Working Paper 77-2


INTEREST RATE EXPECTATIONS AND THE DEMAND
FOR SHORT-TERM BUSINESS CREDIT


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December 1977

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# FOR SHORT-TERM BUSINESS CREDIT

Short-term credit plays an essential part in the business financing process. In view of its importance in the nation's credit structure, the market for short-term business credit receives a great deal of attention from financial analysts. Empirical demand models are constantly being refined as changes in borrowing patterns occur. Recently, interest rate expectations have come in for increased attention as a factor helping explain business borrowing. This factor may contribute to the demand for short-term credit during periods in which businesses expect future declines in long-term interest rates. As rates decline in keeping with expectations, the effect of this factor may be to reduce the demand for short-term credit. The purpose of this article is to describe a proxy for the interest rate expectations factor and to measure the contribution made by this proxy to short-term credit demand models.

## FINANCIAL EXPECTATIONS AND BORROWING PATTERNS

Once the decision to seek out debt financing is made, the firm is faced with choosing from an array of alternative sources of debt. In general, attempts are made to balance debt maturities with asset life. As rational economic units, however, businesses form decisions using all the information available to them. Financial commitments extending into the future are entered into on the basis of expectations about the future. These expectations are formed on the basis of evaluations of past developments as well as current and prospective business and financial conditions. In some instances, expectations may come into conflict with financing needs arising from business operations. For example, debt financing plans calling for the matching of fixed assets with bond issues

are not wholly compatible with expectations that current long-term rates are historically high and should decline in the future. Under these circumstances, there is a strong incentive to delay long-term financing commitments until rates have fallen.

In such cases, planned business activities can still proceed using short-term debt as interim financing. In subsequent periods, the short-term debt can be funded with proceeds of long-term issues carrying lower rates of interest. There are three primary sources of short-term business credit: commercial and industrial (C&I) bank loans, commercial finance company credit (including secured loans and factored accounts receivable), and the commercial paper market.

There is reason to believe that C&I loans play the foremost role in satisfying interest rate expectations induced demands for funds. In fact, there is an important institutional feature that makes bank loans particularly useful in this regard. Bank business loans are routinely made under commitment, a feature that enhances their value to borrowers during periods when market conditions may act to dampen willingness to lend.[1] Such conditions are likely to prevail during periods of high interest rates, when competition for funds is intense. This is the type of environment in which interest rate expectations become important [3]. Any consideration of the demand for bank business credit should take this institutional setting into account.

A PROXY VARIABLE FOR INTEREST RATE EXPECTATIONS

Attempts have been made to specify and test interest rate expectations variables. Jaffee [2] provides one of the first discussions of the expectational factor but does not find a satisfactory proxy with which to measure its effect. Friedman [1] uses changes in the rate charged

on bank loans as an interest rate expectations variable. Changes in the
bank loan rate are assumed to be synchronized with changes in other market
rates, an upswing in the bank loan rate being representative of a general
upswing in interest rates. If borrowers expect such an upswing to be of
short duration, they will favor bank loans over longer-term debt. This
variable enters Friedman's model, estimated over the period 1960I-1970II
for C&I loans only, with a positive sign and at the 5 percent significance
level.

Figure 1 presents a time series view of the ratio of total
sources of short-term business credit to short-term credit plus bonds.
It also shows the spread between the prime lending rate and the Aaa
corporate bond rate.[2] Since the mid-1960's, there has been a definite
correspondence between this interest rate spread and relative utilization
by businesses of short-term credit.

The association between the two series seems paradoxical, since
it suggests that utilization of short-term credit rises as the rate
charged on such credit increases relative to the rate charged on longer-
term alternatives. The apparent paradox is resolved, however, by the
expectations factor that influences business demand for short-term credit.
Expectations of lower future interest rates are revealed by a shift in
demand from long-term to short-term sources of funds. In these circum-
stances, short-term debt takes on a premium over long-term debt. Not
only does short-term debt support business activity, it also serves as a
shelter against what are expected to be temporarily high long-term in-
terest rates. Thus, expected declines in future interest rates tend to
bring about premium rates on short-term debt. An increasing positive
rate spread, or a narrowing negative rate spread, represents a condition
of growing attractiveness of short- versus long-term debt. Changes in
the spread between rates paid on short- and long-term sources of business

credit, therefore, seem a reasonable proxy for the interest rate ex-
pectations factor.

