Long Wave Decline and the Politics of Depression

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Post-Election Comment to

Long Wave Decline and the Politics of Depression

John D. Sterman

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The following paper was written before the recent presidential election. Now that the outcome is known, implications of the results for the long wave theory are worth pondering, as are the implications of the long wave decline for the Clinton administration.

As described in the paper, President Bush has indeed followed in the footsteps of Martin van Buren, rejected by an electorate overwhelmingly concerned about an economy in depression. Two critical facts came together to produce the massive rejection of the Bush policies. First, current economic troubles are not the result of a mere business cycle recession, but reflect the downturn of the long wave, a much slower and more painful process. As described in the paper, the persistence of the unemployment, the deflation of asset values, the decline in real incomes, and the other stresses of the long wave downturn have caused people to be more fearful for the future and for their own economic welfare than at any time since the Great Depression. Second, the Bush administration failed to understand this fact. The administration's failure to understand the longer-term nature of current economic dynamics undermined all confidence that a second Bush administration could lead the way out of these troubles. President Bush cannot not be held personally responsible for the fact that the long wave decline, the culmination of a decades-long process, occurred on his watch. He can and was held responsible for failing to appreciate or respond to the magnitude and causes of the downturn.

What are the implications of the long wave decline for the new administration? Some pundits have hailed Clinton's victory as presaging a new era of Democratic resurgence, and suggest a sea change in American politics from a generation of Republican dominance of the Presidency to a generation of Democratic dominance. These analysts liken President Bush to Herbert Hoover and hear echoes of the New Deal in Clinton's program. The long wave theory suggests such forecasts may be premature. Unlike the Great Depression of the 1930s, the current decline of the long wave is not marked by a single, cataclysmic collapse. Rather, like the period from 1873 to 1897, the current downturn has been one of rolling depression, with severe downturns punctuating periods of business cycle expansion. If this pattern continues through the next four years Clinton and the Democrats will find themselves merely the next victims of the long wave. It is too late to prevent the accumulation of the economic imbalances that have brought the economy to this point. It is not too late to influence the way in which these stresses are resolved. Most important, it is not too late to confront and reject the parochial social pressures created by a prolonged period of economic depression. The test of Clinton's leadership will be the extent to which he fosters shared understanding of the long-term nature of present difficulties. Strengthening the social fabric in a time of divisiveness is the most critical task for our society to respond to the economic challenges of the decade.
The focus of my presentation today is the economic long wave. But why discuss a 60 year process when there are so many more pressing problems facing the world economy today? The answer is that many of these problems are the symptoms of the long wave decline. Understanding their causes, and designing strategies to cope, requires a long-term outlook. Unfortunately, a short-term perspective prevails in policy making and management today, both in government and in the business community. There is a failure of time horizons and a failure of systems thinking. People are not yet seeing the world economy as a living, dynamic entity; a tightly intertwined system of multiple feedbacks and multiple modes of behavior. To understand the persistence of current difficulties we need a richer view of economic dynamics than is common in policy discourse today.

Much of economic theory is focussed on the short-term business cycle. To expand our understanding of the dynamic economy we must recognize the existence not only of the short-term business cycle but several additional 'modes' or patterns of behavior. The different modes are created by different processes in the economy; one should understand the origins of the modes and the ways in which they interact to make sense of what is occurring in today's world.

A simple framework to understand the multiple modes is to decompose economic activity into the four modes shown in exhibit 1.

* Susan Sterman provided invaluable research and editorial assistance. I remain responsible for all views expressed here and any remaining errors.
Long-term exponential growth in the economy (the top series) arises over the long term as population grows and know-how (technology) improves. Next is the long wave, shown here as an idealized curve, large in amplitude but very slow. Third is the business cycle – more rapid and relatively small in amplitude – typically a few percentage points of GDP from peak to trough. The business cycle is the most familiar, best understood, and least important mode. Last is the random noise resulting from the inevitable unpredictable events, the blips and dips, of economic
activity. To a first approximation, the evolution of economic activity is the sum of these four modes. This is, of course, only an approximation – the modes also interact with one another – but the approximation is useful nonetheless. For example, consider the way the long wave shapes the business cycle. Exhibit 2 shows the sum of the idealized business cycle – a constant fluctuation of about four years with a peak-to-trough amplitude of a few percent of GDP – and the idealized long wave, slower but much larger, leaving out long term growth and random variations as well.

Exhibit 2. Hypothetical graph showing the interaction of the business cycle, long wave, and random events. During the long-wave upswing, recessions are short and mild. During the downswing, recessions are long and deep.
During the long wave upswing the business cycle expansions will be long and strong because the economy is rising up on the long wave. Recessions tend to be short and shallow. The rising tide of the long wave lifts all boats. The opposite occurs when the long wave peaks and begins to decline. The business cycle will appear to have changed, with long, deep recessions and weak recoveries.

Can this idealized pattern be documented? The long-term growth trend of the U.S. economy since 1800 is about 3.4%/year. After removing that growth trend from real GNP, what remains is the long wave, the blips and dips and the business cycles. Exhibit 3 shows detrended real GNP since 1945. The expected pattern is clearly visible. Until the mid-1960s, the long wave was rising, lifting the entire economy above the long-term growth trend: a positive slope for the curve means that the economy is growing faster than the long-term trend because of the upswing of the long wave. The business cycle expansions are long and strong; the recessions typically short and mild.

Exhibit 3.
Detrended real GNP in the United States, showing interaction of the business cycle and long wave.
The situation becomes quite different during the downswing of the long wave, particularly starting with the recession of 1974/75. Downturns now become long and deep and recoveries are weak. Against trend, the business cycle peaks are lower each time and the troughs are deeper. This is likely to continue for the near term. Even the most optimistic projections do not foresee real economic growth above the long term trend of 3.4% in 1993; indeed, most forecasts calls for growth in the 1-2 percent range, and there is some risk slipping back into recession.

