

# U.S. Credit Cycles: Past and Present<sup>1</sup>

## A Brief Timeline for Financial Stabilization Policies Over 2007-2009

Since the fall of 2007, Congress, the Federal Reserve, Treasury, Federal Deposit Insurance Corporation and other agencies have implemented various policies to support financial stability. These policies, which have been aimed at improving market functioning and facilitating access to credit by households and businesses, are summarized in the brief timeline for financial stabilization policies over 2007-09.<sup>2</sup> Importantly, these policies were implemented over an 18-month period and in many cases dealt with different aspects of the unfolding financial crisis. To appropriately assess the current credit cycle, it is critical to keep in mind the timing of these policy actions.

## U.S. Credit Cycles: Past and Present

An important question is whether policies to support financial stability have led to more lending than would have been the case had those policies not been implemented. Of course, it is too early to gauge the influence of policy on the economy's evolution through the financial crisis. It is difficult to do this with precision in general, and it is especially difficult to undertake analysis so soon after the events have occurred with so little data since the policy implementation. However, what we can do is look at how credit volumes have evolved, and ask whether this information is at least suggestive that the policies that we have implemented have worked to avert a far more severe and detrimental outcome. We compare the evolving path of credit in the current economic downturn to previous business cycle downturns -- as identified by the National Bureau of Economic Research (NBER) Business Cycle Dating Committee -- to provide some perspective on the effectiveness of the policies. For this purpose, previous business cycle downturns that have been associated with banking-sector problems and in turn have led to credit crunches seem to be the most appropriate benchmarks.

A credit crunch, according to the White House Council of Economic Advisers, "occurs when the supply of credit is restricted below the range usually identified with prevailing market interest rates and the profitability of investment projects."<sup>3</sup> Judging whether a credit crunch is happening in real time -- and to some extent even in hindsight -- is not easy as it is extremely difficult to sort out the relative importance on the flow of credit of reduced demand due to weaker economic activity, reduced supply because borrowers appear less creditworthy, or reduced supply because lenders face pressures, such as a shortage of capital, that restrain them from extending credit. In other words, while demand considerations could certainly result in a decline in credit flows, a reduction in the supply of credit -- caused either by bank balance sheet pressures or by banks' reluctance to lend to less-creditworthy borrowers -- could produce the same result.

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<sup>1</sup> Prepared by Rochelle Edge and Diana Hancock, Federal Reserve Board. The views expressed here are our own and should not be attributed to the Board of Governors of the Federal Reserve System or other members of its staff.

<sup>2</sup> For a market-by-market analysis of the programs discussed in this section see E. Duke, 2009, "Containing the Crisis and Promoting Economic Recovery." Remarks at the Women in Housing and Finance Annual Meeting, Washington, D.C., June 15.

<sup>3</sup> Council of Economic Advisers (1992), *Economic Report of the President* (Washington: Government Printing Office), p. 46.



Anecdotal evidence as well as some academic research suggests that the recessions that followed the business cycle peaks of 1969:Q4, 1973:Q4, 1981:Q3 and 1990:Q3 were credit-crunch recessions.<sup>4</sup> Clearly, the current downturn -- specifically, that following the 2007:Q4 business-cycle peak -- is also considered a credit-crunch recession

### ***How has credit evolved this business cycle?***

#### *Growth of the broad credit aggregates:*

The Federal Reserve's Flow of Funds accounts are a useful source for considering the evolution of credit in both the current and past business-cycle downturns. Specifically, these accounts provide more than a half-century of data on a large number of credit aggregates including the four major types of credit -- home mortgages, commercial mortgages, consumer credit, and nonfinancial business credit.<sup>5</sup> Interestingly, when one considers the percent deviation from trend for "household and nonfinancial business sector lending" -- the sum of these four types of credit -- over the last 50 years, the run-up in lending prior to the most recent business cycle peak and its drop-off during the current downturn are not as great as the run-up and drop-off in private lending around the 1990 business cycle peak (figure 1, left panel). Moreover, if only the lending provided by depositories, that is commercial banks, savings institutions, and credit unions, is considered, the deviation from trend was much smaller prior to the most recent business cycle peak compared with deviations from trend prior to business cycle peaks in 1973:Q4, 1981:Q3, 1990:Q3, and 2001:Q1 (figure 1, right panel).<sup>6</sup> This suggests that the aggregate growth in these four types of credit was not particularly untoward prior to the business cycle peak in 2007:Q4.

