

December 5, 2008

### **13. The Federal Funds Target Rate and Business and Household Borrowing Rates**

William Bassett, Marco Del Negro, John Driscoll, Jonathan McCarthy,  
and James Vickery<sup>1</sup>

#### **Executive summary**

As the target federal funds rate approaches the zero lower bound on nominal interest rates, the Committee will need to consider both the benefits and the costs of further reductions in the target rate. This note considers one aspect of those benefits—the possible decrease in interest rates on household and business credit that may result from further reductions in the policy rate. Our principal conclusions are the following:

1. Most commercial banks have continued to lower the prime rate in lockstep with the target federal funds rate.
2. Sizable fractions of business loans, residential mortgages, and credit card loans have rates that are tied to the prime rate or other short-term interest rates that are influenced by either the target or the effective federal funds rate.
3. From August 2007 through August 2008, interest rates on nonmortgage consumer credit declined to an extent similar to that in prior policy easing episodes; however, since August 2008 they have been unusually sticky.

Of course, the decrease in interest payments for borrowers also represents reduced interest income for holders of the loans, potentially muting the macroeconomic effect of the change.

#### **Adjustment of prime rates**

The prime rate remains an important base rate for the calculation of rates on many types of loans. For instance, about 40 percent of all commercial and industrial (C&I) loan originations at U.S. commercial banks have rates that are based on the prime rate, and of those, about 90 percent reprice or mature within one year. In addition, most variable rate credit cards (which account, in turn, for at least 75 percent of the almost \$1 trillion total credit card debt outstanding), and most home equity lines of credit also have rates that are based on the prime rate. Evidence concerning the response of the prime rate to the funds target rate thus is an important factor in assessing the impact of policy rate changes in the current environment.

---

<sup>1</sup> Bassett and Driscoll: Division of Monetary Affairs; Del Negro and Vickery: Federal Reserve Bank of New York; McCarthy: Division of Monetary Affairs/Federal Reserve Bank of New York. We acknowledge the contributions of Diego Aragon (Federal Reserve Bank of New York). This section is a synthesis of memos by Driscoll (prime rates and business loans), McCarthy (consumer credit rates), and Del Negro and Vickery with Aragon (mortgage rates), which are available from the authors on request.

We use the Prime Rate Supplement to the Federal Reserve's quarterly Survey of Terms of Business Lending (STBL) to investigate changes in the prime rate at respondent commercial banks. Over 85 percent of the STBL respondents reduced their prime rates by the same amount as the cut in the target federal funds rate between the August and November 2008 surveys. Nearly all that did not were small and most of those already had maintained a prime rate above the industry standard of the federal funds target rate plus 300 basis points (top panels of Exhibit 1). This pattern is similar to those in previous easing episodes—in particular to the May-August 2003 period, when the funds rate was cut by 25 basis points to 1 percent (lower left panel). However, in contrast to previous episodes, five banks with assets between \$10 billion and \$35 billion lowered their prime rates less than 100 basis points between August and November of this year, perhaps suggesting some incipient sluggishness in the adjustment process. Nevertheless, prime rate-federal funds rate basis swaps indicate that market participants anticipate little change in this spread (once one accounts for continued softness of the effective federal funds rate to the target rate) over the coming year.

### **Business loan rates**

Another major factor influencing C&I loan rates is the spread of such rates over the prime rate. Between 1997 and 2007, the spread of loan rates over the prime rate trended downward (lower right panel of Exhibit 1). However, like many other private credit spreads, this spread has widened this year, but the 30-basis-point increase is considerably less than the decline in the prime rate. Although banks may continue to raise spreads, further reductions in the target federal funds rate would likely lead to lower prime-based C&I loan rates. Moreover, of the C&I loan originations whose rates are not based on the prime rate, 90 percent mature or reprice within a year. Therefore, in the absence of further market disruptions or significant increases in spreads upon the rollover of existing loans, those business borrowers also will benefit from additional reductions in the target federal funds rate.

In addition, nonbank financial institutions hold about \$425 billion of syndicated loans, the rates on which generally are based on Libor and so would be expected to decline with the federal funds rate. However, Libor has been unusually elevated recently, and spreads charged by nonbank participants on new leveraged syndicated credits have risen substantially over the course of the financial crisis. Furthermore, some of those loans have floors on the base rate, which would prevent reductions in those rates from passing through to corporate borrowers.

The other major type of business lending is through commercial mortgages, of which commercial banks hold about \$1.6 trillion. About one-third of these loans are construction and land development loans that are mostly floating rate; some are tied to the prime rate. Data on the composition of commercial mortgages on existing properties are relatively scant. There are apparently some adjustable rate commercial mortgages whose rates are tied to one-month Libor, but much of this lending is at fixed rates with maturities of 5 years or more. The impact of a lower target federal funds rate on this sector thus appears likely to be limited.

## Consumer credit rates

According to the Federal Reserve's G.19 statistical release, rates on consumer credit historically have fallen during periods of policy easing, as seen from the shaded regions in the upper left panel of Exhibit 2.<sup>2</sup> However, the declines in consumer loan rates are smaller than the drop in the funds target rate, as indicated by the rise in spreads during these periods (upper right panel).

To examine the behavior of consumer loan rates during the most recent period, we use Bankrate Monitor data through mid-November. (The G.19 data on bank consumer loan rates are available only through August.) Interest rates on auto loans declined between August 2007 and August 2008 in a manner similar to that of the previous easing cycles, and rates on variable-rate credit card loans fell almost as much as the federal funds target rate (lower left panel). However, over the August-November 2008 period, consumer credit rates changed little despite a further 100-basis-point reduction in the target rate. The minimal response probably reflects the effects of the intensification of the financial turmoil, such as the problems of the auto finance companies and the stresses in ABS markets, which the newly created Term Asset-Backed Securities Loan Facility may help to ameliorate.

Comparing periods where the target federal funds rate was held steady at a relatively low level, consumer credit rates declined more in the early 1990s (the "financial headwinds" period) than in the early 2000s (the "deflation concern" period), as seen in the lower right panel. Two factors likely contributed to the larger decline in the early 1990s: the gradual improvement in financial sector health over that period and, at least in the case of new car loans (whose rates tend to track medium-term Treasury yields), a fall in medium-term Treasury rates (these rates increased modestly in the later period). Thus, to the extent that communicating and following a policy that holds the target federal funds rate at a low level for some time contributes to lower medium-term rates and improved financial sector health, such a policy may facilitate further declines in consumer credit rates over time.

## Mortgage markets

As of the second quarter of 2008, first-lien residential mortgage debt outstanding was about \$9.5 trillion; according to the McDash dataset, about 30 percent (\$2.85 trillion) were ARMs.<sup>3</sup> Currently about 40 percent of outstanding ARMs (\$1.14 trillion) are past the date of the first interest rate adjustment (reset), a share that potentially could rise to about 50 percent by the end of 2009, depending upon possible defaults and refinancings.

---

<sup>2</sup> The exhibit shows rates on new car loans and credit card loans, but the patterns for other consumer credit rates are similar to those displayed. Although the G.19 has earlier data on credit card rates, a change in the respondent panel in November 1994 created a break in the series; therefore, we show only the later data.

<sup>3</sup> The McDash dataset is a loan-level dataset of mortgages that provides information about the composition of this debt, including information about mortgage amount, origination date, and terms.

Of these past-reset ARMs, almost 40 percent are indexed to 6-month Libor and about 20 percent are indexed to the 1-year Treasury rate.<sup>4</sup> Both of these reference rates typically have been tightly linked to the target federal funds rate, although 6-month Libor recently has diverged noticeably as a result of the strains in funding markets (Exhibit 3). The magnitude of the effect of a change in the target federal funds rate on mortgage interest payments also depends on refinancing behavior: Historically, homeowners often refinanced ARMs before their first adjustment, but recently this option has become more difficult for many borrowers faced with inadequate equity and tighter lending standards. As a result, a reduction in the base rates that resulted from policy action likely would have a greater effect on ARM interest payments than in the past because a larger-than-usual fraction of ARM borrowers will face the reset.

The prime rate is the most common index rate for home equity lines of credit (HELOCs), so a lower target funds rate should reduce interest payments on those loans. Unpublished data from the Federal Reserve's Flow of Funds accounts indicate that about \$700 billion of draws on HELOCs are currently outstanding.

A lower policy rate could indirectly reduce borrowing costs for households that refinance existing fixed-rate mortgages or take out new loans. This indirect effect can be substantial, as in the refinancing boom during the 2001-03 period, which led to annual interest savings of up to \$61 billion; but it is harder to estimate because it depends on the transmission of easier policy to longer term rates and on the impact on spreads between mortgages and Treasuries.

Furthermore, in the current environment, the magnitude of these effects appears to be even more uncertain. The relationship between the financial incentive to refinance—measured by the difference between the average interest rate on outstanding mortgages and the current average 30-year mortgage rate—and the mortgage bankers' refinancing index has become much weaker recently, suggesting that any indirect effect may be smaller than usual. In contrast, the initial response to the Federal Reserve program to purchase GSE debt and agency-backed MBS—a sharp drop in mortgage rates and a surge in the mortgage bankers' refinancing index—suggests that the effects of incentives to refinance could be relatively large.

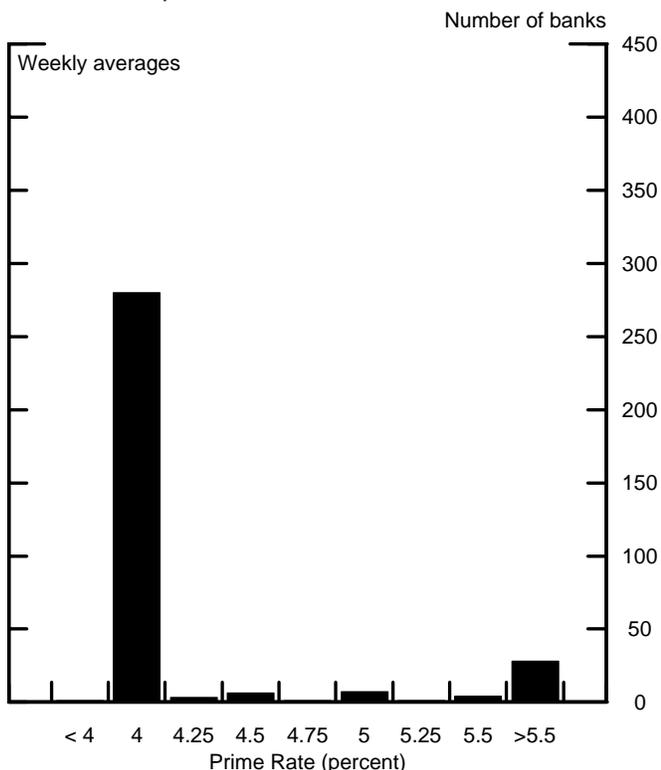
---

<sup>4</sup> For the remainder, McDash does not provide indexing rates, but we suspect that in many cases they would be rates that are also influenced by changes in the policy rate. While some ARMs have interest rate floors that would impede the pass-through of lower rates, such floors are binding or close to binding for only a very small fraction of past-reset ARMs.

