Trade Creditors Response to Hedge Fund Activism

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Abstract

This study shows that trade creditors extend a negative response to hedge fund activism. Relative to control firms, target firms' accounts payable decreases by 28%, post activist intervention by hedge funds. This reduction is due to supply-side factors, highlighting suppliers' expropriation concerns. The study provides novel evidence that the repercussions of hedge fund activism extend beyond the formal debtholders, and informal debtholders such as trade creditors are not an exception. Further, target firms also offer lower trade credit to their customers after hedge fund activism. Trade receivables decrease by 12% relative to control firms. The findings suggest that activism-induced changes in operating cash flows, cash holdings and dividend payments potentially account for this reduction in trade receivables.

Keywords: Accounts payable; hedge fund activism; trade credit; trade receivables

JEL Classification: G30; G31; G34

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1. Introduction

Hedge funds have become influential and credible participants in bringing improvements in target firms (Kahan & Rock, 2007; Brav *et al.,* 2008; Bebchuk *et al.,* 2015; Boyson *et al.,* 2017; Gantchev *et al.,* 2020). The underlying mechanism to unlock a firm's value is to engage with firm managers and the board of directors. However, the previous studies have documented a negative response of debtholders toward hedge fund activism (HFA, hereafter) in the wake of expropriation concerns (Li & Xu, 2009; Klein & Zur 2011; Sunder *et al*., 2014; Dahiya *et al.*, 2020). Existing debtholders are considered in terms of private (bank loans) and public debtholders. Although both public and private debtholders are considered an important funding source for target firms, yet the literature is relatively silent on 'trade creditors' - who also hold a significant stance in the overall short-term debt financing source of a firm.

The US non-financial firms fund a significant proportion of short-term financing requirements of their customers (D'Mello & Toscano, 2020; Gyimah *et al.,* 2020). Trade credit is an informal extension of credit from suppliers to their customers, i.e., inter-firm lending in the overall supply chain process. It is short-term finance extended by operational creditors in the form of delay in making a payment. Trade credit represents approximately 2.5 times the overall value of external public debt and equity issuances in US firms (Ng *et al.,* 1999). Generally, accounts payable is more than three times the value of bank loans and 15 times the value of commercial papers on an aggregate basis (Barrot, 2016). In our sample, accounts payable and trade receivables account for 12 and 18 per cent of targets' overall annual sales, respectively.

Various theories have been developed to understand why firms demand trade credit or longer-payment terms from their suppliers, especially when the latter credit provisions are relatively expensive for customers as compared to other formal financing sources, such as bank loans[2] (Petersen & Rajan, 1997; Ng *et al.,* 1999; Burkart & Ellingsen, 2004; Cunat, 2007; Barrot, 2016). Amidst the growing literature on the extension of trade credit, we examine the relationship between HFA and trade credit. It has been argued that activist hedge funds increase the financial fragility of firms on account of an increased level of leverage, shareholder payouts and changes in operating strategies, post activist intervention (Klein & Zur, 2011; Aslan &

[2] Generally, trade credit involves a 2/10 net 30 provision – 2 per cent discount if the payment is made within 10 days or a period of 30 days after the invoice date for the full payment. This arrangement implies an interest rate of 43.9 per cent (Ng *et al.,* 1999)

Kumar, 2016). Moreover, activist hedge funds have often been criticized for cutting down capital expenditures in target firms. All of these initiatives bear stronger implications for the credit risk profile of target firms.

HFA increases the credit risk for debtholders (Myers, 1977; Klein & Zur, 2011; Dahiya *et al.,* 2020). Therefore, it has become important to understand how short-term inter-firm lenders or trade creditors respond to activist interventions by hedge funds. Like private and public debtholders, if trade creditors are also concerned about the expropriation of wealth from debtholders to shareholders, then we may expect supplier firms to reduce the extension of trade credit to target firms. Trade creditors or operational creditors normally hold a junior claim than other debtholders during a bankruptcy process (Zhang, 2019). However, if trade creditors support the 'shared benefits' hypothesis, i.e., HFA monitors the firm's affairs which are beneficial for all the stakeholders, then we may even expect supplier firms to increase the extension of trade credit to target firms.

Similarly, it is equally essential to understand whether HFA makes target firms alter their trade credit (or credit sales) policies or not. It has been argued that activist hedge funds particularly care about free cash flows and shareholder payouts in target firms (Bebchuk *et al.,* 2015). In the process, target firms increase shareholder payouts while returning a part of the capital to the shareholders. This increase in shareholder payouts could lead to a lack of internal financial resources, engendering lesser trade credit (by target firms) to customers in the form of lower trade receivables. Alternatively, target firms may also offer more trade credit to ensure a long-term relationship with their customers - if customers raise concern over activism initiatives. These are some of the important questions left unanswered by the present literature. Through the present study, we examine the relationship between HFA and the trade credit policies of target firms. The inter-play between HFA and trade credit will help us in comprehending the response of the short-term inter-firm lending market - while the shareholder rights are in action in target firms (by activist hedge funds).

The main challenge in comprehending this kind of relationship is the empirical framework capturing both demand- as well as supply-side factors of trade credit policy of target firms. To solve this challenge, we focus specifically on target firms' financial constraints and changes in leverage and capital expenditures from one year before to one year after HFA. Firms with financial constraints are expected to behave differently from those who are without such constraints. For instance, financially constrained firms may increase their demand for trade

credit financing or extend lower trade credit to customers in the form of lower trade receivables on account of activism-induced disruptions in free cash flows. In particular, we consider a set of control group of firms along with target firms because HFA is not a random event. The control firms are similar to target firms across different firm-level characteristics, such as total assets (in US million dollars), firm size, leverage, accounts payable, trade receivables, net trade credit, sales growth, return on assets, cash flows, tangibility of assets, cash holdings, Z-score, and sales. Following Brav *et al.* (2018), since HFA can potentially influence other factors affecting the trade credit policies of target firms, the empirical framework includes only the firm size and firm age as one of the main determinants of trade credit policies. To check robustness, we also consider a separate set of control firms, cohort-based fixed effects, management resistance to HFA, and Schedule 13G to 13D switches by hedge funds.

The findings suggest that supplier firms reduce the extension of trade credit to target firms after the activist interventions by hedge funds. Like other debtholders, this phenomenon also highlights the expropriation concerns raised by supplier firms, causing a reduction in the supply of trade credit to target firms. The supply-side effect is robust across different dimensions, like financial constraints and changes in leverage and capital expenditure of target firms from one year before to one year after HFA. Similarly, target firms further offer lower levels of trade credit to their customers after HFA. This reduction in the extension of trade credit largely comes from target firms that were financially unconstrained during one year before HFA[3]. Post interventions, there is a decrease in operating cash flows as well as cash holdings, and an increase in dividend payments, potentially accounting for this reduction in trade receivables by financially unconstrained target firms.

Hedge fund stated objectives like, changes in the capital structure, value maximization and business strategies, are not found to be contributing significantly to the trade credit policy of target firms. However, when the stated objective is to introduce corporate governance reforms, trade credit witnesses a relatively benign negative response from supplier firms. Similarly, when an activism campaign gets settled down with target firms, or when activist hedge funds get corporate board representations, the negative response of supplier firms becomes relatively benign on the back of a lesser degree of uncertainty involved in future potential actions to be undertaken by either activist hedge funds or target firms. Further, supplier firms reduce the

[3] The findings do not support a reduction in trade receivables for financially constrained firms. Plausibly, it is because financially constrained firms already extend lower trade credit to their customers (Love et al., 2007).

extension of trade credit to target firms that had higher levels of leverage and lower levels of the tangibility of assets during one year before HFA. Firms with higher agency costs of debt (higher firm leverage) and information asymmetry (lower tangibility of assets) are more susceptible to negative response from supplier firms (Custodio *et al.*, 2013). Similar is the case for target firms with higher levels of firm leverage and lower levels of the tangibility of assets, reducing the extension of trade credit to their customers, post activist intervention.

To understand the role of product market competition, we also consider two different proxies for product market competitiveness of firms, i.e., Lerner and Herfindahl-Hirschman indices. The Lerner index is considered at the industry level. Target firms operating under both lower as well as greater competitive environments observe a reduction in the extension of trade credit to their customers. However, target firms with greater product market power during one year before activism witness a negative response of supplier firms. This finding also indicates wealth expropriation concerns raised by supplier firms (Fabbri & Klapper, 2008).

The study contributes to the literature in two important ways. Firstly, it adds to the growing literature on HFA. Since the past two decades, a considerable number of studies have examined the impact of HFA on target firms' value. But still, there is no consensus among the researchers over the possible implications of HFA (positive or negative) on target firms (Krehmeyer *et al.*, 2006; Fox & Lorsch, 2012; George & Lorsch, 2014; Bebchuk *et al.*, 2015; Cremers *et al.*, 2016; Brav *et al.*, 2018; Gantchev *et al.*, 2020). Hence, the present study considers the operational impact of HFA by studying the trade credit policies of target firms post-HFA.

Second, the study contributes to the literature on understanding various determinants of the trade credit policy of a firm. There are various theories developed over time to understand why firms extend trade credit to their customers. Studies like Smith (1987), Biais and Gollier (1997), Petersen and Rajan (1997), Ng *et al.* (1999), Burkart and Ellingsen (2004), Cunat (2007), Fabbri and Menichini (2010), Barrot (2016), Shang (2020) and Gyimah *et al.* (2020) are some of the important studies that looked at various factors engendering trade credit policies of sample firms. In this regard, we consider HFA as another factor having an impact on the trade credit policy of target firms.

Section 2 reports literature review and discussion on hypotheses development, section 3 discusses data and sample overview, section 4 reports empirical design along with findings, and lastly, section 5 concludes the paper.

2. Literature Review and Hypotheses Development

Short-term debt consists of several sub-components ranging from short-term bank loans to trade credit. Trade credit financing is one such component that has not been given much attention especially with respect to HFA. It captures the short-term working capital requirement of firms. Hedge funds generally target smaller firms because of their ability to enhance their ownership stake (Brav *et al.,* 2008). Prior studies have documented a prominent role of trade credit in the financing structure of smaller firms. For instance, while focusing on smaller firms, Petersen and Rajan (1997) assert that trade creditors have an inherent advantage over other financial institutions due to their ability to acquire information (Mian & Smith, 1994), and recovery of credit in case of a default (Jain, 2001). Therefore, supplier firms with adequate access to external or internal financial resources extend larger trade credit to their customers (Love *et al.,* 2007; Garcia-Appendini & Montoriol-Garriga, 2013).

In other words, supplier firms act as 'liquidity providers' in times of crisis periods or even substitute for bank credit by offering a larger amount of trade credit to customers (Cunat, 2007; Biais & Gollier, 1997; Burkart & Ellingsen, 2004). If a buyer defaults, then trade creditors can impose certain sanctions by cutting their supplies. This makes trade creditors an important stakeholder in the firms' governance environment.

Over the years, several theories have been developed in an attempt to understand why firms extend trade credit to their customers. Some of these theories focus on product market differences, causing firms to offer more trade credit due to the unique nature of their products. For instance, Giannetti *et al.* (2011) assert that firms with differentiated products have more trade receivables than firms selling standardized products. Suppliers of such differentiated products offer a highly customized range of products. Hence, it becomes important to sustain the supplier-customer relationship by extending trade credit facilities to customers. Another argument for offering trade credit relates to liquidation and information advantage enjoyed by supplier firms (Smith, 1987; Biais & Gollier, 1997; Burkart & Ellingsen, 2004; Fabbri & Menichini, 2010). Trade credit primarily involves the lending of goods instead of cash, thereby reducing borrowers' opportunism to indulge in any kind of input diversion.

Firms also mimic their peers while formulating trade credit policies, especially when operating under a highly competitive environment (Gyimah *et al.,* 2020). Further, firms with higher stock liquidity rely lesser on trade credit financing and extend more trade credit to their customers

(Shang, 2020). Under the traditional explanation, trade credit also plays a non-financial role of price discrimination among different customers (Petersen & Rajan, 1997; Ng *et al.*, 1999), and in maintaining a long-term relationship with customers. It is particularly important in ensuring the quality of products to customers (Smith, 1987). Through trade credit, buyers get a sufficient period to ensure the quality of products.

Lee and Stowe (1993) argue that firms with high-quality products offer lower cash discounts and extend more trade credit since they are confident about the quality of their products. The size of cash discounts discloses evidence of the quality of products. Further, Biais and Gollier (1997) report that trade credit can alleviate information asymmetry (between banks and firms) by incorporating private information held by supplier firms (about their customers) in the lending activities. Firms without any banking relationship resort more to trade credit as an alternative instrument to fulfil financial requirements.

With their information advantage theory, Burkart and Ellingsen (2004) argue that input transactions put supplier firms in an inherently advantageous position to monitor the affairs of their customers. Other lenders have to incur a monitoring cost for this purpose, especially when they are lending in cash. Several studies like Petersen and Rajan (1997), Ng *et al.* (1999), Burkart and Ellingsen (2004), Cunat (2007), Love *et al.* (2007), and Fabbri and Menichini (2010) have established the effective role of trade creditors in combating managerial opportunism than other financial creditors. Trade credit also acts as a strategic choice in implying sound financial health of firms, but it is also used as a marketing tool (Petersen & Rajan, 1997). It is interesting to see how these strategic choices turn out during an uncertain environment, in particular, during hedge fund interventions in target firms. These firms could also use trade credit as a strategic tool in sustaining a long-term relationship with their customers (Wilson & Summers, 2002).

