

Mr. Greenspan considers whether there has been a profound and fundamental alteration in the way the economy works in the United States Remarks by the Chairman of the Board of Governors of the US Federal Reserve System, Mr. Alan Greenspan, at the Haas Annual Business Faculty Research Dialogue, University of California, Berkeley, California on 4/9/98.

Question: Is There a New Economy?

The question posed for this lecture of whether there is a new economy reaches beyond the obvious: Our economy, of course, is changing everyday, and in that sense it is always “new”. The deeper question is whether there has been a profound and fundamental alteration in the way our economy works that creates discontinuity from the past and promises a significantly higher path of growth than we have experienced in recent decades.

The question has arisen because the economic performance of the United States in the past five years has in certain respects been unprecedented. Contrary to conventional wisdom and the detailed historic economic modelling on which it is based, it is most unusual for inflation to be falling this far into a business expansion.

Many of the imbalances observed during the few times in the past that a business expansion has lasted more than seven years are largely absent today. To be sure, labor markets are unusually tight, and we should remain concerned that pressures in these markets could spill over to costs and prices. But, to date, they have not.

Moreover, it is just not credible that the United States can remain an oasis of prosperity unaffected by a world that is experiencing greatly increased stress. Developments overseas have contributed to holding down prices and aggregate demand in the United States in the face of strong domestic spending. As dislocations abroad mount, feeding back on our financial markets, restraint is likely to intensify. In the spring and early summer, the Federal Open Market Committee was concerned that a rise in inflation was the primary threat to the continued expansion of the economy. By the time of the Committee’s August meeting, the risks had become balanced, and the Committee will need to consider carefully the potential ramifications of ongoing developments since that meeting.

Some of those who advocate a “new economy” attribute it generally to technological innovations and breakthroughs in globalization that raise productivity and proffer new capacity on demand and that have, accordingly, removed pricing power from the world’s producers on a more lasting basis.

There is, clearly, an element of truth in this proposition. In the United States, for example, a technologically driven decline is evident in the average lead times on the purchase of new capital equipment that has kept capacity utilization at moderate levels and virtually eliminated most of the goods shortages and bottlenecks that were prevalent in earlier periods of sustained strong economic growth.

But, although there doubtless have been profound changes in the way we organize our capital facilities, engage in just-in-time inventory regimes, and intertwine our newly sophisticated risk-sensitive financial system into this process, there is one important caveat to the notion that we live in a new economy, and that is human psychology.

The same enthusiasms and fears that gripped our forebears, are, in every way, visible in the generations now actively participating in the American economy. Human actions are always rooted in a forecast of the consequences of those actions. When the future becomes sufficiently clouded, people eschew actions and disengage from previous commitments. To be sure, the degree of risk aversion differs from person to person, but judging the way prices behave in today's markets compared with those of a century or more ago, one is hard pressed to find significant differences. The way we evaluate assets, and the way changes in those values affect our economy, do not appear to be coming out of a set of rules that is different from the one that governed the actions of our forebears.

Hence, as the first cut at the question "Is there a new economy?" the answer in a more profound sense is no. As in the past, our advanced economy is primarily driven by how human psychology moulds the value system that drives a competitive market economy. And that process is inextricably linked to human nature, which appears essentially immutable and, thus, anchors the future to the past.

But having said that, important technological changes have been emerging in recent years that are altering, in ways with few precedents, the manner in which we organize production, trade across countries, and deliver value to consumers.

To explore the significance of those changes and their relevance to the possibility of a "new economy", we need to first detail some key features of our system.

The American economy, like all advanced capitalist economies, is continually in the process of what Joseph Schumpeter, a number of decades ago, called "creative destruction". Capital equipment, production processes, financial and labor market infrastructure, and the whole panoply of private institutions that make up a market economy are always in a state of flux -- in almost all cases evolving into more efficient regimes.

The capital stock -- the plant and equipment that facilitates our production of goods and services -- can be viewed, with only a little exaggeration, as continuously being torn down and rebuilt.

Our capital stock and the level of skills of our workforce are effectively being upgraded as competition presses business managements to find increasingly innovative and efficient ways to meet the ever-rising demands of consumers for quantity, quality, and variety. Supply and demand have been interacting over the generations in a competitive environment to propel standards of living higher. Indeed, this is the process that, in fits and starts, has characterized our and other market economies since the beginning of the Industrial Revolution. Earlier, standards of living barely changed from one generation to the next.

