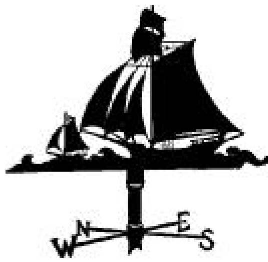

COLBY ECONOMIC OUTLOOK

ECONOMIC PROJECTIONS FOR THE U.S. & MAINE ECONOMIES

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SEPTEMBER 11TH, A RECESSION & AN UNCERTAIN FUTURE

In the weeks following the September 11th terrorist attacks, economists stared blankly at forecasts, not knowing how this infamous day would affect an already weakening economy. Without question, there would be a hit to consumer confidence, but the extent of the hit, and its resulting affects to an already weakening US economy were unknown.

The US economy was officially declared to be in a recession on November 26th. Some reports relayed that the recession started as far back as March. The economy contracted at an annual rate of 1.1% between July and September, the weakest figures in a decade. Business investment had fallen sharply and industrial production shrank by 4.8% in the year to August. Unemployment crept up only slowly to begin with, but began to accelerate, going from 4.5% to 4.9% between July and August. Figures released relating to the period before September 11th showed a marked worsening of consumer confidence. The American addiction to shopping, which propped up the economy for so long during the year, was clearly wearing off. Confidence was at its lowest level for five years, having registered its worst monthly fall since the Gulf war in 1991. The latest figures show that the economy grew at an annual rate of just 0.2% in the second quarter. Consumer spending, accounting for two-thirds of US economic activity, grew at an annual rate of a little less than 2.5% in the first two quarters of the year.

Unlike previous recessions, the current US slowdown seems to have been caused not by reluctant consumers, but by a sudden slump in business spending. During the boom years, many US firms invested heavily in information technology systems. Overall investment grew by nearly 20% each year. But when the dot-com bubble on the stock market burst, and some experts began to downgrade their optimistic forecasts, companies realized that they needed to cut back on their investment. For the last six months, many businesses have been dramatically scaling down their investment plans for the coming year. Interest rate cuts have been relatively ineffective to ease the drop-off in investment. The Fed can ease the burden of debt, but it cannot encourage companies to spend money as long as these firms do not see increasing demand for their products. However, interest rate cuts may help reassure consumers, who are also burdened by high levels of debt and have been hit hard by the fall in stock prices.

A corporate-led slowdown hurts many consumers through job cuts. This is having a broader effect on consumer confidence, making individuals more likely to postpone the purchase of expensive items like automobiles. However, although consumer confidence has fallen to its lowest point in nearly a decade, consumer spending is holding its own. US retail sales over the holiday period indicated that consumer spending, which fuels economic activity, is holding up well. Further promising signs include generally low inflation rates and gasoline prices. Gas prices have plunged more than 40 cents a gallon in the wake of Sept. 11th, reaching a two-year low.

The Colby Economic Outlook is forecasting a period of negative growth lasting three quarters. The US economy will recover in the second period of 2002, with a 1.6% increase in real GDP over the previous quarter. Growth will fluctuate but remain positive to finish that year. Real GDP will average growth rates of 2.5% for the year 2003.

INSIDE THE CEO

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CONSUMER SENTIMENT & SPENDING

Despite a fall-off recently in some measures of consumer confidence, consumers don't seem to be as worried about the economy as survey responses seem to indicate — especially over the big-ticket items. Although dropping a bit unexpectedly in November, retail sales soared in October by over 7%. Even with the post-September 11th environment saving rates are up and zero percent financing and auto rebates are coming through for the economy, and so is the consumer. Without auto sales, retail sales still had a positive gain at 1.6%. The Commerce Department said the 2.9% jump in personal consumption expenditures is a record jump. What we are seeing here could be left over from the wealth effect despite recent market erosion. However, the Fed's aggressive easing of monetary policy as of late has lowered the cost of borrowing and the opportunity cost of spending, hence increasing the chance for continued, future economic recovery.

Although September 11th has had a negative affect on consumption, there has been an increase in orders for durable goods (goods meant to last three years or longer). The demand rose 13.8% in October, rising for the first time since March. Durable goods are interest rate sensitive, and so with dropping rates spending on non-durable goods also rose 0.5% in October. However, due to huge layoffs since September, personal disposable income has decreased for the second straight month. This is something of concern; if personal disposable income is lower, consumption could fall in the coming months. Nevertheless, most economists are optimistic about the increases in retail sales and personal consumption expenditures in October and forecast that this will continue to help us out of the recession.

Since consumption accounts for two-thirds of GDP, it is a very important factor in its determinist. Consumption never becomes negative as a whole; this is because consumption is broken up into three categories: durables (big-ticket items), non-durables (e.g. food, clothing) and services (e.g. entertainment, travel). People need to eat and clothe themselves, although they may give up that coveted boat or Caribbean vacation in periods of economic decline. With auto sales increasing as I mentioned above, durables have been propped up a bit. This is somewhat of an outlier due to zero financing, and is, thus, not included in our model. Without autos, we are predicting durable consumption to increase over the next four quarters by 0.5% and increasing by 8.1% by the end of 2003. This runs consistently with our prediction that the economy will pick up in mid-2002. Non-durables are expected to increase by 2.2% over the next four quarters, dropping slightly over 2003 to increasing by 1.5%. The service sector, however, is predicted to pick up in the next four quarters, increasing by 4.2% and into 2003 increasing at a lower rate of 3.6%. Overall consumption is looking steady, increasing at around 3.5% over the next two years.

