommaso Padoa-Schioppa, and C. Fred Bergsten (Basel).

1987 *Interdependence: Vulnerability and Opportunity.* Lecture by Sylvia Ostry.

1986 *The Emergence of Global Finance.* Lecture by Yusuke Kashiwagi.

1985 *Do We Know Where We're Going?* Lecture by Sir Jeremy Morse (Seoul).

1984 *Economic Nationalism and International Interdependence: The Global Costs of National Choices.* Lecture by Peter G. Peterson.

1983 *Developing a New International Monetary System: A Long-Term View.* Lecture by H. Johannes Witteveen.

1982 *Monetary Policy: Finding a Place to Stand.* Lecture by Gerald K. Bouey (Toronto).

1981 *Central Banking with the Benefit of Hindsight.* Lecture by Jelle Zijlstra; commentary by Albert Adomakoh.

1980 *Reflections on the International Monetary System.* Lecture by Guillaume Guindey; commentary by Charles A. Coombs (Basel).

1979 *The Anguish of Central Banking.* Lecture by Arthur F. Burns; commentaries by Milutin Ćirović and Jacques J. Polak (Belgrade).

1978 *The International Capital Market and the International Monetary System.* Lecture by Gabriel Hauge and Erik Hoffmeyer; commentary by Lord Roll of Ipsden.

1977 *The International Monetary System in Operation.* Lectures by Wilfried Guth and Sir Arthur Lewis.

1976 *Why Banks Are Unpopular.* Lecture by Guido Carli; commentary by Milton Gilbert (Basel).

1975 *Emerging Arrangements in International Payments: Public and Private.* Lecture by Alfred Hayes; commentaries by Khodadad Farmanfarmaian, Carlos Massad, and Claudio Segré.

1974 *Steps to International Monetary Order.* Lectures by Conrad J. Oort and Puey Ungphakorn; commentaries by Saburo Okita and William McChesney Martin (Tokyo).

1973 *Inflation and the International Monetary System.* Lecture by Otmar Emminger; commentaries by Adolfo Diz and János Fekete (Basel).

1972 *The Monetary Crisis of 1971: The Lessons to Be Learned.* Lecture by Henry C. Wallich; commentaries by C.J. Morse and I.G. Patel.

1971 *International Capital Movements: Past, Present, Future.* Lecture by Sir Eric Roll; commentaries by Henry H. Fowler and Wilfried Guth.

1970 *Toward a World Central Bank?* Lecture by William McChesney Martin; commentaries by Karl Blessing, Alfredo Machado Gómez, and Harry G. Johnson (Basel).

1969 *The Role of Monetary Gold over the Next Ten Years.* Lecture by Alexandre Lamfalussy; commentaries by Wilfrid Baumgartner, Guido Carli, and L.K. Jha.

1968 *Central Banking and Economic Integration.* Lecture by M.W. Holtrop; commentary by Lord Cromer (Stockholm).

1967 *Economic Development: The Banking Aspects.* Lecture by David Rockefeller; commentaries by Felipe Herrera and Shigeo Horie (Rio de Janeiro).

1966 *The Role of the Central Banker Today.* Lecture by Louis Rasminsky; commentaries by Donato Menichella, Stefano Siglienti, Marcus Wallenberg, and Franz Aschinger (Rome).

1965 *The Balance Between Monetary Policy and Other Instruments of Economic Policy in a Modern Society.* Lectures by C.D. Deshmukh and Robert V. Roosa.

1964 *Economic Growth and Monetary Stability.* Lectures by Maurice Frère and Rodrigo Gómez (Basel).

The Per Jacobsson Lectures are available on the Internet at www.perjacobsson.org, which also contains further information on the Foundation. Copies of the Per Jacobsson Lectures may be acquired without charge from the Secretary. Unless otherwise indicated, the lectures were delivered in Washington, D.C.

The Per Jacobsson Foundation

Founding Honorary Chairmen:	Eugene R. Black Marcus Wallenberg
Past Chairmen:	W. Randolph Burgess William McC. Martin Sir Jeremy Morse Jacques de Larosière
Past Presidents:	Frank A. Southard, Jr. Jacques J. Polak

Founding Sponsors

Hermann J. Abs
Roger Auboin
Wilfrid Baumgartner
S. Clark Beise
B.M. Birla
Rudolf Brinckmann
Lord Cobbold
Miguel Cuaderno
R.v. Fieandt
Maurice Frère
E.C. Fussell
Aly Gritly
Eugenio Gudin
Gottfried Haberler
Viscount Harcourt
Gabriel Hauge
Carl Otto Henriques
M.W. Holtrop
Shigeo Horie
Clarence E. Hunter
H.V.R. Iengar
Kaoru Inouye
Albert E. Janssen
Raffaele Mattioli
J.J. McElligott
Johan Melander
Donato Menichella
Emmanuel Monick
Jean Monnet
Walter Muller
Juan Pardo Heeren
Federico Pinedo
Abdul Qadir
Sven Raab
David Rockefeller
Lord Salter
Pierre-Paul Schweitzer
Samuel Schweizer
Allan Sproul
Wilhelm Teufenstein
Graham Towers
Joseph H. Willits

BOARD OF DIRECTORS

Sir Andrew D. Crockett — *Chairman of the Board*

Abdlatif Y. Al-Hamad
Nancy Birdsall
Michel Camdessus
E. Gerald Corrigan
Rodrigo de Rato
Malcolm D. Knight
Horst Köhler
Guillermo Ortiz
Alassane D. Ouattara
Shigemitsu Sugisaki
Edwin M. Truman
Leo Van Houtven
Marcus Wallenberg

OFFICERS

Leo Van Houtven — *President*
Graham Hacche — *Vice-President and Secretary*
Chris Hemus — *Treasurer*