This is the tautological sense in which every evolving market economy, our own included, is always, in some sense, "new", as we struggle to increase standards of living.

In the early part of the 19th century, the United States, as a developing country, borrowed much technology and savings from Europe to get a toehold on the growth ladder. But over the past century, America has moved to the cutting edge of technology.

There is no question that events are continually altering the shape and nature of our economic processes, especially the extent to which technological breakthroughs have

advanced and perhaps, most recently, even accelerated the pace of conceptualization of our gross domestic product. We have dramatically reduced the size of our radios, for example, by substituting transistors for vacuum tubes. Thin fiber-optic cable has replaced huge tonnages of copper wire. New architectural, engineering, and materials technologies have enabled the construction of buildings enclosing the same space but with far less physical material than was required, say, 50 or 100 years ago. Most recently, mobile phones have been markedly downsized as they have been improved. As a consequence, the physical weight of our GDP is growing only very gradually. The exploitation of new concepts accounts for virtually all of the inflation-adjusted growth in output.

The cause of this dramatic shift toward product downsizing during the past half century can only be surmised. Perhaps the physical limitations of accumulating goods and moving them in an ever more crowded geographical environment resulted in cost pressures to economize on size and space. Similarly, perhaps it was the prospect of increasing costs of processing ever larger quantities of physical resources that shifted producers toward downsized alternatives. Remember, it was less than three decades ago that the Club of Rome issued its dire warnings about the prospects of running out of the physical resources that allegedly were necessary to support our standards of living. Finally, as we moved the technological frontier forward and pressed for information processing to speed up, for example, the laws of physics required the relevant microchips to become ever more compact.

But what was always true in the past, and will remain so in the future, is that the output of a free market economy and the notion of wealth creation will reflect the value preferences of people. Indeed, the very concept of wealth has no meaning other than as a reflection of human value preferences. There is no intrinsic value in wheat, a machine, or a software program. It is only as these products satisfy human needs currently, or are perceived to be able to do so in the future, that they are valued. And it is such value preferences, as they express themselves in the market's key signals -- product and asset prices -- that inform producers of what is considered valuable and, together with the state of technology, what could be profitably produced.

To get back to basics, the value of any physical production facility depends on the perceived value of the goods and services that the facility is projected to produce. More formally, the current value of the facility can be viewed as the sum of the discounted value of all future outputs, net of costs.

An identical physical facility with the same capacity to produce can have different values in the marketplace at different times, depending on the degree to which the investing public feels confident about the ability of the firm to perceive and respond to the future environments in which the plant will be turning out goods and services. The value of a steel mill, which has an unchanging ability to turn out sheet steel, for example, can vary widely in the marketplace depending on the level of interest rates, the overall rate of inflation, and a number of other factors that have nothing to do with the engineering aspects of the production of steel. What matters is how investors view the markets into which the steel from the mill is expected to be sold over the years ahead. When that degree of confidence in judging the future is high, discounted future values also are high -- and so are the prices of equities, which, of course, are the claims on our productive assets.

The forces that shape the degree of confidence are largely endogenous to an economic process that is generally self-correcting as consumers and investors interact with a continually changing market reality. I do not claim that all market behavior is a rational response

to changes in the real world. But most of it must be. For, were it otherwise, the relatively stable economic environments that have been evident among the major industrial countries over the generations would not be possible.

Certainly, the degree of confidence that future outcomes are perceivable and projectable, and hence valued, depends in large part on the underlying political stability of any country with a market-oriented economy. Unless market participants are assured that their future commitments and contracts are protected by a rule of law, such commitments will not be made; productive efforts will be focused to address only the immediate short-term imperatives of survival; and efforts to build an infrastructure to provide for future needs will be stunted.

A society that protects claims to long-lived productive assets thereby surely encourages their development. That spurs levels of production to go beyond the needs of the moment, the needs of immediate consumption, because claims on future production values will be discounted far less than in an environment of political instability and, for example, a weak law of contracts. At that point, the makings of a sophisticated economy based on longer-term commitments are in place. It will be an economy that saves and invests -- that is, commits to the future -- and, hence, one that will grow.

But every competitive market economy, even one solidly based on a rule of law, is always in a state of flux, and its perceived productiveness is always subject to degrees of uncertainty that are inevitably associated with endeavors to anticipate future outcomes.

