



## **Economic Headwinds and Tailwinds**

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December 17<sup>th</sup> marks the 100<sup>th</sup> anniversary of the Wright Brothers first flight at Kitty Hawk. Their contribution to aviation was that they figured out how to make an airplane turn in flight. They did so by warping the wings; they had attached a set of cables between the trailing edges of both upper and lower wings and a cradle that rested more or less in the center of the lower wing. The pilot lay prone in the cradle. To turn the plane to the right, the pilot would move his body weight so the tension on the cables attached to the upper and lower right wings would increase, causing their trailing edges to curl upward; at the same time the trailing edges of the upper and lower left wings would curl downward. The movement of air across the wings would cause the right wings to fall and the left wings to rise and the airplane would turn to the right.

The Wrights developed this insight by watching birds in flight. As Yogi Berra said “You can see a lot just by observing.”

By 1910 less than twenty Americans had flown in an airplane.

Aircraft production surged in World War I. The United States produced 15,000 aircraft during the war—about ten percent of the worldwide total. Many of these aircraft were glorified kites—fabric covered planes—with either bomb racks or machine guns.

Many of the milestones in aviation involve new records for distance or altitude or speed.

Lindbergh flew from New York City actually Roosevelt Field on Long Island to Paris in May 1927. The Spirit of St Louis was designed to have a range of 3,500 miles; the airplane was a 425 gallon gas tank with wings.

The developments in aircraft instruments have been impressive. The Wrights had a stopwatch and a wind-driven odometer. The Piper Cub clone that I learned to fly more than fifty years ago—halfway back to the Wright brothers—had the same set of instruments as the Spirit of St Louis—a compass, an altimeter, several engine gauges, and an airspeed indicator. Now my current Cessna has several compasses, an artificial horizon, a turn and bank indicator, a heading indicator, a stormscope, a global position system that can drive the automatic pilot and a standby GPS, and four different types of radios.

My sailplane has the same basic flying instruments as the Cessna—although the turn and bank is a piece of yarn attached to the plexiglass canopy by an oversized Band-Aid. Several instruments measure lift—and negative lift or sink. A flight computer is linked to the GPS and given the sailplane’s altitude it indicates the altitude on arrival at any designated airport given the distance to that airport and the average sink rate.

Planning for a flight in the sailplane is somewhat similar to developing projections for the economy. Gliding is an optimization problem—the pilot knows the altitude above the ground and the characteristics of the plane including its sink rate and its glide ratio, the wind direction can be estimated, but the columns of rising air and falling air are invisible and their velocities and dimension are unknown. Economic forecasting involves trying to

project future values for GDP and the inflation rate and the unemployment rate; the knowns are recent values of these variables, and the unknowns are changes in investment spending, household consumption spending, the fiscal deficit, and the factors that drive these variables—interest rates, stock prices, and various political factors.

Glider pilots are continually trying to defy gravity by using another of nature's laws that heated air is less dense than cooler air. The pull of gravity is a constant, the sink rate in an efficient glider is 150 feet per minute. The glider will remain aloft only if the pilot can find a column or wave of air that is rising at a velocity greater 150 feet a minute.

Once the sailplane is in the air, gravity can be used to convert altitude into energy or speed or momentum. My sailplane is efficient, for each 100 feet of altitude the plane will glide 4,000 feet. My home airport is Post Mills, Vermont, about two miles west of the Connecticut River. It's about fifty miles due west to Lake Champlain and the New York State line. If I'm over Post Mills at 6,000 feet, I could glide to the New York state line—or at least I should be able to if the Green Mountains weren't in the way.

The initial conditions for an economy—the recent rates of growth of GDP or its momentum—have a powerful impact on its development. It's Newtonian, an economy that is growing rapidly is likely to continue to grow rapidly because rapid growth generally is associated with high levels of profits and high rates of new investment. And if the growth rate is slow, then the growth rate is likely to remain slow. The additional complication every four years is that political managers try to manipulate economic variables so the voters are in a good mood at the time of the next election.