A positive spread between short- and long-term interest rates,
manifested by a downward sloping yield curve, is indicative of expec-
tations of falling interest rates in future periods. Faced with such a
situation, corporations have the choice of paying a premium for short-
term funds and thereby preserving their flexibility to seek better terms
in a future, low interest rate environment, or of entering into long-term
debt arrangements that may be relatively expensive over the life of the
debt. Figure 1 makes it clear that the preferred financing alternative
is to borrow short at a premium over the long-term rate, and then shift
to bond financing when rate levels fall.

MODELING SHORT-TERM CREDIT DEMAND

The three regression models summarized in Figure 2 test the
importance of interest rate expectations in business decisions to borrow
in the short-term credit markets. Estimated parameters and regression
statistics for the models, along with definitions of symbols used, are
presented in Figure 2. These models were initially estimated using
ordinary least squares and contained significant positive autocorrelation.
The results presented are based on transformed models using iterative
least squares procedures. The commercial and industrial loan series used
in these regressions is the one that receives the greatest amount of
analytical attention, namely that for large weekly reporting commercial
banks. Each of the dependent variables is based on a credit stock series
and is expressed in first difference form, so the series actually being
estimated are composed of quarterly changes. The interest rate term is
also converted to first difference form, while the four dollar denominated
explanatory variables are all flows. Thus, the dependent variables are

expressed as flows and are functionally related to groups of independent variables that are also flows. Inasmuch as the independent variables are expressed in several differing units of measurement (i.e., dollars and interest rates), standardized regression coefficients, or beta coefficients, are also shown.

Each of the equations includes what are commonly thought to be the most important determinants of business short-term credit demand. These include fixed investment, inventory changes, receivables, and internally generated funds. The cash flow term is adjusted for the influence of inventory profits and possible discrepancies between reported depreciation and actual replacement costs on capital goods.

The dependent variable in equation (1) is a composite variable including the three primary sources of business short-term credit: C&I loans, commercial finance company credit, and commercial paper issues. The equation is estimated over the period 1964II-1976III. All four of the explanatory variables summarized above enter with the expected sign and at a high significance level. The interest rate expectations variable, $\Delta$(RCLP-RB) or changes in the spread between the prime lending rate on short-term loans and the corporate bond rate, has the expected sign but does not enter the equation at an acceptable level of significance.

In equation (2) the dependent variable is C&I loans. The first four explanatory variables again carry the expected sign, but the t-statistic for the inventory term drops to an unacceptable level. The expectations term again carries the expected sign and, moreover, is highly significant. The beta coefficients for the independent variables in equation (2) indicate that the interest rate expectations term ranks ahead of changes in business inventories and close to receivables in determining changes in C&I loans at weekly reporting banks. It is not nearly as important, however, as the fixed investment and cash flow terms.

The dependent variable ΔCLWRB used in equation (2) is taken directly from the balance sheet and therefore includes bank holdings of bankers' acceptances. During the past several years, the practice of showing C&I loans net of acceptance holdings has grown in use. According to this line of reasoning, the presence of bankers' acceptances in bank business loan portfolios can lead to a mistaken view of actual conditions in the loan market. For example, investment in bankers' acceptances may overstate true demand conditions in some periods, while liquidation of acceptance holdings may act to understate demand conditions in other periods. Equation (3) uses a dependent variable that is adjusted to neutralize the effects of investment in bankers' acceptances.[3] The independent variables, however, are the same as in equations (1) and (2). Due to data limitations introduced with bankers' acceptances, equation (3), like equation (1), is estimated only for the period 1964II-1976III. The results from estimating equation (3) are similar to those obtained from equation (2). All independent variables except changes in business inventories enter significantly, and the beta ranking of the expectations variable remains the same.

CONCLUSIONS

This article tests the hypothesis that interest rate expectations induce firms to borrow short in the current period at a premium over the long-term rate in anticipation of future declines in interest rates. The proxy used to capture the interest rate expectations effect is the spread between the prime lending rate on short-term loans and the corporate bond rate. While this variable is significant in explaining period-to-period changes in business loans at large commercial banks, it is not an important factor in explaining the demand for short-term credit more generally defined.