Thus, while the general state of confidence and consumers' and investors' willingness to commit to long-term investment is buttressed by the perceptions of the stability of the society and economy, history demonstrates that that degree of confidence is subject to wide variations. Most of those variations are the result of the sheer difficulty in making judgments and, therefore, commitments about, and to, the future. On occasion, this very difficulty leads to less-disciplined evaluations, which foster price volatility and, in some cases, what we term market bubbles -- that is, asset values inflated more on the expectation that others will pay higher prices than on a knowledgeable judgment of true value.

The behavior of market economies across the globe in recent years, especially in Asia and the United States, has underscored how large a role expectations have come to play in real economic development. Economists use the term "time preference" to identify the broader tradeoff that individuals are willing to make, even without concern for risk, between current consumption and claims to future consumption. Measurable discount factors are intended to capture in addition the various types of uncertainties that inevitably cloud the future.

Dramatic changes in the latter underscore how human evaluation, interacting with the more palpable changes in real output, can have profound effects on an economy, as the experiences in Asia have so amply demonstrated during the past year.

Vicious cycles have arisen across South-East Asia with virtually no notice. At one point, an economy would appear to be struggling, but no more than had been the case many times in the past. The next moment, market prices and the economy appeared in free fall.

Our experiences with these vicious cycles in Asia emphasize the key role in a market economy of a critical human attribute: confidence or trust in the functioning of a market system. Implicitly, we engage in a division of labor because we trust that others will produce and be willing to trade the goods and services we do not produce ourselves.

We take for granted that contracts will be fulfilled in the normal course of business, relying on the rule of law, especially the law of contracts. But if trust evaporated and every contract had to be adjudicated, the division of labor would collapse. A key characteristic, perhaps the fundamental cause of a vicious cycle, is the loss of trust.

We did not foresee such a breakdown in Asia. I suspect that the very nature of the process may make it virtually impossible to anticipate. It is like water pressing against a dam. Everything appears normal until a crack brings a deluge.

The immediate cause of the breakdown was an evident pulling back from future commitments, arguably, the result of the emergence among international lenders of widening doubt that the dramatic growth evident among the Asian “tigers” could be sustained. The emergence of excess worldwide capacity in semiconductors, a valued export for the tigers, may have been among the precipitating events. In any case, the initial rise in market uncertainty led to a sharp rise in discounts on future claims to income and, accordingly, falling prices of real estate and equities. The process became self-feeding as disengagement from future commitments led to still greater disruption and uncertainty, rising risk premiums and discount factors, and a sharp fall in production.

While the reverse phenomenon, a virtuous cycle, is not fully symmetrical, some part is. Indeed, much of the current American economic expansion is best understood in the context of favorable expectations, interacting with production and finance to expand rather than implode economic processes.

The American economic stability of the past five years has helped engender increasing confidence of future stability. This, in turn, has dramatically upgraded the stock market’s valuation of our economy’s existing productive infrastructure, adding about \$6 trillion of capital gains to household net worth from early 1995 through the second quarter of this year.

While the vast majority of these gains augmented retirement and other savings programs, enough spilled over into consumer spending to significantly lower the proportion of household income that consumers, especially upper income consumers, believed it necessary to save.

In addition, the longer the elevated level of stock prices was sustained, the more consumers likely viewed their capital gains as permanent increments to their net worth, and, hence, as spendable. The recent windfall financed not only higher personal consumption expenditures but home purchases as well. It is difficult to explain the recent record level of home sales without reference to earlier stock market gains.

The rise in stock prices also meant a fall in the equity cost of capital that doubtless raised the pace of new capital investment. Investment in new facilities had already been given a major boost by the acceleration in technological developments, which evidently increased the potential for profit in recent years. The sharp surge in capital outlays during the past five years apparently reflected the availability of higher rates of return on a broad spectrum of potential investments owing to an acceleration in technological advances, especially in computer and telecommunications applications.

This is the apparent root of the recent evident quickened pace of productivity advance. While the recent technological advances have patently added new and increasingly flexible capacity, the ability of these technologies to improve the efficiency of productive processes (an issue I will elaborate on shortly) has significantly reduced labor requirements per unit of output. This, no doubt, was one factor contributing to a dramatic increase in corporate downsizing and reported widespread layoffs in the early 1990s. The unemployment rate also began to fall as the pace of new hires to man the new facilities exceeded the pace of layoffs from the old.

