WARTIME WALLETS

ASSESSING THE FIRM-LEVEL IMPACT OF THE POST-2001 FISCAL SPENDING SHOCK

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Abstract:

Major shifts in government spending can transform corporate behavior, but not always in predictable ways. Following the sharp rise in U.S. defense spending after 9/11, we use panel data and a difference-in-differences strategy to assess how this fiscal shock affected defense contractors relative to other firms between 1998 and 2005. While contractors experienced significant revenue growth, this did not translate into higher profitability or job creation. Larger firms responded by increasing capital investment, whereas smaller firms accumulated cash reserves. These differences highlight the role of firm characteristics in shaping responses to fiscal stimulus and carry important implications for the design of policies aimed at encouraging productive investment.

Keywords:

Fiscal Policy, Defense Spending, Corporate Investment, Firm Performance

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1. Introduction

Government spending plays an important role in supporting firms and stabilizing economic activity, especially during periods of uncertainty or conflict. Understanding how companies respond to such fiscal interventions is important for economic policy. In a time of heightened rearmament, with conflicts unfolding across Europe and the Middle East, understanding the downstream effects of increased military spending and its consequences for defense contractors remains a vital economic concern.

The sharp increase in U.S. defense spending after 9/11 created an exogenous fiscal shock that significantly affected firm-level financial performance and investment behavior. Identifying the impact of fiscal interventions is typically difficult due to endogeneity, since government spending is often targeted or reactive rather than random. In this case the shock was driven by an external geopolitical event rather than economic conditions. Thus, the post-9/11 defense spending surge offers a unique way to assess how defense firms adjust their financial strategies in response to an unanticipated, massive fiscal shock (Nakamura & Steinsson, 2014).

Implementing a difference-in-differences strategy using balance sheet and income statement data from US public firms using Compustat covering the years 1998 to 2005, this study compares firms with established defense-related government sales to a control group of non-defense-contracting firms. This approach allows us to isolate the impact of the defense spending shock on firm outcomes. The analysis focuses on key financial metrics, including sales, profitability, capital expenditures, cash holdings, cash flow, and employment, to capture both performance and investment responses. In addition, we test for heterogeneous effects by firm size, to determine whether large and small contractors reacted differently to the shock.

Our results indicate that defense contractors experienced a substantial increase in sales relative to the control group following the fiscal shock. On average, firms with defense contracts before the fiscal shock grew their sales faster than non-contracting firms. However, this surge in revenue did not translate in proportional gains in profitability or employment for the defense firms. In other words, the fiscal spending boost lifted top-line revenues but had little immediate effect on bottom-line margins or job creation.

We also find important differences by firm size in how companies utilized the increase in procurement. Large defense contractors responded to the demand shock by significantly increasing capital investment and ramping up their capital expenditures (capex), whereas smaller contractors did not show a significant increase in capex. Instead, small firms accumulated cash, strengthening their liquidity and balance sheets rather than investing in expansion. This difference in behavior suggests that firm-specific characteristics, such as size, influence where additional revenue is channeled.

These insights are especially timely. With renewed global attention to military rearmament and fiscal policy, understanding how defense spending influences corporate behavior has direct implications for economic policy. Our results suggest that the effect of the fiscal shock varied depending on firm size, influencing whether the increased

revenues were reinvested in productive capacity or held as liquidity. Effective policy design must therefore account for these firm-level dynamics to translate fiscal expansions into long-term economic benefit.

2. Literature Review

Our study contributes to several strands of literature covering how a large increase in U.S. defense spending affected the financial and operational outcomes of pre-existing military contractors at the firm level. Identifying causal effects of fiscal policy is difficult, as changes in government spending are often endogenous to economic conditions. However, the 9/11 attacks and the subsequent military engagements constitute a rare, exogenous shock, that led to a rapid and substantial rise in defense procurements. This setting provides a way to isolate the impact of unexpected fiscal policy changes (Nakamura & Steinsson, 2014).