What really drives consumption is consumer sentiment, or how people are feeling about the economy. As was expected, consumer confidence took a huge hit as a result of the combination of September 11th and the slow down in the economy since March. Nevertheless, our future predictions are positive. We are predicting a decrease in consumer sentiment this quarter, dropping to a low of 80 (1966=100) but increasing to a 4.31% recovery by the end of 2003. This drastic decrease in the fourth quarter of 2001 can be attributed to high levels of unemployment, a decreasing government surplus, and stagnant income levels. With people expecting economic activity to pick up, especially consumption during the holidays, consumer sentiment will increase into 2002, decreasing slightly as the economy slowly begins to recover, and then taking off as things begin to pick up. As a whole, the economy, driven by its consumers, has been pretty resilient to the events of September 11th, and we predict it will continue to do so to promote a relatively quick recovery.

SPENDING BY FIRMS

While business investment was largely responsible for fueling the economic expansion of the 1990's, it is also largely to blame for the current recession. While much of the economy remained strong during the last nine months, investment has fallen dramatically, but this lack of investment, and selling out of inventories, puts companies in position to resume their spending in the first half of 2002. In many ways, this rebound in business investment will lead the economy out of recession.

At the end of the recent expansion, many companies accumulated large inventories, as they did not realize that the end had arrived and produced more than they sold. Now as production has been reduced, companies find themselves selling more out of inventories. The changes in business inventories are influenced by the yield on the 3-Month Treasury Bills and the percentage of capacity utilization. With the Treasury Bill yield increasing only gradually, and our prediction that capacity utilization will begin to increase in the fourth quarter of this year, we expect companies to begin rebuilding inventories in the second quarter of 2002. This will be a very important factor in revitalizing business investment.

Throughout the last decade, non-residential investment has been driven by spending on information technology equipment. Spending on computers and software grew without bound until the sudden peak in the fourth quarter of 2000. However, there are still

many gains to be realized by investment in such equipment, and we expect investment in computers and peripheral equipment to begin to rebound in the first quarter of 2002. Another important contributor to non-residential investment is interest rates. It appears that investment responds most strongly to changes in the 5-year Treasury note, lagged three periods. The yield on the 5-year Treasury note has been declining consistently since the second quarter of 2000 and it's continued decline through the end of this year should spark increases in business investment early in 2002. These will combine to lead to an increase in non-residential private investment beginning in the second quarter of 2002.

A third component of investment is private residential investment, which is influenced by the mortgage rate and real disposable income. Residential investment also grew rapidly in the late 1990's, but recently is has leveled off. As both mortgage rates and real disposable income both expected to increase in the beginning of next year, we predict that residential investment will remain fairly constant over the forecast horizon.

As we predict both changes in business inventories and non-residential investment to begin to grow in the second quarter of 2002, it follows that we expect the investment sector as a whole to turn around at the same time. So, just as the dramatic reduction in investment led the U.S. economy into recession, it will also be the sector that leads the economy out of recession.

PRODUCTIVITY & TECHNOLOGY INVESTMENT

The United States economy experienced unprecedented growth levels in the 1990s that led many to classify the economy's behavior as characteristic of a New Economy. It is not difficult to attribute the rise in GDP growth, stock market wealth, and productivity to the boom of the technology sector. In fact, from 1995 to 1999 productivity levels moved from their steadfast growth rate of 1.4% to as high 3%. Even in the current recession, productivity levels remain at a constant growth rate of 2.4%. This rate is causing major problems for employees as companies move to more efficient use of their technology and cut both workers and wages. It is no surprise that when the stock market began to tank in 2000 that companies curtailed their spending on technology related equipment, therefore sending the economy into its first ever tech-related recession.

Unlike previous recessions, the economy's productivity levels continue to grow positively, yet capital spending continues to plummet. With billions of corporate dollars already invested in high-technology equipment, firms are holding off on increasing investment in new technologies and are instead using current technology more efficiently. This firm behavior is leading to a decrease in GDP, as spending on technology makes up a larger portion of GDP than it did prior to 1995.

As firms tail-off their purchasing of technology equipment, venture capital firms are tailing-off their investments in the technology sector. After being burned by hundreds of failed investments in the bubble burst, venture capitalists are wearier as to their investment behavior. After reaching $100 billion of invested capital last year, venture capitalists had only invested $11.8 billion by the first quarter of this year. If this rate of funding continues for the year than venture funding will only reach $48 billion for the year, a drop off of over 50 percent. What does this mean for the technology sector and more importantly for the economy? After seeing a period of high innovation and increased information technology spending, it looks like there will be a drop off in innovation and therefore a drop off in new information technology products coming to market. However, with a weary market venture capital firms may, in fact, be able to invest in start-up and seed companies at a decreased cost but at a higher risk level. If the trade off appears favorable for venture capital firms than it will take a few years, usually between two and three years before the economy will see any of these new products, suggesting a slump in the tech sector for at least another eighteen months.

Many believe that the boom of the 1990s and the huge gain in productivity caused by the technology sector led to a New Economy. While this New Economy has yet to define itself, experts as well as Federal Reserve Chairman, Alan Greenspan, believe that productivity have permanently been changed from their steady rate of 1.4% growth since 1975. In fact, Greenspan's prediction for new productivity growth levels between 2% and 2.5% are consistent with industry experts. Many analysts are expecting GDP to recover to positive growth levels by the second quarter of 2002, as a result of low interest rates and tax cuts. However, if productivity remains at a 2% growth level, unemployment will continue to rise and wages fall, suggesting a sluggish recovery from the current recession.