Parenthetically, the perception of increased churning of our workforce in the 1990s has understandably increased the sense of accelerated job-skill obsolescence among a significant segment of our workforce, especially among those most closely wedded to older technologies. The pressures are reflected in a major increase in on-the-job training and a dramatic expansion of college enrolment, especially at community colleges. As a result, the average age of full-time college students has risen dramatically in recent years as large numbers of experienced workers return to school for skill upgrading. But the sense of increasing skill obsolescence has also led to an apparent willingness on the part of employees to forgo wage and benefit increases for increased job security. Thus, despite the incredible tightness of labor markets, increases in compensation per hour have continued to be relatively modest.

Coupled with the quickened pace of productivity growth, wage and benefit moderation has kept growth in unit labor costs subdued in the current expansion. This has both damped inflation and allowed profit margins to reach high levels.

That, in turn, apparently was the driving force beginning in early 1995 in security analysts' significant upward revision of their company-by-company long-term earnings projections. These upward revisions, coupled with falling interest rates, point to two key underlying forces that impelled investors to produce one of history's most notable bull stock markets.

But they are not the only forces. In addition, the sequence of greater capital investment, productivity growth, and falling inflation fostered an ever more benevolent sense of long-term stable growth. People were more confident about the future. The consequence was a dramatic shrinkage in the so-called equity premium over the past two years to near historic lows earlier this summer. The equity premium is the charge for the additional risks that markets require to hold stocks rather than riskless debt instruments. When perceived risks of the future are low, equity premiums are low and stock prices are even more elevated than would be indicated solely from higher expected long-term earnings growth and low riskless rates of interest.

Thus, one key to the question of whether there is a new economy is whether current expectations of future stability, which are distinctly more positive than say a decade ago, are justified by actual changes in the economy. For if expectations of greater stability are borne out, risk and equity premiums will remain low. In that case, the cost of capital will also remain low, leading, at least for a time, to higher investment and faster economic growth.

Two considerations are therefore critical to higher asset values and higher economic growth. The first is whether the apparent upward shift in technological advance will persist. The second is the extent of confidence in the stability of the future that consumers and investors will be able to sustain.

With regard to the first: How fast can technology advance, augmenting the pool of investment opportunities that have elevated rates of return, which engender still further increases in expected long-term earnings? Technological breakthroughs, as history so amply demonstrates, are frustratingly difficult to discern much in advance. The particular synergies between new and older technologies are generally too complex to anticipate.

An innovation's full potential may be realized only after extensive improvements or after complementary innovations in other fields of science. According to Charles Townes, a Nobel Prize winner for his work on the laser, the attorneys for Bell Labs initially, in the late 1960s, refused to patent the laser because they believed it had no applications in the field of telecommunications. Only in the 1980s, after extensive improvements in fiber-optics technology, did the laser's importance for telecommunications become apparent.

The future of technology advance may be difficult to predict, but for the period ahead there is the possibility that already proven technologies may not as yet have been fully exploited. Company after company reports that, when confronted with cost increases in a competitive environment that precludes price increases, they are able to offset those costs, seemingly at will, by installing the newer technologies.

Such stories seem odd. If cost improvements were available at will earlier, why weren't the investments made earlier? This implies suboptimal business behavior, contrary to what universities teach in Economics 101. But in the real world, companies rarely fully maximize profits. They concentrate on only those segments of their businesses that appear to offer the largest rewards and are rarely able to operate at the most efficient frontier on all fronts simultaneously. When costs rise, the attention of management presumably becomes focused more sharply on investments to limit the effects of rising costs.

But if cost-cutting at will is, in fact, currently available, it suggests that a backlog of unexploited capital projects has been built up in recent years, which, if true, implies the potential for continued gains in productivity close to the elevated rates of the last couple of years. Even if this is indeed the case, and only anecdotal evidence supports it, security analysts' recent projected per share earnings growth of more than 13 percent annually over the next three to five years is unlikely to materialize. It would imply an ever-increasing share of profit in the national income from a level that is already high by historic standards. Such conditions have led in the past to labor market pressures that thwarted further profit growth.

The second consideration with respect to how high asset values can rise is: How far can risk and equity premiums fall? A key factor is that price inflation has receded to quite low levels. The rising level of confidence in recent years concerning future outcomes has doubtless been related to the fall in the rate of inflation that has, of course, also been a critical factor in the fall in interest rates and, importantly, the fall in equity premiums as well. Presumably, the onset of deflation, should it occur, would increase uncertainty as much as a re-emergence of inflation concerns. Thus, arguably, at near price stability, perceived risk from business-cycle developments would be at its lowest, and one must presume that would be the case for equity premiums as well. In any event, there is a limit on how far investors can rationally favorably discount the future and therefore how low equity premiums can go. Current claims on a source of income available 20 or 30 years in the future still have current value. But should claims on the hereafter?

