

# Colby Economic

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# O U T L O O K



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The Colby Economic Outlook is produced by the students enrolled in Economics 473, a senior seminar in economic forecasting at Colby College under the direction of Associate Professor Michael Donihue. This year's CEO takes a look at economic conditions in the US and around the world and presents our short-term outlook for the Maine economy. Also featured in this year's edition is a forecast for how the citizens of Maine will vote in the 2004 Presidential election and a case study covering alternative stock market investment strategies.

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## Troubling Events Hamper the Global Economy

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Recent world events have created challenging struggles for the global economy and an uncertain environment for the economic forecasts in this year's CEO. The disconcerting events of the past 18 months have left investors and corporations in flux. Consumers and corporations are becoming more focused on cash conservation than investment as they worry about the future.

In the United States consumers continue to keep the economy afloat. The hangover from the collapse of the tech bubble combined with uncertainties around the world have dealt a severe blow to the stock market. Yet the apparently large negative wealth effect has not pushed the economy back into recession. Consumer confidence is low but spending this holiday season has been strong. Despite aggressive intervention on the part of the Fed, resulting in historically low interest rates, companies are having a hard time getting a clear picture of future earnings and hence new spending on capital goods remains sluggish. Manufacturing output has shrunk for the past three months showing that demand is still not as strong as in the past and inventories remain high. State governments are dealing with

dramatic revenue shortfalls in Maine and around the country and cuts in spending are likely to be met by higher taxes as they struggle to meet constitutional requirements to bring their budgets into balance. Real estate has been one of the strong sectors in the economy as increased demand for housing and low interest rates have spurred growth in real estate values and new home constructions. Adding to the uncertainty are fears of a developing real estate bubble in some regions of the country reminiscent of the 1980s.

The Israeli-Palestinian conflict, the specter of war with Iraq and the battle against terrorism have left the Middle East in turmoil and the stability of world oil prices in doubt. In Asia, China continues to emerge as an economic power and the relationship it has with the United States has improved significantly since the terrorist attacks in the US of September 11<sup>th</sup>. In Southeast Asia a string of terror attacks, most notably in Bali, has crushed the tourism industry in that region. And in North Korea the revelation that Pyongyang has been developing nuclear arms in violation of a 1994 treaty has filled the region with more tension.

## A Snapshot of Inflation and Unemployment in the US

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The levels of inflation and unemployment in the United States are key gauges monitored by economists and policy makers in Washington. Despite recent criticisms that he mishandled the build up and collapse of the 'tech bubble' in the stock market, Federal Reserve Chairman Greenspan has generally been credited with a remarkable period of low inflation, steady prices, and sustained output growth prior to last year's recession. Thus civilian unemployment is now the main factor analysts watch in this consumer-driven economy.

In this year's CEO we forecast the civilian unemployment rate using a model designed to

capture its historical relationship to the gap between actual output growth and the economy's 'potential' growth rate, as estimated and forecast by the Congressional Budget Office. According to this week's report from the Bureau of Labor Statistics, more jobs were lost than created through the first 11 months of this year as the economy continues to struggle with the effects of last year's recession. Improvements in employment generally lag behind turning points in output growth as firms wait to expand their work force until aggregate demand is clearly on the rise. Our forecast is for the unemployment rate to average just over 5.7% this year – an increase of almost a full

percentage point over 2001; showing little improvement in 2003; and then falling to roughly 5.5% in 2004 and settling in at about 5.3% by the end of the forecast horizon.

(minus food and energy prices) inflation. This broad measure of prices tends to run about 0.5 to 1.0 percentage points below reported CPI inflation.

Our unemployment rate forecasts are used as inputs into another model to produce our outlook for overall price inflation in the US economy based on a modified Phillips Curve designed to capture an assumed policy tradeoff between lower inflation and higher unemployment. Our model incorporates inflationary expectations on the part of economic agents and forecasts the rate of growth in the chain-weighted price index for the business component of Gross Domestic Product. This provides a broad-based measure of overall prices in the economy and is favored by policy makers. In addition to the unemployment rate, our model also incorporates the rate of growth in worker productivity and the gap between import price inflation and the rate of 'core' CPI

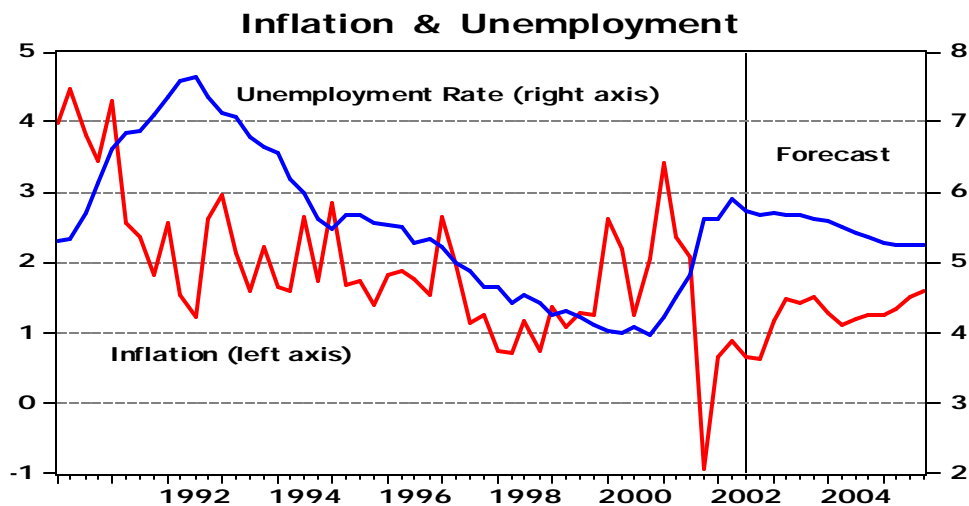
We predict that prices for the business sector of GDP will rise by just 0.73 percent this year and rise by another 1.4% next year. Inflation is forecast to moderate slightly in 2004 before settling in at 1.4% in 2005.