Exhibit 1

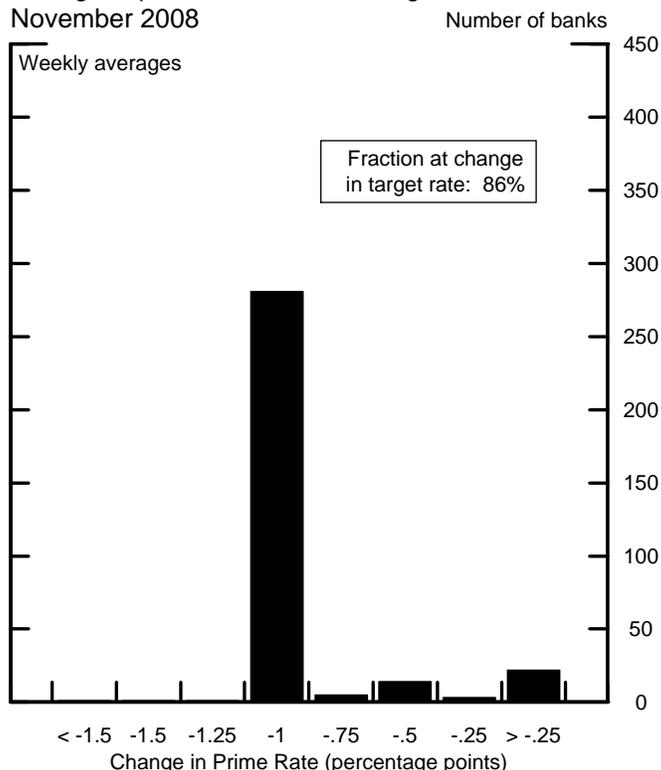
**Prime Rate and C&I Loan Rate Spreads**

Prime rate reported for November 2008



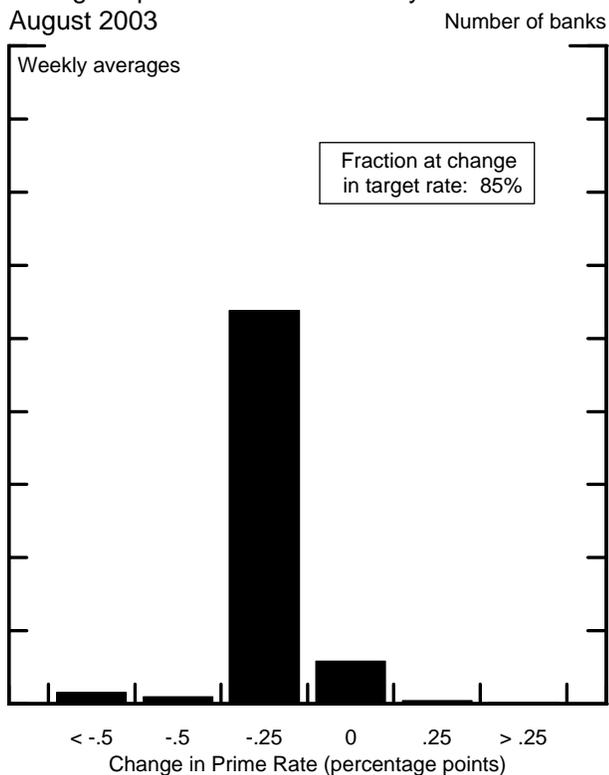
Source: Prime Rate Supplement to Survey of Terms of Business Lending.

Change in prime rate between August and November 2008



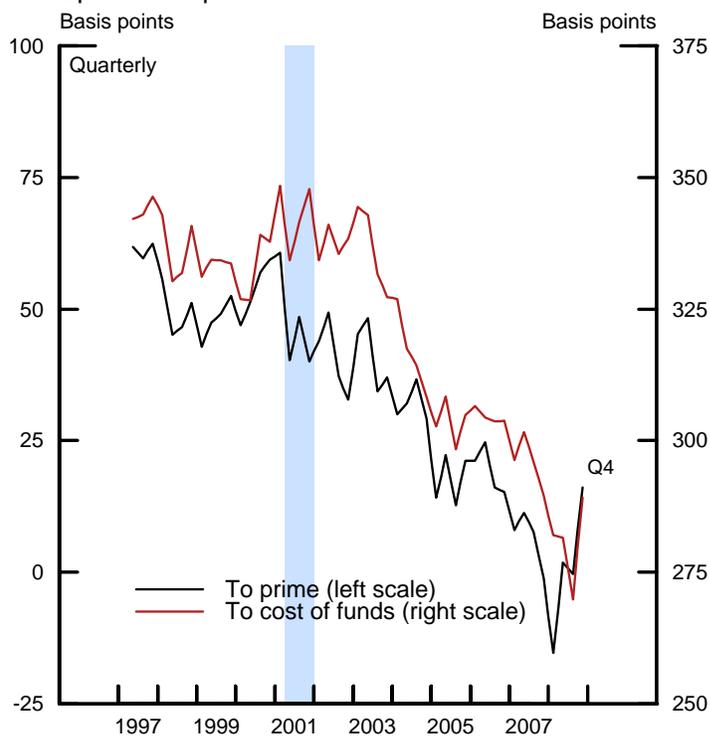
Source: Prime Rate Supplement to Survey of Terms of Business Lending.

