The Global Financial Crisis and Small- and Medium-sized Enterprises in Japan: How did they cope with the crisis?

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Abstract

In this paper, we examine the nature of the shocks that hit the small- and medium-sized enterprises (SMEs) in Japan during the global financial crisis that occurred in the wake of the massive number of non-performing subprime loans in the U.S. We examine how the SMEs responded to the shocks, using the unique surveys that were conducted by the Research Institute of Economy, Trade and Industry (RIETI) in 2008 and 2009. The shocks were identified as demand, supply and financial shocks. The demand shock was the most prevalent, while the financial shock was the least frequent. The SMEs took a spectrum of measures against the demand shock by seeking help from suppliers and financial institutions. We find that the measures taken by the SMEs crucially depended on the bank-firm relationship, but not on the customer-supplier relationship. The bank-dependent SMEs asked their closely-affiliated financial institutions for help, while the SMEs that were less dependent on financial institutions sought help primarily from their suppliers.

Keywords: Global financial crisis, Bank-bank relationship, Customer-supplier relationship, Demand shock, Supply shock, Financial shock

JEL classification: D22, G21, G32

1. Introduction

The global financial crisis, triggered by the massive number of non-performing subprime loans owned by financial institutions in the United States, plunged the export-led Japanese economy into a severe recession. Figure 1 shows the real GDP growth rate, or the rate of change relative to the same quarter of the previous year, in Japan from 2006 to 2010. The GDP growth rate recorded negative values for seven consecutive quarters, from the second quarter of 2008 to the fourth quarter of 2009. Figure 2 shows the real net exports in Japan from 2005 to 2010. Net exports decreased drastically in the fall of 2008, and net exports in the first quarter of 2009 fell down to one-fifth of the level they had been at on the eve of the sudden drop. Figure 1 and 2, taken together, indicate that the Japanese economy depends heavily upon foreign demand for Japanese goods.

Figure 3 shows the sales growth rate, relative to the same quarter the previous year, of manufacturing and non-manufacturing sectors by firm size. The large firms are defined as those whose equity capital is above 1 billion yen. The medium-sized firms are those whose equity capital is between 100 million yen and 1 billion yen. The small firms are those whose equity capital is below 100 million yen. The growth rate remained negative for most of the periods during 2008 and 2009, irrespective of sector or firm size. We can see that the sales of small- and medium-sized enterprises (SMEs) are more volatile than those of large enterprises. This volatility implies that the SMEs are more vulnerable to shocks. Indeed, the credit crunch from the late 1990s to the early 2000s in Japan substantially affected the SMEs that required bank loans to support their daily activities.

Thus, it is important to investigate how severely the SMEs were affected by the shocks during the recent global financial crisis and how the SMEs responded to these shocks. In particular, understanding the mechanism through which the shocks were transmitted across the SMEs would be indispensable for policy makers who need to develop effective measures to rescue SMEs during recessions. The purpose of this study is to quantitatively examine how the SMEs were affected by the shocks during the global financial crisis and how the SMEs took action against the shocks. In this study, we identify the shocks that hit the SMEs during the global financial crisis and then estimate how the SMEs responded to those shocks. In particular, we examine whether the relationships between the firms and their financial institutions and those between the firm and their

customers and their suppliers helped to mitigate the shocks that hit the SMEs.

Our study is unique because we identify the types of shocks that hit the SMEs and the responses by the SMEs to these shocks directly from the unique surveys of the SMEs conducted by the Research Institute of Economy, Trade and Industry (RIETI). The RIETI conducted two surveys in the midst of the global financial crisis to investigate the current status of financing for SMEs. We use the questionnaires of these surveys to identify three types of shocks from the surveys—demand, supply and financial shocks—and to identify the measures taken by the SMEs against these shocks.

The conventional approach to identifying the sources of shocks in a time series analysis is to extract purely exogenous shocks by imposing some identifying assumptions, such as Choleski decomposition, on the structure of the econometric models.[2] The shocks thus obtained are conditional upon the assumptions imposed on the model. Our direct approach to identify the shocks from the survey data is free from these kind of arbitrary assumptions.

Let us preview our main findings. Demand shock was the most prevalent shock that hit the SMEs during the global financial crisis, followed by supply shock. The financial shocks were relatively less frequent. The SMEs responded to the demand shock in a variety of ways, from passing the shocks along to their suppliers to seeking help from both private and public financial institutions. The manner in which the SMEs responded to the demand shock crucially hinged upon the bank-firm relationship. The SMEs with longer-term bank-firm relationships turned to the banks with the closest or second-closest relationship for help to cushion the shocks; the SMEs with shorter-term bank-firm relationships primarily passed the shocks along to their suppliers. Unlike the bank-firm relationship, the customer-supplier relationship had little effect on the manner in which the SMEs responded to the shocks. The importance of the bank-firm relationship for the SMEs as a buffer against negative shocks is consistent with the role of the main banks in Japan. The main banks have played the role of delegated monitor and have supplied loans to their affiliated firms. The information of affiliated firms is accumulated in the main banks through multiple long-term transactions, which enables the main banks to bail out financially troubled client firms. [3]

Our findings deepen our understanding of the propagation mechanism for shocks across firms. When the bank-firm relationship is prevalent and the financial sector is healthy, the shocks

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[2] For example, see Sims (1986), Bernanke (1986), Blanchard and Quah (1989) and Gali (1999).
[3] See Aoki and Patrick (1994) and Hoshi and Kashyap (2004) for a comprehensive overview of main bank system in Japan.

originating on the demand side can be cushioned by financial institutions that lend helping hands to the SMEs. On the other hand, when the bank-firm relationship is weak, the shocks are propagated widely across firms through customer-supplier chains. This pattern of shock propagations indicates that soundness of the financial sector is very important in mitigating adverse shocks.

This paper is organized as follows. In Section 2, we explain how to identify the shocks that hit the SMEs and extract the responses to the shocks from the SMEs through the survey questionnaires. In Section 3, we estimate a probit model of the response function of the SMEs to the shocks. In Section 4, we re-estimate the model developed in Section 3 by classifying the SMEs by the bank-firm relationship and the customer-supplier relationship. Based on the estimation results, we uncover the propagation mechanism of the shocks that hit the SMEs during the global financial crisis and the measures taken by the SMEs in response to the shocks. Section 5 concludes this study.

2. Identification of the Shocks and Responses to the Shocks: Evidence from the Survey Data

The RIETI conducted two surveys, primarily targeted for the SMEs: *The Survey on the Status of Transactions between Businesses and Financial Institutions*, in February 2008 and *The Survey on the Status of Transactions between Businesses and Financial Institutions following the Financial Crisis*, in February 2009.[4] The former survey was sent to 17,018 companies nationwide and 6,124 companies, or 36.0%, responded. This survey was designed to examine the characteristics of SME financing. We mainly rely on the latter survey to identify the shocks that hit the SMEs during the global financial crisis. In this survey, the RIETI targeted 5,979 of the firms that responded to the 2008 survey and 4,103, or 68.6%, responded. The goal of the survey was to see how the bank-firm relationship and the customer-supplier relationship had changed in the midst of the global financial crisis and what kind of measures the SMEs took in response to these changes.

Identification of the shocks

We can identify the sources of the shocks from question 4 through 6 in the 2009 survey. Question 4 asks for the details of any changes the respondent firm experienced in relation to its customers after September 2008. There are eight choices in all:

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[4] See Uesugi et al.(2009) for a comprehensive summary of the survey results.

1. Financial distress or bankruptcy of customers

2. Increase in irrecoverable loans

3. Decrease in sales and orders received

4. Cut in sales price

5. Lengthening of accounts receivable terms

6. Lengthening of bills receivable terms

7. Fall of the cash payment ratio

8. Nothing

If the respondent chooses at least one item from 1 through 7, then we can say that the respondent was hit by *demand shock*.

Question 5 asks for the details of any changes the respondent firm experienced in relation to its main supplier, as well as other suppliers, after September 2008. There are six choices in all:

1. Financial distress or bankruptcy of suppliers

2. Increase in purchase costs

3. Shortening of accounts payable terms

4. Shortening of bills payable terms

5. Rise of the cash payment ratio

6. Nothing

If the respondent chooses at least one item from 1 through 5, then we can say that the respondent was hit by *supply shock* from its main supplier and/or other suppliers.

Question 6 asks for the details of any changes the respondent firm experienced in relation to its financial institutions after September in 2008. Each question is asked for three types of financial institutions: the financial institution with the largest loan outstanding (main bank), the financial institution with the second-largest loan outstanding (second bank) and any other financial institutions (other banks). There are nine choices in all:

1. Rejection of new loan application

2. Withdrawal of loans before maturity

3. Less frequent visits from financial institutions

4. Decrease in loans outstanding

5. Increase in borrowing rate

6. Shortening of borrowing period

7. Provision of additional collateral

8. Provision of additional guarantee

9. Nothing

If the respondent chooses at least one item from 1 through 8, except for 3, then we can say that the respondent was hit by *financial shock* from its main, second and/or other banks.

The first column of Table 1 shows the proportion of respondent firms that were hit by each type of shock. Demand shock is predominant, and more than 80% of the firms were hit by demand shock. Supply shock follows demand shock, and about one-third of the firms were hit by supply shock. Financial shock was less important than demand or supply shocks for the SMEs in Japan during the global financial crisis. Less than 20 % of the firms were hit by financial shocks from any type of bank. The third and fourth columns of Table 1 show the proportion of firms hit by each type of shock by firm size. Large (small) firms are defined as those whose total assets are above (below) the sample median. More small firms were hit by supply shocks, but more large firms were hit by financial shock from other banks.

Next, we will examine whether the bank-firm or customer-supplier relationship affects the probability that a firm is hit by each type of shock. The first and second columns of Table 2 compare the proportion of firms hit by each type of shock, examining the firms with a short bank-firm relationship and those with long bank-firm relationship. The bank-firm relationship is defined as short (long) when a firm has a business relationship with the financial institution for less (more) than the median number of years, which is 30 years. [5] It is more likely that the firms with a shorter bank-firm relationship are hit by financial shocks. As is expected, the difference in the proportion of short bank relationship firms to long bank relationship firms hit by the financial shocks is statistically significant. In particular, the firms with longer bank-firm relationships are far less likely to suffer from financial shocks because of assistance from their main and second banks, probably reflecting the provision of financial services from those banks, including favorable loan terms and additional loans in case of emergency.

In contrast, the length of the customer-supplier relationship has little effect on the proportion of

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[5] Question 28 in the 2008 survey asks for the respondent firm name of the firm's main and second banks as well as for the length of the business relationship with those banks.

firms hit by the shocks. The fourth and fifth columns of Table 2 compare the proportion of firms hit by each type of shock between the firms with a short customer-supplier relationship and those with a long customer-supplier relationship. The customer-supplier relationship is defined as short (long) when a firm has business relationship with its main supplier for less (more) than the median number of years, which is 26 years. The firms with the shorter customer-supplier relationships are more likely to be hit by the financial shocks through their main and second banks. However, the difference is barely significant at the 10 % level.

Last, we examine whether the shocks the firms experience are correlated. Table 3 shows the correlation coefficient between the six types of shocks. Two types of supply shock are highly correlated. The financial shocks also exhibit higher correlations. In particular, the correlation coefficient between the shocks from the main and other suppliers is 0.725. The correlation coefficients between financial shocks all exceed 0.5, indicating that a firm hit by one type of financial shock is more likely to be hit by the other types of financial shock.