An interesting feature of our Phillips Curve model is an ability to infer, for policy making purposes, a value for the long-run rate of unemployment in the US – the so-called Non Accelerating Inflationary Rate of Unemployment, or NAIRU. Our estimate of the level of unemployment consistent with an economy growing at its potential rate of growth and with stable prices lies in the range of 5.75 to 6 percent, depending on the assumed rate of productivity growth in the economy.

### Inflation & Unemployment Forecasts

Variable	Actual	Forecasts			
	2001	2002	2003	2004	2005
Unemployment Rate (%)	4.79	5.73	5.67	5.46	5.26
Inflation* (%)	1.73	0.71	1.40	1.21	1.42
<i>Assumptions</i>					
Real GDP Growth (%)	0.25	2.51	2.77	3.43	3.43
Output Gap**	2.90	-0.43	-0.20	-0.66	-0.07
Productivity Growth (%)	1.08	4.70	2.63	2.50	2.50
Import Price Gap***	-7.86	2.39	2.00	2.00	2.00

\* Nonfarm GDP price index  
 \*\* Potential GDP growth – Actual GDP growth  
 \*\*\* Import Price Inflation – 'Core' CPI Inflation

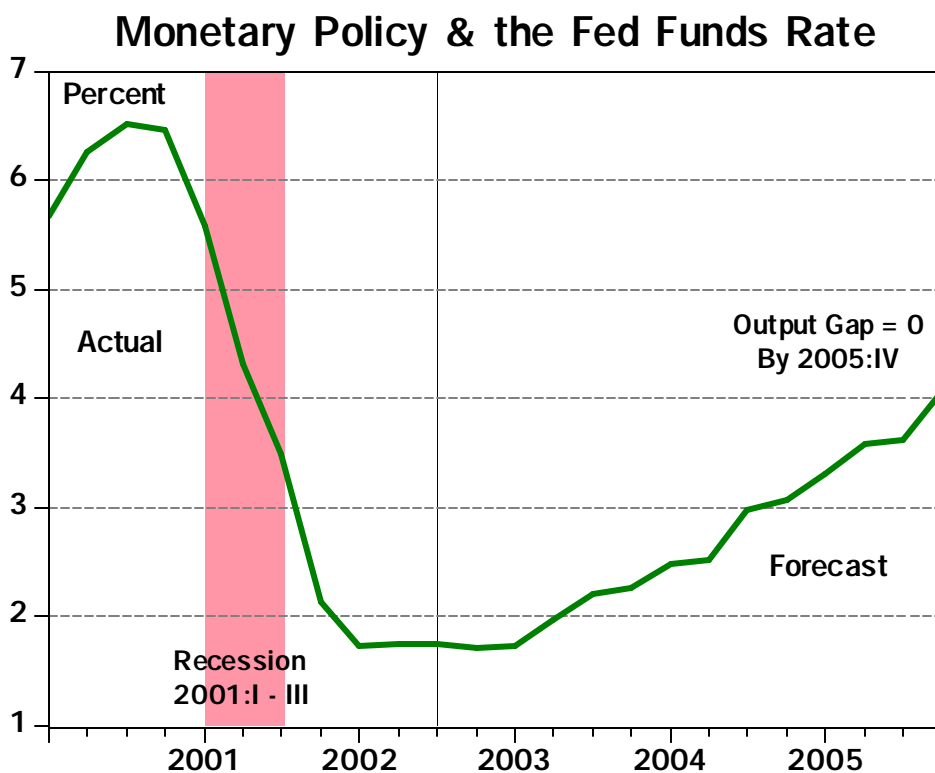


## The Fed Tries to Steer the Economy Toward Recovery

In light of the turbulent times the US economy has been experiencing, the Federal Reserve Board of Governors has done remarkably well at using monetary policy as a stabilization tool. Throughout the exceptional growth in the 1990's the Fed kept monetary policy fairly stable with an average Fed Funds rate of 5.25%. Towards the end of 2000 there was some tightening of monetary policy in an attempt to slow the economy down. The interest rate on Federal Funds reached a high of 6.5% in the third quarter of 2000. After the burst of the technology bubble, the economy began to experience a slowdown. In order to try and prevent a prolonged recession, the Fed cut its target rate on interbank lending on 10 occasions during 2001. On November 6<sup>th</sup> of this year the Fed cut this key indicator of monetary policy again to its current level of 1.25%— the lowest nominal rate in over 40 years. As a result, interest rates have tumbled throughout the economy with the prime lending rate falling below 4.75% and the rate on passbook savings and money market accounts to less than 2%. Mortgage rates have also fallen dra-

atically and the resulting wave of refinancing this year has put more money in consumers' pockets and helped prop up the economy.