Goldman, Iyer, and Nanda (2022) develop a valuable empirical framework for studying the effects of government spending shocks by exploiting the surge in U.S. defense expenditures following the September 11, 2001, terrorist attacks. While their primary focus is on the credit supply channel, examining how defense-related spending strengthened local bank balance sheets and spurred lending in indirectly affected areas, they also illustrate how the 9/11 shock can be used to identify causal effects of fiscal policy. Importantly, their findings demonstrate that the economic impact of government spending is not uniform, even when the policy intervention is targeted at specific regions or industries. Building on this logic, we focus on pre-existing defense contractors to examine the heterogeneous firm-level responses to a sharp and exogenous increase in demand. By examining the defense contractors themselves, we trace how the exogenous demand spike flows through to the firm-level, looking both at investment and performance metrics.

Prior research has also investigated how firms respond to public procurement. Studies have shown that receiving government contracts can affect firm growth and financial structure (Barrot & Nanda, 2020). However, Kim and Nguyen (2019) find that local government spending can crowd out investment in listed firms, suggesting that higher public spending does not always lead to improved firm performance. Whether this pattern holds for firms directly supplying the defense sector after a large fiscal shock is the central question we examine.

Goldman (2020) investigates how federal procurement during the 2008-2009 financial crisis stabilized the performance of government contractors. The paper shows that firms with pre-existing government contracts experienced significantly higher market capitalization, capital expenditures, and access to credit relative to similar firms without such contracts. Moreover, the stabilizing effect spilled over into neighboring firms and sectors, particularly in areas with high economic slack. These findings highlight the role of the government as a "customer of last resort," with the ability to mitigate the impact of demand shocks through targeted spending. While Goldman (2020) focuses on the financial crisis period, our analysis examines whether similar effects exist following the

post-9/11 defense spending surge, offering new insights into firm-level responses to a different type of fiscal policy shock.

A foundational finding is that financially constrained firms tend to hold more cash, particularly when faced with increased cash flows or uncertainty (Almeida, Campello & Weisbach, 2004). Han and Qiu (2007) show that when cash-flow uncertainty rises, financially constrained, typically smaller firms, increase their cash balances far more than unconstrained firms. This pattern offers a useful framework for analyzing how defense contractors managed their cash holdings, especially comparing how responses vary by firm size.

In summary, while prior research has examined the macroeconomic consequences of fiscal shocks and the credit channel effects of government spending, this study focuses directly on the firm-level performance and investment responses of defense contractors. By leveraging the exogenous nature of the post-9/11 defense spending surge, we extend this literature by examining heterogeneous firm-level outcomes, particularly in relation to firm size.

3. Background

3.1. Historical Context and Significance

The terrorist attack on September 11th, the 2008 financial crisis, and the COVID-19 pandemic have all led to massive fiscal stimulus from the government in different forms. The 9/11 attacks triggered a profound shift in U.S. fiscal policy, particularly in defense expenditure, impacting defense firms. In a time of great rearmament, with wars in Europe and the Middle East, understanding the trickle-down effects of such increases in military spending and their consequences for defense contractors remains a critical economic question.

In the immediate aftermath of 9/11, the United States launched what would become known as the "War on Terror," resulting in military campaigns in Afghanistan (2001) and Iraq (2003) aimed at dismantling terrorist networks and preventing future attacks. This global engagement necessitated a dramatic expansion in military spending that would reshape both the defense industry and the broader economy for decades to come (Council on Foreign Relations).

Major U.S. Military and Defense Spending Events, 2001-2005 (Council on Foreign Relations):

Date	Description
September 11, 2001	Terrorist attacks on the World Trade Center and Pentagon. The event triggers a major reorientation of U.S. foreign and defense policy, with immediate fiscal, legislative, and military responses.
September 14, 2001	Congress passes the Authorization for Use of Military Force, authorizing the president to use all necessary force against those responsible for 9/11. This became the legal foundation for the Global War on Terror.
October 7, 2001	The U.S. launches Operation Enduring Freedom in Afghanistan, aiming to dismantle al-Qaeda and remove the Taliban. This marks the beginning of sustained troop deployment, military procurement, and rapid increases in defense spending.
2002	The Department of Homeland Security is established, shifting budget priorities toward domestic counterterrorism. Defense contractors begin benefiting from increased demand for surveillance, infrastructure, and threat detection systems.
March 19, 2003	The U.S. begins its invasion of Iraq, citing the threat of weapons of mass destruction. Defense spending accelerates sharply, with emergency appropriations used to fund operations and procurement outside the regular Department of Defense budget process.
2003-2005	Use of Overseas Contingency Operations and supplemental appropriations grows. Military procurement, contractor outsourcing, and R&D surge (Peltier, 2020).