An implication of high equity market values, relative to income and production, is an increased potential for instability. As I argued earlier, part of capital gains increases consumption and incomes. Since equity values are demonstrably more variable than incomes, when equity market values become large relative to incomes and GDP, their fluctuations can be expected to effect GDP more than when equity market values are low.

Clearly, the history of large swings in investor confidence and equity premiums for rational and other reasons counsels caution in the current context. We have relearned in recent weeks that just as a bull stock market feels unending and secure as an economy and stock market move forward, so it can feel when markets contract that recovery is inconceivable. Both, of course, are wrong. But because of the difficulty imagining a turnabout when such emotions take hold, periods of euphoria or distress tend to feed on themselves. Indeed, if this were not the case, the types of psychologically driven ebbs and flows of economic activity we have observed would be unlikely to exist.

Perhaps, as some argue, history will be less of a guide than it has been in the past. Some of the future is always without historical precedent. New records are always being made. Having said all that, however, my experience of observing the American economy day by day over the past half century suggests that most, perhaps substantially most, of the future can be expected to rest on a continuum from the past. Human nature, as I indicated earlier, appears immutable over the generations and inextricably ties our future to our past.

Nonetheless, as I indicated earlier, I would not deny that there doubtless has been in recent years an underlying improvement in the functioning of America's markets and in the pace of development of cutting edge technologies beyond previous expectations.

Most impressive is the marked increase in the effectiveness in the 1990s of our capital stock, that is, our productive facilities, the issue to which I alluded earlier. While gross investment has been high, it has been, in recent years, composed to a significant extent of short-lived assets that depreciate rapidly. Thus, the growth of the net capital stock, despite its recent acceleration, remains well below the peak rates posted during the past half century.

Despite the broadening in recent decades of international capital flows, empirical evidence suggests that domestic investment still depends to a critical extent on domestic saving, especially at the margin. Many have argued persuasively, myself included, that we save too little. The relatively low propensity to save on the part of the American public has put a large premium on the effective use of scarce capital, and on the winnowing out of the potentially least productive and, hence, the least profitable of investment opportunities.

That is one of the reasons that our financial system, whose job it is to ensure the productive use of physical capital, has been such a crucial part of our overall economy, especially over the past two decades. It is the signals reflected in financial asset prices, interest rates, and risk spreads that have altered the structure of our output in recent decades towards a different view of what consumers judge as value. This has imparted a significant derived value to a financial system that can do that effectively and, despite recent retrenchments, to the stock market value of those individual institutions that make up that system.

Clearly, our high financial returns on investment are a symptom that our physical capital is being allocated to produce products and services that consumers particularly value. A machining facility that turns out an inferior product or a toll road that leads to nowhere will not

find favor with the public, will earn subnormal or negative profits, and in most instances will exhibit an inability over the life of the asset to recover the cash plus cost of capital invested in it.

Thus, while adequate national saving is a necessary condition for capital investment and rising productivity and standards of living, it is by no means a sufficient condition.

The former Soviet Union, for example, had too much investment, and without the discipline of market prices, they grossly misplaced it. The preferences of central planners wasted valuable resources by mandating investment in sectors of the economy where the output wasn't wanted by consumers -- particularly in heavy manufacturing industries. It is thus no surprise that the Soviet Union's capital/output ratios were higher than those of contemporaneous free market economies of the West.

This phenomenon of overinvestment is observable even among more sophisticated free market economies. In Japan, the saving rate and gross investment have been far higher than ours, but their per capita growth potential appears to be falling relative to ours. It is arguable that their hobbled financial system is, at least in part, a contributor to their economy's subnormal performance.

We should not become complacent, however. To be sure, the sharp increases in the stock market have boosted household net worth. But while capital gains increase the value of existing assets, they do not directly create the resources needed for investment in new physical facilities. Only saving out of income can do that.

In summary, whether over the past five to seven years, what has been, without question, one of the best economic performances in our history is a harbinger of a new economy or just a hyped-up version of the old, will be answered only with the inexorable passage of time. And I suspect our grandchildren, and theirs, will be periodically debating whether they are in a new economy.