Our forecasts for future interest rate movements are based on a reaction function – an econometric model that tries to capture how Fed policy makers 'react' to current economic events in determining their target Fed Funds rate. We forecast the Fed Funds rate using a multivariate regression that incorporates movements in the discount rate, inflation, and the output gap. We then use these forecasts predict future movements in other short and medium-term interest rates – essentially tracing out the yield curve – that are important for our model of the Maine economy. Given our assumptions of modest 4<sup>th</sup> quarter GDP growth, no change in the discount rate, and stable inflation, our reaction function correctly predicted a Fed Funds rate cut in the 4<sup>th</sup> quarter of 2003, although not quite of the same magnitude that actually occurred. Our outlook for the future is for modest tightening in monetary policy over the forecast horizon to around 4% by 2005.



## Passive Professionals: A Case Study in Stock Market Investment

Recent stock market performance has been characterized by extreme volatility, both highs and lows of equity prices as a reaction to the burst of the "Technology Bubble" subsequently followed by a decline in Telecommunication stocks, corrupt corporate governance, and uncertain investor confidence. Riddled with the scars of the irrational returns of the late nineties, equity investors are currently trying to pinpoint the market low. The Random Walk Theory (RWT) of equity prices, made popular by Burton Malkiel in his book, *A Random Walk Down Wall Street*, suggests that future stock prices are not dependent on past prices and in essence, are simply random. Modern Portfolio Theory (MPT), currently considered by academics to be the optimal investment strategy, states consistent long-run returns can be achieved at fairly moderate risk through diversification. Combining his RWT with MPT, Malkiel suggests that market timing is not the key to consistent, long-run returns. Rather, the most favorable means of investing is a passive approach, holding a widely diversified portfolio, such as the S&P 500, for a lengthy time.

A now infamous test of this theory, popularized by *The Wall Street Journal*, "The Dartboard Portfolio," takes a group of randomly picked stocks and compares their return to the "buy rated" analyst picks. The "dartboard" represents the passive approach and the analysts the active approach. For this year's edition of the CEO we performed a similar experiment. We created a random portfolio by literally throwing darts at a recent copy of *The Wall Street Journal's* listing of current share prices. The returns from the Colby Random Portfolio (CRP) were then compared to five mutual fund portfolios, which act as a proxy for the analysts' active approach, and the performance of the S&P 500 – Malkiel's proclaimed 'superlative' investment. Some of the more well-known companies represented in the CRP are Lockheed Martin, Ralph Lauren, International Paper, and Dave & Buster's Restaurants. The mutual fund portfolios were selected from a stratified sample of growth, value, small capitalization and large capitalization stock funds from the upper portion of the Lipper rankings.

	Portfolio						
	CRP	S&P 500	FDEGX	FBGRX	FCONX	FMIEX	FMSPX
<b>1 YEAR</b>	-7.20%	-17.44%	-38.28%	-18.63%	-14.11%	-16.01%	-14.60%
<b>2 YEAR</b>	1.18%	-29.59%	-80.38%	-43.64%	-38.41%	-24.20%	-35.99%
<b>3 YEAR</b>	2.55%	-34.46%	-78.60%	-29.96%	-29.96%	-21.43%	-12.26%
<b>4 YEAR</b>	-4.50%	-21.45%	-62.27%	-26.90%	-10.25%	-25.64%	-2.04%

\* Years based on weekly returns, last week of November 1998-2002.

The CRP outperformed both the S&P 500 as well as all the mutual fund portfolios except for the four-year growth of FMSPX. More importantly, the S&P 500 outperformed most of the funds in all the time spans and where it did not, the funds could not consistently beat the S&P 500. While the CRP has outperformed the S&P 500 for the past four years, over a more significant amount of time, they are sta-

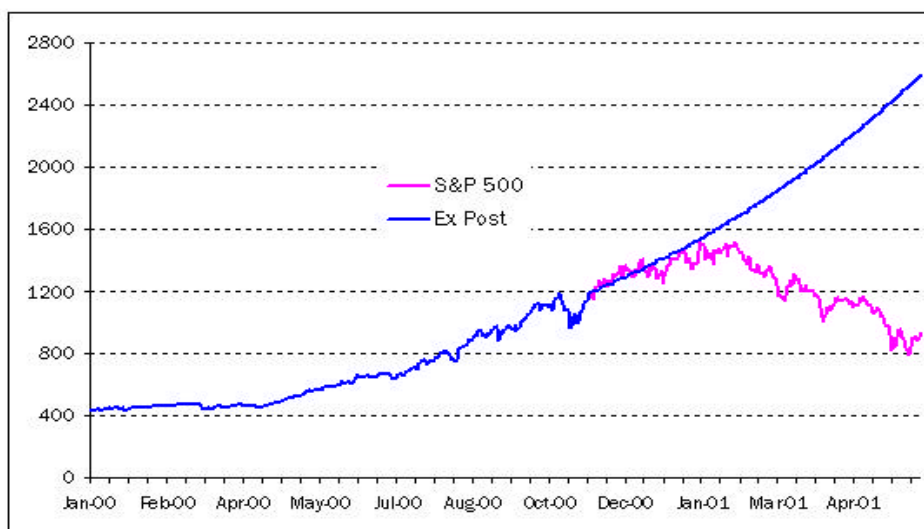
tistically proven to be relatively equal. The outcome of this experiment suggests that even in a relative short time span, passive investing will outperform the active fund managers – the CRP's "dartboard" approach and the S&P 500 will beat the pros.

To further demonstrate Malkiel's point that stock returns are unpredictable, the CEO has

run an ex-post forecast of the CRP and the S&P 500 over the last four years, using a random walk linear regression model. According to the Random Walk Theory, the forecast should be a basic linear projection, without varying fluctuation. However, future data should include a random disturbance term, meaning that actual future growth is essentially a random deviation from the forecast.

The actual growth for this span in the CRP was -4.5% while the forecast was for 34.9% growth – a staggering difference. The S&P 500 was forecast to grow 116.8%; actual growth was -21.45%, as shown in the graph below. However, these results are consistent with the Random Walk Theory that historical information will not aid in the prediction of future stock performance.

### Random Walk As A Forecasting Tool



Using the same forecast method, growth in the S&P 500 from November 2002 until November 2006 is predicted to be 49.4%. This forecast seems excessively optimistic especially given recent years' sub-par performance. One of the factors leading to such a vast forecasted boost in growth can be attributed to certain stocks' stellar forecasted performance such as ICE's predicted 366.2% growth and GAP's 130.3% increase. There is no reason to assume that this forecast should be any more accurate than the ex-post forecast. The future of the equity market cannot be predicted with any certainty, again giving the nod to the passive investment strategy. Therefore, the CEO suggests buying young, accumulating diversified equity indexes, as well as other investment vehicles, and selling old. With a passive investment strategy, investors are far more protected from market fluctuations, no matter what size, than with an active trading strategy.

We can also use these results to examine the opportunity cost of attending Colby College. Consider the representative student trying to value their education at Colby after 4 years. Suppose she chose instead to take an amount equal to Colby's comprehensive fee in 1999 and 'invested' it in the CRP. Then in 2000 she did the same, and again in 2001, and once again in 2002. This is not to suggest that a college education is worth only what is spent on it, but instead, to merely illustrate how the last 4 years tuition would have fended in the market had it not been invested in education.

Had the amount of the four-year total comprehensive fee at Colby been invested instead in the CRP, her investment would have grown 1.7%. Had the tuition been placed in the S&P 500, her return on the investment would have been -23.92%.

Year	Colby	Annual Growth Rate		Returns	
	Fee	CRP	S&P 500	CRP	S&P 500
1999-00	31,580	-1.19%	18.53%	31,204	37,433
2000-01	32,750	-1.60%	-5.22%	62,928	66,516
2001-02	34,290	14.69%	-12.65%	111,501	88,059
2002-03	35,800	-7.20%	-17.44%	136,701	102,262
<b>Total</b>	134,420	-	-	136,701	102,262

\* Colby Fee paid from previous years' returns.

\* Years based on weekly returns, last week of November 1998-2002.

\* Compounded annually, based on yearly lumps sum fee payments.

## In Maine A Reason for Optimism

The Maine economy is currently at a crossroads. After years of strong growth in gross state product, state budget surpluses, and employment, the economy has all but stalled. Many experts forecast this slowdown in Maine to worsen in the upcoming years. We see reasons for guarded optimism, however. There are fundamental economic and demographic issues facing Maine that are cause for concern, but we view Maine's unique economic makeup as a blessing that will ultimately rescue the state.

### Demographics

Population characteristics have a significant impact on any economy. Maine's population, in particular, sets it apart from the other states in the US. Maine's population is growing slower, older, unevenly, and non-diversely about the state. For these reasons, Maine's population proves especially troublesome for its economic well-being.

The population in Maine has grown slower than the U.S. as a whole for the past 130 years. Current projections indicate that population growth in Maine will slow even further. Low birthrates and a high level of out-migration among young people are responsible for this phenomenon.

Complementing the out-migration of young people, aging "baby boomers" are also con-

tributing to Maine's population problem. This cohort represents a significant percentage of Maine's population. In the 1990s, this group was of working age. Now, many of these Mainers are approaching retirement. In order for Maine's economy to continue to grow, able bodies are needed in the workforce, and as the "baby boomers" leave the workforce, they put a strain on the economy. On the whole this age group tends to save more, pouring less money into the economy. If this trend continues, higher health care costs and increased demand on housing and transportation will have to be supported by the smaller percentage of younger people.

Because of the appeal of a retirement in Maine, retirees of the baby boomer generation flock to the state, disturbing the age distribution balance even further. Not only has the age balance in Maine been disturbed, but the population density of the state has also been affected. Plentiful jobs attract people in the south while retirees flock to the coast. Virtually all of the population growth has occurred in the south and along Maine's coastal regions. This has put a strain on the state's infrastructure and threatens to choke off many natural resource dependent rural communities in the north and east.

Another significant characteristic of Maine's population is that it is the whitest state in the nation. Twenty-seven out of twenty-eight citizens are Caucasian. According to former Sec-

retary of Labor, Alexis Herman, “the lack of Maine’s diversity will be a particular challenge for attracting business to the state.” Furthermore, our own world becomes narrower when we lack the insights of people from different cultures.

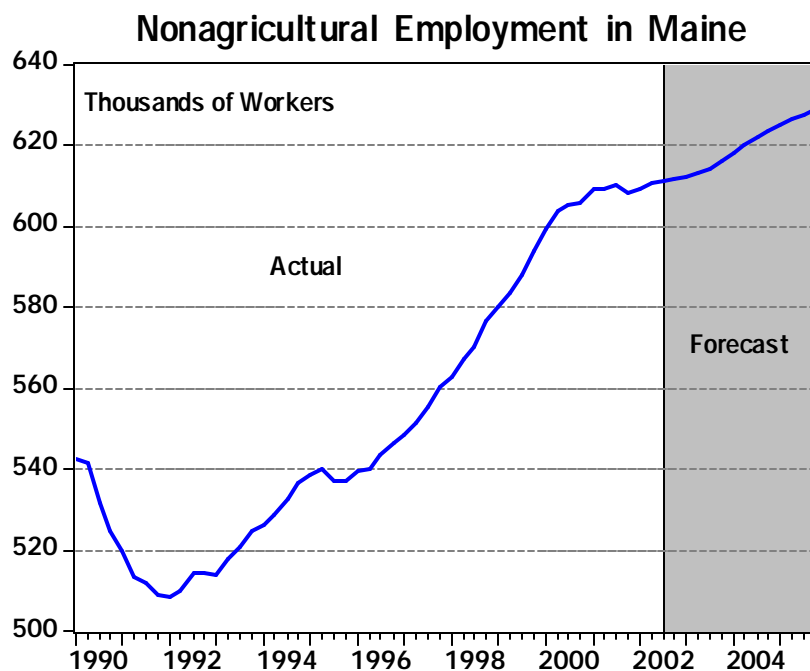
### Total Employment in Maine

Maine’s population dynamics are a major reason for the recent lull in employment growth. However, in the coming years total employment in Maine will begin to bounce back from this most recent slowdown. During the 1990s, total employment grew significantly as the US economy was booming. Between 1992 and 2000 almost 91,000 new jobs were created in Maine. Beginning in 2001, employment growth began to slow, increasing only by 0.93% but apparently Maine weathered the national recession in decent shape. As we begin to emerge from this slowdown and the national economy gets back on its feet, total employment in Maine will continue to grow but at significantly lower rates than during the late 90s.

Due to continued sluggishness in the national economy we saw relatively little employment

growth in the first three quarters of 2002, total employment is forecasted to grow only by 0.24% this year as a result. Employment is forecasted to grow at a slightly higher rate of just over 0.5% in 2003. We then foresee somewhat higher growth toward the end of our forecast horizon, but dampened by the demographic constraints mentioned above. In 2004, total employment is forecasted to grow by 1.09% and in 2005 by 1.00%.

The unemployment rate in Maine has remained consistently below the national average throughout the national recession last year and all of 2002. By the end of 2002 the unemployment rate in Maine is forecast to be 4.2%, making for an average unemployment rate of 4.0% for the year. In 2003, we predict that it will rise slightly to 4.3%. As the post-recession US economy adjusts itself, we will see the yearly average unemployment rate drop to 4.1% and 3.9% for 2004 and 2005, respectively. While manufacturing employment is forecasted to continue its steady decline of the past 2 decades, the non-manufacturing sector will pick up the slack. This redistribution will lead to a lower overall unemployment rate for the state of Maine.



## **A Continuing Transformation for Maine's Economy**

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On top of the demographic issues, Maine continues to experience a transition in the fundamental structure of its economy. Two decades ago Maine still had a significant manufacturing sector. In 1950, one out of every two jobs in Maine was in the manufacturing sector. Today, that figure has dropped to one in nine – mirroring a nationwide decline in manufacturing. The closing of Hathaway shirt factory here in Waterville this year is just the most recent example of the manufacturing sector's move out of Maine. Employment in this sector has been declining for the past 20 years and is expected to continue on this track as the exportation of manufacturing jobs continues. In 2001, manufacturing employment in Maine dropped by 4.8%, the greatest amount since 1991. This decline is forecasted to worsen in 2002, with an anticipated decrease of 6.4%. In the coming years, the decline in manufacturing employment is expected to continue, but at a somewhat slower pace. In 2003 and 2004, manufacturing employment is forecasted to fall by 1.36% and 0.61%, respectively. In 2005 the decline is forecasted to slow further, with employment in this sector falling by 0.15%.

