# Trading Company Finance in Japan

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## ABSTRACT

Japan's general trading companies play a major role in assisting the financing needs of their customers through a variety of financial instruments, including trade credit. In this paper we investigate the determinants of trading company finance. The main contributions of this paper are twofold. First, we find that although trading company finance is now less dependent on trade credit, its response to output shocks is still defined by its trade credit component. This provides evidence that trading company finance is consistent with a transactions motive of trade credit. Second, while it is generally believed that trading company finance is a substitute for bank loans, since the 1980s trading company finance has moved positively with credit conditions implying that trading company finance, and in particular trade receivables, behave as complements to bank loans. This change may be due to regulatory changes in financial markets relating to trading company finance, which has led to increased lending by banks to small business customers.

*JEL Classification:*     *G21, G29, G32*

*Keywords:*     *Trade credit; Bank loans; Trading companies*

## I.        INTRODUCTION

While financial institutions play a dominant role in the allocation of funds within an economy, they are not, however, the sole providers of the credit in the economy as the non-financial private sector is also a critical source of (business) credit. In Japan, private enterprises receive more than 180 trillion yen in trade credit and loans from the non-financial sector, which is approximately two-thirds of what they receive in loans from private financial institutions. Trading companies are the most financially active of these non-financial firms. Since they are in the wholesale business, they frequently use trade credit to facilitate their commodity transactions. In addition, they also extend a sizable amount of loans.[1] More recently, a few general trading companies have capitalized on their superior credit ratings, and procured a massive amount of long-term bonds.

Despite playing a prominent role in Japan's flow of funds, trading company finance has received scant attention from researchers. Quantitative analyses of their operations have been scarce, as have been comparative studies of trading company finance and bank finance.[2] In this paper, we fill the gap in the literature by closely studying the financial operations of trading companies, and also by examining how the extension of credit by the trading companies move with output and credit market conditions. Crucial to understanding business cycle fluctuations in Japan is knowing whether the behavior of trading companies in financial markets dampens or amplifies economic shocks. By employing a new method of integrating conditional and unconditional correlations, we come to two major conclusions. First, although trading company finance is currently less dependent on trade credit than it has been in the past, the trade credit component still defines its response to output shocks. Hence, the behavior of trading company finance is consistent with a transactions motive of trade credit. Second, since the 1980s trading company finance and bank loans are no longer substitutes. Regulatory changes coupled with increased lending by banks to the customers of trading companies are possible reasons for the observed change.

The paper is organized as follows. Section II defines the scope of analysis. Section III discusses the business cycle properties of both the components of trading company finance and overall trading company finance. Section IV concludes with interpretations of our findings, and an implication for Japan's financial system.

## II.        DEFINING TRADING COMPANY FINANCE

There are nine general trading companies in Japan (Mitsubishi, Mitsui, Sumitomo, Itochu, Marubeni, Nissho Iwai, Nichimen, Tomen, and Kanematsu).[3] The general trading companies are regarded as quite distinct from other wholesale businesses. Their scale is colossal, often totaling more than 10 trillion yen a year in sales. These firms also deal with between 20,000 to 30,000 goods, including production, intermediate and consumption goods. Secondly, their commercial dealings include both domestic and foreign transactions that are very often efficiently integrated. For example, the textile transactions of a general trading company include the entire distribution process, from cotton and wool purchases and imports to fiber, textile and

clothing sales and exports. These commercial transactions are supported by a variety of activities such as investment, financial and management assistance and information provision. With the exception of Korea and China, similar types of businesses are rarely seen in the rest of the world. Because of this, these types of trading companies are specifically called *Sogo Shosha* even outside of Japan.

Trade credit transactions with client companies are by far the most important component of trading company finance. Because they are wholesale businesses, the general trading companies make heavy use of trade credit more due to the high turnover rate of the goods they sell. Besides trade credit, however, the general trading companies can and do provide other sources of financing to their customers. They extend both short and long-term loans, invest in equities and offer loan guarantees to client firms, all of which are vital in maintaining lasting business relationships.[4]

In addition to expanding the traditional commodity transaction channels, general trading companies also engage in financial activities to earn profits.[5] They have recently entered into credit liquidation by asset-backed securities, provision of clearing functions of trade credit, financing social infrastructure by private finance initiative, and establishing venture capital.[6] Because some of these activities are off-balance sheet, and such a small part of these firms' overall activities, it is difficult to analyze these new activities in detail. Therefore, for the purposes of this paper we define trading company finance as the following items on a trading company's balance sheet: trade receivables, net trade receivables, short-term loans, long-term loans, equities of related companies, investment, and loan guarantees.

### III.        ANALYSIS OF TRADING COMPANY ASSETS

In this section we analyze the behavior of general trading companies in credit markets. The analysis is based on data from two sources: the financial statements of individual general trading companies, and the aggregated Financial Statements Statistics of Corporations. In Section III−A, we briefly summarize general trends in trading company finance. Section III−B uses the method of Den Haan (2000) to calculate the comovements between the components of trading company finance with output and credit conditions. Sections III−C and III−D summarize the correlation results, both for each instrument, as well as for overall trading company finance.

### A.        Trading Company Finance by Instrument

Financial statement data for the general trading companies are from the Development Bank of Japan's Industrial Financial Databank. We aggregate each balance sheet item for fiscal years (FY) 1960, 1970, 1980, 1990 and 2002. Table 1 displays, for these years, amounts outstanding, for the general trading companies of trade credit, short- and long-term loans, loan guarantees, investments, and equities of related firms. Table 2 displays trade payables and loans from financial institutions, received by all corporations (excluding financial and insurance businesses) in Japan.