Thus the long wave shapes the evolution of the business cycle. If we do not recognize the presence of the long wave, the transition from the upswing to the downswing produces confusion, anxiety, pessimism, and a crisis of confidence in our leadership. The long wave is so large and so slow that the pressures it creates cannot be accommodated within a market system that focuses only on the short term. These pressures spill out beyond the confines of the economic system into the political and social arena. For example, during the expansion periods of the long wave, not only the post-war period but also in the twenty years up to 1929, economists and politicians grew overconfident about their ability to manage the economy, to use fiscal and monetary policy to stabilize the business cycle and promote growth. Of course, what was happening was that the long wave upswing caused short, mild recessions and long, strong expansions. When the long wave peaked, however, recessions seemed to grow deeper and longer, and there was a general loss of confidence in the ability of government to manage the economy. Eventually, the strength and persistence of the stresses of the long wave downturn caused some to call for radical change in basic institutions as the only way to stop the decline, and in some nations, democratic institutions were overthrown by dictators and fascists. Thus the long wave created pressure for radical political change. Historically, these stresses have often lead to momentous and unpredictable changes.
in the basic institutions and relationships of society. The greatest sources of risk in
the economy today arise from uncertainty about political upheaval, the integrity of
the social fabric, and basic changes in the institutional arrangements among
business, government, labor, and emerging regional blocs. These sea changes in the
'structure' of the world system are in many cases the result of the stresses generated
by the downswing of the long wave. They are far more important than the strength
and timing of the next business cycle recovery; they will shape the world we live in
for two generations.

How does the long wave arise? It is important to stress that the long wave is not
some mystical, external force. The long wave has nothing to do with astrology, or
the quantum mechanical states of the molecules in our bodies. Nothing
supernatural or mystical is involved. Our research at MIT over the past fifteen years
shows that the long wave is an endogenous (internal) consequence of ordinary,
everyday decision making by folks like you and me. Households, businesses and
governments make decisions from their own perspective, decisions that seem to
make sense, decisions that are locally rational: but decisions that interact in
unanticipated ways. Among the unanticipated consequences of individually
rational decisions is the long wave. Here, in a nutshell, is how it works.

The end of the last downturn period or trough was roughly the end of World War
II. The United States, and the world as a whole, didn't have enough civilian-
oriented goods or services: there were not enough consumer goods to satisfy the
needs of a population that had experienced a decade of depression and nearly
another decade of war. Worse, there were insufficient capital goods and investment
capability to produce the civilian consumer goods that we needed. The economy
had to go into an extensive period of rebuilding.
The process of rebuilding necessarily causes the economy to overshoot the long-run needs of replacement of depreciated assets and long-term growth. The only way to fill up a bathtub is to pour water into it faster than water flows out. The only way to refill the depleted stocks of consumer goods and provide for long-run growth and depreciation is to produce consumer goods faster than is needed in the long run, at least for a time. And the only way to produce goods above the long-term need is to build up the capacity of the goods producing sector above those long-term needs. Therefore production of capital plant and equipment must also overshoot: the economy must be able to produce the plant and equipment required to grow the goods producing capacity, which in turn must rise above the long-term need. Thus the capital-producing sector of the economy—the factories, mines, steel mills, railroads, and manufacturers of the other inputs used to produce plant and equipment—had to rise, at least temporarily, above the balanced growth path. To fill the bathtub with consumer goods necessarily meant building up an entire sector of the economy above the sustainable long-term need. Of course, once the tub fills, the need for capital goods can drop back to normal, but by that time these industries will have overexpanded substantially.

The rebuilding process took quite a while because of the severely depleted capital base and obsolete infrastructure. Before we could even begin production of the automobiles, toasters and other consumer goods we needed, we first had to produce the machine tools, factories, rolling stock and barges required to produce those goods. This took time. More important, the rebuilding process was self-stimulating. When the demand for capital goods increases it generates the need for additional capital. If I am in the steel industry and the demand for steel increases substantially, I have to build a new mill, rail facilities, barge terminals and ore carriers. All of
those require further steel. The economy is tightly connected in a web of input/output relationships which create a very powerful self-reinforcing feedback process that further stimulates expansion\(^1\).

Employment increases dramatically during the expansion period as producers seek to meet the rising demand for plant, equipment, and goods. Labor markets tighten as the unemployment rate falls, and wage rates rise. Consumer incomes climb at above normal rates and thus, consumer demand is stimulated, a further self-reinforcing feedback that stimulates the growth of demand.

During the 1950s and 1960s the expansion process was vigorous. By the mid 1960s, high capacity utilization and low unemployment were leading to inflationary pressure. The high demand for credit to fund the expansion in capacity industry desired, combined with upward price and wage pressure, led to faster expansion of the money supply, fueling more rapid inflation. Given interest rates, an increase in inflation lowers the effective or real interest rate. Nominal interest rates began to rise during this period, but lagged behind the accelerating rate of inflation, so real interest rates fell. During the 1970s, as inflation accelerated further, real interest rates were often significantly negative. Obviously, a situation where the bank pays you to borrow creates a powerful incentive for increased debt-fueled spending and investment in capacity and assets of all types, further stimulating the expansion.

Thus even as firms seek to expand capacity to meet demand, their actions create macroeconomic side-effects that further increase the demand. What begins as a simple rebuilding of capital stocks and consumer goods is strengthened and

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\(^1\) Readers trained in economics will recognize these feedbacks as the investment accelerator and multiplier processes. See Sterman (1985) and (1986) for more detailed discussion.
prolonged by a wide range of self-reinforcing feedbacks to become a decades-long boom.

Capacity eventually catches up with demand, however. In the present long wave cycle this began to happen in the 1970s. The balance point was not reached all at once nor was it uniform across all industries. The same self-reinforcing feedbacks that powered the upswing reverse, and the downswing gathers momentum. Capital producers find they no longer need to build as much new plant and equipment. As they scale back their own investment plans, they further reduce the demand for plant and equipment, leading to further cutbacks in orders and still more excess capacity. Unemployment starts to radiate out from the capital goods industries into the durable goods industries and then moves into services, including the financial and government sectors. This further undercuts consumer incomes and aggregate demand and leads to further excess capacity which reinforces the downward cycle. Unemployment and excess capacity lead to stagnating or falling wages and prices, further accelerating demand reductions. Individual companies faced with excess capacity and a flat or falling market will seek market share advantage leading to price wars and low margins which reduce inflation and raise real interest rates, further deterring investment. The debt accumulated during the growth period to fuel the expansion becomes an increasingly heavy burden, with high interest rates that cannot be sustained. High debt loads and high real interest rates lead to high rates of business failures, defaults and rescheduling, which further undercut demand, and cause even more cutbacks. Once the long wave peaks the same processes that powered the upswing work in reverse to drag the economy into the downswing.
When we first formulated this theory at MIT in the early 1970s there was little empirical evidence to support it, and it was quite controversial. Fifteen years later there is more than ample data documenting the feedback processes just described and their painful consequences for the economy. There is little doubt now about the existence of the long wave. What remains is to understand how the economy might evolve through the remainder of the downturn period (the theory and evidence for the long wave are laid out in a series of papers listed in the bibliography at the end of this paper).

