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New ISAE Questions on Trade credit

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1. Overview

Starting from the second quarter of this year, ISAE has included two new questions in its manufacturing survey questionnaire; the questions concern the cyclical behavior of trade credit. More specifically, we ask about the length of the credit accorded to the clients and of that obtained from the suppliers of the firm. In this presentation, we will first discuss the economic rationale of including a question on trade credit in the ISAE questionnaire, providing also some first consideration on the relationship between trade credit and the business cycle, both in general and in case of a tightening of monetary policy conditions. We will then present in detail the new ISAE questions and the first results obtained, with both an industry and size disaggregation. Some proposal for further research concludes the presentation.

2. Some consideration on the economics of trade credit

Wikipedia, the free encyclopedia on the web, offers the following definition of trade credit:

“**Trade credit** exists when one provides [goods](#) or [services](#) to a [customer](#) with an agreement to bill them later, or receive a shipment or service from a supplier under an agreement to pay them later”.

Trade credit is supplied in net terms in case the payment is the same as for the “cash” payment; if the cash payment is given a discount, then the trade credit is supplied on a two-part terms basis. Trade credit has indeed a relevant role as a method of financing the current activity of the firms; according to some estimates, at the end of the nineties in Italy it amounted to some 500 billions euro, some 10% more than the traditional short term bank credit (Cannari, Chiri e Omiccioli, 2005). A number of different explanations have been advanced in the literature to explain why firms actually use trade credit; similarly, there exists a lively debate on the consequence of the widespread use of trade credit, especially concerning its effects on the monetary policy transmission mechanism, and ultimately on the business cycle.

*Why firms use trade credit?*¹

The literature on trade credit may be divided along two main axes: according to a first line of research, firms use trade credit mainly for “real” motives, as a way of reinforcing the

¹ This section borrows heavily from Omiccioli (2005).

relationship with the clients and to support sales. On the other hand, a part of the literature considers mainly financial and transactional motivation to explain the use of trade credit.

- Real explanations of trade credit

In this sense, trade credit is seen as a way for the firm to strengthen the relationship with its clients, in case there is asymmetric information between the seller and the buyer. Generally speaking, if trade credit is motivated by real factors, it can be expected to vary over time, possibly showing a counter-cyclical behavior, the firms using more trade credit to stimulate weak demand. More precisely, it can be considered as:

- A method to warrant the product quality: in fact, with trade credit the payment is due only after the shipment, once the client has been able to evaluate the characteristic of the product. Usually, if the product does not match the user's requests, it can be returned minimizing the costs with respect to a normal return with a request of reimbursement (Lee and Stowe, 1993; Long, Malitz, Ravid, 1993). In this case, supply of trade credit will be negatively correlated with the firm reputation and positively correlated with the quality of the product and the difficulty in its evaluation; therefore it will be particularly used by new or small firms, when the quality of the product is particularly important or difficult to estimate, and when the relationship with the client is unstable.
- As a method of price discrimination: firms with a high capital cost will face higher commercial risks, and will ask for trade credit as a substitute of other form of short-term credit.
- As a method of insurance with respect to high demand variability: in this case firms will supply trade credit in case of weak demand, in order to stimulate inventory accumulation. As a result, trade credit behavior will be counter-cyclical, and the use of trade credit will be higher in sectors where demand is more volatile and in which there are high stocking costs (Emery, 1997).

- Financial explanations of trade credit

- Transaction motives: According to this explanation, firms demand trade credit in order to optimize cash flows and obtain a better synchronization between turnover and payments (Schwartz, 1974). Alternatively, trade credit can be seen as a way to reduce money demand for transactions and precautionary motives (Ferris, 1981). In both cases, trade credit will be

positively correlated with firm specific characteristic (e.g. cash flow variability, uncertainty) and therefore is expected to show wide intra-industry variability and, on the other hand, inter-temporal stability.

- Financial motives: with financial markets imperfections, the financial structure is not neutral for the firm as postulated in the Modigliani-Miller theorem. Therefore, fiscal distortions, asymmetric information problems and agency costs may imply a preference toward trade credit with respect to other form of short term financing. In these cases, trade credit may vary not only across industries, but also over time, according to financial market conditions and tax policies.
 - Fiscal effect: it can be demonstrated that if – ceteris paribus - clients have a lower fiscal rate they would show a preference towards trade credit; on the other hand, supply of trade credit will be positively correlated with the fiscal rate of the supplier (Brick and Fung, 1984).
 - Asymmetric information and agency costs: according to Schwartz (1974), trade credit is supplied if the interest rate paid by the supplier is lower than that of the client, in the case the latter is – for some reason – credit rationed. Similarly, trade credit may be seen as a “last resort” for firms that have not been able to obtain short term credit on the financial markets (Jaffe and Stiglitz, 1990). Both models imply that trade credit supplier is able to better evaluate (with respect to financial institutions) the client accountability and has also stronger enforcement powers towards him.