3.2. Defense Contracting

The scale of this fiscal response was unprecedented in recent history. In the U.S., total national defense outlays surged from approximately $305 billion in 2001 to nearly $706 billion by 2011. As a share of GDP, defense spending grew from 3.0% to 4.7%, while its proportion of total federal outlays increased from 16.4% to 20.1% (Elisabeth Sköns and Sam Perlo-Freeman, 2011). By 2022, estimates suggest that total federal spending and obligations for post-9/11 wars reached approximately $8 trillion, encompassing not only direct military costs but also veterans' care, homeland security measures, and interest payments on war-related debt (Aftergood, Ṣóyẹmí, Crawford, Peltier, Pemberton, & Semler, 2021).

The U.S. defense contracting landscape is a complex ecosystem that extends well beyond its most visible players. While prime contractors receive the bulk of defense funding, the economic impact radiates through vast supply chains involving thousands of smaller firms. These subcontractors help distribute military spending across varying industries, labor markets, and geographic regions (Watts, 2008). Importantly, the timing of this activity is not immediate, as defense contracts often span several years. These contracts are often tied to long-term appropriations, meaning firms respond not just to current spending, but to expected future outlays. This phenomenon, known as “fiscal foresight,” describes how companies adjust investment, hiring, and production in anticipation of future government expenditures (Ramey, 2011).

4. Data

4.1. Data Sources

This study uses firm-level panel data from the Compustat North America database, accessed through the Wharton Research Data Services (WRDS) platform. Two datasets are employed. The primary source is the Compustat Fundamentals Annual file, which provides standardized financial statement information for publicly listed firms across North America, including data on assets, revenues, expenditures, and employment. The second source is the Compustat Customer Segments file. This file contains a list of all firm's, which has a specific customer that represents 10% or more of its annual sales.

Although the empirical analysis focuses on fiscal years 1998 to 2005, the data was initially downloaded for a broader period (1990-2010) for Fundamentals Annual file, and all available years for the Customer Segments file to allow flexibility in sample construction.

4.2. Sample Construction

The sample is restricted to U.S.-headquartered firms reporting in U.S. dollars under the industrial format (INDL). Firms in the financial sector (Standard Industrial Classification, SIC, codes 6000-6999), and observations with missing values for the key financial variable "total assets" are dropped. These filters follow standard conventions, such as Goldman et al. (2022) to help ensure comparability across firms and time. Additionally, we also exclude Electric, Gas, and Sanitary Services firms (SIC codes 4900-4999), as well as International Affairs Non-Operating Establishments (SIC codes >9000) due to their distinct financial structures and limited relevance for analyzing corporate investment behavior.

4.3. Variable Construction

From the cleaned Fundamentals Annual file, we construct the primary firm-level financial variables used in the analysis. These include: LogAssets, LogSales, Return on Assets (ROA), Cash Holdings, Employment, Capital Expenditures (capex), and Cash Flow, explained in the variable table (Table 1).

The summary statistics in Table 2 show that the sample includes firms with a wide range of sizes and financial characteristics. Firm size and sales are right-skewed, with some very large firms pulling up the mean, while most firms are smaller. There is also substantial variation in employment and investment levels across firms. Table 3 compares defense contractors and non-contractors in the year 2000 and shows that the two groups are generally similar, though there are some notable differences. Defense contractors appear to be slightly larger in terms of assets and have lower profitability and cash flow on average. They also hold somewhat less cash, which may reflect different financial strategies or risk exposure. Overall, the two groups are comparable but not identical before the fiscal shock.

Sales and assets are log-transformed to reduce skewness and mitigate heteroskedasticity. To address the influence of outliers, all variables are winsorized at the 1st and 99th percentiles.[1] A "small firm" variable is created by identifying firms in the bottom 50th percentile of assets for the year 2000.

SIC codes are used when controlling for industry-by-year fixed effects. These are aggregated to the two-digit level (from the reported three or four digits) to group firms into broader industry categories (e.g., manufacturing or finance-related sectors). This is done by converting the SIC code into a four-character string (adding leading zeros if necessary), extracting the first two digits, and then converting that value back into a numeric variable for use in regressions.