Change in prime rate between May and August 2003



Source: Prime Rate Supplement to Survey of Terms of Business Lending.

Spreads on prime-based C&I loans

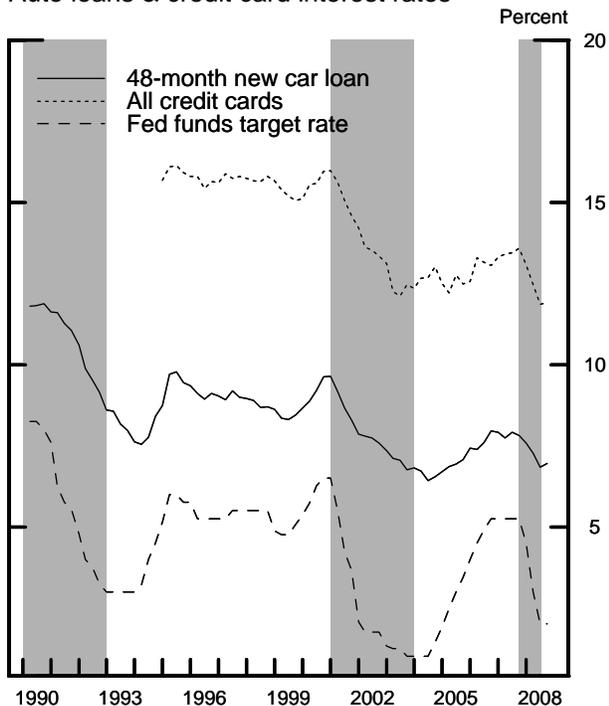


Source: Survey of Terms of Business Lending and staff calculations.

Exhibit 2

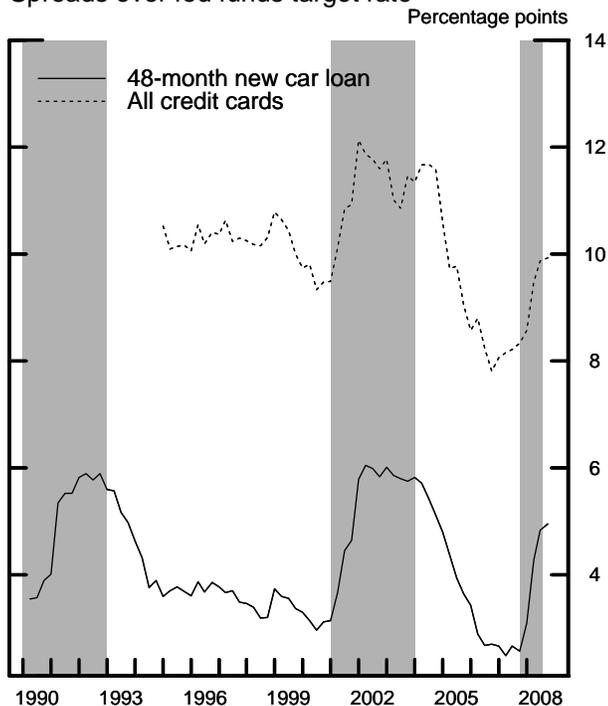
Interest rates and spreads on consumer loans

Auto loans & credit card interest rates



Note: Shaded areas represent recent easing cycles.  
Source: Federal Reserve Board G.19 release.

Spreads over fed funds target rate



Note: Shaded areas represent recent easing cycles.  
Source: Federal Reserve Board G.19 release.

