Reverse trade credit or default risk?

Explaining the use of prepayments by firms*

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March 2012

Abstract

This paper provides the first detailed empirical study on the use of prepayments by firms. Using large panels of firms, we find evidence supporting the production continuation theory of prepayment according to which customers prepay their suppliers when these would otherwise delay production and input supply. We also find that cash advance payments occur in both domestic and international transactions as a response to corporate default risk. Our results show that both firm characteristics (profitability, liquidity, bank loans, and size) and industry characteristics (the type of traded goods and industry concentration) influence the volume of prepayments.

Keywords: prepayment, trade credit, inventories

JEL classification: G31, G32

* I would like to thank Giuliana Battisti, Spiros Bougheas, Mariassunta Giannetti, and Paul Mizen. I am grateful to Piercarlo Zanchettin for constant advice and encouragement.

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Introduction

A vast literature provides both theoretical explanations and empirical evidence on the reasons why firms use trade credit (delayed payment for the transfer of goods to the downstream firm). However, the reasons why firms advance liquid cash to their suppliers have been the object of little scrutiny. On the theoretical side, Daripa and Nilsen (2011) develop a model in which downstream firms may optimally decide to advance liquid cash to their upstream suppliers when the latter would otherwise delay production. In a different context, Eck et al. (2011) argue that advance payments serve as a signal of importer quality that helps reduce the high uncertainty inherent in international transactions.[1] Similarly, Schmidt-Eisenlohr (2010) and Ahn (2011) investigate the role of advance payments in the optimal payment system for international trade. On the empirical side, a handful of works have linked the use of prepayments to customer default risk. Raiser et al. (2008) use the level of prepayment as a measure of business trust in transition economies, arguing that supplier firms demand advance payment from their (perceived) high default risk customers. Antras and Foley (2011) provide evidence that importers located in a country with weak contractual enforcement are more likely to be required cash advance payments.

The scarcity of studies regarding prepayment is surprising, especially since according to an IMF (2009) study, cash in advance accounts for 19-22% of international transactions.[2] The empirical importance of prepayment is highlighted by Ahn et al. (2011), who show that the lack of trade finance (trade credit and advance payment) played an important role in the 2008 global trade collapse. The scarcity of empirical works can partly be explained by the limited information regarding advance payments available in the main datasets employed in the literature on inter-firm finance, such as the Compustat (covering large quoted US firms), the NSSBF (small US firms), and FAME (both small and large UK firms). The few existing empirical works mainly focus on the use of advance payments for international transactions and analyse either macroeconomic data (Schmidt-Eisenlohr, 2011) or cross-sectional survey data (Eck et al., 2011, and Raiser et al., 2008).[3]

This paper conducts the first thorough empirical investigation of the determinants of prepayments both in a domestic and an international transactions context. Our large panel dataset of French firms - over 300,000 observations over the period 1999-2007 drawn from

[1] Throughout the paper we use prepayment and advance (cash) payment interchangeably.
[2] According to the same study, trade credit accounts for 42-48% of international transactions and the rest are bank intermediated transactions.
[3] Schmidt-Eisenlohr (2011) analyses bilateral trade flows for the years 1980-2004 for 150 countries. Eck et al. (2011) use the 2004 Business Environment and Enterprise Performance Surveys (BEEPS) for about 1,000 German firms, while Raiser et al. (2002) use the 2002 BEEPS survey for 6,000 firms in 26 transition economies.

the Diane database provided by Bureau van Dijk - offers detailed balance sheet information which includes customer prepayments (advance payments received from downstream firms) on the liabilities side and prepayments to suppliers (advance payments to upstream firms) on the assets side. The paper tests jointly the production continuation hypothesis in Daripa and Nilsen (2011) and the hypothesis that prepayment arises as a solution to firm default risk.

As prepayments can be seen as reverse trade credit, our paper contributes to the empirical literature on inter-firm credit by investigating whether important determinants of trade credit play a significant role in explaining prepayments as well. Specifically, we test whether prepayments to suppliers are correlated with firms' stocks of inventories as predicted by Daripa and Nilsen (2011). The empirical link between sales on credit and inventories has been documented by Bougheas et al. (2009). Our rich and detailed dataset allows us also to test whether prepayments, just like trade credit, are correlated with the degree of differentiation of the traded goods, in line with the study on trade credit by Giannetti et al. (2011). Finally, to test whether cash advance payments could arise as a response to firm default risk, we control for firm age and riskiness, and investigate whether exporting firms are more likely to receive advance payments from their customers.

We start our analysis from the point of view of the upstream firm and look at the relationship between prepayments received and suppliers' stocks of inventories, the types of goods produced and other firm level characteristics such as profitability, liquidity, risk, and size. We then take the viewpoint of a downstream firm and explain prepayments to suppliers with the types of inputs used by the firm. Specifically, in an approach similar to Giannetti et al. (2011) and Mateut et al. (2011), we control for the proportion of differentiated, standardized, and service inputs used by downstream firms.

A number of key results emerge from our analysis. First, the use of prepayments is associated with higher stocks of inventories both for upstream and for downstream firms. Downstream firms keen to meet their uncertain final demand prepay their upstream suppliers inducing them to produce. At the same time, they also start their own production process and increase their own stocks of inventories in an attempt to avoid being caught out of stocks when demand materializes.[4]

Second, customer prepayments are more frequent and larger (as a share of total sales) in differentiated manufacturing and in construction than in the standardized manufacturing

[4] This is in line with the stock-out avoidance motive for holding inventories. Sales uncertainty and increased stock-out risk may lead to an increase in the level of inventories. See for instance, Lee and Koray (1994), Bo (2001), and Caglayan et al. (2011).

sector. These findings support the prediction of Daripa and Nilsen (2011) that customers will subsidize production and inventory storage costs of their suppliers of specialized inputs.

Third, our results suggest that prepayments arise also as a solution to firm default risk. We find that riskier suppliers are offered fewer advance payments than suppliers with lower default risk. This means that customers are willing to prepay only if they trust their suppliers. At the same time, suppliers will demand larger advance payments from their newer customers. Finally, in line with Eck et al. (2011), we find that exporting firms are more likely to receive cash advance payments than firms that trade only in the domestic market.

To summarize, the stronger the incentives of the downstream firms to ensure continued production, the larger the volume of prepayments to their upstream suppliers of specialised inputs. Furthermore, the use of prepayments is affected by the perceived default risk of the trading partner. These results are robust to the choice of estimator and provide support both to the production continuation theory in Daripa and Nilsen (2011) and to the default risk hypothesis proposed by Eck et al. (2011) and tested empirically by a small number of papers (Raiser et al., 2008, Antras and Foley, 2011, Eck et al., 2011).

The rest of the paper is structured as follows. Section 2 presents the theoretical background and the hypotheses we are testing. Section 3 describes the data and summary statistics. Section 4 presents the model and the methodology used. In Section 5, we present our empirical findings and in the final section we conclude.

2. Theoretical background and hypotheses

This paper analyses cash advance payments by bridging two strands of the literature. First, it investigates whether the main determinants of trade credit can also explain advance payments to suppliers. Second, it tests whether prepayments are linked with the default probability of the trading partners, as advocated by the international trade literature. The rest of this section develops the theoretical hypotheses we will test in the empirical analysis.

2.1 Prepayment as reverse trade credit

Daripa and Nilsen (2011) develop a model in which downstream firms may optimally decide to prepay their upstream suppliers when the latter would otherwise delay production. In their model, an upstream firm produces an intermediate good, which a downstream firm uses as input, and converts into a final consumption good. Each firm requires exactly one period of time to produce one unit. There are an infinite number of periods. The downstream firm has the capacity to hold one unit of final good in inventory. The demand for the final

consumption good is stochastic. A successful sale occurs if the downstream firm holds the final good in inventory when a unit-demand customer arrives. If the downstream firm does not stock the final good, the customer may return the following period but will not return after two periods.

Both firms can choose between immediate production and delayed production for one or more periods. A negative externality arises whenever one of the two firms finds it optimal to delay production.[5] Specifically, if the downstream firm finds it profitable to follow a waiting strategy, it might lose some sales, generating a negative externality for the upstream firm. In this case, by selling on trade credit (delayed payment), the upstream firm subsidizes the downstream firm's inventory holding and induces it to internalize the externality. Reverse trade credit, i.e. prepayment (advance payment), arises whenever the upstream firm finds it optimal to wait, generating a negative externality for the downstream firm. In this case, the downstream firm's prepayment gives the upstream firm an incentive to start production and delivery of inputs.

Therefore, prepayment arises whenever downstream firms find it optimal to offer their upstream suppliers an incentive to continue production. For instance, high profit margins strengthen the downstream firms' incentive to prepay their suppliers. Similarly, better credit terms in the downstream than in the upstream market facilitate prepayment.[6]

Following the production continuation idea in Daripa and Nilsen (2011), we establish a link between advance payments to suppliers and the trading firms' stocks of inventories. On receipt of advance payment, upstream firms start their production processes and therefore increase their inventories. Moreover, we also expect a positive correlation between advance payments to suppliers and downstream firms' inventories, as downstream firms prepay their suppliers just to ensure continuation of own production and availability of final good when demand materializes. This leads us to our first hypothesis.

Hypothesis 1 (Prepayments and inventory stocks):

a) Customer prepayments are positively correlated with the upstream firms' inventories.

b) Prepayments to suppliers and downstream firms' inventories are positively correlated.

[5] When both firms follow an immediate production strategy a sale occurs at the arrival of a final customer. In contrast, when both firms follow a "wait-and-see" strategy, production never gets started as it takes two periods to produce the final good and a non-satisfied customer does not return after two periods.

[6] Using financial rationing arguments, many theoretical models suggest a positive relationship between sales on credit (trade credit extended) and bank loans (e.g. Burkart and Ellingsen, 2004, Bougheas et al., 2009). Starting with Petersen and Rajan (1997), the empirical literature has shown that the availability of finance is an important consideration in determining whether suppliers extend trade credit. Similarly, trade credit received has been shown to be negatively correlated with the availability of bank loans. In Daripa and Nilsen (2011), there is no credit rationing but upstream and downstream firms face different credit terms from outside lenders.

In the context of trade credit, Giannetti et al. (2011) and Fabbri and Menichini (2010) build on the diversion theory in Burkart and Ellingsen (2004) and link the use of trade credit with the characteristics of the transacted good or service. As a product becomes more specialized in nature, it has fewer alternative uses and fewer suppliers, and this strengthens the relationship between customer and supplier. Therefore, producers of differentiated goods are more likely to sell on credit than producers of standardized goods. However, if upstream producers consider delaying production as in Daripa and Nilsen (2011), companies requiring specialized inputs prepay their suppliers of differentiated goods or services with a long cycle of production to give them an incentive to continue production. As a consequence, prepayments should also be correlated with the characteristics of the traded goods. This leads to the following hypothesis.