Trade credit and the business cycle

As stated above, according to the transactions explanation of trade credit, it is expected to vary across industries, but to be stable over time; on the other hand, according to the “real” and the financial explanations, trade credit will vary also over time. In this respect, Cannari, Chiri and Omiccioli (2005) find that trade credit shows a negative correlation with the business cycle, firms expanding it as a “real” strategy to support sales. Moreover, according to the financial explanation, trade credit may also influence the transmission mechanism of a monetary policy impulse: a tightening of monetary policy reduces financial resources available to firms, inducing them to cut back investment, especially the most liquid ones, i.e. inventory holdings. However, the impact of monetary policy may be less

strong if trade credit is available: in case of a monetary restriction, instead of cutting down inventory, financially constrained firms may raise their demand of trade credit (i. e. asking for further and longer payment delay), or they may supply less credit to their clients. In this sense, trade credit may be seen a substitute to bank credit, especially for small firms or in general for firms having difficulties in resorting to more traditional forms of short term debt (Meltzer, 1960).

The new ISAE questions on trade credit

Questions specification

The ISAE questions aim at testing the role of trade credit availability across the business cycle, investigating on the duration of both credit allowed to the clients and that obtained by the suppliers. More specifically, the following two questions are asked in the ISAE questionnaire:

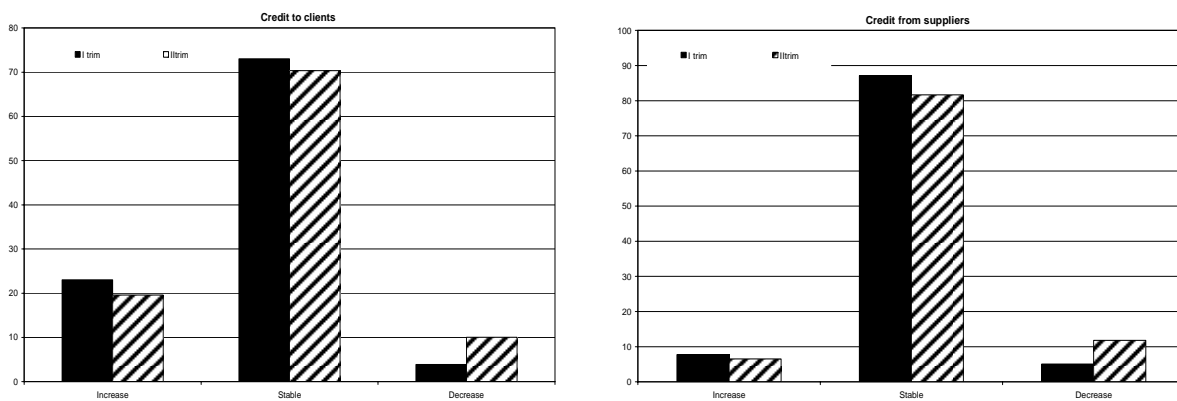
1. In the last quarter, days of trade credit allowed to the clients have:
 - a. Increased
 - b. Stayed the same
 - c. Decreased
2. In the last quarter, days of trade credit obtained from the suppliers have:
 - a. Increased
 - b. Stayed the same
 - c. Decreased

The questions are administrated in April, July, October and January, with reference, respectively, to the first, second, third and fourth quarter of the year.

First results

Data are available for the first and second quarter of 2006, and therefore it is still too early to provide an in-depth analysis of both the determinants of trade credit and its cyclical pattern; obviously, also an analysis of its impact on the monetary transmission mechanism can not be performed with available data. However, we can provide some first stylized facts on the reaction of trade credit to different business condition, and on its inter-industry and size variability.