If the decrease in capital spending on technology sent the economy into a recession in the first place how will capital spending get back on track if the technology sector will remain in a slump? Looking at the 1990-1991 recession, investment and productivity gains remained constant in the technology sector, while the rest of the economy's investment experienced a decrease. Since investment in the technology sector led to the booming of the economy in the 1990s, it would appear that whatever industry is holding steadfast in investment and productivity maybe responsible for the next boom. It appears that both the biotechnology and

medical industry are maintaining similar behavior to the technology sector's behavior during the 1990-1991 recession. This may suggest that it will be the biotechnology and medical industry that will pull the economy up from its sluggish recovery.

THE STOCK MARKET

The New Economy of the 1990's brought an unprecedented period of economic growth to the U.S. economy, and provided equally unprecedented stock market returns. The S&P 500 index quadrupled over the period from the first quarter of 1991 through the third quarter of 2000. This period of tremendous stock market returns coincided with large increases in business investment, especially investment in information technology equipment such as computers and software. However, in March of 2000 the tech bubble burst and business investment plummeted simultaneously, as demand for new technology equipment was largely saturated. Further, many businesses had over invested in such equipment during the boom, and began to realize the effects of over tech-investment in their earnings reports. Correspondingly, In the stock markets, investors became wary of technology companies with weak fundamentals. Feelings of uncertainty permeated U.S. stock markets, which realized sudden and significant losses.

The closely related performances of business investment and the S&P 500 are not purely coincidental. Rather, there is, at least to some degree, a causal relationship between the two. As businesses began making their enormous investments in technology equipment, they realized large gains in productivity. This increased productivity served to increase the earnings of these companies, and improved the outlook for the economy as a whole. This overall improvement in the economic outlook is a result of increased productivity generally leading to higher real incomes for workers. The gains in the S&P 500 were largely fueled by the improved health of companies and the overall economy. The stock market gains facilitated the process of raising capital for companies. This capital could then be used for further investments in technology equipment, which should further enhance productivity. While companies could theoretically have also obtained such capital through the debt markets, debt financing is not conducive to start-up firms with volatile cash flows, as the changes in the cash flows can make it very difficult for the companies to service their debt. In addition, these start ups would have had to offer large risk premiums, further increasing the cost of capital.

While this process contributed to the largest period of continuous economic expansion on record, it could not last forever. Eventually, gains from such investments were exhausted, and investors started to question overvalued Internet companies. Yet even now, as business investment has been declining for __ quarters, productivity continues to increase, as companies lay off workers and better utilize technological capital acquired during the boom. While this should work to increase corporate earnings, the massive layoffs will certainly impact consumer sentiment, and businesses may not realize sales as large as those to which they are accustomed.

An important factor in determining both business investment and the S&P 500 is the interest rate policy pursued by the Fed. The Fed has cut interest rates 10 times this year, and while some have questioned the effectiveness of monetary policy, it is likely that the effects of monetary policy are simply yet to be fully realized due to a lag in the economy's response to such policy actions. Indeed, the S&P estimates that it takes a full year for the Fed's rate cuts to impact earnings. The S&P also believes that a 50 basis point interest rate cut generally corresponds to a 2.5% gain in earnings. This implies that the U.S. economy should reach its turning point during the first half of 2002, and that the recovery will be driven by business investment. Another factor that should not be overlooked is the expectation of an extraordinary reduction on business inventories in the fourth quarter of 2001. This would force businesses to replenish inventories (and thus increase investment) in the beginning of 2002, reinforcing the belief that business investment will increase in the first or second quarter of 2002. This reversal in business inventories should have the additional benefit of increasing employment and income. Therefore, as the stock market continues to recover following the events of September 11 and the official recession announcement, so too should business investment.

A LIQUIDITY TRAP?

With short-term interest rates the lowest they have been in forty years and inflation falling right along with them, many economists are growing increasingly concerned about the possibility of a liquidity trap in the United States.

A liquidity trap is characterized by a situation where interest rates are at or near zero and monetary policy is ineffective in stimulating demand and raising spending since rates are already at their lowest point possible. The Fed's main weapon for fighting recessions is lowering the federal funds rate, the benchmark off of which other short-term interest rates are set. If households and businesses care about the real interest rate (lower cost of borrowing), then when the nominal rate is being pushed down by the Fed and inflation is decreasing simultaneously (deflation), the real interest rate is not falling very much; people will not change their demand for money. In fact, some are arguing that despite the aggressive moves by the Fed to

decrease short-term interest rates, the real interest rate has only fallen by half as much. Is the Fed running in place? Can monetary policy be effective to stimulate the economy in its current condition?

A liquidity trap problem is usually associated with Japan's present situation. There, short-term interest rates are at their minimum at virtually zero, real rates are negative, and the yield curve is flat with the 10-year government bond yield right around zero as well. Injections of liquidity by the central bank to the monetary base have not been very effective in increasing growth or stimulating aggregate demand. Bank lending has also collapsed since early 1998 as non-performing loans became a problem as banks took on riskier assets. Japan's banking sector was particularly hurt by downgrades of investment ratings. The overall negative attitude investors started to have towards Japan's financial institutions, made it hard and very expensive for them to borrow and lend—their recession continued. Although now regulations have been approved to try to reduce risk in the banking sector and inject liquidity into banks for recapitalization purposes, things are not better yet. If interest rates remain low and these efforts continue, Japan may be headed toward expansion soon.

