THE **GREAT** DELEVERAGING

ECONOMIC GROWTH and INVESTING STRATEGIES for THE FUTURE



HENRY C. DICKSON | ODED SHENKAR

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Introduction

This book addresses why the United States took on so much debt and, eventually, how the debt will be reduced—delevered—and the costs of that deleveraging. In between, it differentiates sources of real economic and financial market growth from those that hinder and undermine them. It also provides some perspective on asset class returns over the last nine decades and some insight into the foundation of past secular bear and bull markets. That perspective is meant to better frame some basic rules of the investment road and hopefully make for more effective future navigation in an increasingly shifting global economy and more diverse market environment. First, the book starts with a reminder of a time when the outlook seemed pretty bleak.

1980 was a difficult year around the world, and it was evident in the somber public mood. The governments of the United States and much of Europe were trying to reverse a decade-long tide of rising interest rates, high inflation, and poor economic growth. In the United States, the core inflation rate rose above 12.5%, the U.S. government paid about 17.5% for short-term money funded with 3month T-Bills, the rate paid for a conventional 30-year mortgage reached 16%, and good corporate credits saw the prime rate rise above 20%. It was very expensive to take risks and few dared or could afford to borrow. All this happened at a time when the last of the baby boom generation was entering the workforce.

The rest of the world did not fare much better. Sub-Saharan Africa suffered from overwhelming poverty and growing political

instability. The largely centrally planned economies of China and the Soviet Union remained unable to lift much of their population from abject poverty and the rest of Asia was not doing much better. Over half of the world's population lived under totalitarian rule while many democratically elected governments pursued a course enhancing the role of government relative to the private sector. The major exceptions were Japan, which was continuing its remarkable post-World War II rise, and the oil-rich countries, which remained the beneficiaries of a seemingly endless and vital resource in great demand—oil.

For the typical 1980 investor, the prospect of better economic times and surging financial markets seemed far-fetched. Any time the economy and the market rebounded, negative economic news would darken the horizon again. Virtually no one realized that this dismal year actually marked a dramatic inflection point. The leadership and structure of governments the world over was beginning to change, real economic growth was set to accelerate, a wave of technological innovation was about to take hold, and financial markets were ready to take off.

What had happened was that the same destructive forces of inflation and historically high interest rates that had wreaked economic havoc triggered a political backlash against the existing order of the time. The backlash started in the United Kingdom, where Margaret Thatcher and the Conservative Party came to power in 1979 and implemented reforms that eventually lowered the rate of inflation, reduced regulatory barriers, and set in motion an economic surge. The United States followed suit in 1980, electing Ronald Reagan. With Reagan and with Paul Volcker as the head of the Federal Reserve, trends started to reverse. After years of dealing with doubledigit inflation and interest rates well over 10%, the stage was being set for the beginning of the Great Equity bull market that lasted in the United States until 2000. Reducing inflation and lowering interest rates also meant that the cost of capital was reduced, which made investing more attractive. The risk-free rate fell as did the risk premium, which is another way of saying that growth expectations increased as investors' confidence grew. Lowering the cost of capital meant that the value of a dollar of profit rose. For the equity markets, it meant valuations rose. Concurrent with these changes were regulatory and technology developments, making investing more accessible and less costly to the individual investor. Investment products proliferated as did the number of financial markets around the world that were open to investors from other nations.

Five Major Events Driving Globalization

At about the same time, on the other side of the world, big changes were also brewing. In China, late 1978 saw the beginning of economic reforms that would eventually catapult China to its current position as the world's second-largest economy. After cautiously reopening the country for foreign investment, its paramount leader, Deng Xiaoping, declared that it was "glorious to get rich" and encouraged the Chinese to go into business and become entrepreneurs, first in small businesses and then on a grander scale. Since then, China's economy more than quintupled in size by sustaining an annual compound growth rate of over 12%. A \$500 billion economy representing a mere 2% of the global economy in 1992 became an almost \$3 trillion economy representing close to 6% of the world's economy in 2008. That growth greatly reduced the number of Chinese living in poverty: Between 1993 and 2005, the number of poor in China fell by about 70% (see Exhibit 1).



Exhibit 1 The Number of Very Poor in China Fell More Than 75% Between 1981 and 2005. (Source: Carpe Diem Blog)

The Great Openings

The Chinese reforms would be one of five major events creating the foundation for a major wave of globalization and, with it, the creation of financial wealth. The other four were the move toward free markets through the elections of Margaret Thatcher and Ronald Reagan, the fall of the Berlin Wall in 1989, the start of the World Wide Web in 1991, and the Free Trade initiative started under the first Bush administration and put into effect by the Clinton administration. Taken together, these events provided the foundation for a more open global economy, triggering a surge of innovation and productivity, a decline in geopolitical tensions, more open communication, and a surge in education. We call these "The Great Openings."

Over the next 25 years, that wave of technological and political change would alter many assumptions and some of the structures of daily life. Taken for granted today in most developed countries are the Internet, e-mail, cell phones, smartphones, PDAs, increased computer processing power, smaller devices, digital television, speech recognition, DVD players, music and video downloads, automated teller machines, 24/7 news, endless entertainment choices, blogs, GPS (Global Positioning System), and immediacy. Many of these technologies were introduced into developing markets much faster than previously was the case. As they grew, the economy and financial markets grew with them.

Between 1980 and 2007, the global economy grew more than 3.5 times. Global gross domestic product (GDP) reached almost \$55 trillion; on a real basis, it grew more than 2.5 times (Exhibit 2). Per capita, GDP went from \$2,771 in 1980 to \$8,443 in 2007. The value of the world's stock markets increased from close to \$675 per person to just under \$9,500—up more than 14 times. The value of all financial assets increased from near \$2,700 per person to an estimated \$28,500. It was a period of significant global economic expansion and wealth creation.