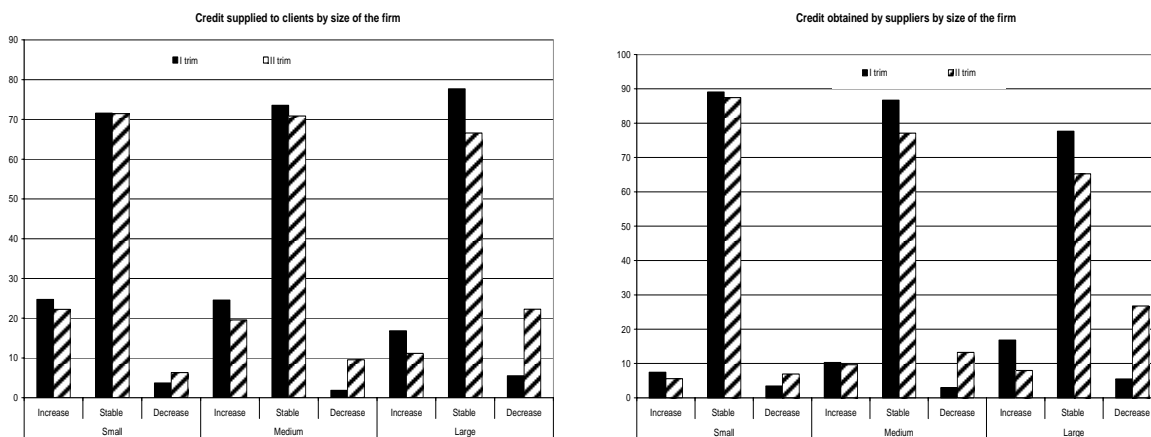
Figure 1: Credit supplied to clients and obtained from suppliers



In the period considered, the confidence of ISAE firms increased steadily, the seasonally adjusted indicator passing from an average of 90,6 in the fourth quarter, 2005 to 93,4 and 97,2 in the first and second quarter of 2006, respectively. According to the real theory of trade credit, during an expansion we can expect a reduction of both the number of days allowed to the clients and those obtained from the supplier. Graph 1 presents the percentage of firms having answered days of trade credit have increased, been stable or decreased with respect to the previous quarter. Between the first and the second quarter, during a cyclical expansion of business confidence, firms have slightly decreased both the credit supplied to their clients and that obtained from suppliers, providing some very preliminary evidence about a - albeit modest - counter-cyclical behavior of trade credit. Overall, the percentage of firms declaring to have a “stable” number of days of trade credit is higher for the credit obtained from the supplier than for that offered to the clients; in other words, firms seem to be willing to vary their credit terms to their clients depending on the cyclical condition of the economy, but on the other hand they are less able to vary credit terms obtained from their suppliers.

Some more information may be obtained disaggregating the data with respect to industry and size of the firms. Looking at data disaggregated by size (fig. 2), the reduction in credit days to clients between the first and the second quarter of the year is particularly strong for large firms, showing on the other hand a quite low inter-temporal variability for small firms. A possible interpretation of the result – consistent with “real” trade credit theories – is that firms with weak or no reputation (in this case, small firms) are willing to use trade credit to warrant the quality of their product regardless of the cyclical conditions.

Figure 2: Credit supplied to clients and obtained from suppliers by size of the firm

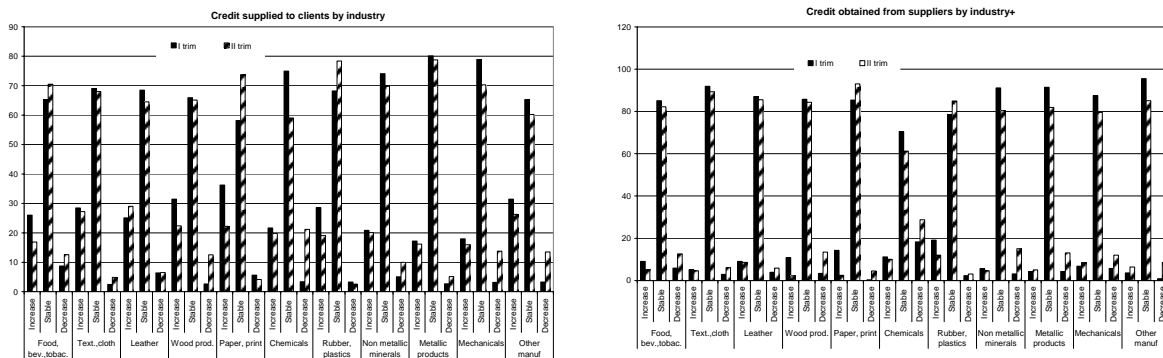


On the other hand, medium and large firms seem to be more willing to adapt their offer of trade credit to the business cycle, specifically in order to stimulate sales when demand is weak, and reducing the number of credit days if production and demand increases, as it was the case in the first two quarter of 2006. Similarly, credit obtained by suppliers is highly stable for small firms, which according to both real and financial theories of trade credit are expected to have a more difficult access to more “traditional” financial channels, and as such are supposed to show a lower inter-temporal variability in their demand for trade credit. On the other hand, for medium and large firms the demand for trade credit demand is expected to be negatively correlated with cyclical conditions.