Hypothesis 2 (Prepayments and inputs characteristics):

a) Upstream firms producing specialized inputs receive higher customer prepayments than producers of standardized goods.

b) Downstream firms' prepayments to their suppliers increase with the proportion of specific inputs used in their production.

2.2 Prepayment and default risk

Eck et al. (2011) consider advance payments as a signal of importer quality in international trade. In their theoretical model, financially constrained exporters face both asymmetric information on the quality type of importers and uncertainty in the foreign market demand for imported goods. [7] Only high quality importers can successfully market the exporter's goods in the foreign market when demand is positive. Before demand uncertainty is resolved, both importer types can choose between diverting and reselling the imported goods. Clearly, low quality importers always divert and hence, never pay their exporters. Therefore, exporters receive payment only if market demand is positive, importers are of high quality, and they do not divert the imported goods. In this framework, the fraction of the imported goods paid in advance can signal to exporters (and their financing banks) the quality of their importers. As a consequence, the model predicts that firms are more likely to export and to increase export volumes if they receive advance payments.

[7] The model considers two cases, one for a financially constrained exporter and one for a financially constrained importer. In the first case, advance payments signal exporters the quality of their importers. Similarly, in the second case, by providing trade credit, exporters reveal their type when importers are financially constrained.

A few theoretical papers investigate the optimal payment system for international trade. Schmidt-Eisenlohr (2010) finds that the optimal choice between different types of trade finance, namely exporter finance (trade credit), importer finance (advance payment), and bank finance (letter of credit), depends on the financial market characteristics and contractual environments of both foreign and domestic markets. In a general equilibrium framework, Ahn (2011) investigates which side of the transaction should provide financing and provides an explanation for how a lack of trade finance could have contributed to the drop in global trade in the recent financial crisis.

A small empirical literature suggests that prepayment is used, mainly in developing countries, as a response to default risk. Raiser et al. (2008) use a large survey of firms across 26 transition economies in Eastern Europe and the former Soviet Union and measure the extent of trust in business relationships with the level of prepayment. In their paper, a higher level of prepayment demanded by firms indicates a lower level of trust in their customers. At the same time, Antras and Foley (2011) find that cash advance payments are more likely to be required when importers are located in a country with weak contractual enforcement or in a country that is further from the exporter's country.[8]

On the supply side (downstream market), both in developing economies and in the context of international trade, customers should only be willing to make prepayments if they trust their suppliers will not default. From this discussion, we derive our third hypothesis about the effect of firm default risk on the use of advance cash payments.

Hypothesis 3 (Prepayments and default risk):

a1) Suppliers with lower default risk receive larger customer prepayments.

a2) Due to the higher uncertainty regarding international transactions, exporting firms are more likely to receive advance payments than firms selling only on the domestic market.

b) Prepayments to suppliers increase with the extent of customer default risk.[9]

The following section describes the data we use to test our empirical hypotheses.

3. Data and summary statistics

The main data source used in this study is gathered by Bureau Van Dijk Electronic Publishing in the DIANE database, which provides a nationally representative sample of

[8] Antras and Foley (2011) show that a US based exporter of frozen and refrigerated food products was more likely to demand cash in advance terms when trading with new customers.

[9] Our data do not allow us to distinguish whether firms import or purchase input goods on the domestic market. Therefore, we cannot formulate and test a hypothesis for firm default risk in the context of international trade when we analyse the downstream market.

financial information about French companies. The vast majority of the firms in our sample are not quoted on the stock exchange. The firm level data from Diane is complemented with industry level information extracted from the input-output tables available from INSEAD. According to Daripa and Nilsen (2011), their theory suits best manufacturing and service industries requiring a long production process, such as construction.[10] Therefore, our sample includes firms operating in manufacturing and construction industries.

The database provides detailed industry specific information that allows us to identify the characteristics of the traded products. In line with Giannetti et al. (2011) and Mateut et al. (2011) we separate manufacturing firms into differentiated and standardized. The matching of industry codes to the two sectors can be found in the appendix. Firms with less than three consecutive yearly observations and the one percent tails for each of the regression variables are dropped to control for the potential influence of outliers. The final sample includes about 300,000 observations for manufacturing and construction firms observed over the period 1999-2007. The largest sector in our dataset is construction, which comprises roughly 46% of our total observations, and the manufacturing sector is made up of differentiated (34%) and standardized (20%) firms, as recorded in Table 1. Panel B of the table presents the structure of the whole panel and separately by sectors.

<Table 1 about here>

Table 2 shows that, on average, about 28% of the firms in our sample receive prepayments from their customers. The percentage is higher for construction firms (33%) and for firms producing differentiated manufacturing goods (28%) than for firms producing standardized manufacturing goods (17%). This provides some first evidence for our hypothesis that prepayments are correlated with the characteristics of the traded goods. Producers of differentiated goods and of services with a long production cycle are likely to receive larger prepayments from their customers whose production processes depend on these specialized inputs. Prepayments received as a fraction of total sales are higher in the differentiated goods and in the construction sectors than in the standardized goods sector. Customer prepayments represent, however, a small proportion of the average upstream firms' total sales (less than 1%).

<Table 2 about here>

The bottom half of the table gives details from the downstream firm's viewpoint. A large proportion of the firms in our sample (72%) do not make prepayments to their suppliers.

[10] See Daripa and Nilsen (2011) p.248-249

By contrast to customer prepayments, prepayments to suppliers do not differ much across manufacturing sectors and are lowest in the case of construction firms. This is not unusual as prepayments to suppliers depend on the characteristics of the inputs used, i.e. the proportion of differentiated versus standardized and service inputs.

Note that the recorded customer prepayments figures are the result of the equilibrium between the customers' offer to prepay and the sellers' demand for (partial) payment before delivery. Prepayments to suppliers are similarly a combination of supply and demand factors. While demand and supply may vary across individual firms, the size of our sample means that we have a large enough number of observations within each sector for idiosyncratic effects to have little impact on the sector averages. Any systematic differences between sectors will later be picked up by industry dummies.

Summary statistics for the main control variables are presented in Table 3 Panel A for the whole sample and also separately for each industrial sector. Panels 3B and 3C report correlation coefficients separately for the upstream and the downstream market. Standardized goods manufacturers are larger on the basis of real assets and older compared to differentiated goods manufacturers and construction firms. Standard deviations within the sub-samples are large suggesting that there is a mixture of smaller and larger firms of different ages in each sector. Standardized goods manufacturers have a higher ratio of bank loans to turnover. Stocks and stocks excluding raw materials show that the construction sector has lower inventories than other sectors, while manufacturers of all types of products have very similar levels of stocks.

<Table 3 about here>

Other characteristics of the firms reported are profitability, liquidity, and a measure of risk. Profitability is measured as profit over firm turnover and liquidity as cash and bank deposits over turnover. The risk measure takes ten values, with higher values indicating a higher likelihood of corporate failure in the next 12 months. The factors that contribute to the risk score include operating cash flow excluding extraordinary items, interest, dividends and royalties divided by total debt, long term capital over total assets, current assets and cash over total assets, interest expenses over turnover, and personnel expenses over value added. The details of the aggregation procedure are reported in the appendix. The aggregated risk score is then translated into a probability of default measure on a ten point scale representing deciles of the risk distribution. Manufacturers of standardized goods have lower profitability and liquidity than other sectors. The probability of default implied by the average risk measures is

slightly higher for producers of standardized goods. Not surprisingly, participation in international transactions is significantly lower for construction firms than for manufacturers.

4. Empirical model and methodology

Our empirical investigation starts with the analysis of customer prepayments received by upstream firms. To test the hypotheses described above, we follow the empirical model in Mateut et al. (2011) but we focus on prepayments rather than on trade credit. Our first model is as follows:

$$CustomersPrepay_{it} = \alpha_i + \beta_1 Stocks_{it} + \beta_2 BankLoans_{it} + \beta_3 Liquidity_{it} + \beta_4 Profits_{it} + \beta_5 Risk_{it} + \\ + \beta_6 Size_{it} + \beta_7 Differentiated_i + \beta_8 Construction_i + d_t + u_{it} \quad (1)$$

where $CustomersPrepay_{it}$ is prepayments received from downstream customers, recorded as a short-term liability item in the supplier's balance sheet; α_i is a firm-specific component, β's are coefficient values, and u_{it} is the idiosyncratic error component. We explain customer prepayments with the total stock of inventories ($Stocks_{it}$); the amount of bank loans ($BankLoans_{it}$); $Liquidity_{it}$ represents firm's gross liquid assets (cash and bank deposits), and $Profits_{it}$ gives the firm's profit (or loss) for the period. $Risk_{it}$ is a measure of the likelihood of company failure in the near future. With the exception of $Risk_{it}$, all variables are scaled by total sales. Finally, we include the logarithm of firms' book value of assets to control for size effects ($Size_{it}$). Briefly, stocks measure the incentives firms face to increase production when receiving prepayments from their customers; bank loans control for external sources of finance that might allow firms to continue production; measures of risk, profit, and liquid assets indicate the financial condition of the firm, and size indicates the effect of scale of the firm on prepayments received from customers. We control for firm-specific (α_i), time-invariant (d_t) and sector specific effects ($Differentiated_i$ and $Construction_i$).

We then model prepayments to suppliers from the downstream firm's perspective by estimating the empirical model below:

$$PrepaySuppliers_{it} = \alpha_i + \beta_1 Stocks_{it} + \beta_2 BankLoans_{it} + \beta_3 Liquidity_{it} + \beta_4 Profits_{it} + \beta_5 Risk_{it} + \\ + \beta_6 Size_{it} + \beta_7 Pdiff_{it} + \beta_8 Pserv_{it} + d_t + u_{it} \quad (2)$$

where the variables are similarly defined as in the previous model but they are now scaled by firm's total assets instead of turnover. $PrepaySuppliers_{it}$ is prepayments to suppliers, recorded

under current assets in the customer's balance sheet. $Pdiff_{it}$ is the proportion of differentiated goods inputs used by the firm and $Pserv_{it}$ the proportion of service inputs used by the firm (defined as inputs from non-manufacturing industries over total inputs). In line with Giannetti et al. (2011), we control for the proportion of specialized inputs firms use in their production. If upstream firms have the option to delay production as in Daripa and Nilsen (2011), we expect downstream firms to make larger prepayments to their suppliers the higher the proportion of differentiated and service inputs used in their production processes.