**Table 1**
Asset items of the general trading companies (billions of yen)

|  | Trade Credit (Receivables) | Net Trade Credit | Total Loans | Equities of Related Firms + Investments | Loan Guarantees | Total Assets |
|---|---|---|---|---|---|---|
| FY1960 | 679 | 48 | 27 | 16 | 73 | 1170 |
| FY1970 | 5083 | 722 | 300 | 130 | 687 | 7855 |
| FY1980 | 10652 | 1422 | 622 | 851 | 2744 | 20436 |
| FY1990 | 14086 | 1706 | 1546 | 1961 | 3457 | 41369 |
| FY2002 | 5347 | 1364 | 733 | 3738 | 3911 | 20977 |

Source: Annual financial statements of the 9 general trading companies

**Table 2**
Credit to all Japanese corporations (billions of yen)

|  | Trade Credit (Payables) | Total Loans from Financial Institutions | Total Liabilities |
|---|---|---|---|
| FY1960 | 7959 | 8203 | 24925 |
| FY1970 | 45730 | 45700 | 136578 |
| FY1980 | 138162 | 166257 | 419350 |
| FY1990 | 227669 | 410247 | 923342 |
| FY2002 | 169782 | 370357 | 896491 |

Source: Annual Financial Statements Statistics of Ministry of Finance

From the tables it is clear that trade receivables are the primary form of credit extended by trading companies. The general trading companies provide a sizable share of the trade credit extended to corporations in Japan, as high as 12% in FY 1973, and, even after a significant reduction in the size of trading companies due to declining sales in the 1990s, 3% in FY 2002. Net trade receivables, the difference between trade receivables and trade payables, has been positive over time, indicating that general trading companies are a key source of trade credit for the rest of the economy. The major trading companies also hold more than 1.5 trillion yen (FY 1990) in short- and long-term loans, which is comparable to the holdings of a medium-sized regional bank. Equities of related firms, investments, and loan guarantees are also quite sizable. Holdings of equities and investments by the major trading companies, in particular, doubled in the 1990s. This increase was offset by a comparable decline in trade receivables.

**Figure 1**
Balance Sheet Items for the General Trading Companies
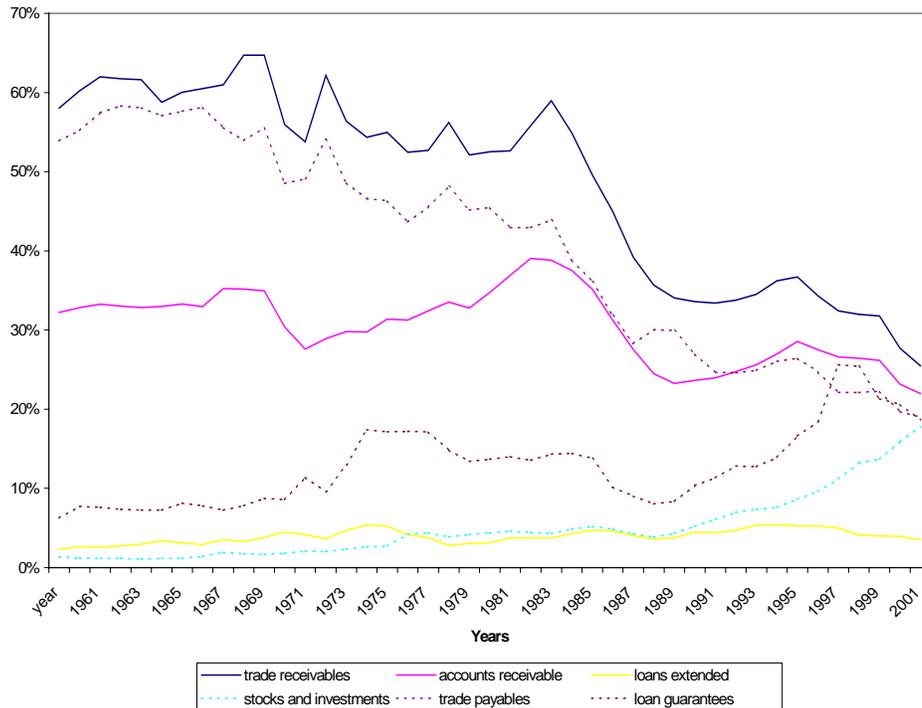


Note: This figure plots trade receivables, trade payables, accounts receivables, stocks and investments, loans, and loan guarantees all relative to total assets for the general trading companies from 1960 to 2002.

Figure 1 plots each balance sheet item against total assets for the general trading companies.[7] Most noticeable is the declining share of trade receivables in the asset portfolio since FY 1984. As of FY 2002 trade receivables account for only 25.5% of total assets, which is less than half its FY 1960 share. A major reason for the decline in the trade receivables ratio can be attributed to the decreased use of notes receivable. Since notes receivable are subject to stamp taxes and back-office processing fees, firms generally try to avoid the use of these instruments.[8] Another reason for the decline is that total assets of the general trading companies exploded in the late 1980s. These firms benefited from excellent credit ratings and issued a considerable amount of commercial paper and corporate bonds,[9] which they, in turn, used to finance an increase in assets.