Looking at the data disaggregated by industry, between the first and second quarter of this year credit days offered to the clients are getting lower for those producing wood, chemicals, mechanicals and other manufacturing goods, while they are stable for food, textile, metallic and non metallic, paper and rubber & plastic goods producers; an increase in the number of credit days offered is signaled by leather goods producers. As stated above, according to “real” theories, trade credit is expected to be used especially by firms for which product quality is particularly important, or for which it is particularly difficult to establish a solid reputation. In this case, a possible interpretation is that the sectors for which inter-temporal variability is particularly low are also those characterized by the presence of small firms. On the other hand, larger firms operating in chemicals and mechanicals sectors may be thought to vary credit conditions depending on the cyclical situation of the economy. As for credit days obtained by suppliers, they are diminishing for wood, chemicals, non metallic, metallic, mechanical and other manufacturing goods producers, while they are roughly stable in the remaining sectors (food, textile, leather,

paper & print, rubber & plastics). Along the same line of thought, a possible interpretation is that the former sectors are those demanding shorter credit terms when business conditions are getting better, while the latter sectors show a lower inter-temporal variability in the observed period.

Figure 3: Credit supplied to clients and obtained from suppliers by industry



3. Possible future research

Results provided are derived from a very limited data-base, and therefore they represent only a highly preliminary analysis of the determinants of trade credit and of its economic consequences. However, in the future it is possible to exploit the potential informational content of the ISAE survey, considering other firm-specific data beside those on trade credit. More specifically, the ISAE survey provides structural data on the size, industry and region of residence of the firms, along with cyclical figures on the current and future state of demand, production, liquidity and inventories of the firms. In this respect, figs. 4-7 provide some very preliminary evidence on the relationship between trade credit supplied and obtained by the firm and the other cyclical variables comprised in the ISAE survey, considering the data disaggregated by industry. Results available for the first and second quarter of this year are rather encouraging for further research: trade credit (both supplied and obtained by the firm) appear to be negatively correlated with firm assessments on the current situation of demand and with liquidity available to operational purposes; in other words, firms seem to be willing to offer, and able to obtain, more credit in the sectors and when assessment on demand and liquidity levels are low, in order to be able to support sales and acquisitions. On the other hand, the evidence on the credit-inventories link is mixed: little or no pattern do emerge looking at the credit supplied, while firms seem to be able to obtain more credit when inventories are below normal levels.

Figure 4: Credit supplied, obtained by the firm and demand assessment by industry

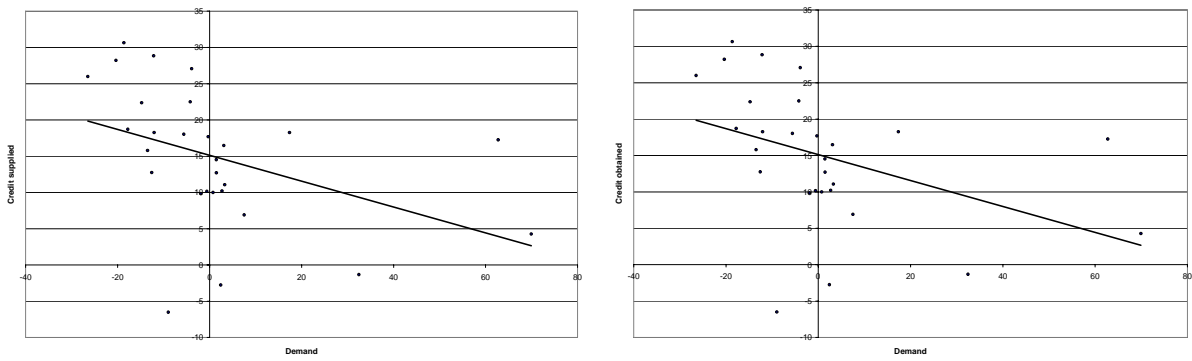


Figure 5: Credit supplied, obtained by the firm and production expectations by industry