The extension of trade credit reflects supplier firms are going to assume responsibility for risk assessment, financing and debt collection from their customers (Ng *et al.*, 1999). Financially constrained firms rely more on trade credit financing (Burkart & Ellingsen, 2004). In the case of two-part terms (trade credit and discount), suppliers charge a higher implicit interest rate to cover borrowers' liquidity and default risks (Cunat, 2007). Whenever there is a shock in the supply chain process, both operating and financial performance deteriorate in the wake of negative earnings, financial distress, and litigations (Herztel *et al.*, 2008; Pandit *et al.*, 2011;

Cen *et al.,* 2016). Seemingly, financial distress may also act as a serious disruptor in the supply chain process.

On these analogies, Banerjee *et al.* (2008) suggest that suppliers often resort to lower leverage (*ex-ante*) to entice their major customers who weigh financial disruptions in the supply chain process as a significant threat. This *ex-ante* behaviour on the part of suppliers may put target firms at a midpoint because HFA tends to increase leverage and shareholder payouts in the latter firms. Moreover, target firms become more vulnerable to an elevated level of credit risk and financial disruptions (Li & Xu, 2009; Klein & Zur 2011; Sunder *et al*., 2014; Dahiya *et al.,* 2020). HFA could also impose negative externalities on trade creditors because they enjoy a junior claim over their debt contracts (Zhang, 2019). In the process, the supplier firms (trade creditors) are expected to reduce the extension of trade credit to target firms. This argument is consistent with the expropriation concerns raised by the traditional public and private debtholders, post-HFA, in the form of increasing targets' cost of debt (Li & Xu, 2009; Klein & Zur, 2011; Sunder *et al*., 2014; Dahiya *et al.,* 2020).

However, Jain (2001) asserts that trade creditors act as another layer of financial intermediation between financial institutions and the borrowing firms (Schwartz, 1974). For bankers, monitoring the borrowers' affairs comes up with a cost, whilst supplier firms can do the same job in a potentially costless manner. Private lenders may also find it difficult to comprehend the true financial position of target firms. Therefore, trade creditors might play an intermediary role by extending an informed inter-firm credit to target firms after HFA. A positive response to trade credit signifies a growing conviction of targets' supplier firms with respect to 'monitoring benefits' rendered by activist hedge funds. As this relationship between HFA and trade credit can go either way, the first hypothesis is expressed in a null format:

H01: *HFA does not have any impact on target firms' accounts payables.*

Targets' customers who are more concerned about financial disruptions can also switch to other suppliers (Banerjee *et al.,* 2008). There is an economic cost involved in searching out for new customers or diverting to other industry players. One possible remedy, therefore, could be to extend more trade credit to customers. In this case, we may expect target firms to offer more trade credit to their customers after HFA. However, with a growing lack of internal financial resources (owing to activism-induced disruptions in free cash flows), target firms may extend lower trade credit to their customers after HFA (Shenoy & Williams, 2017). Hence, we may expect a reduction in the extension of trade credit by target firms after the activist interventions.

Target firms sell their products more on a cash basis post-HFA. The second hypothesis is also expressed in a null format:

H02: *HFA does not have any impact on target firms' trade receivables.*

In the following sections, we discuss the empirical framework and various findings involving HFA and the trade credit policy of target firms.

3. Data and Sample Overview

a. Data Sources

i. HFA

Data related to HFA is obtained from the SharkRepellant, which is a repository of activism campaigns. As per the Securities and Exchange Commission (SEC), an activist investor has to file a Schedule 13D with the regulator after crossing the threshold ownership of 5 per cent in a firm. Generally, Schedule 13D filings also contain a 'statement of purpose' highlighting various activism-related agendas, largely relating to corporate governance reforms, changes in the capital structure, value maximization, changes in the business strategies and the sale of target firms. we manually checked for these activism-stated objectives. The SharkRepellent also covers publicly announced shareholder activism campaigns involving an ownership stake of lesser than 5 per cent. Therefore, the study considers both 13D filings and HFA public announcements for the analysis. The sample period ranges from 2000 to 2017. Campaigns related to financial firms, business reorganizations, bankruptcies and risk arbitrage merger opportunities are excluded from the analysis because of their unique activism characteristics. In the end, there are 1,263 activism campaigns launched by activist hedge funds.

ii. Trade Credit

For trade credit and other firm-level characteristics, we resort to the Compustat Industrial Annual database. The sample period ranges from 1995 to 2017. Firms offering trade credit is measured by trade receivables (RECTR), scaled by lagged net sales. Trade receivables is an amount owed by customers to their supplier firms. Similarly, firms' reliance on trade credit is measured by accounts payable (AP), scaled by lagged net sales. These are short-term debt (trade) obligations due within one year. Both the latter variables are scaled by a flow variable, i.e., net sales to control for a change in economic activity in the aftermath of HFA (Greenwood

& Schor, 2009; Garcia-Appendini & Montoriol-Garriga, 2013). Since HFA can potentially influence other factors affecting the trade credit policies of target firms, the empirical framework includes only the firm size and firm age as one of the main determinants of trade credit policies (Petersen & Rajan, 1997; Brav *et al.,* 2018). Firm size is measured by considering the logarithm of total assets. Information relating to the rest of the variables can be found in the appendix[4].

b. Sample Overview

Figure 1 displays various characteristics of HFA campaigns from the year 2000 to 2017. These various characteristics range from settled campaigns, campaigns where hedge funds switched their positions from passive to active ones, i.e., from Schedule 13G to 13D filings, campaigns with hedge funds board representations to campaigns where target firms adopted poison pills to deter off the implications of HFA. Equity investors are expected to file Schedule 13G with the regulator when their equity stake increases the threshold ownership of 5 per cent (but lesser than 20 per cent) subject to the condition that they do not have any activism agenda. These campaign characteristics are placed against various stated objectives of hedge funds. The stated objectives are categorized into five different groups comprising corporate governance reforms, changes in the capital structure, changes in the business strategies, value maximization and the sale of target firms. Under the corporate governance reforms, the focus revolves primarily around removing the takeover defences, removal of CEOs or other officers, changes in the executive compensation packages or disclosure of more information to shareholders.

Operational efficiency - involvement in mergers and acquisitions, or other growth-oriented strategies - principally fall into the category of changes in the business strategies. Capital structure generally covers the distribution of free cash flows to shareholders and use of leverage in targets' capital structure. Value maximization is a broader objective of increasing shareholder wealth through adequate measures suggested by hedge funds. Lastly, under the sale of target firms, hedge funds categorically ask for selling some of the main assets of target firms. Corporate governance reforms are one of the most cited activism objectives followed by changes in the business strategies, value maximization, sale of target firms and changes in the capital structure. In 4.19 per cent of the cases, target firms adopted a poison pill in response to an activist intervention concerning corporate governance practices. This is followed by 3.48 per cent of the cases requisitioning a change in the business strategy of target firms. Most of

[4] For supplementary data, we also refer to the Center for Research in Security Prices (CRSP) database.

the campaigns focusing on corporate governance reforms get settle down with target firms. In 32 per cent of the cases, activist hedge funds get corporate board representations.

Similarly, campaigns involving corporate governance reforms observe an active stance of activist hedge funds. In around 4.82 per cent of the cases, hedge funds switched from Schedule 13G to 13D filings in target firms. This switch is an explicit indication of the active involvement of hedge funds in influencing control or policies in target firms. Further figure 2 displays the industry-wise distribution of activism campaigns from the year 2000 to 2017. These sectors are determined as per Factset's industrial classification list. The top three sectors that attract activism campaigns include electronic technology, technology services and health technology. Apart from these sectors, there are various other sectors where hedge funds launched an activism campaign. For instance, commercial services, health services, manufacturing, retail trade, distribution services, consumer durables, consumer non-durables, non-energy minerals, industrial services, energy minerals, etc. are some of the other sectors targeted by activist hedge funds.

In this study, we examine the impact of HFA on the trade credit policies of target firms. Targeting a firm is certainly not a random event. Therefore, to establish causality and to account for various endogeneity issues, we resort to a control group of firms determined through activism-related determinants. Control firms consider counterfactual scenarios while modelling this relationship between HFA and the trade credit policies of target firms. In total, we manage to gather data for 810 target and control firms (pseudo-event years for control group of firms).

Table 1 reports descriptive statistics of target and control firms for one year before HFA. We consider various firm-level characteristics ranging from total assets in US million-dollar terms, firm size, receivables (trade receivables), payables (accounts payable), return on assets (ROA), leverage, sales growth, tangibility, cash holdings, cash flows, Z-score, Sales (as a proportion of lagged total assets) to net trade credit. The differences between target and control firms' average (mean) values are reported in a separate column along with the respective t-statistics. Both receivables and payables are industry-median adjusted trade receivables and accounts payable, respectively. Net trade credit considers a difference between trade receivables and accounts payable, scaled by lagged net sales.

Firm-level characteristics are considered, existing during one year before HFA. Both target and control firms are indistinguishable from each other. All the t-statistic values are found to be statistically insignificant for the differences between the average (mean) values of the respective firm-level characteristics. For target firms, industry-median adjusted trade receivables and accounts payable are 3 and 3.4 per cent, respectively. Firm leverage, tangibility and cash holdings are 22, 25 and 20 per cent of targets' total assets, respectively. Further figure 3 displays the industry-wise distribution of accounts payable and trade receivables in the year before HFA. Accounts payable and trade receivables are considered in industry-median adjusted terms. The classification of the industries is done as per the SIC's industrial classification codes. It is done to ensure that both accounts payable and trade receivables vary across industries during one year before HFA. It also highlights the importance of appending industry-specific fixed effects in different regression specifications.

Lastly, we also examine the dynamics of industry-median adjusted accounts payable and trade receivables from three years before to three years after HFA (table 2). The average (mean) and standard deviation values are reported for both target and control firms. Both accounts payable and trade receivables decrease substantially from a year before to one year after HFA. Accounts payable attenuates from 3.4 per cent to 1.5 per cent as a proportion of lagged net sales from one year before to one year after HFA. Similarly, trade receivables decrease from 3 per cent to 0.35 per cent as a proportion of lagged net sales from one year before to one year after activism. For control firms, we do not observe this kind of a substantial reduction in accounts payable and trade receivables. We can also observe this decline in graphical terms. Figure 4 depicts a sudden drop in industry-median adjusted accounts payable and trade receivables after HFA. Univariate results support a reduction in both accounts payable and trade receivables after HFA; however, in the next section, we examine this relationship in a multivariate regression framework.

4. Empirical Design and Findings

a. Empirical Framework

Targeting a firm is not a random event; therefore, we consider a control group of firms while modelling this relationship between HFA and trade credit policies of target firms. The control group of firms are determined from the same 2-digit SIC industry codes having the closest propensity scores with target firms. Propensity scores are determined through a logistic regression by employing some of the main determinants of HFA, like firm size, market-to-

book ratio, one-year lagged return on assets, change in return on assets from *t-3* to *t-1* (in order to control for any trend) and cash holdings (Brav *et al.,* 2018).

For the regression specifications, firm size and age are considered as the main determinants of trade receivables and accounts payable (Petersen & Rajan, 1997; Brav *et al.,* 2018). We also append firm and industry-by-year fixed effects to account for various omitted factors having an impact on trade credit policies of target firms. Industry-by-year fixed effects are particularly important to mitigate concerns related to various demand- and supply-side factors having an impact on trade credit policy of sample firms (Gonçalves *et al.,* 2018). We estimate the following model to analyse the relationship between HFA and trade credit policies of target firms.

$$TradeCredit_{it} = \alpha_i + \alpha_t + \beta_1.(Target_i) \times (Post_{it}) + \beta_2.(Post_{it}) + \gamma.Control_{it} + \varepsilon_{it} \quad (1)$$

In equation (1), i, and t are subscripts representing firm and year observations, respectively, and α_i and α_t represent firm and industry-by-year fixed effects capturing unobserved heterogeneity across the sample firms and industry-years. ε_{it} is the error term. $TradeCredit_{it}$ is trade receivables and accounts payable for both target and control firms, respectively. $Target_i$ is a dummy variable equal to one for a target firm *i* and $Post_{it}$ is a dummy variable equal to one for the firm-year (*it*) observations between *t+1* and *t+3,* i.e., three years following HFA. These post-event years are considered as pseudo-event years for control firms. $Control_{it}$ includes firm size and age as the main determinants of trade receivables and accounts payable, respectively. The key coefficient of interest is (β_1) indicating a differential shift in targets' trade credit policies after the activist interventions by hedge funds, as compared to control firms. The coefficient (β_2) would ensure the time variations in trade credit policies of target firms.

To confirm the parallel trends' assumption between target and control firms, we estimate the dynamics of trade credit from three years before to three years after HFA. The following is the regression specification (in a similar spirit of Brav *et al.*, 2018):

$$TradeCredit_{it} = \alpha_i + \alpha_t + \sum_{-3}^{+3} \beta_k \{d[t+k]_{it} \times (Target_i)\} + \sum_{-3}^{+3} \lambda_k\, d[t+k]_{it} + \gamma.Control_{it} + \varepsilon_{it} \quad (2)$$

In equation (2), the dummy variables $d[t-3]_{it} \ldots d[t+3]_{it}$ capture firm-year observations from three years before to three years after activism – equal to one, and zero otherwise. This specification would ensure that the results are not driven by some pre-existing trends between target and control firms. Again, we append firm and industry-by-year fixed effects to account for unobserved heterogeneity across firms and industry-years. There can be several industry-

wide factors accounting for demand as well as the supply of trade credit by firms. These concerns can be mitigated (to a large extent) by appending industry-by-year fixed effects. $Control_{it}$ includes firm size and age as the main determinants of trade receivables and accounts payable, respectively. Both firm size and age act as a proxy for the creditworthiness of a firm (Petersen & Rajan, 1997). The total firm-year observations are 22,853. All the variables are winsorized at the 1 and 99 percentiles, respectively.

b. Findings

We examine the dynamics of trade credit policy of target firms - relative to control firms - around the activism years. Table 3 reports regression dynamics of accounts payable and trade receivables from three years before (-3) to three years after (+3) HFA for target and control firms. In both the cases, we scale the dependent variables by lagged net sales. The variable *t* implies the period around HFA, and $Target_i$ implies the firms getting targeted by hedge funds. Column (1) relates to accounts payable, and column (2) provides findings related to trade receivables. The test statistics - standard errors clustered by industries – are reported in parentheses.