Recently, the asset shares of long- and short-term loans have fallen, but still remain in the 3% to 6% range. In contrast, holdings of shares of related firms, and investments have risen dramatically from about 1% of total assets, at the beginning of

the sample, to nearly 20%. Loan guarantees have similarly increased. There are two possible explanations for these observed increases. The first possibility centers on an effort by the general trading companies to stimulate commodity transactions. For example, investing in related firms develops strong managerial ties between the firms, thus facilitating commodity transactions. Loan guarantees to finance the daily operational activities of client companies also help general trading companies to increase their commodity transactions. Moreover, loan guarantees are preferred to traditional loans since the guarantees do not expose the general trading companies to foreign exchange rate or depreciation risk. The second motivation the general trading companies have to increase the share of these two assets is to earn profits directly from financial transactions without having to engage in business transactions, or sales.[10]

## B.      Calculating the Comovement of Two Variables

We now analyze what movements in trading company finance tell us about the financing needs of their client firms. Is the extension of trade credit by trading companies motivated by the transactions motive or the finance motive? What about the other components of trading company finance? To determine this we calculate the correlations between the components of trading company finance and variables representing the transactions and finance motives, namely, variables representing output and credit market conditions. The most common approach to measure the correlation between two variables is to calculate the unconditional correlation between two stationary series. If the variables are nonstationary, however, the sign of the correlation often depends upon the method of detrending. Furthermore, focusing on only one correlation coefficient may ignore information about the possible dynamic relationship between the variables.

As an alternative, we employ the method proposed by Den Haan (2000) to measure the dynamic comovements between the financial instruments used by trading companies, and output and credit market conditions. These comovements are based on the innovations of an estimated VAR. Consider an N-vector of random variables, $X_t$.[11] Within $X_t$ are the variables for which we want to calculate the comovements, say $S_t$ and $R_t$. The VAR is estimated as:

$$X_t = \mu + \sum_{l=1}^{L} A_l X_{t-l} + \varepsilon_t \qquad (3\text{-}1)$$

where $A_l$ is an $N \times N$ matrix of coefficients, $\mu$ is an N-vector of constants, $\varepsilon_t$ is an N-vector of contemporaneous innovations, and L is the total number of lags. The VAR is used to construct a time series of k-period ahead innovations for each of the elements of $X_t$. We denote the k-period ahead forecast, and the k-period ahead forecast errors of the variable $S_t$, by $S_{t+k,k}^f$ and $S_{t+k,k}^{ue}$, respectively. The same

notation applies for $R_t$. The innovations vary across *k*.

The correlations of the innovations at each forecast horizon provide a picture of the dynamic relationship between the variables. We denote the covariance between the two random variables, $S_{t+k,k}^{ue}$ and $R_{t+k,k}^{ue}$, as cov(k), and the correlation between the two random variables as corr(k). This method contrasts with simply taking a single correlation to observe the relationship between two variables, as we have different coefficients for different ks. In this case, when the forecast horizon is short the correlations between the innovations reveal the "short-run" comovement of the variables. In contrast, correlations between innovations with long forecast horizons represent the "long-run" comovements. Furthermore, if the variables are stationary, as the forecast horizon goes to infinity, the "long-run" comovement converges to the unconditional correlation coefficient.[12]

## C.    Economic Conditions and the Components of Trading Company Finance

Based on the framework introduced above, we calculate the comovements between the credit instruments provided by trading companies, and output and credit market variables. As proxies for business and credit market conditions we employ the business conditions diffusion index and the lending attitude diffusion index both available quarterly from the Tankan Survey Diffusion Index (DI) of firms available from the Bank of Japan. The business conditions (lending attitude) DI measures the percentage difference between firms that regard current business conditions (lending attitude) as "good (accommodative)" and those that regard current conditions as "bad (severe)." Data for the components of trading company finance are published by the Ministry of Finance in the Quarterly Financial Statements Statistics of Corporations of large-sized[13] wholesale businesses, a category dominated by the general trading companies.[14] The variables used in analysis are reported in Table 3.

**Table 3**
Financial instrument variables

|  | Data Availability (quarterly) |
|---|---|
| Trade receivables (TR) | 1960:1 – 2003:3 |
| Other liquid assets (includes short-term loans) (LNS) | 1960:1 – 2003:3 |
| Long-term loans (LNL) | 1973:2 – 2003:3 |
| Stocks of related firms (ST) | 1975:2 – 2003:3 |
| Total Trading company finance (SHOSHA = TR+LNS+LNL+ST) | 1975:2 – 2003:3 |

Source: Quarterly Financial Statements Statistics of Corporations by Ministry of Finance
Notes: Large-sized manufacturing corporations are those with more than one billion yen in capital. We follow Petersen and Rajan (1997) by dividing all variables by the total assets outstanding.

**Table 4**

Output and credit market variables

|                                                      | Data Availability (quarterly) |
|------------------------------------------------------|-------------------------------|
| Diffusion index for business conditions (DIBS)       | 1965:2 - 2003:3               |
| Diffusion index for lending attitude (DILN)          | 1967:1 – 2003:3               |

Source: Tankan Survey of Corporations by Bank of Japan
Notes: The sample includes firms and industries of all sizes excluding the financial and insurance industries. Until March 1974 we employ the DIs for the major firms. After 1974, to better approximate business and credit conditions for the entire economy, we use the DI for all-Japan firms.