Is the U.S. economy heading toward a similar recession with interest rates being pushed down close to zero? Probably not. The U.S. first and foremost has a fully functioning and well-capitalized banking system which alleviates many of the problems that Japan is facing. Secondly, as I noted before, real interest rates are what matter, and with the Fed decreasing short-term interest rates so quickly, the nominal rate is dropping faster than the rate of inflation, thus decreasing the real interest rate. The Bank of Japan, by contrast, did not cut nominal rates as quickly, and so the real rate was slow to follow.

Has the Fed been doing the right thing recently? I would say so. Federal Reserve Chairman Alan Greenspan is pushing nominal rates down quite aggressively, especially with the most recent 25 basis-point cut in December, trying to get them below a falling inflation rate. Until inflation ceases to fall and the economy shows some signs of coming around, he will pursue this difficult and controversial task of getting real rates to around zero.

THE PHILLIPS CURVE STORY

The Phillips Curve explains the relationship between unemployment rates and inflation rates. It would be easy to assume that a state would want all of its citizens employed. In the most basic sense this is correct, but it has been shown that there is a natural rate of unemployment, as shown by the Phillips Curve, in which the economy is at full utilization. This basic idea is shown by "demand pull" theory, which says that if too much is demanded by an economy than prices will rise causing inflation. Intuitively, the theory says that once an economy has reached its natural or full employment level the demand for more output will exceed the supply capabilities, thus causing prices to rise as a result of the increased demand and inability to increase output. This is the theory that is the basic premise for the curve and the curve's claim that if unemployment is below its natural rate there will high inflation rates and if there is a high unemployment rate where inflation rates will be low.

The state the economy is in right now is quite different than it has ever been, and is not necessarily holding to the Phillips Curve theory. In the last part of the 90's and the first year of this century there was rapid growth with a low unemployment rate and a low inflation rate. The low inflation rate is partially a result of the high import rates caused by the strong U.S. dollar in the past five years. Imports have kept prices down as there was not the "demand pull", as mentioned above, caused from high demand and inability to keep up with supply needs. The other cause of low inflation rates was the technology boom that helped suppliers to keep up with high demand although labor was more than full. Many theorized that this new phenomenon might have meant a shift in the curve, causing new standards. The recent recession we have seen, however, is beginning to bring the economy back into equilibrium in terms of the natural rate of unemployment and inflation rates. Unemployment has been rising and is now at 5.7%, the highest we have seen since August 1995. This is still below the full level which is now at 5.94%, but it seems as if it is rising up to this level and by the end of the first quarter of 2002 will be just above the 6% mark. Inflation rates seem to be following the Phillips Curve theory as we are seeing very low rates while unemployment grows and some talk has even been made about potentially seeing deflation in the near future. Future unemployment rates are expected to fall back down to the 5.5% mark by the end of 2003.

FROM SURPLUS TO DEFICIT AND THE ROAD BACK

The year 2001 has been a time of great change. The year started with a Government surplus of near unimaginable amounts, over 250 billion dollars, which was very fortunate for the recently elected, President Bush. Backing his campaign promise, Bush passed a ten-year, $1.35 trillion tax cut bill. Unfortunately for Bush, he also inherited a time of economic decline, which has made his tax cut seem timely. The events of Sept. 11th were the final push that the U.S. economy needed to be driven into a recession. Between the recession, the events of September 11th, and the War on Terror, the U.S. Government has had to be the

guiding light for a country that has been unsure of what was to come.

The Government responded quickly to the events of September 11th. Immediately after the event, Congress passed a bill authorizing $40 billion as emergency spending on a bill that would fight terrorism and rebuild areas that were damaged due to the terrorist events. This money was not, nor will not be spent immediately as these things will take time, it is however money that will eventually be plugged into the economy that will help to strengthen it. It is expected that $25 billion of this bill will spent in the fiscal 2002 and the rest will come afterwards. Other aid given out by the Government has gone to many of the industries affected by the events, most notably the airline industry. The airline industry will receive $5 billion in grants, $3 billion to cover security costs and another $10 billion in guaranteed loans. Altogether this money will boost overall Government expenditures, but more directly there will be an increase in Federal Grants-in-Aid to State and Local Governments and an increase in subsidies seen for the final quarter of 2001 and into the fiscal year of 2002 and perhaps beyond.

In response to the announcement that the country is in an official recession, the Government acted very quickly. An economic stimulus package was passed by the house valued at $100 billion. Much of this money will be a corporate stimulus to try and spark business, which will in turn spark the economy. More money will be filtered through the economy because of the War on Terror, which could potentially last several years. Not much new money is being spent on the war effort as of yet, however as it continues into the future, new weapons and machinery will certainly be needed and this will come from an increase in defense spending in the future. Eventually this money will also be filtered through the economy to help create a small wartime boom.

Overall, the Government has acted quite quickly and rationally in this time of turmoil. It should be added that the surplus that the Government began the year with has quickly diminished and there is now a deficit projected for the fourth quarter of 2001 at around $66 billion. It is believed though, that the deficit will only shrink in the years to come. This deficit is a result of the tax cuts and the considerable aid that was given out in response to the difficult time that the United States has faced in the past year. The aid together with the stimulus package should certainly help to give relief to those in need after the terrorist actions while stimulating the economy that is in a recession for the first time in ten years. The events of the past year and what is to come in the future certainly has tested and will test the strength of the U.S. Government and thus far the Government has certainly responded with confidence.