These findings have an important implication for commercial bank loan policy. Banks must recognize the potential demand for commercial loans

that has, in recent years, been commonly associated with periods of high interest rates. Interest rate expectations contribute to business loan demand when short-term interest rates, including the prime lending rate, are at historically high levels. High interest rates are symptomatic of a tight credit environment in which it is difficult to raise loanable funds, even in this age of liabilities management. Banks, therefore, must cautiously approach lending arrangements that imply irrevocable guarantees of future credit. This study suggests that there is a strong motive encouraging the use of such guarantees during periods of tight credit.

FOOTNOTES

[1]At year-end 1976, guaranteed credit in the form of unused C&I loan commitments at 136 large banks totaled $123.5 billion. Data for this sample group of banks are reported on the Federal Reserve's G.21 release, "Loan Commitments at Selected Large Commercial Banks."

[2]The Aaa corporate bond rate is for seasoned issues and tends to understate the new issue rate. A new issue rate series for Aaa-rated utility bonds is available back to 1960. The seasoned rate series is used as a proxy for the new issue rate series in this study since one of the regressions discussed later is estimated starting before 1960.

[3]This adjustment is not perfect. Only a subset of weekly reporting banks, or those banks reporting on data series H.12, "Commercial and Industrial Loans Outstanding by Industry," provide information on holdings of bankers' acceptances. The adjustment, therefore, understates the actual amount of investment in bankers' acceptances at all weekly reporting banks.

REFERENCES

1. Friedman, Benjamin M., <u>Regulation Q and the Commercial Loan Market in the</u> <u>1960's</u>, Staff Economic Studies 73, (Washington, D.C.: Board of Governors of the Federal Reserve System, 1972).

2. Jaffee, Dwight M., <u>Credit Rationing and the Commercial Loan Market</u>, (New Yorkt John Wiley and Sons, Inc., 1971).

3. Summers, Bruce J., "Loan Commitments to Business in United States Banking History," <u>Economic Review</u>, Federal Reserve Bank of Richmond, 61 (September/ October 1975), 15-23.

Fig 1

Short-Term/Total Debt Ratio and Spread Between
Short-Term and Long-Term Interest Rates
1964I–1977III
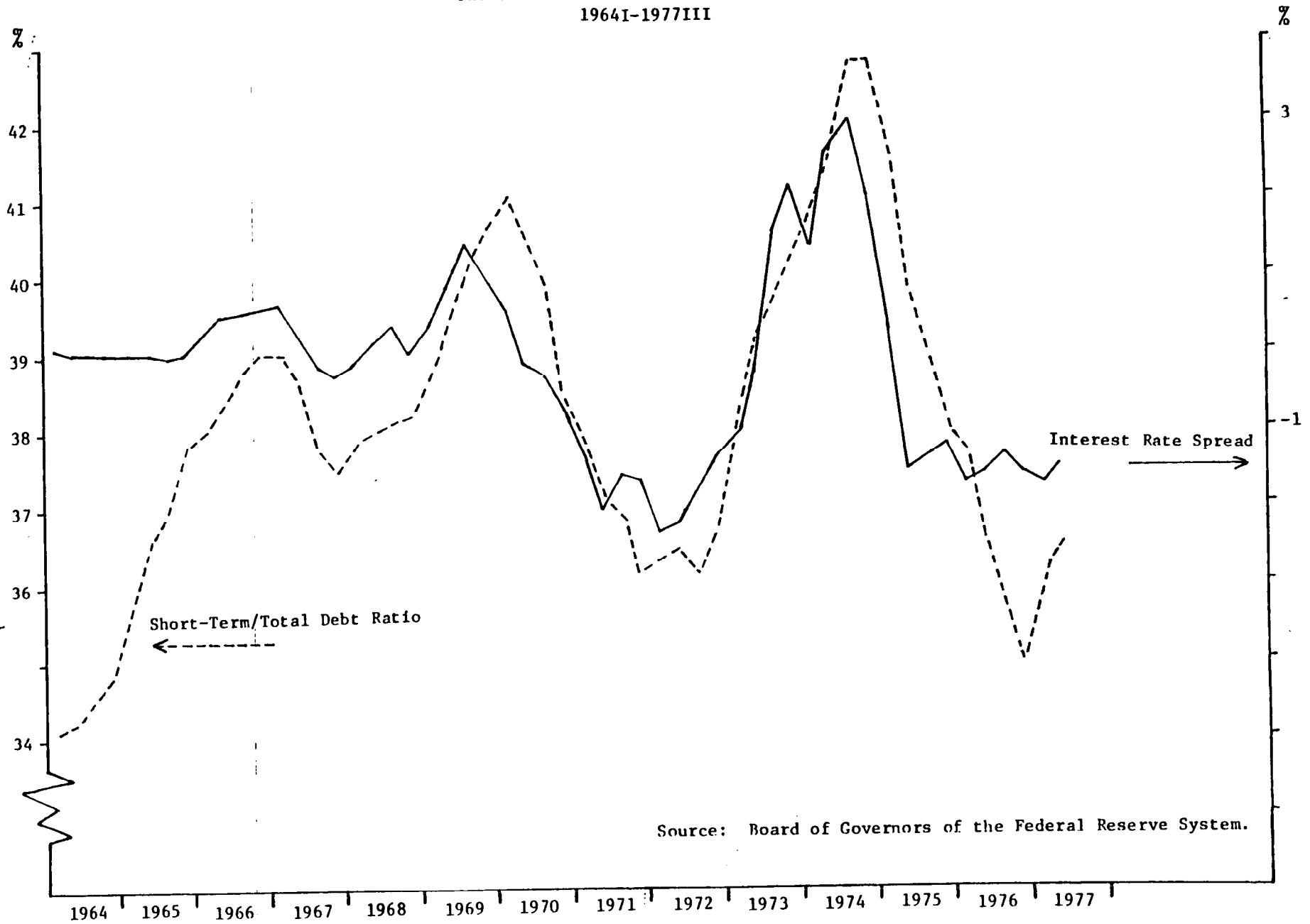
Source: Board of Governors of the Federal Reserve System.