Overall, the findings support the parallel trends' assumption between target and control firms, except during $Target_i$*d[t-3], where the coefficient is statistically significant at 10 per cent level in the case of trade receivables. However, the years after HFA mark a statistically significant decrease in both accounts payable and trade receivables. Accounts payable decreases by around 0.04 points immediately after the activism year *(t)* for target firms. On a similar note, trade receivables also decrease by around 0.03 points for target firms after HFA. Interestingly, this act of reduction in trade receivables triggers from the year of activism per se. The coefficient for the *firm size* is consistent with the argument that large firms not only use more trade credit but also extend more trade credit to their customers (Petersen & Rajan, 1997). Large firms are in a better position to get additional trade credit from their suppliers as compared to the smaller ones. The coefficient for the *firm age* implies that older firms reduce their reliance on trade credit in terms of both trade receivables and accounts payable. Initial years are much more crucial for building a relationship between supplier and customer firms than the later ones (Petersen & Rajan, 1997).

Further, table 4 reports panel regression findings for both trade receivables and accounts payable. Column (1) relates to accounts payable, and column (2) provides findings relating to trade receivables. Both trade receivables and accounts payable witness a reduction post-HFA. Accounts payable decreases by around 0.03 points and trade receivables attenuate by 0.02 points after HFA. The reduction in accounts payable accounts for 28 per cent of accounts payable existing one year before HFA. In terms of the number of days, accounts payable decreases by 11 days. The reduction in trade receivables accounts for 12 per cent of trade receivables existing one year before the activist interventions. Similarly, in terms of the number of days, trade receivables decrease by 7 days. It implies that these reductions are economically significant as well[5]. This decrease in trade receivables and accounts payable could also arise on account of different factors, as the working capital decisions are jointly determined by firms in an attempt to match the maturity of their cash flows (Love *et al.*, 2007; Gonçalves *et al.*, 2018). Therefore, we also consider a net trade credit position (trade receivables minus accounts payable), scaled by lagged net sales.

Table 5 highlights results related to the mechanism of trade credit for target and control firms. Column (1) provides findings relating to net trade credit as a proportion of lagged net sales, column (2) relates to sales as a proportion of lagged total assets, column (3) relates to the margin as a proportion of net sales, and columns (4) and (5) relate to operating and net operating cycles, respectively. Since both trade receivables and accounts payable decrease after the activist interventions by hedge funds, net trade credit position does not change significantly for target firms post-HFA. Therefore, the coefficient for $Target_i*Post_{it}$ is statistically insignificant for the net trade credit position. Further, we examine net sales and gross margin for both target and control firms, post-HFA. It captures whether target firms introduce changes in gross margins to avoid losing (or increasing) sales or not.

We do not find any statistically significant impact on net sales and gross margin for target firms relative to control firms. The coefficient for $Target_i*Post_{it}$ is statistically insignificant (though positive) for net sales and gross margin. HFA does not origin a change in the net sales and gross margin for target firms[6]. On a similar note, we do not find any impact on gross and net

[5] In dollar terms, the reduction in accounts payable and trade receivables become 103 and 69 US million dollars, respectively as a proportion of net sales, existing during one year before HFA.

[6] One can also argue that as part of the working capital management, target firms demand lower trade credit from their suppliers, post-HFA, and make upfront cash payments to enjoy cash discounts from their suppliers (i.e., demand-side argument). If target firms prefer making immediate payment to their suppliers to enjoy cash discounts, post-HFA, we may expect to see its positive impact on gross margin due to a reduction in the cost of goods sold. However, our result relating to gross margin does not support the latter assertion.

operating cycles, post-HFA[7]. In the case of the gross operating cycle, the coefficient for $Target_i*Post_{it}$ is negative, potentially on account of reduction in trade receivables, but it is statistically insignificant[8]. Overall, the findings support a reduction in trade receivables and accounts payable for target firms, but this act of reduction does not entail any change in net sales, gross margin, gross and net operating cycles[9]. Target firms increase their usage of cash payments while making payment to supplier firms. On average, the findings suggest that a substantial portion of this cash usage is financed through a concomitant reduction in trade credit offered to customers. It is because HFA is not affecting trade credit mechanisms, like net trade credit, gross margin and operating cycles.

i. Robustness

In this section, we discuss the robustness of our findings from four different dimensions. Table 6 is divided into two parts – Part (A) and Part (B). Part (A) provides robust findings for accounts payable and trade receivables in six different columns. The control group of firms are re-estimated from a different perspective. Column (1) provides findings relating to another set of control firms for accounts payable, and column (2) relates to another control group of firms for trade receivables. The control group of firms are determined from the same 2-digit SIC industry codes, but having the closest sales (as a proportion of total assets) with target firms. In this case, as well, the findings support a reduction in both trade receivables and accounts payable for target firms relative to control firms.

We also append cohort-based fixed effects into the regression specifications. This approach accounts for various changes occurring simultaneously across target and control firms around the activism years (Gormley & Matsa, 2011). Therefore, for each activism year, we construct a cohort of target and control firms across various industries and sample years, i.e., firm-by-cohort and industry-by-year-by-cohort fixed effects. Column (3) provides findings relating to accounts payable with cohort-based fixed effects, and column (4) provides findings relating to cohort-based fixed effects for trade receivables. The findings hold even after considering cohort-based fixed effects into the regression specifications. Overall, these findings support

[7] For gross and net operating cycles, we also append sales into the regression specifications as one of the control variables.

[8] The gross and net operating cycles of target firms are around 125 days (natural log is 4.82) and 65 days (natural log is 4.17), respectively. It means that target firms take 125 days (on average) to convert their inventory investments into cash flows from sales.

[9] We do not see any impact on inventories to sales ratio of target firms post activist intervention by hedge funds. The coefficient for $Target_i*Post_{it}$ is negative, but statistically insignificant.

that target firms reduce their reliance on trade credit after the activist interventions by hedge funds[10].

Lastly, columns (5) and (6) provide findings related to accounts payable and trade receivables for target firms (along with control firms) exhibiting resistance to activism initiatives. Resistance to HFA involves either hostile or moderate resistance to activism initiatives. Following Boyson and Pichler (2019), we categorize resistance to activism campaigns into hostile and moderate. Hostile resistance comprises filing of lawsuits against hedge funds, changes in classified board structures, adoption of poison pills, etc. Adjournment of meetings, acting against the wishes of activist hedge funds, amendment in the advance notice requirements, etc. primarily fall into the category of moderate resistance. We do not expect a reduction in accounts payable and trade receivables for target firms that resist activism initiatives either in a hostile or a moderate manner. It is because resistance to activism acts as a shield for activist hedge funds while attempting to introduce structural changes in target firms. As per expectations, we do not observe a statistically significant reduction in both accounts payable and trade receivables post-HFA[11].

In part (B) of table 6, we also consider switches from Schedule 13G to 13D filings by activist hedge funds. Schedule 13D filings reflect two important information contents: first, acquisition of a significant stake in a firm (greater than 5 per cent), and second, an active stance of investors. Therefore, it could be possible that both accounts payable and trade receivables decrease irrespective of the active involvement of hedge funds. In other words, one can argue that accounts payable and trade receivables decrease due to the potential threat attached to the acquisition of shares by hedge funds, and this reduction in the trade credit is not related to actual activist interventions. Hence, we focus specifically on switches from Schedule 13G to 13D filings by activist hedge funds. Equity investors file Schedule 13G with the regulator (SEC) when their equity stake crosses the threshold ownership of 5 per cent (but lesser than 20 per cent) subject to the condition that they do not have any activism agenda. When hedge funds switch from Schedule 13G to 13D filings, it indicates hedge funds' switch from passive to a more active stance - when they already own a significant stake in target firms. We consider changes in industry-median adjusted accounts payable and trade receivables for target and control firms. These changes are considered from one year before to one (two) year after HFA.

[10] The absolute values of accounts payable (log (1+AP)) also decrease post-HFA.
[11] It may be noted that the sample size for the campaigns related to target firms' resistance to HFA is relatively small; therefore, the results should be considered with some caution.

Columns (1) and (2) of table 6 report cross-sectional regression results for changes from one year before to one year after HFA for accounts payable and trade receivables, respectively. Columns (3) and (4) report cross-sectional regression results for changes from one year before to two years after HFA for accounts payable and trade receivables, respectively. We also include control variables comprising firm size, age, leverage, cash holdings, the tangibility of assets and return on assets, existing one year before the intervention. In all the cases, the findings support a reduction in both accounts payable and trade receivables for cases where hedge funds switch from Schedule 13G to 13D filings. This reduction becomes evident when hedge funds become active in influencing target firms' control and policies. Our variable of interest, i.e., *13G-to-13D*, is negative and statistically significant at the 5 per cent level. It is consistent with the earlier findings that both accounts payable and trade receivables decrease post the activist involvement of hedge funds.

ii. Additional Analysis

In this section, we analyse the trade credit policies of target firms from different perspectives. Table 7 relates various characteristics of hedge fund campaigns with accounts payable and trade receivables. We consider campaign characteristics, like settlement between activist hedge funds and target firms, hedge funds getting representations in targets' boards, and hedge funds asking for the reimbursement of expenses incurred on activism from target firms. We expect a lower reduction in accounts payable and trade receivables for campaigns that get settled down with target firms or where hedge funds get corporate board representations. It is because such campaigns allay down concerns related to uncertainty over the potential actions to be undertaken by the respective parties in future.

Columns (1) to (3) relate to settled campaigns, campaigns with board representations by hedge funds, and campaigns where hedge funds ask for the reimbursement of expenses incurred on activism for accounts payable, respectively. Similarly, columns (4) to (6) relate to settled campaigns, campaigns with board representations by hedge funds, and campaigns where hedge funds ask for the reimbursement of expenses incurred on activism for trade receivables, respectively. Settled hedge fund campaigns are those where hedge funds enter into a settlement (standstill) agreement with target firms (Bebchuk *et al.*, 2019). Sometimes, hedge funds also get corporate board representations as a result of their activism initiatives. Occasionally, hedge funds also ask for the reimbursement of expenses incurred on activism. The reimbursement of

expenses can potentially trigger a situation of conflict of interest between activist hedge funds and other stakeholders (Coffee, 2017).

We include an indicator variable for campaign characteristics across different regression specifications. In the case of accounts payable, the F-statistics (for the combined effect) of the settled campaigns, and those with board representations are statistically significant, capturing a lower decrease in accounts payable for target firms. Hence, hedge fund campaigns that get settled down with target firms or where hedge funds get board representations marks a lower reduction in accounts payable. On a similar note, the F-statistic of hedge fund board representations marks a lower reduction in trade receivables after the activist interventions by hedge funds. In the case of trade receivables, the coefficient for $Settle*Target_i*Post_{it}$ is also significant with a positive impact after HFA. We do not see any impact of activist hedge funds requiring the reimbursement of their expenses incurred on activism. Further, activist hedge funds also mention some of the primary objectives while influencing their control or policies in target firms. We expect the respective responses to differ considering the activism-stated objectives, especially when one of the stated objectives is to introduce corporate governance reforms in target firms. In tables 8 and 9, we also examine accounts payable and trade receivables by relating them to various stated objectives of HFA with respect to target and control firms, respectively.

Columns (1) to (5) provide results relating to activism-stated objectives ranging from corporate governance reforms, changes in the capital structure, value maximization, changes in the business strategies to the sale of target firms. In the case of accounts payable, none of the incremental effect is found to be statistically significant on a standalone basis. This implies that accounts payable witness a blanket reduction, post-HFA, irrespective of activism-stated objectives, with the exception when the stated objective is to introduce corporate governance reforms. For corporate governance reforms, accounts payable witness a statistically weaker reduction post-HFA. In the case of trade receivables, the coefficient for $TSale*Target_i*Post_{it}$ is significantly positive marking an incremental increase in trade receivables. It highlights the penultimate response of target firms to boost up their sales when hedge funds categorically demand the sale of target firms. Further, when the stated objective is to undertake corporate governance reforms, target firms do not witness a reduction in the extension of trade credit to their customers.

iii. Demand versus Supply-Side Effects

Thus far, we have argued that there is a reduction in trade receivables and accounts payable post-HFA. However, we are not sure whether this reduction is on account of demand-side or supply-side factors. A likely scenario could be that due to a reduction in economic activities, targets' demand for trade credit decreases causing a reduction in accounts payable, post-HFA. The earlier studies on HFA have argued that activist hedge funds decrease capital expenditures and increase the usage of borrowed funds in target firms (e.g., Bebchuk *et al.* 2015). Studies like Chava and Roberts (2008), Nini *et al.* (2012), and Zhang (2019) support a reduction in economic activities post lenders-induced disruptions in investment expenditures and firm leverage. Therefore, these changes in accounts payable could be on account of activism-induced disruptions in capital expenditures and firm leverage – consistent with targets' demand-side argument for accounts payable. Similarly, financially unconstrained firms can deliberately offer lesser trade credit to their customers due to the varying levels of cash flows after the activist interventions by hedge funds – consistent with targets' supply-side argument for trade receivables.

