Corporate Cash Holdings, Trade Credit, and Bank Impact: Evidence from Recent Financial Crisis

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Abstract

This study empirically examines the impact of main banks’ soundness on the relationship between corporate cash holdings and trade credit in Ukraine before and after financial collapse of 3q2008. We are to apply a two-stage instrumental variables estimation technique to correct for possible endogeneity between cash holdings and trade credit. This investigation employs matched sample of Ukrainian corporations and their banks over the period from 2003 to 2012. We examine whether the decline in cash reserves in crisis is due to more significant substitution effect of receivables comparing to the precautionary effect of payables. Strong banks are hypothesized to lessen precautionary motive of cash but strengthen the receivables-cash substitution. Our research also explores how transactional and financing motives of trade credit affect corporate cash accumulation. Finally, we test how the cash-trade credit effects vary among trade credit-dependent and trade credit-independent industries.

Keywords: cash holdings, trade credit, bank, crisis

JEL Classification Numbers: G01, G30, G32
1 Motivation and Literature Review

The financial crisis of 2008 results in the collapse of the bank lending and provides researchers a unique setting to examine the role of alternative sources of fund under severe monetary squeeze. Numerous studies evidence that firms favor trade credit as a main instrument of informal financing to compensate conventional bank loans if the access to institutional credit market is denied (Petersen & Rajan 1997, Nilsen 2002)\footnote{Note that firms support their growth through informal financial channels like trade credit especially in countries with weak or underdeveloped formal financial sector (Ge & Qiu 2007). As trade credit is viewed as a last resort for funding under more extreme circumstances, firms are expected to use trade credit more intensively in emerging markets.}

Firms tend to employ trade credit for various reasons, behind informal financing, they benefit in transactions and/or gets an instrument to advance their growth or simply retain their market share and survive in case of tight financial constraints. Love, Preve & Sarria-Allende (2007) state that credit crunch that affects financial lenders also affects non-financial lenders (i.e. trade credit) and countries that experience a sharper decline in bank credit also experience a sharper decline in trade credit. Garcia-Appendinia & Montoriol-Garriga (2013) find that firms with high precrisis liquidity levels raised the trade credit extended to other companies and subsequently exhibited better performance comparatively to cash-constrained firms, which were more exposed to the crisis and reduced the trade credit provided. Their results are consistent with firms providing liquidity insurance to their clients when bank financing is insufficient and present an important precautionary motive for accumulating cash.

Companies accrue cash reserves because they expose themselves to risks caused by late payments and they want to compensate forthcoming costs associated with possible cash discounts, late payment penalties, or the opportunity cost from a possible impairment in credit rating. The same precautionary motive induces firms to hoard more cash as an effective device to hedge against the fluctuations in cash flow and financial constraints during the crisis period. Additionally, banks also are prone to require larger cash balances, since the risk of firm default is raised in crisis, while increased information asymmetry between borrowers and creditors impedes the lenders to assess firms’ credit-
worthiness more accurately (Arslan, Florackis & Ozkan 2006). Finally, it is reasonable to expect that corporate cash holdings are counter-cyclical, too low during economic booms and enormously high during crises.

**Motivation and objective**

We are intrigued by some paradoxes about the cash holdings observed in Ukraine. At first blush, Ukrainian firms should increase and keep comparatively large reserves of liquid assets in crisis because of the bank influence, considerable informational frictions, and higher uncertainty. Actually, Ukrainian firms increase using trade credit but hoard less cash reserves after the financial collapse of 3q2008 (Paraschiy & Tsapin 2011). Thus, the main objective of our study is to disclose the reasons of the conspicuous paradox why firms accumulate low level of cash in crisis. We aim to explain the situation with poor liquidity by the impact of trade credit and bank soundness.

**Practical contribution**

To achieve the goal of the paper we should perform several tasks which make this investigation extremely useful for policy makers. First, we estimate the effects of trade credits on cash holdings to find out whether the decline in cash reserves under turmoil can be caused by significant substitution of cash by accounts receivable, while the increase of cash reserves for precautionary motive to repay accounts payable is expected to be not so considerable. Second, our research promises to shed light on the question how transactional and financing motives of trade credit affect corporate cash accumulation. Third, in this study, we concentrate our attention on a factor that is assumed to play a significant role in the explanation of cash-trade credit relationship - bank soundness. Healthier banks can provide better financial services to their firms-clients making the trade credit cheaper. Thus, there is no need for firms to save extra cash. We hypothesize that strong banks lessen precautionary motive of cash but strengthen the receivables-cash substitution. Finally, we are going to test how the cash-trade credit effects vary

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2Stephan, Tsapin & Talavera (2012) also point out that high switching cost induces Ukrainian firms to keep close relationship with a single main bank and bank switching is viewed as a desperate try of a firm to receive bank financing.