Due to the movement of manufacturing industries out of Maine, the economy has transformed into a service-sector based economy. The modest growth in total employment can be attributed to an increase in non-manufacturing employment, which grew rapidly during the late 1990s, but had slowed in 2001. In 1998, 1999, and 2000, employment in this sector grew by 3.4%, 3.7% and 3.6%, respectively. However, in 2001, growth slowed to just under 2%. Non-manufacturing employment is forecasted to increase by just 1.3% in 2002 and growth will slip below 1% in 2003. We forecast that this sector should recover somewhat after that, with growth rates of 1.3% and 1.2% in 2004 and 2005, respectively.

This transition from a manufacturing based economy to a service-based economy has significant repercussions for Maine's citizens. The manufacturing sector's contribution per job to gross state product has steadily increased over the past thirty years. The non-manufacturing sector's contribution has remained constant. So, as more manufacturing jobs transform to other sectors, gross state product is negatively affected. Furthermore, the transition from manufacturing to services often means lower paying jobs. Admittedly not all non-manufacturing jobs are bad, and not all manufacturing jobs are good. Earlier this month in our discussions with Governor King surrounding this issue and our forecast for the Maine economy, he noted "...a job at MBNA [financial service sector] is a lot better than a job plucking chickens [manufacturing/meat processing]." Clearly beyond the economic ramifications, the change in the economy's composition effects the lives of the people of Maine in many ways. Nonetheless, Maine's new economy will continue to witness substantial changes in the composition and trend of personal income in the years ahead.

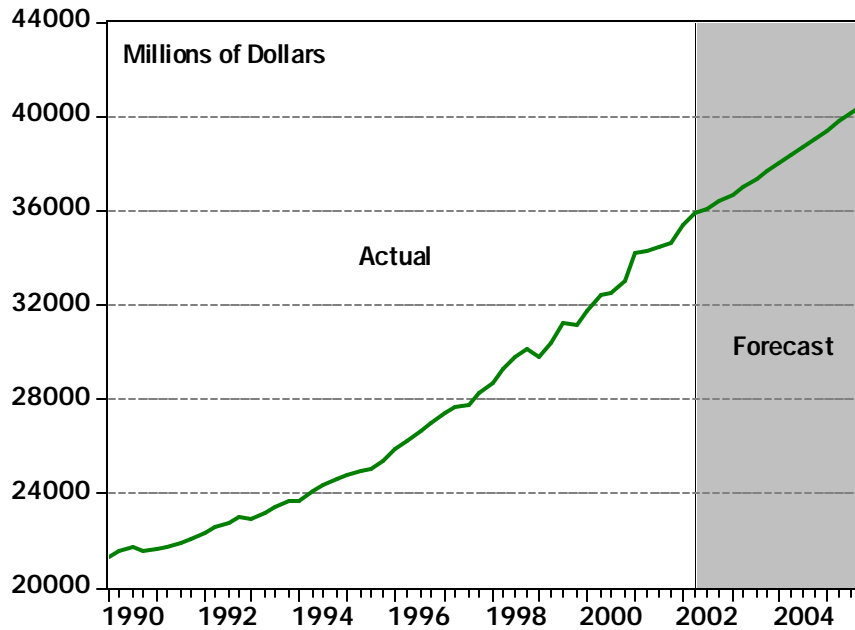
## **Personal Income**

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Given the changes in the composition of the Maine economy, we are projecting that the level of personal income in Maine will increase by 4.5% in 2002 followed by growth rates of 3.5%, 3.7% and 3.6% for the years 2003, 2004, and 2005, respectively. However, these annual increases are not as strong as they have been over the past 2 years, which witnessed increases of 5.8% and 6.1% for the years 2000 and 2001, respectively. The two key factors that determine the annual change in personal income for Maine in our model are total employment and personal income for the nation as a whole. With relatively little growth foreseen in state employment growth, our forecasts follow our assumptions for growth in national income

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## Personal Income in Maine



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### Retail Sales

Consumer retail sales have been a considerable driving force for the Maine economy supporting the state's relatively smooth transition through the recent national recession, increasing 1.8% in 2001 and 5.7% in 2002 (including a forecasted value for the last quarter of 2002). Relatively strong retail sales have reflected Maine's employment and tourism growths of the past years. Zero-percent financing and rebates on auto loans in the latter part of 2001 and in 2002 have also significantly contributed to retail sales growth as Mainers have rushed to take advantage of the opportunity to update their auto stock. Further expansions in employment and tourism in coming years will strengthen retail sales, which are forecasted to grow by 2.4% in 2003, 2.2% in 2004, and 1.8% in 2005.

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### Tourism

Although tourism is hard to measure, this industry probably represents the largest employer in Maine with some estimates placing the total number of jobs at around 77,000. Also, it has been one of the fastest growing

industries of the state in the last decade. Lodging sales reflect recent increases in tourism encouraged by aggressive state advertising, the natural beauty and varied landscape of the state, as well as its extensive coastline. However, as a result of the September 11<sup>th</sup> terrorist attacks, the tourism industry suffered across the nation and consequently lodging sales in Maine grew only by 0.2% in 2001. Tourism picked-up during 2002 with lodging sales growing by 7.8% and is forecasted to grow by 3.1% in 2003, 1.5% in 2004 and 1.4% in 2005. The slight slowdown in the projected rate of growth of lodging sales can be partially attributed to a forecasted depreciation of the Canadian dollar against U.S. dollar and thus a decrease in spending by Canadian tourists.