<u>Response to shocks</u>

Next, we identify the measures taken by the SMEs in response to these shocks. Question 8 asks about the measures taken by the respondent firms during the recession triggered by the global financial crisis. The measures are broadly divided into three categories: measures taken in relation to customers, those taken in relation to suppliers and those taken in relation to financial institutions. The possible measures taken in relation to the firm's customers have eight choices in all:

    1. Increasing sales volume

    2. Raising sales price

    3. Shortening of accounts receivable terms

    4. Shortening of bills receivable terms

    5. Switch to payment by cash

    6. Use of trade credit insurance

    7. Intensifying explanations to customers

    8. Nothing

If the respondent chooses at least one item from 1 through 6, then we can say that the respondent firm took measures vis-à-vis its customers.

The possible measures taken in relation to the respondent's main supplier, as well as other suppliers, have seven choices in all:

1. Decreasing purchase volume

2. Cutting purchase cost

3. Lengthening of accounts payable terms

4. Lengthening of bills payable terms

5. Raising the payment ratio on trust or bills

6. Intensifying explanations to suppliers

7. Nothing

If the respondent chooses at least one item from 1 through 5, then we can say that the respondent firm took measures vis-à-vis its suppliers.

The measures taken in relation to the financial institutions that have business transactions with the respondent firm have thirteen choices in all:

1. Borrowing from the main bank

2. Lengthening of the borrowing period from the main bank

3. Borrowing from the second bank

4. Lengthening of the borrowing period from the second bank

5. Borrowing from other banks

6. Lengthening of borrowing period from other banks

7. Borrowing with a credit guarantee

8. Borrowing from public financial institutions

9. Borrowing from non-banks

10. Extending overdraft

11. Extending commitment line

12. Intensifying explanations to financial institutions

13. Nothing

If the respondent firm chooses 1 or 2, then we can say that the respondent took measures vis-à-vis its main bank. If the respondent firm chooses 3 or 4, then we can say that the respondent took measures vis-à-vis its second bank. If the respondent firm chooses 5 or 6, then we can say that the respondent took measures vis-à-vis other banks. If the respondent firm chooses item 8, then we can

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say that the respondent took measures vis-à-vis public financial institutions. If the respondent firm chooses item 7, then we can say that the respondent took measures to request guaranteed loans.

The first column of Table 4 shows the proportion of the respondent firms that took each type of the measures explained above. The largest proportion of the firms (42.8%) took measures vis-à-vis their customers. Although this proportion is the largest, it is much smaller than the proportion of firms that were hit by demand shock. The proportion of the firms that took measures vis-à-vis their suppliers hovers around 30%. It is quite reasonable that the proportion of firms that took measures vis-à-vis their main banks (32.2%) is the largest among the measures taken vis-à-vis the financial institutions, followed by that of the firms that took measures vis-à-vis their second banks (17.9%).

The third and fourth columns of Table 4 compare the proportion of firms that took each type of measure by firm size, as measured by total assets. The proportion of firms that took measures vis-à-vis their main banks, second banks and other banks is higher for large firms, which might reflect the relatively strong bargaining power of a large firm vis-à-vis its financial institutions. The proportion of firms that requested guaranteed loans is higher for small firms. The first and second columns of Table 5 compare the proportion of firms that took each type of measure between the firms with short bank-firm relationships and those with long bank-firm relationships. The proportion of firms that took measures vis-à-vis their financial institution is higher for the firms with a short bank-firm relationship. This result might simply reflect the fact that the firms with short bank-firm relationships were vulnerable to financial shocks.

The fourth and fifth columns of Table 5 compare the proportion of firms that took each type of measure between the firms with a short customer-supplier relationship and those with a long customer-supplier relationship. It is interesting to note that the proportion of firms that took measures vis-à-vis their main and other suppliers is higher for the firms with a short customer-supplier relationship, even though there is no difference between short or long customer-supplier relationship firms when looking at the proportion of firms hit by supply shocks.

The correlation coefficients between the seven types of measure taken are shown in Table 6. We can see that the correlation coefficients between the measures taken vis-à-vis customers and suppliers are high. The correlation coefficients between the measures taken vis-à-vis main and other suppliers are notably high (0.859). We also observe that the correlation coefficients between the

measures taken vis-à-vis financial institutions are high, from 0.272 (that between the measures taken vis-à-vis the main bank and other banks) to 0.443 (that between the measures taken vis-à-vis the main bank and the second bank).

3. An Estimation of the SMEs' Response Function to the Shocks

In the previous section, we used the questions from the survey to identify the sources of the shocks that hit the SMEs during the global financial crisis and the measures taken by the SMEs. In this section, we estimate the response pattern of the SMEs to the shocks by combining the survey responses and our identification of the type of shocks.

The idea behind a response function model is simple. We model the response pattern of the SMEs by relating the measures taken by the SMEs to the shocks that hit the SMEs. We estimate this model using the probit with the attributes of the SMEs as additional control variables. Specifically our response function is written as follows:

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\begin{aligned}
DMNDMEASURE_i = \alpha_0 &+ \alpha_1 DMNDSHOCK_i + \alpha_2 SUPLYMSHOCK_i \\
&+ \alpha_3 SUPLYOTHRSHOCK_i + \alpha_4 MAINBSHOCK_i \\
&+ \alpha_5 SCNDBSHOCK_i + \alpha_6 OTHRBSHOCK_i \\
&+ \sum_{j=1}^{m} \beta_j FIRMATTRB_{j,i} + u_i
\end{aligned}
\tag{1}
$$

where $DMNDMEASURE_i$: measures taken vis-à-vis customers

$DMNDSHOCK_i$: demand shock

$SUPLYMSHOCK_i$: shock from main supplier

$SUPLYOTHRSHOCK_i$: shock from other suppliers

$MAINBSHOCK_i$: shock from main bank

$SCNDBSHOCK_i$: shock from second bank

$OTHRBSHOCK_i$: shock from other banks

$FIRMATTRB_{j,i}$: j-th firm attribute $\left(j = 1,2,\cdots,m \right)$

u_i: disturbance term[6]

Equation (1) examines the manner in which the SMEs take measures vis-à-vis their customers in

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[6] Subscript i indicates i-th firm.

response to each type of shock. In estimating equation (1), we impose an a priori assumption that the SMEs cannot take counter measures vis-à-vis their customers immediately after the shock originates in the demand sector. In other words, it is assumed that the coefficient estimate of α_1 is zero.[7] Each type of shock is expressed as a binary variable that takes a value of one if the shock hits the firm, and zero otherwise. The dependent variable is also binary and takes a value of one if the measure is taken vis-à-vis customers, and zero otherwise.

We use a similar method to regress the measures taken by the SMEs vis-à-vis their main suppliers (*SUPLYMMEASURE*), other suppliers (*SUPLYOTHRMEASURE*), their main banks (*MAINBMEASURE*), their second banks (*SCNDBMEASURE*), other banks (*OTHRBMEASURE*), public financial institutions (*PUBFINMEASURE*) and request for guaranteed loans (*GUARNLMEASURE*) against each type of shock, except for the originating shock.

We use the following variables for the firm attributes: the number of financial institutions the firm has business relationship with (*BANKRELATION*), the logarithm of total assets (*ASSETS*), the debt-asset ratio (*DEBT*), the ratio of liquid assets (cash, deposit plus securities) to sales (*LIQSALES*), the ratio of ordinary profits to sales (*PROFIT*), firm age (*AGE*) and industry dummies (*DUMIND*).

Before proceeding to estimation, we next discuss the endogeneity of the shocks. It seems natural to assume that the shocks that hit the SMEs precede the measures taken, but the shocks and the measures might be driven by the same unobservable exogenous factors. Therefore, we test for the endogeneity of the shocks statistically. The test is conducted in two steps. In the first step, the binary shock variables are regressed against the following exogenous variables, in addition to the explanatory variables of equation (1) by OLS.[8] The exogenous variables are a measure of dependence on the main bank (*MAINBDEPEND*), a measure of dependence on the main supplier (*SUPLYMDEPEND*), a trade relationship variable with the supplier and the customer (*MONOP1*, *MONOP2*), the proportion of loan outstanding from the main bank (*MAINBLOANRATIO*), the proportion of loan outstanding from the second bank (*SCNDBLOANRATIO*), and five dummy variables to represent the firm size of the main supplier as measured by the number of employees

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[7] The prior assumption that the SMEs cannot take the same type of measure as the type of originating shock is also made for the other types of measures.
[8] In other words, we estimate the linear probability model in the first step.

(*SUPLMSIZE1* to *SUPLYMSIZE5*). [9]

In the second step, we estimate equation (1) using probit, adding the residuals from the first step as explanatory variables. Under the null hypothesis that the shocks are exogenous, the coefficient estimates of the residual variables should jointly be zero, which is tested by the Wald statistics.[10] The test statistics are shown in Table 7. The null hypothesis is not rejected for any types of shocks at the 5% level. Therefore, we treat the shocks as exogenous events prior to the measures taken.

Now we proceed to the estimation of equation (1) using probit. The marginal effects of each variable are shown in Table 8. The responses to demand shock, which is most the prevalent type of shock seen during the global financial crisis, are all significantly positive. It implies that the SMEs took every measure to cope with demand shock. The most frequent action taken was vis-à-vis suppliers. When a firm is hit by demand shock, the probability that the firm takes measures vis-à-vis its main and other suppliers is 0.1952 and 0.1721, respectively. Note that the measures taken vis-à-vis main and other suppliers are, in turn, demand shock from the viewpoint of the suppliers. In this way, a demand shock is propagated across firms to become a series of non-negligible aggregate demand shocks.

The main bank and second bank also play an important role for firms coping with demand shock. The probability that the firm, when hit by demand shock, takes measures vis-à-vis its main bank or second bank is 0.1299 and 0.1205, respectively, followed by the probability that the firm requests guaranteed loans (0.0818). The probability that the firm takes measures vis-à-vis other banks and public financial institutions is significantly positive, but much smaller (0.0551 and

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[9] The *MAINBDEPEND* variable is a dummy variable that equals one when the respondent firm asks its main bank for help in the event of a temporary shortage of funds, and zero otherwise. The *SUPLYMDEPEND* variable is a dummy variable that equals one when the respondent firm asks its main supplier for help in the event of a temporary shortage of funds, and zero otherwise. These two variables are constructed from question 13 of the 2008 survey. The *MONOP1* variable is a dummy variable that equals one when the respondent purchases intermediate goods from only her main supplier, and zero otherwise. This variable is constructed from question 10 of the 2008 survey. The *MONOP2* variable is a dummy variable that equals one when the supplier sells intermediate goods to only the respondent firm, and zero otherwise. This variable is constructed from question 11 of the 2008 survey. The variables *MAINBLOANRATIO* and *SCNDBLOANRATIO* are constructed from question 17 and 18 of the 2009 survey. The variables of *SUPSIZE1* to *SUPSIZE5* are available in question 9 of the 2009 survey.
[10] See Rivers and Vuong (1988) for details of the endogeneity test. Wooldrige (2002) provides a good exposition about this approach in pp. 472-478.

0.0440, respectively). When the financial sector is healthy enough to extend helping hands to their customers, the demand shocks become cushioned to some extent by the financial sector.

The firms respond to supply shocks by taking measures vis-à-vis their customers and suppliers. When a supply shock comes from a main supplier, the firms will take measures vis-à-vis their customers and other suppliers. On the other hand, when a supply shock comes from other suppliers, the firms will take measures vis-à-vis their main suppliers. This reaction implies that the main and other customers are substitutes for each other. Note that the firms take no measures vis-à-vis financial institutions when they are hit by supply shocks.