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<sup>4</sup> Kaufman (1991) cites credit crunches that occurred in 1959, 1969-70, the mid-1970s, 1981-82, and 1990-91. See H. Kaufman, 1991, "Credit Crunches: The Deregulators Were Wrong," *Wall Street Journal*, October 9. See also A. Wojnilower, 1980, "The Central Role of Credit Crunches in Recent Financial History," *Brookings Papers on Economic Activity*, v.2, pp. 277-326. For recessions typically identified as credit crunches, the Federal Reserve's Senior Loan Officer Opinion Survey of Bank Lending Practices measure of the willingness to make consumer loans declines either just prior to, or contemporaneously with, the business cycle peak as identified by the NBER.

<sup>5</sup> In this figure and the ones that follow, (1) home mortgages are loans secured by one-to-four-family properties, including second mortgages on properties of these types, loans taken out under home equity lines of credit, mortgages held by households under seller-financing arrangements, and construction and land development loans associated with one- to four-family residences; (2) commercial mortgages are loans secured by nonfarm nonresidential properties, including properties owned by nonprofit organizations such as universities, hospitals, and churches; (3) consumer credit consists of short-term and intermediate-term loans to individuals, such as loans for the purchase of automobiles and mobile homes, and secured and unsecured loans for furniture, boats, trailers, appliances, education, and vacations; and (4) nonfinancial credit is loans to businesses in three sectors: nonfarm nonfinancial corporate business, nonfarm non-corporate business, and farm business.

<sup>6</sup> Note that the data for depositories shown in the right panel of figure 1 as well as figures 5 and 7 also use the Flow of Funds Accounts.

Figure 1  
Household and Nonfinancial Business Sector Lending

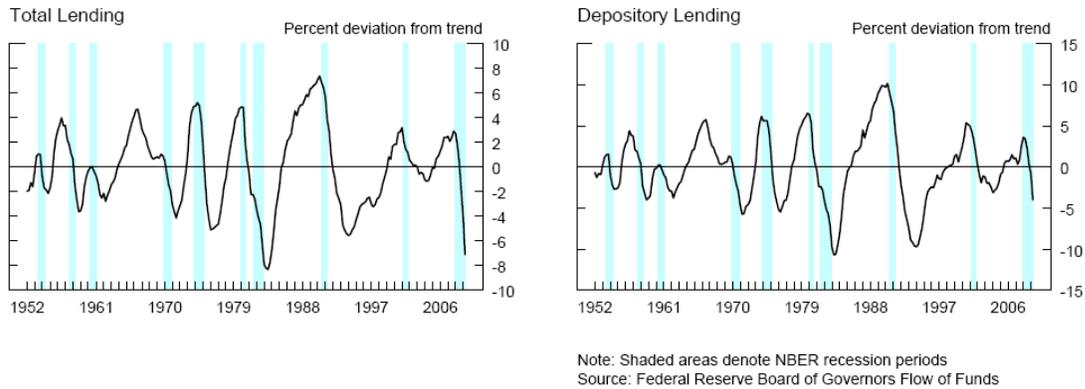
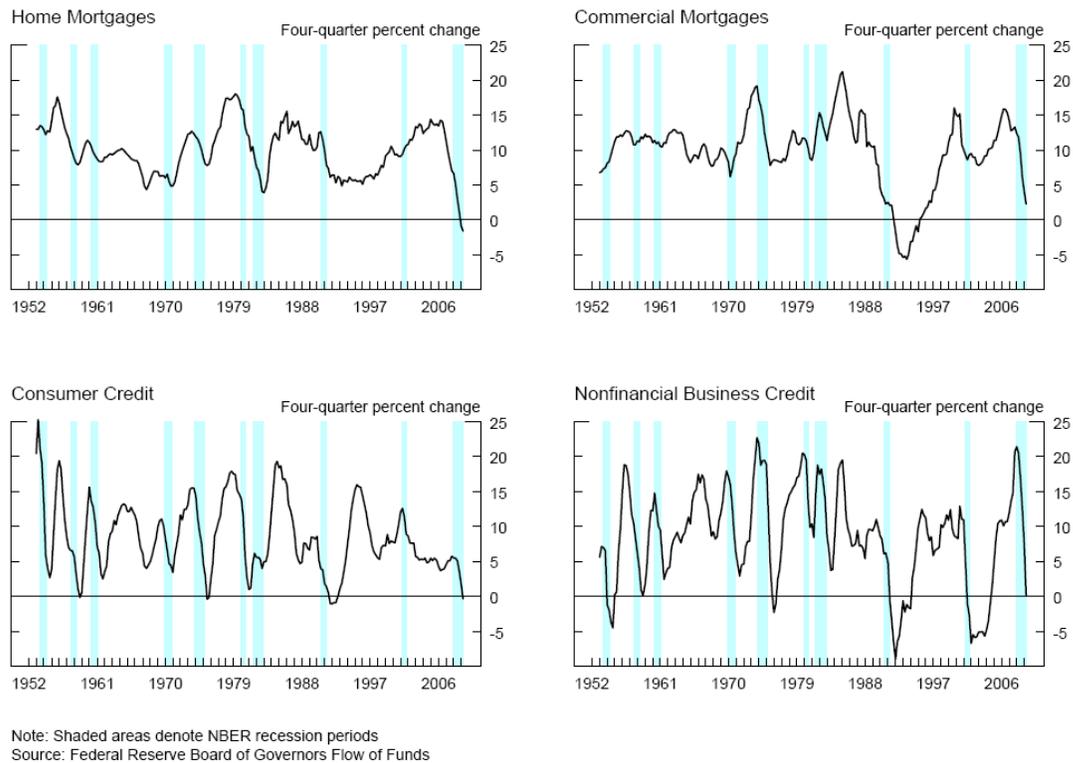


