WACHOVIA
ECONOMICS GROUP

SPECIAL COMMENTARY

June 18, 2009

What Drives Consumer Delinquency Rates?

Mark Vitner, Senior Economist
mark.vitner@wachovia.com
1-704-383-5635
Azhar Iqbal, Econometrician
azhar.iqbal@wachovia.com
1-704-383-6805

One of the key features of the current financial crisis has been a substantial breakdown in the historical relationship between the performance of key economic measures and delinquency rates on residential mortgages and many types of consumer loans. The unemployment rate, for example, has long been believed to be highly correlated with consumer loan delinquency rates. Although this statement is widely expected to be true, it does not seem to have held true in the current business cycle, which saw consumer delinquency rates begin rising well before the unemployment rate. In fact, the onset of the financial crisis, which was largely brought about by rising delinquency rates on subprime mortgages, occurred at a time when the unemployment rate was low and declining.

Consumer delinquency rates began rising well before the unemployment rate.

Figure 1

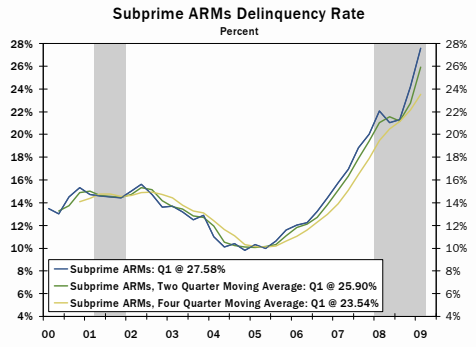


Figure 2

Source: Mortgage Bankers Association, U.S. Department of Labor, Wachovia Securities and Wachovia

Unemployment Rate and Delinquencies

On the surface, the relationship between the unemployment rate and delinquency rates seems straightforward. If someone loses their job and does not find another one, their income is probably reduced and they are more likely to either delay or stop paying the mortgage, credit card bills and other consumer loans on time. When this happens in the context of a business cycle and lots of people lose their jobs, the loss of income results in rising delinquency rates. Although this analysis seems straightforward, there are some unanswered questions such as—what is the precise

relationship between the unemployment rate and the delinquency rate and are there other variables that provide even stronger relationship to the delinquency rate and have more predictive power than the unemployment rate?

Our analysis shows initial unemployment claims and continuing unemployment claims are better predictors of future mortgage delinquency rates than the unemployment rate.

To answer these questions, we conducted basic econometric analyses between mortgage delinquency rates and various measures of the unemployment rate, unemployment claims and income.[1] Overall, our analysis shows initial unemployment claims and continuing unemployment claims are better predictors of future mortgage delinquency rates than the unemployment rate, personal income or wages and salaries. The unemployment rate is still useful, but claims for unemployment insurance explain more of the change in mortgage delinquency rates.

We ran a different set of models to find the best predictor for credit card delinquency rates. Of all the independent variables we tried, the only one that proved to be statistically significant was nominal personal income. The unemployment rate, with a one-quarter lag, also has a statistically significant relationship with credit card delinquency rates but its relationship is much weaker than nominal personal income growth.

Figure 3

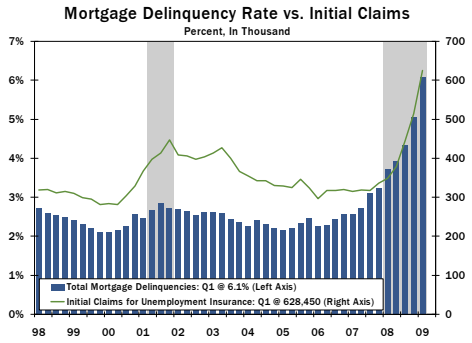
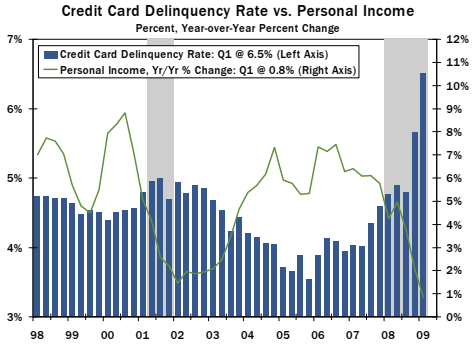


Figure 4



Source: ABA, MBA, U.S. Department of Commerce, U.S. Department of Labor and Wachovia

Why Did the Relationship Between the Unemployment Rate and Consumer Delinquency Rates Break Down?

"If something cannot go on forever, it will stop."