4.4. Identification of Contractors

From the Compustat Customer Segments file, we identify all observations labelled with the customer type "GOVDOM" (domestic government) and create unique customer IDs based on customer names. These are manually classified into either defense-related or general government agencies depending on their name. Names related to the Department of Defense (DoD), such as "defense", "army", "navy", "military", or similar are classified as defense. Firms are classified as a defense contractor if more than 10% of their revenue is to a defense-related department, or as a government contractor if more than 10% of their revenue is to the domestic government, in the year 2000.

The fiscal year alignment is adjusted using the transaction date (srcdate) in the customer segment file: transactions occurring from January through May are attributed to the previous fiscal year to ensure consistency with the firm-year structure in the Fundamentals Annual file.

[1] Winsorization is applied using Stata's winsor2 command, which replaces extreme values in the specified variables with the values at a defined percentile threshold. This procedure is conducted after merging all datasets and constructing the final analysis sample to ensure consistency across variables.

5. Empirical Strategy and Identification

5.1. Research Design and Identification Assumptions

We adopt a difference-in-differences (DiD) strategy that leverages pre-existing variation in firms' exposure to military procurement. The treatment group consists of firms classified as a defense contractor, while the control group consists of all other firms.

We define the post-treatment period as fiscal years 2002 to 2005. Choosing 2000 as the baseline year for classifying the firms, ensures that treatment status is determined prior to the exogenous increase in defense spending, removing the risk of reverse causality. This approach strengthens identification by isolating firms that were already engaged in defense-related sales before the policy change, rather than those who entered in response to it. This identification strategy is similar to the one used by Goldman et al. (2022).

5.2. Econometric Specification

The baseline equation is specified as:

$$Y_{it} = \alpha + \beta \times (defense\ contractor_i \times post_t) + \gamma_{it} + \delta_i + \varepsilon_{it} \quad (1)$$

In the baseline specification (equation 1), Y_{it} denotes a financial outcome for firm i in year t, such as ROA, capex, or LogSales. The variable def_flag_i equals one if the firm reported more than 10% of its revenues from defense-related departments in 2000, and $post_t$ equals one for fiscal years 2002-2005, indicating the post-treatment period. The term γ_i captures firm fixed effects, controlling for time-invariant firm characteristics, while δ_i represents year fixed effects, which absorb common macroeconomic shocks and secular time trends. The coefficient β captures the average difference in outcomes between defense contractors and non-contractors following the increase in defense spending, relative to the pre-treatment period.

To strengthen identification, we estimate an extended version of the model that includes industry-by-year fixed effects (Correia, 2016).[2] This is defined as interactions between 2-digit SIC codes and fiscal years. Additional control absorbs unobserved, time-varying shocks specific to particular sectors, such as industry-wide changes in demand, technology, or regulation, that could otherwise bias the estimated treatment effect.

$$Y_{it} = \alpha + \beta \times (defense\ contractor_i \times post_t) + \lambda_{jt} + \delta_i + \varepsilon_{it} \quad (2)$$

The extended specification of the model (equation 2), controls for time-varying industry-level effects by including industry-by-year fixed effects. Specifically, λ_{jt} represents fixed effects for each combination of industry j and year t, capturing unobserved factors that

[2] All regressions are estimated using the "reghdfe" command in Stata, which enables absorption of high-dimensional fixed effects. Standard errors are clustered at the firm level to account for serial correlation in outcomes.

affect all firms within the same industry in a given year, such as technological changes, regulatory developments, or industry-wide demand shifts. This specification replaces the year fixed effects from the baseline model, allowing for a more flexible control of sector-specific trends. This is particularly important in the context of defense procurement, where federal spending may be disproportionately concentrated in sectors such as aerospace, communications, or heavy manufacturing, which are correlated with defense.

This identification strategy relies on the parallel trends assumption, that in the absence of the policy shock treated and control firms would have exhibited similar trends in outcomes. To account for this, several aspects of this assumptions has been analyzed. First, the treatment and control groups in table 3 display comparable pre-treatment characteristics, minimizing concerns about systematic baseline differences. Second, visual inspection of pre-treatment outcome dynamics reveals low indication of diverging trends prior to the shock for all variables (Figure 1A-F). This is consistent with the parallel trends assumption. