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Understanding Business Cycles: An Exploration of Money, Credit, and Investment Interactions

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The United States business cycle generally refers to the occurrences of economic recessions and expansions around the economy's long-term growth trend. These fluctuations of US Gross Domestic Product (GDP) also coincide with many empirical observations, which allow economists to look deeper—and hopefully get a better understanding of—the various forces driving our economy.

These observations take the form of correlations over time, or "co-movements," between US output (GDP) and other key economic indicators. Our research focuses on the co-movements of US output and components of US investment in two areas of physical capital goods: household investment (the sum of durable consumption expenditures and residential expenditures); and business investment (non-residential expenditures).

In particular, we attempt to explain the following four empirical observations:

1. household and business investment are both positively correlated with US output;
2. business investment lags household investment;
3. household investment is positively correlated with M1 (the sum of US demand deposits and currency in circulation); and
4. household credit outstanding is positively correlated with, and more volatile than, household investment.

Observations #1 and #2 above are widely known, and suggest that investment components are key factors in the understanding of business cycles. However, explaining these two observations in the context of standard macroeconomic models has had limited success. Observations #3 and #4 are quite new. These findings raise a question: Can features of the financial and monetary sectors of the US economy account for the behavior of investment components over the business cycle?

> Our model suggests the possible economic outcomes of a Fed response to the current sub-prime mortgage crisis.

To find an answer, we've developed a theoretical model of the interaction among households, businesses, and credit providers in competitive markets to assess the impact of monetary policy on their behavior. In our model, households work and save, and they purchase durable and non-durable consumption goods using a combination of currency, deposits (checks), and credit. Financial intermediaries (banks) create "inside" money by accepting deposits and providing loans; credit-producing firms finance credit purchases with bank loans; and goods-producing firms, who are the sole producers of output, finance a portion of their capital expenditures with credit.

This model enables us to deliver predictions of the cyclical behavior of investment components, M1, and credit, which can then be compared with the four observations explained above. If our model's predictions are consistent with those four empirical findings, this will add support to our conjecture that monetary and financial features are important in explaining business cycles.

The results of our research show that our model features are capable of replicating the four observations above when a business cycle is triggered by a monetary tightening, such as a Fed-induced increase in the nominal interest rate. Here's how: a Fed tightening drains reserves from the banking sector, which immediately contracts the amount of loanable funds and M1. Since credit suppliers must finance their purchases with bank loans, the decline in loans decreases the availability of credit, which further contracts credit-financed investment.

This chain of events allows us to explain all four of the empirical observations described above: the immediate decline in both investment components (observation #1); the co-movements between household investment and M1 (observation #3); and household investment and credit outstanding (observation #4). As the Fed's tight policy stance dissipates over time, the household sector responds by demanding more credit, further draining the supply of available credit to the business sector. This results in a subsequent increase in household investment while business investment continues to decline (observation #2).

In summary, the transmission of monetary policy facilitated by credit and inside money creation is able to reconcile these real and monetary observations regarding the cyclical behavior of investment. Although our research is a strictly positive analysis of the role of financial and credit sectors in the transmission of Fed policy shocks, our conclusions do have current implications for the US economy. Namely, our model suggests the possible economic outcomes of a Fed response to the current sub-prime mortgage crisis. The current US economy is faced with a shortage of credit to household investment. Our model suggests that a Fed expansion will not only deliver the expected decline in the nominal interest rate, but will also lead to an expansion in the amount of credit available to households. The prediction of our model, therefore, accords with many economists' intuitions regarding the Fed's ability to assuage the present crisis, and possibly end it altogether.