In both equations (1) and (2), we experiment with replacing the variable *Stocks* with a measure of inventories at different stages of fabrication.[11] Our hypothesis is that receiving prepayment from their buyers will induce upstream firms to start their production and hold larger stocks of work in progress and finished goods (*ProcesInventories*), i.e. inventories close to final stages of production that will soon become the input in the downstream market. Excluding raw materials from total stocks gives us a measure of inventories that matches better the characteristics of the products traded by upstream firms. Similarly, we alternatively use the stock of basic materials purchased from other firms to be used in the firm's production operations (*BasicMaterials*) in the downstream market specification. If prepayment serves to ensure production continuity, stocking basic materials could reflect the downstream firm's incentive to stand ready to produce the final good.

As documented in Table 2, a large proportion of the firms in our sample do not use prepayments. Moreover, a number of regressors in our equations, such as inventories, bank loans and liquid assets, are potentially endogenous. These considerations motivate us to use an instrumental variables approach for Tobit models which is due to Smith and Blundell (1986). Lagged values of the endogenous regressors are used as instruments. The estimation of Tobit models with endogenous regressors involves two steps: (i) running a linear regression of each endogenous regressor on the instrumental variables and all other exogenous regressors, and (ii) estimating the Tobit model by including the residual terms from step (i) in the list of covariates. The residuals are correction terms for the endogeneity problem, and jointly significant coefficients on these terms can be taken as evidence in favour of the hypothesis that the relevant regressors are indeed endogenous.

To ensure robustness to the choice of estimator, we employ a number of alternative estimation strategies. Besides the maximum-likelihood estimator we report results using the Newey's minimum chi-squared estimator. Morever, as the instrumental variables estimators

[11] This is in line with Mateut et al. (2011), who link trade credit extension with the stage of fabrication of inventories.

do not take into account the panel structure of our data, we also report the results obtained from a random effects Tobit model. Finally, we define two new dependent variables as dummies taking value 1 if customer prepayments (equation 1) and prepayments to suppliers (equation 2) are positive, and 0 otherwise. We then estimate our models using a random effects Probit estimator. The endogenous variables are replaced with their first lags in both panel estimators to correct for endogeneity.

5. Econometric results

5.1 Upstream market

We start our analysis from the point of view of the upstream firms. Our estimates of equation (1) are reported in Table 4 for total stocks of inventories (columns 1-4) and inventories at advanced stages of fabrication (columns 5-8). Equation (1) is estimated using a number of estimators. The marginal effects from the IV Tobit estimation of equation (1) are presented in Table 4, columns 1 (for *Stocks*) and 5 (for *ProcesInventories*). We also report the parameter estimates from the two step Newey minimum chi squared estimator in columns 2 (for total stocks) and 6 (for work in progress and finished goods). The null hypothesis of the exogeneity of regressors is emphatically rejected, vindicating the use of the instrumental variables estimator. Nevertheless, we report in the rest of the columns the marginal effects from the random effects Tobit and the random effects Probit estimators. We believe that if all our estimators deliver similar results, then they can be considered reliable.

<Table 4 about here>

Customer prepayments and upstream firms' stocks of inventories display a strong positive correlation as evidenced by the significantly large marginal effects (parameter estimates in columns 2 and 6) presented in Table 4. These results are not sensitive to the choice of estimator and support our first hypothesis (*H1*): downstream firms incentivize their suppliers to hold larger stocks of inventories and continue production. On receipt of advance payments, suppliers increase their stocks and start production of inputs used in the productive activity of their downstream customers. The correlation is even stronger in columns 5 to 8 when we replace total stocks with processed inventories (*ProcesInventories*).

Our results support the hypothesis that customer prepayments are correlated with the characteristics of the traded goods (*H2*). Both the dummy for the differentiated goods sector and the dummy for the construction sector attract positive and highly significant coefficients. These findings are in line with the summary statistics presented in Table 2. Our results suggest that differentiated goods producers are likely to receive higher prepayments from

their customers than standardized goods producers. The impact is twice larger in the case of construction firms. These suppliers receive higher advance payments because they produce more specialised products and services than manufacturers of standardized goods and downstream firms are more dependent on these specific inputs.

The next two rows in Table 4 suggest that advance payments have a contrasting relationship with the use of short term bank loans and with the liquidity of the receiving firms. The negative relationship between prepayments received from customers and the use of short term bank loans is confirmed by the large and highly significant estimates produced by all estimators. The table also reports positive marginal effects (Newey parameter estimates in columns 2 and 6) for the liquidity variable (insignificant in the panel estimators though).

Less profitable suppliers but who have a low probability of future default receive larger prepayments from their downstream customers than their more profitable or risky counterparts. This is evidenced by the negative and highly significant impact exerted by the variables *Profits* and *Risk*. When customer-seller relationships are strong, buyers facing better credit terms help out their less profitable suppliers, as long as the latter are financially sound. In a similar vein, Giannetti et al. (2011) and Petersen and Rajan (1997) use survey data to find that suppliers are more likely to deny trade credit to their more profitable customers, which are also less likely to offer trade credit. Finally, larger suppliers are likely to receive more prepayments from their customers.

5.2 Downstream market

We turn now our attention to the downstream market and investigate prepayments to suppliers from the buyer's point of view. In order to link prepayments to suppliers with input characteristics, we construct the variables *Pdiff*, defined as the proportion of differentiated goods inputs used by the firm, and *Pserv*, the proportion of service inputs from non-manufacturing industries over total inputs. The information is derived from the input-output tables from INSEAD in a similar way that Giannetti et al. (2011) extracted this information from US input-output tables. Mateut et al. (2011) use the same approach in their analysis of trade credit taken by French firms. As in the case of customer prepayments in the upstream market, we report in Table 5 our results for the IV Tobit, the Newey estimator, the random effects Tobit, and the random effects Probit estimator for total stocks (columns 1-4) and for basic material inventories (columns 5-8). Our findings are very similar across estimators and definition of the stocks variable in terms of sign and significance of the coefficients on our variables.

< Table 5 about here >

We find that prepayments to suppliers and buyers' stocks of inventories are positively correlated. This is a prediction of Daripa and Nilsen (2011): aiming to meet their uncertain final demand, downstream firms with better credit terms find it optimal to prepay their input suppliers and to hold larger stocks of inventories. The result is also consistent with the storage cost theory in Bougheas et al. (2009) and provides evidence supporting our first hypothesis regarding the relationship between prepayments and inventories in the downstream market. The positive correlation between advance payments and inventory stocks is confirmed by all estimators and appears to be stronger when inventories are inputs from upstream firms (*BasicMaterials*).

Table 5 confirms that prepayments are related to input characteristics. Firms requiring a higher proportion of differentiated inputs prepay more their suppliers. Similarly, a higher proportion of service inputs relative to standardized inputs increases the volume of prepayments to suppliers. In other words, downstream firms requiring more specialized inputs are more likely to prepay their suppliers. These results confirm the prediction in Daripa and Nilsen (2011) and are in line with the findings in Giannetti et al. (2011) and Mateut et al. (2011) for trade credit taken.

Contrary to our findings for the upstream firms, prepayments to suppliers imply a lower liquidity and may mean a stronger reliance on external funding for downstream firms. These are reflected by the negative sign for *Liquidity* and the positive sign for *BankLoans* in Table 5 as opposed to the signs reported in Table 4. Being a transfer of liquid cash from downstream to upstream firms, prepayments to suppliers have opposing effects on the liquidity and bank funding ratio of the two firms.

Confirmation of the theoretical prediction in Daripa and Nilsen (2011) that high profit margins in the downstream market lead to prepayments to suppliers is found in Table 5. The variable *Profits* gauges the incentives of the downstream firms to prepay their suppliers and sustain continued production. This variable has larger marginal effects on the likelihood that the downstream firm prepays its suppliers than any other firm characteristic.

Our results also suggest that larger firms in terms of real assets are more likely to prepay their suppliers. Daripa and Nilsen (2011) use the observation that often large firms in developed economies prepay their suppliers to show that prepayment is not a response to default risk but rather arises as an optimal solution whenever the supplier considers delaying production of specific goods. We investigate this issue further in section 5.4.

5.3 Industry concentration

Customer-seller relationships may be influenced by industry characteristics such as the industry concentration in the product market. If industry concentration proxies the degree of competition in the product market, it can also provide a measure of firm profitability. Thus, most literature postulates a positive relationship between industry concentration and firm profitability. Table 6A (for *Stocks*) and Table 6B (for *ProcesInventories*) report results using all four estimators when we include a two-digit industry concentration measure and / or the share of the supplier's sales into its own two-digit industry total sales in equation (1). While our previous results remain, we find that suppliers in less concentrated industries are more likely to receive prepayments from their customers, when we use instrumental variables estimators. Similarly, firms with a higher share in total industry sales are likely to receive lower prepayments from their buyers. These results are in line with the predictions of Daripa and Nilsen (2011), in that lower rent suppliers in more concentrated industries have lower incentives to delay production and, therefore, their customers need to make lower advance payments. However, an alternative mechanism could be that customers can more easily find the input from other suppliers in a timely manner in industries with more suppliers.

< Tables 6A and 6B about here >

The direct impact of the downstream market concentration on prepayments to suppliers is captured by the inclusion of the two industry concentration measures in equation (2). These results are reported in Table 7A (for *Stocks*) and Table 7B (for *BasicMaterials*). While the share of the firm's sales into its own two-digit industry sales has no impact on the incidence of prepayments to suppliers, higher concentration in the downstream market increases prepayments to suppliers. This result is suggested by the positive and significant impact exerted by the industry concentration variable irrespective of the choice of estimator. Besides profit margin, industry concentration could proxy the probability that a final customer arrives and a successful sale occurs in Daripa and Nilsen (2011). Higher probability that a final sale occurs, gives the downstream firm an incentive to prepay its supplier to ensure continued production.

< Tables 7A and 7B about here >

5.4 Company default risk

In all specifications, we have controlled for the probability that the firm defaults in the near future by including the variable *Risk*. The results presented in Table 4 and Tables 6 suggest lower risk suppliers receive more prepayments from their customers (when we use

instrumental variables estimators). In other words, the supply of advance payments is negatively correlated with the perceived risk that suppliers will eventually deliver the inputs. At the same time, our results suggest that suppliers demand their riskier buyers to make larger advance payments as evidenced in Table 7B (instrumental variables estimators). We investigate the default risk hypothesis further and re-estimate all our models including the age of the firm among the explanatory variables. Firm age could proxy on the one hand, the strength of the relationship between supplier and buyer. On the other hand, the age of the firm provides a proxy for the likelihood of firm failure as it has been shown that younger firms have a higher mortality rate (Disney et al., 2003). As the observed prepayment figures are the result of the equilibrium between the demand by upstream firms to be paid in advance and the supply of prepayment by downstream firms, our findings suggest that both default risk and length of relationship matter. While our previous findings remain, the new sets of results, reported in Table 8 only for the main specifications for brevity, suggest that younger firms facing a low default risk receive higher prepayments from their customers. In other words, downstream firms support their younger suppliers of specialized inputs as long as the latter face a low default risk (negative sign for *Risk* in the IV estimations). In the downstream market, in line with Antras and Foley (2011), younger firms prepay more than their older counterparts as suppliers are more likely to demand advance cash payment terms from their newer customers. Interestingly, the *Risk* variable loses significance when we control for downstream firm age. Overall, the results presented in Table 8 suggest that firm default risk is also a key determinant of prepayments.