Several basic propositions about asset price bubbles and economic activity are reviewed in the next section. The second section involves the assessment of why my year-ago forecast for the developments in the U.S. economy was off the mark. The third section centers on the impacts of the macro economic policies that have been adopted in the last several years in response to the implosion of the asset price bubble. The fourth section focuses on the tailwind of the surge in the U.S. fiscal deficit and the robustness of the economic recovery now underway. The headwinds facing the U.S. economy in the long run—the bubble in NASDAQ stocks, the \$500 billion fiscal deficit, the \$500 billion trade deficit, and the low U.S. savings rate—are reviewed. The concluding note deals with the forecasts of U.S. GDP and the other variables in the coming election year.

## ASSET PRICE BUBBLES IN RETROSPECT

The Montgolfier Brothers flew over Paris in a balloon in 1776. Ballooning involves capturing a less dense gas—hot air, helium, or hydrogen—in a bag. The denser air outside the bag wants to occupy the space of the less dense gas inside the bag. The less dense gas has to go someplace and it is displaced upward. The lifting power of a hot air balloon depends of its cubic volume—the rule of thumb is 1000 cubic feet will lift 20 pounds.

Credit is to an asset price bubble as warm air is to a balloon. An economy can't have an

inflation without money and an economy can't have an asset price bubble without credit—a lot of credit.

Vendor financing provided the credit for the bubble in Dutch tulip bulbs in the sixteenth century. The rapid expansion in volume of post-dated checks provided the credit in the bubble in the Kuwaiti stocks in the early 1970s. The rapid expansion in bank loans provided the credit that led to the bubbles in real estate and stocks in Tokyo in the second half of the 1980s and in Bangkok and Hong Kong in the mid-1990s.

Asset price bubbles lead to economic euphoria. Spending surges in response to the increase in household wealth and the decline in the cost of capital. Money seems “free” for many firms, it is as if they no longer have to be concerned with the cost of capital. Productivity surges. The sages of the financial world become the Jack Grubmans and the Henry Blodgetts and their colleagues who promise that corporate profits can increase at fifteen percent a year for five years.

For the last four years I have been obsessed with a stylized fact from monetary history that the implosion of an asset price bubble always has deflationary consequences--a monetary event has powerful real impacts. The spending momentum in the economy slows sharply. Investment spending declines because all of a sudden there is a large excess capacity and because the cost of capital is much higher. Some countries have experienced a credit crunch especially when banks have failed. Household consumption spending increases at a below-trend rate as they save more to re-build wealth.

Each of these factors is readily identified after the implosion of the 1929 stock price bubble in the United States. Each of these factors is sharply evident in the Japan in the 1990s.

Dating the onset of some asset price bubbles is difficult since the border between rational and irrational exuberance is fuzzy, indistinct, and blurred. Chairman Greenspan first mentioned “irrational exuberance” in December 1996—stock prices had risen by 34 percent in 1995 and 23 percent in the first eleven months of 1996. If January 1996 is used as the starting date, the increase in stock prices occurred over a fifty month period, and stock market component of household wealth more than tripled. The ratio of stock market wealth to GDP increased from 100 percent to 190 percent.

The late 1920s bubble began in January 1927; stock prices increased by 150 percent in thirty three months.

The 1990s bubble is larger than the 1920s bubble in terms of the percentage increases in stock prices and in the increase in the ratio of household wealth to GDP.

The intuition—at least my intuition--is the larger the bubble, the larger the deflationary impact associated with its implosion.

The implosion of the 1990s asset price bubble has tested this intuition. U.S. banks have

not failed. The sharp cyclical economic downturn that I had been expecting in 2001 and then in 2002 and then in 2003 has not appeared although there was a tepid recession in 2001.

It is as if one of the laws of financial gravity has been forestalled.

## FORECASTING IN RETROSPECT

My forecast of last December for U.S. economic growth in 2003 was a failure. Joel Stern had better calls on nominal and real U.S. GDP and on the growth of real consumption and the increase in corporate profits.

My call on the unemployment rate was higher than the measured rate and reflects that I want to measure the unemployment rate as the difference between the number of individuals that are in the relevant age cohorts to be employed and the number who are actually at work.