**Table 5**

Unconditional correlation between the assets of large-sized wholesale firms and business / credit market conditions

|                    | TR          | LNS         | LNL         | ST          |
|--------------------|-------------|-------------|-------------|-------------|
| DIBS               | 0.3944***   | -0.2767***  | -0.4826***  | -0.5767***  |
| DIBS (-1)          | 0.4083***   | -0.3025***  | -0.4815***  | -0.5931***  |
| DIBS (-2)          | 0.4044***   | -0.2369***  | -0.4817***  | -0.5999***  |
| DIBS (-3)          | 0.3944***   | -0.1860**   | -0.4837***  | -0.6013***  |
| DIBS (-4)          | 0.3685***   | -0.0593     | -0.4808***  | -0.5952***  |
| Beginning of sample | 1965/4-6    | 1965/4-6    | 1973/4-6    | 1975/4-6    |
| DIBS               | -0.3726***  | 0.0657      | 0.3916***   | -0.5767***  |
| DIBS (-1)          | -0.3806***  | 0.0267      | 0.3898***   | -0.5931***  |
| DIBS (-2)          | -0.3739***  | -0.0594     | 0.4037***   | -0.5999***  |
| DIBS (-3)          | -0.3648***  | -0.1379*    | 0.4282***   | -0.6013***  |
| DIBS (-4)          | -0.3487***  | -0.2097**   | 0.4491***   | -0.5952***  |
| Beginning of sample | 1965/4-6    | 1965/4-6    | 1973/4-6    | 1975/4-6    |

*** Significant at 1%, ** Significant at 5%, * Significant at 10%. The null hypothesis is no correlation.
Notes: Financial Instruments are for large-sized wholesale corporations with at least one billion of capital. Due to previous changes in format, sample periods (start date) differ for some items. All samples end 2003/7-9. Other liquid assets include short-term loans. The Diffusion Index (DI) reflects business condition for all the industries. In constructing the index, the percentage of firms regarding current business conditions as good is subtracted by the percentage regarding current conditions as bad.
Source: Financial Statements Statistics by the Ministry of Finance and Tankan Survey by the Bank of Japan

We begin with the unconditional correlations, both contemporaneous and lagged, between the financial instruments and the DIs. These correlations give us a rough idea of how the financial instruments of trading companies move with business and credit conditions. Results are shown in Table 5. It is evident that the asset portfolio of large wholesale corporations significantly changes over the business cycle. The table reveals that trade receivables (TR), in particular, move quite differently from the other financial instruments with business conditions (DIBS) and the lending

attitude of financial institutions (DILN). TR is significantly positively correlated with DIBS, while other liquid assets (LNS), long-term loans (LNL), and stocks of related firms (ST) are all negatively correlated with DIBS. The opposite is true for the correlations with DILN: TR is significantly negatively correlated with DILN, while LNS, LNL, and ST are all positively correlated with DILN. Therefore, as business (credit market) conditions decline, the trade receivables share of total assets declines (increases), while in better economic environments the share increases (declines). The lagged correlation coefficients tell a similar story, as the significance and sign of TR, LNL, and ST do not depend on the lag length. The correlation of LNS, however, does depend strongly on the lag length. The correlation of LNS with DIBS approaches zero, while its correlation with DILN is significantly negative for longer lags.

**Figure 2**
Correlation coefficients for the components of trading company finance and business conditions forecast errors
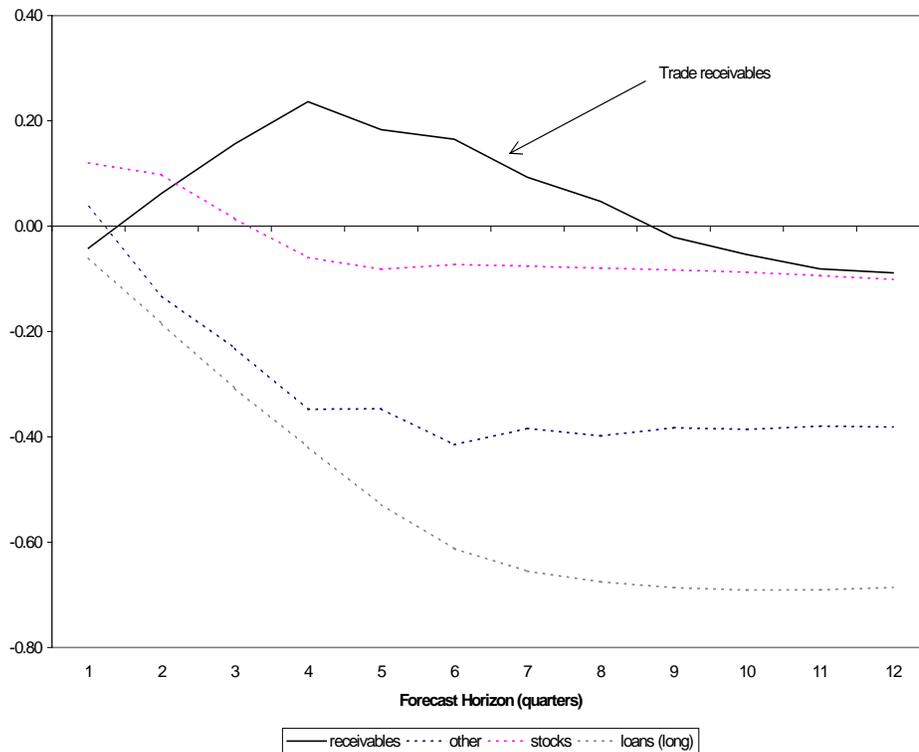


Note: This figure plots the correlations of the k-period ahead forecast errors from four bivariate VARs. Each VAR includes the Business Condition Diffusion Index (*DIBS*) and the asset ratio of a component of trading company finance (trade receivables, other liquid assets, stocks and other investments, and long-term loans).

**Figure 3**
Correlation coefficients for the components of trading company finance
and credit conditions forecast errors
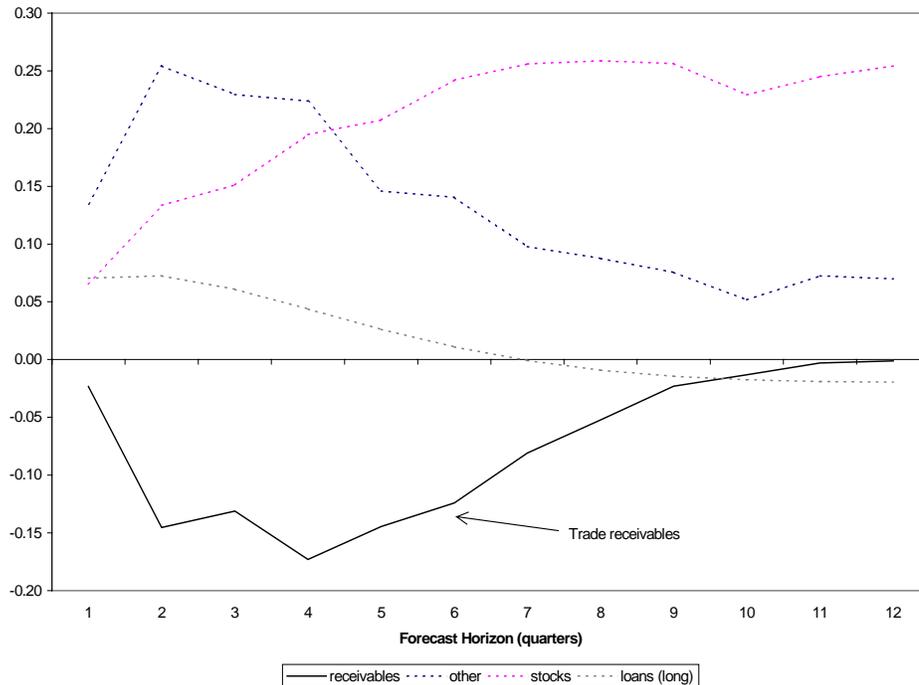


Note: This figure plots the correlations of the k-period ahead forecast errors from four bivariate VARs. Each
VAR includes the Lending Condition Diffusion Index (*DILN*) and the asset ratio of a component of trading
company finance (trade receivables, other liquid assets, stocks and other investments, and long-term loans).

       To obtain a clearer, and more precise, picture of the comovements of the asset
portfolio components with business conditions we use the procedure developed by
Den Haan (2000), and calculate the correlations of bivariate VAR forecast errors at
different forecast horizons[15] estimated using the asset shares of the individual
components of trading company finance and the Tankan DIs. Results are presented in
Figures 2 and 3. Figure 2 graphs the comovements of the asset shares with business
conditions, while Figure 3 plots the comovements of the asset shares with credit
conditions. In Figure 2, the difference between the trade receivables share of assets
and the asset shares of the other instruments is evident. Over the shortest forecast
horizons the trade receivable share of assets is positive, increasing over the first four
horizons before declining. The correlations of the other instruments are significantly
negative and decline with the forecast horizon. This implies that, at least in the short
run, if business conditions are better than expected trading companies adjust their
assets towards trade receivables. In terms of the signs of the correlations we see nearly

the opposite picture in Figure 3. In better credit environments, trading companies move out of trade receivables into other liquid assets, stocks and investments, and long-term loans. To get an idea of which time periods are mainly responsible for the observed comovements we graph, in Figures 4 and 5, a two-sided three-quarter moving average of the cross product of the financial instruments and the DI innovations for the four-quarter ahead forecast horizon.[16] Figure 4 plots the results for the business DI, while Figure 5 plots the results for the lending DI.[17] There are several interesting results. In Figures 3 and 4 two episodes stand out. First, we observe that in the late 1980s the comovement between trade receivables and business conditions becomes strongly negative. This is presumably caused by the decreased use of trade credit, which we discuss in Section III−A. Second, in the late 1990s through the end of the sample the comovement between long-term loans and business conditions becomes extremely volatile. This corresponds to a period of severe weakness in the Japanese economy. The adverse economic conditions, and the fear of a credit crunch, led trading companies to withdraw large amounts of long-term loans from its client firms. Excluding these two periods, the sign of the comovements are largely consistent with that we observe in Figure 2.

For the time-varying comovements with credit conditions, although there are a few periods of "irregular" movements, we do find something interesting. First, beginning in the 1980s, the comovements between trade receivables and credit conditions turned from negative to positive. At the same time the comovements between other liquid assets and credit conditions went from positive to negative. The reversal in signs does not seem to be temporary, but appears to be a due to a permanent structural change in trading company finance.

Given our findings, we come to the following conclusions about the effects of output and credit market shocks on trading company finance. In response to output shocks, the behavior of the individual credit market instruments has been generally stable over time with a few temporary exceptions. In addition, the significantly different behavior of trade receivables and lending (other liquid assets plus long-term loans) supports the idea of a transactions view of trade credit, as a higher number of transactions results in the increased use of trade credit.