When firms are hit by shocks from their second banks and other banks, they primarily ask their main banks for help. In fact, the probability that the firms, hit by a financial shock from their second bank or other banks, take measures vis-à-vis their main banks is 0.0826 and 0.1453, respectively. However, when the firms are hit by a financial shock from their main banks, the probability that they request guaranteed loans is 0.0999, followed by the probability that they take measures vis-à-vis other banks, their customers and second banks (0.0853, 0.0792 and 0.0629, respectively).

As for the role of public financial institutions, it is only when the firms are hit by demand shock that they take measures vis-à-vis public financial institutions.

4. Do Bank-firm Relationships and Customer-Supplier Relationships Matter when the SMEs Respond to Shocks?

In Section 2, we saw that the proportion of firms hit by each type of shock, and the firms that took measures vis-à-vis customers, suppliers and financial institutions, depended on the bank-firm relationship and the customer-supplier relationship. Thus, it is reasonable to ask whether the response pattern to the shocks also depends on these relationships. In this section, we answer this question by estimating the response function to the shocks when considering the bank-firm relationship and the customer-supplier relationship.

We categorize the firms into four groups, divided by the length of bank-firm relationship. As defined in Section 2, the bank-firm relationship is considered as long (short) when it lasts more (less) than the median relationship length. The first group is the group of firms that have long bank-firm relationships with their main and second banks. The second group is the group of firms

with short bank-firm relationships with their main and second banks. The firms in the second group are least the affiliated with their main and second banks. The third and fourth groups are a combination of the previous two. The third group is the group of firms with a long bank-firm relationship with their main bank, but a short bank-firm relationship with their second bank, while the fourth group is the group of firms with a short bank-firm relationship with their main bank, but a long bank-firm relationship with their second bank.

Equation (1) is estimated separately for the four firms groups that are defined above. The marginal effects are shown in Table 9. Panel A shows the estimation results for the first group of firms. When a firm is hit by demand shock, the firm takes measures vis-à-vis its suppliers, main bank and second bank. The firm does not seek help from other banks or public financial institutions. This is in strong contrast with the base case in the previous section, where the SMEs took every measure to cope with demand shock. When a firm is hit by a financial shock from its main bank, the firm seeks help only from its second bank. On the other hand, when a firm is hit by a financial shock from its second bank, the firm seeks help only from its main bank. This evidence indicates that the firms in the first group consider the main and second banks to be close substitutes for each other. The firms in this group rely primarily on their main banks by seeking help from their main banks in response to all types of shocks, except for those from their other suppliers. The importance of the main bank for the firms in this group is also confirmed when we compare the coefficient estimate of the DEBT variables in the response function between the firms with a long relationship with their main banks and those with a short relationship. The DEBT variable has a significantly positive effect on the measure vis-à-vis the main bank for the firms that have a long relationship with their main banks (Panels A and C), but not for the firms that have a short relationship with their main banks (Panels B and D). In other words, the firms with heavy debt burdens are more likely to seek help from their main banks if the firms have a close bank-firm relationship. In contrast, the firms in the first group do not seek help from other banks or public financial institutions in response to any shocks. They also do not request guaranteed loans.

Now we turn to the second group, where the firms are the least affiliated with their main or second banks. The marginal effects are shown in Panel B of Table 9. All of the responses to demand shock are significantly positive, which implies that the SMEs that are the least affiliated with their main and second banks take every measure to cope with demand shock. The probability that they

ask their main and other suppliers for help in response to a demand shock (0.2181 and 0.2244) is much higher than the corresponding probability for the firms in the first group (0.1733 and 0.1266). This finding shows that business-to-business transactions play a more vital role in cushioning demand shocks when the bank-firm relationship is weak.

This relationship also held true for the firms in the third and fourth groups, as is seen from Panel C and D of Table 9. Almost all of the responses to a demand shock are significantly positive, which implies that the SMEs in the third and fourth groups also take every measure to cope with a demand shock. No response to a financial shock from the main bank or the second bank is significant for the firms in the third and fourth groups, indicating that the firms have nowhere to seek help when they are hit by a financial shock from their main banks or second banks.

The estimation results so far indicate that the measures taken by the SMEs in response to shocks hinge crucially upon the bank-firm relationship.[11] Next, we examine whether we observe a similar response pattern for the customer-supplier relationship. As defined in Section 2, the customer-supplier relationship is considered long (short) when the relationship with the main supplier lasts more (less) than the median relationship length. Panel A of Table 10 shows the marginal effects of equation (1) for the firm group with a long customer-supplier relationship, while Panel B shows the marginal effects for the firm group with a short customer-supplier relationship. It is reasonable to expect that, when the customer-supplier relationship is strong, the main supplier will play an active role in helping the SMEs that are hit by shocks. However, a comparison of the second column of Panels A and B reveals that there is little evidence that the marginal effects for the firms with a long customer-supplier relationship are larger than for firms with a short customer-supplier relationship. Thus, the length of the customer-supplier relationship is not related to the pattern of measures taken in response to shocks.

It is also reasonable to expect that a supply shock from a main supplier will have a much larger impact on firms with a long customer-supplier relationship, and, hence, the probability that they take measures in response to the supply shock from a main supplier will be larger. But we find little

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[11] As an alternative measure of the bank-firm relationship, we classified the firms, based on the loan ratio of the main and second banks, into four groups of firms. We then repeated the estimation exercise above for each firm group. We could not detect any association in the pattern of the measures taken by the SMEs in response to shocks with the bank-firm relationship defined by the loan ratio. See the Appendix Tables for the full estimation results.

difference in the pattern of the measures taken in response to a supply shock from the main supplier.

To sum up, the pattern of measures taken by the SMEs in response to a variety of shocks depends more upon the bank-firm relationship than upon the customer-supplier relationship. The result is that the strength of the bank-firm relationship is important in understanding the propagation mechanism for shocks that hit SMEs across firms.

5. Concluding Remarks

We examined the nature of the shocks that hit the SMEs in Japan during the global financial crisis and how they responded to these shocks, based on the unique surveys conducted by the RIETI in 2008 and 2009. We could successfully identify the shocks as demand, supply and financial shocks. Demand shock was the most prevalent among the shocks that hit the SMEs, while the financial shock was least frequent. The SMEs took a spectrum of measures against demand shock by seeking help from their suppliers, from private and from public financial institutions. We find that the pattern of measures taken by the SMEs crucially hinged on the bank-firm relationship, but not on the customer-supplier relationship. The SMEs that had a close affiliation with financial institutions measured by the length of their relationship asked those financial institutions for help, while the SMEs that were less affiliated with financial institutions primarily sought help from their suppliers.

Several important implications for recovering from the Great East Japan Earthquake from the standpoint of the SMES emerge from our study. First, a stable, long-term relationship between SMEs and their financial institutions can cushion the propagation of shocks across sectors. However, we should bear in mind that financial institutions can only afford to buffer the shocks that hit SMEs if they, themselves, are healthy. Therefore capital injection to financial institutions in the disaster-stricken area under Cabinet Office Ordinance on Special Measures for Strengthening Financial Function would be quite useful in strengthening the role of financial institutions as buffer against the shocks. Second, we find that the existence of alternative suppliers might alleviate the supply shock. The upshot is that decentralizing the supply chain might mitigate the shocks on production line considerably. Third, loans from public financial institutions and/or with a credit guarantee will be potent especially for small firms.

16

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Figure 1 GDP Real Growth Rate
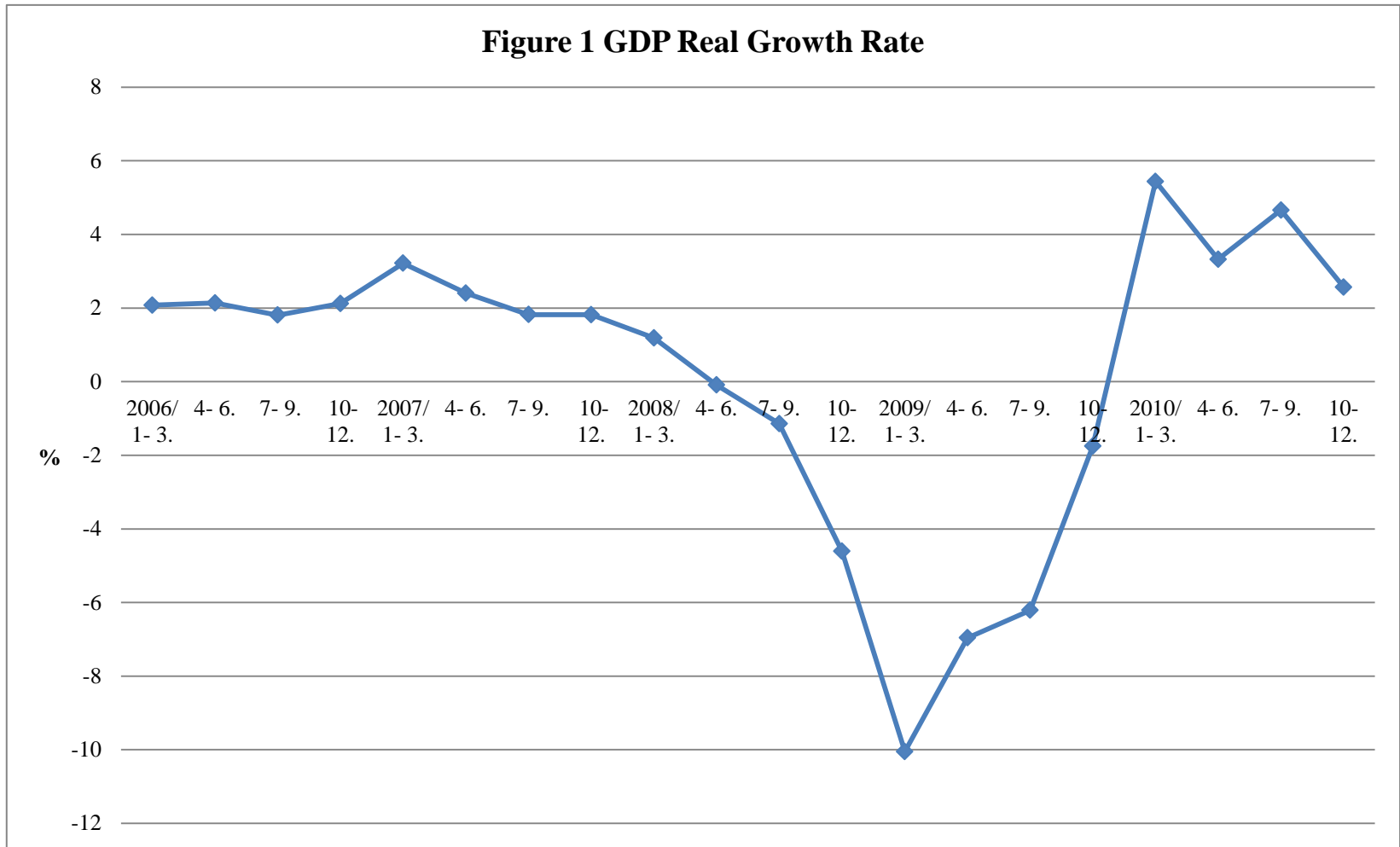
Notes: GDP real growth rate compared to the same quarter the previous year

Data Source: Annual Report on National Accounts, Economic ans Social Research Institute, Cabinet Office, Government of Japan