The U.S. economy needs to produce 150,000 jobs a month to keep the unemployment rate constant; the demographics suggest that labor force should have increased by more than five million in the last three years. Hundreds of thousands of individuals have dropped out of the active labor force.

Both Joel and I erred in our forecasts of the U.S. fiscal deficit. My estimate was that the U.S. fiscal deficit would increase by \$75 billion from \$171 billion to \$246 billion because of the combination of the continued sluggishness of the economy and the staged reduction in tax rates. Joel's forecast was that the fiscal deficit would decline by \$61 billion presumably because the surge in private sector business activity would lead to an increase in fiscal revenues that would be significantly larger than the decline in fiscal revenues from the reduction in tax rates.

The actual fiscal deficit for the fiscal year was \$460 billion. My error in forecasting the fiscal deficit was \$214 billion. A conservative assumption is that each increase in the fiscal deficit of \$10 billion leads to an increase in the GDP of one tenth of one percent. If I had gotten the estimate of the fiscal deficit correct, then I would have been nearly correct on the GDP forecast.

## MONETARY POLICY AND THE RECOVERY FROM THE IMPLOSION OF AN ASSET PRICE BUBBLE

Air masses are continually in motion. Air moves in clockwise direction from high pressure areas to the low pressure areas. The jet stream moves from West to East but the pattern is idiosyncratic.

Asset price bubbles are idiosyncratic—where and when they arise. There have been only two bubbles in U.S. history.

The stock price bubble in the United States in the second half of the 1990s can be traced to the growth of bank reserves and credit. The Federal Reserve has a fine-tuning bias; the Fed responds to each and every crises real and prospective by increasing liquidity. The Fed increased liquidity after the Mexican financial crises of 1994-95. In the summer of 1998 the Fed increased liquidity after the Russian financial crises and the debacle at Long Term Capital Management. The Fed provided a lot of liquidity in anticipation of the Y2K problem.

The money has to go somewhere, and there are only two places it can go—either into the goods markets or into the asset markets. Much of the liquidity created in anticipation of Y2K went into the stock market since stock prices had been increasing at a rapid rate. The sellers of the stocks had to do something with the money, and while a few bought yachts, most used the money to buy other stocks. Margin credit soared. The increase in the supply of stocks from IPOs couldn't keep up with the demand for stocks.

When the transition had been made to the new millennium without disaster—I still have the bottled water and the flashlights—the Fed began to remove the liquidity. The money came out of the stock market; the Fed had pricked the bubble.

One of the tasks in flying involves learning the appropriate sequence of responses in the recovery from unusual attitudes—say from a spin. There must be a counterpart in the central bankers handbook.

Once the Fed recognized that the consequences of the decline in stock prices on the costs of capital to business and on household wealth, the Fed moved to an expansive monetary policy—the Fed first cut interest rates in early January 2001 from 6.5 percent to 6.0 percent.

It is as if the Fed belatedly realized the consequences of the implosion of stock prices on the cost of capital and household consumption spending and then increased liquidity to reflate the bubble.

The money had to go someplace so much of it went into real estate. The increase in real estate wealth has largely offset the decline in stock market wealth and led to a surge in spending on homes and home furnishings and autos.

Each decline in interest rates had a one-shot impact on the spending made possible by the successive rounds of mortgage re-financing.

When short-term interest rates got to one percent, there was little further potential for further reductions in interest rates to continue to stimulate the economy.

## THE FISCAL POLICY TAILWIND

The most precarious times in a small one engine plane are the minute or two after take off and the two minutes before landing. More than ninety nine percent of aircraft accidents occur during these brief time windows that account for about two percent of total flight time. Of course most plane accidents involve an unintended collision with the ground, and the planes generally are near the ground only when they are landing or taking off.

The most precarious time in a glider flight is the thirty seconds that begins about fifteen seconds after the beginning of the take-off roll. If there is a problem in the first fifteen seconds of the take off, the glider pilot can release the tow rope and land within the remaining several hundred yards of the runway. A few seconds later and the glider is beyond the point of no return. An engine problem in the tow plane, a heart attack of the tow plane pilot, or a busted tow rope leave the glider without enough altitude or momentum for a u turn back to the runway.

