



# U.S. ECONOMIC & INTEREST RATE OUTLOOK

Northern Trust  
Global Economic Research  
50 South LaSalle  
Chicago, Illinois 60603  
northerntrust.com

Paul L. Kasriel  
Director of  
Economic Research  
312.444.4145  
312.557.2675 fax  
plk1@ntrs.com

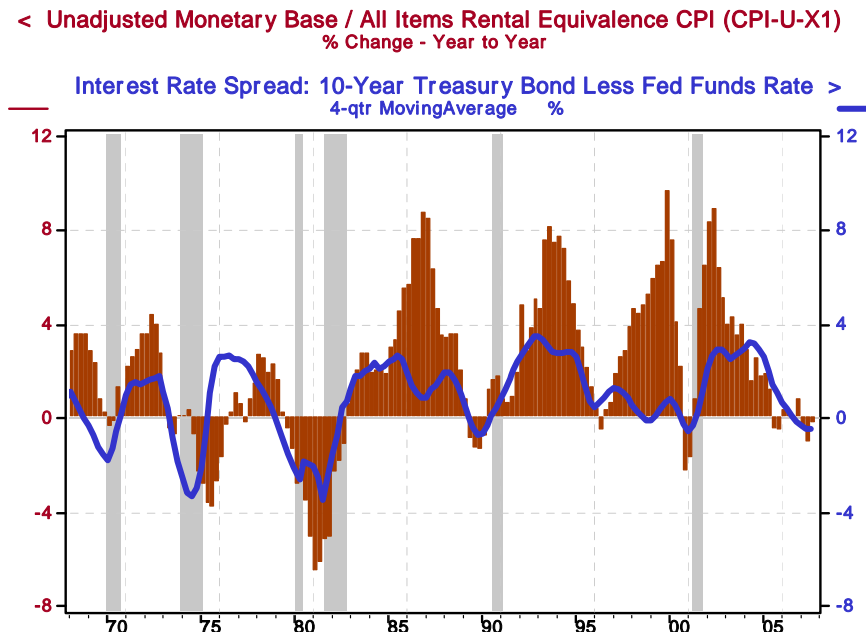
Asha Bangalore  
Economist  
312.444.4146  
312.557.2675 fax  
agb3@ntrs.com

## Probing the Probabilities of a 2008 Recession

December 21, 2007

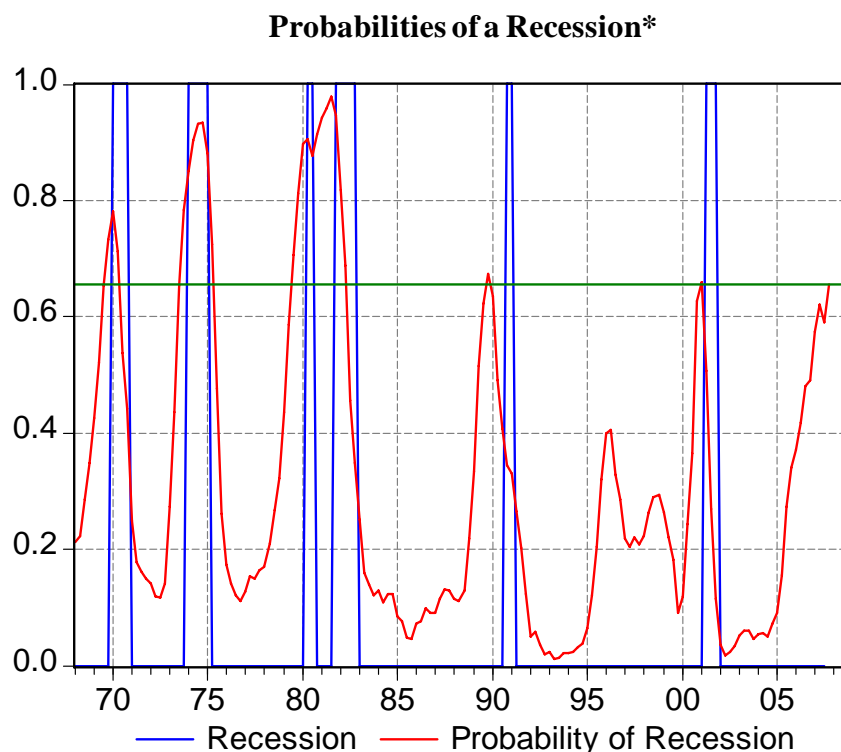
What is the probability that the U.S. economy will fall into a recession in 2008? We would answer, 65.5%. The bases for our answer are the Kasriel Recession Warning Indicator (the trademark-pending KRWI) and an econometric technique known as Probit modeling. To refresh your memory, the KRWI consists of two variables – the year-over-year percent change in the quarterly average of the CPI-adjusted monetary base (reserves and currency held by banks and currency held by the nonbank public) and the four-quarter moving average of the percentage-point spread between the Treasury 10-year security yield and the federal funds rate. Since the late 1960s, every recession (shaded areas in Chart 1) has been immediately preceded by or accompanied by *both* of the KRWI variables in negative territory. The KRWI has *not* given a false qualitative signal – i.e., it has not predicted a recession when one did not occur. Aside from its impressive track record in identifying recessions, the KRWI has another attractive attribute – its variables are not subject to much, if any, revisions. For a theoretical explanation of the KRWI see, [The Inverted Yield Curve - Is It Really Different This Time?](#)

