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Trade Credit and Financial Flexibility

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This study examines the relation between trade credit and financial flexibility through share repurchases. Trade credit represents a large portion of total assets among firms in the United States and is widely considered an opportunity for firms to capture sales that may not otherwise be possible. This paper finds that increases in financial flexibility are associated with higher levels of trade credit, confirming that the choice of payout policy has an impact on firm investment decisions. However, the positive relation only exists among firms with either high levels of leverage or low levels of cash. This indicates that firms may seek flexibility through payout policy when lacking flexibility in other areas. This improved financial flexibility allows firms to increase trade credit levels and potentially avoid underinvestment.

Keywords: financial flexibility, trade credit, payout policy *JEL Classification*: G31; G32; G35

1. Introduction

Trade credit and financial flexibility both play important roles in financial decision making for corporations. Both trade credit and financial flexibility policies have the ability to improve firm sales and profitability [Petersen and Rajan (1997), Graham and Harvey (2001)]. First, by increasing investment in trade credit levels, firms may be able to recognize additional sales and market share growth [Nadiri (1960), Petersen and Rajan (1997)]. Second, by maintaining or improving financial flexibility, firms are better positioned to avoid financial distress as well as prepared to invest in available positive NPV projects (Bonaime, Hankins and Harford (2013)). These goals of financial flexibility have been shown to be of top concern among financial managers [Graham and Harvey (2001), Denis (2011)].

While prior literature has examined the motivations for and implications of trade credit and financial flexibility policies individually, this paper is the first to identify a potential outcome from managers considering both policies together. Specifically, the results indicate greater financial flexibility through the use of share repurchases allows firms to increase their investment in trade credit. Additionally, this paper finds that an increase in financial flexibility has specific trade credit benefits for firms with either high leverage or low cash holdings, both of which are often recognized as lacking financial flexibility. These results are consistent with prior literature that share repurchases provide a way for firms to improve financial flexibility [Brav et al (2005), Bonaime et al (2013)]. However, this is the first paper to identify increased investment in trade credit as one benefit of greater financial flexibility.

2. Literature Review

To understand a link between firm trade credit policy and financial flexibility through repurchases, it is necessary to first understand the reason for and importance of trade credit and financial flexibility individually. First, trade credit facilitates the sale of goods or services to customers while simultaneously delaying receipt of payment. The role of trade credit is non-trivial given average levels range from 18%-21% of total assets among public firms in the United States [Mian and Smith (1992), Molina and Preve (2009)]. Prior literature explores the use of trade credit as a tool to relieve financing constraints faced by buyers [Meltzer (1960), Nadiri (1969)]. The theory is that firms with access to credit are able to extend this credit to customers who do not have access to credit, but wish to make a purchase. Petersen and Rajan (1997) add to this literature by providing evidence

that firms suffering financially use the extension of trade credit to maintain sales, and that some firms may extend additional credit in an attempt to increase sales. By identifying a buyer that would otherwise be unable to purchase the seller's product, the seller can choose to increase its investment in trade credit and thereby facilitate an additional sale. Similarly, Molina and Preve (2009) find that decreasing levels of trade credit can impose a cost on firms in the form of lower sales growth, lower income growth and lower stock returns. As firms reduce their investment in trade credit, there are buyers at the margin who either choose to no longer make the purchase, or instead purchase from a seller that will offer credit. These combined results are significant because they identify the importance of firms having the ability to adjust trade credit levels. However, the ability for the selling firm to offer and adjust trade credit levels relies on the assumption that it has either sufficient internal funds or available credit to delay the receipt of cash from buyers. When facing cash flow problems, firms may be unable to delay this receipt of cash even if increasing trade credit levels could improve sales for the company. Thus, while trade credit may offer benefits to the selling firm, cash flow problems may limit the ability of the selling firm to extend the necessary credit (Molina and Preve (2009)).

Financial flexibility refers to the ability for a firm to both avoid financial distress as well as maintain the ability to fund positive NPV projects (Bonaime et al (2013)). Survey results indicate financial flexibility is the highest concern among CFOs when making financial decisions [Graham and Harvey (2001), Brav et al (2005)]. DeAngelo and DeAngelo (2007) also provide empirical evidence that maintaining financial flexibility is of such high concern among managers that it may influence financial decisions made. These findings make important contributions to our understanding of firm financial decision making. Before a firm is willing to make a significant investment or change an existing financial policy, it must first consider the impact this will have on the ability to both continue funding other positive NPV projects as well as avoid financial distress. A required investment of capital that puts a firm at significant risk of defaulting on other financial obligations in the short-term may be deemed unacceptable, even if the investment itself promises to be financial flexibility.