Real Global Economic Growth–Actual and Expected

Exhibit 2 The Global Economy Index—Actual and Expected (Source: IMF)

Strong economic growth and attractive financial market performance coincided with population growth. It also coincided with other positive trends like lower poverty levels, rising life expectancy, and declining illiteracy. In 1981, almost 52% of the world's population lived on no more than \$1.25 per day and almost 75% lived on less than \$2.50 per day, as shown in Exhibit 3. By 2005, the number of people living on \$1.25 per day fell to 25.2%, while the number of those living on \$2.50 per day fell to 56.6%—a remarkable improvement. The global illiteracy rate fell from 30.3% in 1980 to 18.3% in 2005 according to UNESCO. In the United States, life expectancy rose from 73.7 years in 1980 to 77.8 years in 2005.

Exhibit 3 World Poverty Figures by Region, 1981–2005; Percent Living Below the Poverty Line (Source: Chen, Shaohua and Martin Ravallion, "The Developing World Is Poorer than We Thought, but no Less Successful in the Fight Against Poverty," *Quarterly Journal of Economics*, in press Fall 2010)

Region	\$1.25/day	y			\$2.50/da	y		
	1981	1990	1999	2005	1981	1990	1999	2005
East Asia & Pacific	77.7	54.7	35.5	16.8	95.4	87.3	71.7	50.7
Of which China	84.0	60.2	35.6	15.9	99.4	91.6	71.7	49.5
Eastern Europe & Central Asia	1.7	2.0	5.1	3.7	15.2	12.0	21.4	12.9
Latin America & Caribbean	11.5	9.8	10.8	8.4	29.2	26.0	28.0	22.1
Middle East & North Africa	7.9	4.3	4.2	3.6	39.0	31.2	30.8	28.4
South Asia	59.4	51.7	44.1	40.3	92.6	90.3	86.7	84.4
India	59.8	51.3	44.8	41.6	92.5	90.2	87.6	85.7
Sub-Saharan Africa	53.7	57.9	58.2	51.2	81.0	82.5	83.8	80.5
Total	51.8	41.6	33.7	25.2	74.6	70.4	65.9	56.6

Improvements in the quality of life occurred while the world's population expanded from 4.43 billion people in 1980 to more than 6.7 billion people in 2008. In 2005, in a global population of 6.5 billion, 1.2 billion people resided in developed countries and 5.3 billion lived in developing nations. The combination of population and economic growth brought with it a surge in the number of new businesses created. Those new businesses often came from new

industries and product lines, such as personal computers, cell phones, semiconductors, the Internet, credit cards, mortgage banking, and health-care companies that made artificial joints—to name a few. New players also emerged: S&P companies like WalMart, Best Buy, Intel, Microsoft, Apple, Dell, Cisco, Amgen, Stryker, Visa, Master-Card, Yahoo!, and Google were not part of the S&P 500 Index in 1980.

The post-1980 period also saw an unprecedented wave of globalization, which was reflected first in the economic mix and only more recently in the investment mix. In 1992, the developed world's share of the global economy exceeded 75%. As recently as 2000, it remained close to that level, as shown in Exhibit 4. Since 2000, the developed world's share declined to 68% in 2007. Since 2001, the United States share of the global economy declined from about 32% to 23%, according to statistics from the World Bank. Since 1980, its peak level was almost a 34% share of global GDP in 1985. Japan's 2008 share of 8% global GDP represents a significant reduction in its share of global GDP since 2001 when it was 12.9% and from its peak of 18% in 1994.



Exhibit 4 The Developed World's Shrinking Share of the Global Economy (Source: United Nations)

The developing world continued to gain share since 2001. For instance, based on the World Bank statistics, China saw its share of global GDP rise from 4.2% to 7.1% in 2008. The Russian Federation's share increased from 1.7% to 2.7% and reflects the tremendous increase in global demand for energy. Brazil's share of global GDP rose from 1.9% to 2.6%, and India's share rose from 0.5% to 2.0%. This was a period when low- and middle-income countries experienced faster economic growth and garnered a greater share of the global economy.

In line with the economic mix, the developed world controlled the dominant share of financial assets. As recently as 2001, the U.S. equity market represented over 50% of global equity market capitalization. By the end of 2007, however, the U.S. equity market represented about 30% of global equity with a market capitalization of over \$60 trillion. Between 2002 and 2007, the size of the equity market almost tripled, and it increased more than six times between 1992 and 2007. An investor in the global equity market in 1980 saw their investment increase more than 20 times through 2007. With the global economy, the character and structure of the global financial markets also changed dramatically. The forces stimulating the growth of the financial markets started in the late 1970s as inflation and interest rates began to peak in much of the developed world. Also, the technologies driving the digitalization or the economy became more accessible, affordable, and impactful. This started the initial stage of financial asset growth relative to GDP in some of the world's developed countries.

The economic and financial success of the 1980–2007 era was constructed on some very durable foundations, but also on some false ones. There were weaknesses and structural decay only a few recognized. As is often the case, perception did not match reality. Since the end of 2007, the global equity markets lost more than 50% of their value from peak to trough, and much of the world's economy fell into recession. Future economic and financial prospects seem much less attractive two years ago even though the economic cycle turned and a modest recovery began.

Through it all, the world's population continued to grow. That growth is expected to continue through 2050, but at a slower rate. By 2050, the world's population is expected to exceed 9 billion, as shown in Exhibit 5.



Exhibit 5 Global Population Expected to Exceed 9 Billion Before 2050 (Source: U.S. Census Bureau, International Data Base, June 2009 update)

The global population reached 6.76 billion in 2009, and by 2050, it is expected to reach 9.32 billion, an increase of 2.56 billion people or 38%. That increase is equal to the world's population in 1950. India is expected to pass China and become the most populous country. Its expected increase of 500 million people will be greater than the population of every country in the world except China. Combined, those countries are expected to house 33% of the world's population compared with 36% in 2009. The largest absolute growth from 2009 to 2050 is expected to come from the countries shown in Exhibit 6.

Country	2050 Estimated	Expected	Expected
	Population	Change	Percentage Change
India	1,656,553,632	499,655,866	43.2%
Ethiopia	278,283,137	193,045,799	226.5%
United States	439,010,253	131,798,130	42.9%
Congo (Kinshasa)	189,310,849	120,618,307	175.6%
Nigeria	264,262,405	115,033,315	77.1%
Pakistan	276,428,758	101,850,200	58.3%
Uganda	128,007,514	95,637,956	295.5%
China	1,424,161,948	85,548,980	6.4%
Bangladesh	233,587,279	77,536,396	49.7%
Philippines	171,964,187	73,987,584	75.5%
Indonesia	313,020,847	72,749,325	30.3%
Brazil	260,692,493	61,953,224	31.2%
Egypt	137,872,522	59,005,887	74.8%
Sudan	88,227,761	47,139,936	114.7%
Niger	55,304,449	39,998,197	261.3%
Mexico	147,907,650	36,695,861	33.0%
Madagascar	56,513,827	35,860,271	173.6%

Exhibit 6 Top 25 Countries: Expected Population Increase Between 2009 and 2050 (Source: U.S. Census Bureau)

Country	2050 Estimated Population	Expected Change	Expected Percentage Change
Burkina Faso	47,429,509	31,683,277	201.2%
Iraq	56,316,329	27,370,760	94.6%
Kenya	65,175,864	26,173,092	67.1%
Tanzania	66,843,312	25,794,780	62.8%
Afghanistan	53,354,109	24,958,393	87.9%
Turkey	100,955,188	24,149,664	31.4%
Yemen	45,780,651	22,922,413	100.3%
Vietnam	111,173,583	22,596,825	25.5%

Exhibit 6 Top 25 Countries: Expected Population Increase Between 2009 and 2050 (Source: U.S. Census Bureau)

The United States is expected to remain the third most populous country in the world with a population exceeding 400 million. Its population growth is expected to be greater than the global population growth in large part because of more open immigration. Growth is not expected everywhere and 15 countries are expected to experience a population contraction of more than 1 million, as shown in Exhibit 7.

Country	2050 Estimated Population	Expected Change	Expected Percentage Change	
Japan	93,673,826	-33,404,853	-26.3%	
Russia	109,187,353	-30,853,894	-22.0%	
Ukraine	33,573,842	-12,126,553	-26.5%	
Germany	73,607,121	-8,722,637	-10.6%	
Italy	50,389,841	-7,736,371	-13.3%	
Poland	32,084,570	-6,398,349	-16.6%	
Korea, South	43,368,983	-5,139,989	-10.6%	
Spain	35,564,293	-4,960,709	-12.2%	
Romania	18,678,226	-3,537,195	-15.9%	
Taiwan	20,161,286	-2,813,061	-12.2%	
Bulgaria	4,651,477	-2,553,210	-35.4%	
Belarus	7,738,613	-1,909,920	-19.8%	
Czech Republic	8,540,221	-1,671,683	-16.4%	
Hungary	8,374,619	-1,530,977	-15.5%	
Serbia	5,869,146	-1,510,193	-20.5%	

Exhibit 7 Fifteen Countries Expected to Experience the Largest Population Decline by 2050 (Source: United Nations Population Fund)

The global economy and financial markets should continue to be volatile and evolve, while the world's population continues to grow. There will be many challenges and there will be many opportunities.

To provide a better perspective, the book begins with a discussion of the "great leveraging," a flashback into the debt and risk accumulated in the United States, and is followed by a quick history of bull and bear markets, global economic growth, and the economic returns generated by different asset classes over time. We then detail the destruction of euphoria, including the telling story of Japan, and the way out of euphoria. Finally, we turn to market scenarios, signals, and the great deleveraging we are undergoing today, accompanied by the global economic outlook and its investment implications. This page intentionally left blank

The Great Leveraging

All that growth, was it real?

At the end of the second quarter of 2009, over \$50 trillion of debt was on the balance sheet of the United States—its citizens, state and local governments, businesses, farms, and other organizations. That is a remarkable increase from 2000, when total debt was about \$25 trillion. In less than a decade, debt more than doubled, whereas the economy grew only by roughly 40%. The sectors with the fastest rate of debt growth during the period were government sponsored enterprises (GSEs) and financials. Exhibit 1-1 shows that government borrowing began to grow relatively faster starting in 2003. Household debt began to decline in 2009. The economy of the United States was using leverage to grow, improve returns, and get everything faster.

This is not a new phenomenon. Since 1952, the debt growth rate exceeded 8.5% per year, much higher than the 6.5% annual pace of economic growth. If debt growth equaled GDP growth over that period, total debt would be less than \$20 trillion, and less than 150% of GDP. As debt grew faster, the U.S. economy became much more leveraged. At the end of the second quarter of 2009, total debt exceeded 375% of U.S. GDP. Back in 1999, debt was less than 250% of GDP, and in 1986, it was less than 200% of GDP. At its mid 2009 level, the debt-to-GDP ratio was at its highest point ever. The last major peak of debt to GDP occurred in 1932 and 1933 when debt approached 300% of GDP, as shown in Exhibit 1-2. From that point, the deleveraging process began and took 20 years to complete. When

it ended, the debt-to-GDP ratio was less than 150%. During that period of deleveraging, the United States economy spent over seven years in a depression and almost ten years supporting wars.