3Wu, Rui & Wu (2012) conclude that firms in regions with higher financial deepening hold less cash to repay the cost of trade credit.
among trade credit-dependent and trade credit-independent industries.  

**Main hypotheses**

**Hypothesis 1:** Substitution effect of receivables and cash exceeds precautionary savings motive of cash to compensate the costs of payables in crisis.

**Hypothesis 2:** Firms served by stronger banks hold less cash to repay accounts payable.

**Hypothesis 3:** Firms served by stronger banks can substitute more cash by their trade receivables.

2 Data

The data we utilize in this research include balances and financial statements of Ukrainian corporations and their main banks within the period from 2003 to 2012. We match two samples (firms and banks) according to MFO (so-called “interbranches turnover”) codes which identify bank branches. Using the list of bank branches we capture MFO codes of headquarter banks. Main bank of a firm refers to the bank annually self-reported by the company to the Ukrainian State Commission of Securities and Stock Market. The Stock market infrastructure development agency of Ukraine (SMIDA database) provides all economic and financial reports of firms presented in the study. Financial reports of Ukrainian banks are taken from official site of the National bank of Ukraine (the NBU).

3 Methodology

3.1 Base model

We specify the expression for cash holdings as a linear function of trade credit ($TC_{it}$), bank soundness ($BSound_{it-1}$), and a set of control variables defined in the relevant literature.

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The ratio of trade credit in use varies significantly from country to country and from industry to industry (Seifert, Seifert & Protopappa-Sieke 2013). Additionally, industries with higher dependence on trade credit show higher rates of growth if financial institutions are weak (Fisman & Love 2003).
\[
Cash_{it} = \beta_1 TC_{it} + \beta_2 BSound_{it-1} + \beta_3 TC_{it} \times BSound_{it-1} \\
+ \sum_{j=4}^{k} \beta_j Controls + \mu_i + \tau_t + \epsilon_{it}
\] (1)

where the subscript \(i\) refers to firms and the subscript \(t\) to periods, \(\mu_i\) and \(\tau_t\) are firm and time effects, respectively, \(\epsilon_{it}\) denotes the error term. We estimate the model with clustering at bank-quarter level to ensure the obtained outcomes are robust to any intertemporal correlation among the companies in each bank-quarter period. Time invariant factors should be captured by the fixed effects.

Dependent variable, \(Cash_{it} (CH/NA)\) is cash holdings to net assets ratio. Independent variables include trade credit \((TC_{it})\), bank soundness \((BSound_{it-1})\), and a set of controls. Note that we aim to explore five aspects of the influence of trade credit on cash holdings to investigate general impact, substitution and precautionary effects, and the influence of financing and transaction motives of trade credit. Therefore, \(TC_{it}\) is one of the five trade credit measures respectively: (i) trade receivables minus trade payables deflated by net assets, (ii) trade receivables over net assets, (iii) trade payables over net assets, (iv) long-term trade payables, (v) short-term trade payables.

An approach to separate between transactional and financing motives of trade credit is to examine the maturity structure of trade credit or overdue of trade credit (Ng, Smith & Smith 1999, Nilsen 2002, Ge & Qiu 2007). Too long repayment term for trade credit is likely to indicate a financial support of customers, while short-term trade credit exhibits transactional motive.

The \(BSound_{it-1}\) represents one of the proxies which assess bank financial health. As suggested by the cash holdings literature, we also are going to employ several control variables to control for determinants of cash that vary considerably over time. Namely, we are to include net working capital ratio, firm size, sales growth, cash flow, financial leverage, debt maturity, capital expenditure, industry volatility of cash flow, and dividend dummy.
3.2 Heterogenous firm and bank-level response to crisis

\[ Cash_{it} = \beta_1 TC_{it} + \beta_2 BSound_{it-1} + \beta_3 TC_{it} \times BSound_{it-1} + \beta_4 Crisis_{it} \]
\[ + \beta_5 TC_{it} \times Crisis_{it} + \beta_6 BSound_{it-1} \times Crisis_{it} + \beta_7 TC_{it} \times BSound_{it-1} \times Crisis_{it} \]
\[ + \sum_{j=8}^{k} \beta_j Controls + \mu_i + \tau_t + \epsilon_{it} \]

In the regressions we utilizes the crisis dummy (Crisis) which captures the effects of the crisis manifestation. We define the start of crisis period for each firm as the quarter when its main bank faced an external shock. The external shock may be identified as a difficulty in getting finance by the bank after 3q2008. For example, the turning point is the time when the bank lost the trust of depositors (an extreme reduction in deposits).

As there exist possible endogeneity between cash holdings and trade credit, this study is to apply a two-stage instrumental variables technique to estimate the regressions (1) and (2).
References