One method available to achieve greater financial flexibility is through a firm's capital structure policies. DeAngelo and DeAngelo (2007) provide evidence that firms should maintain low levels of debt in order to maintain the ability to borrow when experiencing a high need for capital. DeAngelo et al. (2011) strengthen this theory with a model that identifies a capital structure with excess debt capacity as the optimal policy. Denis and McKeon (2012) provide further evidence of a link between capital structure and financial flexibility. Specifically, the authors find that large leverage increases often occur as firms' response to operating needs. These higher levels of debt are then reduced over time as firms attempt to achieve target capital structure policies. In the end, the authors conclude that transitory debt may serve as a source of financial flexibility.

Another method available to assist firms in achieving greater financial flexibility is through corporate payout policy. Two of the most prominent forms of corporate payout are through dividends and share repurchases; each with its own implication for financial flexibility. Dividends are often viewed as inflexible given managers unwillingness to reduce dividend payments (Brav et al. (2005)). The perceived need to maintain dividends requires firms to have available cash to make payment. Requiring cash flow for dividends may result in the firm having less cash flow available for other uses, including the ability to delay receipt of payment by offering trade credit. Although evidence indicates trade credit may be seen as a value generating investment (Petersen and Rajan (1997)), Daniel, Denis and Naveen (2010) show that managers may choose to reduce investments before reducing dividends when faced with shortfalls in cash flow. Further evidence indicates managers may be willing to sell assets, lay off a large number of employees, borrow heavily or even pass up other positive NPV projects before being reducing dividends (Brav et al (2005)). Overall, this evidence indicates managers forced to choose between either offering more trade credit or reducing a dividend may choose to maintain the dividend and not increase trade credit. Given these results regarding dividends and their potential impact on firm financial flexibility, it is not surprising that researchers have observed a decline in the percentage of firms that pay dividends, from 66.5% in 1978 to 20.8% in 1999 (Fama and French (2001)). Instead, many firms are choosing to pay out profits through share repurchases. Using survey results, Graham and Harvey (2001) find that many managers favor repurchases because they are viewed as being more flexible than dividends. Because share repurchases can vary from year to year, and do not carry the same level of weight after a firm announces its intent to pay, executives may find that having a more flexible payout policy allows the firm to retain additional cash flow for other uses. Rather than passing up positive NPV projects to maintain dividends, the company may instead pursue value creating investments and alter the level of repurchases made.

This paper seeks to identify a specific link between financial flexibility through share repurchases and a firm's trade credit policy. By using the percentage of total payout composed of share repurchases as a measure for financial flexibility (Bonaime et al. (2013)), this paper looks at whether improved financial flexibility relieves cash flow concerns to the extent that firms can increase their investment in trade credit. If improved financial flexibility relieves cash flow concerns and allows firms to increase their investment in trade credit, there should be a positive relation between financial flexibility and the level of trade credit the firm choose to offer. Additionally, improved flexibility through payout policy may be of particular benefit for firms struggling the most to remain flexible. Prior literature has identified leverage and cash holdings as potential forms of protection when considering financial flexibility [Byoun (2008), Lins et al. (2010), Opler et al. (1999), Riddick and Whited (2008))]. By maintaining high cash holdings or low debt levels, firms maintain the ability to respond to unexpected financing needs. High cash holdings allow firms the ability to self-fund potential investment projects, while low debt levels preserve debt capacity which may be utilized when needed. Following Arslan-Ayaydin, Florackis and Ozkan (2014), this study classifies firms as either high leverage or low leverage, and additionally as either high cash levels or low cash levels. After classifying firms as lacking flexibility due to either low cash levels or high leverage, it may be possible to see if financial flexibility through share repurchases has a greater impact on trade credit policies among firms otherwise lacking flexibility.

3. Data and Methodology

The sample for this study comes from all firms in Compustat from fiscal years 1986-2013, excluding financial firms (SIC codes 6000-6999) and regulated utilities (4900-4999). While prior records for accounts receivable are available, Compustat does not keep specific trade receivables data prior to 1986. All firms with either sales or total assets that are less than zero are dropped from the sample. The total number of firm-year observations for which the dependent variable is present is 175,395. Missing observations in other variables may lead to fewer observations for the regressions. Table 1 presents summary statistics for the data set. All ratios are winsorized at the one percent level for each tail to reduce the effect of outliers.

I examine the relationship of trade credit and financial flexibility with the following equation:

$(Receivables to Assets)_{it} = \alpha_i + \beta_1 Financial Flexibility_{i.t} + \beta_2 Payables_{i,t} + \beta_3 Turnover_{i,t} + \beta_4 GrowthinSales_{i,t} + \beta_5 Financial Distress_{i,t} + \beta_6 Leverage_{i,t} + Firmand TimeDummies + \epsilon_{i,t}$ (1)

ReceivablestoAssets is the dependent variable. Considering the significant level of total firm assets invested in providing credit to customers, the goal is to identify how financial flexibility may be related to this firm investment. The model includes *Financial Flexibility* as the independent variable of interest. *Financial Flexibility* is measured following Bonaime et al (2013), which measures repurchases as a percentage of total payout. Included is a dummy variable for *Financial Distress* based on evidence that financial distress has a significant effect on trade credit policy (Molina and Preve (2009)). The dummy variable is equal to one if a firm is in financial distress in a given year, or zero otherwise. Following Asquith, Gertner, and Scharfstein (1994) a firm is in financial distress if it has a coverage ratio (EBITDA/Interest Expense) that is less than .8 in any given year or if it is less than 1 for two

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consecutive years. Additionally, the model includes the following control variables: the firm's accounts payables, inventory turnover, leverage and sales growth.

Variable	Median	Standard Deviation
Receivables to Assets	0.12	0.134
Days Receivables	52.71	58.810
Size	4.76	2.509
Leverage	0.18	0.281
Payables	0.07	0.101
Growth in Sales	0.09	0.911
Financial Distress	0.00	0.404
Financial Flexibility	0.29	0.450
Inventory Turnover	8.19	51.758

Table 1.	Summary	Statistics
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Notes: Table 1 presents summary statistics for firms in the sample. The sample includes all nonfinancial and nonutility firms in Compustat for fiscal years 1986 through 2013. *Receivables to Assets* are firm trade receivables as a percentage of total assets. *Days Receivables* is the ratio of trade receivables to sales, measured in days. *Size* is the log of total assets. *Leverage* is the ratio of debt to total assets. *Payables* is the ratio of accounts payable to total assets. *Growth in sales* is annual growth of sales; *Financial Distress* is defined following Asquith, Gertner and Scharfstein (1990), and zero otherwise; *Financial Flexibility* is defined as the percentage of total payouts represented by share repurchases; *Inventory Turnover* is sales over inventory.

4. Multivariate Results

This section discusses the multivariate results from estimating Equation (1). In Table 2 reports baseline results from Equation (1); Table 3 displays results for the sample separated into two groups based on leverage; Table 4 displays results for the sample separated into two groups based on cash levels. For robustness, an added measure for Financial Flexibility measures the average repurchase level for the past two years. Tables 3 and 4 are then repeated using this alternate measure for Financial Flexibility with results displayed in Tables 5 and 6, respectively.

Variable	Coefficient	
Financial Flexibility	0.01**	
Payables	0.04***	
Leverage	0.00	
Turnover	0.001***	
Growth in Sales	0.00	
Financial Distress	-0.02***	
Adj. R2	0.18	

Table 2. The Effect of Financial Flexibility on Trade Receivables

Notes: Table 2 presents a firm fixed effect regression with accounts receivable as a percentage of assets as the dependent variable. *Leverage* is the ratio of debt to total assets. *Payables* is the ratio of accounts payable to total assets. *Growth in sales* is annual growth of sales; *Financial Distress* is defined following Asquith, Gertner and Scharfstein (1990), and zero otherwise; *Financial Flexibility* is defined as the percentage of total payouts represented by share repurchases; *Inventory Turnover* is sales over inventory. The regression also includes year and industry effects, with standard errors adjusted for within firm clustering. *, ** and *** identify estimates that are statistically significant at 10%, 5% and 1% levels, respectively.