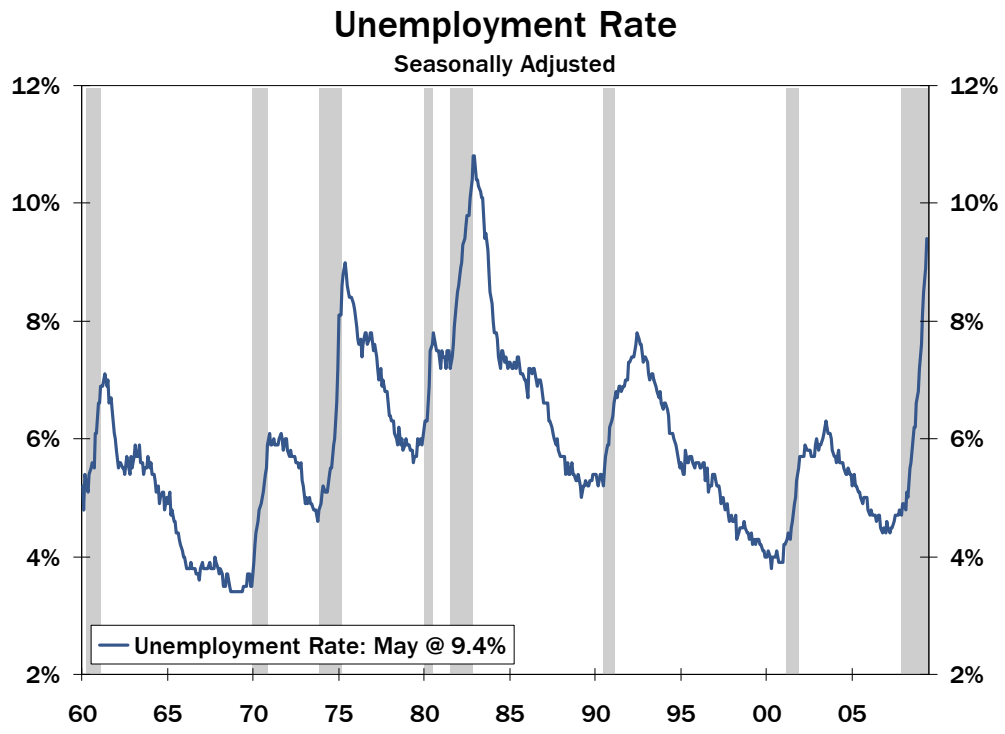
Herb Stein, who served as head of the Council of Economic Advisors for President Nixon and President Ford, once famously noted "if something cannot go on forever, it will stop." This patently simple observation became known as Stein's Law and may explain why the relationship between the unemployment rate and delinquency rates has changed. For years, the unemployment rate has provided one of the best real-time assessments of consumer well-being. The underlying structure of the labor force has changed significantly over the past twenty-five years, however, particularly in the way employees are hired and let go. Key changes to the labor market include the continued loss of manufacturing jobs, which now account for the smallest share of employment since the series began in 1939, and changes to the employment laws. Firms that employ more than 100 workers are now required to provide workers with 60 days in advance notice of an impending layoff, which means job losses are not as coincident with economic weakness as they had been in the past.

[1] For complete results see the report by Mark Vitner and Azhar Iqbal "Delinquency Rates and the Unemployment Rate: Is There Something Missing?" submitted for publication AEA Annual Meeting 2010.

One result of these changes is the unemployment rate has become more of a lagging indicator during the past two recessions, peaking 15 months and 19 months after the 1990-91 and 2001 recessions ended, respectively. Prior to the past two recessions, the unemployment rate had peaked much closer to the recession trough. In those earlier recessions, a larger proportion of unemployment reflected workers on temporary layoff and they returned to work once economic activity was revived. Today, job losses tend to be more permanent and firms typically phase in layoffs over an extended time period, with severance payments often cushioning the immediate blow and extending the period between layoff announcements and actual job losses.

Prior to the past two recessions, the unemployment rate had peaked much closer to the recession trough.