Exhibit 1-1 Dollar Composition of U.S. Debt (Source: Flow of Funds, authors)



Exhibit 1-2 Before and After the Great Deleveraging of the Last Century (Source: Historical Statistics of the United States)

Since 1980, three of the four major economic sectors-households, financial corporations, nonfinancial corporations, and government-have dramatically increased their debt levels. Three of these sectors-households, financials, and government-continued to increase their debt load after 1990, whereas nonfinancial corporations did not use leverage as aggressively. Exhibit 1-3 provides a look at the composition of debt on a commonsize basis; that is, each sector's share of total debt. The share of debt controlled by the government declined pretty consistently until 2008. That decline reflects the maturing of the American economy and understates the government's real share because it does not include the unfunded entitlement obligations and it excludes the debt of the GSEs-which are now obligations of the federal government. If government debt and the debt obligations of GSEs were combined, the duration of the decline in share would be much shorter. It would have ended in the early 1970s, and, combined, its growth would have matched that of the private economy.

The pace of economic leveraging began to gain momentum in the early 1970s and accelerated sharply in the 1980s as the cost of debt began its decades-long decline. One of the major initial forces propelling debt levels higher was falling interest rates. As rates fell, a debtor's borrowing capacity increased. For instance, a borrower assuming a fixed-rate mortgage experienced more than a 40% increase in borrowing power when rates fell from 15% to 10%, an increase of over 60% when rates fell from 10% to 5%, and a greater than 35% increase if rates fell to 2.5% from 5%. If the borrower could afford to finance an \$80,000 mortgage with their cash flow at 15%, a fall in rates to 2.5% would made that same cash flow capable of supporting a \$256,000 mortgage loan. That is an increase in purchasing power of 300%. Exhibit 1-4 shows how borrowing capacity changes on a 30-year mortgage as interest rates change.



Exhibit 1-3 Commonsize View of U.S. Debt Composition (Source: Flow of Funds, authors)



Exhibit 1-4 Purchasing Power of a \$1,000 Monthly Mortgage Payment

Lower interest rates were not the only factor causing debt levels to rise. Credit became easier to get and often required less documentation and less financial risk on the part of the borrower. Different credit structures were created and embraced, triggering extraordinary growth for some. Also, government policies provided some encouragement for increased levels of mortgage lending at more lenient standards to higher risk parts of the population. The result at the end of the second quarter of 2009 was a peak level of leverage relative to GDP, as shown in Exhibit 1-5, and it was expected that such levels would go higher almost indefinitely.



Exhibit 1-5 Debt to GDP (Source: Flow of Funds, authors)

Leverage enables purchases and investments to be made more quickly, in greater size, and often with less capital. It also creates more risk because it comes at a cost that must be covered by the returns on an investment or the income of the borrower. That cost is the interest payment. And there is also a claim on future cash flows in the form of debt repayment. The greater the amount of leverage assumed, the greater the risk taken. Greater risk also means that mistakes are magnified manifold with less room for error.

For individuals, too much leverage can lead to bankruptcy and the elimination of a lifetime of financial gains. It can also cause tremendous stress as individuals and families deal with the prospect of broken dreams, fewer opportunities, and a less-promising future. Much of that stress occurred during the housing bubble and the brutal bear stock market. Housing values declined over 25% from their peak and the stock market declined almost 60% from its peak. The result was the elimination of more than \$10 trillion of household net worth, over 15%.

For a corporation, increasing levels of debt almost always trigger pressures to reduce expense levels absolutely or at least relative to revenues. These efforts often mean layoffs, benefit cuts, or both. If the corporation is a financial lender, too much leverage will usually reduce its risk propensity and, hence, lower its willingness to lend. Although the idea is risk reduction, good customers often also suffer and their difficulty obtaining funding means they are not able to operate as effectively and invest in new business opportunities. Eventually those prospective borrowers may suffer financial pain, and that is almost always felt by individuals, known as employees.

Governments are different. Greater leverage for state and local governments usually translates into higher taxes. According to the National Conference of State Legislatures, "All of the states except Vermont have the legal requirement of a balanced budget." With the exception of budget cuts that might be politically and socially difficult, taxes and financial engineering are the only ways to deal with the problem. The general lack of performance metrics measuring the performance of government programs and the absence of a balance sheet and income statement for the government often mask the sources of funds and the expenses they fund, which mitigates an effective challenge to government spending as opposed to raising taxes.

There is no restriction at the federal level: There is no balanced budget requirement. When the United States federal government runs a deficit, it borrows more money. In the last 60 years, it ran a budget deficit over 90% of the time, in 55 of the 60 years. Only in 1968 did the level of gross federal debt decline. Usually, the maturing federal debt is repaid with proceeds of newly issued debt, which is also used to fund the deficit. The debt-to-GDP level shown in Exhibit 1-5 indicates the U.S. economy is now operating with the highest level of leverage ever. Debt-to-income, shown in Exhibit 1-6, leads to the same conclusion. The United States now has over \$4.25 of debt for every dollar of income it generates. Into the mid-1990s, that relationship was closer to \$2.75 of debt for every dollar of income. In less than 50 years, the debt-to-income ratio almost tripled. Not obvious from Exhibit 1-6 is the change in the composition of the national income. A rising share of it comes in the form of transfer payments. The sustainability of those transfer payments is dependent on the productivity of the private economy. The shift in share also means the level of debt to salaries and wages from the private industry rose even faster than the increase shown in Exhibit 1-6.