Equation (1) is estimated using a fixed effects model. The results are displayed in Table 2. The results are similar to those of Molina and Preve (2009) where Payables and Turnover are significantly positively related to trade credit and Financial Distress is significantly negatively related to trade credit. The variable of interest, Financial Flexibility, is positive and significant, suggesting that firms

with greater financial flexibility also have a higher level of investment in trade receivables. More specifically, a firm's decision to incorporate a greater portion of repurchases in corporate payout policy is positively related to the firm's offering of trade credit. As firms are able to reduce the percentage of payouts through dividends, they may be electing to avoid a potential financial constraint (Daniel, Denis and Naveen (2010)). By reducing a potential cash flow limitation, these results indicate firms may be willing to increase their investment in trade credit levels.

While the results in Table 2 provide evidence of a positive relation between financial flexibility and trade credit among all firms in the sample, it is of interest to identify how this form of financial flexibility affects firms that may otherwise be identified as lacking flexibility. Following Arslan-Ayaydin et al. (2014) the sample of firms is next split into two groups based on the median value of leverage. Firms above the median are identified as 'High Leverage' or HL firms, while firms below the median are respectively 'Low Leverage' or LL firms. Equation (1) is again estimated, but this time it is run separately for HL and LL firms. The expectation is that the positive relation between financial flexibility and trade credit is greater among HL firms. If a firm is lacking flexibility due to higher levels of leverage, there may be an incentive for managers to identify alternative methods of achieving flexibility. In this case, increased share repurchases may be the method chosen so that the firm can increase its investment in trade credit. Without the potential flexibility benefit available through share repurchases, a firm may be forced to decrease its investment in trade credit. Table 3 provides the results for both HL and LL firms in Panels A and B, respectively.

Table 3.	The Effect of Financial Flexibilit	y on Trade Receivables on Debt Levels
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Variable	Coefficient
Financial Flexibility	0.04***
Payables	0.39***
Leverage	-0.02**
Turnover	0.04**
Growth in Sales	0.00
Financial Distress	-0.01***
Adj. R2	0.20
Panel B: Firm-years for LL firms	
Variable	Coefficient
Financial Flexibility	0.00
Payables	0.51***
Leverage	0.05***
Turnover	0.081**
Growth in Sales	0.011*
Financial Distress	-0.06**
Adj. R ²	0.17

Panel A: Firm-years for HL firms

Notes: Table 3 presents a firm fixed effect regression with accounts receivable as a percentage of assets as the dependent variable. *Leverage* is the ratio of debt to total assets. *Payables* is the ratio of accounts payable to total assets. *Growth in sales* is annual growth of sales; *Financial Distress* is defined following Asquith, Gertner and Scharfstein (1990), and zero otherwise. The firm is considered to be in financial distress if it has a coverage ratio (EBITDA/Interest Expense) that is less than .8 in any given year or if it is less than 1 for two consecutive years; *Financial Flexibility* is defined as the percentage of total payouts represented by share repurchases; *Inventory Turnover* is sales over inventory. Panel A displays results for *HL* firms, meaning that for a given year they are above the median level of leverage in the sample. Panel B display result for *LL* firms, meaning that for a given year they are below the median level of leverage in the sample. The regression also includes year and industry effects, with standard errors adjusted for within firm clustering. *, ** and *** identify estimates that are statistically significant at 10%, 5% and 1% levels, respectively. ¹Coefficient multiplied by 10 to display first non-zero digit

Panel A of Table 3 displays a positive and significant relation between trade credit and *Financial Flexibility* among HL firms, while Panel B shows no significant relation among LL firms. Table 3 provides evidence that for HL firms who may not have had the flexibility needed through their available debt capacity, the financial flexibility available through repurchases may provide the opportunity to increase their investment in trade credit. Among LL firms, that may already have the financial flexibility required through debt capacity, there does not appear to be a trade credit benefit associated with the flexibility provided through higher share repurchases. The results in Table 3 provide an important insight about the financial decision making of corporate executives, and specifically provide evidence of investment benefits that may be available for high leverage firms that elect to use a higher percentage of share repurchases.