Figure 2 presents (seasonally adjusted) four-quarter growth rates for each of these credit types from 1952 to 2008, where the shaded areas denote NBER recession periods. As can be seen from the figure, credit growth typically declines prior to and during economic downturns; and this time-series pattern is readily apparent in the current downturn in all four panels.

In the current downturn, the reduction in lending growth that stands out as being the most “out-of-the-ordinary” is home mortgages, which is shown in the top left panel. Home-mortgages contracted for the first time in the Flow of Fund’s fifty-plus year history over the four quarters ended 2008:Q4, after having always remained above 4 percent. In terms of being an outlier relative to past business-cycles, the current experience for home mortgages is similar to that of commercial mortgages in the downturn following the 1990:Q3 business cycle peak, which is shown in the top right panel.

Figure 2  
Four Types of Credit



In the downturn following the 1990:Q3 business cycle peak, commercial mortgage volumes contracted after having never contracted (in nominal terms) before that. That downturn also included a financial crisis, although then it was due to commercial real estate rather than residential real estate as it is now. Given the similarities between these two business-cycle downturns, it seems interesting to compare them.

*A comparison of the current downturn with that which followed the 1990:Q3 peak:*

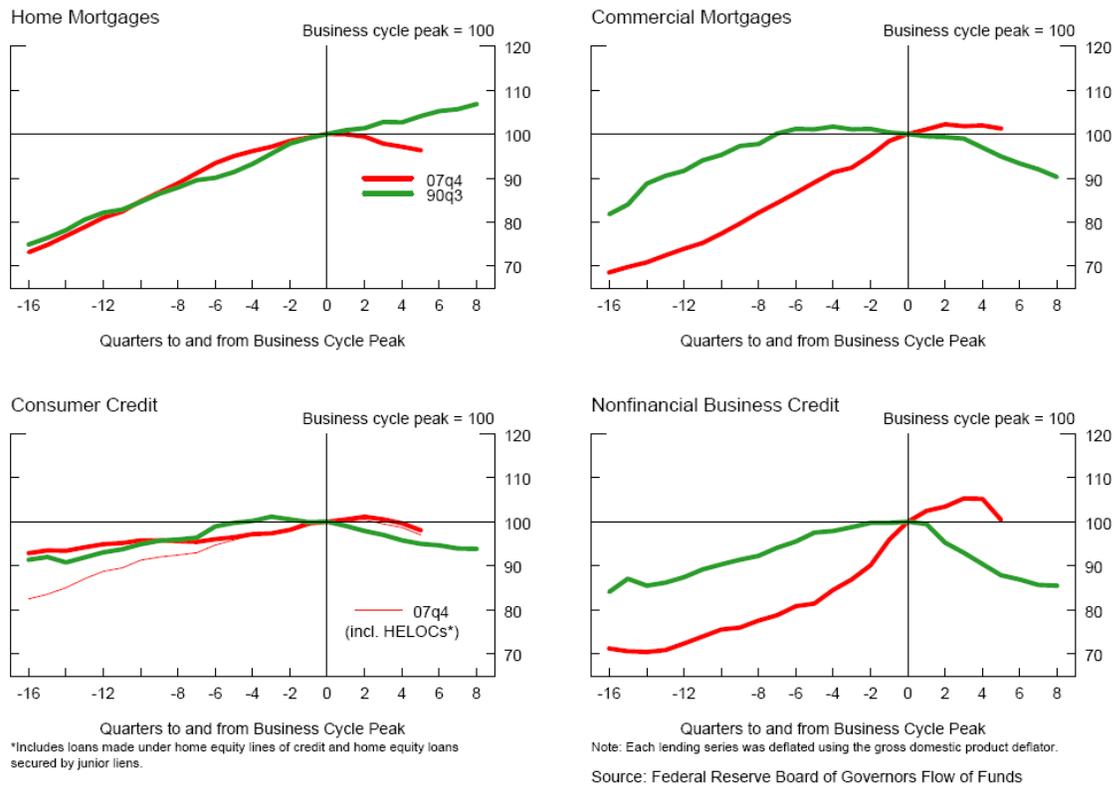
Figure 3, which has the same layout as figure 2, provides “butterfly charts” for inflation- and seasonally adjusted levels of four different types of lending -- home mortgages (top left panel), consumer credit (bottom left panel), commercial mortgages (top right panel), and nonfinancial business credit (bottom right panel) -- over the current downturn and the downturn that followed the 1990:Q3 business-cycle peak.<sup>7</sup> The series in the charts have been normalized to 100 at each business-cycle peak, which is also marked with the vertical bar. The normalization of each series is also made so that the difference between the level of a lending series at any date and the level at the business cycle peak has a percentage interpretation. For example, if a line has a value of 80 at some date before or after the business-cycle peak, it means that the level of the category of lending that the line represents is 20 percent below the level of lending at the business-cycle peak. Likewise if a line has a value of 110 at some date it means