The puzzle of the U.S. economy in the last year has been contrast between the aggressively expansive monetary policy and the large and accelerating fiscal deficit and the sluggish growth of U.S. GDP. Short-term interest rates are seventy five basis points below their year-ago level; real short term interest rates are negative.

Money supply has been increasing at the rate of seven or eight percent a year.

The fiscal deficit now is almost five percent of U.S. GDP.

As the U.S. fiscal deficit has increased, the recovery has picked up speed.

It's as if the country has just discovered the "Payday Loan" system.

Moreover there has been some "off balance sheet" financing of government expenditures—at least this is the charitable interpretation of the Pentagon's leasing of the tankers from Boeing.

A large fiscal deficit is appropriate policy response to the deflationary impacts of the implosion of the asset price bubble. But it's not quite "The best recovery that money could buy"--the same expansive impacts on GDP could have been achieved with a smaller fiscal deficit if there had been a different mix of spending increases and tax reductions and a different composition of tax rate reductions.

The economy has been like an airplane with an extremely powerful engine that finds it difficult to gain lift. The Spirit of St Louis barely cleared the power lines at the end of the 5,000foot runway because of the drag on the plane from the 2800 pounds of fuel and the muddy airstrip.

Lindbergh nearly ran out of runway before the plane lifted off. And the economy is

getting to the upper limit of the size of the fiscal deficit it can have even on a temporary cyclical basis.

The third quarter growth of eight percent is impressive. Growth in the second quarter had been at the annual rate of 3.2 percent, spending in the second quarter increased by \$114 billion over the level of the first quarter and spending in the third quarter increased by \$236 billion over the second.

There has been a dramatic change in the quarter-by-quarter relationship between the increase in the U.S. fiscal deficit and the increase in nominal GDP. In 2002 IV the GDP increased by \$83 billion and the fiscal deficit increased by \$73 billion. The comparable numbers for the second quarter were \$100 billion and \$48 billion. And for the third quarter, the increase in the U.S. fiscal deficit was \$63 billion and the increase in U.S. GDP was \$236 billion. The pump is being primed by larger fiscal deficits, but it is too early to determine whether the pump-priming will work.

The implication that the surge in the growth rate followed from the surge in the fiscal deficit is that once the fiscal deficit stops increasing the quarter to quarter rate of growth may revert to the average of those quarters when the fiscal deficit was not increasing significantly.

One source of the drag on the economy is that excess capacity remains extensive.

A larger source of drag is the \$500 billion U.S. trade deficit—five percent of U.S. GDP. Twenty years ago the fashionable explanation--an incorrect one--for the increase in the U.S. trade deficit was the increase in the U.S. fiscal deficit. Bad theory, the story was inconsistent with the data. Association got confused with causation; in the late 1990s the United States had the largest-ever fiscal surplus and the largest ever trade deficit.

Now the “Twin Deficits” are back with us—and in a very real way. Each year for the last several years Americans have been spending \$500 billion more a year on foreign goods than foreigners have been spending on U.S. goods. The more appropriate statement is that foreigners have been spending \$500 billion a year less on American goods than Americans have been spending on foreign goods. The foreigners—initially foreign private parties --acquired U.S. government securities and U.S. agency issues and other titles of indebtedness because rates of return were higher than the rates of return on their domestic securities. Now foreign central banks are acquiring U.S. dollar securities because they want to avoid or delay the adjustments in their economies.

An expansive monetary policy and an expansive fiscal policy would have been appropriate following the implosion of the bubble even in the absence of the large trade deficit. The surge in the U.S. trade deficit has sharply intensified the need for these policies.

Consider the impacts of a \$50 billion a quarter decline in the U.S. trade deficit for each of the next four or eight quarters on nominal U.S. GDP, employment, and tax revenues.