In addition to high debt levels, low cash holdings may have a negative impact on a firm's ability to make new investments, specifically in trade credit policy. In cases of low cash holdings, an increased use of share repurchases may provide the necessary financial flexibility to increase the needed investment in trade credit. Table 4 presents results from the estimation of Equation (1), with firms split into two groups based on median cash holdings. Firms in the lower half of cash levels are labelled 'Low Cash' or LC, while firms in the top half are labelled 'High Cash' or HC.

Variable	Coefficient
Financial Flexibility	-0.02
Payables	0.46***
Leverage	-0.02**
Turnover	-0.051*
Growth in Sales	0.022**
Financial Distress	-0.01**
Adj. R ²	0.18
Panel B: Firm-years for LC firms	
Variable	Coefficient
Financial Flexibility	0.01***
Payables	0.41***
Leverage	-0.02
Turnover	0.081***
Growth in Sales	-0.041***
Financial Distress	-0.07***
Adj. R ²	0.18

TICC

Notes: Table 4 presents a firm fixed effect regression with accounts receivable as a percentage of assets as the dependent variable. *Leverage* is the ratio of debt to total assets. *Payables* is the ratio of accounts payable to total assets. *Growth in sales* is annual growth of sales; *Financial Distress* is defined following Asquith, Gertner and Scharfstein (1990), and zero otherwise. The firm is considered to be in financial distress if it has a coverage ratio (EBITDA/Interest Expense) that is less than .8 in any given year or if it is less than 1 for two consecutive years; *Financial Flexibility* is defined as the percentage of total payouts represented by share repurchases; *Inventory Turnover* is sales over inventory. Panel A displays results for *HC* firms, meaning that for a given year they are above the median level of cash in the sample. Panel B display result for *LC* firms, meaning that for a given year they are below the median level of cash in the sample. The regression also includes year and industry effects, with standard errors adjusted for within firm clustering. *, ** and *** identify estimates that are statistically significant at 10%, 5% and 1% levels, respectively. ¹Coefficient multiplied by 10 to display first non-zero digit. ²

Panel B of Table 4 shows a positive and significant relation between *Financial Flexibility* and trade credit among LC firms, while Panel A shows no significant relation among HC firms. These results provide further evidence that improved flexibility through the use of share repurchases may allow an

opportunity for increased investment in trade credit. The intuition is that if a firm is struggling with low cash levels, it may not be able to delay receiving payment from its customers by offering additional trade credit. However, if the firm is able to utilize a higher percentage of share repurchases in its payout policy, this may create the needed flexibility in financial commitments to allow the firm to increase the investment in trade credit.

In both cases of either high leverage or low cash levels, the results show that when a firm may be considered lacking flexibility, the choice of more repurchases in payout policy may provide the necessary amount of financial flexibility to avoid underinvestment. These results provide evidence that in addition to a firm's managers caring about financial flexibility when issuing debt (Graham and Harvey (2001)), it is also of concern when determining payout and trade credit policies.

It is possible that there could be outliers in payout policy events that could be influencing the previous results of this study. To avoid this potential outlier problem, another measure, *Financial Flexibility 2*, is substituted as the variable of interest. Similar to Bonaime et al (2013), the original measure for financial flexibility is extended to provide an average over the previous two years as opposed to the previous one year. Equation (1) is again estimated among HL and LL firms using the new measure, *Financial Flexibility 2*. Table 5 presents the results for HL and LL firms in Panels A and B, respectively.

Table 5.	The Effect of Financial Flexibility on Trade Receivables on Debt Levels
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Variable	Coefficient
Financial Flexibility 2	0.01***
Payables	0.40***
Leverage	-0.02*
Turnover	0.03**
Growth in Sales	0.00
Financial Distress	-0.05**
Adj. R ²	0.20
Panel B: Firm-years for LL firms	
Variable	Coefficient
Financial Flexibility 2	-0.01
Payables	0.52***
Leverage	0.04***
Turnover	0.052**
Growth in Sales	0.032***
Financial Distress	-0.02
Adj. R ²	0.17