In tables 10, 11, 12 and 13 we conduct various cross-sectional tests to disentangle the supply-side effects from the demand-side ones. Table 10 provides findings relating to accounts payables and financial constraints for target and control firms. we use three different measures of financial constraints to understand whether the changes in accounts payable have anything to do with financial constraints existing one year before HFA or not. The three different measures used for financial constraints are the Whited-Wu index (Whited and Wu, 2006), Hadlock-Pierce Size-Age (SA) index (Hadlock and Pierce, 2010), and firm size. These measures are typically used in the finance literature to understand the financial constraints of sample firms (Almeida *et al.*, 2004; Gonçalves *et al.*, 2018; Opie *et al.*, 2019). Following Brav *et al.* (2018), firms are divided into two different groups in the year before HFA, i.e., below (low) and above (high) the median values. We re-run the regression equation (1) with the addition of two interaction terms, $High_i$ and Low_i, into a single regression equation. For brevity, the results are reported separately for both low and high groups. The interaction terms capture whether target firms' response to HFA is dependent on financial constraints or not.

Columns (1) to (3) relate to firm size, Whited-Wu index (WWI), and Hadlock-Pierce SA index (SAI), respectively. Higher index values reflect possible financial constraints faced by firms. The findings support that accounts payable decrease for both the types of firms, i.e., below and

above the median values for firm size and SA index. This finding suggests a supply-side impact on accounts payable - coming from supplier firms post activist intervention. The demand-side argument commands a reduction in accounts payable for financially unconstrained firms. The findings, however, support a blanket reduction in accounts payable for all target firms. These findings are consistent with the earlier assertion that supplier firms also exhibit expropriation concerns, post-HFA.

Table 11 further provides findings relating to trade receivables and financial constraints for target and control firms. Both the firm size and WWI index support a reduction in trade receivables for firms that are financially unconstrained. Firms that are large, and that have lower WWI index values witness a reduction in trade receivables, post-HFA. This finding suggests a supply-side response of target firms, wherein financially unconstrained firms offer lesser trade credit to their customers. We also examine the relative reliance of sample firms on short-term liquidity in table 12. Short-term liquidity is defined as the ratio of inventories to sales and is calculated across the US firms at the 2-digit SIC industry level for each year. Higher the ratio greater the reliance on external short-term liquidity, as it measures the extent to which current revenues can finance the inventories (Levine *et al.*, 2018).

Similarly, target firms with both higher as well as lower reliance on external liquidity - during one year before HFA - witness a reduction in accounts payable after the activist interventions by hedge funds (table 12). Higher and lower groups are determined considering the industry-median values of inventories to sales ratio at the 2-digit industry level for each year. Target firms with a lower reliance on external short-term liquidity observe a reduction in trade receivables post-HFA (table 12). This reduction in trade receivables implies a supply-side response of target firms – consistent with financially unconstrained target firms reducing the extension of trade credit to their customers. It could be on account of the varying levels of cash flows after HFA (Bebchuk *et al.*, 2015).

To further corroborate our findings with the changes in the firm-level economic activities post-HFA, we consider ex-post changes in firm leverage and capital expenditures from one year before to one year after HFA. Table 13 provides results relating to accounts payables and trade receivables for target and control firms. Firms are divided into two different groups in terms of ex-post changes in firm leverage and capital expenditures (CAPEX) from one year before to one year after HFA, i.e., below (low) and above (high) the median changes in leverage and CAPEX. Ex-post changes in firm leverage and capital expenditures account for the potential

influence of HFA on the economic activities of target firms (Zhang, 2019). In this case, as well, there is a reduction in accounts payable and trade receivables for both the types of firms, i.e., below and above the median values. If it would have been on account of demand-side factors, we expect a reduction in accounts payable and trade receivables in the either high or low change in the firm-level economic activities. However, target firms observing both lower as well as higher changes in leverage and capital expenditures witness a reduction in trade receivables and accounts payable, thereby supporting the supply-side argument[12].

In table 14, we also examine the cash flow movement, post-HFA, and its relative impact on trade credit policies of target firms. For this purpose, we include *Cash Flows* (as a proportion of total assets), $Target_i$**Cash Flows*, $Post_{it}$**Cash Flows* and $Target_i$**$Post_{it}$**Cash Flows* in the regression specifications [in equation (1)]. $Target_i$ is an indicator variable for target firms and $Post_{it}$ implies three years after HFA. The latter years are pseudo-event years for control firms. The findings suggest that cash flow position (post-HFA) does not matter for accounts payable; but it does matter for trade receivables. The coefficient for *Cash Flows* is negative and statistically significant, implying a lower extension of trade credit with increasing cash flows. However, the coefficient for $Target_i$**$Post_{it}$**Cash Flows* is positive and statistically significant at the 5 per cent level in the case of trade receivables[13]. The decrease in cash flows implies a lower extension of trade credit by target firms, indicating the varying levels of cash flows after HFA.

Overall, the findings suggest that targets' supplier firms reduce the extension of trade credit to target firms after HFA. This reduction is a supply-side response indicating the expropriation concerns of supplier firms. It is evident from the reduction in accounts payable for both financially constrained as well as unconstrained target firms, and ex-post changes in firm leverage and capital expenditures. Similarly, target firms offer lesser trade credit to their customers in the form of a decrease in trade receivables after HFA. This impact is limited to target firms that were financially unconstrained during one year before HFA. The findings do not support a reduction in trade receivables for financially constrained firms. Plausibly, it is because financially constrained firms already extend lower trade credit to their customers (Love *et al.,* 2007).

[12] The average change in leverage is found to be -0.07 for below the median values, and 0.13 for above the median values. Similarly, the average change in CAPEX is found to be -0.04 for below the median values, and 0.02 for above the median values.

[13] The coefficient for $Target_i$**$Post_{it}$ is negative and statistically significant for both accounts payable and trade receivables.

It has been argued that HFA causes target firms to increase shareholder payouts in the form of dividend payments (e.g., Bebchuk *et al.*, 2015). Therefore, figure 5 also displays the graphical movements of industry-adjusted (2-digit SIC codes) cash holdings (as a proportion of total assets), cash flows and dividend payments (as a proportion of market capitalization) for target firms that had higher levels of industry-adjusted cash holdings during one year before HFA. Target firms with above the median values are categorized as firms with higher levels of cash holdings. These firms are generally financially unconstrained in nature (Love *et al.*, 2007). Cash holdings decrease after the activist interventions followed by an increase in dividend payments. Cash flows witness a sudden drop in the year of activism - showing an increase in the third year of HFA. Hence, this implies that HFA affects the liquidity position of target firms, pushing them to offer lesser trade credit to their customers.

iv. Cross-sectional Features

After discussing various aspects of trade credit policies of target firms, post-HFA, it is equally important to account for different cross-sectional features of target firms. Specifically, we focus on the firm-level characteristics existing one year before HFA. Firm leverage, the growth rate of sales and the tangibility of assets are some of the important firm-level characteristics considered for the analysis. Firms with high leverage and low tangibility of assets are more susceptible to agency conflicts and information asymmetry (Custodio *et al.*, 2013). Table 15 provides results relating to various target firm characteristics and accounts payables for target and control firms. Firms are divided into two different groups in the year before HFA, i.e., below (low) and above (high) the median values. Columns (1) to (3) relate to leverage, sales growth and the tangibility of assets, respectively.

Target firms with higher levels of leverage and lower levels of tangible assets witness a reduction in accounts payable after the activist interventions by hedge funds. It reflects that target firms with higher agency costs of debt (leverage) and information asymmetry (tangibility of assets) witness a reduction in accounts payable post-HFA (Custodio *et al.*, 2013; Boubaker *et al.*, 2018) [14]. Interestingly, target firms with both lower as well as the higher growth rate of sales witness a reduction in accounts payable after the activist interventions by hedge funds.

[14] Alternatively, it could be possible that accounts payable decrease due to an increase in long-term debt (as a proportion of total assets) after HFA. The findings, however, do not support the latter argument because accounts payable and trade receivables decrease in the case of target firms that witness a decrease in long-term debt (-0.06) from one year before to one year after HFA.

The findings are quite similar for trade receivables in table 16. Target firms with higher levels of leverage and lower levels of tangible assets condense the extension of trade credit to their customers. Moreover, trade receivables decrease for target firms with a lower growth rate of sales during one year before HFA. The latter firms prefer selling goods more on a cash basis than on credit. The findings, therefore, suggest that a part of target firms finance their reduction in accounts payable by a concomitant decrease in trade receivables post activist intervention.

Overall, target firms with higher agency costs of debt and information asymmetry witness a reduction in trade credit from their suppliers (trade/operational creditors). It is consistent with the expropriation concerns raised by other debtholders (public and private), as reported in the previous studies (Li & Xu, 2009; Klein & Zur, 2011; Sunder *et al*., 2014; Dahiya *et al.*, 2020).

v. Product Market Competition and Trade Credit

We also relate our findings to the product market power of target and control firms. Studies like Fabbri and Klapper (2008), Dass *et al.* (2015), and Gonçalves *et al.* (2018) document a significant relationship between the product market competition and trade credit. Table 17 provides results relating to product market power and accounts payable, and trade receivables for target and control firms. Firms are divided into two different groups in the year before HFA, i.e., below (low) and above (high) the median values. We use two different measures of product market power: the Lerner index and an industry level measure of the Herfindahl-Hirschman index. These measures are typically used in the finance literature while analysing the product market power of sample firms (Gonçalves *et al.*, 2018). Columns (1) and (2) relate to Lerner and Herfindahl-Hirschman indices, respectively. Both the measures depict product market power of sample firms existing one year before HFA. Following Gonçalves *et al.* (2018), we use the Lerner index, i.e., the price-cost margin ratio as follows:

$$Price - Cost\ Margin_{i,t} = (Revenue_{i,t} - COGS_{i,t})/Revenue_{i,t} \quad (3)$$

The Lerner index is a firm-level measure; hence, we consider it at the 2-digit industry level for each year across the US firms. Values above the industry-median are regarded as firms operating under a lesser competitive environment and the values below the industry-median are regarded as firms operating under a more competitive environment. We expect target firms with greater product market power not to witness a reduction in accounts payable on account of their market position ex-ante. Firms with greater product market power enjoy more trade credit from their suppliers (Fabbri & Klapper, 2008). However, if HFA exacerbates the expropriation concerns of supplier firms, then we may expect a reduction in accounts payable

for such target firms. Similarly, if HFA causes a change in the cash flow position of target firms, then we may expect target firms with lower product market power to observe a reduction in trade receivables. It could be due to target firms' growing preference for making cash sales to maintain the liquidity position (Fabbri & Klapper, 2008; Gonçalves *et al.*, 2018).

Firms with greater product market power are normally expected to offer lesser trade credit to their customers (Fabbri & Klapper, 2008; Dass *et al.*, 2015). It is on account of the greater bargaining power of such supplier firms. Therefore, we may expect target firms with greater product market power to reduce the extension of trade credit due to activism-induced disruptions in free cash flows, post-HFA. We find that target firms with both lower as well as greater product market power witness a reduction in trade receivables after HFA. In the case of accounts payable, target firms with a greater product market power witness a reduction post-HFA. It is consistent with the earlier findings that HFA induces supplier firms to reduce the extension of trade credit due to expropriation concerns. Similarly, we also observe a reduction in trade receivables by all target firms irrespective of any product market power.

5. Conclusion

We examine the relationship between HFA and the trade credit policies of target firms. Trade creditors hold significant importance in the overall short-term debt financing source of a firm. The findings report a negative response of supplier firms in the aftermath of the activist interventions by hedge funds. It largely comes from the supply-side factors highlighting the expropriation concerns of targets' supplier firms. On a similar note, we also observe a reduction in trade receivables post-HFA. Various cross-sectional tests further assert that this reduction in the extension of trade credit is also related to different supply-side factors of target firms. The activism-induced changes in operating cash flows, cash holdings and dividend payments potentially account for this reduction in trade receivables. Target firms with higher levels of leverage and lower levels of tangible assets witness a reduction in both trade receivables and accounts payable. These findings are consistent with the earlier studies documenting a negative response of the private and public debtholders toward HFA (Li & Xu, 2009; Klein & Zur, 2011; Sunder *et al.*, 2014; Dahiya *et al.*, 2020). Therefore, the repercussions of HFA extend beyond the formal debtholders, and informal debtholders such as trade creditors are not an exception.