THE DOLLAR'S EFFECT ON TRADE

In order to create a forecasting model of the U.S. foreign sector, our analysis of exports is concentrated on America's major trading partners consisting of Canada, Mexico, Japan, the U.K., and the European Monetary Union. The slowdown in the world economy is creating the idea that a weaker currency will promote a country's exports in a way to steal economic growth away from its trading partners. Asian countries, including Japan, whose technology exports to the U.S. have been diminished due to weak American demand, are compelled to let their currencies devalue in order to gain a trade advantage. Unfortunately the weakness in the Japanese yen means that the already strong dollar will have to appreciate. This would appear to be detrimental to American exports and GDP, while inviting a surge of imports into the U.S. Japan is unable to use monetary fiscal stimulus to boost their economies, so currency devaluation may be their only remaining option. When the U.S. economy was booming, the down-side of a strong dollar didn't matter. But with the U.S. in a recession, a strong currency has the potential to exacerbate the economic harm. Fortunately, we forecast a depreciation of the dollar relative to the rest of the world by the amount of 2.22% from quarter 4 of 2001 to quarter 4 of 2002 and , similarly, a 2.28% decrease from quarter 4 of 2002 to quarter 4 of 2003, despite Japan's problems. This is mainly due to the competition imposed by the euro, and the current strong value of the dollar, which some view as overvalued.

Historically the U.S. dollar has been a strong currency that people have relied on. There have been instances where other currencies have rivaled the dollar, but the dollar has been consistent overall. The most recent currency to rival the dollar is the Euro, the common currency of the EMU. After its introduction in 1999 the Euro declined immediately. Economists are not sure why the Euro behaved this way. The Euro is not in note form yet. It will start replacing local currencies in January 2002. The European Central Bank, ECB, hope the transition will be complete in a few weeks of when it begins. The success or failure of this introduction will affect the dollar. One of the theories suggested for the Euros weakness is that people have more trust in the FED than the ECB. With the extraordinary recovery of the U.S. economy following September 11th, trust in the FED seems even greater. If the Euro notes fail in their introduction, people will see the dollar as the only safe haven. This trust in the dollar will translate into increased demand for the dollar, and the dollar will get stronger. If the Euro note transition is a success, there will be two safe haven currencies, or the Euro will be seen as the only safe haven. Thus either the dollar will not be affected, or

demand for the dollar will decrease resulting in a weaker dollar.

Could the US, Canada and Mexico become the next monetary union? Well probably not in the same way as the European Union, but due primarily to the loss of value of the Canadian looney versus the American greenback, the last few months have seen talks of possible dollarization in Canada. This would prevent further depreciation of the looney, which has been breaking record lows relative to the dollar while increasing trade between the two countries. We believe that if dollarization does take place in Canada, Mexico will not be far behind in fear of loosing ground as a favored trading partner. According to Ricardo's theory of comparative advantage, this monetary union would increase productivity by allowing for labor and capital to move with increased ease among North American nations.

MONETARY POLICY

With the economy currently resting on edge of a cliff in the aftermath of September 11th, a volatile stock market, low consumer confidence, and the foreboding recession, monetary policy in this country has been exceedingly active and Alan Greenspan, current chairman of the Federal Reserve Bank has his work cut out for him. The U.S. economy has been forging through unknown territory for the last 4 months and as uncertainty continues to remain, the outlook is grim. Interest rates have reached a bare minimum, with the fed funds rate at 1.75 percent and the discount rate at 1.25 percent. We are nearing the end of the rate cuts. The Federal Reserve began cutting the Federal Funds rate in the fourth quarter last year and has since cut the rate 12 times as the economy continues to slide into recession.

The fed funds rate is controlled by open market operations. Open market operations are a powerful tool through which the Fed conducts monetary policy. The definition of open market operations is the purchase or sale of U.S. treasury securities or federal agents securities by the Fed as a method of monetary control. Open market operations have been considered the single most important monetary tool used to instrument policy. When the Fed performs an open market operation, either buying or selling securities, the economy is affected in three ways: the total level of reserves change, the price and return on the securities adjust, and expectations within the economy are altered. The Federal Reserve Bank also has control over the discount rate, which is the rate at which the fed will loan overnight funds to banks. The current monetary policy leaders have been pursuing aggressive expansionary monetary policy. The money supply has been increasing through purchase of government securities pushing interest rates down to help boost the economy and brings it out of the current recession.

The fed has been setting a target for the fed funds rate and consistently keeping a constant gap between the fed funds rate and the discount rate to keep equilibrium in the market for reserves. By targeting the fed funds rate the fed is also targeting borrowed reserves, which in turn controls the supply of money in the economy. This effect is observable in the following graphs; one can see the discount rate exactly mirrors the fed funds rate.

The road to recover from this recession will be slow and steady and is expected to begin after the first quarter of next year. The forecast for the fed funds is that it will remain low while the economy recovers from the recession. Due to gains in productivity over recent years unemployment will continue increase beyond the termination of the current recession. With interest rates already as low as they are, other rate cuts are unlikely. The price level has remained stable throughout this recession and will possibly fall slightly, further limiting the fed's ability to cut rates. After pulling out of the recession the slow recovery will keep interests rates far below the level they were at when the rate cuts began. The fed funds rate is expected to reach approximately 4.15 percent by fourth quarter of 2003.
The long-term market interest rates, including government securities and mortgages rates are showing signs of growth in the future. This can be credited to expectations that the market will soon be recovering from the recession, however, U.S. monetary policy will remain defensive in this time of economy instability.