Figure 2 Real Net Export
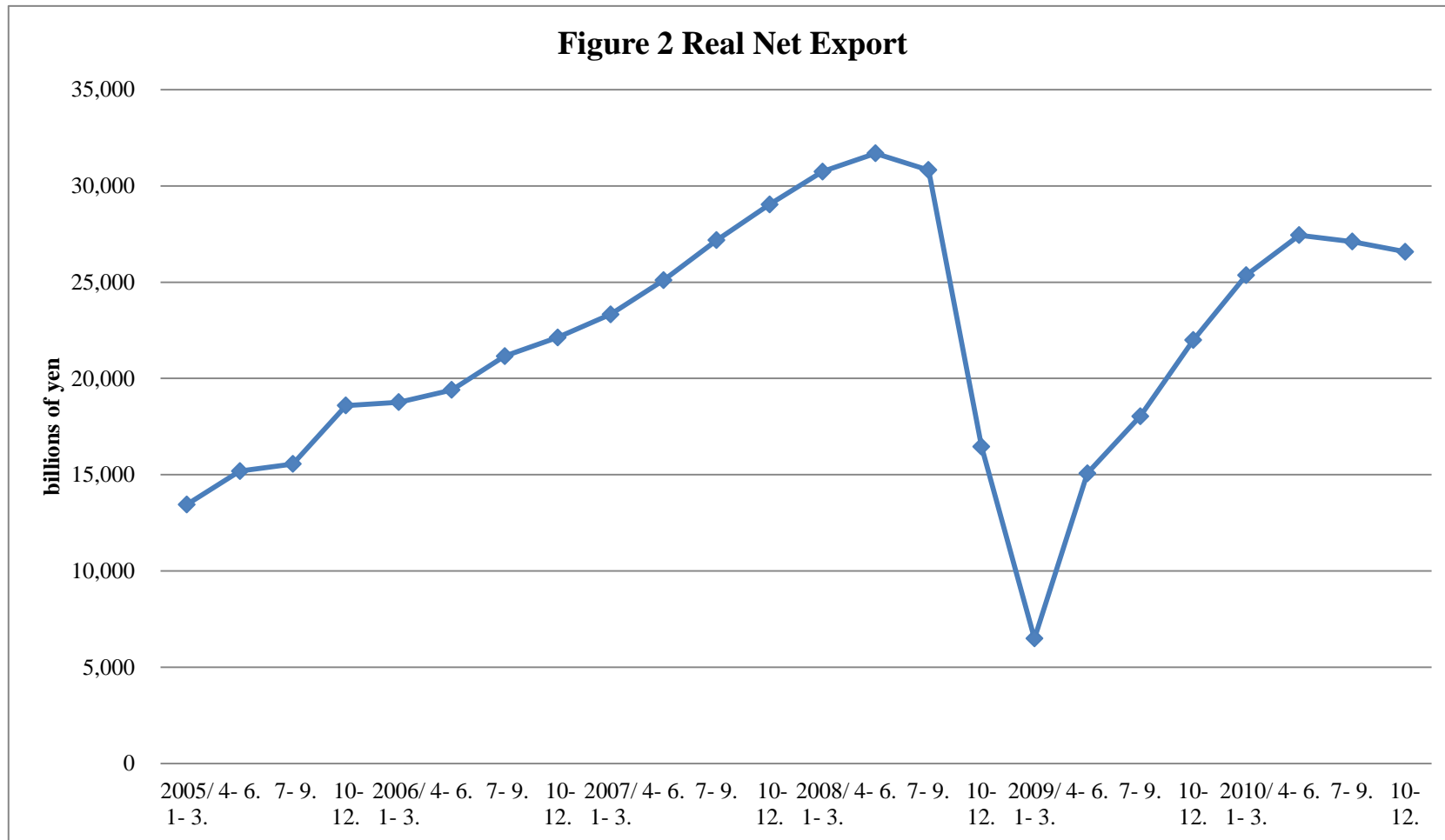
Data Source: Annual Report on National Accounts, Economic ans Social Research Institute, Cabinet Office, Government of Japan

Figure 3-1 Sales Growth Rate by Firm Size: Manufacturing Sector
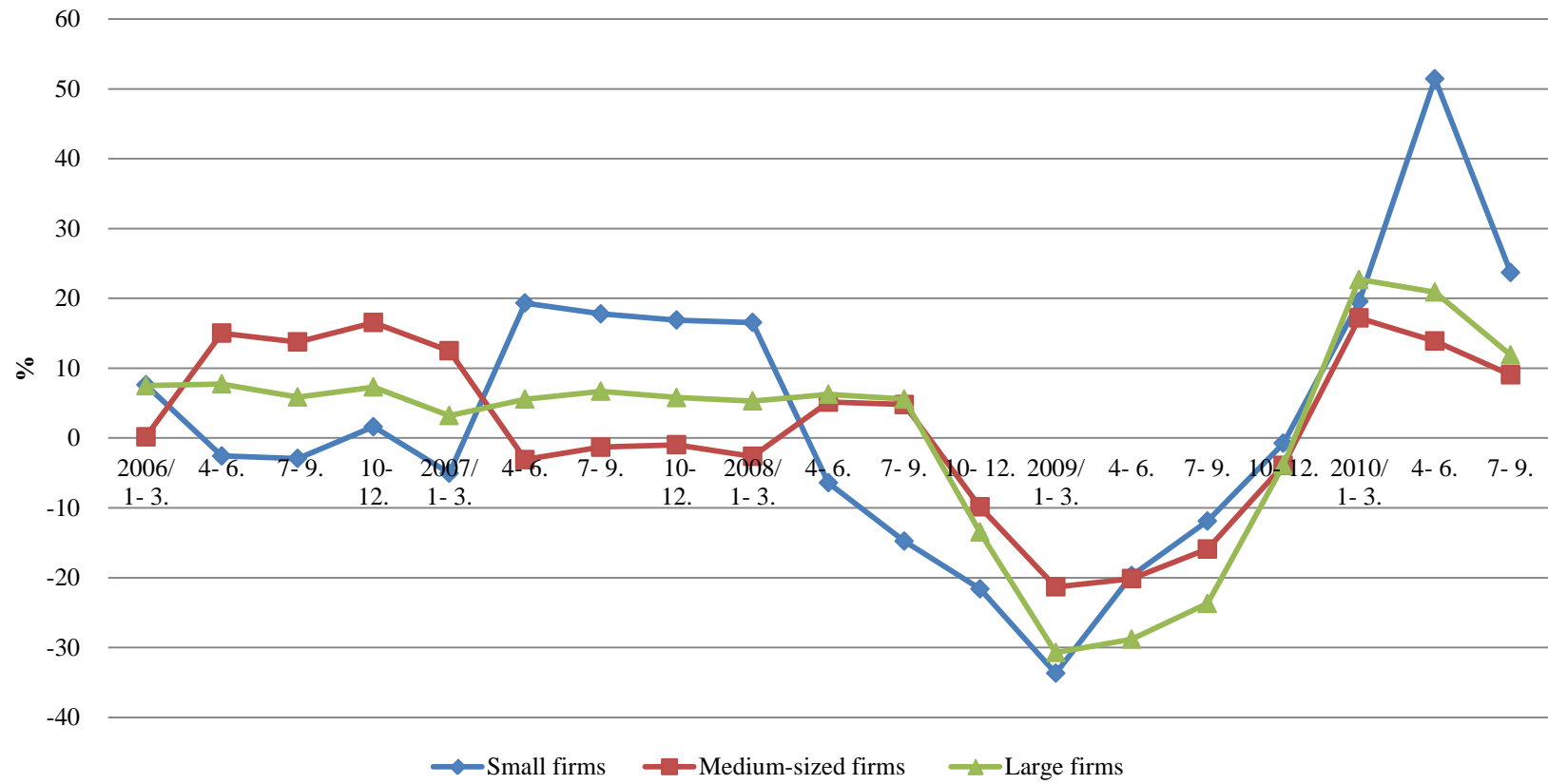
Figure 3-2 Sales Growth Rate by Firm Size: Non-manufacturing Sector
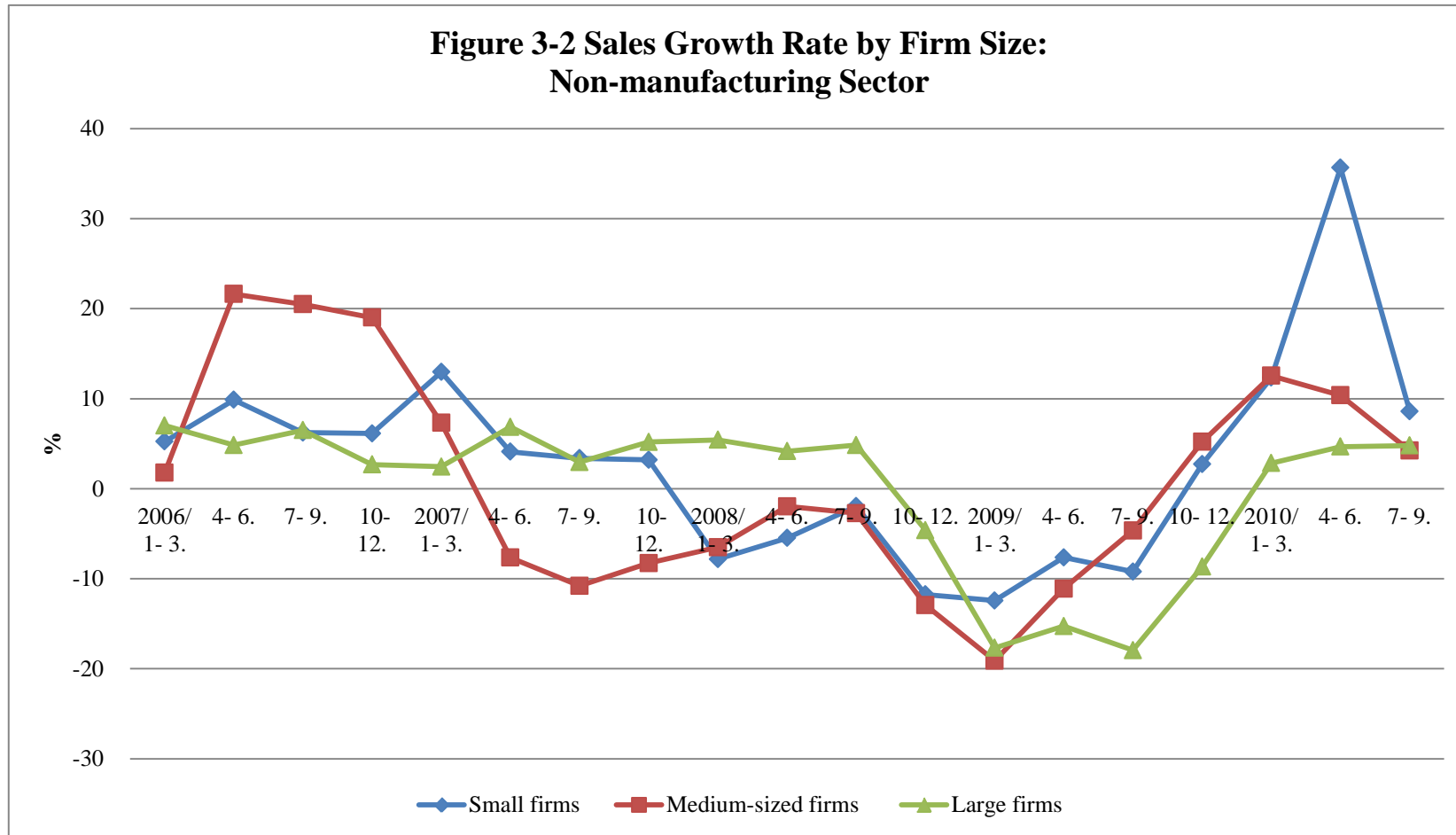
Notes: Sales growth rate compared to the same quarter the previous year

Data Source: Financial Statements of Corporations, Ministry of Finance

Table 1 Proportion of Firms Hit by Each Type of Shock

type of shock	proportion of firms	number of observations	proportion of firms		
			small firms	large firms	difference
demand shock	82.8%	4,030	83.2%	82.5%	0.7
supply shock from main supplier	35.6%	3,971	40.6%	33.2%	7.3***
supply shock from other suppliers	36.7%	3,903	40.5%	34.9%	5.6***
financial shock from main bank	18.9%	3,680	18.6%	19.0%	-0.4
financial shock from second bank	17.1%	3,281	17.1%	17.1%	0.0
financial shock from other banks	16.5%	3,057	12.8%	18.1%	-5.3***

Notes: *** significant at the 1% level

Data source: The Survey on the Status of Transactions between Businesses and Financial Institutions Following the Financial Crisis, Research Institute of Economy, Trade and Industry.