Chart 1



A Probit model is a statistical technique that estimates the probability of occurrence of a binary event such as a recession – either the economy is in a recession or it is not. The estimated probabilities of the occurrence of a recession derived from a Probit model using the variables in the KRWI as the independent, or explanatory, variables are shown in Chart 2 (the vertical blue lines denote periods of recession). Because December 2007 KRWI data are not yet available, averages of October and November data were used as estimates of fourth quarter 2007 KRWI values. Based on the Probit model, the KRWI is now forecasting a 65.5% probability of a recession. This compares with local peaks in recession probabilities of 66.0% in the first quarter of 2001 (preceding the commencement of a recession in the second quarter of 2001) and 67.3% in the fourth quarter of 1989 (preceding the commencement of a recession in the fourth quarter of 1990). In short, a recession commencing within the next four quarters is more likely than not based on the KRWI. Although we have yet to place a minus sign in front of any of our real GDP change forecasts, our estimated economic growth of 0.5% in the first quarter of 2008 is just a rounding error away from becoming a contraction.

Chart 2



**\* Probit model estimates using KRWI as explanatory variables**

---

The opinions expressed herein are those of the author and do not necessarily represent the views of The Northern Trust Company. The Northern Trust Company does not warrant the accuracy or completeness of information contained herein, such information is subject to change and is not intended to influence your investment decisions.

We have been talking about the probability of a recession occurring without defining what a recession is. A popular misconception is that a recession occurs when real GDP contracts for two or more consecutive quarters. Although most, but not all, recessions do include two or more consecutive quarters of contracting real GDP, this is *not* the criterion for defining a recession used by the arbiters of such, the National Bureau of Economic Research (NBER), a private, nonprofit, nonpartisan research organization dedicated to promoting a greater understanding of how the economy works. According to the NBER, a recession is a significant decline in economic activity spread across the economy, lasting more than a few months, normally visible in real GDP, real income, employment, industrial production, and wholesale-retail sales ([The NBER's Recession Dating Procedure](#)). The NBER recession dating committee relies heavily on the behavior of four economic variables to determine the onset of a recession -- industrial production, payroll employment, inflation adjusted volume of sales of the manufacturing and trade (wholesale and retail) sectors, and inflation adjusted personal income less transfer payments. It just so happens that these four variables are the same four variables in the Conference Board's index of *Coincident* Economic Indicators.

We are amused and you are confused by those talking heads on Bubblevision who claim that a recession is *not* imminent because payroll employment and/or personal income continue to increase. To repeat, these are *coincident* economic indicators and, thus, provide some information as to the *current* performance of the economy, not the *future* performance of it. The table below contains the months before, indicated by a minus sign, or months after, indicated by a plus sign, that a coincident economic variable peaked relative to the peak in specific business expansions as defined by the NBER. The numbers in parentheses show leads or lags to cycle peaks after final revisions to the coincident economic variables were made. For example, when the NBER originally determined the 1960 peak in that business expansion, real personal income peaked one month after the business expansion peak. When the data were subsequently revised, it was determined that real personal income peaked six months after the 1960 business expansion peak. Although we do not know for sure at this point, but it very well could be that real personal income excluding transfer payments peaked and industrial production both peaked in September of this year (see Chart 3).