Timing the Long Wave

Where are we now in the long wave? Has the long wave peaked? Have we reached the trough? When will the next long wave expansion begin? Before turning to an assessment of long wave timing, it is important to account for variability. There are many uncertainties that can alter the timing of the long wave. For example, in the U.S. the average business cycle is about 48 months long. However, the variation in the length of any individual business cycle can be a factor of 2. The business cycle has been as short as 19 months and as long as 96 months. Similarly, the timing of the long wave also varies from cycle to cycle. The period of the long wave is between about 45 and 60 years. It is not clockwork, but rather an internally generated dynamic subject to the influence of other forces in the world. The dates I suggest are best guesses given present knowledge. Subsequent events might cause us in to revise the dates, just as the National Bureau of Economic Research revises its estimates of business cycle timing after all the data are in.

The world economy has been in the decline phase of the long wave since the 1970s. The peak of real GNP against trend was in 1973. Though the US economy grew in real terms during the 1970s, compared to the historic long-term trend the economy
was declining. And if you look at how well we are doing by such measures as real
wages, we are worse off today than we were twenty years ago. Real wages have been
flat since 1973. In addition, the increased duration of unemployment and growing
numbers of permanent job reductions in large firms indicate that the deterioration
is not cyclical (a manifestation of the business cycle), but is of a much more
structural nature.

Such persistent unemployment is a typical symptom of long wave decline. The
decline is not the end of the long wave, however. The end of the long wave occurs
when the economy has navigated its way through the trough. The trough period is
characterized by an economy that is no longer imploding at a significant rate but that
isn't improving either. During the trough the economy is going sideways, which is
very much the current situation.

Even in the trough, however, there are blips and dips. After the Great Crash in 1929
and the long collapse of the economy from 1929-1933, the economy bottomed out
with unemployment at a debilitating 25%. The economy then began to recover.
The recovery, though painfully slow, lasted through 1937, when there was another
downturn. Even during the trough, the business cycle can continue, causing the
trough to be somewhat irregular. If the current trough began with the current
recession in 1990-91, how long is it going to last and when will the next long wave
expansion begin?

There is still great uncertainty about the answer. The fundamentals clearly suggest
the next long wave expansion cannot occur within the next couple of years, at the
earliest, and might be delayed until the latter part of the 1990s. The outcome
depends very much on the quality of leadership in the United States and abroad
during the next few years. During the trough, we may very well have a business cycle recovery, but, as has occurred since 1991, the rate of real economic growth will likely be anemic compared to typical post-war recoveries: unemployment will remain high, real incomes will not grow significantly, and social and political pressures for change will intensify.

To time the trough and forecast the turning point for the next upswing, it would be helpful to have a diagnostic system for the long wave comparable to the leading and lagging indicators we have for the business cycle. Because there have been more business cycles over the past century we have a better understanding of the variables that typically lead economic activity, foreshadowing the twists and turns of the short-term cycle. These 'leading indicators' don't always work perfectly, but they are helpful on average. At MIT we have compiled a comparable set of diagnostics for the long wave based on our modeling work and empirical evidence. Exhibit 4 lists some of these leading and lagging indicators for the long wave. Remember in interpreting these indicators that, as with the business cycle, some leading indicators lead more than others and that there is considerable variation in the indicators. Remember too that the economy reflects the interaction of multiple modes of behavior, including random events: the behavior of these indicators includes the long wave and the other modes.
Leading Indicators of the Long Wave:

Production in Capital Goods industries, e.g.
- Steel
- Chemicals
- Mining
- Shipbuilding

Capacity Utilization in Manufacturing
Commodity prices
Farmland Prices
Nominal Interest Rates

Lagging Indicators of the Long Wave:

Debt, Bankruptcy, Bank Failures
Asset Prices
Commercial Real Estate
Real Interest Rates
Output and Employment in
- Consumer goods
- Automobiles
- Retail
- Services
- Financial
- Government

Exhibit 4. Leading and lagging indicators of the long wave.

Production in the capital goods industries is a leading indicator of the long wave for the reasons outlined earlier. The economy has to build up its capital production capability before stocks of consumer goods, automobiles, toaster ovens, and microwaves can be replenished. The capital goods sector includes steel, chemicals, mining, shipbuilding and similar industries. These industries went into severe slumps with the recession of 1974-75 and have in general been in depression ever since. After 15 years of decline, starting in the mid- to late-1980s, some of these
industries have begun to recover, but it is largely because they have shrunk, not because demand has increased.

Capacity utilization, particularly for the capital sector, is a leading indicator because it reflects the balance between the ability to produce and the demand for capital goods. Capacity utilization in the US manufacturing sector peaked in 1965 and has been falling, cycle over cycle, ever since. Today, in the middle of a so-called recovery, the most recent data shows utilization has fallen to about 78%, a recession level for the 1960s, not a recovery level. One hopeful sign is that—up until now, at least—the utilization rate has not fallen as low as it did during the recession from 1979-81. In large measure the reason for the modest decline in utilization is that the capacity of the manufacturing sector fell during the intervening decade, not because demand for manufactured goods in the US has risen strongly.

Commodity prices, agricultural prices and farmland prices tend to be leading indicators. Commodities are inputs to raw materials production and basic processing at the beginning of the distribution chain of the economy. Thus the expansion of the long wave puts strong upward pressure on raw materials prices. The transition to excess capacity as the downturn begins causes input prices to soften appreciably.

Nominal interest rates are also a leading indicator because they reflect the balance of demand and supply for credit. As with the production of capital and goods, the long wave expansion is a time of excess demand for credit. Credit demand rises as firms seek the additional financial capital they need to expand capacity and deal with rising prices. Nominal rates are bid upward throughout this time. As the cycle
peaks nominal rates tend to peak and begin to fall. Nominal interest rates peaked in the US in the recession of 1979-82.

The behavior of these indicators is consistent with the timing I have outlined, and suggest a long wave peak in the 1970s with the trough beginning with the current recession. One should monitor the leading indicators for signs of incipient long-wave upswing, bearing in mind the variability and imperfect reliability of all such indicators.

There are also lagging indicators in the long wave. The lagging indicators are important since they can delay or constrain the rate of expansion in the next upswing. For example, debt is a lagging indicator. Debt is the accumulation of the net borrowing throughout the expansion period when typically – as in the 1980s – there is a worldwide speculative bubble. Accumulation of excessive debt is always followed by bankruptcy, default and the collapse of over-leveraged financial institutions. The dynamics of speculative episodes, and the debt-deflation spiral with which they end, are by now a familiar story, as speculative bubbles have inflated and burst in farmland, oil, real estate, thoroughbred horses, French impressionist paintings, and dozens of other assets around the world. The dynamics of these speculative bubbles have been detailed in earlier papers. The legacy of the speculative excesses is a huge debt burden for households, corporations, and governments. Until this debt balloon deflates the economy will not be capable of transition to the next long wave upswing.

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2 Sterman (1986), Sterman (1990). See also the highly relevant and readable work of Charles Kindleberger and Hyman Minsky.
For the reasons outlined above, asset prices tend to be lagging indicators. We are currently experiencing a deflation in asset prices in most sectors. Examples include real estate, commercial properties and the Japanese stock market. Commercial real estate is a lagging indicator, booming during the late phases of the long wave expansion and collapsing into the trough. Boom and bust in commercial real estate at the end of the long wave is associated with the speculative bubble, the easy money and the very short memories of developers, bankers, and regulators. Short institutional memories are endogenous, of course, because the people who might have learned a lesson in this cycle tend to exit the industry through bankruptcy. A new crop of eager, wet-behind-the-ears MBAs, developers, and speculators will come up in the next cycle with no notion history is relevant, much less how to recognize it, so the cycle will most likely repeat itself.

Real interest rates are a lagging indicator. Real interest rates shot up in the early 1980s and they have remained high ever since. They have fallen somewhat from the early 1980s peaks but only when the measure of inflation is the Consumer Price Index or some other broad price index. Deflation in the specific assets that the debts were acquired to support is still considerable in some sectors – such as commercial real estate. Real interest rates for those particular investments remain very high. Until real interest rates drop back to more normal levels of 2 to 4 % there is little chance the next long wave expansion can begin.

The lagging sectors of the economy also include production of consumer goods (particularly automobiles); retailing; service industries including the health care sector, the legal profession, and the financial sector; and government. The key is to watch employment and output in these sectors. And the outlook for employment in these industries is not good. Excess capacity in the manufacturing sector and in
consumer goods and services caused by the long wave decline creates strong pressures for contraction and downsizing, which means there will be an enormous rise in structural unemployment during the next few years. Despite the downsizing already undertaken in various sectors, there is a great deal more unemployment to come as a variety of self-reinforcing feedbacks create a vicious cycle of downsizing, economic contraction, and still more downsizing.

Exhibit 5 shows two feedback loops relating to downsizing and long-term unemployment. The upper loop describes in a very simple way what an individual company does when faced with excess capacity. To remain competitive, or even to survive, the firm must downsize. Downsizing is part of a balancing feedback loop: it seeks to bring capacity in balance with demand, thus restoring profitability. Companies have little choice during periods of sustained excess capacity but to downsize: those that delay will sustain high losses as their competitors lower their own costs until they are forced into layoffs or fail outright. Either way, the excess capacity and employment built up during the long wave expansion must eventually be reduced. These job losses differ from the temporary layoffs during a business cycle recession. In a business cycle downturn, workers are unemployed only long enough for the excess inventories that accumulate during a recession to be worked off, then return to the same jobs, often to the same spot on the factory floor. During a long wave downturn, the jobs disappear permanently because the excess is an excess of capital stock, plant, buildings, and debt, all of which take much longer to correct.
Exhibit 5. Downsizing creates a vicious cycle that deepens and prolongs the downturn.
Thus downsizing is the natural and inevitable reaction of individual firms faced with excess capacity, losses, and growing competition for share in increasingly soft markets. However, such downsizing produces an unanticipated side-effect for the economy as a whole, as shown in the lower feedback loop in the exhibit. Downsizing reduces employment, thus reducing wages and wage rates, and lowering household income. The growing numbers of long-term unemployed, faced with severe income loss, have no choice but to cut back their purchases of goods and services. Further, because the job losses are permanent, people – even those who still have jobs – become fearful and pessimistic. People fear their income in the future will be less. Hope for the future fades. People stop buying. They delay purchasing that new car and keep the old junker going another year. They make do with their present home rather than buying a new house. They eat at home rather than in restaurants. They try to pay down their debts, foregoing consumption to do so. As a result, demand for consumer goods and services falls. The net result: actions taken by firms to reduce excess capacity feed back through household incomes and expectations to reduce demand, increasing excess capacity and leading to further job losses in a vicious cycle.

Readers trained in economics will recognize the reinforcing feedback loop just described as the 'Keynesian consumption multiplier.' During the expansion of the long wave the multiplier feedback helps power the boom, as rising employment, incomes, and optimism lead to more demand and still further expansion. Now the same feedback process runs in the opposite direction, deepening and prolonging the depression.
We have not yet seen the worst of these dynamics. Despite the massive job losses in manufacturing, defense, high-tech, and other industries, more downsizing is inevitable. In a world of excess capacity there is strong pressure for protectionism and beggar-thy-neighbor policies. The emergence of integrated trading blocks such as the economic union in Europe and the North American Free Trade Zone provide examples. One purpose of such trade blocs is to lower internal trade barriers and remove inefficiencies while strengthening external barriers, thus gaining leverage to try to boost exports to the rest of the world. By unifying and standardizing within a bloc, inefficiencies caused by local variations in regulations and requirements can be eliminated, allowing manufacturers to realize economies of scale. The result, in the short and medium term at least, will be more unemployment. For example, an economically unified Europe will allow products to be standardized and manufacturing to be consolidated. A small number of large plants could produce washing machines for all of Europe with a standard design, and do that with such economies that all the older, smaller plants within each country will be shut down or forced out. The result will be higher washing machine productivity, lower real costs of washing machine production – and a net reduction in manufacturing employment. The redundant washing machine plant workers won't have the income to buy washing machines or other products. Because they won't be able to find new jobs easily, they will be very pessimistic for a very long time. They will need to pay down their debts which will further cut into consumption spending. The bottom feedback loop can easily become more influential than the upper loop.