<sup>7</sup> Over 2004 to 2009, home mortgages, consumer credit, commercial mortgages, and nonfinancial business credit were 58 percent, 14 percent, 12 percent, and 16 percent of household and nonfinancial business sector lending, respectively.

that the level of the category of lending that the line represents is 10 percent above the level of lending at the peak of the business cycle.

Normalized lending data for quarters prior to and after each business cycle peak are color-coded in figure 3 to each peak. Data associated with the 1990:Q3 peak are shown using thick dark green lines, and data associated with the recent 2007:Q4 peak are shown using thick red lines. Activity to the left represents the 16 quarters leading up to the peak and the activity to the right represents the 8 quarters following the peak. A steeper line to the left of the vertical bar implies higher credit growth prior to the peak; a more negatively-sloped line to the right of the vertical bar implies a larger reduction in credit during the downturn.

Figure 3  
Lending around Business Cycle Peaks: 1990:Q3 and 2007:Q4



The right side of the figure considers commercial mortgages (top panel) and nonfinancial business credit (bottom panel). Both of these lending aggregates expanded more rapidly in the lead up to the 2007:Q4 business-cycle peak than they did in the lead up to the 1990:Q3 peak and both also contracted (or continued to contract) immediately after the 1990:Q3 business-cycle peak. Until recently neither of these lending aggregates had declined in the current downturn but in the first quarter of this year nonfinancial business credit contracted to a level only slightly above that of 2007:Q4.<sup>8</sup>

For consumer credit (in the lower left panel), it matters -- in the lead up to the peak -- how we measure it. Without home equity lines of credit (HELOCs), and home equity loans, the

<sup>8</sup> The business cycle peak for the current downturn was in 2007:Q4, but the economy continued to grow in the first half of 2008. This growth may account for some of the growth in lending aggregates after the business cycle peak.

increase in consumer credit in the lead up to the 1990:Q3 and 2007:Q4 business-cycle peaks are broadly similar.<sup>9</sup> If we include all HELOCs and home equity loans, which can be used in a similar way to consumer credit, lending in the lead up to the 2007:Q4 business-cycle peak -- represented by the thin red line -- increases more notably.<sup>10</sup> Consumer credit contracted following the 1990:Q3 business-cycle peak, but has remained broadly flat since the 2007:Q4 peak, albeit with a slight downward drift in more recent quarters.

For home mortgages, shown in the top left panel, lending expanded similarly in the lead up to the 1990:Q3 and 2007:Q4 business-cycle peaks. This type of lending did not contract following the 1990:Q3 peak, but has contracted since 2007:Q4.

Apart from home mortgages, the drop off in credit following the 1990:Q3 business cycle peak was notably more severe than what has been experienced so far in the current downturn. Of course, there are two possible reasons why this might happen. One is that demand for credit turned down more sharply following the 1990:Q3 business-cycle peak than in the current downturn. However, the slowdown in economic activity following the 1990:Q3 business-cycle peak was nowhere near as severe (either in terms of depth or duration) as it has been to date in the current recession, which the NBER considers and recent data suggests is still ongoing.<sup>11</sup> This difference in the magnitudes of changes in economic growth suggests that it is unlikely that credit demand contracted more sharply in the 1990-91 recession than in the current downturn. The other possible reason, which is more likely, is that credit supply conditions have been a little more favorable -- albeit still stressful -- in the most recent downturn relative to the downturn that followed the 1990:Q3 business-cycle peak. This difference likely reflects the fact that numerous facilities and programs have been put in place to shore up the financial sector and thereby the flow of credit to prevent a notably more severe contraction in credit than we have seen.