Appendix

Trade Receivables: Trade receivables (RECTR) scaled by lagged net sales (SALE)

Accounts Payable: Accounts payable (AP) scaled by lagged net sales (SALE)

Firm Size: Log of Market Capitalization - (CSHO) times stock price at the fiscal year-end (PRCC_F)

Firm Age: Number of years between data availability and recorded year

Sales Growth: Growth rate of sales relative to previous year

Leverage: Total debt to total assets (AT)

CAPEX: Capital expenditure (CAPX) to total assets (AT)

Tangibility: Property, plant and equipment (PPENT) to total assets (AT)

Cash Flows: Net cash flows from operating activities (OANCF) to total assets (AT)

Gross Operating Cycle: log ((365/(COGS/INVT))+(365/(SALE/RECT))) Here, COGS is cost of goods sold, INVT is total of inventories and RECT is total of receivables

Net Operating Cycle: log ((365/(COGS/INVT))+(365/(SALE/RECT))-(365/(COGS/AP))) Here, COGS is cost of goods sold, INVT is total of inventories, RECT is total of receivables and AP is accounts payable

Whited-Wu index (WWI): $-0.091 * cf - 0.062 * div + 0.021 * debtlong - 0.044 * size + 0.1021 * salesgrowth3 - 0.035 * salesgrowth$. Here, cf is cash flow from operations (OANCF) scaled by total assets (AT), div is dummy for firms with dividend payments and zero otherwise, debtlong is long-term debt (DLTT) to total assets (AT), salesgrowth3 is annual 3-digit SIC industry sales growth and salesgrowth is annual sales growth

Hadlock-Pierce index (SAI): $-0.737 * \ln(firmassets) + 0.043 * (\ln(firmassets) \wedge 2) - 0.040 * age$. Here, firmassets is total assets with an upper limit of $4.5 billion and age is firm age with an upper limit of 37 years

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Figure 1: Hedge fund activism campaign characteristics

This figure displays various characteristics of hedge fund activism campaigns from the year 2000 to 2017, including settled campaigns, campaigns where hedge funds switched their position from passive to active, i.e., from Schedule 13G to 13D filings, campaigns with hedge fund board representations to campaigns where target firms adopted poison pills to deter off the implications of hedge fund activism. These characteristics are placed against the various stated objectives of hedge funds. The stated objectives are categorized into five different groups, like corporate governance reforms, changes in the capital structure, changes in the business strategies, value maximization and the sale of target firms.

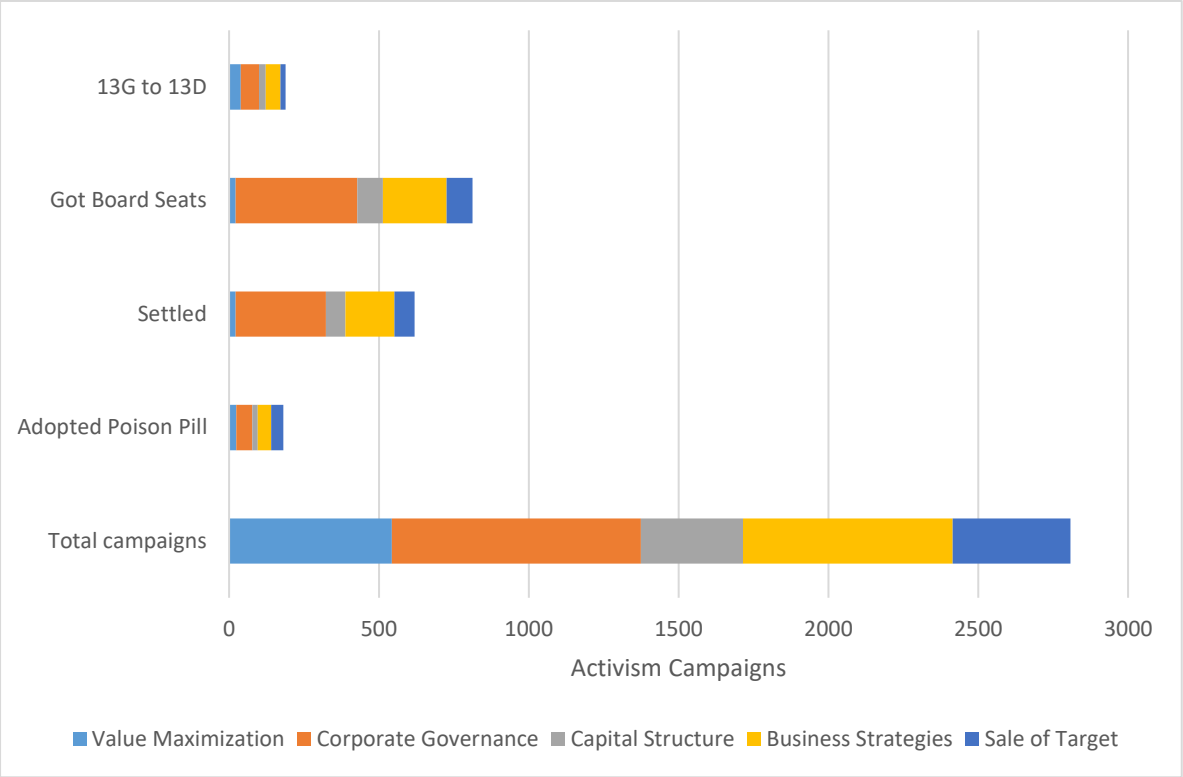


Figure 2: Industry-wise campaign distribution

This figure displays industry-wise distribution of hedge fund activism campaigns from the year 2000 to 2017. Campaigns related to business reorganization, bankruptcy, merger risk-arbitrage, and involving financial firms are excluded from the sample. These sectors are determined as per Factset's industrial classification groups.

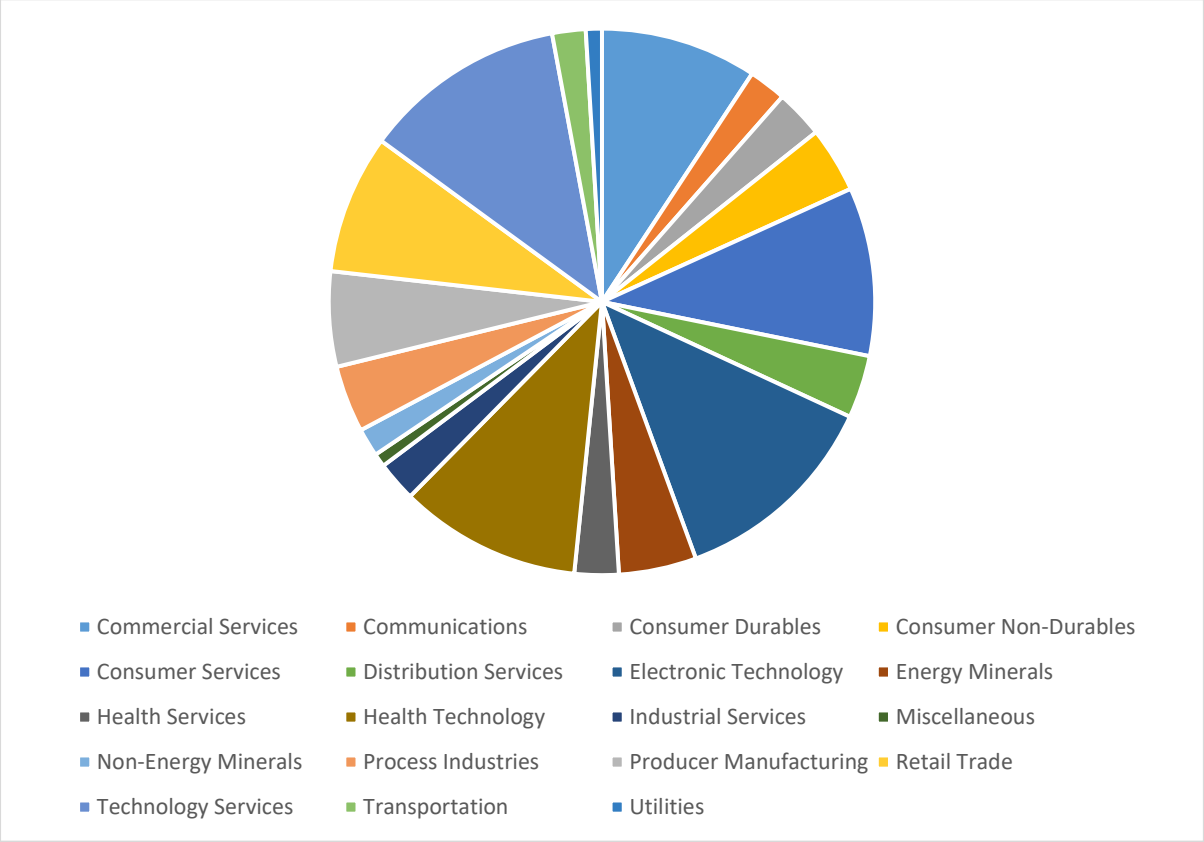


Figure 3: Industry-wise distribution of Accounts Payable and Trade Receivables

Figures display industry-wise distribution of accounts payable and trade receivables during one year before hedge fund activism. Accounts payable and trade receivables are considered in industry-median adjusted terms. Accounts payable is measured by accounts payable (AP) scaled by lagged net sales. Trade receivables is measured by trade receivables (RECTR) scaled by lagged net sales. The classification of the industries is done as per the SIC's industrial classification codes.

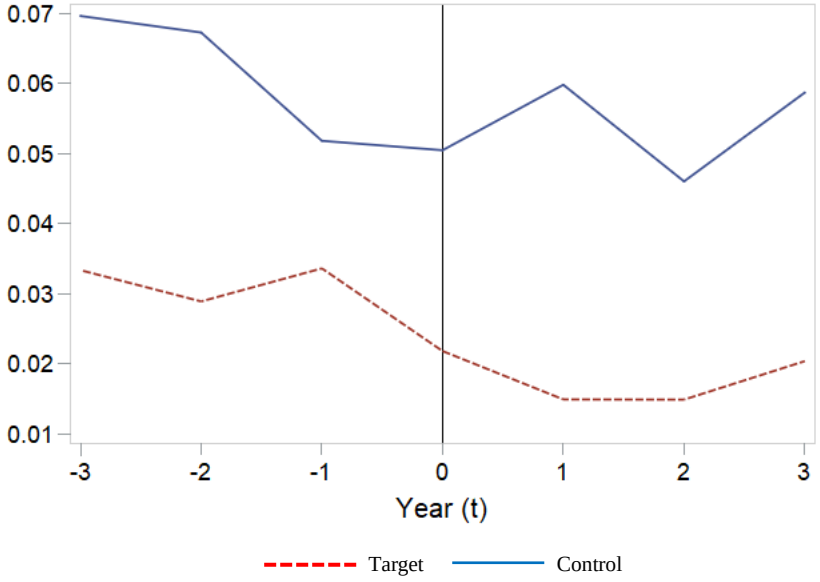
(a) Industry-median adjusted Accounts Payable

(b) Industry-median adjusted Trade Receivables

Figure 4: Graphical movements for target and control firms

Figures display the graphical movements of industry-median adjusted accounts payable and industry-median adjusted trade receivables for target and control firms. Accounts payable is measured by accounts payable (AP) scaled by lagged net sales. Trade receivables is measured by trade receivables (RECTR) scaled by lagged net sales. The reporting period ranges from three years before (-3) to three years after (+3) HFA. Both payables and receivables are adjusted for industry-median values.

(a) Industry-median adjusted Accounts Payable



(b) Industry-median adjusted Trade Receivables

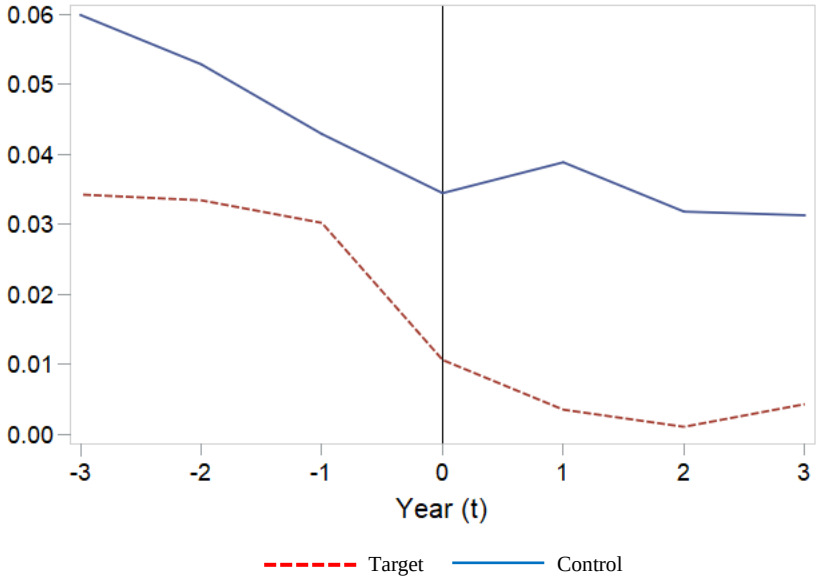
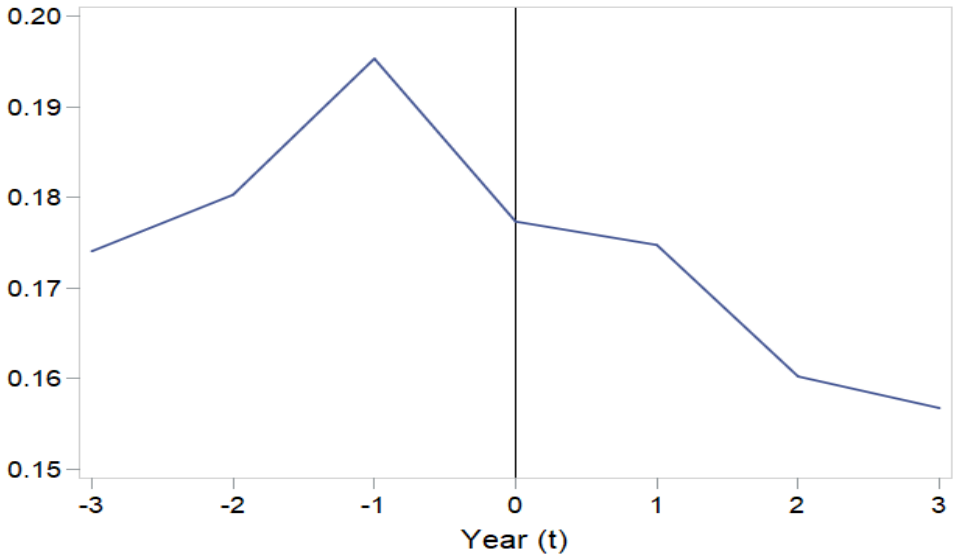