Exhibit 1-6 Total Debt to National Income of the United States Economy (Source: Flow of Funds, authors)

How could the situation get to this extreme? One answer is that not much attention is paid to a nation's financial statements. There is no regular focus on the amount of outstanding debt, national obligations, the national balance sheet, and national income. Financial reporting by state, local, and federal governments is opaque at best, with little transparency regarding the sources of revenues, their sustainability, and the nature of government expenditures. Spending and unfunded commitments often go unquestioned and are rarely included in debt counts as long as they do not require immediate funding. These include unfunded government employee pension funds, future Social Security benefits, Medicare, and Medicaid. Then there are derivatives, which may create little-understood exposure and place a potential claim on the country's assets and income. Like unfunded mandates and obligations, there is no regular quantification of aggregate magnitude and potential risk to derivatives. Disclosure is limited and rarely provided in a timely manner.

To support a vibrant public sector, a country needs a robust private sector. The public sector will collapse on its own: Consider the destruction and human misery created by totalitarian regimes. Private enterprises create jobs, while the government taxes those employees and their companies to support its workforce, the public infrastructure, and honor its role as a defender of the public. Ironically, the weaker the private sector becomes, the harder it becomes for a government to do just that.

Play by the Rules!

Any game starts with a simple notion: Play by the rules. Not everybody does—sometimes they get caught, and sometimes they don't. Bernie Madoff finally got caught, but that was after he had managed to cheat investors out of billions of dollars. In baseball, the use of steroids is considered cheating, and football has plenty of rules that are broken during the course of the game, resulting in penalties that sometimes change the course of the game.

Serena Williams, one of the great tennis players, won eleven grand slam titles through 2009. In 2009, she won two of the three first grand slam events, the Australian Open and Wimbledon. The fourth, the U.S. Open, was a title she won twice. She made it to the semifinal match and faced former 2005 U.S. Open Champion, Kim Clisters. In a close match, Clisters won the first set 6-4. The second set stayed on serve with Serena Williams serving down 5-6 and down 15-30 in the game. That is when the match became different. Serena went through her normal service motion and was called for a foot fault, putting the game score at 15-40. That meant she lost the point because of a rarely called penalty. Serena reacted badly to the call, cursed at the referee, and was penalized for her behavior. That penalty cost her another point, which cost her the game and the match.

Tennis, like other sports, is played by rules that define the game. Players and coaches do their best to take advantage of the rules. Every game has a rule maker—for the economy, the government sets the rules and enforces them. Those rules, the attempts to leverage and often circumvent them, as well as other forces, contributed to the leveraging of the national economy.

Sources and Forces of the Debt Expansion

Overview

The median five-year growth rate of debt since 1952 was 48.2% (Exhibit 1-7), which equals an annual growth rate of almost 8.2%. The era of the largest percentage growth started to appear in the early 1970s, suggesting that the seeds of rising debt growth were firmly planted in the 1960s. The era of rapid percentage growth carried on into the late 1980s, and during that period, growth rates



Exhibit 1-7 The Five-Year Growth Rate of Total Debt in the United States (Source: Flow of Funds, authors)

exceeded the median by as much as 40%, or not quite twice the median growth rate. The decade of the 1990s was a period of belowmedian growth, and "The Great Leveraging" did not commence until the late 1990s. For that period, the pace of growth was not as fast, but the magnitude of debt created was much greater and the level of leverage attained was much higher. The magnitude of debt created was much greater because the foundation from which it grew was much greater.

Starting in the late 1960s and ending in the early 1990s, the 5year growth rate of debt was usually well above the median level for the 52-year period. The initial rise in debt above median growth rate was driven by government policies. Those policies included the Great Society, the War on Poverty, and the Vietnam War. What helped sustain the rising growth rate was a phenomenon those policies helped create: It is known as the Great Inflation. The shift in government policy that started in the 1960s resulted in more centralized economic decision making and an increased government role in resource allocation.

Ending inflation required historically high interest rates that precipitated a deep recession, and with it, a substantial loss of tax revenues and much higher deficits. Those deficits were widened by the recession and exacerbated by government policies that did not cut government spending while tax rates were cut. The tax rate cuts spurred economic growth and helped create a more attractive investment environment, but that benefit took time. In the meantime, higher deficits caused more government borrowing, which, in turn, caused government debt's share of total debt during that period to rise to 25% at the end of 1988. Between 1981 and 1988, federal government revenues increased 55%, while expenditures increased 62%.

Government debt was not the only source of total debt rising; GSEs along with the financial and household sectors' demand for debt was much greater than the government's demand.

By the end of the 1990s, the pace of growth moderated; however, its impact was more meaningful because of its relative size, its sheer magnitude, and the level of leverage. Measured by total debt to GDP, the leverage at the end of the 1990s was more than two and a quarter times GDP. As the level of debt to GDP rises, it becomes a source of additional leverage; in effect a double leverage. This is because as the level increases, the impact of a constant difference between debt growth and GDP growth increases. So, when debt to GDP was 100%, a 5% difference in the growth rates would result in debt to GDP of 105%; at 200%, the difference results in 210%; and when debt to GDP starts at 300%, that disparity in growth rates results in debt to GDP next year of 315%. As a result, an already leveraged economy experienced the sharpest rise in debt to GDP starting in the 1990s. Economic growth did not keep pace with debt growth, as shown in Exhibit 1-8. The disparity in growth rates appears to have been sustained and, after 2002, that disparity rose.