*A comparison of the current downturn with other credit-crunch recessions that occurred within the last forty years:*

Figure 4 provides “butterfly charts” for the same four inflation and seasonally adjusted levels of credit as shown earlier albeit now around the last five business cycle peaks that preceded credit-crunch recessions; specifically the business-cycle peaks of 1969:Q4, 1973:Q4, 1981:Q3, 1990:Q3, and 2007:Q4. Data associated with the recent 2007:Q4 peak continue to be shown using thick red lines. Data associated with the 1990:Q3 peak are now shown using thin dark green lines.

Figure 4 indicates that -- with the exception of home mortgages -- lending over the current downturn does not appear particularly weak or subdued relative to other downturns. Indeed, for all categories of lending other than home-mortgage lending (shown in the top left panel), there are at least two other downturns for which the paths of lending after the business-cycle peak lie below that following 2007:Q4 (that is, the drop-off in credit was more pronounced). Even for home mortgages, however, the decline in lending is not tremendously large relative to the experience of past business-cycle downturns. In contrast, over the downturn following the 1990:Q3 business cycle peak (shown using dark green lines), lending -- with the

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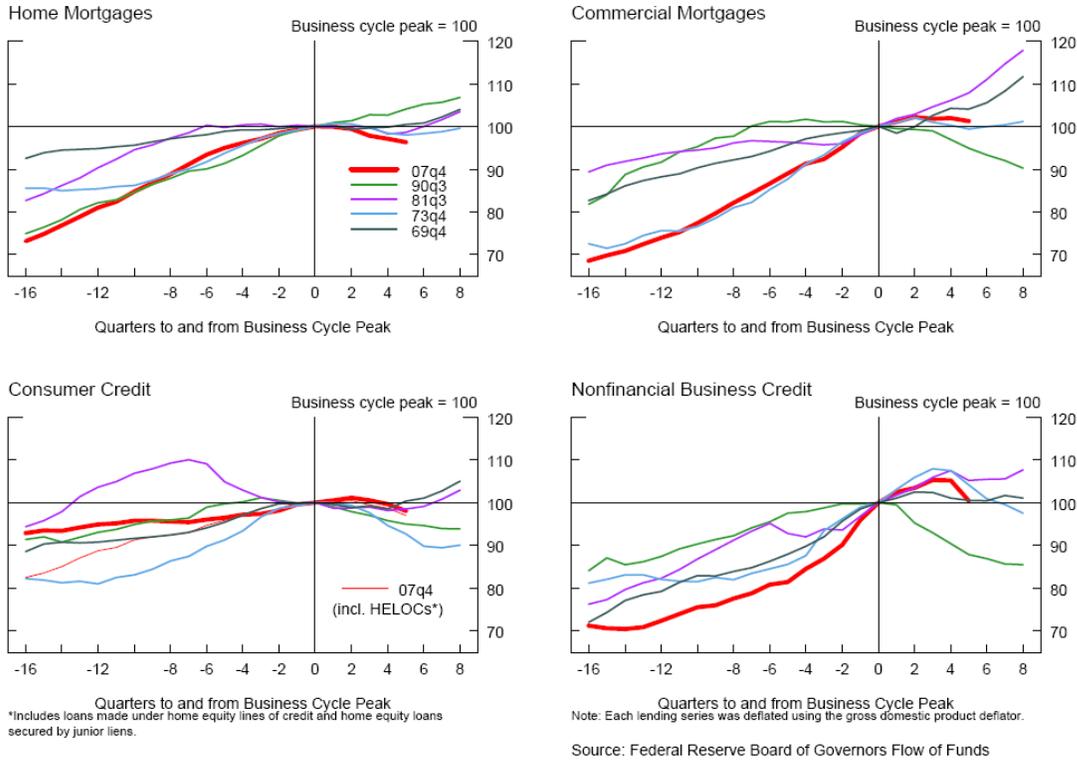
<sup>9</sup> Note that HELOCs and home equity loans are included in home mortgages in all of the figures that provide “butterfly charts” as is the case in the Flow of Funds data for home mortgages.

<sup>10</sup> Note that cash-out refinancing -- like HELOCs and home equity loans -- can also be used in a similar way to consumer credit; it is not, however, included in the chart.

<sup>11</sup> In fact, real economic growth was negative during 2009:Q1.

exception of home mortgages -- experienced either the largest or the second-largest contraction of all credit-crunch associated downturns.