Table 2 Proportion of Firms Hit by Each Type of Shock and Length of Bank-firm Relationship and Customer-Supplier Relationship

type of shock	proportion of firms					
	short bank-firm relationship	long bank-firm relationship	difference	short customer-supplier relationship	long customer-supplier relationship	difference
demand shock	83.2%	82.5%	0.7	83.4%	82.3%	1.1
supply shock from main supplier	35.7%	35.5%	0.2	36.0%	35.3%	0.7
supply shock from other suppliers	36.8%	36.6%	0.2	37.4%	36.2%	1.1
financial shock from main bank	20.6%	17.5%	3.2***	20.3%	18.0%	2.3*
financial shock from second bank	19.3%	15.3%	4.0***	18.7%	16.1%	2.6*
financial shock from other banks	18.0%	15.4%	2.6*	17.4%	15.9%	1.5

Notes: ***, * significant at the 1% and 10% level, respectively

The bank-firm relationship is long (short) when the bank-firm relationship is longer (shorter) than the sample median (30 years).

The customer-supplier relationship is long (short) when the customer-supplier relationship is longer (shorter) than the sample median (26 years).

Data source: The Survey on the Status of Transactions between Businesses and Financial Institutions Following

the Financial Crisis, Research Institute of Economy, Trade and Industry.

Table 3 Correlation Coefficient between Occurrence of Each Type of Shock

Type of shock	demand shock	supply shock from main supplier	supply shock from other suppliers	financial shock from main bank	financial shock from second bank	financial shock from other banks
demand shock	1.000					
supply shock from main supplier	0.168	1.000				
supply shock from other suppliers	0.182	0.725	1.000			
financial shock from main bank	0.081	0.162	0.145	1.000		
financial shock from second bank	0.081	0.148	0.147	0.647	1.000	
financial shock from other banks	0.100	0.109	0.133	0.507	0.618	1.000

Data source: The Survey on the Status of Transactions between Businesses and Financial Institutions Following the Financial Crisis, Research Institute of Economy, Trade and Industry.

Table 4 Proportion of Firms That Took Each Type of Measures in Response to Shocks

type of measure	proportion of firms	number of observations	proportion of firms		
			small firms	large firms	difference
measure vis-à-vis customers	42.8%	4,008	44.8%	41.9%	2.9*
measure vis-à-vis main supplier	34.2%	3,961	34.8%	33.9%	0.9
measure vis-à-vis other suppliers	31.3%	3,874	31.5%	31.2%	0.3
measure vis-à-vis main bank	32.2%	3,889	31.0%	32.8%	-1.9
measure vis-à-vis second bank	17.9%	3,889	14.7%	19.3%	-4.6***
measure vis-à-vis other banks	10.3%	3,889	6.5%	12.0%	-5.6***
measure vis-à-vis public financial institutions	8.3%	3,889	8.4%	8.2%	0.2
measure to request for guaranteed loans	18.2%	4,103	20.8%	17.0%	3.8***

Notes: ***, * significant at the 1% and 10% level, respectively

Data source: The Survey on the Status of Transactions between Businesses and Financial Institutions Following the Financial Crisis, Research Institute of Economy, Trade and Industry.

Table 5 Proportion of Firms That Took Each Type of Measures in Response to Shocks and
Length of Bank-firm Relationship and Customer-supplier Relationship

type of measure	proportion of firms					
	short bank-firm relationship	long bank-firm relationship	difference	short customer-supplier relationship	long customer-supplier relationship	difference
measure vis-à-vis customers	43.0%	42.6%	0.5	42.3%	43.1%	-0.8
measure vis-à-vis main supplier	35.7%	33.0%	2.7*	36.1%	32.8%	3.3**
measure vis-à-vis other suppliers	32.0%	30.8%	1.2	33.6%	29.8%	3.8**
measure vis-à-vis main bank	35.4%	29.8%	5.5***	33.1%	31.7%	1.4
measure vis-à-vis second bank	19.8%	16.5%	3.3***	17.1%	18.5%	-1.4
measure vis-à-vis other banks	11.2%	9.6%	1.6*	10.0%	10.5%	-0.5
measure vis-à-vis public financial institutions	9.5%	7.4%	2.0**	8.3%	8.3%	0.0
measure to request for guaranteed loans	23.9%	14.0%	9.9***	21.4%	16.0%	5.5***

See the notes in Table 2. ***, **,* significant at the 1%, 5% and 10% level, respectively

Data source: The Survey on the Status of Transactions between Businesses and Financial Institutions Following
the Financial Crisis, Research Institute of Economy, Trade and Industry.

Table 6 Correlation Coefficient between Each Type of Response to Shocks

type of measure	measure vis-à-vis customer	measure vis-à-vis main supplier	measure vis-à-vis other suppliers	measure vis-à-vis main bank	measure vis-à-vis second bank	measure vis-à-vis other banks	measure vis-à-vis public institutions	measure to request for guaranteed loans
measure vis-à-vis customers	1.000							
measure vis-à-vis main supplier	0.273	1.000						
measure vis-à-vis other suppliers	0.277	0.859	1.000					
measure vis-à-vis main bank	0.104	0.180	0.171	1.000				
measure vis-à-vis second bank	0.099	0.148	0.153	0.443	1.000			
measure vis-à-vis other banks	0.074	0.106	0.115	0.272	0.343	1.000		
measure vis-à-vis public financial institutions	0.092	0.127	0.123	0.141	0.158	0.141	1.000	
measure to request for guaranteed loans	0.096	0.142	0.131	0.251	0.174	0.101	0.230	1.000

Data source: The Survey on the Status of Transactions between Businesses and Financial Institutions Following the Financial Crisis, Research Institute of Economy, Trade and Industry.

Table 7 Exogeneity Test of Shocks

measures taken	test statistics
measure vis-à-vis customers	9.15 (0.103)
measure vis-à-vis main supplier	4.43 (0.489)
measure vis-à-vis other suppliers	4.07 (0.540)
measure vis-à-vis main bank	9.14 (0.104)
measure vis-à-vis second bank	7.07 (0.216)
measure vis-à-vis other banks	10.18* (0.070)
measure vis-à-vis public financial institutions	11.13* (0.085)
measure to request for guaranteed loans	2.48 (0.871)

Notes: The test statistics is distributed as chi-squared with degree of freedom 5
for measures vis-à-vis customers, main supplier, other suppliers,
main bank, second bank and other banks and degree of freedom 6 for
measure vis-à-vis public financial institutions and that to request
for guaranteed loans.
The number in parenthesis is p-value.   * significant at the 10% level

Table 8 Estimation Results of the Response Function to Shocks

explanatory variables	equations							
	DMND MEASURE	SUPLYM MEASURE	SUPLYOTHR MEASURE	MAINB MEASURE	SCNDB MEASURE	OTHRB MEASURE	PUBFIN MEASURE	GUARNL MEASURE
DMNDSHOCK		0.1952*** (7.08)	0.1721*** (6.28)	0.1299*** (4.49)	0.1205*** (5.49)	0.0551*** (3.93)	0.0440*** (3.87)	0.0818*** (4.38)
SUPLYMSHOCK	0.2015*** (5.49)		0.1934*** (7.55)	0.0434 (1.21)	0.0221 (0.75)	-0.0016 (-0.08)	0.0112 (0.66)	0.0127 (0.49)
SUPLYOTHRSHOCK	-0.0281 (-0.77)	0.1351*** (5.41)		0.0292 (0.84)	0.0213 (0.74)	0.0047 (0.25)	0.0005 (0.03)	-0.0071 (-0.28)
MAINBSHOCK	0.0792* (1.85)	0.0575 (1.41)	0.0011 (0.03)		0.0629** (2.00)	0.0853*** (3.02)	0.0271 (1.38)	0.0999*** (3.05)
SCNDBSHOCK	0.0278 (0.58)	0.0774* (1.67)	0.0740 (1.60)	0.0826** (2.04)		0.0246 (1.07)	0.0307 (1.37)	0.0326 (1.03)
OTHRBSHOCK	0.0466 (1.06)	0.0504 (1.20)	0.0925** (2.18)	0.1453*** (3.43)	0.0696** (2.11)		0.0318 (1.51)	0.0647** (2.01)
ASSETS	0.0122 (1.18)	-0.0244** (-2.47)	-0.0012 (-0.13)	0.0002 (0.02)	0.0076 (0.91)	0.0133** (2.39)	-0.0246*** (-5.14)	-0.0587*** (-7.83)
DEBT	0.0711 (1.11)	-0.0573 (-0.93)	-0.0459 (-0.75)	0.3038*** (4.96)	0.2297*** (4.40)	0.0808** (2.29)	0.0824*** (2.89)	0.2618*** (5.73)
LIQSALES	-0.1684* (-1.79)	-0.1415 (-1.53)	-0.1956** (-2.12)	0.0065 (0.07)	0.0274 (0.34)	-0.0510 (-0.87)	-0.0539 (-1.13)	-0.0446 (-0.61)
PROFIT	-0.3355 (-1.30)	0.1953 (0.79)	0.2389 (0.98)	-0.1063 (-0.44)	-0.1050 (-0.51)	-0.0341 (-0.25)	-0.1126 (-1.02)	-0.6044*** (-3.38)
AGE	-0.0260 (-0.95)	-0.0174 (-0.67)	-0.0435* (-1.68)	0.0284 (1.10)	-0.0120 (-0.56)	-0.0212 (-1.47)	0.0436*** (3.38)	0.0185 (0.99)
BANKRELATION	-0.0018 (-0.33)	0.0166*** (3.25)	0.0114** (2.28)	0.0127** (2.50)	0.0192*** (4.61)	0.0198*** (7.48)	0.0112*** (4.85)	0.0198*** (5.18)
number of observations	1747	1736	1735	1734	1747	1859	1727	1746
pseudo R-squared	0.0515	0.0679	0.0799	0.0866	0.0943	0.1667	0.1387	0.1867

Notes: The numbers in parenthesis are t-values. *, **, *** significant at 10%, 5%, 1%, respectively
The coefficient estimates of industry dummies are suppressed.