An key input assumption in our model concerns the exchange value of the US dollar. We are forecasting that the US dollar will appreciate against the world's major currencies, including the Canadian dollar, over our forecast horizon. Our model is based on a historical phenomenon known in academic circles as interest rate parity theory and forecasts a reaction of the exchange value of the dollar to changes in relative interest rates between the US and

the rest of the world. According to our forecasts, interest rates in US will increase as the economy picks up speed and the Fed begins to tighten monetary policy. This will cause the exchange value of the US dollar to appreciate over the next three years, reaching an exchange rate of about 1.7 Canadian dollars per US dollar by 2005.

### Manufacturing Workers' Weekly Hours

Manufacturing workers' weekly hours will be affected as the manufacturing sector continues to lose predominance in the Maine economy. Lay-offs from the decrease in manufacturing employment will cause some inefficiencies in a firm's production that will be offset through employee overtime. Overtime is used because it costs less to add hours to current employees than to replace laid-off workers. Overtime is reflected in the increase of average weekly hours worked by manufacturing workers. Average weekly hours are forecast to end 2002 at 42 hours bringing the average for 2002 to 41.8 hours. The following year, 2003 will keep the same yearly average of 41.8 hours according to our projections. Slowly, the overtime for a 40-hour week is expected to decrease. Both 2004 and 2005 have a lower forecasted yearly average of 41.7 hours per week reflecting a slow

decline in the manufacturing sector and a rise in worker efficiency as they adjust to fewer workers in the workplace.

### Housing Permits

Maine's rate of issuing housing permits has kept up with the national rate over the last few years and indicates a significant increase in 2001. With low mortgage interest rates and an economy on the rebound from a national economic slow down, the start of 2002 featured a dramatic boom in the number of housing permits. Based on three quarters of data, we expect to see growth of about 19% from 2001 to 2002.

In 2003, we should see a bit of a correction from this large increase and are expecting a 5.5% decrease from the 2002 numbers. However, personal income is expected to rise steadily through 2005. The larger paychecks will enable more Maine residents to own homes, and thus the number of housing permits will rise. This will be partially offset by increasing home mortgage rates that are expected to reach 7.5% by the end of 2005. Therefore, we expect the number of permits issued to rise slowly after the correction with increases of 1% in 2004 and 3.5% in 2005.

\* Annual rates of growth, except as noted  
 \*\* Annual averages

Forecasts for the Maine Economy*					
Variable	Actual	Forecasts			
	2001	2002	2003	2004	2005
Nonagricultural Employment	0.93	0.24	0.55	1.09	1.00
Nonmanufacturing	1.88	1.26	0.82	1.32	1.15
Manufacturing	-4.83	-6.40	-1.36	-0.61	-0.15
Unemployment Rate**	3.51	3.98	4.04	4.31	4.10
Personal Income	6.09	4.51	3.48	3.67	3.59
Wage & Salary Income	4.36	4.33	2.82	2.55	2.43
Retail Sales	1.83	5.69	2.44	2.24	1.75
Lodging Sales	0.19	7.83	3.13	1.52	1.41
Housing Permits	0.40	19.98	-5.55	0.96	3.59
Weekly Hours of Manufacturing Workers**	41.36	40.72	41.81	41.82	41.74
Input Assumptions					
Exchange Rate (C\$/US\$)**	1.49	1.55	1.57	1.60	1.64
3-Month Treasury Bill Rate**	5.82	3.39	1.75	2.18	2.79
3-Month Canadian Interest Rate**	5.71	4.08	2.55	2.32	2.77
Federal Funds Rate**	6.24	3.89	1.73	2.04	2.77
30-Year Mortgage Rate**	8.06	6.97	6.54	6.45	7.08
Real GDP (US)	0.25	2.51	2.77	3.43	3.43
Real Disposable Income (US)	1.78	4.31	2.04	2.49	3.02
Consumer Sentiment (66Q1=100)**	107.58	89.24	89.38	88.75	97.25

## The Colby Coincident Index of the Maine Economy

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The Colby Coincident Index of the Maine Economy (CCI) is designed to provide a clear and up to date assessment of aggregate economic activity in Maine. The CCI is constructed as a weighted index of six economic indicators that reflect the changing structure of the Maine economy and current economic conditions in the state: Total Nonagricultural Employment, Personal Income, Retail Sales, Average Weekly Hours of Manufacturing Production Workers, Lodging Retail Sales, and Total Housing Permits. A major advantage of the CCI is that it presents a picture of the Maine economy without the 2-year time lag associated with Total Gross State Product (GSP). The CCI allows for the study of recent trends in the Maine economy that cannot be as easily studied using GSP. The CCI is generated using quarterly data. GSP, on the other hand, uses annual data, and therefore cannot be used to investigate economic fluctuations that occur during the year.

Our development of the CCI is based on the methodology used by The Conference Board to compute their composite indices. The CCI takes into account the relative historic volatility of each of the included economic indicators. Components with high variability are weighted less in order to capture trends in aggregate economic activity as well as smooth out expected variations in the particular components. As a weighted index of a variety of indicators, the CCI offers a more complete picture of economic events relative to single, more specific, indicators that may lead to contradicting conclusions.