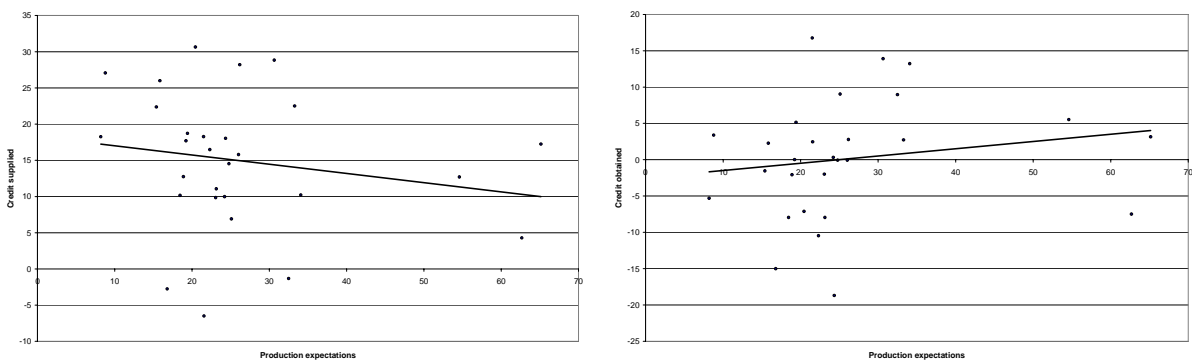


Figure 6: Credit supplied, obtained by the firm and inventories by industry

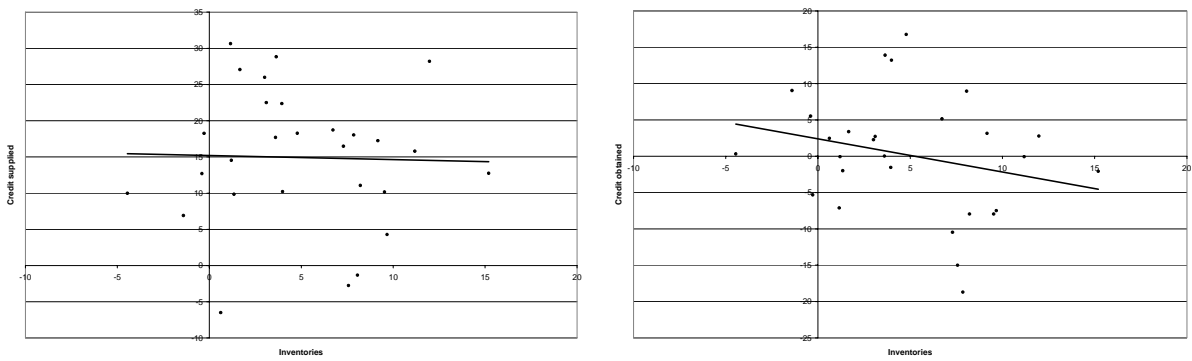
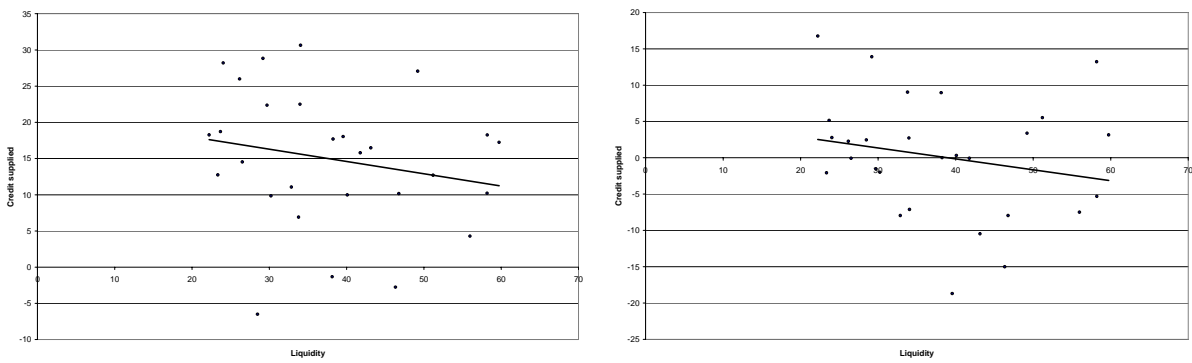


Figure 7: Credit supplied, obtained by the firm and firm' liquidity by industry



As for the credit-production relationship, firms seem to offer more credit when production expectations are weak, while the credit obtained is growing with production expectations. Further research is however needed in the future, both considering aggregate and firm specific data to try to build up models of firms' decision with respect to trade credit supplied to the clients and obtained from the suppliers, along the lines suggested by the available literature.

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