It is important to understand that the process ultimately corrects itself. Eventually, people will find new jobs. They will learn new skills. They will move to regions where jobs in new industries are emerging. Some will retire or leave the labor force; their children will grow up in an educational system more closely allied to the
needs of the emerging economy. These adjustments are slow, however. They are painful. They disrupt families and communities. The time required for the necessary adjustments is measured in decades. During the transition there will be persistent high unemployment and weak aggregate demand. The self-reinforcing feedbacks described above will prolong and deepen the difficulties of the long-wave downturn, just as they accelerated the boom during the expansion.

The confusion and dismay expressed by politicians and economists over current low levels of consumer confidence despite unemployment, inflation, and interest rates much lower than those achieved in the recession from 1979-1982 reflects the persistence of the unemployment, the permanence of the job losses, and the knowledge that new jobs will almost certainly pay less than the old jobs. It reflects the impact of deflation and excess capacity on prices and interest rates. The ordinary citizen understands that what is happening is no recession. As long as politicians and economists persist in analyzing the economy as if current problems were the result of the business cycle, they will continue to be confused, and their confusion will further erode confidence. Leaders who recognize the severity and sources of the problem are increasingly critical to the resolution of the problem. The Bush Administration, by denying the reality, jawboning about how the 'recession' is over, and blaming continuing difficulties on consumers who are 'irrationally' afraid for the future, intensifies the problem by eroding public confidence and trust. A critical task for a new administration will be to restore confidence and, more importantly, to bring people together, to help people understand that we are all in this together, there is no one to blame, and we will emerge from the depression into a new expansion. Failure in this task will have momentous implications for the US and world economy.
Political Implications of the Long Wave

The Long Wave is so large in amplitude and so slow that the pressures it creates spill out well beyond the boundaries of the market system and into our social and political institutions. Where business cycles play out within an established institutional and social setting, the long wave creates pressure so great that these institutions and social covenants are challenged and changed. The pressures of the long wave downturn change the rules of the economic game. Some of these changes are systematic, some are inherently unpredictable.

For example, political values (the degree of conservatism or liberalism in society) are systematically entrained with the economic long wave. During the past few years we have been able to document clear empirical shifts in political values that arise during the long wave.

One might legitimately ask how long-term shifts in political and social values can be quantified or measured. Political theorists have developed methods of 'content analysis' where key tracts, speeches, party platforms, and so on are examined. Value-laden words and phrases are tabulated and coded according to various criteria. Shifts in the ratio of, for example, conservative-oriented phraseology versus progressive phraseology provide a measure of the changes in social orientation through the years. Several such studies have examined long-term shifts in values by examining the content of key political documents, such as the Democratic and Republican Party platforms since 1850, and the English Monarch's annual 'speech from the throne' (roughly equivalent to the US president's State of the Union message). These studies, one focused on England, one on the United
Political values fluctuate significantly over the course of the economic long wave (see exhibit 6).

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Exhibit 6. Political values shift with the phases of the economic long wave.

To see how the political cycle works, consider the expansion phase of the long wave. During the expansion, the economy is growing rapidly, unemployment is low, and material needs are being fulfilled at a rapid rate, indeed faster than people had expected. With the security and optimism an expanding economy provide, people turn their attention to higher needs. Social justice, distributive equity, and enfranchisement of minority groups become key issues on the political agenda. An example would be the Civil Rights movement in the 1950s. Society becomes more liberal and progressive.

As the long wave upswing continues and the world's economies continue to expand, there is a shift from domestic concerns to foreign affairs. The increasing outward, international focus has been denoted the 'cosmopolitan phase' of the

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3 See Weber (1981) and Namenwirth (1973); see also Goldstein (1988).
political cycle. It is a time of growing international trade in goods and ideas, deepening foreign policy activism, and even imperialist adventure. Why? During the late expansion of the long wave, as the expanding economies of the industrialized world find their capacity has begun to outstrip demand, they must seek new markets for exports and greater market share in international trade. They begin to attack the markets of their economic rivals. An example is provided by the first three decades of the twentieth century, an expansion period of the long wave, during which contention for economic and political dominance of Europe culminated in World War I.

As the long wave peaks and begins to decline, economic difficulties intensify. People start to worry about where the next paycheck is coming from. Their outlook becomes pessimistic; their politics, conservative. The political agenda turns away from foreign affairs to domestic issues, away from the progressive issues of social welfare and justice to economic growth and employment security. Conservatism, with its calls for smaller government, lower taxes, and support for the 'free market', grows in popularity as people seek to preserve their incomes in the face of rising unemployment and stagnant real wages. Social welfare programs are increasingly viewed as costly subsidies to the lazy or corrupt that society can no longer afford. California's Proposition 13 and Massachusetts' Proposition 2 1/2, both of which limited taxes and forced government to cut expenditures, were early signs of the conservative phase, which peaked dramatically in the current long wave cycle with the rise of Reagan and Thatcher.

Conditions continue to deteriorate as the economy moves into the trough of the long wave. Real incomes continue to fall, despite conservative economic policies. Unemployment is high and persistent. The deflation of the debt bubble leads to
bankruptcies, bank failures, and foreclosures. Politically, society enters the parochial phase. People are now out for themselves. Increasingly people believe the only way to better their stations or that of their social, ethnic, or religious groups is at the expense of others. The rise of fascism in the 1920s and 1930s in Europe provides the most dramatic and horrifying example of the parochial phase.

Through content analysis it has been possible to date these phases of the political cycle (exhibit 7). It is important to note that the timing of the political cycle was identified independently of the timing of the economic long wave. The correspondence of the two is strong evidence for the connection between political value shifts and the phases of the economic long wave just outlined. The dates roughly represent the peak years of each phase of the political cycle.
Exhibit 7. The long wave in political values. Years indicate approximate peaks of each phase. See Namenwirth (1973) and Weber (1981).