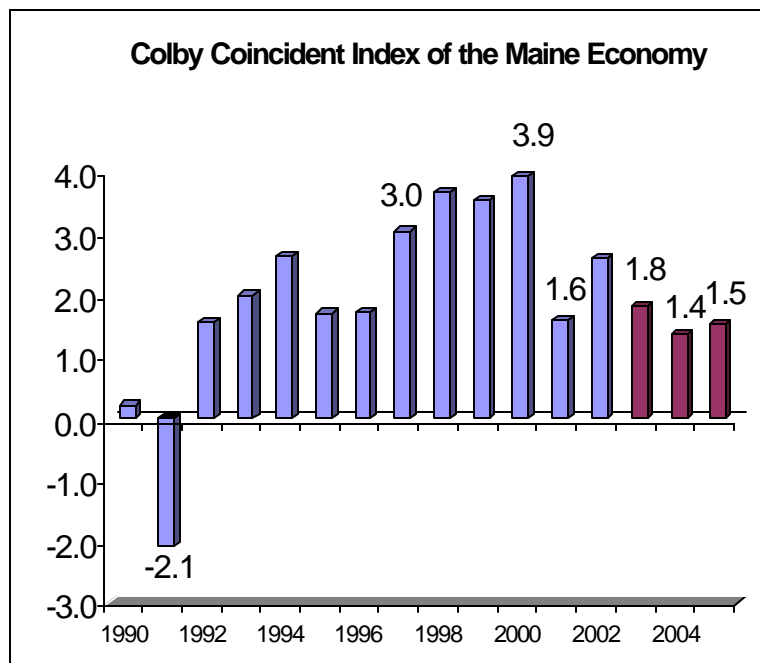
The individual components in the CCI were chosen based on their ability to explain past economic activity while reflecting current trends in the Maine economy. Lodging sales are not commonly used in coincident indices, but we decided to include in the CCI for Maine to capture the economy's reliance on tourism. The

lodging component also shows how the Maine economy is affected by economic fluctuations outside the state.

Because it is relatively stable compared to the other components of the CCI, non-agricultural employment is the most highly weighted component of the index. For the same reason, non-agricultural employment is also relied on as an indicator of changes in overall economic activity. Housing permits, on the other hand, is given the lowest weight in the index due to its historical volatility. The CCI is indexed to the first quarter of 1992 and is set equal to 100 in that period.

Maine's distance from the Silicon Valley tech bubble that drove the recent recession, as well as its low concentration of high-tech firms, served to insulate the state from the recent national recession. According to the CCI, Maine distinguished itself from the aggregate economy as it did not experience negative growth. However, this will also have consequences for growth in the future – as the US economy recovers from recession, growth in Maine will be lower than US GDP growth. The CCI predicts that the Maine economy to grow at a 2.6 percent pace this year, followed by a slower growth of about 1.5 percent annually through 2005. We see the demographic problems discussed earlier as the main obstacle for rapid growth in Maine. An aging population where youth and talent are drawn out of the state is putting increasing pressure on the economy. Higher unemployment and lack of an industrial base in the northern part of the state will also restrict growth. On the positive side, it bears noting that the tourism sector is showing promise, which will help support future growth. Our outlook for the Maine economy is therefore moderately optimistic.

*(For full CCI Forecast details see the next page)*



## Predicting Presidents: Forecasting Maine's Choice in 2004

An interesting economic forecasting application is to examine and predict other events that are rooted in economic conditions. To this end Ray Fair, an economist at Yale University, has created a model studying economic effects on voting behavior in presidential elections. The theme throughout this issue of the CEO has been the Maine economy. The following special report is a digression from the forecast of economic sectors to predict how Maine will vote in the coming election. By applying our forecast of real GDP for the United States to a modified version of Fair's model, we conclude that the Republican candidate should have an easy time winning the state in the 2004 election.

Fair looks at a number of economic and political variables to develop his model for predicting the percentage of the two-party popular vote that the Democratic candidate will receive. The explanatory variables of his model are what party is currently in power, whether or not the incumbent is running again, the annual per capita growth rate of the economy for the three quarters prior to the election, inflation over the

15 quarters prior to the election, the number of periods where the annual growth rate of real GDP has been above 2.9%, the periods of time when the economy has been at war, and the number of terms a party has been in office. One lynchpin assumption of the model is that all third party candidates draw evenly from both candidates vote totals. Our variation on Fair's model takes these same explanatory variables and then regresses them with the two-party vote in Maine since 1928.

For the 2000 election, the model predicted that the Democrat's share of the vote would be 54.4%, an overestimation relative to what actually occurred of just 3.8%. This low error provides confidence that the model can accurately predict the two-party vote to within five percent. The forecast value for the 2004 presidential election is 0.290. In other words our early prediction for the next presidential election is that in Maine the Democratic candidate for President will receive just twenty-nine percent of the two-party vote. If it's true that "...as Maine goes so goes the nation," then is a Bush landslide in 2004 in the offering?

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