## HEADWINDS FOR THE U.S. ECONOMY IN THE LONG RUN

In the ideal flight, lift and drag are fully offsetting and the aircraft is able to maintain its altitude and its airspeed. Several weeks ago I was flying north along the Connecticut River Valley, a beautiful clear day, snow glistening on the peaks of the White Mountains, no turbulence. All the forces—gravity, lift, drag, thrust—were in perfect balance for hands-off flying.

The Golden Rule Model of Economic Growth identifies the features of an economy in long run equilibrium. The amount of annual saving is sufficient to finance the new investments required to match the increase in the labor force. The government debt increases at the rate of growth of GDP, so the government debt is constant as a share of GDP. Similarly household debt increases at the same rate as GDP, so the ratio of household debt to GDP is a constant. In this model the profit share of GDP is constant and stock prices increase at rate of GDP growth.

The U.S. economy is far from a long-term growth equilibrium position. A major imbalance remains from the asset price bubble of the 1990s. The Fed's efforts to stimulate the economy have forestalled the inevitable and necessary increase in household saving to the excesses of the bubble years.

Consider four variables that have values that differ from those associated with long run equilibrium growth.

The first deviation involves the bubble in NASDAQ stocks. More than 3000 firms are listed on the NASDAQ. Our data set includes the 489 largest firms; their combined market value was \$2,200 billion and their forward earnings are about \$50 billion for a price earnings ratio of forty five. Five firms—Microsoft, Intel, Cisco, Dell, and AmGen—account for nearly fifty percent of the earnings and one third of the market cap.

The price-earnings ratio for the remaining firms is 56. Many of the firms listed on NASDAQ have grand prospects—if we only knew which ones. Still there is no way that the earnings of NASDAQ firms as a group can increase so that the rates of return to the owners of stocks of this group will be higher than the rates of return from buying a U.S. Treasury price level indexed bond.

At some stage the air in the NASDAQ bubble will leak out. The likelihood that the prices of stocks traded on the New York Exchange will not be affected is low.

The second deviation from long-term equilibrium growth centers on the U.S. fiscal deficit. In the last year U.S. government debt in the hands of the public has increased three times as rapidly as U.S. GDP. In the long run U.S. government debt in the hands of the public can increase no more rapidly than GDP.

The swing in the U.S. fiscal balance in the last three years has been from a surplus of

\$200 billion in 2000 to a deficit of \$460 billion in 2003; a change of seven percent of U.S. GDP.

Capital gains tax payments in 2000 were exceptionally high at \$120 billion, perhaps \$100 billion higher than the long run average.

The remaining change in the U.S. fiscal balance of about \$600 billion has resulted from three factors—the slowdown in the economy, the reduction in tax rates, and the increase in expenditures. The thrust of the statements from the Bush administration is that the slowdown in the economy is responsible for much of the increase in the fiscal deficit.

Nominal GDP is eleven percent higher than in 2000, and so the implication is that tax revenues would have increased if tax rates had not been reduced. Receipts of the U.S. Treasury have declined by \$200 billion over the last three years. Since GDP is eleven percent higher, this reduction in receipts reflects the impacts of the decline in tax rates. Of course the decline in receipts would have been modestly higher if GDP had increased more rapidly.

Perhaps \$200 billion of the \$600 billion swing in the fiscal balance can be attributed to the combination of the decline in tax rates and the slowdown in the U.S. economy.

The implication is that \$400 billion of the change in the U.S. fiscal balance represents an increase in government spending. Wilmington, Vt population 2,500 has recently received a grant of \$50,000 from the Department of Homeland Security for a new fire truck, no doubt to combat terrorism at Killington or Mt Snow. There is pork in the Vermont countryside--a state where the representative to the House of Representatives is the former socialist mayor of Burlington, the senior senator is a leading Democratic liberal and the junior senator is a renegade Republican. Imagine the pork in the Republican heartland.

The President requested and the Congress approved a supplementary appropriation of \$87 billion for continuing expenditures in Iraq. The Pentagon accounting is that all of military expenditures in Iraq should be paid from this \$67 billion. The issue involves the difference between total costs and incremental costs. In fact most of the 130,000 American troops now in Iraq would be paid from the regular budget if they were not in Iraq.