For example, the progressive phase peaked in the early 1800s, during the expansion of the long wave. This period was the beginning of what was known as the 'era of good feelings' in the U.S., a period of rapid economic growth and expanding opportunity. The next progressive peak occurred around 1855, during the expansion of the following long wave. In the 1850s, rapid growth, most prominently in the railroad and textile industries, was paralleled by vigorous movements to reform education, advance women's rights and end slavery. Economic expansion and
progressive social movements were countered by piecemeal compromises in politics that postponed and intensified the sectional conflict. The next long wave expansion occurred in the early part of the twentieth century. The year 1907 was the peak of the Progressive Era of American political history, and was characterized by the coincidence of political and regulatory reform at the early expansion of the long wave that ended with the Great Depression. In the current long wave cycle, the progressive period peaked in the late 1950s and early 60s, the height of the civil rights movement, the dawn of President Johnson's Great Society, and the eve of the 'hippy' era. Extrapolating, the next progressive era should peak during the decade 2010 - 2020; during this decade we can expect our children or grandchildren to be rebelling against the legacy of conservatism they will have inherited from us.

The cosmopolitan phase occurs during the late expansion of the long wave. It is a time of international activism and conflict. The cosmopolitan era peaked around 1816, the decade of the Napoleonic Wars, that is, a period of intense conflict for domination of Europe and the world economy. In the following long wave cycle, the late 1860s saw the peak of the cosmopolitan phase as the United States claimed its destiny to expand across the continent. This decade saw the Civil War in the US, in which the industrial north solidified its economic and political dominance of the nation. In Europe, the late 1860s marked the eve of the Franco-Prussian War, again a battle for economic and political supremacy on the Continent. The next cosmopolitan phase peaked around 1920, just after World War I, another round in the battle among the industrial powers for European domination. The cosmopolitan phase in the current cycle peaked around 1972, the height of the Vietnam War.

Sterman (1986) and (1990) discuss the 'regulatory backlash' that occurs during the progressive periods of the long wave in more detail.
Turning to the conservative phase: the conservative phase peaked in 1829 on the eve of the Great Depression of the 1830s and 1840s; as described below, during this time Jacksonian democracy gave way to growing conservatism and political upheaval as the Whig party collapsed. The conservative phase of the next long wave cycle peaked in the 1880s, in the midst of a twenty five year period of economic stagnation that included the great depressions of 1873, 1882, and 1894. The conservative phase of the next cycle peaked in 1933, the depths of the Great Depression and a year that witnessed 25% unemployment in the United States. It is worth noting that the original studies from which I have taken these dates were published in 1973 and 1981. Extrapolating their work to the current cycle yields 1985 for the predicted peak of the conservative phase. And as predicted, the mid 1980s witnessed the height of popularity for Reagan and Thatcher, a backlash against civil rights legislation seen increasingly as 'reverse discrimination' and 'quotas', and a series of anti-civil rights decisions from an increasingly conservative Supreme Court.

The final phase of the political cycle is the parochial period. The parochial phase is a period of division, ugliness and the politics of hate. Unfortunately, the historical record is replete with examples. The parochial era peaked in the great depression of 1894-1897, the end of what David Wells, a prominent economist of the day and a founder of the American Economic Association, called "a long period of depression, dating from 1873, ...though temporary and local causes have here and there tended to obscure the fact of continuity" (Rezneck 1968, pp. 177-178). Unemployment in 1895 was 15%, the second highest rate recorded in US history. It was also a period of great divisiveness. American society was increasingly polarized between the emerging socialists, radicals and anarchists on the one hand, and powerful
reactionary forces in the form of Populists, Social Darwinists, and Pinkertons or the use of federal troops to break strikes. The late 1800s also saw the imposition of anti-immigrant legislation and other reactionary social policies. The parochial phase of the following long wave cycle peaked around the end of World War II, as the Iron Curtain fell and the tyranny of the Nazis and fascists was replaced for millions by the tyranny of totalitarian communism. In the United States the late forties and early fifties saw the rise of McCarthy, the House Un-American Activities Committee, blacklisting, and other reactionary forces. Extrapolating the cycle yields the late 1990s as the likely peak of the parochial phase for the current cycle, coinciding with the expected timing for the trough of the economic cycle.

Are we now entering the parochial phase? When I first began writing on the political implications of the long wave in the early 1980s people would tell me that I was exaggerating; that fascism and the rise of the Nazis was a unique, never-to-be-repeated period of regression in the smooth upward sweep of civilization.

Discussing the political effects of the long wave in 1990, I wrote:

In our own time and nation we need look no farther than Bensonhurst, Howard Beach, and the murder of Vincent Chin (the Chinese American mistaken for a Japanese who was beaten to death by unemployed auto workers in Detroit) for clear examples of similar forces. The rise of the ultra-right in France and the National Front in England, the treatment of guest workers and immigrants throughout Europe, and the forced repatriation of Vietnamese boat people from Hong Kong show that the U.S. is not alone in experiencing these reactionary forces. Many of these incidents occurred during the current business cycle expansion. The social fabric will be severely tested in the next recession. In places it is likely to tear. (Sterman [1990], pp.43-44).

Unfortunately, this prediction has come disturbingly true. From the Los Angeles riots to the looting after hurricane Andrew, the deportation of Haitian and other refugees to genocide explained as 'ethnic cleansing' in Bosnia, the list of hate crimes committed by desperate people grows longer almost daily. More disturbing, the tolerance of these actions by others, and the cowardly response of governments
around the globe, closely parallels the fear and silence of the majority in the 1920s as the brown-shirts marched and the Reichstag burned. We must no longer ignore the sound of heavy boots as skinheads march in Rostock – and in cities and towns across the United States.

Political and economic stresses such as these have in the past precipitated decisive restructuring of the American political system. Between 1836 and 1860, spanning the long wave downturn of the 1830s and 40s, no President was re-elected. There were nine presidents in 24 years. Andrew Jackson, a Democrat, had two very successful and popular terms, ending in 1836. Coming during the conservative phase of the long wave political cycle, Jackson favored a smaller federal government and deregulation of industry. He dismantled the second Bank of the United States and advocated states' rights over the Federal system. Though anachronistic, one could say Jackson was the first 'Reagan Democrat.'