# Figure 2

## Estimates of Short-Term Credit Demand Equations

| Equation Number | Dependent Variable | Constant Term | Independent Variables | | | | | $\bar{R}^2$ | SER | SER/Mean Y | DW |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | BFI | INV | REC | ACF | Δ(RCLP-RB) | | | | |
| (1) | Δ ACLFCCP | -0.744 | 0.193 | 0.111 | 0.294 | -0.188 | 0.369 | .678 | 1.844 | 0.845 | 2.03 |
| | | | (5.64) | (2.85) | (2.43) | (-6.48) | (0.72) | | | | |
| | | | [1.29] | [0.30] | [0.27] | [-1.50] | [0.07] | | | | |
| (2) | Δ CLWRB | 1.027 | 0.123 | 0.040 | 0.243 | -0.137 | 1.027 | .662 | 1.277 | 1.183 | 1.81 |
| | | | (6.52) | (1.65) | (3.08) | (-7.18) | (3.09) | | | | |
| | | | [1.58] | [0.14] | [0.30] | [-1.74] | [0.22] | | | | |
| (3) | Δ ACLWRB | 0.944 | 0.131 | 0.049 | 0.277 | -0.147 | 0.854 | .661 | 1.617 | 1.128 | 1.81 |
| | | | (4.10) | (1.48) | (2.69) | (-5.49) | (2.02) | | | | |
| | | | [1.02] | [0.15] | [0.29] | [-1.37] | [0.19] | | | | |

Estimation periods: Equations (1) and (3), 1964II-1976III; equation (2), 1956I-1976III.     ( ) = t statistic

Estimation method: Cochrane and Orcutt Iterative Least Squares.     [ ] = Beta coefficient

Symbols:

ACLFCCP — Adjusted commercial and **industrial** loans of weekly reporting banks + commercial finance company credit + commercial paper issues of nonfinancial companies, seasonally adjusted, billions of dollars.

CLWRB — Commercial and industrial loans of weekly reporting banks, seasonally adjusted, billions of dollars.

ACLWRB — Adjusted commercial and industrial loans of weekly reporting banks (net of bankers' acceptances), seasonally adjusted, billions of dollars.

BFI — Business fixed investment, or new plant and equipment expenditures, all industries, seasonally adjusted annual rates, billions of dollars.

INV — Change in business inventories, seasonally adjusted annual rates, billions of dollars.

REC — Receivables, or corporate trade credit extended, seasonally adjusted annual rates, billions of dollars.

ACF — Adjusted cash flow, or undistributed after tax corporate **profits** with inventory valuation adjustment plus corporate capital consumption allowance with capital consumption adjustment, seasonally adjusted annual rates, billions of dollars.

RCLP — Bank prime lending rate on short-term loans, percent.