A U.S. fiscal deficit of five percent of U.S. GDP is too large to be sustained; the U.S. government's debt is increasing too rapidly relative to its GDP. The likelihood that the U.S. Government can outgrow the deficit as it did in the 1990s is extremely low; President Clinton raised taxes by \$250 billion over five years and military expenditures declined as a share of GDP by three percentage points.

If the U.S. fiscal deficit cannot be outgrown, than eventually taxes must be increased relative to expenditures.

The third deviation from long-term equilibrium is that the U.S. trade deficit of five percent of GDP is too large to be sustained. In the long run, U.S. net indebtedness to foreigners cannot increase more rapidly than GDP. The task is to determine the upper limit to the U.S. trade deficit that would be consistent with a stable ratio for U.S. international indebtedness relative to U.S. GDP.

The adjustment path from a non-stable to a stable relationship for this ratio is enormously complex and will involve both a significant increase in U.S. production of tradable goods and—now to the fourth deviation from long term equilibrium—a very large increase in the U.S. savings rate.

The deviations in these values from long run equilibrium are related. The U.S. trade deficit means that American spending on consumption goods and investment goods has been diverted to foreign economies. In part the domestic saving rate is too low because the inflow of foreign saving has depressed the domestic saving rate and in part the saving rate is too low because of the aggressive monetary policy and fiscal policy has sought to encourage the domestic consumption to compensate for the shortfall in domestic investment. The bubble in the NASDAQ has followed from the easy monetary policy.

The Wright's discovery was that an airplane moves along three axes—and so they needed three control instruments. There is a fundamental proposition in economics that the number of targets should equal the number of instruments.

One of the current problems that got us into this policy conundrum is that the number of policy targets for long-term equilibrium growth has been larger than the number of policy instruments.

## 2004 IN PROSPECT

It is fascinating to speculate about the reactions of the Wright brothers if they could view the developments in the aircraft in the last hundred years. The wingspan of a 777 is longer than their first flight. It would also be fascinating to learn any views they might have about the contrast and comparisons between the management of an aircraft in flight and the management of an economy especially in an election year.

Election years are full of surprises:.. predictable surprises and unpredictable surprises.

Political decisions intrude on the forecasts of economic values for the next twelve months. The changes in economic policy in 1971 and 1972 may be a useful analogy. The administration had a great deal of conservative rhetoric about economic policy. A president with greatly diminished standing in the polls was up for re-election. The chairman of the Federal Reserve Board had previously been a counselor with an office in the White House. In August 1971 the Nixon administration adopted price and wage controls, put a tariff of ten percent on dutiable imports and closed the U.S. Treasury's gold window. The money supply increased at the annual rate of fourteen percent between

August 1971 and the November 1972 election. The combination of the rapid growth in the money supply and ceilings on prices meant that the increase in spending led to increases in employment and output. When the price and wage controls were relaxed after the 1972 election, the inflation rate hit double-digit levels.

The distinction between policy and politics in the Bush administration is blurred. The rhetoric is conservative. The current administration is the most protectionist on international trade issues of any administration since Herbert Hoover's—steel, lumber, agriculture, drugs, and now bras and bathrobes. The current administration is most firmly committed to Keynesian pump-priming since Franklin Roosevelt. The inference from the energy bill and the medicare bill and the farm bill is the mantra “Leave No Lobbyist Behind.” It's Texas-style populism for the well-born.

Sailplane pilots continually cope with uncertainty—with the choice between high probability outcomes that have low payoffs and lower probability outcomes that might have higher payoffs.

The drags on economic growth of the large trade deficit and the substantial excess capacity remain. The boom in home refinancing is ending, there is a glut of apartments in many parts of the country.

But it is an election year and the administration is adroit in manipulating policies to build political support. The Bush administration's commitment to conservative rhetoric is much stronger than its commitment to conservative principles.

There are days especially in the late autumn when the skies are gloomy and the winds are gusty and reading a good book is more fun than flying—or providing estimates of U.S. GDP growth. Still I have to pay for this free lunch by providing forecasts—nominal U.S. GDP will increase by four percent and the inflation rate will be one and one half percent.