Jackson was followed in office by his vice president, Martin van Buren, who had the misfortune of presiding over an economy in depression. Van Buren was defeated in his reelection bid by William Henry Harrison, who waged a very bitter, negative campaign. Harrison died in office after 31 days (he gave the longest inaugural speech in history without his topcoat on a blustery day in March, contracted pneumonia, and never recovered). He was followed by his vice president, John Tyler, who, at the end of Harrison's term, was not even nominated by his own party (the Whigs) who split over the role of the Federal Bank. So it went throughout the period of economic turmoil and political disillusionment with Polk, Taylor, Fillmore, Pierce and Buchanan: all were defeated either in their bids for re-nomination by their own parties or for reelection.
The parochial phase culminated in the collapse of the Whigs and the second party system. The Whigs splintered and were replaced by the Know-nothings and Republicans in the West; the Democrats were divided when the Free-Soil Party split from them in 1848, under whose banner Van Buren tried to regain the presidency. The Know-nothings had begun, in effect, as a secret society. Their name derived from the password used to get into their meetings: "I know nothing". The Know-nothings were anti-Catholic, anti-immigrant, antisemitic, and anti-alien. They pursued the politics of hate, speeding the collapse of the two-party system as the urban, industrial economy and the agrarian, slave economy collided. By 1856 the political vacuum had led to the emergence of a new political party — the Republicans — who won the presidency with the election of Lincoln in 1860.

The next Long Wave downturn occurred between the 1870s and 1890s. The two party system had restabilized with the Democrats and Republicans, although these parties became increasingly indistinguishable in their positions because both wanted to avoid the difficult issues of the day: the rise of monopoly power and capital; increasing agitation and violence between labor and management; and the decline of agrarian society. In the five presidential elections after 1876 the average margin of victory was only 1.5% of the popular vote. In three of those elections, the margin of victory was less than one-half of one per cent. In 1876 and 1888 the popular vote winner lost in the electoral college. When James Garfield was assassinated, Chester Arthur took over. Arthur, rejected by his party for renomination, was succeeded by a Democrat, Grover Cleveland. Cleveland was turned out by Benjamin Harrison, the grandson of William Henry Harrison and a Republican. The following term Cleveland got back in, the only President to serve non-consecutive terms. Why the reversals? During the 1870s, 80s, and 90s, the economy experienced a series of financial panics and deep depressions (1873, 1882, 1894), with business cycle
recoveries in between. Each new downturn destroyed the ability of the administration in power to carry on and frustrated both parties in securing continuous terms. Neither party had demonstrated an interest in the relationship among the government, the economy and the lives of farmers and factory workers.

Negative campaigning was honed to a fine point during this era. During a campaign between Cleveland and James Blaine, who was the governor of Maine, a slogan from the Cleveland side shouted, "Blaine, Blaine, James G. Blaine, continental liar from the State of Maine". The Blaine forces, alluding to rumors that Cleveland had fathered an illegitimate child, retorted with "Ma, Ma, where's my Pa? Going to the White House, ha, ha, ha!".

Just as the depression of the 1830s caused the collapse of the prevailing two party system, so too the downturn in the late 1800s caused fundamental political realignments. First the Populist party emerged. As is often the case, the mass-culture image of the populist as a stoic farmer on the prairie, looking much like Gary Cooper, fighting heroically for fair grain prices against the monopoly power of the railroads is only partly true. The Populists were quite parochial and insular. They tended to be anti-intellectual, anti-urban, anti-Catholic, anti-immigrant, antisemitic, antitrust and anti-secular. They were militant in their calls for regulation of capital and government. Many Populists tended toward millenarian utopianism. Though unsuccessful with their candidates for President, the most famous being William Jennings Bryan (author of the famous "Cross of Gold" speech and foe of Darwin's theory of evolution in education during the Scopes trial in the 1920s), the populists succeeded in passing notable reform-oriented legislation, including the Sherman antitrust act of 1890.
However, the Populist Party, too extreme in its platform to carry the presidency, disintegrated and was replaced as an adversarial party by the Progressives, ultimately headed by Theodore Roosevelt, a former Republican president. Centrist liberals and conservatives fled the extremists in their parties, and again the two-party system was split as the middle factions re-aligned and shed their radical and reactionary wings. As the economy expanded after the depression of the 1890s, the US faced an entirely different political landscape.

Many of the stresses experienced in prior parochial eras are now apparent as the United States moves into the trough of the long wave. Growing extremism on the right threatens to split the Republican party. Bush, rather than being the Herbert Hoover of the 1990s, is more like Martin van Buren, weakened by an economic depression after the successful two-term Jackson. Perot, a populist, anti-politician third-party candidate has emerged and is placed on the ballot in all fifty states. Anti-incumbency sentiment is rising. Ill-conceived demands for balanced budget amendments, school prayer and anti-flag burning amendments, term limitations, and so on threaten the integrity of the constitution. Protectionist and xenophobic pressures grow. History suggests the stresses of the long wave downturn may lead to qualitative changes in the political parties and alignments of interests over the next decade, not only in the United States but globally as well. The precise nature of the realignments and institutional changes are impossible to predict. Over the next decade the principal sources of uncertainty and risk facing the economy and investors relate to the political and social changes generated by the long wave downturn and not to the economic issues on which most analysis is focussed.
Stresses in the Long Wave Downturn

While the political realignment of society may be intrinsically unpredictable, there are identifiable economic stresses as the economy moves into the trough phase of the long wave. Some of the more important stresses that arise during the downturn and trough of the long wave are excess capacity, excess debt, deflation in asset prices, and high real interest rates as a result of the deflation in those asset prices. Though these problems remain serious, progress has been made in each of these four areas. Excess capacity, in particular, is gradually declining in some industries, particularly the heavy capital industries that, as described above, entered the depression phase earlier than the consumer goods and services sectors. In most cases the decline in excess capacity is the result of capacity reduction rather than demand growth. And the adjustment process takes considerable time because of the side-effects of the feedback loops described above that reduce the demand for goods and services each time a company sheds a worker or closes a plant.

Asset prices, bid up to unsustainable levels during the speculative frenzy of the 1980s, are now declining worldwide. The world economy is now working its way through the process of deflating the debt bubble. Debt relative to GDP, or personal disposable income, peaked about 1990, as consumers and businesses suddenly found their debts consuming a greater and greater fraction of their income. The upswing of the next long wave cannot begin while the balance sheets of households and corporations are bloated with debts acquired to fuel the now-deflating speculative bubble. However, liquidating these debts is contractionary, as households spend less than their income, businesses retire debt rather than spending for new plant and equipment, and taxpayers cough up to cover the liabilities of the Savings and Loan industry and banking system. As asset prices have fallen, real interest rates have skyrocketed. Though still quite high, real interest rates have been dropping...
gradually since the early 1980s as excess capacity and unemployment have forced inflation down. There are some reasons for optimism.