Change in consumer credit rates and target federal funds rate since August 2007

	Aug. 2007 - Aug. 2008	Aug. 2008 - Nov. 2008
Fed funds target rate	-3.25	-1.00
Auto loans	-0.76	0.09
Credit cards variable rate	-2.95	-0.12

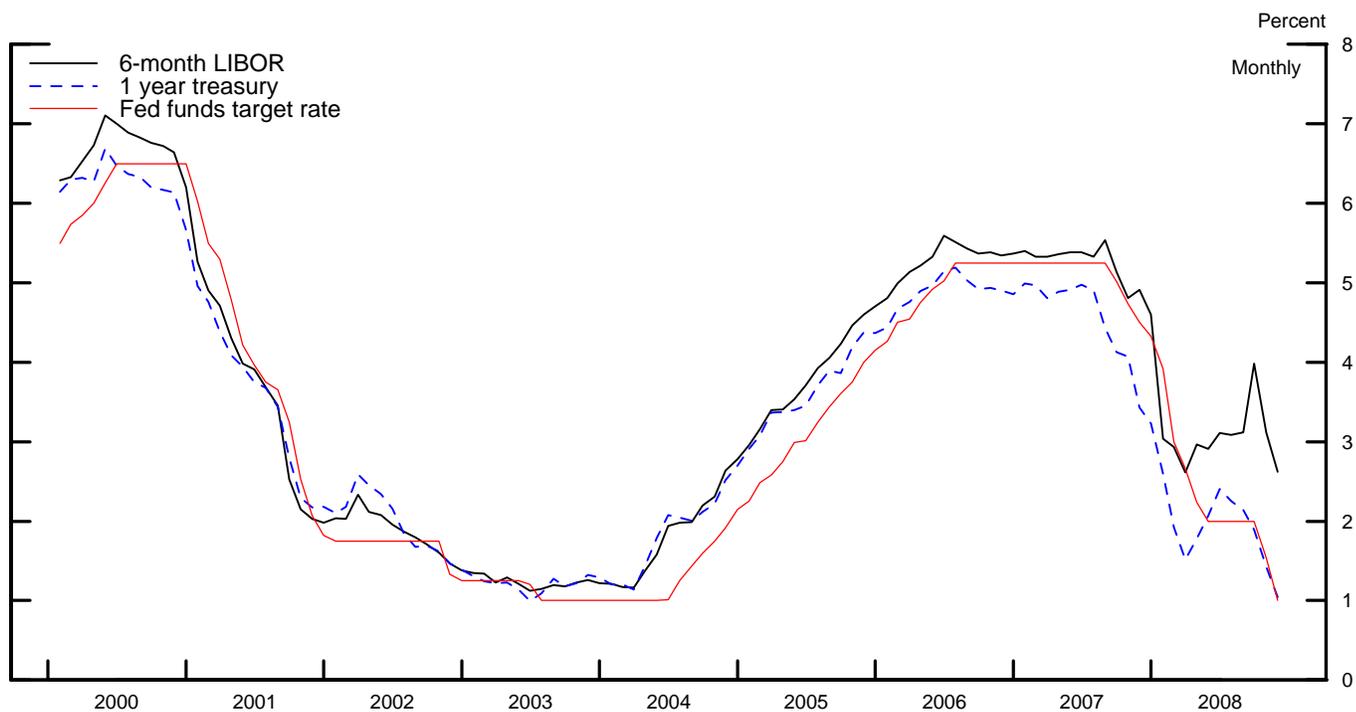
Source: Bank Rate Monitor  
Note: All figures in percentage points.

Federal funds rate and household borrowing rates in 2 'holding' cycles at low rates

	Cycle(first and last dates at that fed funds rate)	
	1992Q4- 1993Q4	2003Q3- 2004Q2
Fed funds target rate level (percent)	3.00	1.00
<b>Change in:</b> (percentage points)		
New car loan rate	-0.97	-0.32
Credit card rate (all)	-1.05*	0.22

Source: Federal Reserve Board G.19 release.  
\*Data prior to 1994 are not directly comparable to post-1994 data.

Exhibit 3  
**ARM indexing rates and the policy rate**



Source: BBA; New York Fed.