Figure 5

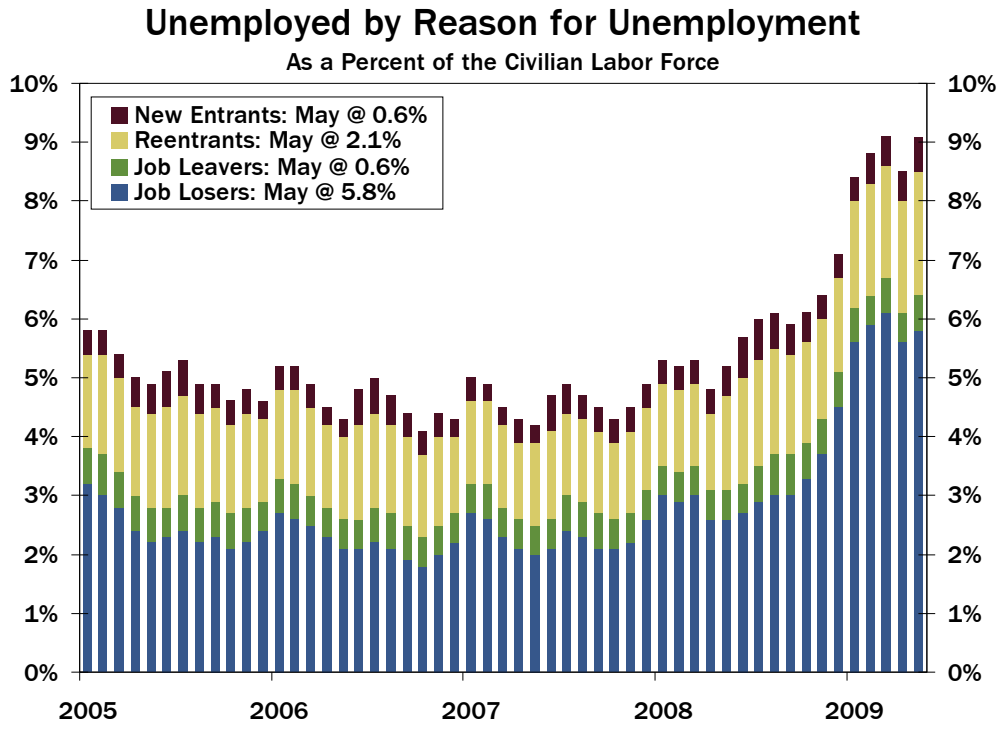


Source: U.S. Department of Labor and Wachovia

Job losses are not the only reason the unemployment rate increases. The unemployment rate basically consists of four components: 1) those that lose their jobs and are unable to find new ones, 2) those that voluntarily leave their jobs, 3) reentrants to the labor force and 4) new entrants to the labor force. The most obvious reason for an increase in the unemployment rate is someone loses a job and is unable to find another within a few weeks. Job loss can result from a variety of factors including short-term economic fluctuations, long-term structural changes in the economy and voluntary job separations.

Job losses are not the only reason the unemployment rate increases.

Figure 6



Source: U.S. Department of Labor and Wachovia

How someone becomes unemployed may influence the relationship between the unemployment rate and delinquency rates.

Is the Unemployment Rate the Best Predictor of Delinquency Rates?

How someone becomes unemployed may influence the relationship between the unemployment rate and delinquency rates. If a person loses a job, the impact on income may be far worse than if unemployment rises because new entrants to the workforce are unable to find a suitable job. Likewise, someone that becomes unemployed because of a permanent job loss is more likely to experience strains in their household finances than someone that becomes unemployed due to a temporary layoff.

If a person loses a job, the impact on income may be far worse than if unemployment rises because new entrants to the workforce are unable to find a suitable job.