WILL PRICES FALL TOO LOW?

The National Bureau for Economic Research officially declared that the US slipped into recession in March 2001, ending the longest period of expansion since 1854. It defines recession as "a significant widespread decline in activity lasting more than a few months, as seen in industrial production, employment, real incomes and volume of wholesale and retail sales." A period of recession is typically characterized by a decreased rate of inflation (disinflation), which is already a fact in the US. Two of the main proxies for measuring the inflation rate – the consumer price index and the producer price index both decreased in October – down by 0.3% (biggest fall since 1986), and 1.6% (biggest fall since 1940) respectively. Whereas a decrease in the price level is usually a good thing, there are also several channels via which it can hurt the economy. This article examines the costs of disinflation and whether this phenomenon will be a real threat in the near future.

During the recent boom in the technology and telecommunications sectors, prices were falling due to an increase in productivity. In this case, falling prices

is a good thing – it leads to a rise in real incomes and increased spending power. Computer and tech companies could sustain price cuts because of those enormous productivity and technological advances.

However, disinflation could create significant costs. A rising price level characterizes a growing economy. If this changes and we enter a period of price cuts, confidence in the economic future will be hurt. Price stability enables producers, consumers, lenders and debtors to make long-term plans. Unanticipated disinflation, or even worse, deflation, will lead to misallocation of resources and increased risk stemming from uncertainty about the future profitability of businesses. The higher risk premium will increase the cost of capital for companies, especially for smaller and less credit-worthy ones. Investment, and hence demand and the price level will shrink even further. Most recent data prove this – in the third quarter of this year capital expenditure fell at a 12% annual rate. There is still excess capacity caused by over-investment in the recent tech bubble. The average operating rate across all industries, a measure of the level of capacity utilization and hence operating efficiency, started falling in the third quarter of 2000 and dropped to 76.2% in the third quarter of 2001 (74.5 for manufactures). Consumer sentiment started falling in the second quarter of 2000 and was particularly hurt by the September 11th events. We used the University of Michigan index (base for the index is first quarter of 1966=100) which we forecast will plunge to 80.3 in the fourth quarter of 2001, down from 88.6 in quarter 3 of 2001. The negative consumer sentiment will lead to less consumer spending. Since consumer spending accounts for 2/3 of GDP, this drop will hurt aggregate demand and will push the price level further down. The slump in aggregate demand will be self-reinforcing, both on the consumer and the producer side. Firms' profits are reduced, and since wages are extremely sticky downwards, prices will be cut further to maintain competitiveness. Furthermore, the last economic boom saw excess investment, ample global capacity and increased foreign competition, which reinforce the downward pressure on prices. The data on corporate profits reinforces the above mechanism – they started falling at the end of 2000. In the third quarter of 2001 they stood at $696.7bn, down from $847.6bn in 2000. We forecast a rise in quarter 2, 2002 to $682.9bn.

A lower price level causes a higher real debt burden, since debt is usually negotiated in nominal terms. During the last boom many companies over-borrowed and could now file for bankruptcy, causing bank failures. Households also incurred large debts. Real estate values rose and individuals could borrow against those. Home sales in November slipped with the majority coming from inventories and not from existing homes, which means that the market is weak. A fall in real estate values will cause an adverse wealth effect, meaning that individuals will suppress their spending and shrink aggregate demand.

The current economic conditions make this recession different from the general definition. Industrial output started falling in the fourth quarter of 2000. In quarter 3, 2001 the industrial production index was 139.6 (1942=100), down from 145.7. However, although employment is currently growing, it is not at a historical high and real incomes have actually risen. Part of this increase is due to the productivity enhancement of recent years, but it can be argued that since wages are already set by longer term contracts and cannot be easily adjusted downwards, the only ways for businesses to cut costs is by laying workers off. Less workers and a lower price level will raise real incomes. Nevertheless, because of the existence of a "money illusion" and low consumer confidence, exacerbated by the September 11th events, individuals might still spend less than desired and will hinder recovery.

An additional factor that might lead us to believe that strong disinflation could be a serious problem are oil prices. In the past they have been a major catalyst for inflationary pressures, which under the current circumstances might not have been a bad thing. The average price of gasoline, measured in $/gallon fell to 1.56 in the third quarter of 2001 (down from 1.72 on a quarterly basis). Our forecast is for a further decrease in the fourth quarter to 1.45. Crude oil prices started sliding down in the first quarter of 2001. We do not expect a rebound until the third quarter of 2002. The direction of where oil prices are going depends on the willingness of Russia, the world's second greatest oil exporter and a non-OPEC member, to curtail production.

The other indicator that points towards sustained spiral of price decrease are commodities prices, the raw inputs in the economy. They indicate future economic downturns long before the other better known ones show it. Industrial metals such as copper, zinc, and tin are currently trading very cheaply. Copper futures prices, which fix a price for the good for a specific future date, are 20% down this year. On November 26th, The Bridge-CRB Commodity Index, which consists of 17 commodities, was 16.8% down for the year; the Dow Jones-AIG Commodity Index sunk by 21.1%, with declines in all 14 sectors.