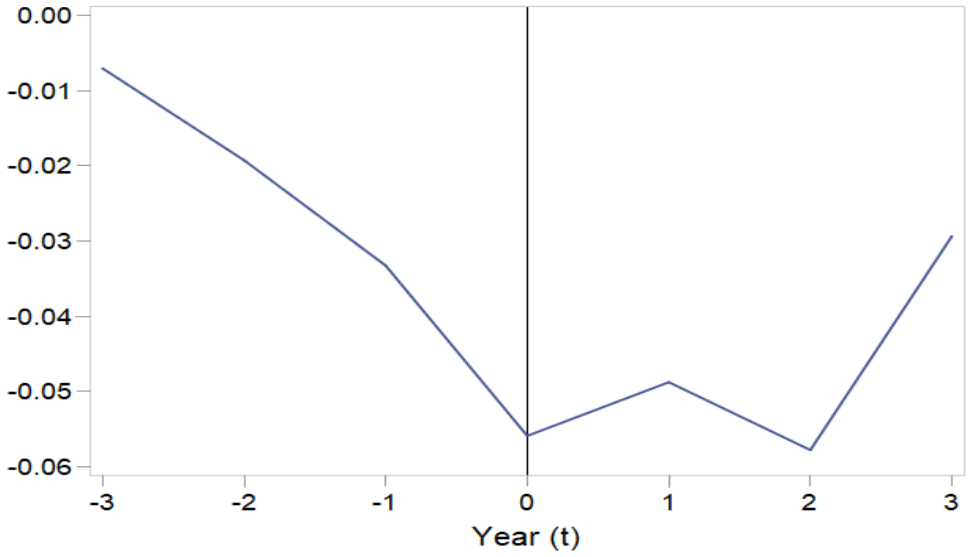
Figure 5: Cash holdings, Cash flows and Dividend payments

Figures display the graphical movements of industry-adjusted (2-digit SIC codes) cash holdings, cash flows and dividend payments for target firms that had higher levels of industry-adjusted cash holdings during one year before hedge fund activism. Target firms with above the median values are categorized as firms with higher levels of cash holdings. Sample period revolves around -3 to +3 of hedge fund activism.

(a) Cash Holdings



(b) Cash Flows



(c) Dividend Payments

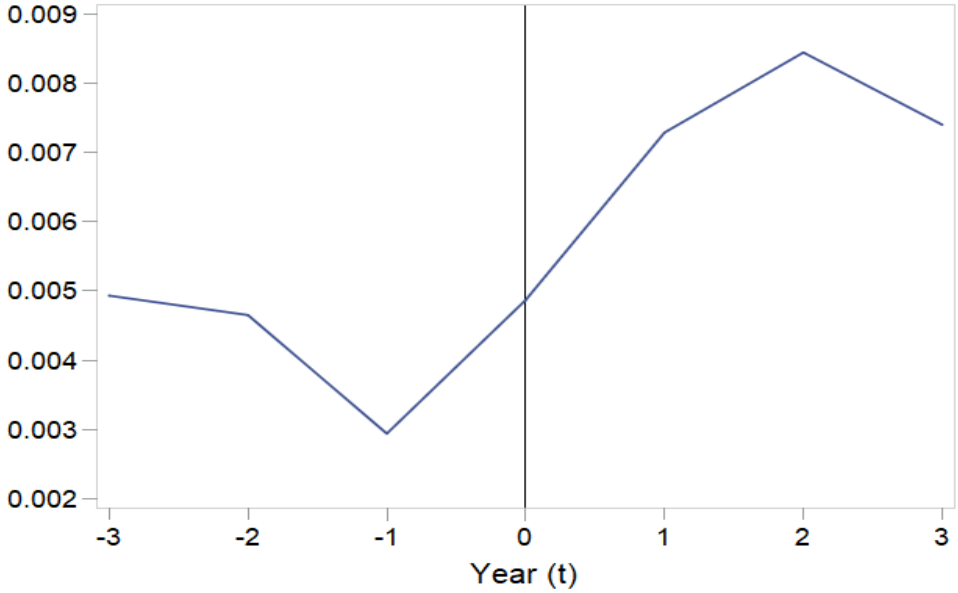


Table 1: Descriptive Statistics: Target and Control firms

This table provides descriptive statistics relating to target and control firms during one year before HFA. The control group of firms are determined from the same 2-digit SIC industry codes, and having the closest propensity scores with target firms. Propensity scores are determined via a logistic regression model by employing some of the main determinants of hedge fund activism (Brav *et al.*, 2018). The mean (average), standard deviation (SD), and various percentile values are reported for the respective variables. The latter variables range from total assets in US million-dollar terms, firm size, industry-median adjusted trade receivables (receivables), industry-median adjusted accounts payable (payables), return on assets (ROA), leverage, sales growth, tangibility, cash holdings, cash flows, Z-score, sales as a proportion of lagged total assets (Sales) to net trade credit. The respective differences between control and target firms' average values are reported in a separate column along with the respective t-statistics.

	Target firms (810)					**Control firms (810)**						
Variables	**Mean**	**SD**	**25th Per**	**Median**	**75th Per**	**Mean**	**SD**	**25th Per**	**Median**	**75th Per**	**Diff**	**t-stats**
Total Assets ($)	3802.790	10761.820	121.550	417.252	1837.400	3873.570	10615.500	90.961	405.522	2138.760	70.780	0.130
Firm Size	6.018	2.093	4.595	5.806	7.395	5.928	2.398	4.254	6.021	7.573	-0.090	-0.800
Receivables	0.030	0.206	-0.040	-0.003	0.043	0.043	0.209	-0.034	0.002	0.056	0.013	1.230
Payables	0.034	0.284	-0.030	-0.007	0.024	0.052	0.286	-0.027	-0.002	0.036	0.018	1.280
ROA	0.073	0.188	0.038	0.099	0.148	0.064	0.269	0.042	0.104	0.159	-0.008	-0.730
Leverage	0.221	0.247	0.003	0.162	0.347	0.231	0.273	0.012	0.175	0.352	0.010	0.800
Sales Growth	0.153	0.701	-0.032	0.045	0.174	0.152	0.624	-0.035	0.055	0.193	0.000	-0.010
Tangibility	0.247	0.240	0.064	0.149	0.361	0.246	0.233	0.059	0.165	0.359	-0.001	-0.060
Cash	0.202	0.204	0.039	0.122	0.313	0.210	0.214	0.046	0.132	0.312	0.008	0.780
Cash Flows	0.064	0.199	0.016	0.079	0.136	0.064	0.230	0.019	0.082	0.151	0.000	-0.040
Z-score	3.604	5.254	1.757	3.021	5.014	3.900	7.511	1.771	3.223	5.353	0.296	0.900
Sales	1.202	0.919	0.605	0.975	1.514	1.245	1.065	0.588	0.928	1.581	0.042	0.860
Net Trade Credit	0.060	0.198	-0.003	0.057	0.129	0.058	0.219	-0.014	0.061	0.139	-0.002	-0.220

Table 2: Industry-median adjusted Payables and Receivables

This table provides results for industry-median adjusted accounts payable and trade receivables from three years before (-3) to three years after (+3) HFA. Accounts payable is measured by accounts payable (AP) scaled by lagged net sales. Trade receivables is measured by trade receivables (RECTR) scaled by lagged net sales. The average (mean) values and respective standard deviations are reported for both target and control firms. Both payables and receivables are adjusted for industry-median values.

Target Firms				
	Payables		**Receivables**	
Year (t)	**Mean**	**SD**	**Mean**	**SD**
t-3	0.0334	0.2345	0.0343	0.2072
t-2	0.0289	0.1996	0.0335	0.2023
t-1	0.0336	0.2839	0.0302	0.2058
t	0.0218	0.1926	0.0106	0.1538
t+1	0.0149	0.1331	0.0035	0.1376
t+2	0.0149	0.1168	0.0011	0.1120
t+3	0.0204	0.1559	0.0043	0.0944
Control Firms				
	Payables		**Receivables**	
Year (t)	**Mean**	**SD**	**Mean**	**SD**
t-3	0.0697	0.3875	0.0600	0.2416
t-2	0.0673	0.3811	0.0529	0.2315
t-1	0.0518	0.2857	0.0429	0.2090
t	0.0505	0.3259	0.0345	0.1930
t+1	0.0598	0.3486	0.0389	0.2030
t+2	0.0460	0.2940	0.0318	0.1750
t+3	0.0587	0.3837	0.0313	0.1604

Table 3: Dynamics of Payables and Receivables

This table reports regression dynamics of accounts payable and trade receivables from three years before (-3) to three years after (+3) HFA for target and control firms. The variable *t* implies the period around HFA (pseudo-event years for control firms), and $Target_i$ implies the firms getting targeted by hedge funds. Accounts payable is measured by accounts payable (AP) scaled by lagged net sales. Trade receivables is measured by trade receivables (RECTR) scaled by lagged net sales. Column (1) relates to accounts payable, and column (2) provides findings relating to trade receivables. The test statistics - standard errors clustered by industries – are reported in parentheses. Firm and industry-year fixed effects are appended into the regression specifications. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Variables	Payables	Receivables
d[t-3]	0.000492	0.00610
	(0.04)	(0.71)
d[t-2]	0.0000923	0.00320
	(0.01)	(0.36)
d[t-1]	0.00107	0.00644
	(0.14)	(0.67)
d[t]	0.00526	0.00351
	(0.34)	(0.42)
d[t+1]	0.0267*	0.0112
	(1.74)	(1.17)
d[t+2]	0.0222**	0.00243
	(2.27)	(0.35)
d[t+3]	0.0330**	0.00442
	(2.49)	(0.57)
$Target_i$*d[t-3]	-0.0188	-0.0193*
	(-0.94)	(-1.66)
$Target_i$*d[t-2]	-0.0177	-0.0115
	(-1.15)	(-0.98)
$Target_i$*d[t-1]	-0.00479	-0.0123
	(-0.37)	(-0.98)
$Target_i$*d[t]	-0.0210	-0.0272***
	(-1.39)	(-2.66)

$Target_i$*d[t+1]	-0.0446**	-0.0324**
	(-2.07)	(-2.42)
$Target_i$*d[t+2]	-0.0429**	-0.0294***
	(-2.58)	(-2.83)
$Target_i$*d[t+3]	-0.0416*	-0.0274**
	(-1.85)	(-2.40)
Firm Size	0.0122**	0.0289***
	(2.54)	(8.84)
Firm Age	-0.0922***	-0.0763***
	(-5.87)	(-4.91)
Observations	22,853	22,853
Firm FE	Yes	Yes
Industry-Year FE	Yes	Yes
R^2	0.38	0.46

Table 4: Panel regression - Payables and Receivables

This table reports panel regression of accounts payable and trade receivables for target and control firms. $Post_{it}$ refers to the period after activism i.e., three years after HFA (pseudo-event years for control firms) and $Target_i$ implies the firms getting targeted by hedge funds. Accounts payable is measured by accounts payable (AP) scaled by lagged net sales. Trade receivables is measured by trade receivables (RECTR) scaled by lagged net sales. Column (1) relates to accounts payable, and column (2) provides findings relating to trade receivables. The test statistics - standard errors clustered by industries – are reported in parentheses. Firm and industry-year fixed effects are appended into the regression specifications. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Variables	Payables	Receivables
$Post_{it}$	0.0265***	0.00535
	(2.63)	(0.83)
$Target_i$*$Post_{it}$	-0.0376**	-0.0236***
	(-2.30)	(-2.69)
Firm Size	0.0121**	0.0290***
	(2.56)	(8.92)
Firm Age	-0.0919***	-0.0761***
	(-5.92)	(-4.89)
Observations	22,853	22,853
Firm FE	Yes	Yes
Industry-Year FE	Yes	Yes
R^2	0.38	0.46

Table 5: Trade credit – Mechanism

This table provides results for mechanism of trade credit for target and control firms. Column (1) relates to net trade credit (trade receivables minus accounts payable) as a proportion of lagged net sales, column (2) provides findings relating to sales as a proportion of lagged total assets, column (3) relates to margin as a proportion of net sales, columns (4) and (5) relate to gross operating and net operating cycles, respectively. $Post_{it}$ refers to the period after activism i.e., three years after HFA (pseudo-event years for control firms) and $Target_i$ implies the firms getting targeted by hedge funds. The test statistics - standard errors clustered by industries – are reported in parentheses. Firm and industry-year fixed effects are appended into the regression specifications. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Variables	**Net Trade Credit**	**Net Sales**	**Margin**	**Gross Operating Cycle**	**Net Operating Cycle**
$Post_{it}$	-0.0131**	-0.0366*	-0.00219	0.0102	0.0003
	(-2.17)	(-1.75)	(-0.39)	(0.70)	(0.01)
$Target_i*Post_{it}$	0.00697	0.0214	0.00484	-0.0178	0.0171
	(0.81)	(0.77)	(0.68)	(-0.87)	(0.52)
Firm Size	0.0170***	0.0549***	0.0180***	0.0277***	0.0363***
	(4.20)	(4.74)	(9.04)	(3.67)	(3.41)
Firm Age	0.00608	-0.3022***	-0.0111	-0.0802***	-0.0417
	(0.54)	(-8.73)	(-1.56)	(-3.59)	(-1.18)
Sales				-0.1113***	-0.1236***
				(-6.94)	(-6.06)
Observations	22,853	22,917	23,580	17,719	15,423
Firm FE	Yes	Yes	Yes	Yes	Yes
Industry-Year FE	Yes	Yes	Yes	Yes	Yes
R^2	0.40	0.69	0.69	0.87	0.77

Table 6: Robustness – Payables and Receivables

This table is divided into two parts – Part (A) and Part (B). Part (A) provides robustness of accounts payable and trade receivables for target and control firms. Part (B) considers changes in accounts payable and trade receivables for target and control firms from one year before to one and two years after HFA.