< Table 8 about here >

To link our work with the small empirical literature on the use of advance payments in the context of international trade, we investigate now whether exporting behaviour affects the likelihood that supplier firms receive prepayments from their customers.[12] Due to the inherent higher risks involving international transactions, exporter firms are more likely to receive advance cash payments than firms that sell their goods only on the domestic market (Ahn et al., 2011), and this is exactly what the results reported in Table 9 suggest.[13] Exporting firms have a higher likelihood of receiving prepayments as evidenced by the positive and highly significant marginal effects reported for total inventories (columns 1 to 3) and for processed inventories (columns 4 to 6), where we gauge firm exporting behaviour with three

[12] We conduct our analysis from the point of view of upstream firms only as we cannot tell whether firms purchase their goods internationally or on the domestic market. See also note 9.

[13] In a related study, Eck et al. (2011) analyse the 2004 cross-sectional data for around 1,000 German firms drawn from the BEEPS and find that firms receiving advance cash payments are more likely to export.

alternative variables: export turnover (*Export sales*), export participation (*Export dummy*), and the share of export sales in total firm turnover (*Export share*). In line with the international trade literature, these results provide compelling evidence that prepayments arise also as a solution to company default risk.

< Table 9 about here >

To summarise, our results suggest that advance payments to suppliers are influenced both by the downstream firms' incentives to meet their uncertain final demand but also by the riskiness of the trading relationship. The strength of the supplier-customer relationship, the use of specialized inputs (differentiated goods or services requiring a long production cycle), higher profitability in the downstream market, and company default risk are factors that induce buyers to prepay their upstream suppliers.

6. Conclusions

This paper provides, to the best of our knowledge, the first detailed empirical study on the determinants of prepayments by firms. We have used detailed information on large panels of French manufacturing and construction firms to show that prepayments and inventory stocks are positively correlated. This finding provides support for the theoretical prediction in Daripa in Nilsen (2011) that firms may find it optimal to prepay their inputs whenever their upstream suppliers would otherwise delay production and delivery of specialised inputs. Receiving advance payment from their customers gives upstream firms an incentive to continue production. At the same time, downstream firms increase their stocks of inputs and produce, in an attempt to meet their stochastic final demand. Moreover, our results show that prepayments are used also in cases of firm default risk (Raiser et al., 2008). Riskier firms receive lower prepayments from their customers and are demanded to make larger advance payments to their suppliers. In line with Eck et al. (2011), due to the higher risks involved in international transactions, exporting firms are more likely to receive advance cash payments than firms serving only the domestic market. Our other findings suggest that both firm characteristics including profitability, liquidity, access to bank funding, and size, and industry characteristics such as the type of the traded goods and competition measures exert an impact on the volume of prepayments and are in line with the results obtained by recent empirical works (Giannetti et al., 2011, and Mateut et al., 2011) on the related aspect of delayed payment for the transfer of inputs to downstream firms (trade credit extended).

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Appendix

Sector classification

The classification of the manufacturing firms into differentiated or standardized follows Giannetti et al. (2011) and is based on Rauch (1999).

UK SIC 2003	Manufacture of	Differentiated
15	Food products and beverages	0
16	Tobacco products	0
17	Textiles	0
18	Wearing apparel; dressing and dyeing of fur	0
19	Tanning and dressing of leather; luggage, handbags, saddlery harness and footwear	0
20	Wood and products of wood and cork, except furniture; articles of straw and plaiting materials	0
21	Pulp, paper and paper products; publishing and printing	0
22	Publishing, printing and reproduction of recorded media	1
23	Coke, refined petroleum products and nuclear fuel	0
24	Chemicals and chemical products	0
25	Rubber and plastic products	1
26	Other non-metallic mineral products	0
27	Basic metals	0
28	Fabricated metal products, except machinery and equipment	1
29	Machinery and equipment not elsewhere classified	1
30	Office machinery and computers	1
31	Electrical machinery and apparatus not elsewhere classified	1
32	Radio, television and communication equipment and apparatus	1
33	Medical, precision and optical instruments, watches and clocks	1
34	Motor vehicles, trailers and semi-trailers	1
35	Other transport equipment	1
36	Furniture, manufacturing not elsewhere classified	1

Firms in the two-digit SIC code 16, Tobacco products, are excluded due to the low number of observations.

Definition of variables

CustomersPrepay = prepayments received from customers scaled by firm turnover; recorded as a short term liability item in the supplier's balance sheet

PrepaySuppliers = prepayments to own suppliers scaled by firm turnover; recorded as a current asset item in the buyer's balance sheet

BankLoans = bank borrowings scaled by turnover

Stocks = total stocks of inventories scaled by turnover

There are four types of stocks in the French accounting system:

1. raw materials and consumables = the basic materials purchased from other firms to be used in the firm's production operations,

2. work in progress = low partially finished goods requiring (important) additional work before they become finished goods (more than 50% of the production process remains to do),

3. semi-finished and finished goods= high partially finished goods requiring (weak) additional work before they become goods for sale (less than 50% of the production process remains to do)

4. goods for sale= goods on which the production has been totally completed but that are not yet sold.

ProcesInventories = the sum of work in progress, semi-finished and finished goods, and goods for sale scaled by turnover

BasicMaterials = raw materials and consumables (the basic materials purchased from other firms to be used in the firm's production operations) scaled by turnover

Profits = profit/loss for the period scaled by turnover

Liquidity = liquid assets include cash and bank deposits scaled by turnover

Risk = measures the probability that the firm will be in default in the near future. It takes 10 values (1-10), with higher values indicating higher risk.

Risk = 10 if NPC < -4, i.e. a 90% probability of default in a near future,
= 9 if -4 <= NPC < 0, i.e. there is 80% probability of default in a near future,
= 8 if 0 <= NPC < 2, i.e. there is 70% probability of default in a near future,
= 7 if 2 <= NPC < 5, i.e. there is 60% probability of default in a near future,
= 6 if 5 <= NPC < 6, i.e. there is 50% probability of default in a near future,
= 5 if 6 <= NPC < 8, i.e. there is 40% probability of default in a near future,
= 4 if 8 <= NPC < 10, i.e. there is 30% probability of default in a near future,
= 3 if 10 <= NPC < 13, i.e. there is 20% probability of default in a near future,
= 2 if 13 <= NPC < 16, i.e. there is 10% probability of default in a near future,
= 1 if NPC >= 16.

Size = logarithm of real total assets

Age = number of years since the firm was established

Differentiated = 1 if the manufacturing firm produces differentiated goods, 0 otherwise. See Sector classification

Standardized = 1 if the manufacturing firm produces standardized goods, 0 otherwise. See Sector classification

Construction = 1 for firms operating in industry SIC code 45, 0 otherwise.

Pdiff = proportion of differentiated inputs in total inputs used by firms in the same industry. Values calculated using data from the input-output tables with 117 entries available from INSEAD.

Pserv = proportion of service inputs in total inputs used by firms in the same industry. Values calculated using data from the input-output tables with 117 entries available from INSEAD.

Ind. concentration = market share of the eight largest firms in the firm's two-digit industry

Ind. share = share of own sales to total two-digit industry sales

Export sales = natural logarithm of export sales

Export dummy = dichotomous variable taking value 1 if the firm exports, 0 otherwise

Export share = the share of export sales in total firm turnover.

Table 1

Panel A. Sector composition

Sector	Freq.	Percent	Cum.
Differentiated	103,285	34.28	34.28
Standardized	61,120	20.29	54.57
Construction	136,884	45.43	100.00
Total	301,289	100.00	

Panel B. Structure of the panel data

	Total		Differentiated		Standardized		Construction	
No years	Freq.	Percent	Freq.	Percent	Freq.	Percent	Freq.	Percent
4	4,236	1.41	1,264	1.22	816	1.34	2,156	1.58
5	6,480	2.15	2,077	2.01	1,532	2.51	2,871	2.1
6	9,384	3.11	2,980	2.89	2,229	3.65	4,175	3.05
7	13,389	4.44	4,362	4.22	2,988	4.89	6,039	4.41
8	30,116	10	10,406	10.08	6,415	10.5	13,295	9.71
9	237,684	78.89	82,196	79.58	47,140	77.13	108,348	79.15
Total	301,289	100	103,285	100	61,120	100	136,884	100

Table 2. Use of prepayments by sector

Variable	Total		Differentiated		Standardized		Construction	
	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev
	Upstream firms							
Dummy customer prepayments	0.2819	0.4499	0.2785	0.4483	0.1738	0.3790	0.3327	0.4712
Customer prepayments	0.0074	0.0309	0.0060	0.0252	0.0019	0.0123	0.0108	0.0390
Observations	301289		103285		61120		136884	
	Downstream firms							
Dummy prepayments to suppliers	0.2783	0.4482	0.3029	0.4595	0.2983	0.4575	0.2501	0.4331
Prepayments to suppliers	0.0011	0.0035	0.0012	0.0038	0.0012	0.0036	0.0009	0.0032
Observations	294204		102982		59165		132057	

Note: The table reports means and standard deviations. The dummy variables take value 1 if customer prepayments and prepayments to suppliers, respectively, are positive and 0 otherwise. Customer prepayments denote prepayments received from customers scaled by upstream firms' turnover. Prepayments to suppliers are scaled by downstream firms' total assets.