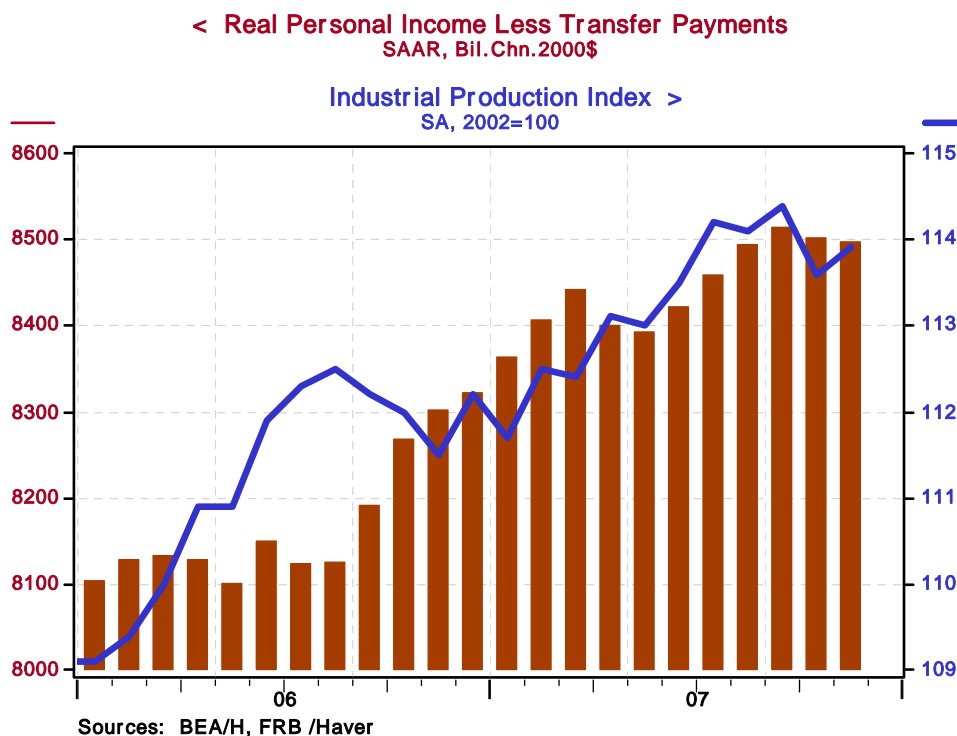
**Table 1 Peak of Major Indicators relative to the NBER's business-cycle peak date**

Business cycle Peak	Industrial Production	Payroll Employment	Real Sales	Real Income
Apr. 1960	-3	0	-3	+1, (+6)
Dec. 1969	-2, (-4)	+3	-2	+8
Nov. 1973	0	+11, (+8)	0	0
Jan. 1980	-7, (-10)	+2	-10	-1
Jul. 1990	+2	-1	+1	0
Mar. 2001	-6, (-9)	0, (-1)	-7, (-6)	no peak, (0)

---

The opinions expressed herein are those of the author and do not necessarily represent the views of The Northern Trust Company. The Northern Trust Company does not warrant the accuracy or completeness of information contained herein, such information is subject to change and is not intended to influence your investment decisions.

Chart 3



There's an old joke that the behavior of the stock market has predicted 17 out of the past 10 recessions. Chart 4, which contains year-over-year percent changes of monthly average observations of the S&P 500 stock index, shows that year-over-year declines in this stock market index are a necessary condition for a recession, but not a sufficient condition. That is, **every recession starting with the one in 1948 has been accompanied by a year-over-year decline in the S&P 500 index.** However, there also have been occasions when the S&P 500 index declined on a year-over-year basis without a recession occurring. Starting in July 2003, the year-over-year change in the S&P 500 index has been positive. So, there is no recession in sight despite the signal being sent by the KRWI and the likely peaking of industrial production, right? Don't pop the champagne corks yet. As of Thursday, December 20, the S&P 500 was up only 2.95% versus year-ago (Chart 5). The S&P 500 index finished 2006 at 1418.30. So, with the S&P 500 closing at 1460.12 on Thursday, December 20, we are not far from a year-over-year contraction in the index.

The opinions expressed herein are those of the author and do not necessarily represent the views of The Northern Trust Company. The Northern Trust Company does not warrant the accuracy or completeness of information contained herein, such information is subject to change and is not intended to influence your investment decisions.

Chart 4

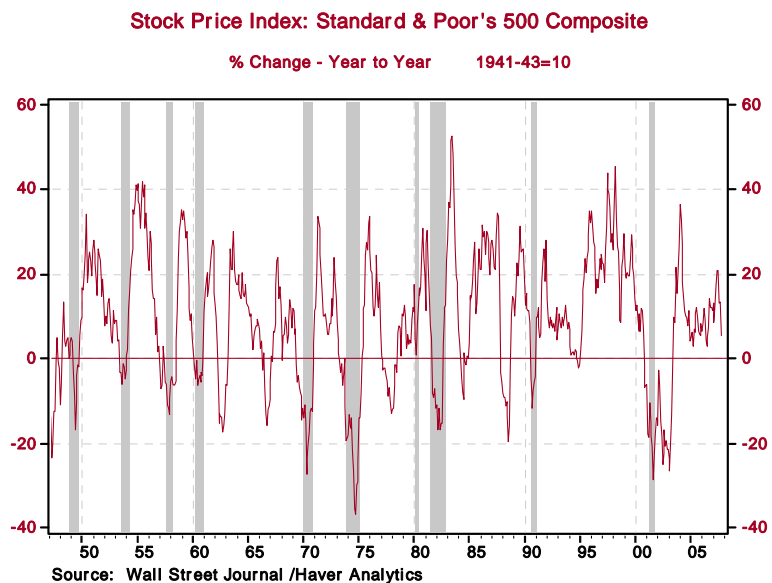
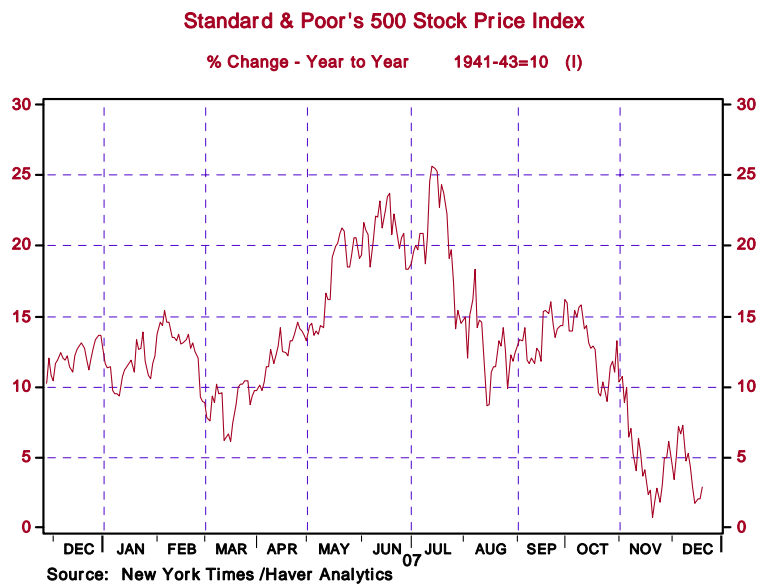


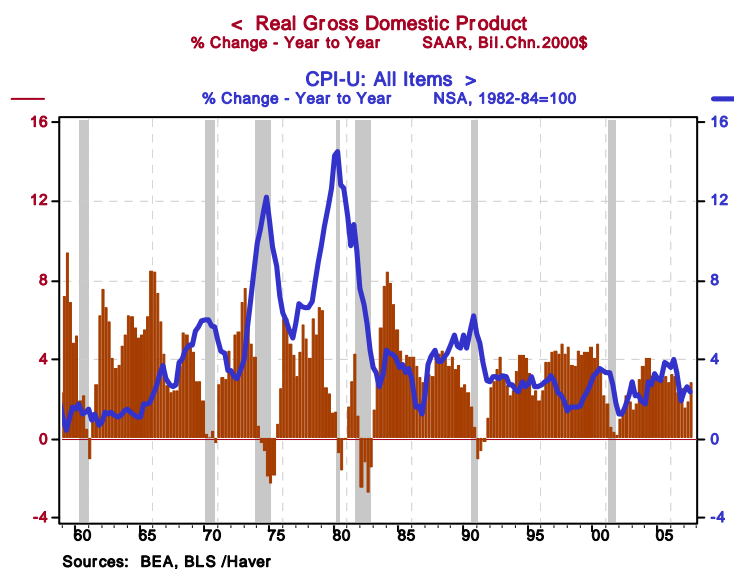
Chart 5



The opinions expressed herein are those of the author and do not necessarily represent the views of The Northern Trust Company. The Northern Trust Company does not warrant the accuracy or completeness of information contained herein, such information is subject to change and is not intended to influence your investment decisions.

There is much talk of late about the onset of STAGFLATION – that is, stagnant or declining real GDP and rising inflation. We assume, then, that there usually is talk about stagflation when the economy is on the precipice of or has fallen into a recession because inflation is a cyclically *lagging* economic process. Chart 6 shows that year-over-year increases in consumer price inflation tend to peak *after* year-over-year increases in real GDP peak – about two quarters *after* the peak in real GDP growth. In fact, consumer price inflation tends to peak during periods of recession.