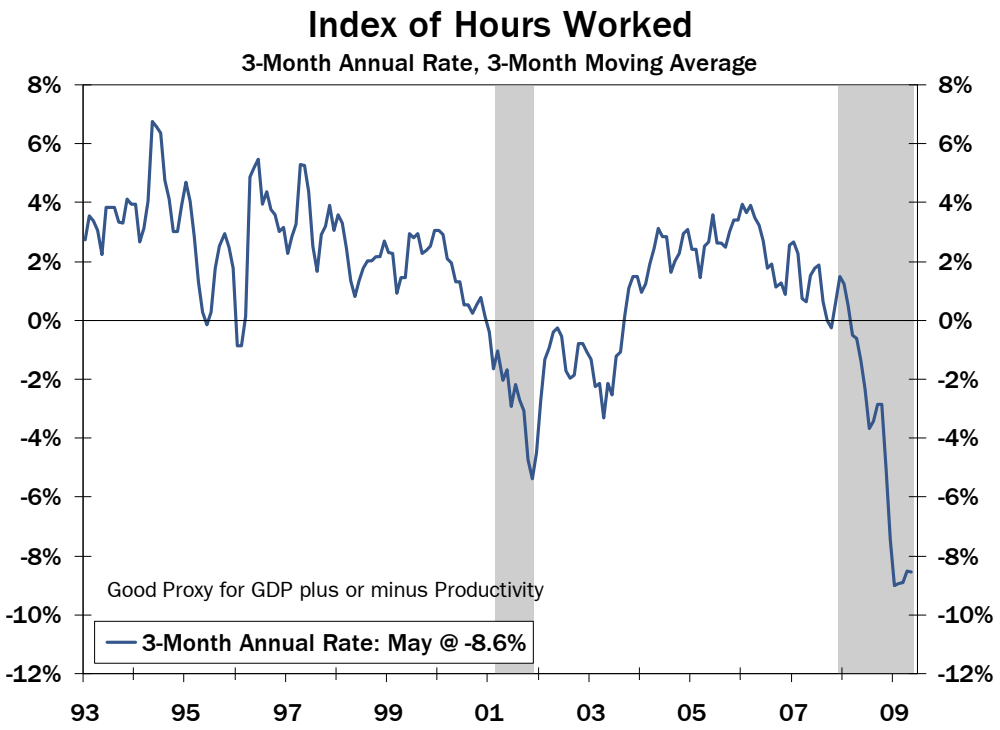
Variations in the growth rate of the labor force can also exert considerable influence on the unemployment rate. If the labor force is growing at a slower rate, the unemployment rate may not increase all that rapidly, even if employment is falling. This is the situation we are in today, where employment is falling faster than any time since the late 1950s and actual job losses are the worst since the 1930s, yet the unemployment rate has risen to 9.4 percent, which is still well below the 10.8 percent hit in late 1982. In this scenario, the unemployment rate, even with the significant rise seen to date, may understate the deterioration in personal financial conditions.

Another factor the unemployment rate misses is many firms, particularly in today's more service-based economy, are reducing hours worked instead of reducing employment. The net result is many people that are still working are earning much less than they were previously. Once again, the unemployment rate is understating the hit to household finances. Total hours worked in the economy has tumbled 8.6 percent over the past three months, even though nonfarm employment has declined less during this time period than it did during the previous six months. When you multiply hours worked by average hourly earnings, which has also declined, you

derive what we have found to be a pretty good proxy for personal income. This income proxy is currently down at a 15.2 percent annual rate, which is far worse than what occurred in the past two recessions and marks the largest decline since the 1973-1975 recession.

Figure 7

This income proxy is currently down at a 15.2 percent annual rate, which is far worse than what occurred in the past two recessions.



Source: U.S. Department of Commerce, U.S. Department of Labor and Wachovia

A New Paradigm Requires New Predictors

Changes in the underlying structure of the labor market truly mark a new paradigm for the economy. With fewer people employed in the cyclical manufacturing sector, a greater proportion of layoffs that occur around recessions now tend to be permanent job losses rather than temporary layoffs. Moreover, in a service-based economy, layoffs are only one way businesses control compensation costs. Businesses also strive to reduce hours worked and cut bonuses and commissions. The net result is the unemployment rate does not capture the hit to household financial well-being as it has in past recessions, which means we must develop new tools to predict delinquency rates.

With fewer people employed in the cyclical manufacturing sector, a greater proportion of layoffs that occur around recessions now tend to be permanent job losses rather than temporary layoffs.

Two other possible measures of household financial well-being are weekly first-time unemployment insurance claims and continuing claims for unemployment insurance. It makes intuitive sense that a person who loses their job and has a mortgage and/or other outstanding debts may experience more immediate problems meeting debt obligations in a timely manner if their income is severely disrupted. Moreover, a person that loses a job probably has more outstanding debt obligations than a person newly entering the workforce or reentering the workforce. We also consider personal income, real personal income and wages and salary income as potential gauges of household well-being and potential candidates to predict delinquency rates.

Our analysis shows initial unemployment claims and continuing unemployment claims are better predictors of future mortgage delinquency rates than the unemployment rate, personal income or wages and salaries.

We measured the responsiveness of delinquency rates to changes in these variables using the total mortgage delinquency rate as published by the Mortgage Bankers Association (MBA), the 90-day MBA mortgage delinquency rate, the 60-day MBA mortgage delinquency, the 30-day MBA mortgage delinquency rate and credit cards delinquency rates as published by the American Bankers Association, as dependent variables. Our analysis shows initial unemployment claims and continuing unemployment claims are better predictors of future mortgage delinquency rates than the unemployment rate, personal income or wages and salaries. The unemployment rate is still useful, but the claims for unemployment insurance appear to provide more explanatory power in regard to mortgage delinquency rates.