Table 3A. Summary statistics of main variables

	Total		Differentiated		Standardized		Construction	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
BankLoans	0.0520	0.0713	0.0569	0.0743	0.0703	0.0909	0.0402	0.0552
Stocks	0.0756	0.0757	0.0983	0.0805	0.0969	0.0864	0.0490	0.0556
ProcesInventories	0.0408	0.0545	0.0526	0.0589	0.0493	0.0594	0.0280	0.0453
Risk	2.1783	1.7503	2.1736	1.8069	2.2452	1.8688	2.1519	1.6485
Profits	0.0335	0.0406	0.0336	0.0436	0.0296	0.0424	0.0353	0.0371
Liquidity	0.0556	0.0623	0.0533	0.0618	0.0495	0.0584	0.0601	0.0640
Assets (ln)	2.5223	1.2586	2.8109	1.2296	2.9607	1.4791	2.1087	1.0245
Age	19.1609	14.1431	20.2674	14.6914	21.5293	15.7379	17.2820	12.6552
Ind. concentration	0.1680	0.1366	0.2243	0.1853	0.2188	0.0943	0.1028	0.0582
Ind. share	0.0003	0.0014	0.0004	0.0019	0.0006	0.0019	0.0002	0.0005
Export sales	0.5835	1.2509	0.9813	1.4703	1.0940	1.6291	0.0586	0.3530
Export dummy	0.3379	0.4730	0.5732	0.4946	0.5294	0.4991	0.0763	0.2655
Export share	0.0602	0.1588	0.1046	0.1950	0.1062	0.2041	0.0064	0.0548

Note: The table reports means and standard deviations. *Differentiated* denote firms in manufacturing differentiated goods sector, *Standardized* are firms in manufacturing standardized goods sector, and *Construction* denotes firms in construction. *BankLoans* represents short-term bank loans; *Stocks* stands for total stocks inventories, while *ProcesInventories* excludes raw materials from total stocks; *Risk* measures the likelihood of company failure, where a higher value indicates that the firm is more risky. *Profits* gives the firm's profit (or loss) for the period; *Liquidity* represents firm's liquid assets (cash, bank deposits, and other current assets). With the exception of *Risk* all other variables are scaled by total sales. *Assets* denote the logarithm of firms real assets. *Ind. concentration* is the market share of the eight largest firms in the firm's two-digit industry. *Ind. share* is the share of own sales in total two-digit industry sales. *Export sales* is the natural logarithm of export sales; *Export dummy* is a dichotomous variable taking value 1 if the firm exports, 0 otherwise; *Export share* gives the share of export sales in firm turnover.

Table 3B. Correlation coefficients – Upstream market

	Customers Prepay	*BankLoans*	*Stocks*	*ProcesInventories*	*Risk*	*Profits*	*Liquidity*	*Assets (ln)*	*Age*	*Ind. conce.*
BankLoans	-0.0454*	1								
Stocks	0.1932*	0.1470*	1							
ProcesInventories	0.2605*	0.0966*	0.8058*	1						
Risk	0.0129*	0.0965*	0.2102*	0.1775*	1					
Profits	-0.0038*	-0.1210*	-0.1288*	-0.1084*	-0.5533*	1				
Liquidity	0.0239*	-0.1189*	-0.1334*	-0.1022*	-0.2821*	0.3129*	1			
Assets (ln)	0.0445*	0.0292*	0.2698*	0.2456*	-0.0552*	-0.0029*	-0.0800*	1		
Age	0.0058*	-0.0432*	0.1819*	0.1641*	-0.0439*	-0.0640*	0.0126*	0.3162*	1	
Ind. conce	-0.0451*	0.0344*	0.2354*	0.1525*	0.0224*	-0.0140*	-0.0465*	0.2182*	0.0543*	1
Ind. share	-0.0056*	-0.0117*	0.0823*	0.0752*	-0.0021*	-0.0219*	-0.0566*	0.3564*	0.0861*	0.1452*

Note: The table reports correlation coefficients. *BankLoans* represents short-term bank loans; *Stocks* stands for total stocks inventories, while *ProcesInventories* excludes raw materials from total stocks; *Risk* measures the likelihood of company failure, where a higher value indicates that the firm is more risky. *Profits* gives the firm's profit (or loss) for the period; *Liquidity* represents firm's liquid assets (cash, bank deposits, and other current assets). With the exception of *Risk* all other variables are scaled by total sales. *Assets* denote the logarithm of firms' real assets. *Ind. concentration* is the market share of the eight largest firms in the firm's two-digit industry. *Ind. share* is the share of own sales in total two-digit industry sales.

* indicates significance at 5% level.

Table 3C. Correlation coefficients – Downstream market

	Prepay Suppliers	*BankLoans*	*Stocks*	*ProcesInventories*	*Risk*	*Profits*	*Liquidity*	*Assets (ln)*	*Age*	*Ind. conce.*
BankLoans	0.0113*	1								
Stocks	0.0446*	0.0563*	1							
BasicMaterials	0.0263*	0.0869*	0.5405*	1						
Risk	0.0217*	0.1539*	0.2754*	0.1616*	1					
Profits	-0.0130*	-0.1901*	-0.2002*	-0.1123*	-0.5543*	1				
Liquidity	-0.0334*	-0.2196*	-0.2192*	-0.1441*	-0.2549*	0.2842*	1			
Assets (ln)	0.0432*	-0.0754*	0.1771*	0.0360*	-0.0380*	-0.1140*	-0.1951*	1		
Age	-0.0061*	-0.0769*	0.1407*	0.0642*	-0.0454*	-0.1072*	-0.0318*	0.3026*	1	
Ind. conce	0.0349*	0.0172*	0.1960*	0.2210*	0.0124*	-0.0557*	-0.0898*	0.2404*	0.0665*	1
Ind. share	0.0236*	-0.0129*	0.0768*	0.0567*	-0.0051*	-0.0322*	-0.0661*	0.3150*	0.0777*	0.1709*

Note: The table reports correlation coefficients. *BankLoans* represents short-term bank loans; *Stocks* stands for total stocks inventories, while *BasicMaterials* are the basic materials purchased from other firms to be used in the firm's production operations; *Risk* measures the likelihood of company failure, where a higher value indicates that the firm is more risky. *Profits* gives the firm's profit (or loss) for the period; *Liquidity* represents firm's liquid assets (cash, bank deposits, and other current assets). With the exception of *Risk* all other variables are scaled by total assets in the downstream market specifications. *Assets* denote the logarithm of firms' real assets. *Ind. concentration* is the market share of the eight largest firms in the firm's two-digit industry. *Ind. share* is the share of own sales in total two-digit industry sales.

* indicates significance at 5% level.

Table 4. Upstream firms – customer prepayments

VARIABLES	(1) IV Tobit	(2) Newey	(3) Random effects Tobit	(4) Random effects Probit	(5) IV Tobit	(6) Newey	(7) Random effects Tobit	(8) Random effects Probit
Stocks	0.0639***	0.275***	0.0211***	0.505***				
	(0.0008)	(0.0027)	(0.0007)	(0.0197)				
ProcesInventories					0.0869***	0.372***	0.0242***	0.532***
					(0.0011)	(0.0035)	(0.0008)	(0.0243)
Liquidity	0.0045***	0.0195***	0.000615	-0.0180	0.0027***	0.0117***	0.0003	-0.0273*
	(0.001)	(0.0042)	(0.0006)	(0.0165)	(0.001)	(0.0042)	(0.0006)	(0.0165)
BankLoans	-0.0195***	-0.0840***	-0.0056***	-0.111***	-0.0163***	-0.0700***	-0.0048***	-0.0876***
	(0.0008)	(0.0033)	(0.000594)	(0.0156)	(0.0007)	(0.0032)	(0.0006)	(0.0154)
Risk	-0.0002***	-0.0007***	-1.92e-05	-0.000297	-8.42e-05***	-0.000361***	-2.21e-06	0.000183
	(2.81e-05)	(0.0001)	(2.45e-05)	(0.000664)	(2.78e-05)	(0.0001)	(2.45e-05)	(0.000662)
Profits	-0.00420***	-0.0181***	-0.0083***	-0.121***	-0.0029**	-0.0123**	-0.0085***	-0.128***
	(0.0012)	(0.0051)	(0.00105)	(0.0281)	(0.0012)	(0.005)	(0.0011)	(0.0280)
Size	0.0016***	0.007***	0.00301***	0.0613***	0.0015***	0.0064***	0.003***	0.0617***
	(3.44e-05)	(0.0001)	(6.16e-05)	(0.00173)	(3.36e-05)	(0.000135)	(6.17e-05)	(0.00174)
Differentiated	0.0057***	0.0237***	0.0068***	0.185***	0.0054***	0.0222***	0.0068***	0.184***
	(0.0001)	(0.0005)	(0.0003)	(0.00810)	(0.0001)	(0.0005)	(0.0002)	(0.00810)
Construction	0.0136***	0.0563***	0.0136***	0.326***	0.0120***	0.0498***	0.0131***	0.310***
	(0.0001)	(0.0005)	(0.000257)	(0.00785)	(0.0001)	(0.0005)	(0.0003)	(0.00776)
Observations	263,619	263,619	263,619	263,619	263,619	263,619	263,619	263,619
Chi(2)	35.87	50.14			49.11	81.49		
p	2.10e-09	7.46e-11			0	0		
No. uncensored	74654	74654	74654		74654	74654	74654	
No. left-censored	188965	188965	188965		188965	188965	188965	
No. of firms			37,670	37,670			37,670	37,670
Rho			0.732	0.777			0.732	0.779
Log Likelihood			76616	-103084			76553	-103196

*** p<0.01, ** p<0.05, * p<0.1

Note: All dependent and independent variables are defined in Tables 2 and 3. All specifications control for time effects. The table reports marginal effects and standard errors (robust standard errors in columns 1 and 5) in parentheses. Columns 2 and 6 report parameter estimates using the two-step Newey estimator. Chi(2) and p represent the χ^2 statistic and the corresponding probability for the exogeneity tests in columns 1, 2, 5, and 6. In the panel estimations (columns 3, 4, 7 and 8), the variables *Stocks*, *ProcesInventories*, *BankLoans*, and *Liquidity* are replaced by their first lags. The table also reports the number of uncensored and left-censored observations, the number of firms in the panel specifications, Rho, the fraction attributable to the panel element, and the Log Likelihood.

Table 5. Downstream firms – prepayments to suppliers

VARIABLES	(1) IV Tobit	(2) Newey	(3) Random effects Tobit	(4) Random effects Probit	(5) IV Tobit	(6) Newey	(7) Random effects Tobit	(8) Random effects Probit
Stocks	0.000892***	0.00369***	0.000486***	0.0920***				
	(4.76e-05)	(0.000201)	(6.05e-05)	(0.0124)				
BasicMaterials					0.00136***	0.00564***	0.000902***	0.172***
					(8.86e-05)	(0.000366)	(0.000117)	(0.0240)
Liquidity	-0.000707***	-0.00292***	-0.000183***	-0.0431***	-0.000779***	-0.00322***	-0.000209***	-0.0477***
	(8.97e-05)	(0.000368)	(6.08e-05)	(0.0120)	(8.97e-05)	(0.000367)	(6.05e-05)	(0.0119)
BankLoans	0.000298***	0.00123***	1.92e-05	0.0210	0.000262***	0.00108***	5.11e-06	0.0184
	(5.51e-05)	(0.000229)	(6.63e-05)	(0.0133)	(5.52e-05)	(0.000229)	(6.63e-05)	(0.0133)
Risk	2.44e-06	1.01e-05	-4.08e-06	-0.00307***	1.12e-05***	4.62e-05***	-2.57e-06	-0.00280***
	(3.85e-06)	(1.57e-05)	(4.20e-06)	(0.000849)	(3.80e-06)	(1.54e-05)	(4.19e-06)	(0.000845)
Profits	0.000529***	0.00219***	0.000202**	0.0239	0.000507***	0.00210***	0.000194**	0.0225
	(9.40e-05)	(0.000386)	(9.84e-05)	(0.0196)	(9.39e-05)	(0.000386)	(9.84e-05)	(0.0196)
Size	0.000260***	0.00108***	0.000264***	0.0831***	0.000272***	0.00113***	0.000271***	0.0845***
	(4.08e-06)	(1.79e-05)	(7.37e-06)	(0.00168)	(4.07e-06)	(1.79e-05)	(7.35e-06)	(0.00168)
Pdiff	0.000321***	0.00133***	0.000294***	0.0826***	0.000356***	0.00147***	0.000313***	0.0861***
	(4.25e-05)	(0.000178)	(8.24e-05)	(0.0175)	(4.26e-05)	(0.000178)	(8.24e-05)	(0.0175)
Pserv	0.000100**	0.000414**	-0.000103	0.0276	0.000111***	0.000461**	-7.91e-05	0.0322*
	(4.18e-05)	(0.000178)	(8.09e-05)	(0.0170)	(4.26e-05)	(0.000180)	(8.14e-05)	(0.0171)
Observations	252,754	252,754	252,754	252,754	252,754	252,754	252,754	252,754
Chi(2)	25.63	27.71			24.81	26.46		
p	4.13e-07	9.60e-07			6.33e-07	1.79e-06		
No. uncensored	70545	70545	70545		70545	70545	70545	
No. left-censored	182209	182209	182209		182209	182209	182209	
No. of firms			36,404	36,404			36,404	36,404
Rho			0.518	0.643			0.519	0.643
Log Likelihood			185294	-114459			185291	-114461

*** p<0.01, ** p<0.05, * p<0.1

Note: See Tables 2 and 3 for variables definition. Variables are scaled by total assets in the downstream market specification. *BasicMaterials* are the basic materials purchased from other firms to be used in the firm's production operations. All specifications control for time effects. The table reports marginal effects and standard errors (robust standard errors in columns 1 and 5) in parentheses. Columns 2 and 6 report parameter estimates using the two-step Newey estimator. Chi(2) and p represent the χ^2 statistic and the corresponding probability for the exogeneity tests in columns 1, 2, 5, and 6. In the panel estimations, columns 3, 4, 7, and 8, the variables *Stocks*, *RawMaterials* and *Liquidity* are replaced by their first lags. The table also reports the number of uncensored and left-censored observations, the number of firms in the panel specifications, Rho, the fraction attributable to the panel element, and the Log Likelihood.

Table 6A. Industry concentration - Upstream firms

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	IV Tobit			Newey			Random effects Tobit			Random effects Probit		
Stocks	0.0642***	0.0639***	0.0642***	0.277***	0.275***	0.277***	0.0210***	0.0211***	0.0210***	0.501***	0.505***	0.501***
	(0.000804)	(0.000798)	(0.000805)	(0.00269)	(0.00268)	(0.00269)	(0.000648)	(0.000647)	(0.000648)	(0.0197)	(0.0197)	(0.0197)
Liquidity	0.00451***	0.00451***	0.00449***	0.0194***	0.0194***	0.0194***	0.000615	0.000614	0.000614	-0.0177	-0.0179	-0.0176
	(0.00102)	(0.00101)	(0.00101)	(0.00423)	(0.00423)	(0.00423)	(0.000612)	(0.000612)	(0.000612)	(0.0165)	(0.0165)	(0.0165)
BankLoans	-0.0197***	-0.0195***	-0.0197***	-0.0847***	-0.0840***	-0.0847***	-0.00562***	-0.00562***	-0.00561***	-0.110***	-0.111***	-0.109***
	(0.000776)	(0.000772)	(0.000774)	(0.00332)	(0.00331)	(0.00332)	(0.000594)	(0.000594)	(0.000594)	(0.0156)	(0.0156)	(0.0156)
Risk	-0.000153***	-0.000156***	-0.000154***	-0.000660***	-0.000670***	-0.000661***	-1.92e-05	-1.92e-05	-1.92e-05	-0.000319	-0.000296	-0.000317
	(2.82e-05)	(2.82e-05)	(2.82e-05)	(0.000116)	(0.000116)	(0.000116)	(2.45e-05)	(2.45e-05)	(2.45e-05)	(0.000664)	(0.000664)	(0.000664)
Profits	-0.00411***	-0.00421***	-0.00412***	-0.0177***	-0.0181***	-0.0177***	-0.00827***	-0.00827***	-0.00827***	-0.120***	-0.121***	-0.120***
	(0.00121)	(0.00121)	(0.00121)	(0.00508)	(0.00508)	(0.00508)	(0.00105)	(0.00105)	(0.00105)	(0.0281)	(0.0281)	(0.0281)
Size	0.00164***	0.00163***	0.00164***	0.00705***	0.00701***	0.00707***	0.00301***	0.00301***	0.00301***	0.0607***	0.0612***	0.0607***
	(3.46e-05)	(3.45e-05)	(3.47e-05)	(0.000137)	(0.000137)	(0.000138)	(6.18e-05)	(6.17e-05)	(6.19e-05)	(0.00174)	(0.00174)	(0.00174)
Differentiated	0.00573***	0.00572***	0.00573***	0.0237***	0.0237***	0.0237***	0.00683***	0.00683***	0.00683***	0.185***	0.185***	0.185***
	(0.000119)	(0.000119)	(0.000119)	(0.000498)	(0.000498)	(0.000498)	(0.000259)	(0.000259)	(0.000259)	(0.00809)	(0.00810)	(0.00809)
Construction	0.0133***	0.0136***	0.0133***	0.0554***	0.0563***	0.0554***	0.0136***	0.0136***	0.0136***	0.334***	0.326***	0.334***
	(0.000146)	(0.000145)	(0.000146)	(0.000543)	(0.000524)	(0.000543)	(0.000268)	(0.000257)	(0.000268)	(0.00819)	(0.00785)	(0.00819)
Ind. concentration	-0.00188***		-0.00185***	-0.00809***		-0.00795***	5.89e-05		6.70e-05	0.0617***		0.0610***
	(0.000295)		(0.000295)	(0.00131)		(0.00131)	(0.000635)		(0.000636)	(0.0159)		(0.0159)
Ind. share		-0.0739***	-0.0650***		-0.318**	-0.280**		-0.0150	-0.0152		1.281	1.109
		(0.0206)	(0.0211)		(0.131)	(0.131)		(0.0461)	(0.0462)		(1.130)	(1.128)
Observations	263,619	263,619	263,619	263,619	263,619	263,619	263,619	263,619	263,619	263,619	263,619	263,619
Chi(2)	37.23	35.99	37.27	52.30	50.15	52.28						
p	1.05e-09	1.98e-09	1.03e-09	0	7.41e-11	0						
No. uncens.	74654	74654	74654	74654	74654	74654	74654	74654	74654			
No. left-cens.	188965	188965	188965	188965	188965	188965	188965	188965	188965			
No. of firms							37,670	37,670	37,670	37,670	37,670	37,670
Rho							0.732	0.732	0.732	0.777	0.777	0.777
Log Likelihood							76616	76616	76616	-103077	-103084	-103077

*** p<0.01, ** p<0.05, * p<0.1

Note: See Tables 2 and 3 for variables definition. Variables are scaled by turnover in the upstream market specifications. All specifications control for time effects. The table reports marginal effects and standard errors (robust standard errors in columns 1 to 3) in parentheses. Columns 4-6 report parameter estimates using the two-step Newey estimator. Chi(2) and p represent the χ^2 statistic and the corresponding probability for the exogeneity tests in columns 1-6. In the panel estimations, columns 7- 12, the variables *Stocks*, *BankLoans*, and *Liquidity* are replaced by their first lags. The table also reports the number of uncensored and left-censored observations, the number of firms in the panel specifications, Rho, the fraction attributable to the panel element, and the Log Likelihood.

Table 6B. Industry concentration - Upstream firms

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	IV Tobit			Newey			Random effects Tobit			Random effects Probit		
ProcesInventories	0.0869***	0.0869***	0.0869***	0.373***	0.372***	0.373***	0.0242***	0.0242***	0.0242***	0.529***	0.532***	0.529***
	(0.00114)	(0.00114)	(0.00114)	(0.00349)	(0.00349)	(0.00349)	(0.000797)	(0.000796)	(0.000797)	(0.0243)	(0.0243)	(0.0243)
Liquidity	0.00273***	0.00272***	0.00272***	0.0117***	0.0117***	0.0116***	0.000318	0.000313	0.000317	-0.0267	-0.0271*	-0.0266
	(0.000996)	(0.000999)	(0.000998)	(0.00416)	(0.00416)	(0.00416)	(0.000612)	(0.000612)	(0.000612)	(0.0165)	(0.0165)	(0.0165)
BankLoans	-0.0163***	-0.0163***	-0.0163***	-0.0701***	-0.0700***	-0.0701***	-0.00474***	-0.00475***	-0.00474***	-0.0858***	-0.0876***	-0.0858***
	(0.000746)	(0.000747)	(0.000748)	(0.00324)	(0.00323)	(0.00324)	(0.000591)	(0.000591)	(0.000591)	(0.0154)	(0.0154)	(0.0154)
Risk	-8.38e-05***	-8.45e-05***	-8.41e-05***	-0.000359***	-0.000362***	-0.000360***	-2.47e-06	-2.23e-06	-2.49e-06	0.000149	0.000185	0.000150
	(2.78e-05)	(2.78e-05)	(2.78e-05)	(0.000114)	(0.000114)	(0.000114)	(2.45e-05)	(2.45e-05)	(2.45e-05)	(0.000661)	(0.000662)	(0.000661)
Profits	-0.00284**	-0.00287**	-0.00286**	-0.0122**	-0.0123**	-0.0122**	-0.00852***	-0.00852***	-0.00852***	-0.127***	-0.128***	-0.127***
	(0.00119)	(0.00119)	(0.00119)	(0.00500)	(0.00500)	(0.00500)	(0.00105)	(0.00105)	(0.00105)	(0.0280)	(0.0280)	(0.0280)
Size	0.00150***	0.00151***	0.00151***	0.00644***	0.00646***	0.00647***	0.00300***	0.00301***	0.00301***	0.0610***	0.0616***	0.0610***
	(3.38e-05)	(3.37e-05)	(3.39e-05)	(0.000136)	(0.000136)	(0.000136)	(6.19e-05)	(6.18e-05)	(6.20e-05)	(0.00174)	(0.00174)	(0.00174)
Differentiated	0.00537***	0.00537***	0.00537***	0.0222***	0.0222***	0.0222***	0.00675***	0.00675***	0.00675***	0.183***	0.184***	0.183***
	(0.000116)	(0.000116)	(0.000116)	(0.000490)	(0.000490)	(0.000490)	(0.000258)	(0.000258)	(0.000258)	(0.00809)	(0.00810)	(0.00809)
Construction	0.0120***	0.0120***	0.0120***	0.0497***	0.0498***	0.0497***	0.0131***	0.0131***	0.0131***	0.321***	0.310***	0.321***
	(0.000135)	(0.000132)	(0.000135)	(0.000523)	(0.000500)	(0.000523)	(0.000266)	(0.000254)	(0.000266)	(0.00812)	(0.00776)	(0.00812)
Ind. concentration	-0.000237		-0.000200	-0.00102		-0.000859	0.000627		0.000636	0.0767***		0.0761***
	(0.000289)		(0.000289)	(0.00128)		(0.00128)	(0.000635)		(0.000635)	(0.0159)		(0.0159)
Ind. share		-0.0748***	-0.0739***		-0.321**	-0.317**		-0.0147	-0.0165		1.302	1.088
		(0.0225)	(0.0218)		(0.129)	(0.129)		(0.0462)	(0.0462)		(1.128)	(1.125)
Observations	263,619	263,619	263,619	263,619	263,619	263,619	263,619	263,619	263,619	263,619	263,619	263,619
Chi(2)	49.36	49.19	49.33	81.66	81.48	81.61						
p	0	0	0	0	0	0						
No. uncens.	74654	74654	74654	74654	74654	74654	74654	74654	74654			
No. left-cens.	188965	188965	188965	188965	188965	188965	188965	188965	188965			
No. of firms							37,670	37,670	37,670	37,670	37,670	37,670
Rho							0.732	0.732	0.732	0.779	0.779	0.779
Log Likelihood							76553	76553	76553	-103185	-103195	-103184