Chart 6

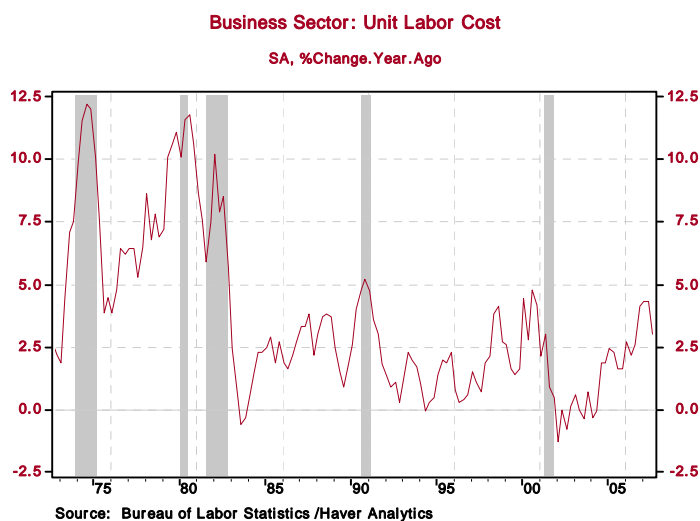


The inflation that raged during the mid and late 1970s was accompanied by *supply disruptions* in imported crude oil – the 1973 embargo by some of the Persian Gulf oil producers and the 1979 overthrow of the Shah of Iran. This is not to say that monetary policy did not aid and abet the high inflation during these periods. But with *absolute declines* in imports of crude oil, production of goods and services can no more increase than it could if a pandemic resulted in an absolute decline in the labor force. The absolute cuts in crude oil production in the Persian Gulf region in 1973 and 1979 played a large role in both the “stag” and the “flation” components of the stagflation environment during these periods. Currently, there is plenty of crude oil production everywhere. There are no supply disruptions, save for Iraq. It is sharply rising global *demand* that is mainly responsible for the sharp increase in crude oil prices in the past couple of years. Although the increase in crude oil prices in recent years implies a *relative* shortage of crude oil, a relative shortage of crude oil implies *slower* real economic growth, not necessarily a *contraction* in real output, which would occur with an actual drop in crude oil production.

The opinions expressed herein are those of the author and do not necessarily represent the views of The Northern Trust Company. The Northern Trust Company does not warrant the accuracy or completeness of information contained herein, such information is subject to change and is not intended to influence your investment decisions.

In the mid to late 1970s, labor unions were more powerful than today and cost-of-living wage increases were more prevalent. As a result, in these prior stagflationary periods, unit labor costs were growing at 10% to 12% (see Chart 7). Now unit labor costs are growing at 3% to 4-1/4%. Barring a major disruption in the supply of crude oil and/or a major revival in the power of labor unions, we do not see the necessary ingredients for an outbreak of stagflation along the lines of the mid to late 1970s.

Chart 7



What we do see for 2008 is an economy teetering on the brink of recession, energy prices falling as growth in the global demand for energy slows and the price increases of non-energy goods and services slowing as growth in the demand for these goods and services slows. We see the Federal Reserve continuing to lower the federal funds rate – down to 3.25% -- in an attempt either to prevent a recession or to mitigate the economic effects of a recession. Despite the lower federal funds rate, we see a sharp slowing in the growth of credit as financial intermediaries are constrained in their ability to lend because of losses incurred on prior lending.

Note: The Economic Research Department will be taking a winter solstice break, returning to our desks on January 2. Rather than us writing a year-in-review article, we urge you to visit our website, [Economic Research - Northern Trust](http://www.northerntrust.com/economic-research), where our various commentaries written in 2007, and even years before, are archived.

*\*Paul Kasriel is the recipient of the 2006 Lawrence R. Klein Award for Blue Chip Forecasting Accuracy*

---

The opinions expressed herein are those of the author and do not necessarily represent the views of The Northern Trust Company. The Northern Trust Company does not warrant the accuracy or completeness of information contained herein, such information is subject to change and is not intended to influence your investment decisions.