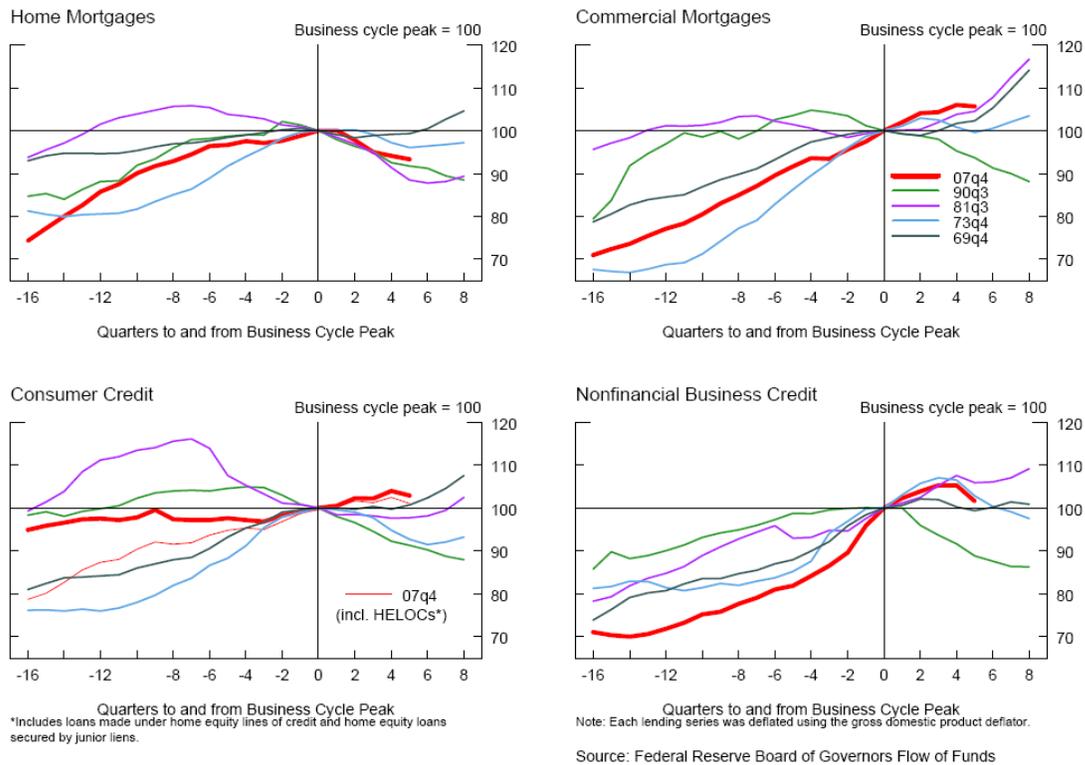
Figure 4  
Lending around Business Cycle Peaks



This feature is even more prominent when only lending by depositories is considered. Figure 5 has the same format as figure 4, but presents time-series data on lending by depository institutions; that is, commercial banks, savings institutions, and credit unions.<sup>12</sup> Figure 5 indicates that lending by depositories over the current downturn does not appear particularly weak or subdued relative to other downturns. Indeed, for all components of credit other than home mortgages the path of lending in the current downturn lies toward the upper end of the range of outcomes for past business-cycle downturns. Moreover, when home mortgages by just depositories is considered, the path for lending lies within the range of outcomes for past business-cycle downturns (albeit toward the lower part of the envelope).

<sup>12</sup> Over 2004 to 2009, home mortgages, consumer credit, commercial mortgages, and nonfinancial business credit were 39 percent, 14 percent, 15 percent, and 32 percent of the household and nonfinancial business sector lending by depositories, respectively.

Figure 5  
Depository Lending around Business Cycle Peaks



Given the enormity of some of the events of the past year, the findings of these business-cycle comparison exercises -- particularly for depository institutions -- may seem somewhat surprising. However, policy has been extremely active in the current credit crisis, especially with respect to the banking sector; for example, the Federal Reserve has expanded its liquidity programs, the U.S. government as part of the Emergency Economic Stabilization Act has distributed about \$200 billion through its Capital Purchase Program, and there has been temporary extensions of several government safety net policies, for example, raising of the basic limit on federal deposit insurance coverage from \$100,000 to \$250,000 per depositor and guaranteeing newly issued senior unsecured debt of banks, thrifts, and holding companies.

Given the similarities between home mortgages in the current downturn and commercial mortgages in the downturn following the 1990:Q3 business cycle peak, the outcomes for lending following the 1990:Q3 business cycle peak could be thought of as a possible scenario for lending in the current downturn in the absence of any policy response. That said, the likely path of lending in the current downturn without any policy response would have been notably more contractionary than after 1990:Q3 given that the earlier episode -- while characterized by a financial crisis -- did not face as extreme an episode as was experienced last September.