				equations				
explanatory variables	DMND MEASURE	SUPLYM MEASURE	SUPLYOTHR MEASURE	MAINB MEASURE	SCNDB MEASURE	OTHRB MEASURE	PUBFIN MEASURE	GUARNL MEASURE
DMNDSHOCK		0.1733***	0.1266***	0.1159***	0.0954***	0.0367	0.0135	0.0165
		(4.17)	(2.89)	(2.76)	(2.88)	(1.62)	(0.78)	(0.62)
SUPLYMSHOCK	0.2442***		0.2109***	0.1034**	0.0354	0.0274	0.0244	0.0518
	(4.67)		(5.46)	(2.03)	(0.84)	(0.88)	(1.09)	(1.56)
SUPLYOTHRSHOCK	-0.0789	0.0890**		-0.0332	0.0053	-0.0326	-0.0196	-0.0352
	(-1.53)	(2.44)		(-0.72)	(0.14)	(-1.28)	(-1.15)	(-1.37)
MAINBSHOCK	0.0660	0.0166	-0.0170		0.0944*	0.0284	0.0515	0.0743*
	(1.02)	(0.28)	(-0.29)		(1.95)	(0.82)	(1.61)	(1.86)
SCNDBSHOCK	-0.0733	0.0093	-0.0408	0.1166*		0.0579	0.0122	0.0432
	(-1.00)	(0.13)	(-0.62)	(1.85)		(1.40)	(0.45)	(1.02)
OTHRBSHOCK	0.0606	0.1081*	0.1488**	0.1003*	0.0439		0.0041	0.0379
	(0.92)	(1.69)	(2.29)	(1.67)	(0.97)		(0.18)	(1.01)
ASSETS	0.0199	-0.0292**	0.0003	-0.0062	0.0110	0.0151*	-0.0201***	-0.0495***
	(1.36)	(-2.10)	(0.02)	(-0.45)	(0.96)	(1.89)	(-3.45)	(-5.88)
DEBT	0.1160	0.0458	0.0630	0.3603***	0.2878***	0.1171**	0.0780**	0.1913***
	(1.31)	(0.54)	(0.75)	(4.42)	(4.10)	(2.44)	(2.32)	(3.91)
LIQSALES	-0.0615	-0.1367	-0.1790	0.1641	0.1507	0.0748	0.0084	-0.0675
	(-0.46)	(-1.01)	(-1.31)	(1.29)	(1.31)	(0.93)	(0.14)	(-0.76)
PROFIT	-0.9187**	0.0984	0.0290	-0.2842	-0.1740	-0.0498	-0.1025	-0.5205**
	(-2.23)	(0.26)	(0.08)	(-0.80)	(-0.56)	(-0.23)	(-0.68)	(-2.29)
AGE	-0.0639	-0.0103	-0.0830*	0.0685	-0.0708*	-0.0259	0.0572**	0.0265
	(-1.22)	(-0.21)	(-1.72)	(1.39)	(-1.81)	(-0.95)	(2.30)	(0.90)
BANKRELATION	0.0037	0.0202***	0.0143**	0.0205***	0.0202***	0.0178***	0.0102***	0.0128***
	(0.51)	(2.93)	(2.13)	(3.04)	(3.69)	(4.87)	(3.90)	(3.09)
number of observations	817	811	814	810	802	848	798	817
pseudo R-squared	0.0516	0.0616	0.0826	0.1142	0.1187	0.1777	0.1575	0.2110

Table 9 Estimation Results of the Response Function to Shocks: Panel A

The Firm Group with Long Bank-firm Relationship with Main Bank and Second Bank

explanatory variables	equations							
	DMND MEASURE	SUPLYM MEASURE	SUPLYOTHR MEASURE	MAINB MEASURE	SCNDB MEASURE	OTHRB MEASURE	PUBFIN MEASURE	GUARNL MEASURE
DMNDSHOCK		0.2181***	0.2244***	0.1153**	0.0941**	0.0698***	0.0448**	0.1263***
		(4.32)	(4.91)	(2.07)	(2.01)	(2.88)	(2.25)	(2.81)
SUPLYMSHOCK	0.1036		0.1686***	-0.0446	-0.0389	-0.0154	-0.0094	0.0151
	(1.39)		(3.47)	(-0.63)	(-0.64)	(-0.40)	(-0.31)	(0.23)
SUPLYOTHRSHOCK	0.0527	0.1631***		0.0713	0.0805	0.0167	0.0144	0.0177
	(0.71)	(3.36)		(0.98)	(1.22)	(0.40)	(0.42)	(0.27)
MAINBSHOCK	0.0866	0.0771	-0.0474		0.0672	0.1771***	0.0245	0.1141
	(1.06)	(0.96)	(-0.66)		(1.10)	(2.80)	(0.72)	(1.54)
SCNDBSHOCK	0.1159	0.2091**	0.3052***	-0.0039		0.0045	0.0303	-0.0010
	(1.29)	(2.36)	(3.42)	(-0.05)		(0.12)	(0.78)	(-0.01)
OTHRBSHOCK	0.0468	-0.0074	0.0255	0.2328***	0.0755		0.0888*	0.1692**
	(0.57)	(-0.10)	(0.34)	(2.91)	(1.18)		(1.81)	(2.24)
ASSETS	-0.0071	0.0151	0.0242	0.0169	0.0285	0.0192*	-0.0138	-0.0580***
	(-0.34)	(0.75)	(1.23)	(0.84)	(1.62)	(1.69)	(-1.41)	(-2.97)
DEBT	0.0264	-0.1971	-0.2384*	0.1022	0.2657**	0.0299	0.1078*	0.2776**
	(0.20)	(-1.51)	(-1.87)	(0.78)	(2.30)	(0.40)	(1.75)	(2.32)
LIQSALES	-0.3478*	-0.2609	-0.2472	-0.3156*	-0.1955	-0.1483	-0.2268**	-0.0791
	(-1.80)	(-1.38)	(-1.32)	(-1.72)	(-1.22)	(-1.29)	(-2.11)	(-0.45)
PROFIT	0.5480	0.2027	0.3331	-0.2064	-0.0797	-0.0504	0.0746	-0.6514*
	(1.30)	(0.52)	(0.88)	(-0.52)	(-0.23)	(-0.25)	(0.40)	(-1.84)
AGE	-0.0234	-0.0643	-0.0780*	-0.0085	0.0148	-0.0307	0.0421**	-0.0218
	(-0.53)	(-1.49)	(-1.84)	(-0.20)	(0.39)	(-1.27)	(2.15)	(-0.56)
BANKRELATION	-0.0182*	0.0028	0.0008	0.0014	0.0058	0.0242***	0.0070	0.0266***
	(-1.67)	(0.27)	(0.08)	(0.14)	(0.65)	(4.60)	(1.55)	(2.79)
number of observations	505	500	497	503	503	544	500	504
pseudo R-squared	0.0682	0.0995	0.1158	0.0701	0.0709	0.2150	0.2267	0.1718

Table 9 Estimation Results of the Response Function to Shocks: Panel B

The Firm Group with Short Bank-firm Relationship with Main Bank and Second Bank

Table 9 Estimation Results of the Response Function to Shocks: Panel C

The Firm Group with Long Bank-firm Relationship with Main Bank and Short Bank-firm Relationship with Second Bank

explanatory variables	equations							
	DMND MEASURE	SUPLYM MEASURE	SUPLYOTHR MEASURE	MAINB MEASURE	SCNDB MEASURE	OTHRB MEASURE	PUBFIN MEASURE	GUARNL MEASURE
DMNDSHOCK		0.2710***	0.1894*	0.2254**	0.2146***			0.1588***
		(2.91)	(1.86)	(2.03)	(3.74)			(3.11)
SUPLYMSHOCK	0.2778**		0.2443***	-0.2887**	0.0086	-0.2232**	0.0067	-0.1287
	(2.14)		(2.75)	(-1.98)	(0.08)	(-2.30)	(0.08)	(-1.33)
SUPLYOTHRSHOCK	-0.0335	0.2584***		0.3124**	0.0689	0.2179**	0.0618	0.1537
	(-0.24)	(2.85)		(1.99)	(0.64)	(2.12)	(0.69)	(1.35)
MAINBSHOCK	0.0879	0.1196	0.1863		-0.0199	0.0915	-0.0013	0.0597
	(0.54)	(0.79)	(1.20)		(-0.19)	(0.79)	(-0.02)	(0.51)
SCNDBSHOCK	0.2240	0.0126	-0.0626	0.0792		-0.0494	0.0178	0.0206
	(1.47)	(0.09)	(-0.44)	(0.53)		(-0.82)	(0.19)	(0.19)
OTHRBSHOCK	0.1443	0.1229	0.1829	0.3926***	0.2106		0.1777	-0.0259
	(0.89)	(0.79)	(1.13)	(2.81)	(1.52)		(1.38)	(-0.28)
ASSETS	0.1445***	0.0129	0.0184	0.0432	0.0144	-0.0028	-0.0395	-0.0202
	(3.08)	(0.32)	(0.46)	(1.01)	(0.42)	(-0.11)	(-1.35)	(-0.66)
DEBT	0.2064	-0.2296	-0.2512	0.8836***	0.0653	0.2359	0.1290	0.5882**
	(0.73)	(-0.82)	(-0.91)	(2.88)	(0.28)	(1.25)	(0.63)	(2.50)
LIQSALES	-0.6148*	-0.1507	-0.7982**	0.1535	0.2223	-0.2673	0.0322	0.0172
	(-1.66)	(-0.43)	(-2.05)	(0.40)	(0.76)	(-0.94)	(0.13)	(0.06)
PROFIT	-2.1755	0.5498	0.6751	2.0859	1.3597	0.8870	0.8637	-2.3446**
	(-1.37)	(0.41)	(0.50)	(1.37)	(1.21)	(0.95)	(0.98)	(-2.09)
AGE	-0.3293*	-0.0751	-0.0219	-0.0278	-0.0135	-0.0153	0.0721	0.0537
	(-1.74)	(-0.45)	(-0.13)	(-0.15)	(-0.09)	(-0.14)	(0.62)	(0.44)
BANKRELATION	-0.0218	-0.0007	-0.0103	-0.0322	0.0328**	0.0196*	0.0132	0.0180
	(-0.95)	(-0.03)	(-0.49)	(-1.47)	(1.97)	(1.72)	(0.99)	(1.16)
number of observations	156	151	149	154	149	134	126	149
pseudo R-squared	0.1918	0.1705	0.155	0.2147	0.1601	0.2429	0.1557	0.1922

Table 9 Estimation Results of the Response Function to Shocks: Panel D

The Firm Group with Short Bank-firm Relationship with Main Bank and Long Bank-firm Relationship with Second Bank

explanatory variables	DMND MEASURE	SUPLYM MEASURE	SUPLYOTHR MEASURE	MAINB MEASURE	SCNDB MEASURE	OTHRB MEASURE	PUBFIN MEASURE	GUARNL MEASURE
DMNDSHOCK		0.2086***	0.2202***	0.1891***	0.1811***	0.0431	0.0629**	0.1677***
		(2.99)	(3.48)	(3.06)	(5.45)	(1.32)	(2.46)	(5.12)
SUPLYMSHOCK	0.2568***		0.1958***	0.1588*	0.1299*	0.0737	-0.0120	-0.0600
	(2.64)		(2.83)	(1.76)	(1.74)	(1.43)	(-0.29)	(-1.06)
SUPLYOTHRSHOCK	-0.1262	0.1716**		0.0444	-0.0410	0.0040	0.0236	-0.0039
	(-1.30)	(2.56)		(0.54)	(-0.70)	(0.10)	(0.52)	(-0.06)
MAINBSHOCK	0.1158	0.0489	0.0036		0.0305	0.1117	-0.0065	0.1530
	(1.07)	(0.46)	(0.04)		(0.44)	(1.42)	(-0.16)	(1.63)
SCNDBSHOCK	0.0775	0.1306	0.0866	0.1022		-0.0238	0.0735	0.0984
	(0.64)	(1.08)	(0.77)	(1.00)		(-0.61)	(0.97)	(0.99)
OTHRBSHOCK	0.1094	-0.0154	0.0523	0.2048	0.0965		-0.0012	-0.0132
	(0.83)	(-0.13)	(0.43)	(1.59)	(0.98)		(-0.02)	(-0.18)
ASSETS	-0.0127	-0.1035***	-0.0657**	-0.0122	-0.0183	0.0139	-0.0412***	-0.0760***
	(-0.39)	(-3.28)	(-2.13)	(-0.41)	(-0.78)	(0.94)	(-3.05)	(-3.51)
DEBT	-0.1537	-0.2063	-0.0806	0.2430	0.1381	0.0256	0.0793	0.2224*
	(-0.84)	(-1.25)	(-0.50)	(1.47)	(1.15)	(0.32)	(1.04)	(1.83)
LIQSALES	0.0623	-0.0038	0.0461	0.0455	0.0517	-0.2644*	0.0039	-0.0430
	(0.23)	(-0.02)	(0.19)	(0.20)	(0.29)	(-1.75)	(0.04)	(-0.25)
PROFIT	-1.2718	0.4155	0.8550	0.5559	-0.4125	-0.5417	-0.5943*	-0.5529
	(-1.49)	(0.54)	(1.16)	(0.73)	(-0.72)	(-1.37)	(-1.77)	(-1.02)
AGE	-0.0416	0.0523	0.0408	0.1102	0.0865	0.0408	0.0036	0.1535**
	(-0.50)	(0.68)	(0.54)	(1.46)	(1.47)	(1.00)	(0.10)	(2.48)
BANKRELATION	0.0312	0.0439**	0.0384**	0.0277	0.0367***	0.0169**	0.0147*	0.0211
	(1.63)	(2.35)	(2.10)	(1.64)	(2.84)	(2.22)	(1.68)	(1.62)
number of observations	253	259	258	260	267	270	250	245
pseudo R-squared	0.0951	0.1095	0.1079	0.1501	0.1985	0.2131	0.1725	0.2398