**THE NORTHERN TRUST COMPANY  
ECONOMIC RESEARCH DEPARTMENT  
December 2007  
SELECTED BUSINESS INDICATORS**

**Table 1 US GDP, Inflation, and Unemployment Rate**

	<u>2007</u>				<u>2008</u>				<u>Q4-t-Q4 change</u>			<u>Annual change</u>		
	<u>07:1a</u>	<u>07:2a</u>	<u>07:3a</u>	<u>07:4f</u>	<u>08:1f</u>	<u>08:2f</u>	<u>08:3f</u>	<u>08:4f</u>	<u>2006a</u>	<u>2007f</u>	<u>2008f</u>	<u>2006a</u>	<u>2007f</u>	<u>2008f</u>
<b>REAL GROSS DOMESTIC PRODUCT</b> (% change from prior quarter )	0.6	3.8	4.9	1.2	0.5	1.2	2.0	2.0	2.6	2.6	1.4	2.9	2.2	1.8
<b>CONSUMPTION EXPENDITURES</b>	3.7	1.4	2.8	2.5	1.0	1.5	2.0	2.0	3.4	2.6	1.6	3.1	2.9	1.8
<b>BUSINESS INVESTMENT</b>	2.1	11.0	9.4	4.4	2.8	1.4	1.8	2.2	5.2	6.7	2.1	6.6	4.6	4.0
<b>RESIDENTIAL INVESTMENT</b>	-16.3	-11.8	-20.5	-22.0	-13.0	-10.0	-2.0	0.0	-12.8	-17.8	-6.4	-4.6	-16.8	-13.2
<b>CHANGE IN INVENTORIES ('00 dlrs, bill)</b>	0.1	5.8	30.6	4.1	-4.6	-1.6	3.4	7.4				40.3*	10.2*	1.2*
<b>GOVERNMENT</b>	-0.5	4.1	3.8	2.8	1.4	1.5	1.5	1.5	2.5	2.5	1.4	1.8	2.1	2.1
<b>NET EXPORTS ('00 dlrs, bill.)</b>	-612.1	-573.9	-533.1	-526.2	-498.6	-490.1	-486.4	-485.0				-624.5*	-561.3*	-490.0*
<b>FINAL SALES</b>	1.3	3.3	3.7	2.2	0.8	1.1	1.8	1.9	3.0	2.8	0.0	2.8	2.5	1.9
<b>NOMINAL GROSS DOMESTIC PRODUCT</b>	4.9	6.6	6.0	5.1	3.3	2.6	3.1	3.7	5.4	5.6	3.2	6.1	5.0	4.0
<b>GDP DEFLATOR - IMPLICIT (% change)</b>	4.2	2.6	1.6	3.9	2.8	1.4	1.1	1.6	2.7	2.9	1.7	3.2	2.7	2.2
<b>CPI (% Change, 1982-84 = 100)</b>	3.8	6.0	1.9	4.2	3.1	1.7	1.4	1.9	2.0	4.0	2.0	3.2	2.8	2.8
<b>CIVILIAN UNEMPLOYMENT RATE (avg.)</b>	4.5	4.5	4.6	4.7	5.0	5.3	5.6	5.6				4.6*	4.6*	5.4*

a=actual  
f=forecast  
\*=annual average

**Table 2 Outlook for Interest Rates**

<u>SPECIFIC INTEREST RATES</u>	<u>Quarterly Average</u>										<u>Annual Average</u>		
	<u>06:3a</u>	<u>06:4a</u>	<u>07:1a</u>	<u>07:2a</u>	<u>07:3a</u>	<u>07:4f</u>	<u>08:1f</u>	<u>08:2f</u>	<u>08:3f</u>	<u>08:4f</u>	<u>2006a</u>	<u>2007f</u>	<u>2008f</u>
<b>Federal Funds</b>	5.25	5.25	5.26	5.25	5.07	4.55	4.05	3.55	3.25	3.25	4.96	5.03	3.53
<b>3-mo.LIBOR</b>	5.43	5.37	5.36	5.36	5.45	5.05	4.65	4.00	3.45	3.35	5.19	5.30	3.86
<b>2-yr. Treasury Note</b>	4.93	4.74	4.77	4.81	4.38	3.50	3.10	3.10	3.20	3.40	4.82	4.36	3.20
<b>10-yr. Treasury Note</b>	4.90	4.63	4.68	4.85	4.73	4.25	3.90	3.75	3.80	3.95	4.79	4.63	3.85

a = actual  
f = forecast

The opinions expressed herein are those of the author and do not necessarily represent the views of The Northern Trust Company. The Northern Trust Company does not warrant the accuracy or completeness of information contained herein, such information is subject to change and is not intended to influence your investment decisions.