*A comparison of the current downturn with the two other recessions that occurred within the last forty years:*

Figure 6 provides “butterfly charts” for the same four inflation and seasonally adjusted levels of credit as shown earlier in figure 4, but also includes information around the business cycle peaks that preceded the two recessions not typically associated with credit crunches;

specifically the business-cycle peaks of 1980:Q1 and 2001:Q1. In figure 6, these two credit cycles are identified using blue and black dotted lines, rather than solid lines. Interestingly, the growth in commercial mortgages (top right panel), nonfinancial business credit (bottom right panel) and consumer credit (bottom left panel) that preceded the business-cycle peaks of 1980:Q1 (the blue dotted line) and 2001:Q1 (the black dotted line) generally fall within the ranges of credit growth observed for the credit-crunch recessions. And with respect to the growth in home mortgage credit, shown in the top left panel, its growth prior to the 1980:Q1 and 2001:Q1 business cycle peaks was about as rapid as its growth prior to the 1990:Q3 and 2007:Q4 business cycle peaks. That said, the run-off in home mortgage credit in the current credit cycle is greater than in the two credit cycles not typically associated with credit crunches.

Figure 6  
Lending around Business Cycle Peaks

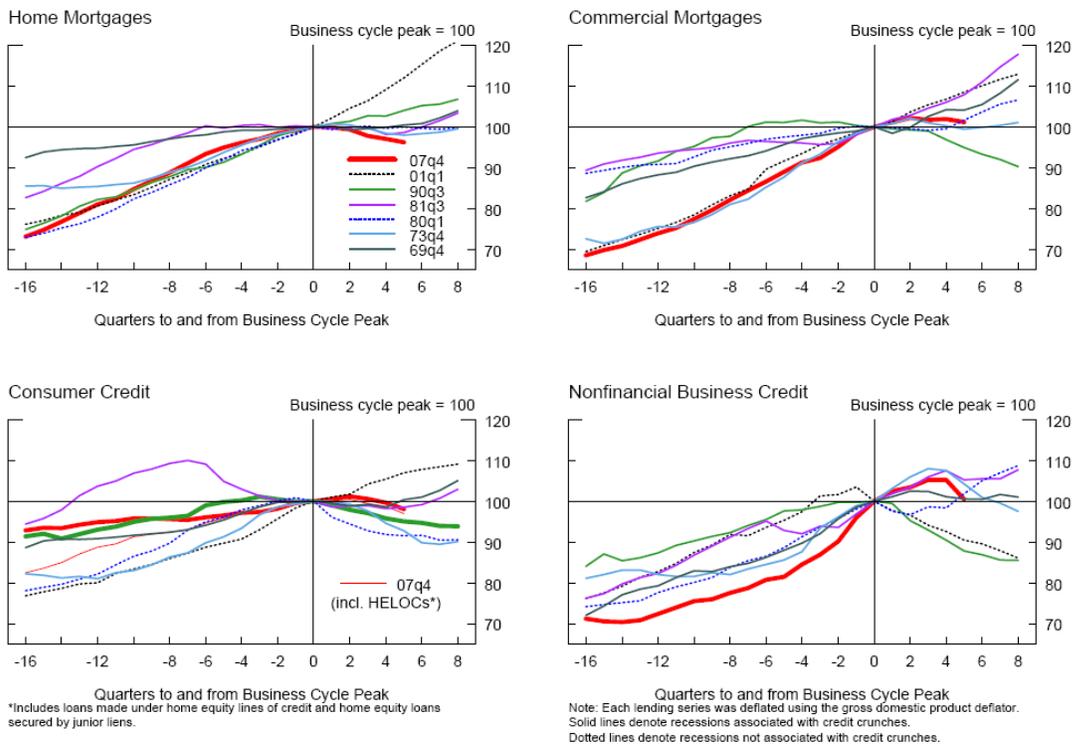
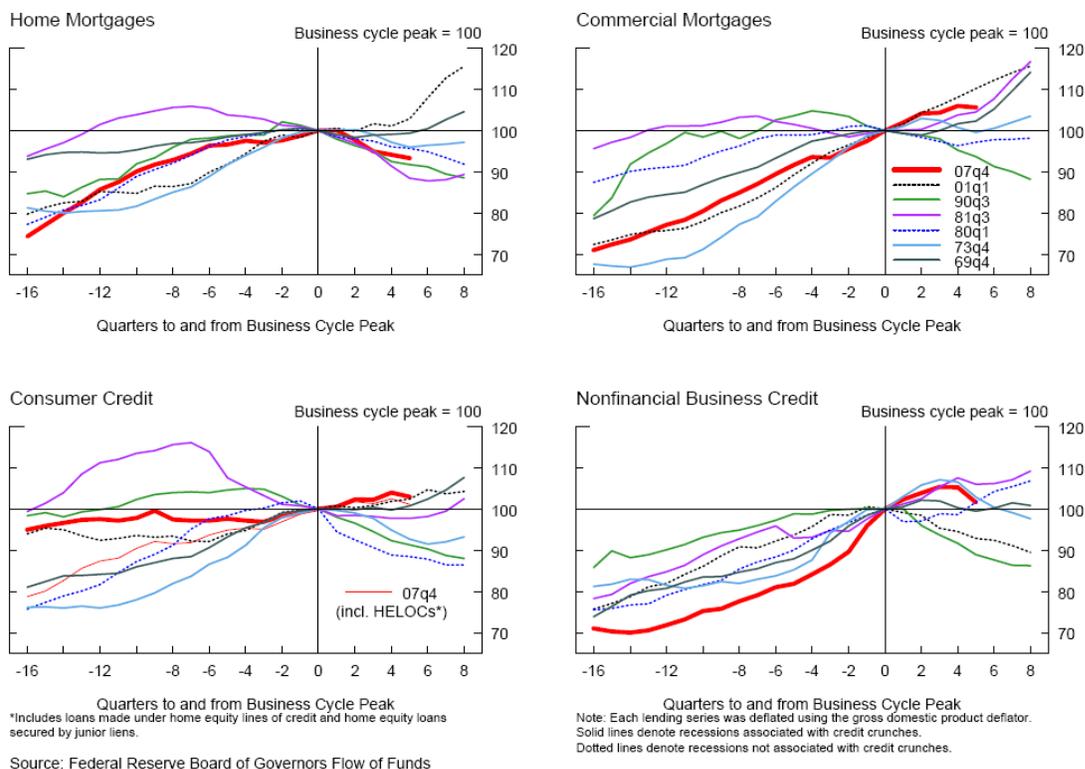