There is no doubt that the economy is in a recession. As already discussed, slowdowns are accompanied by disinflation, which might turn into deflation. This article briefly discussed the costs associated with less stable and lower prices, and examined the main economic indicators that could be a sign of whether there is currently a serious "low price" threat. The answer would be yes if the upturn does not

come quickly enough. Our forecast is of a recovery in the second quarter of 2002, which is soon enough to prevent the US from slipping into a disinflation spiral. The chart of the consumer price inflation shows a slowdown in the price level increase (disinflation), but remains positive, meaning that deflation could be avoided. Moreover, we do not foresee a fall in nominal GDP. In light of September 11th and the recession, there has been a lot said about the threat of disinflation and even deflation, and the US economy was compared to Japan. We forecast an increase in all major economic variables in the first half of 2002, which will help boost the economy and escape the "low price" threat. On the other hand, lower energy and commodity prices, lower mortgage rates, and the tax cuts should fuel aggregate demand and recovery. A very important ingredient in our GDP equation is consumer sentiment and business expectations. It should be the policymakers' responsibility and priority to restore the confidence of the US consumer and producer, a challenge after the tragic events that happened in September.

GASOLINE PRICES

The gas price story is a hot conversation topic as daily we see the prices fall at the local gas station. Within months gas prices have dropped from a high of $2.00/gallon to a present low of just over a dollar. The story with the low gas prices that we are seeing today is a result of a couple of different factors. First, the slowing economy and recession we are in have led to a dramatic drop in oil demand by industries specifically. This fall in demand, which is common during economic slowdowns, can often be countered by reduced production, which will keep prices high. What is happening now though, is that OPEC wants to lower production levels, but Russia, who is a non-member and now the world's second highest producer, is refusing to cut production levels to the mark that OPEC wants. Russia's stubbornness to comply with OPEC's wishes is the main reason that production levels have not fallen and prices have not stabilized during this recession. Another cause of the volatility of crude oil prices is the uncertainty of all that is happening in the Middle East. While everyone has guesses, no one is sure where the war on Terrorism is going to effect next, but it is very realistic to believe that it will involve Iraq or other large oil producers.

In summary, the drop in gas prices is simply a result of a fall in demand from a sluggish economy as well as high supply level caused by Russia's stubbornness. Also the future of gas prices is expected to be very volatile with uncertainties as to the future of the Middle East and the war on terrorism. We are expecting to see the low gas prices begin to rise back toward $1.60 after the first quarter of 2002.

THE MAINE ECONOMY

With changes in technology and the depletion of natural resources, several of Maine's traditional economic activities have experienced a downturn in recent years. Lumbering, shipbuilding, fishing and textile industries, while successful in the past, have been undercut by these changes as well as competition from other states. While agriculture has always struggled against a harsh climate and adverse soil conditions, the mineral wealth of the state is impressive, consisting of granite, sand, gravel and peat. As a leading producer of paper and wood products, and a strong contributor to food and transportation equipment production, manufacturing continues to be the largest sector within the Maine economy. Additionally, the beauty and tranquility of Maine's outdoor environment translates into a strong and increasing appeal for tourists, seasonal visitors, and retirees.

Using a total of 10 regional and 6 national variables, a model was constructed to define equations for 9 important indicators of the Maine economy, including total and non-manufacturing employment, the Maine unemployment rate, Maine retail and lodging sales and personal income. The data used in the analysis was subset to the range 1992:1 - 2001:3, to best describe the condition of and relationship within the economy since the last recession. A variety of statistical techniques was used to produce forecasts for the model's variables, and these forecasts were used to generate predictions for the major indicators themselves. Finally, the major five indicators were used to construct a weighted index, the Colby Coincident Index (CCI), designed to describe aggregate economic activity. The most pronounced advantage to this index is that it acts as a proxy of Gross State Product, but is significantly simpler to construct and calculate.

The Maine Economy: Manufacturing Workers

Manufacturing is composed of a set of base industries for the Maine economy. These base industries are primarily paper and pulp producing plants. Such industries promote increased economic activity by providing disposable income to a large portion of the population. Moreover, an employee of a manufacturing plant earns a higher average salary than employees in other sectors.

Unfortunately, the manufacturing industry in Maine is likely to shrink even quicker than it has been in the past, due to the September 11th atacks and the nationwide recession. At one point during the past hundred years, 50 percent of all jobs were in the manufacturing sector. Today, just over 13 percent of all jobs are in manufacturing; and this ratio is still decreasing. As the national economy is now more service and information driven, Maine's economy is moving in a similar direction. Fortunately, although

very slowly, the number of non-manufacturing jobs is increasing with the decrease in manufacturing jobs. Most recently the decrease in manufacturing jobs has been fed by the current recession. Nationwide, firms are cutting back their spending on advertising, which has and will continue to reduce demand for paper. A mill in Millinocket even closed down for two weeks in the fall to fill orders. Also, much of the decrease in the manufacturing employment is a function of Main's population. In 1997, for example, the state's population grew by only 3,000. Furthermore, not all of these people are part of the labor force, as a significant portion of Maine's population is elderly.

The growth rate of manufacturing jobs will probably bottom out at –18% in the third quarter of 2002 and then slowly start increasing again, reaching –9.5% by the end of 2003. But helping to offset this will be a trough of the non-manufacturing employment growth rate at just -.15% and then an increase to 2.6% by then end of 2003. However, this will not be enough to overcome the problems posed by Maine's stagnant population growth and the shrinking of the manufacturing sector.