In response to lending shocks, we find evidence of a structural break in the behavior of trade receivables and long-term loans in the 1980s. Before this period, the behavior of trade credit and bank loans is consistent with the substitutability hypothesis. In response to a lending shock, firms turned to trading companies for their financing needs, and consequently the asset share of trade receivables increased. Since the 1980s, however, we observe a complementarity between bank loans and trade credit. This is perhaps the most significant change in trading company finance over the sample period, and will be revisited in the conclusion. We should note, however, that after the break the comovements are not as strong as they are in the period prior to the break, and are therefore, not large enough to cancel out the overall signs of comovements observed in the first half of the sample. Thus, in Figure 3, we still observe negative coefficients between trade receivables and credit conditions, and positive correlations between lending (other liquid assets and long-term loans) and credit conditions.

**Figure 4**
Time-varying comovement of the components of trading company finance
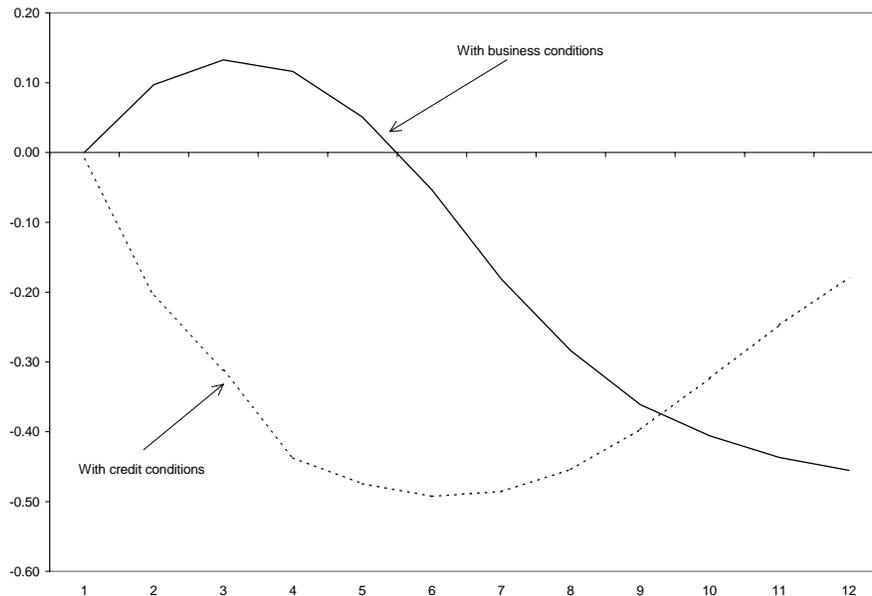and business conditions
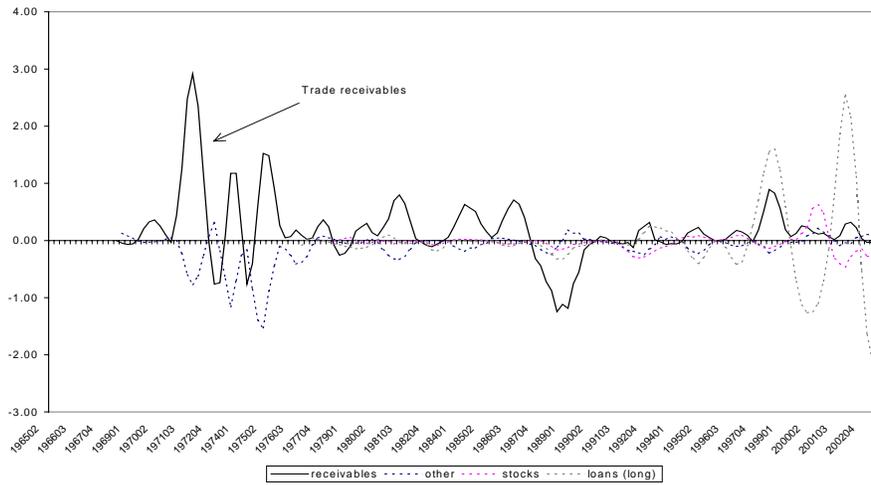


Note: This figure plots a two-sided, three-quarter moving average of the cross-products of the
four-quarter-ahead forecast errors of asset shares of trading company finance and the Business Condition
Diffusion Index (*DIBS*).

**Figure 5**
Time-varying comovement of the components of trading company finance
and credit conditions
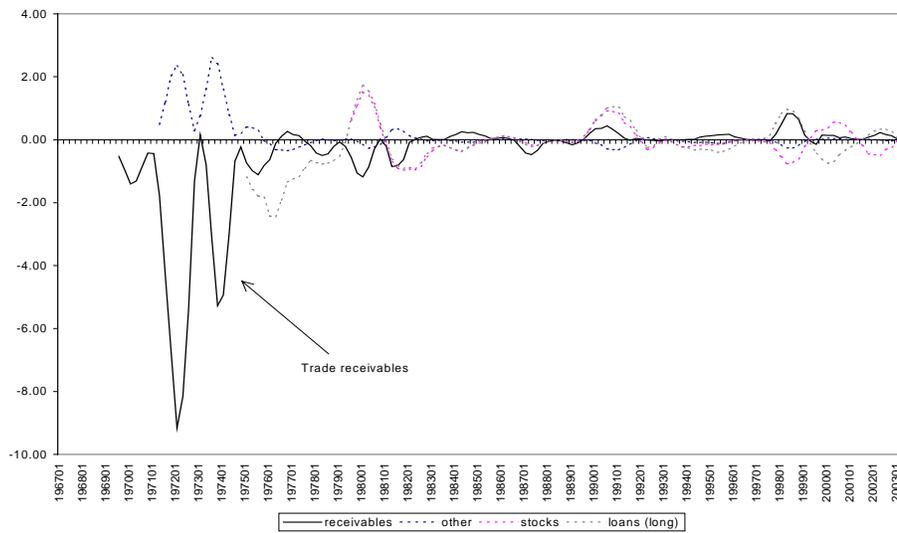
Note: This figure plots a two-sided, three-quarter moving average of the cross-products of the four-quarter-ahead forecast errors of asset shares of trading company finance and the Lending Condition Diffusion Index (*DILN*).