See the notes in Table 8. The variable DMNDSHOCK in Panel C predicts zero perfectly in OTHRBMEASURE and PUBFINMEASURE equations so that we cannot obtain the coefficient estimates of DMNDSHOCK in these equations.

explanatory variables	equations							
	DMND MEASURE	SUPLYM MEASURE	SUPLYOTHR MEASURE	MAINB MEASURE	SCNDB MEASURE	OTHRB MEASURE	PUBFIN MEASURE	GUARNL MEASURE
DMNDSHOCK		0.1940***	0.1604***	0.1608***	0.1371***	0.0722***	0.0445***	0.0750***
		(5.79)	(4.80)	(4.60)	(5.31)	(4.87)	(3.24)	(3.38)
SUPLYMSHOCK	0.2500***		0.1971***	0.0271	0.0052	-0.0103	0.0287	0.0112
	(5.32)		(6.12)	(0.60)	(0.14)	(-0.44)	(1.25)	(0.35)
SUPLYOTHRSHOCK	-0.1024**	0.1392***		0.0372	0.0114	0.0003	-0.0214	-0.0166
	(-2.19)	(4.44)		(0.84)	(0.32)	(0.01)	(-1.15)	(-0.55)
MAINBSHOCK	0.0540	0.0616	0.0298		0.0577	0.0720**	0.0309	0.1039***
	(1.01)	(1.23)	(0.61)		(1.49)	(2.20)	(1.26)	(2.60)
SCNDBSHOCK	-0.0034	0.0405	0.0166	0.0822		0.0114	0.0334	0.0427
	(-0.06)	(0.73)	(0.31)	(1.64)		(0.44)	(1.20)	(1.09)
OTHRBSHOCK	0.0717	0.0374	0.0866*	0.1265**	0.0338		0.0297	0.0473
	(1.29)	(0.72)	(1.65)	(2.38)	(0.85)		(1.12)	(1.22)
ASSETS	0.0135	-0.0189	0.0074	-0.0092	0.0045	0.0151**	-0.0253***	-0.0656***
	(1.02)	(-1.55)	(0.62)	(-0.73)	(0.43)	(2.20)	(-4.21)	(-7.13)
DEBT	0.0646	-0.0345	-0.0164	0.3349***	0.2640***	0.1393***	0.0851**	0.2436***
	(0.80)	(-0.45)	(-0.22)	(4.33)	(4.02)	(3.19)	(2.39)	(4.44)
LIQSALES	-0.1954	-0.1878	-0.2905**	-0.0288	0.0150	-0.0255	-0.0520	-0.1878*
	(-1.61)	(-1.53)	(-2.36)	(-0.24)	(0.14)	(-0.34)	(-0.84)	(-1.96)
PROFIT	-0.2713	0.6015	0.6351*	0.0762	-0.3725	0.1384	-0.2565	-0.7912***
	(-0.68)	(1.54)	(1.65)	(0.21)	(-1.18)	(0.66)	(-1.50)	(-2.80)
AGE	-0.0115	-0.0215	-0.0450	0.0889**	-0.0259	0.0047	0.0492**	0.0382
	(-0.26)	(-0.52)	(-1.12)	(2.10)	(-0.76)	(0.21)	(2.38)	(1.32)
BANKRELATION	0.0021	0.0177***	0.0091	0.0155**	0.0213***	0.0173***	0.0121***	0.0127***
	(0.31)	(2.80)	(1.51)	(2.41)	(4.05)	(5.29)	(4.19)	(2.65)
number of observations	1103	1093	1094	1093	1106	1157	1090	1103
pseudo R-squared	0.0536	0.0705	0.0851	0.0923	0.1023	0.1727	0.1512	0.2012

Table 10 Estimation Results of the Response Function to Shocks: Panel A

The Firm Group with Long Customer-supplier Relationship

Table 10 Estimation Results of the Response Function to Shocks: Panel B

The Firm Group with Short Customer-supplier Relationship

explanatory variables		equations						
	DMND MEASURE	SUPLYM MEASURE	SUPLYOTHR MEASURE	MAINB MEASURE	SCNDB MEASURE	OTHRB MEASURE	PUBFIN MEASURE	GUARNL MEASURE
DMNDSHOCK		0.1991***	0.1978***	0.0833	0.1044***	0.0212	0.0332*	0.0921***
		(4.10)	(4.15)	(1.61)	(2.71)	(0.73)	(1.70)	(2.81)
SUPLYMSHOCK	0.1421**		0.1994***	0.0512	0.0632	0.0109	-0.0225	0.0079
	(2.36)		(4.61)	(0.89)	(1.26)	(0.34)	(-1.02)	(0.18)
SUPLYOTHRSHOCK	0.0875	0.1352***		0.0325	0.0276	0.0107	0.0450	0.0059
	(1.48)	(3.22)		(0.58)	(0.58)	(0.34)	(1.57)	(0.14)
MAINBSHOCK	0.1280*	0.0487	-0.0536		0.0638	0.1026**	0.0242	0.0839
	(1.74)	(0.68)	(-0.79)		(1.21)	(2.03)	(0.78)	(1.47)
SCNDBSHOCK	0.1009	0.1573*	0.2058**	0.0553		0.0460	0.0136	0.0183
	(1.20)	(1.89)	(2.46)	(0.81)		(1.07)	(0.42)	(0.33)
OTHRBSHOCK	-0.0210	0.0520	0.0700	0.2029***	0.1168**		0.0509	0.0758
	(-0.28)	(0.72)	(0.95)	(2.82)	(2.05)		(1.38)	(1.37)
ASSETS	0.0032	-0.0415**	-0.0182	0.0137	0.0127	0.0080	-0.0190**	-0.0418***
	(0.18)	(-2.42)	(-1.06)	(0.84)	(0.91)	(0.85)	(-2.53)	(-3.13)
DEBT	0.0579	-0.1169	-0.1141	0.2936***	0.1755**	-0.0015	0.0901**	0.3023***
	(0.54)	(-1.13)	(-1.09)	(2.89)	(2.04)	(-0.03)	(2.04)	(3.75)
LIQSALES	-0.1018	-0.0887	-0.0902	-0.0119	0.0415	-0.0920	-0.0487	0.1384
	(-0.66)	(-0.60)	(-0.61)	(-0.08)	(0.34)	(-0.98)	(-0.71)	(1.21)
PROFIT	-0.3792	-0.0030	0.0991	-0.2655	0.1015	-0.1503	-0.0544	-0.5420**
	(-1.09)	(-0.01)	(0.29)	(-0.81)	(0.37)	(-0.87)	(-0.40)	(-2.19)
AGE	-0.0151	0.0216	0.0166	-0.0250	-0.0090	-0.0344	0.0302*	-0.0192
	(-0.38)	(0.56)	(0.43)	(-0.68)	(-0.29)	(-1.64)	(1.78)	(-0.67)
BANKRELATION	-0.0066	0.0152*	0.0140	0.0066	0.0156**	0.0228***	0.0077**	0.0291***
	(-0.72)	(1.72)	(1.58)	(0.79)	(2.24)	(5.16)	(2.18)	(4.47)
number of observations	644	643	641	641	641	702	637	643
pseudo R-squared	0.0745	0.0806	0.0993	0.1018	0.1014	0.1893	0.1624	0.1956

See the notes in Table 8

Estimation Results of the Response Function to Shocks under Alternative Measure of Bank-firm Relationship: Panel A

The Firm Group with Long Bank-firm Relationship with Main Bank and Second Bank

explanatory variables	equations							
	DMND MEASURE	SUPLYM MEASURE	SUPLYOTHR MEASURE	MAINB MEASURE	SCNDB MEASURE	OTHRB MEASURE	PUBFIN MEASURE	GUARNL MEASURE
DMNDSHOCK		0.1437***	0.1047**	0.0193	0.0483	0.0050	0.0113	0.0864***
		(2.86)	(2.06)	(0.38)	(1.57)	(0.42)	(0.60)	(3.42)
SUPLYMSHOCK	0.2258***		0.1619***	0.0034	0.0923*	-0.0081	0.0061	0.0040
	(3.22)		(3.52)	(0.06)	(1.91)	(-0.64)	(0.25)	(0.10)
SUPLYOTHRSHOCK	-0.0746	0.1068**		0.0922	-0.0715**	0.0076	-0.0154	0.0019
	(-1.07)	(2.36)		(1.54)	(-2.06)	(0.52)	(-0.74)	(0.05)
MAINBSHOCK	0.0795	0.0692	-0.0065		0.0897	0.0659*	0.0416	0.1826***
	(0.94)	(0.87)	(-0.09)		(1.60)	(1.66)	(1.09)	(2.59)
SCNDBSHOCK	0.1396	0.0753	0.0223	0.0923		-0.0058	0.0281	0.0014
	(1.43)	(0.80)	(0.25)	(1.17)		(-0.51)	(0.76)	(0.03)
OTHRBSHOCK	0.0952	0.1741*	0.1672*	0.1796**	0.0110		0.0104	0.0417
	(1.00)	(1.86)	(1.74)	(2.05)	(0.23)		(0.35)	(0.77)
ASSETS	0.0223	-0.0319*	-0.0176	-0.0095	-0.0167	0.0052	-0.0171***	-0.0367***
	(1.22)	(-1.85)	(-1.03)	(-0.62)	(-1.52)	(1.23)	(-2.59)	(-3.17)
DEBT	-0.0027	-0.1442	-0.0706	0.1285	0.0355	0.0225	0.0487	0.1606**
	(-0.03)	(-1.41)	(-0.71)	(1.41)	(0.55)	(0.97)	(1.42)	(2.53)
LIQSALES	-0.2309*	-0.2132	-0.2237	-0.1525	-0.1710*	-0.0667	-0.0271	-0.1320
	(-1.65)	(-1.53)	(-1.61)	(-1.21)	(-1.69)	(-1.62)	(-0.47)	(-1.21)
PROFIT	-0.3759	0.0030	-0.0240	-0.3597	-0.2292	-0.1549*	-0.0503	-0.2929
	(-0.92)	(0.01)	(-0.06)	(-1.07)	(-0.92)	(-1.90)	(-0.44)	(-1.33)
AGE	-0.0469	-0.0193	-0.0508	0.0405	0.0767**	-0.0111	0.0049	-0.0011
	(-0.97)	(-0.43)	(-1.16)	(1.00)	(2.50)	(-1.12)	(0.32)	(-0.04)
BANKRELATION	-0.0075	0.0227**	0.0159	0.0317***	0.0303***	0.0075***	0.0086**	0.0173***
	(-0.66)	(2.19)	(1.56)	(3.41)	(4.87)	(2.94)	(2.56)	(2.69)
number of observations	545	531	526	538	539	577	526	534
pseudo R-squared	0.0711	0.0809	0.0753	0.1425	0.1664	0.3039	0.1604	0.2066