Panel A: Firm-years for HL firms

Notes: Table 5 presents a firm fixed effect regression with accounts receivable as a percentage of assets as the dependent variable. *Leverage* is the ratio of debt to total assets. *Payables* is the ratio of accounts payable to total assets. *Growth in sales* is annual growth of sales; *Financial Distress* is defined following Asquith, Gertner and Scharfstein (1990), and zero otherwise. The firm is considered to be in financial distress if it has a coverage ratio (EBITDA/Interest Expense) that is less than .8 in any given year or if it is less than 1 for two consecutive years; *Financial Flexibility 2* is defined as the percentage of total payouts represented by share repurchases, averaged over two years; *Inventory Turnover* is sales over inventory. Panel A displays results for *HL* firms, meaning that for a given year they are above the median level of leverage in the sample. Panel B display result for *LL* firms, meaning that for a given year they are below the median level of leverage in the sample. The regression also includes year and industry effects, with standard errors adjusted for within firm clustering. *, ** and *** identify estimates that are statistically significant at 10%, 5% and 1% levels, respectively.¹ Coefficient multiplied by 10 to display first non-zero digit. ² Coefficient multiplied by 100 to display first non-zero digit

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Results in Panel A demonstrate a positive and significant relation between *Financial Flexibility* 2 and trade credit among HL firms. Similarly, Panel B shows no significant relation among LL firms. This confirms the initial results in Table 3, that firms lacking financial flexibility due to high levels of leverage may seek the necessary flexibility through payout policy. Additionally, Equation (1) is estimated on samples labeled as HC and LC firms, substituting *FinancialFlexibility2* as the independent variable of interest. Results are presented in Table 6 for HC and LC firms in Panels A and B, respectively.

Panel A: F	rm-years for	HC firms
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Variable	Coefficient
Financial Flexibility 2	-0.00
Payables	0.44***
Leverage	-0.02***
Turnover	0.032*
Growth in Sales	0.032***
Financial Distress	-0.01
Adj. R ²	0.18
Panel B: Firm-years for LC firms	
Variable	Coefficient
Financial Flexibility 2	0.01***
Payables	0.41***
Leverage	-0.02***
Turnover	0.081***
Growth in Sales	0.03*
Financial Distress	-0.01*
Adj. R ²	0.18

Notes: Table 6 presents a firm fixed effect regression with accounts receivable as a percentage of assets as the dependent variable. *Leverage* is the ratio of debt to total assets. *Payables* is the ratio of accounts payable to total assets. *Growth in sales* is annual growth of sales; *Financial Distress* is defined following Asquith, Gertner and Scharfstein (1990), and zero otherwise. The firm is considered to be in financial distress if it has a coverage ratio (EBITDA/Interest Expense) that is less than .8 in any given year or if it is less than 1 for two consecutive years; *Financial Flexibility* 2 is defined as the percentage of total payouts represented by share repurchases, averaged over two years; *Inventory Turnover* is sales over inventory. Panel A displays results for *HC* firms, meaning that for a given year they are below the median level of cash in the sample. Panel B display result for *LC* firms, meaning that for a given year they are below the median level of cash in the sample. The regression also includes year and industry effects, with standard errors adjusted for within firm clustering. *,** and *** identify estimates that are statistically significant at 10%, 5% and 1% levels, respectively. ¹Coefficient multiplied by 10 to display first non-zero digit.

Panel B displays a significantly positive relation between *Financial Flexibility 2* and trade credit among LC firms, while Panel A displays no significant relation among HC firms. The results of Table 6 confirm those of Table 4. Among firms that could be considered lacking financial flexibility due to low cash levels, financial flexibility through repurchases may provide the needed ability to avoid underinvestment.

5. Conclusion

This study empirically examines the relation between financial flexibility through repurchases and trade credit, and results suggest it is positive and significant. Additional evidence indicates that this positive relation is specifically among either high leverage or low cash firms which may otherwise be considered lacking financial flexibility. These results are consistent with prior literature that repurchases may be preferred by managers because of the increased financial flexibility they provide

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(Brav et al (2005)). As firms improve the flexibility of their financial position by selecting a higher percentage of payouts as share repurchases, they avoid having a higher level of capital that would otherwise be committed to dividends. The results of this paper suggest managers allow this improved financial flexibility to act as a form of liquidity that can be invested in additional trade credit, thereby alleviating potential capital constraints of customers (Meltzer (1960)).

While it is understood that share repurchases provide greater flexibility in financial decision making, this is the first paper to draw a link between this improved flexibility and the firm's trade credit policy. This paper makes a contribution to the understanding of share repurchases and general decision making in corporate payout policy. Additionally, this paper makes a contribution to trade credit literature by identifying factors that impact a firm's ability to adjust trade credit policy.

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