Credit Card Delinquency Rate has Different Characteristics

Credit card delinquency rates clearly have different characteristics than mortgage delinquency rates in regard to what key economic variables influence them the most. One important difference between credit cards and mortgages is credit cards typically have relatively low minimum monthly payments. On the other hand, mortgage payments are usually larger and either a fixed amount or fixed for some amount of time. An unemployed person may be able to continue making minimum payments on their credit cards for some time after losing their job before becoming delinquent. As a result, delinquency rates may take much longer to respond to changes in unemployment.

Of all the independent variables we tried, the only one that proved to have a statistically significant relationship with credit card delinquency rates was nominal personal income. The unemployment rate, with a one-quarter lag, also has a statistically significant relationship but its relationship is much weaker than nominal personal income growth.

There is no Silver Bullet

We tried to find one variable that would provide the best forecast for both mortgage delinquency rates and credit card delinquency rates but could not find one. We also attempted numerous combinations of variables to see if they would improve the forecast. No combinations of variables yielded a better result than the individual variable models. Such results are not surprising given the different dynamics behind mortgage credit, credit cards, and other types of consumer loans. Moreover, many of the variables we included are simply different ways of measuring the same concept, household financial well being.

Summary and Implications

Our analysis shows first-time unemployment insurance claims and continuing claims for unemployment insurance provide a better prediction for mortgage delinquency rates than the unemployment rate. This finding refutes a notion widely accepted to be fact. The recent stress test conducted by the Federal Reserve, Office of Comptroller of the Currency and the FDIC included estimates of the unemployment rate among their key criteria in estimating potential credit losses at major bank holding companies. Incorporating unemployment claims data would likely improve these estimates. Moreover, the unemployment claims data is reported weekly and is readily available down to state geographies, allowing for more frequent and customized assessments of potential changes in credit quality.

Our finding that first-time unemployment claims and continuing claims for unemployment insurance provide a better prediction for mortgage delinquency rates than the unemployment rate refutes a notion widely accepted as fact.

Given that unemployment claims have been declining in recent weeks, the forecast of mortgage delinquency rates based on initial unemployment claims and continuing unemployment claims would likely show an earlier peak than forecasts based on the unemployment rate, which we expect will peak somewhat later. The past two recessions saw the unemployment rate peak 15 and 19 months, respectively, after the recession ended, as hiring did not pick until well after layoffs subsided. The better forecasting results for unemployment claims may temper some of the criticism about whether or not a high enough unemployment rate was incorporated in the stress tests.

Our analysis also shows nominal personal income growth provides a better prediction of credit card delinquency rates than the unemployment rate. The finding makes intuitive sense in the context of the current business cycle, which has not only seen a dramatic rise in the unemployment rate but also a substantial decline in hours worked and compensation among persons still employed. One implication of this is forecasts of credit card delinquency rates based on the unemployment rate will likely underestimate the rise in delinquency rates because they are not capturing the loss of income and accompanying financial strains from workers that remain employed.

Wachovia Economics Group

Diane Schumaker-Krieg	Global Head of Research & Economics	(704) 715-8437 (212) 214-5070	diane.schumaker@wachovia.com
John E. Silvia, Ph.D.	Chief Economist	(704) 374-7034	john.silvia@wachovia.com
Mark Vitner	Senior Economist	(704) 383-5635	mark.vitner@wachovia.com
Jay Bryson, Ph.D.	Global Economist	(704) 383-3518	jay.bryson@wachovia.com
Gary Thayer	Senior Economist	(314) 955-4277	gary.thayer@wachovia.com
Sam Bullard	Economist	(704) 383-7372	sam.bullard@wachovia.com
Anika Khan	Economist	(704) 715-0575	anika.khan@wachovia.com
Azhar Iqbal	Econometrician	(704) 383-6805	azhar.iqbal@wachovia.com
Adam G. York	Economist	(704) 715-9660	adam.york@wachovia.com
Tim Quinlan	Economic Analyst	(704) 374-4407	tim.quinlan@wachovia.com
Kim Whelan	Economic Analyst	(704) 715-8457	kim.whelan@wachovia.com
Yasmine Kamaruddin	Economic Analyst	(704) 374-2992	yasmine.kamaruddin@wachovia.com
Samantha King	Economic Research Assistant	(314) 955-2635	samantha.king1@wachovia.com

WACHOVIA