Structural unemployment, on the other hand, remains a serious problem. As discussed above, the contraction of the economy in the downturn as firms seek to reduce excess capacity generates persistent unemployment. The vicious cycle described above, whereby downsizing caused by firms seeking to gain competitive advantage erodes employment, incomes and confidence, leading to more downsizing and still more unemployment, is intensified as households and businesses reduce their debts. The responses to the persistence of such structural unemployment are inherently slow: migration, retraining, retirement all take time and are disruptive to family and community.

What, then, can we expect during the remainder of the long wave trough? On average, real economic growth will continue below the long term historic trend. Growth will likely be erratic due to the business cycle. In fact, inventory levels and other short-term cyclical indicators generally suggest the economy should be in the recovery phase of the business cycle. The recovery has been very weak, however, because it is dominated by the downturn and trough of the long wave.

The same is true for unemployment. Unemployment will remain a serious problem, and likely will worsen. Real interest rates will remain high, debts will continue to be retired, defaulted or forgiven. There will be experimentation with new technologies, new management practices, and new political parties.

Growth will resume when the next expansion begins. Unemployment will fall, but only gradually. Real interest rates will drop. Debt will rebuild slowly but around an
entirely new set of financial institutions with new managers and newly stiffened standards for credit extension. We will see the diffusion of innovations in unpredictable combinations, dramatic regulatory reform and political realignment. Our attention will gradually turn from economic affairs to more pressing problems of the environment, population growth, and the creation of a sustainable and just society.

Possible Policy Errors
The scenario above is inherently uncertain. Pessimism, fear and the narrowness of perspective that people tend to develop during such a protracted period of disappointment are still on the upswing, as is befuddlement on the part of leaders. We might be lucky enough to muddle through, but there are always wild cards that cannot be predicted. More important, there are a number of possible policy errors that we should be guarding against.

The first relates to fighting inflation. There is an inappropriate focus by some central banks on fighting inflation rather than providing liquidity to fight deflation and unemployment. The Federal Reserve has finally seen the light since the start of the recession, and pushed down (short-term) interest rates by hundreds of basis points. The most serious threat to the world economy comes now from the misguided tight money policies of the Bundesbank. Though at the time of this writing the Bundesbank has made some modest cuts in its discount and Lombard rate, these are too little, and perhaps too late. Real interest rates remain high as asset prices fall. Nominal rates need to fall sharply and quickly. Attempts by nations such as (but not limited to) Germany to prevent current account and budget deficits and fight inflation by maintaining high rates run the risk of deepening the crisis
through higher real interest rates, weak investment abroad, protectionist retaliation, and the type of instability observed in the collapse of the ERM.

Inflation is simply not the dominant problem during the long wave trough. Inflation will become a serious threat as the next long-wave expansion gets underway, but that time is not yet here. What we need to do for now is to make sure there is adequate liquidity in the world's financial system so that real interest rates can drop to tolerable levels.

A second possible policy error has to do with the US fiscal deficit. A tragic error was made in 1982 when President Reagan cut taxes without comparable spending cuts. The resulting stimulus, coming during the peak of the long wave, allowed the economy to grow even further, to generate even more excess capacity, and build up even more unsustainable debt in even more overpriced assets. The consequence: a more severe long wave downturn. Having made that blunder, it would now be a disaster to compound it with aggressive deficit reduction during a time of depression. Eliminating the deficit now, either by taxes or spending cuts, would be extremely contractionary. Further taxation will further reduce consumer incomes and force aggregate demand down, leading to still more excess capacity and further intensifying unemployment and pessimism among households and consumers. Spending cuts likewise directly reduce employment and lower household income, leading to comparable effects. We should not minimize the seriousness of the explosion in Federal debt. The issue is the timing. Attempts to cut the deficit now will be self-defeating as the resulting unemployment and contraction in the tax base will further erode revenues and boost spending on social programs such as unemployment compensation so that the deficit will not in fact fall.
While the deficit cannot now be cut, I do believe much Federal spending could be shifted away from relatively unproductive Federal expenditures in both military and social programs into more productive, investment-oriented areas. There is a lot of room for reallocation of funds to rebuild the social fabric of our society and improve the quality of our lives. The federal government should adopt a capital budget, in which investments in infrastructure, including human capital (e.g. education, preventive medicine) are separated from operating funds. Such programs should be counted as investments in the future of the nation, not expenditures contributing to an operating deficit.

A third policy error is protectionism. The long wave is synchronized globally. The linkages among nations through trade and capital flows are strong enough to synchronize the long wave across national boundaries, although there are some variations in the timing of the short-term business cycle. The US downturn started in 1990, Germany's is underway, Britain and Canada started to slide a year before the US. Currently, the entire industrialized world is in decline. Obviously, all nations cannot simultaneously buoy up their domestic economies by boosting exports at the expense of their trading partners. The experience of the Depression shows clearly that beggar-thy-neighbor trade policies lead to trade wars that shrink aggregate demand for all nations and intensify the downturn. Despite the free trade rhetoric, the past decade was the most protectionist since the Great Depression – even though the world economy was growing. As the long-wave trough continues, protectionist pressures will surely intensify.

The most important possible policy errors have to do with the political shifts discussed above. During a time of growing parochialism, the forces of demagoguery and division that threaten our society must be opposed. Over the past twenty years,
since the long wave peaked and began to decline, real incomes have fallen. Income inequality has increased. Social tensions among racial and ethnic groups have risen. Further erosion of the social safety net would be extremely divisive. Social policies that increase inequities would have very damaging effects. The depression is a time to pull together, to build bonds of community, to reach out to others. It is the right thing to do. If we fail, if we shrink from our neighbors, if we allow government to abandon the powerless, the social fabric might tear beyond repair.

If we avoid these policy errors then there is considerable reason for optimism for the long term. The long wave, after all, is a cycle. Eventually, as excess capacity falls, debt is liquidated, prices fall, and interest rates decline, the stage will be set for the next upswing. However, that time is not yet upon us. First the stresses and imbalances described above must be resolved. And this takes time. While it is too late to avoid the overbuilding and excesses that lead to the retrenchment, there is still considerable leverage available to cushion the impact of the downturn. Denial and avoidance, weak leadership and the politics of blame, will only deepen and prolong the crisis. Facing up to the dynamic character of our economy, recognizing that no one is to blame, that the long wave arises from fundamental structures in the economy and from policies everyone supported during the expansion, is a first step towards rebuilding confidence and building the consensus we need to move forward. It is a challenge to our leaders and ourselves from which we must not shrink.
References


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