**Figure 6**
Correlation coefficients for total trading company finance



Note: This figure plots the correlations of the k-period ahead forecast errors from two bivariate VARs. The first includes the Business Condition Diffusion Index and total trading company finance (relative to assets), while the second includes Lending Condition Diffusion Index and total trading company finance (relative to assets).

## D.    Total Trading Company Finance and Output and Credit Market Conditions

In the preceding subsection, we found significant differences in the behavior of the individual financial instruments. In this subsection we analyze, how these differences impact the behavior of total trading company finance (SHOSHA).[18] The correlations between the innovations of SHOSHA and DIBS and SHOSHA and DILN are plotted in Figure 6. We see that the correlations of total trading company finance with business conditions are positive over the very short horizons, increasing mildly through the third horizon before gradually decreasing and becoming negative. In contrast, the comovement of total trading company finance with credit conditions is always negative, decreasing through the sixth horizon before stabilizing.[19]

**Figure 7**
Time-varying comovement of total trading company finance
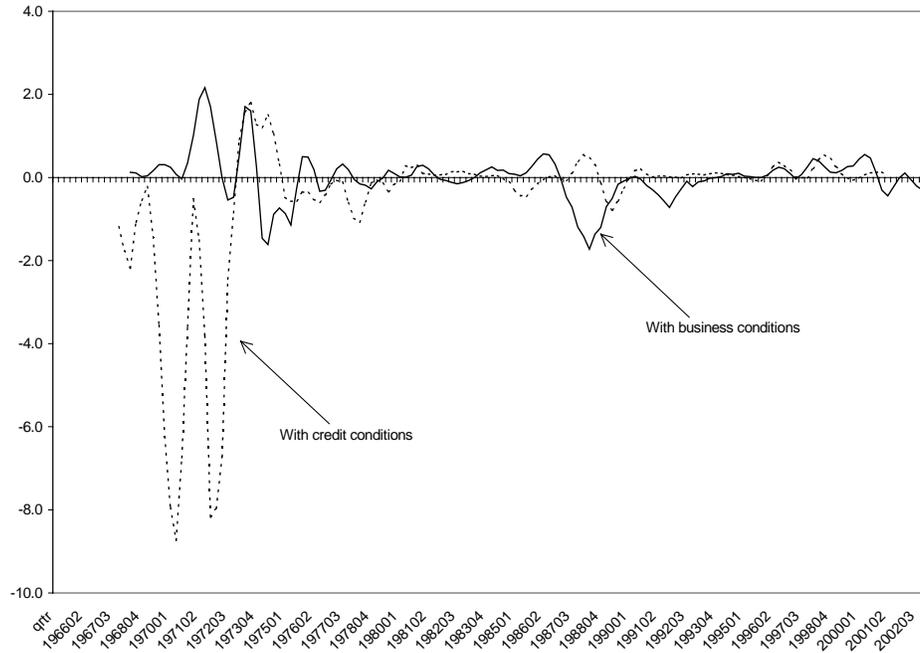


Note: This figure plots the two-sided, three-quarter moving average of the cross-products of the four-quarter-ahead forecast errors of the asset shares of trading company finance and the Business Condition Diffusion Index and the two-sided, three-quarter moving average of the cross-products of the four-quarter-ahead forecast errors of the asset shares of trading company finance and the Lending Condition Diffusion Index.

A look at the time-varying comovements in Figure 7 reinforces the findings of the Section III. The comovement between SHOSHA and business conditions is mainly positive with a few "irregular" periods, while those between SHOSHA and credit conditions is negative over the first half of the sample before reversing in sign in the 1980s.

These results lead to the following conclusions. The comovement between trading company finance and output shocks, is weakly positive after controlling for the expected changes of the variables. Total trading company finance is weakly procyclical, and driven mainly by its major component, namely, trade credit. Despite the decreased share of trade credit in the asset portfolio, as evidenced by Figure 1, trade credit movements still dominant movements in the asset portfolio. Finally, and perhaps most importantly, we find evidence of a structural change in the relationship between trading company finance and credit conditions in the 1980s.

## IV.    CONCLUSION

This paper's objective was to take a closer, more rigorous look at Japanese trading company finance. Our examination of the determinants of trading company finance yielded two main findings:

(1) Although trading company finance is currently less dependent on trade credit, its response to output shocks are still defined by its trade credit component. Hence, the behavior of trading company finance is consistent with a transactions motive of trade credit.

(2) While it is often believed that trading company finance is a substitute for bank loans, since the 1980s trading company finance moves positively with credit conditions providing evidence that trading company finance, and in particular trade receivables, are complements to bank loans.