Exhibit 1-8 Difference Between Annual Rates of Debt Growth and GDP Growth (Source: Flow of Funds, authors)

New Normal

When debt to GDP dipped below 150% in the early 1950s, it was driven by strong government revenue growth created from strong economic growth resulting from a rapidly growing private sector. It also benefited from more modest growth levels of government spending after two wars and an aversion to debt that stemmed from the Great Depression. Since the late 1960s, the nation's leverage on GDP more than doubled. Some of that was natural—the "new normal." The forces behind the new normal debt expansion were many, including the shedding of the Depression mentality, which appears to have started in the early 1950s with the baby boom. Also contributing was the evolution of the economy beyond the industrial age into the information age. That brought with it the evolution of the Financial Services industry, which meant increasing availability and access to credit. There was also a tremendous shift in the financial behavior of individuals. These shifts and other contributing forces pushed the natural level of debt to GDP closer to 200%, in our opinion.

Other Forces

Still, most of the forces causing the country's debt to grow faster than GDP were not ones that contributed to the new normal. Instead, they contributed to more excessive amounts of debt. These other principal forces include housing policy, easy monetary policy, regulations, inflation, greed, and energy policy. All of those forces contributed to greater risk tolerance, which, in turn, led to more leverage. Changes in any of these forces could have helped reduce the level of debt and, perhaps, helped avoid the current financial crisis. Exhibit 1-9 provides our assessment of how these factors increased the debt-to-GDP ratio above 150%. For instance, the new normal took it up at least another 50% to 200%, and housing policy increased it another 35% to 235%.

Housing

The biggest factor driving the leveraging of the U.S. economy beyond its natural evolutionary path was housing and the government policies that supported it. In our estimate, at least, 50% of the incremental 225% of debt to GDP, or over 20% of the excess leverage, was caused by the housing policy. That is \$7 trillion, which is the majority



Exhibit 1-9 Estimated Contributors to Change in Debt to GDP from 1953 to Present (Source: authors' estimates)

of the debt extended to support the GSEs and their off-balance financing. Another metric is how fast housing grew relative to nominal GDP. Housing grew much faster: Had it grown in line with nominal GDP, the debt levels would have been \$5 trillion lower.

Since the Great Depression, the U.S. federal government has taken steps to increase the level of home ownership and make housing more affordable. The leaders in government have long been advocates of home ownership, believing it would enhance social stability and engender pride in ownership and a "stakeholder society." This was a goal that both major parties subscribed to. Over time, the government has added the goal of making housing more available to those in below–median income households.

In 1938, the Roosevelt administration created the Federal National Mortgage Association to make sure that mortgage finance was available in an effort to increase home ownership and ensure



Exhibit 1-10 Household America: Equity Share of Housing Value (Source: Flow of Funds, authors)

housing affordability. In 1968, the association was split in two. One company was spun off as a public company to support the traditional mortgage industry. It was Fannie Mae and its borrowings had the implicit guarantee of the federal government. This was the first GSE; the other half would remain a division of the U.S. Department of Housing and Urban Development (HUD) and it was Ginnie Mae. It was "...formed as the Government National Mortgage Association, is a wholly owned government corporation within HUD administered by the Secretary of HUD and the President of Ginnie Mae. In 1970, Ginnie Mae developed and guaranteed the very first mortgage-backed security (MBS). Today, its primary function is to guarantee the timely payment of principal and interest on MBS that are backed by pools of mortgages issued by private mortgage institutions and insured by HUD's Federal Housing Administration (FHA) and the Office of Public and Indian Housing (PIH), the Department of Veterans Affairs' (VA) Home Loan Program for Veterans, and the U.S. Department of Agriculture's (USDA) Rural Development Housing and Community Facilities programs." In 1970, the Nixon administration decided Fannie Mae should have competition and Freddie Mac was created.¹

The Great Depression was also a time of transition and support for the private financial industry supporting the housing industry. It started in the 1930s with the Building & Loan Industry, which subsequently changed its name to the Savings & Loan (S&L) Industry in the 1930s. It enjoyed the benefits of deposit insurance and federal regulation. It would sustain solid growth into the 1970s. The S&L business model was simple-gather longer-term deposits and extend mortgage loans. Borrowers were expected to complete detailed loan applications and typically made a down payment equal to 20% of a house's value. Over time, down payments declined as lenders became more lenient to the point of offering prospective homebuyers 100% financing. In 2006, 17% of mortgage loans required no down payment; in other words, they were made at 100% loan to value. In comparison, in 2001, only 1% of mortgage loans were 100% financed. The shift was not just driven by government policy; it was also caused by the drive for greater business volumes, higher revenues, and greater levels of profits. It was a focus on quantity and not quality.

Starting with the Carter administration, more emphasis was put on making mortgages available to low-income households and minority households. It is the reason the GSEs exist, and it was one of the Financial Services industry's fastest-growing businesses. The second biggest factor was the creation of off-balance sheet financing. By June 2008, over \$5 trillion of home mortgage assets were either on the balance sheets of Fannie Mae or Freddie Mac, or securitized into the market with their guarantees. Either way, a great deal of debt was used to fund those assets and the ultimate obligor was the U.S. government. The combined total managed assets would more than double in less than eight years to \$5.3 trillion (see Exhibit 1-11).