*** p<0.01, ** p<0.05, * p<0.1

Note: See Tables 2 and 3 for variables definition. Variables are scaled by turnover in the upstream market specifications. All specifications control for time effects. The table reports marginal effects and standard errors (robust standard errors in columns 1 to 3) in parentheses. Columns 4-6 report parameter estimates using the two-step Newey estimator. Chi(2) and p represent the χ^2 statistic and the corresponding probability for the exogeneity tests in columns 1-6. In the panel estimations, columns 7 - 12, the variables *ProcesInventories*, *BankLoans*, and *Liquidity* are replaced by their first lags. The table also reports the number of uncensored and left-censored observations, the number of firms in the panel specifications, Rho, the fraction attributable to the panel element, and the Log Likelihood.

Table 7A. Industry concentration - downstream firms

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
		IV Tobit			Newey			Random effects Tobit			Random effects Probit	
Stocks	0.000870***	0.000890***	0.000870***	0.00360***	0.00368***	0.00360***	0.000470***	0.000484***	0.000469***	0.0899***	0.0914***	0.0897***
	(4.79e-05)	(4.76e-05)	(4.78e-05)	(0.000203)	(0.000201)	(0.000203)	(6.07e-05)	(6.06e-05)	(6.07e-05)	(0.0124)	(0.0124)	(0.0124)
Liquidity	-0.000707***	-0.000707***	-0.000707***	-0.00292***	-0.00292***	-0.00292***	-0.000183***	-0.000183***	-0.000182***	-0.0430***	-0.0429***	-0.0429***
	(9.04e-05)	(8.99e-05)	(8.98e-05)	(0.000368)	(0.000368)	(0.000368)	(6.08e-05)	(6.08e-05)	(6.08e-05)	(0.0120)	(0.0120)	(0.0120)
BankLoans	0.000291***	0.000297***	0.000291***	0.00120***	0.00123***	0.00120***	1.66e-05	1.98e-05	1.71e-05	0.0207	0.0212	0.0209
	(5.51e-05)	(5.51e-05)	(5.51e-05)	(0.000229)	(0.000229)	(0.000229)	(6.63e-05)	(6.63e-05)	(6.63e-05)	(0.0133)	(0.0133)	(0.0133)
Risk	2.87e-06	2.39e-06	2.82e-06	1.19e-05	9.91e-06	1.17e-05	-3.99e-06	-4.08e-06	-3.99e-06	-0.00306***	-0.00307***	-0.00306***
	(3.86e-06)	(3.86e-06)	(3.85e-06)	(1.57e-05)	(1.57e-05)	(1.57e-05)	(4.20e-06)	(4.20e-06)	(4.20e-06)	(0.000848)	(0.000849)	(0.000848)
Profits	0.000532***	0.000527***	0.000530***	0.00220***	0.00218***	0.00219***	0.000205**	0.000201**	0.000204**	0.0244	0.0237	0.0242
	(9.39e-05)	(9.40e-05)	(9.39e-05)	(0.000386)	(0.000386)	(0.000386)	(9.84e-05)	(9.84e-05)	(9.84e-05)	(0.0196)	(0.0196)	(0.0196)
Size	0.000257***	0.000257***	0.000255***	0.00106***	0.00106***	0.00106***	0.000260***	0.000260***	0.000258***	0.0827***	0.0823***	0.0819***
	(4.12e-06)	(4.30e-06)	(4.31e-06)	(1.81e-05)	(1.87e-05)	(1.88e-05)	(7.43e-06)	(7.67e-06)	(7.70e-06)	(0.00169)	(0.00173)	(0.00174)
Pdiff	0.000231***	0.000322***	0.000236***	0.000955***	0.00133***	0.000975***	0.000156*	0.000296***	0.000162*	0.0645***	0.0830***	0.0665***
	(4.69e-05)	(4.25e-05)	(4.70e-05)	(0.000196)	(0.000178)	(0.000196)	(9.04e-05)	(8.24e-05)	(9.05e-05)	(0.0192)	(0.0175)	(0.0192)
Pserv	0.000222***	0.000101**	0.000217***	0.000920***	0.000416**	0.000899***	9.05e-05	-0.000102	8.49e-05	0.0530***	0.0280	0.0510**
	(5.00e-05)	(4.18e-05)	(5.01e-05)	(0.000210)	(0.000178)	(0.000210)	(9.62e-05)	(8.09e-05)	(9.64e-05)	(0.0203)	(0.0171)	(0.0204)
Ind. concentration	0.000200***		0.000192***	0.000829***		0.000793***	0.000309***		0.000299***	0.0405**		0.0369**
	(4.37e-05)		(4.41e-05)	(0.000183)		(0.000184)	(8.34e-05)		(8.40e-05)	(0.0177)		(0.0178)
Ind. share		0.00643**	0.00476*		0.0266**	0.0197		0.00823	0.00597		2.493**	2.219*
		(0.00284)	(0.00280)		(0.0126)	(0.0128)		(0.00558)	(0.00564)		(1.197)	(1.206)
Observations	252,754	252,754	252,754	252,754	252,754	252,754	252,754	252,754	252,754	252,754	252,754	252,754
Chi(2)	24.86	25.57	24.95	26.97	27.61	26.93						
p	6.18e-07	4.26e-07	5.87e-07	1.39e-06	1.01e-06	1.42e-06						
No. uncens.	70545	70545	70545	70545	70545	70545	70545	70545	70545			
No. left-cens.	182209	182209	182209	182209	182209	182209	182209	182209	182209			
No. of firms							36,404	36,404	36,404	36,404	36,404	36,404
Rho							0.518	0.518	0.518	0.643	0.643	0.643
Log Likelihood							185301	185295	185301	-114457	-114457	-114455

*** p<0.01, ** p<0.05, * p<0.1

Note: See Tables 2 and 3 for variables definition. Variables are scaled by total assets in the downstream market specifications. All specifications control for time effects. The table reports marginal effects and standard errors (robust standard errors in columns 1 to 3) in parentheses. Columns 4-6 report parameter estimates using the two-step Newey estimator. Chi(2) and p represent the χ^2 statistic and the corresponding probability for the exogeneity tests in columns 1-6. In the panel estimations, columns 7 - 12, the variables *Stocks* and *Liquidity* are replaced by their first lags. The table also reports the number of uncensored and left-censored observations, the number of firms in the panel specifications, Rho, the fraction attributable to the panel element, and the Log Likelihood.