Figure 7 has the same format as figure 6, but presents time-series data on lending only by depositories. Figure 7 indicates that lending by depositories over the current downturn does not appear to be weak or subdued relative to other downturns whether or not such downturns are typically classified as credit crunch recessions. Indeed, even with the information from the business cycle peaks of 1980:Q1 and 2001:Q1 included, the path of lending in the current downturn for commercial mortgages (upper right panel), for nonfinancial business credit (bottom right panel), and for consumer credit (bottom left panel) is toward the upper end of the range of outcomes for past business cycle downturns. And with respect to home mortgages, shown in the top left panel, the path of lending by depositories lies well within the range of past outcomes over previous business cycles.

Figure 7  
Depository Lending around Business Cycle Peaks



### Summary of Findings

Using the Federal Reserve's Flow of Funds, a comparison of the current credit cycle with past credit cycles over the last 50 years can be made. With the exception of nonfinancial business credit, the growth in lending prior to the most recent business cycle peak (i.e., 2007:Q4), was within the bounds -- albeit toward the upper range -- of lending growth leading up to other business cycle peaks. Up through the first quarter of 2009, the latest data available, the contraction in commercial mortgages, in nonfinancial business credit, and in consumer credit does not appear to be particularly severe relative to contractions in these types of lending in other downturns. That said, the contraction in home mortgages in the current credit cycle is stronger

than in past downturns even though the growth of credit was very similar to that observed prior to the 1990:Q3 business cycle peak.

When only the credit provided by depositories is considered, the growth in lending prior to the most recent business cycle peak -- again with the exception of nonfinancial business credit -- was well within the bounds of lending growth by depositories leading up to other business cycle peaks that have occurred since 1953. And after the most recent business cycle peak, lending by depositories, which include commercial banks, savings institutions and credit unions, does not appear particularly weak or subdued relative to other downturns. Indeed for all components of credit other than home mortgages, the path of lending in the current downturn lies toward the upper-end of the range of outcomes for past business-cycle downturns. And with respect to home mortgages, the path of lending for depositories lies within the range of past outcomes.

Given the enormity of events over the past year the overall finding that most categories of household and nonfinancial-firm lending in the current recession do not appear especially weak relative to past recessions seems at first surprising. However, it does appear indicative of the facilities and programs implemented by the Federal Reserve and other agencies having been broadly successful in relieving stresses in the key credit markets and maintaining the volume of aggregate credit in spite of these events. Note that, the comparisons of the paths of lending over different business cycle downturns laid out in this study do not account for differences in the severity of recessions. That said, because the current recession is already longer and deeper than the other downturns considered in the study, the conclusion that Federal Reserve and other agencies' facilities and programs have acted to shore up credit availability would likely still hold even if differences in credit demand across recessions were accounted for. Finally, note that although the study documents differences and similarities in the paths of credit both prior to and after business cycle peaks, a direct association between the magnitudes of increases and subsequent decreases in credit volumes around business cycle peaks is not considered. An ocular review of the data does not immediately suggest that any strong relationship between the magnitudes of these changes exist, although clearly a more formal analysis would be beneficial.