Monetary Policy

Since 1999, U.S. monetary policy has been used aggressively to limit the pain inflicted by the end-of-asset bubbles. It is a major change from the monetary policy of the early 1980s used to fight inflation. Then, the effective federal funds rate peaked at 22% for a



Exhibit 1-11 Household America: Housing Value (Source: Flow of Funds, authors)

few days. (This is not evident in Exhibit 1-12 because the time series is a weekly one.) Borrowing conditions were not only difficult, but the cost of borrowing bordered on prohibitive. Financial institutions found the costs hard to pass on in their pricing, and those borrowing costs severely constrained borrowing for investment and working capital purposes.



Exhibit 1-12 Effective Federal Funds Rate (Source: FRED—2009 research.stlouisfed.org)

The same conditions that existed in the Fed Funds market prevailed in the mortgage market as the 30-year conventional mortgage rate rose above 18% (see Exhibit 1-13). It took the better part of a decade to get the rate under 10%, and another decade to get the mortgage rate below 7.5%. Now, that rate is closer to 5% and that change means the same monthly payment can support a borrowing four times greater. The same level of cash flow supports more than three times as much mortgage in 2009 as it did in 1980.



Exhibit 1-13 30-Year Conventional Mortgage Rate (Source: FRED—2009 research.stlouisfed.org)

The fall in interest rates and the historically low level of Fed Funds meant cheap credit. Actions by the Federal Reserve over the last 25 years suggest it is more inclined to apply monetary stimulus to stem market corrections and bear markets than it is to apply monetary restraint as asset prices rise. The low level of interest rates and aggressive actions by the Fed over the past decade contributed to an environment of very low risk aversion. That translated into very little sensitivity to differences in asset quality, duration, and so forth. It contributed to an environment that saw the level of national debt more than double in less than a decade. In our estimation, it was responsible for pushing debt to GDP up at least 30%, or over \$4 trillion.

Regulation

Our estimate suggests that regulation is responsible for almost \$5 trillion of the excess debt. That pushed debt to GDP up another 35%. Exhibit 1-14 shows just how much debt is used to finance off-balance sheet instruments. In aggregate, almost \$10 trillion of debt is used to finance mortgage-backed securities guaranteed by the GSEs and other financial institutions, as well as debt used to finance assetbacked securities and funding corporations.



Exhibit 1-14 Off-Balance Sheet Debt to Total Debt (Source: Flow of Funds, authors)

This part of the Financial Services sector saw very little regulatory oversight. There was very little equity used to support these instruments. Their very creation meant the absolute level of leverage being assumed by members of the industry and ultimately the United States taxpayer was very significant and not understood. The combination of leverage, demand, and tolerance, if not outright support, for weaker lending standards created one of the principal sources of the financial crisis. In aggregate, off-balance sheet debt reached \$10 trillion on June 30, 2009, which compares to less than \$1.4 trillion in 1990 and about \$3 trillion in 1996. That suggests a sustained growth rate of 10% or more than twice nominal GDP growth and about three times real GDP growth for the period. In terms of leverage, very little equity was used to support off-balance sheet structures. High levels of leverage can help an investor realize attractive returns. The operating assumption behind the structures is that the funded assets would not experience a meaningful credit deterioration leading to write-down; however, in a period of unusually high losses, the equity cushion is quickly eliminated, causing the lenders to realize a loss.

In the case of Fannie Mae and Freddie Mac, U.S. taxpayers provided hundreds of billions of dollars to keep the companies operating after they generated losses well in excess of their capital. Not only did the common equity stockholders watch their investment vanish, but so did preferred shareholders. June 30, 2008, was the end of the second quarter for Fannie Mae and Freddie Mac, and it would be the last quarter the companies would report results as independent companies. The U.S. government took them over in September 2008 because of loan problems and funding difficulties. The second quarter reports provided evidence of their coming troubles: Their combined balance sheets were levered about 100 to 1 on tangible common equity. If their managed assets carried off-balance sheet and backed by their guarantees were added back, the leverage shot up to over 500 to 1. At that level of leverage, there is no room for error; a loss that equaled a return on equity of less than only -1% was still sufficient to wipe out the equity base. The losses were much greater. The age of illusion of greater and greater returns through rising levels of leverage ended.

Like the GSEs, the rest of the Financial Services sector saw the greatest demand for debt come from its off-balance sheet activities. These activities were also regulated. Where regulation was greatest, demand for debt was much more modest. Additionally, the activities of regulators were a major contributor to a growing number of companies



Exhibit 1-15 Debt of Government Sponsored Enterprises and Off-Balance Sheet Debt to Total Debt (Source: Flow of Funds, authors)

considered *Too Big to Fail.* At its peak, the debt used to fund the onand off-balance sheet activities of the GSEs along with the off-balance sheet activities of the Financial Services sectors approached 28% of total debt outstanding and remained above 25% through the middle of 2009.

Exhibit 1-16 shows how the composition of the composition of the Financial Services sector changed. That change mirrored a change in the structure of the industry to one more focused on market activities. The industry participants become less dependent on using their balance sheets to support customer needs. At its peak, asset-backed security (ABS) funding represented over half of the sector's outstanding debt.

The Great Inflation

Starting in the mid-1960s, the U.S. government became a growing factor in the economic equation. The War on Poverty and the Vietnam War would increasingly compete for resources and financial assets. Initially, the result was increasing government deficits, higher levels of taxes, and rising price levels. To keep up with rising prices, many had



Exhibit 1-16 Debt Composition of the Financial Services Sector to Total Debt (Does Not Include GSEs) (Source: Flow of Funds, authors)

their wages indexed to inflation by a cost-of-living adjustment. The pressure of rising deficits led to a decision to end the system that pegged the dollar to gold and permit the dollar to float with other currencies. The result was the debasement of the dollar, rising prices, and artificially inflated levels of debt.