Table 7B. Industry concentration - Downstream firms

VARIABLES	(1)	(2) IV Tobit	(3)	(4)	(5) Newey	(6)	(7)	(8) Random effects Tobit	(9)	(10)	(11) Random effects Probit	(12)
BasicMaterials	0.00131***	0.00136***	0.00131***	0.00542***	0.00561***	0.00540***	0.000855***	0.000896***	0.000852***	0.166***	0.170***	0.165***
	(9.04e-05)	(8.87e-05)	(9.02e-05)	(0.000371)	(0.000366)	(0.000371)	(0.000118)	(0.000118)	(0.000118)	(0.0241)	(0.0240)	(0.0241)
Liquidity	-0.000779***	-0.000779***	-0.000779***	-0.00322***	-0.00322***	-0.00322***	-0.000209***	-0.000209***	-0.000208***	-0.0477***	-0.0476***	-0.0476***
	(8.95e-05)	(8.97e-05)	(8.98e-05)	(0.000367)	(0.000367)	(0.000367)	(6.05e-05)	(6.05e-05)	(6.05e-05)	(0.0119)	(0.0119)	(0.0119)
BankLoans	0.000257***	0.000261***	0.000257***	0.00106***	0.00108***	0.00106***	3.26e-06	5.68e-06	3.73e-06	0.0182	0.0186	0.0184
	(5.52e-05)	(5.52e-05)	(5.52e-05)	(0.000229)	(0.000229)	(0.000229)	(6.63e-05)	(6.63e-05)	(6.63e-05)	(0.0133)	(0.0133)	(0.0133)
Risk	1.15e-05***	1.11e-05***	1.15e-05***	4.75e-05***	4.61e-05***	4.74e-05***	-2.48e-06	-2.56e-06	-2.48e-06	-0.00279***	-0.00280***	-0.00279***
	(3.80e-06)	(3.80e-06)	(3.80e-06)	(1.54e-05)	(1.54e-05)	(1.54e-05)	(4.19e-06)	(4.19e-06)	(4.19e-06)	(0.000845)	(0.000845)	(0.000845)
Profits	0.000510***	0.000505***	0.000509***	0.00211***	0.00209***	0.00210***	0.000198**	0.000193**	0.000197**	0.0230	0.0224	0.0228
	(9.38e-05)	(9.39e-05)	(9.39e-05)	(0.000386)	(0.000386)	(0.000386)	(9.84e-05)	(9.84e-05)	(9.84e-05)	(0.0196)	(0.0196)	(0.0196)
Size	0.000270***	0.000270***	0.000268***	0.00112***	0.00112***	0.00111***	0.000267***	0.000268***	0.000265***	0.0840***	0.0836***	0.0833***
	(4.12e-06)	(4.28e-06)	(4.31e-06)	(1.81e-05)	(1.87e-05)	(1.88e-05)	(7.42e-06)	(7.65e-06)	(7.70e-06)	(0.00170)	(0.00173)	(0.00174)
Pdiff	0.000276***	0.000357***	0.000280***	0.00114***	0.00148***	0.00116***	0.000186**	0.000315***	0.000190**	0.0701***	0.0865***	0.0720***
	(4.71e-05)	(4.26e-05)	(4.72e-05)	(0.000196)	(0.000178)	(0.000197)	(9.04e-05)	(8.24e-05)	(9.06e-05)	(0.0192)	(0.0175)	(0.0192)
Pserv	0.000216***	0.000111***	0.000212***	0.000895***	0.000460**	0.000878***	9.67e-05	-7.86e-05	9.16e-05	0.0543***	0.0324*	0.0524**
	(5.02e-05)	(4.26e-05)	(5.03e-05)	(0.000210)	(0.000180)	(0.000210)	(9.64e-05)	(8.14e-05)	(9.65e-05)	(0.0204)	(0.0171)	(0.0204)
Ind. concentration	0.000177***		0.000170***	0.000733***		0.000705***	0.000286***		0.000277***	0.0357**		0.0324*
	(4.45e-05)		(4.48e-05)	(0.000185)		(0.000186)	(8.38e-05)		(8.43e-05)	(0.0178)		(0.0179)
Ind. share		0.00530*	0.00388		0.0219*	0.0161		0.00744	0.00541		2.332*	2.098*
		(0.00278)	(0.00276)		(0.0127)	(0.0128)		(0.00560)	(0.00564)		(1.198)	(1.206)
Observations	252,754	252,754	252,754	252,754	252,754	252,754	252,754	252,754	252,754	252,754	252,754	252,754
Chi(2)	23.69	24.68	23.59	25.36	26.28	25.27						
p	1.13e-06	6.75e-07	1.19e-06	3.12e-06	1.96e-06	3.25e-06						
No. uncens.	70545	70545	70545	70545	70545	70545	70545	70545	70545			
No. left-cens.	182209	182209	182209	182209	182209	182209	182209	182209	182209			
No. of firms							36,404	36,404	36,404	36,404	36,404	36,404
rho							0.519	0.519	0.519	0.643	0.643	0.643
Log Likelihood							185297	185292	185297	-114459	-114459	-114457

*** p<0.01, ** p<0.05, * p<0.1

Note: See Tables 2 and 3 for variables definition. Variables are scaled by total assets in the downstream market specifications. All specifications control for time effects. The table reports marginal effects and standard errors (robust standard errors in columns 1 to 3) in parentheses. Columns 4-6 report parameter estimates using the two-step Newey estimator. Chi(2) and p represent the χ^2 statistic and the corresponding probability for the exogeneity tests in columns 1-6. In the panel estimations, columns 7 - 12, the variables *BasicMaterials* and *Liquidity* are replaced by their first lags. The table also reports the number of uncensored and left-censored observations, the number of firms in the panel specifications, Rho, the fraction attributable to the panel element, and the Log Likelihood.

Table 8. Impact of age

VARIABLES	(1) IV Tobit	(2) Newey	(3) Random effects Tobit	(4) Random effects Probit	(5) IV Tobit	(6) Newey	(7) Random effects Tobit	(8) Random effects Probit
	Upstream market				**Downstream market**			
Stocks	0.0650***	0.280***	0.0214***	0.507***	0.000946***	0.00391***	0.000519***	0.0972***
	(0.000819)	(0.00273)	(0.000657)	(0.0200)	(4.80e-05)	(0.000203)	(6.07e-05)	(0.0124)
Liquidity	0.00462***	0.0199***	0.000351	-0.0232	-0.000681***	-0.00282***	-0.000175***	-0.0418***
	(0.00102)	(0.00427)	(0.000619)	(0.0167)	(9.00e-05)	(0.000369)	(6.08e-05)	(0.0120)
BankLoans	-0.0202***	-0.0872***	-0.00590***	-0.112***	0.000266***	0.00110***	-6.34e-06	0.0166
	(0.000783)	(0.00336)	(0.000603)	(0.0159)	(5.51e-05)	(0.000229)	(6.63e-05)	(0.0133)
Risk	-0.000196***	-0.000846***	-3.16e-05	-0.000384	-1.41e-06	-5.84e-06	-5.65e-06	-0.00332***
	(2.87e-05)	(0.000118)	(2.47e-05)	(0.000670)	(3.88e-06)	(1.58e-05)	(4.20e-06)	(0.000849)
Profits	-0.00559***	-0.0241***	-0.00878***	-0.111***	0.000418***	0.00173***	0.000151	0.0160
	(0.00123)	(0.00518)	(0.00106)	(0.0284)	(9.46e-05)	(0.000389)	(9.86e-05)	(0.0196)
Size	0.00169***	0.00729***	0.00310***	0.0609***	0.000270***	0.00112***	0.000275***	0.0851***
	(3.61e-05)	(0.000144)	(6.42e-05)	(0.00179)	(4.19e-06)	(1.85e-05)	(7.59e-06)	(0.00173)
Differentiated	0.00554***	0.0230***	0.00665***	0.182***				
	(0.000120)	(0.000505)	(0.000261)	(0.00814)				
Construction	0.0134***	0.0557***	0.0134***	0.323***				
	(0.000146)	(0.000528)	(0.000258)	(0.00791)				
Pdiff					0.000298***	0.00123***	0.000268***	0.0780***
					(4.25e-05)	(0.000178)	(8.24e-05)	(0.0175)
Pserv					0.000103**	0.000428**	-0.000107	0.0268
					(4.18e-05)	(0.000178)	(8.08e-05)	(0.0170)
Age	-2.87e-05***	-0.000124***	-3.26e-05***	7.61e-06	-3.78e-06***	-1.56e-05***	-4.46e-06***	-0.000754***
	(2.81e-06)	(1.21e-05)	(5.89e-06)	(0.000147)	(3.63e-07)	(1.54e-06)	(6.93e-07)	(0.000147)
Observations	258,433	258,433	258,433	258,433	252,751	252,751	252,751	252,751
Chi(2)	44.70	61.90			28.19	30.55		
p	0	0			1.10e-07	2.32e-07		
No. uncensored	73074	73074	73074		70544	70544	70544	
No. left-censored	185359	185359	185359		182207	182207	182207	
Number of firms			37,006	37,006			36,403	36,403
Rho			0.732	0.777			0.518	0.642
Log Likelihood			75070	-101061			185312	-114443

*** p<0.01, ** p<0.05, * p<0.1

Note: See Tables 2 and 3 for variables definition. Variables are scaled by turnover in the upstream market specifications and by total assets in the downstream market specifications. All specifications control for time effects. The table reports marginal effects and standard errors (robust standard errors in columns 1 and 4) in parentheses. Columns 2 and 6 report parameter estimates using the two-step Newey estimator. Chi(2) and p represent the χ^2 statistic and the corresponding probability for the exogeneity tests in columns 1, 2, 5, and 6. In the panel estimations (columns 3, 4, 7 and 8), the variables *Stocks*, *BankLoans* and *Liquidity* are replaced by their first lags. The table also reports the number of uncensored and left-censored observations, the number of firms in the panel specifications, Rho, the fraction attributable to the panel element, and the Log Likelihood.

Table 9. Prepayments and international trade - Random effects Probit marginal effects

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Stocks	0.497***	0.503***	0.501***			
	(0.0200)	(0.0200)	(0.0200)			
ProcesInventories				0.521***	0.528***	0.526***
				(0.0246)	(0.0246)	(0.0246)
Liquidity	-0.0201	-0.0222	-0.0223	-0.0301*	-0.0325*	-0.0326*
	(0.0167)	(0.0167)	(0.0167)	(0.0167)	(0.0167)	(0.0167)
BankLoans	-0.109***	-0.112***	-0.111***	-0.0854***	-0.0879***	-0.0878***
	(0.0158)	(0.0159)	(0.0159)	(0.0157)	(0.0157)	(0.0157)
Risk	-0.000360	-0.000399	-0.000393	0.000135	9.99e-05	0.000104
	(0.000670)	(0.000671)	(0.000670)	(0.000668)	(0.000668)	(0.000668)
Profits	-0.108***	-0.110***	-0.111***	-0.113***	-0.116***	-0.117***
	(0.0284)	(0.0284)	(0.0284)	(0.0283)	(0.0283)	(0.0283)
Size	0.0570***	0.0603***	0.0599***	0.0568***	0.0604***	0.0599***
	(0.00188)	(0.00180)	(0.00180)	(0.00188)	(0.00181)	(0.00181)
Differentiated	0.182***	0.181***	0.181***	0.181***	0.179***	0.180***
	(0.00815)	(0.00813)	(0.00814)	(0.00815)	(0.00814)	(0.00814)
Construction	0.329***	0.327***	0.326***	0.316***	0.313***	0.312***
	(0.00802)	(0.00804)	(0.00797)	(0.00795)	(0.00795)	(0.00789)
Age	-0.00114	-0.00168	-0.00128	0.000241	-0.000348	0.000113
	(0.00267)	(0.00268)	(0.00268)	(0.00268)	(0.00268)	(0.00268)
Export sales	0.00867***			0.00980***		
	(0.00137)			(0.00137)		
Export dummy		0.0100***			0.0118***	
		(0.00279)			(0.00280)	
Export share			0.0399***			0.0471***
			(0.00903)			(0.00902)
Observations	257,837	257,837	257,837	257,837	257,837	257,837
Number of firms	37,006	37,006	37,006	37,006	37,006	37,006

*** p<0.01, ** p<0.05, * p<0.1

Note: The table reports marginal effects and robust standard errors in parentheses. The dependent variable is a dummy variable taking value 1 if the firm receives advance payments, 0 otherwise. *Export sales* is the natural logarithm of export sales; *Export dummy* is a dichotomous variable taking value 1 if the firm exports, 0 otherwise; *Export share* gives the share of export sales in firm turnover. See Tables 2 and 3 for variables definition. Columns 1 to 3 use the total stocks of inventories and columns 4 to 6 use stocks of processed inventories. As before, the variables *Stocks*, *BankLoans* and *Liquidity* are replaced by their first lags. All specifications control for time effects.