Estimation Results of the Response Function to Shocks under Alternative Measure of Bank-firm Relationship: Panel B

The Firm Group with Short Bank-firm Relationship with Main Bank and Second Bank

explanatory variables	equations							
	DMND MEASURE	SUPLYM MEASURE	SUPLYOTHR MEASURE	MAINB MEASURE	SCNDB MEASURE	OTHRB MEASURE	PUBFIN MEASURE	GUARNL MEASURE
DMNDSHOCK		0.2221***	0.2299***	0.2152***	0.1827***	0.0651	-0.0016	0.1175***
		(3.43)	(3.77)	(3.80)	(3.72)	(1.27)	(-0.04)	(2.93)
SUPLYMSHOCK	0.1395		0.2226***	0.0684	-0.0218	0.0080	0.0137	-0.0768
	(1.58)		(3.47)	(0.81)	(-0.31)	(0.13)	(0.30)	(-1.38)
SUPLYOTHRSHOCK	0.0111	0.1939***		-0.0023	0.0695	0.0537	-0.0051	0.0065
	(0.13)	(3.30)		(-0.03)	(0.97)	(0.87)	(-0.12)	(0.10)
MAINBSHOCK	0.1506*	-0.0624	-0.1416*		0.0017	0.0309	0.0013	0.0509
	(1.68)	(-0.72)	(-1.74)		(0.03)	(0.46)	(0.03)	(0.73)
SCNDBSHOCK	-0.0086	0.2639***	0.3210***	0.0678		0.1343*	0.0985	0.0503
	(-0.09)	(2.68)	(3.24)	(0.82)		(1.68)	(1.48)	(0.69)
OTHRBSHOCK	0.0172	-0.0287	0.0280	0.2174***	0.1984***		0.0391	0.1391**
	(0.21)	(-0.36)	(0.35)	(2.82)	(2.81)		(0.88)	(2.02)
ASSETS	-0.0112	-0.0036	0.0155	0.0022	0.0011	-0.0026	-0.0141	-0.1018***
	(-0.48)	(-0.15)	(0.67)	(0.10)	(0.05)	(-0.15)	(-1.18)	(-5.81)
DEBT	0.2831	-0.1013	-0.0723	0.2517	0.2088	0.2195	-0.0050	0.1216
	(1.62)	(-0.59)	(-0.42)	(1.56)	(1.41)	(1.62)	(-0.06)	(0.94)
LIQSALES	-0.1437	-0.4586	-0.7312**	0.1693	0.3058	-0.0869	-0.2304	-0.2202
	(-0.58)	(-1.64)	(-2.38)	(0.77)	(1.46)	(-0.43)	(-1.47)	(-1.06)
PROFIT	-0.4329	0.9460	0.9981	0.8244	0.0724	1.1037*	-0.3863	-0.8347
	(-0.57)	(1.27)	(1.29)	(1.23)	(0.12)	(1.92)	(-1.11)	(-1.53)
AGE	0.0005	0.0017	-0.0406	0.0743	0.0014	0.0229	0.0377	0.0253
	(0.01)	(0.03)	(-0.64)	(1.22)	(0.03)	(0.47)	(1.12)	(0.54)
BANKRELATION	-0.0007	-0.0005	-0.0004	0.0120	0.0189**	0.0248***	0.0046	0.0188**
	(-0.07)	(-0.05)	(-0.04)	(1.15)	(2.02)	(3.19)	(0.84)	(2.14)
number of observations	353	343	343	351	345	354	350	323
pseudo R-squared	0.0650	0.0996	0.1361	0.1221	0.1374	0.1220	0.1323	0.2453

				Appendix Table				

Estimation Results of the Response Function to Shocks under Alternative Measure of Bank-firm Relationship: Panel C

The Firm Group with Long Bank-firm Relationship with Main Bank and Short Bank-firm Relationship with Second Bank

explanatory variables	equations							
	DMND MEASURE	SUPLYM MEASURE	SUPLYOTHR MEASURE	MAINB MEASURE	SCNDB MEASURE	OTHRB MEASURE	PUBFIN MEASURE	GUARNL MEASURE
DMNDSHOCK		0.1779**	0.1568**	0.1602**	0.1486***	0.0094		-0.0162
		(2.43)	(2.06)	(2.08)	(4.33)	(0.33)		(-0.23)
SUPLYMSHOCK	0.1918**		0.2545***	0.0850	0.0211	-0.0280	-0.0151	0.0811
	(2.37)		(4.35)	(1.03)	(0.38)	(-0.93)	(-0.44)	(1.20)
SUPLYOTHRSHOCK	0.0580	0.1766***		0.0565	0.1079*	0.0362	-0.0033	0.0306
	(0.69)	(2.93)		(0.67)	(1.79)	(1.01)	(-0.09)	(0.45)
MAINBSHOCK	0.0285	0.1752*	0.0827		0.0010	0.0551	0.1235*	0.0604
	(0.31)	(1.93)	(0.92)		(0.02)	(1.25)	(1.85)	(0.84)
SCNDBSHOCK	0.0515	-0.0255	0.0170	0.1044		0.0564	0.0015	0.1986**
	(0.48)	(-0.26)	(0.17)	(1.08)		(1.33)	(0.05)	(2.04)
OTHRBSHOCK	-0.0227	0.0902	0.1380	0.0412	0.0892		0.0641	-0.0599
	(-0.21)	(0.83)	(1.32)	(0.38)	(1.20)		(1.08)	(-0.96)
ASSETS	-0.0001	-0.0432*	-0.0089	-0.0127	0.0072	-0.0117	-0.0275**	-0.0589***
	(-0.00)	(-1.77)	(-0.36)	(-0.50)	(0.42)	(-1.22)	(-2.39)	(-2.81)
DEBT	0.0042	-0.1241	-0.0504	0.3672**	0.1108	-0.0076	0.0379	0.3128***
	(0.03)	(-0.89)	(-0.36)	(2.57)	(1.11)	(-0.15)	(0.68)	(2.83)
LIQSALES	-0.1378	-0.0140	-0.1213	0.0398	0.0270	-0.0001	-0.1665	0.0226
	(-0.62)	(-0.07)	(-0.57)	(0.18)	(0.18)	(-0.00)	(-1.59)	(0.14)
PROFIT	-0.4973	0.4315	0.7292	0.1873	-0.4004	-0.0137	-0.0759	-0.7560*
	(-0.92)	(0.80)	(1.32)	(0.34)	(-1.10)	(-0.07)	(-0.37)	(-1.91)
AGE	-0.0252	-0.0375	-0.0207	0.0617	-0.0382	0.0233	0.0604**	0.0605
	(-0.40)	(-0.59)	(-0.33)	(0.96)	(-0.89)	(0.98)	(2.17)	(1.21)
BANKRELATION	0.0234	0.0036	-0.0060	0.0127	0.0171	0.0231***	0.0138*	0.0251
	(1.22)	(0.19)	(-0.30)	(0.65)	(1.32)	(3.59)	(1.82)	(1.59)
number of observations	327	324	317	322	322	345	267	326
pseudo R-squared	0.0809	0.0951	0.0994	0.0912	0.1435	0.1954	0.2436	0.2049

Estimation Results of the Response Function to Shocks under Alternative Measure of Bank-firm Relationship: Panel D

The Firm Group with Short Bank-firm Relationship with Main Bank and Long Bank-firm Relationship with Second Bank

explanatory variables	equations							
	DMND MEASURE	SUPLYM MEASURE	SUPLYOTHR MEASURE	MAINB MEASURE	SCNDB MEASURE	OTHRB MEASURE	PUBFIN MEASURE	GUARNL MEASURE
DMNDSHOCK		0.2240***	0.1887***	0.1471***	0.1359***	0.1217***	0.0837***	0.0858***
		(4.64)	(4.14)	(2.77)	(2.81)	(4.76)	(4.72)	(2.76)
SUPLYMSHOCK	0.2094***		0.1914***	0.0497	0.0127	0.0538	0.0410	0.0440
	(3.06)		(4.03)	(0.74)	(0.20)	(1.09)	(1.12)	(0.87)
SUPLYOTHRSHOCK	-0.0394	0.1059**		-0.0381	0.0197	-0.0375	0.0032	-0.0387
	(-0.60)	(2.30)		(-0.60)	(0.33)	(-0.91)	(0.10)	(-0.90)
MAINBSHOCK	0.0521	0.0070	0.0061		0.1184*	0.2006***	0.0046	0.0536
	(0.62)	(0.09)	(0.08)		(1.71)	(2.72)	(0.13)	(0.93)
SCNDBSHOCK	-0.0197	0.0395	-0.0027	0.0560		-0.0443	-0.0084	-0.0437
	(-0.23)	(0.47)	(-0.03)	(0.76)		(-1.08)	(-0.24)	(-0.96)
OTHRBSHOCK	0.0519	0.0262	0.0816	0.1353*	0.0164		0.0761	0.1241*
	(0.64)	(0.33)	(1.04)	(1.69)	(0.25)		(1.39)	(1.73)
ASSETS	0.0241	-0.0133	0.0175	0.0274	0.0371**	0.0398***	-0.0396***	-0.0510***
	(1.22)	(-0.71)	(0.98)	(1.45)	(2.08)	(3.18)	(-4.15)	(-3.73)
DEBT	0.0787	0.1587	0.0388	0.4486***	0.4107***	0.0977	0.1587**	0.4732***
	(0.59)	(1.24)	(0.32)	(3.46)	(3.35)	(1.14)	(2.36)	(4.57)
LIQSALES	-0.2188	-0.0526	0.0369	0.2219	0.1899	-0.0109	0.0738	0.2509
	(-0.96)	(-0.23)	(0.18)	(1.05)	(0.93)	(-0.08)	(0.68)	(1.59)
PROFIT	0.2610	0.2519	-0.1297	-0.3477	0.0387	-0.4431	-0.0930	-1.4964***
	(0.43)	(0.43)	(-0.24)	(-0.62)	(0.07)	(-1.09)	(-0.32)	(-2.92)
AGE	-0.0224	-0.0262	-0.0694	-0.0478	-0.1183**	-0.0817**	0.0798***	-0.0273
	(-0.43)	(-0.52)	(-1.45)	(-0.96)	(-2.55)	(-2.48)	(2.78)	(-0.80)
BANKRELATION	0.0064	0.0270**	0.0197*	0.0052	-0.0004	0.0212***	0.0138**	0.0282***
	(0.54)	(2.39)	(1.87)	(0.46)	(-0.04)	(3.13)	(2.30)	(3.42)
number of observations	522	517	518	523	524	554	520	522
pseudo R-squared	0.0491	0.0661	0.0897	0.0718	0.0611	0.148	0.1707	0.2281

See the notes in Table 8. The variable DMNDSHOCK in Panel C predicts zero perfectly in PUBFINMEASURE equation
so that we cannot obtain the coefficient estimate of DMNDSHOCK in this equation.