During the decade of the 1970s, inflation caused debt levels to at least double. Nominal annual GNP growth usually exceeded real GNP growth by almost 7% per year during the period (1970 through 1980). Much of the debt borrowed by households, businesses, and governments was done to keep up with rising prices. The burden caused by inflation was not immediately apparent, but the cost of breaking that inflation cycle shown in Exhibit 1-17 resulted in one of the worst recessions to date following World War II. It certainly was an indication of the magnitude of the burden caused by inflation.



Exhibit 1-17 Core Consumer Price Index (Source: U.S. Department of Labor: Bureau of Labor Statistics; 2009 research.stlouisfed.org)

By the time inflation peaked in 1980, we estimate that over one third of the outstanding debt in the United States was the result of inflation in the prior period. We estimate the Great Inflation, the recession and resulting deficits caused by eliminating it, and the more moderate subsequent inflation were responsible for pushing debt to GDP up by 20%, or \$2.75 trillion.

Debt was incurred to deal with the pressure of keeping up with rising prices. It is apparent how difficult that effort was, as shown in Exhibit 1-17. Core inflation would rise above 12.5% by the end of the decade, which meant the prices of goods except energy and food for a consumer were rising at a pace that would cause them to double in just less than six years. Even though many workers received cost-ofliving adjustments (COLA), these were insufficient to meet their current financial needs and provide for the future. Not only would the amount of debt rise, so would the cost of borrowing. It was very high, and constrained financing for investment needs. Exhibit 1-18 shows how much higher debt growth was in the 1970s compared to the median level. That elevated growth rate appears to reflect the cost of funding a rapidly growing level of government spending over much of



Exhibit 1-18 Relative Five-Year Growth Rate of U.S. Debt (Source: Flow of Funds, authors)

the period, the cost of recession caused by ending inflation, and the increased borrowing capacity of the private sector caused by falling interest rates.

Exhibit 1-19 shows just how much of nominal economic growth was tied to inflation. For most of the 1970s, over 70% of nominal GDP growth was inflation. Real GDP growth was often no more than 25% of nominal GDP growth. In 1980, inflation was responsible for almost 80% of nominal GDP growth. Before the Great Leveraging, the Great



Exhibit 1-19 GDP Growth Tied to Inflation (Source: Flow of Funds, authors)

Inflation distorted the economy, creating unnecessary debt, requiring a deep recession as a cure, and causing the federal government's deficit to widen. Of course, it was government policy and Federal Reserve policy that created the environment that led to the Great Inflation.

The stress of inflation was also evident in the balance sheet of nonfinancial Corporate America. Industry did not generate sufficient returns to keep growing its capital base in line with inflation. In fact, the 1970s were a period of poor returns and rising losses for many parts of Corporate America. The combination of rising inflation and poor returns led to rising levels of debt and leverage. As inflation declined, the financial condition of nonfinancial corporate America, as measured by liabilities to net worth, improved. Starting in 1980, the ratio fell from almost 275% to almost 150%. Unlike other parts of the economy, the balance sheet of nonfinancial corporate America became less leveraged (see Exhibit 1-20).



Exhibit 1-20 Nonfinancial Companies; Liabilities to Net Worth (Source: Flow of Funds, authors)

Government Deficits

Since 1952, U.S. government aggregate net deficits are expected to approach \$7 trillion by the end of fiscal year 2009, as shown in Exhibit 1-21. At the end of fiscal year 2008, the aggregate deficit number was closer to \$5 trillion. The deficits contributed to the



Exhibit 1-21 U.S. Federal Government—Annual Surplus/Deficit (Source: http://www.whitehouse.gov/omb/budget/Historicals)

buildup of debt and by our estimation, contributed over \$2.75 trillion of the excess debt pushing debt to GDP up at least another 20%.

The deficits are expected to remain high. The 2009 deficit dwarfs the others and exceeded 50% of government revenues in 2009. Since the end of World War II, the deficit never exceeded 30% of revenues.

Greed

Human greed is clearly a contributor to the excess debt created. We estimate it caused debt to GDP to rise another 10%, or over \$1.4 trillion. In search of higher returns and greater compensation, many financial company management teams chose to use more leverage without considering, or fully understanding, attended risks. Many companies with investment banking activities decided to actively pursue a greater level of proprietary trading activities funded with borrowed funds. These actions and activities were allowed: There were no regulations prohibiting them. There was also no sense of restraint or proportion on the part of many management teams. Too many in leadership roles ignored the examples they were setting.

Energy Policy

Despite experiencing two energy crises in the 1970s, the leaders of U.S. government never created a coherent energy policy. Then and now, the United States is dependent on importing foreign oil to meet its energy needs. The cost of that dependency is growing, increasing the country's trade deficit as well as the size of its external debt. We estimate it was responsible for over \$1.4 trillion of increased debt. Since 1971, the total value of oil imports exceeded \$3 trillion. Starting in 2000, the net oil import bill first exceeded \$100 billion, as shown in Exhibit 1-22. It has remained over that level since 2000 and the aggregate cost of net oil imports is close to \$2 trillion for that period. Any actions to change the energy policy would have yielded some progress in reducing the level of net imports as well as the debt created to finance them.



Exhibit 1-22 Value of Energy Imports (Source: Energy Information Administration—U.S. Department of Energy)

These are the major contributors to the rise in debt levels since the last deleveraging ended in 1953. Not included in the calculations are off-balance sheet debt, other obligations, and risk exposure that dwarf the national debt. They include derivatives and the government's unfunded mandates like pension plans, Social Security, and Medicare. Including these items would push leverage levels much higher.

Sources and Endnotes

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