We believe that the second point is particularly relevant to the literature on the substitutability of trade credit for bank loans. In Japan, no strong evidence has been provided for this substitutability.[20] Our results not only confirm this, but also provide evidence that trade credit and bank loans are now complements. In addition, we supply evidence that this shift in substitutability occurred in the 1980s. There are a few possible reasons for why this occurred. First, the Study Group on Trading Company Finance (1977) explains in detail how in the 1970s trading company finance functioned as a substitute for bank loans. During this period, large city banks did not often lend to small and medium enterprises. Instead, their loans were funneled to the general trading companies, who in turn lent to their smaller-sized clients. At the time it was reported that 80% of the total credit extended by these trading companies were to small and medium firms. During this period, given an adverse bank lending shock, the reduction in loans, particularly to small businesses, was alleviated by the extension of credit by trading companies. However, since the 1970s there have been two notable changes in credit markets. The first is weaker financial ties between city banks and general trading companies. In 1975, the Ministry of Finance imposed an upper limit on the amount of loans that may be allotted to one borrower.[21] Second, loans extended by city banks to small businesses have increased significantly. From the standpoint of these small firms, this reduced the need for trade credit.

Currently, however, the financial authorities in Japan clearly realize that the incumbent banking sector has been inefficient in allocating funds, and the economy's heavy reliance on the banking sector has been problematic. Several notable policy developments have attempted to give equal footing to the non-financial sectors in terms of the allocation of credit. These policy changes include the liquidation of trade credit, and the extension of the loan guarantee system to non-financial institutions. It remains to be seen how these changes will affect the substitutability of trading company finance with banks loans, and more importantly, will impact the efficiency of fund allocation in the Japanese economy.

## ENDNOTES

1.  It should be noted that there exist distinct differences between banks and trading companies in terms of extending loans. First, to collect reliable credit risk information banks regularly collect a borrowers' balance sheet. Since trading companies do not usually have access to their client's balance sheet, they collect the relevant credit risk information via daily commercial transactions. Second, banks usually hold real estate as collateral to secure their loans, while trading company credit is only partly secured by collateral, which in many cases is not real estate, but commodities (which are vulnerable to depreciation). Finally, there is a legal difference between bank and trading company loans. Banks are regulated by the laws designating the businesses and obligations they are to follow. But at the same time, bank loans are guaranteed by the state-run Credit Insurance Associations. Trading company loans, on the other hand, are only required to be below the upper bound of the annual interest rates of 15% to 20% by the Maximum Interest Rate Law.

2.  Exceptions are Ariga and Emery (1996) and Sheard (1989). For a comprehensive review of the trading company finance literature, see Uesugi and Yamashiro (2004).

3.  It should be noted that there exists a significant gap between the larger five and the smaller four. As of the year 2000, average sales, ROA, and the capital ratio of the larger five and the smaller four are 9.6 trillion yen, 2.2 trillion yen, 1.5%, 0.9%, 14.5%, and 7.6%, respectively. The four smallest trading companies (Nissho Iwai, Nichimen, Tomen, and Kanematsu) lag far behind the larger five not only in terms of sales and other measures of performance, but also in terms of the restructuring of their organizations. This restructuring has centered on the sales of major businesses, a series of employment adjustments, and even mergers among themselves.

4.  Large wholesale businesses have higher ratios of other liquid assets (including short-term loans) to total assets and long-term loans to total assets, 10.7% and 4.4%, respectively, than smaller wholesale business, 8.0% and 0.7%, respectively (Financial Statements Statistics of Corporations, October-December 2003).

5.  Examples of such profit-making activities include leasing, security investment based on specified money in trust, foreign exchange transactions, forward contract transactions, and project financing.

6.  For recent developments in the financial activities of trade companies, see Itochu (1997, pp. 142-44) and Kubo (2001, pp. 40-47).

7.  We follow Petersen and Rajan (1997) and normalize each balance sheet item by the value of total assets in an attempt to adjust for the size of the economy.

8.  For promissory notes exceeding 100,000 yen issuers pay, at most, 0.2% of the value of the note in stamp taxes.

9.  In 1990, these trading companies had 4.4 trillion yen of bonds and commercial paper outstanding, which was more than 18 times greater than in 1980.

10. Examples include private equity investment and loan guarantees for project financing, both of which are not necessarily accompanied by commodity

transactions. Rather, trading companies obtain capital gains or commission fees from them.

11. The vector is allowed to contain stationary or non-stationary variables.

12. Note that calculating the comovements is an alternative to calculating the impulse response functions. In fact, the covariance of the $k$-period-ahead innovations is the sum of the product of the $k$ impulse responses. While the impulse responses provide complete information about the comovements between the variables after any type of shock there are several advantages in simply calculating the comovements. For example, calculating the comovements does not require making assumptions about the order of integration of the variables, or making identifying assumptions about the system.

13. Large wholesale companies are those with at least one billion yen in capital.

14. There are 594 wholesale firms, including the nine general trading companies, with at least one billion yen of capital in the third quarter of 2003. In FY 1990 the combined total assets of these firms amounted to 73.8 trillion yen, with the general trading companies accounting for 41.4 trillion yen. In FY 2002 these figures are 55.6 trillion yen and 21.0 trillion yen, respectively. These numbers make clear that these statistics are primarily attributable to large-sized wholesale businesses.

15. The forecast horizons we examine are 1-12.

16. See Den Haan and Sumner (2001) for more details.

17. The sample periods for each instrument depend on data availability.

18. We define total trading company finance as the sum of trade receivables, other liquid assets, long-term loans, and stocks of related companies. As with the previous analysis we normalize by dividing by total assets.

19. This is, for the most part, consistent with the calculated unconditional correlations (not displayed). The unconditional correlation of total trading company finance with business conditions while negative is close to being insignificant, and its correlation with credit conditions is significantly negative.

20. See Ono (2001) for example.

21. This regulation allegedly targeted lending to general trading companies. The upper bound was set to 20% of each city bank's level of capital.

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