Energy in Maine

As history has taught, energy prices have held a large role in determining the severity of recessions. On a basic level, because of the price inelastic nature of energy-driven goods such as cars and home heating systems, when supply of energy becomes stressed, Americans take a hard hit. This is especially exaggerated in the context of a recession, as seen in 1990-1991. This is where the current recession may differ, however. In the aftermath of the September 11th attacks, individuals became increasingly concerned about the state of the nation's security, thereby restricting travel to a minimum. The following decrease in demand for gas resulted in the depressed prices we see at the pumps today. Furthering this effect, was Russia's resistance to OPEC's requests for a cut in production. This request was fueled by OPEC's desire to head off the extreme decrease in crude demand that have seen prices fall from as high as $34 a barrel 14 months ago to below $16 in late November. It has been estimated, that without a substantial cut in production, prices could fall to as low as $10 a barrel. As of December 5th, however, Russia has conceded to cutting production by 150,000 barrels a day in order to protect their own economy from a recession. With each falling dollar in crude prices, Russia losses about 0.3% of GDP and $1 billion in federal revenues (Business Week, 12/3/01). With the new agreement, oil production will be cut by a total of 2 million barrels a day, and prices will be stabilized.

What does all of this mean for Maine? With Waterville gas prices at $1.07 per gallon of regular, this means decreased transportation costs, and therefore more money for other things. Additionally, as released by the State Planning Office on November 26th, the statewide heating oil average is $1.12 a gallon, $0.44 lower than the average at this time last year. In the context of the recession, the declining transportation and energy costs may provide a softer landing and the extra spending money could help keep retail sales out of the gutter. At the very least, it will provide for happier holidays.

The Maine Economy: Vacationland

As "Vacationland," Maine is very dependent on the retail sales sector. Tourism brings revenue in through both lodging sales (hotels, motels, condo rentals, etc.) and the goods and services that those tourists purchase while on vacation. Specifically the southern third of the state receives the majority of this revenue.

Vacations destined for Maine are more spontaneous and less planned than those that are going to more traditional vacation spots such as the beaches of Florida or the mountains of Colorado. This factor combined with the recent decrease in air travel and the recession, may prove to be helpful to Maine tourism, as many New Englanders that would have previously flown somewhere for vacation will now stay closer to home.

Also, the increase in the Canadian exchange rate (US$/C$) will help draw Canadians to vacation in Maine, as they find that they can now get more for their dollar here. The rate has recently hit a record high, as a result of decreasing commodity prices, low interest rates (which have been cut 8 times this year), and low stock prices.

Overall, it seems as though Maine tourism will not get hit has hard as many had thought. Lodging sales should pull out of negative annual growth by the first quarter of 2002, and retail sales should regain positive growth by the second quarter of 2002.

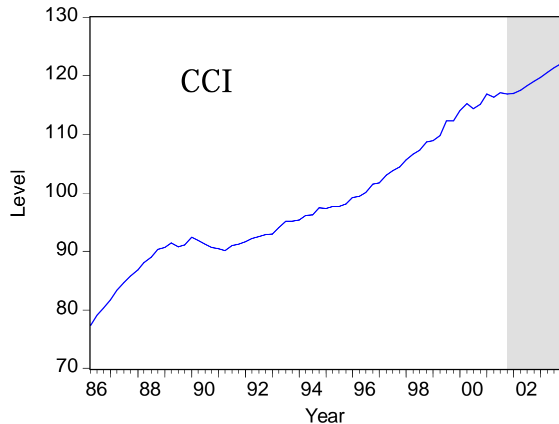
Colby Coincident Index of the Maine Economy

The CCI was designed to provide an assessment of the Maine economy and a trend for Gross State Product that could be obtained prior to the release of actual updated statistics. It relies on the five most important regional indicators.

These indicators include non-agricultural employment, personal income, retail sales, average weekly hours of manufacturing production workers, and lodging sales. This structure provides a full, but concise picture of the economy. Indicators with high variability are weighted less in an effort to capture primarily trend components and filter out expected variations.

Non-agricultural employment represents the most highly weighted component in the index. Because of

the relative stability of the series, changes in this indicator are relied upon as being more indicative of major changes in the overall economy. Retail sales and lodging sales, on the other hand, are given relatively less weight in the index due to their highly volatile nature. Additionally, it should be noted that lodging sales is an unusual addition to the index, and is utilized here to emphasize the importance of tourism to the



*Shaded area denotes forecast horizon.

Maine economy.

While retail sales and lodging sales seem to be shrinking slightly in the third quarter of 2001, non-agricultural employment growth is clearly slowing down from the high rates sustained throughout the late 1990's. Since 1999 the average annual growth of employment was 1.52%, while over the past two quarters, there has been only .15% growth. This stagnant growth is primarily attributable to the slow-down in the manufacturing sector.

Powered by retail sales and dropping interest rates, the Maine economy was posed for a rebound by the end of summer 2001. The events of September 11th and the confirmation of the recession, however, have reversed those predictions. Fortunately, as a result of decreased debt, increased reserves and a more diverse economy, Maine is more adequately equipped to handle a recession now than it was 10 years ago. Also, although the presence of the technology sector is increasing in Maine, it is still not as important a component of the economy as it is in most of the United States. Because of this, the Maine economy may be partially sheltered from the nation-wide recession.

The Maine economy is forecast to be hit lightly by the recession. It should be feeling positive growth again by the end of the first quarter of 2002, as employment, retail sales, and tourism pick up again. However, if vacationers limit their travels more than expected this year and manufacturing continues slowing down, Maine's recession could more closely mirror the entire nation.