Part (A): Robustness across three different dimensions

Column (1) provides findings relating to another control group of firms for accounts payable and column (2) relates to another control group of firms for trade receivables. The control group of firms are determined from the same 2-digit SIC industry codes, and having the closest sales (as a proportion of total assets) with target firms. Column (3) provides findings relating to accounts payable with cohort-based fixed effects and column (4) relates to cohort-based fixed effects for trade receivables. Columns (5) and (6) relate to accounts payable and trade receivables, respectively for target firms (along with control firms) exhibiting a resistance to hedge fund activism. $Post_{it}$ refers to the period after activism i.e., three years after HFA (pseudo-event years for control firms) and $Target_i$ implies the firms getting targeted by hedge funds. The test statistics - standard errors clustered by industries – are reported in parentheses. Firm and industry-year fixed effects are appended into the regression specifications. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
$Post_{it}$	0.0211*	0.00467	0.0267***	0.00499	0.00757	0.00678
	(1.70)	(0.94)	(2.60)	(0.78)	(0.47)	(0.38)
$Target_i$*$Post_{it}$	-0.0361**	-0.0210**	-0.0394**	-0.0266***	-0.0524	-0.0406
	(-2.28)	(-2.54)	(-2.33)	(-2.83)	(-1.09)	(-1.60)
Firm Size	0.0151***	0.0245***	0.0132**	0.0300***	-0.00985	0.0228**
	(3.26)	(9.20)	(2.43)	(8.70)	(-0.57)	(2.19)
Firm Age	-0.104***	-0.0898***	-0.0927***	-0.0776***	-0.130***	-0.137***
	(-5.91)	(-5.26)	(-5.94)	(-5.00)	(-2.97)	(-2.96)
Observations	23,132	23,132	22,032	22,032	2,683	2,683
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.44	0.45	0.39	0.46	0.57	0.53

Part (B): Schedule 13G to 13D Switches

This table provides results for Schedule 13G to 13D switches by activist hedge funds, and changes in accounts payable and trade receivables for target and control firms from one year before to one and two years after HFA. Columns (1) and (2) report results for changes from one year before to one year after HFA for accounts payable and trade receivables, respectively. Columns (3) and (4) report results for changes from one year before to two years after HFA for accounts payable and trade receivables, respectively. *13G-to-13D* is an indicator variable for target firms where hedge funds switched from Schedule 13G to 13D filings, firm leverage is total debt as a proportion of total assets, ROA is return on assets, Tangibility is tangible assets as a proportion of total assets and cash is cash and short-term investments as a proportion of total assets. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	[-1 to +1]		**[-1 to +2]**	
Variables	**Payables**	**Receivables**	**Payables**	**Receivables**
13G-to-13D	-0.261**	-0.146**	-0.309**	-0.176**
	(-2.11)	(-2.20)	(-2.12)	(-2.31)
Firm Leverage	0.0533	0.00262	0.0650	0.0281
	(0.96)	(0.09)	(1.17)	(0.84)
ROA	0.0621	0.0482	0.252	0.174*
	(0.42)	(0.66)	(1.11)	(1.66)
Tangibility	-0.0195	0.0433	-0.0535	0.0183
	(-0.46)	(1.37)	(-1.19)	(0.59)
Cash	-0.0330	0.0187	-0.0479	0.0477
	(-0.53)	(0.45)	(-0.82)	(1.43)
Firm Age	0.00902	0.00919	0.00744	0.00852
	(1.03)	(1.28)	(0.76)	(1.07)
Firm Size	-0.00946***	-0.00717**	-0.0118**	-0.00910***
	(-2.63)	(-2.44)	(-2.41)	(-2.64)
Observations	1,348	1,348	1,126	1,126
R^2	0.04	0.03	0.08	0.06

Table 7: Hedge fund campaign characteristics – Payables and Receivables

This table relates various characteristics of activism campaigns with accounts payable and trade receivables for target and control firms. Columns (1) to (3) relate to settled campaigns, campaigns with board representations by hedge funds, and campaigns where hedge funds ask for the reimbursement of expenses incurred on activism, respectively for accounts payable. Columns (4) to (6) relate to settled campaigns, campaigns with board representations by hedge funds, and campaigns where hedge funds ask for the reimbursement of expenses incurred on activism, respectively for trade receivables. $Post_{it}$ refers to the period after activism i.e., three years after HFA (pseudo-event years for control firms) and $Target_i$ implies the firms getting targeted by hedge funds. Accounts payable is measured by accounts payable (AP) scaled by lagged net sales. Trade receivables is measured by trade receivables (RECTR) scaled by lagged net sales. The test statistics - standard errors clustered by industries – are reported in parentheses. Firm and industry-year fixed effects are appended into the regression specifications. F-stats are reported for the differential impact along with the respective p-values in the square brackets. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Variables	**Payables**			**Receivables**		
	Settled Campaigns	**Board Representation**	**Reimbursement**	**Settled Campaigns**	**Board Representation**	**Reimbursement**
$Post_{it}$	0.0266***	0.0266***	0.0265***	0.00541	0.00536	0.00535
	(2.63)	(2.63)	(2.63)	(0.84)	(0.83)	(0.83)
$Target_i*Post_{it}$	-0.0421**	-0.0416**	-0.0366**	-0.0312***	-0.0280**	-0.0235***
	(-2.28)	(-2.24)	(-2.38)	(-2.88)	(-2.51)	(-2.60)
Firm Size	0.0121**	0.0121**	0.0121**	0.0290***	0.0290***	0.0290***
	(2.56)	(2.55)	(2.56)	(8.95)	(8.92)	(8.92)
Firm Age	-0.0919***	-0.0918***	-0.0919***	-0.0760***	-0.0760***	-0.0761***
	(-5.92)	(-5.92)	(-5.92)	(-4.89)	(-4.89)	(-4.89)
$Settle*Target_i*Post_{it}$	0.0162			0.0272**		
	(1.22)			(2.58)		
$Seat*Target_i*Post_{it}$		0.0111			0.0121	
		(0.99)			(1.15)	
$Reimb*Target_i*Post_{it}$			-0.00674			-0.001
			(-0.39)			(-0.04)
Observations	22,853	22,853	22,853	22,853	22,853	22,853
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.38	0.38	0.38	0.46	0.46	0.46
F-stats	3.30*	4.45**	2.72	0.30	4.09**	1.93
	[0.0705]	[0.0361]	[0.1003]	[0.5847]	[0.0444]	[0.1660]

Table 8: Hedge fund stated objectives and Payables

This table reports accounts payable and various stated objectives of hedge fund activism for target and control firms. Columns (1) to (5) provide results relating to activism-stated objectives ranging from corporate governance reforms, changes in the capital structure, value maximization, changes in the business strategies to the sale of target firms, respectively. $Post_{it}$ refers to the period after activism i.e., three years after HFA (pseudo-event years for control firms) and $Target_i$ implies the firms getting targeted by hedge funds. Accounts payable is measured by accounts payable (AP) scaled by lagged net sales. The test statistics - standard errors clustered by industries – are reported in parentheses. F-stats are reported for the differential impact along with the respective p-values in square brackets. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Variables	**Corporate Governance**	**Capital Structure**	**Value Maximization**	**Business Strategies**	**Sale of Target Firms**
$Post_{it}$	0.0265***	0.0265***	0.0265***	0.0266***	0.0265***
	(2.63)	(2.63)	(2.63)	(2.63)	(2.63)
$Target_i*Post_{it}$	-0.0393*	-0.0394**	-0.0432**	-0.0446***	-0.0407**
	(-1.91)	(-2.19)	(-2.55)	(-2.95)	(-2.36)
Firm Size	0.0121**	0.0121**	0.0121**	0.0121**	0.0121**
	(2.55)	(2.56)	(2.55)	(2.56)	(2.56)
Firm Age	-0.0919***	-0.0919***	-0.0920***	-0.0919***	-0.0920***
	(-5.92)	(-5.92)	(-5.92)	(-5.92)	(-5.94)
$Govern*Target_i*Post_{it}$	0.00245				
	(0.17)				
$CapStr*Target_i*Post_{it}$		0.00624			
		(0.45)			
$VMax*Target_i*Post_{it}$			0.0145		
			(1.20)		
$BStrat*Target_i*Post_{it}$				0.0134	
				(1.27)	
$TSale*Target_i*Post_{it}$					0.0120
					(0.88)
Observations	22,853	22,853	22,853	22,853	22,853
Firm FE	Yes	Yes	Yes	Yes	Yes
Industry-Year FE	Yes	Yes	Yes	Yes	Yes
R^2	0.38	0.38	0.38	0.38	0.38
F-stats	5.13**	4.09**	2.47	2.70	2.60
	[0.0245]	[0.0443]	[0.1172]	[0.1018]	[0.1080]

Table 9: Hedge fund stated objectives and Receivables

This table reports trade receivables and various stated objectives of hedge fund activism for target and control firms. Columns (1) to (5) provide results relating to activism-stated objectives ranging from corporate governance reforms, changes in the capital structure, value maximization, changes in the business strategies to the sale of target firms, respectively. $Post_{it}$ refers to the period after activism i.e., three years after HFA (pseudo-event years for control firms) and *target* implies the firms getting targeted by hedge funds. Trade receivables is measured by trade receivables (RECTR) scaled by lagged net sales. The test statistics - standard errors clustered by industries – are reported in parentheses. F-stats are reported for the differential impact along with the respective p-values in square brackets. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Variables	**Corporate Governance**	**Capital Structure**	**Value Maximization**	**Business Strategies**	**Sale of Target Firms**
$Post_{it}$	0.00536	0.00535	0.00534	0.00536	0.00532
	(0.83)	(0.83)	(0.83)	(0.83)	(0.82)
$Target_i*Post_{it}$	-0.0205	-0.0236**	-0.0261***	-0.0268***	-0.0302***
	(-1.37)	(-2.43)	(-2.83)	(-2.98)	(-3.00)
Firm Size	0.0290***	0.0290***	0.0290***	0.0290***	0.0290***
	(8.91)	(8.95)	(8.92)	(8.92)	(8.92)
Firm Age	-0.0761***	-0.0761***	-0.0761***	-0.0761***	-0.0763***
	(-4.89)	(-4.89)	(-4.89)	(-4.89)	(-4.89)
$Govern*Target_i*Post_{it}$	-0.00445				
	(-0.32)				
$CapStr*Target_i*Post_{it}$		-0.00001			
		(-0.00)			
$VMax*Target_i*Post_{it}$			0.00640		
			(0.54)		
$BStrat*Target_i*Post_{it}$				0.00608	
				(0.61)	
$TSale*Target_i*Post_{it}$					0.0253**
					(2.56)
Observations	22,853	22,853	22,853	22,853	22,853
Firm FE	Yes	Yes	Yes	Yes	Yes
Industry-Year FE	Yes	Yes	Yes	Yes	Yes
R^2	0.46	0.46	0.46	0.46	0.46
F-stats	8.68***	3.32*	2.50	3.49*	0.28
	[0.0036]	[0.0698]	[0.1153]	[0.0631]	[0.5989]

Table 10: Financial constraints and Payables

This table provides results for accounts payable and financial constraints for target and control firms. Firms are divided into two different groups during one year before HFA, i.e., below (low) and above (high) the median values. Columns (1) to (3) relate to the Firm size, Whited-Wu index (WWI) and Hadlock-Pierce SA index (SAI), respectively. Following Brav *et al.* (2018), we re-run the regression equation (1) with the addition of two interaction terms, $High_i$ and Low_i, into a single regression equation. For brevity, the results are reported separately for both low and high groups. $Post_{it}$ refers to the period after activism, i.e., three years after HFA (pseudo-event years for control firms) and $Target_i$ implies the firms getting targeted by hedge funds. Accounts payable is measured by accounts payable (AP) scaled by lagged net sales. The test statistics - standard errors clustered by industries – are reported in parentheses. Firm and industry-year fixed effects are appended into the regression specifications. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Variables	**Firm Size**		**WWI**		**SAI**	
	Low Size	**High Size**	**Low WWI**	**High WWI**	**Low SAI**	**High SAI**
$Post_{it}$	0.0429**	0.0128*	0.0132**	0.0432**	0.0115	0.0429**
	(2.34)	(1.84)	(2.02)	(2.34)	(1.64)	(2.38)
$Target_i*Post_{it}$	-0.0535*	-0.0229**	-0.0331***	-0.0460	-0.0239**	-0.0519*
	(-1.84)	(-2.07)	(-2.91)	(-1.59)	(-2.35)	(-1.73)
Firm Size	0.0123**		0.0124***		0.0122**	
	(2.58)		(2.60)		(2.59)	
Firm Age	-0.0923***		-0.0927***		-0.0930***	
	(-5.93)		(-5.95)		(-5.95)	
Observations	22,853		22,853		22,853	
Firm FE	Yes		Yes		Yes	
Industry-Year FE	Yes		Yes		Yes	
R^2	0.38		0.38		0.38	

Table 11: Financial constraints and Receivables

This table provides results for trade receivables and financial constraints for target and control firms. The firms are divided into two different groups during one year before HFA, i.e., below (low) and above (high) the median values. Columns (1) to (3) relate to the Firm size, Whited-Wu index (WWI) and Hadlock-Pierce SA index (SAI), respectively. Following Brav *et al.* (2018), we re-run the regression equation (1) with the addition of two interaction terms, $High_i$ and Low_i, into a single regression equation. For brevity, the results are reported separately for both low and high groups. $Post_{it}$ refers to the period after activism i.e., three years after HFA (pseudo-event years for control firms) and $Target_i$ implies the firms getting targeted by hedge funds. Trade receivables is measured by trade receivables (RECTR) scaled by lagged net sales. The test statistics - standard errors clustered by industries – are reported in parentheses. Firm and industry-year fixed effects are appended into the regression specifications. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Variables	**Firm Size**		**WWI**		**SAI**	
	Low Size	**High Size**	**Low WWI**	**High WWI**	**Low SAI**	**High SAI**
$Post_{it}$	0.00736	0.00286	-0.000505	0.0126	-0.000924	0.0116
	(0.74)	(0.39)	(-0.07)	(1.28)	(-0.13)	(1.17)
$Target_i*Post_{it}$	-0.0203	-0.0277***	-0.0304***	-0.0213	-0.0232**	-0.0251*
	(-1.46)	(-2.61)	(-2.95)	(-1.49)	(-2.30)	(-1.67)
Firm Size	0.0290***		0.0292***		0.0291***	
	(8.95)		(8.97)		(8.97)	
Firm Age	-0.0763***		-0.0766***		-0.0768***	
	(-4.90)		(-4.91)		(-4.92)	
Observations	22,853		22,853		22,853	
Firm FE	Yes		Yes		Yes	
Industry-Year FE	Yes		Yes		Yes	
R^2	0.46		0.46		0.46	

Table 12: Reliance on short-term liquidity, Payables and Receivables

This table provides results for firms' reliance on short-term liquidity and the trade credit policy of target and control firms. Firms are divided into two different groups during one year before HFA, i.e., below (low) and above (high) the median values. Short-term liquidity is defined as the ratio of inventories to sales and is calculated across the US firms at the 2-digit SIC industry level for each year. Following Brav *et al.* (2018), we re-run the regression equation (1) with the addition of two interaction terms, $High_i$ and Low_i, into a single regression equation. For brevity, the results are reported separately for both low and high groups. $Post_{it}$ refers to the period after activism i.e., three years after HFA (pseudo-event years for control firms) and $Target_i$ implies the firms getting targeted by hedge funds. Accounts payable is measured by accounts payable (AP) scaled by lagged net sales. Trade receivables is measured by trade receivables (RECTR) scaled by lagged net sales. The test statistics - standard errors clustered by industries – are reported in parentheses. Firm and industry-year fixed effects are appended into the regression specifications. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Variables	**Payables**		**Receivables**	
	Low Reliance	**High Reliance**	**Low Reliance**	**High Reliance**
$Post_{it}$	0.0448**	0.00806	0.0178*	-0.00797
	(2.59)	(0.95)	(1.82)	(-1.27)
$Target_i*Post_{it}$	-0.0447*	-0.0296**	-0.0377***	-0.00912
	(-1.91)	(-2.04)	(-2.91)	(-0.95)
Firm Size	0.0122**		0.0290***	
	(2.56)		(8.93)	
Firm Age	-0.0923***		-0.0760***	
	(-5.92)		(-4.88)	
Observations	22,853		22,853	
Firm FE	Yes		Yes	
Industry-Year FE	Yes		Yes	
R^2	0.38		0.46	

Table 13: Changes in Firm Leverage and CAPEX

This table provides results for accounts payable and trade receivables for target and control firms. The firms are divided into two different groups in terms of ex-post changes in firm leverage and capital expenditures (CAPEX) from one year before to one year after HFA, i.e., below (low) and above (high) the median changes in leverage and CAPEX. Following Brav *et al.* (2018), we re-run the regression equation (1) with the addition of two interaction terms, $High_i$ and Low_i, into a single regression equation. For brevity, the results are reported separately for both low and high groups. $Post_{it}$ refers to the period after activism i.e., three years after HFA (pseudo-event years for control firms) and $Target_i$ implies the firms getting targeted by hedge funds. Accounts payable is measured by accounts payable (AP) scaled by lagged net sales. Trade receivables is measured by trade receivables (RECTR) scaled by lagged net sales. The test statistics - standard errors clustered by industries – are reported in parentheses. Firm and industry-year fixed effects are appended into the regression specifications. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Variables	**Payables**		**Receivables**		**Payables**		**Receivables**	
	Low Leverage	**High Leverage**	**Low Leverage**	**High Leverage**	**Low CAPEX**	**High CAPEX**	**Low CAPEX**	**High CAPEX**
$Post_{it}$	0.0228*	0.0363**	0.000112	0.0139	0.0294*	0.0254**	0.00407	0.00794
	(1.85)	(2.59)	(0.02)	(1.30)	(1.81)	(2.44)	(0.49)	(1.04)
$Target_i$*$Post_{it}$	-0.0470**	-0.0310*	-0.0283**	-0.0219*	-0.0476*	-0.0278**	-0.0270*	-0.0219**
	(-2.01)	(-1.92)	(-2.16)	(-1.90)	(-1.77)	(-2.02)	(-1.94)	(-2.41)
Firm Size	0.0123**		0.0291***		0.0121**		0.0290***	
	(2.58)		(8.95)		(2.54)		(8.92)	
Firm Age	-0.0922***		-0.0762***		-0.0920***		-0.0762***	
	(-5.95)		(-4.90)		(-5.93)		(-4.89)	
Observations	22,853		22,853		22,853		22,853	
Firm FE	Yes		Yes		Yes		Yes	
Industry-Year FE	Yes		Yes		Yes		Yes	
R^2	0.38		0.46		0.38		0.46	

Table 14: Cash Flow, Trade Receivables and Accounts Payable

This table provides results for accounts payable (column 1) and trade receivables (column 2) for target and control firms. $Post_{it}$ refers to the period after activism i.e., three years after HFA (pseudo-event years for control firms) and $Target_i$ implies the firms getting targeted by hedge funds. Accounts payable is measured by accounts payable (AP) scaled by lagged net sales. Trade receivables is measured by trade receivables (RECTR) scaled by lagged net sales. The test statistics - standard errors clustered by industries – are reported in parentheses. Firm and industry-year fixed effects are appended into the regression specifications. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Variables	**Payables**	**Receivables**
$Post_{it}$	0.0254**	0.00417
	(2.09)	(0.65)
$Target_i$*$Post_{it}$	-0.0448**	-0.0304***
	(-2.23)	(-3.00)
Cash Flows	-0.188***	-0.0509**
	(-4.16)	(-2.33)
$Target_i$*Cash Flows*	-0.0575	-0.0957**
	(-0.78)	(-2.57)
$Post_{it}$*Cash Flows*	-0.0127	0.0272
	(-0.14)	(0.94)
$Target_i$*$Post_{it}$*Cash Flows*	0.147	0.128**
	(1.20)	(2.28)
Firm Size	0.0196***	0.0319***
	(4.16)	(9.69)
Firm Age	-0.0875***	-0.0737***
	(-5.77)	(-4.72)
Observations	22,814	22,814
Firm FE	Yes	Yes
Industry-Year FE	Yes	Yes
R^2	0.39	0.46

Table 15: Target firm characteristics and Payables

This table provides results for various target firm characteristics and accounts payable for target and control firms. Firms are divided into two different groups during one year before HFA, i.e., below (low) and above (high) the median values. Columns (1) to (3) relate to firm leverage, sales growth and tangibility, respectively. Following Brav *et al.* (2018), we re-run the regression equation (1) with the addition of two interaction terms, $High_i$ and Low_i, into a single regression equation. For brevity, the results are reported separately for both low and high groups. $Post_{it}$ refers to the period after activism i.e., three years after HFA (pseudo-event years for control firms) and $Target_i$ implies the firms getting targeted by hedge funds. Accounts payable is measured by accounts payable (AP) scaled by lagged net sales. The test statistics - standard errors clustered by industries – are reported in parentheses. Firm and industry-year fixed effects are appended into the regression specifications. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Variables	**Firm Leverage**		**Sales Growth**		**Tangibility**	
	Low Leverage	**High Leverage**	**Low Sales Growth**	**High Sales Growth**	**Low Tangibility**	**High Tangibility**
$Post_{it}$	0.0190	0.0363**	0.0336***	0.0231	0.0344**	0.0198**
	(1.52)	(2.19)	(3.79)	(1.41)	(2.17)	(2.35)
$Target_i*Post_{it}$	-0.0266	-0.0505**	-0.0393***	-0.0378*	-0.0456**	-0.0298
	(-1.36)	(-2.45)	(-2.76)	(-1.83)	(-2.19)	(-1.65)
Firm Size	0.0121**		0.0122***		0.0121**	
	(2.56)		(2.65)		(2.56)	
Firm Age	-0.0919***		-0.0918***		-0.0920***	
	(-5.92)		(-5.90)		(-5.94)	
Observations	22,853		22,853		22,853	
Firm FE	Yes		Yes		Yes	
Industry-Year FE	Yes		Yes		Yes	
R^2	0.38		0.38		0.38	

Table 16: Target firm characteristics and Receivables

This table provides results for various target firm characteristics and trade receivables for target and control firms. Firms are divided into two different groups during one year before HFA, i.e., below (low) and above (high) the median values. Columns (1) to (3) relate to firm leverage, sales growth and tangibility, respectively. Following Brav *et al.* (2018), we re-run the regression equation (1) with the addition of two interaction terms, $High_i$ and Low_i, into a single regression equation. For brevity, the results are reported separately for both low and high groups. $Post_{it}$ refers to the period after activism i.e., three years after HFA (pseudo-event years for control firms) and $Target_i$ implies the firms getting targeted by hedge funds. Trade receivables is measured by trade receivables (RECTR) scaled by lagged net sales. The test statistics - standard errors clustered by industries – are reported in parentheses. Firm and industry-year fixed effects are appended into the regression specifications. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Variables	**Firm Leverage**		**Sales Growth**		**Tangibility**	
	Low Leverage	**High Leverage**	**Low Sales Growth**	**High Sales Growth**	**Low Tangibility**	**High Tangibility**
$Post_{it}$	0.0000815	0.0105	0.0154**	-0.00148	0.00168	0.00934
	(0.01)	(1.21)	(2.10)	(-0.16)	(0.19)	(1.09)
$Target_i$*$Post_{it}$	-0.0120	-0.0371***	-0.0355***	-0.0151	-0.0312***	-0.0160
	(-1.06)	(-3.11)	(-3.12)	(-1.18)	(-2.62)	(-1.27)
Firm Size	0.0290***		0.0291***		0.0290***	
	(8.94)		(9.04)		(8.92)	
Firm Age	-0.0761***		-0.0760***		-0.0762***	
	(-4.90)		(-4.88)		(-4.89)	
Observations	22,853		22,853		22,853	
Firm FE	Yes		Yes		Yes	
Industry-Year FE	Yes		Yes		Yes	
R^2	0.46		0.46		0.46	

Table 17: Product Market Competition, Payables and Receivables

This table provides results for product market power and accounts payable and trade receivables for target and control firms. Firms are divided into two different groups during one year before HFA, i.e., below (low) and above (high) the median values. Columns (1) and (2) relate to the Lerner and Herfindahl-Hirschman indices, respectively. Following Brav *et al.* (2018), we re-run the regression equation (1) with the addition of two interaction terms, $High_i$ and Low_i, into a single regression equation. For brevity, the results are reported separately for both low and high groups. $Post_{it}$ refers to the period after activism i.e., three years after HFA (pseudo-event years for control firms) and $Target_i$ implies the firms getting targeted by hedge funds. Accounts payable is measured by accounts payable (AP) scaled by lagged net sales. Trade receivables is measured by trade receivables (RECTR) scaled by lagged net sales. The test statistics - standard errors clustered by industries – are reported in parentheses. Firm and industry-year fixed effects are appended into the regression specifications. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Variables	**(1)**				**(2)**			
	Lerner Index				**HHI**			
	Payables		**Receivables**		**Payables**		**Receivables**	
	Low Margin	**High Margin**	**Low Margin**	**High Margin**	**Low HHI**	**High HHI**	**Low HHI**	**High HHI**
$Post_{it}$	0.0342*	0.0204**	0.00838	0.00249	0.0156*	0.0388**	-0.00195	0.0131
	(1.90)	(2.46)	(0.99)	(0.30)	(1.76)	(2.29)	(-0.24)	(1.37)
$Target_i$*$Post_{it}$	-0.0478**	-0.0286**	-0.0198*	-0.0266**	-0.0167	-0.0587*	-0.0168*	-0.0311**
	(-2.12)	(-2.07)	(-1.90)	(-2.21)	(-1.37)	(-1.95)	(-1.83)	(-2.07)
Firm Size	0.0121**		0.0290***		0.0120**		0.0290***	
	(2.55)		(8.92)		(2.57)		(8.96)	
Firm Age	-0.0920***		-0.0760***		-0.0917***		-0.0760***	
	(-5.94)		(-4.89)		(-5.94)		(-4.90)	
Observations	22,853		22,853		22,853		22,853	
Firm FE	Yes		Yes		Yes		Yes	
Industry-Year FE	Yes		Yes		Yes		Yes	
R^2	0.38		0.46		0.38		0.46	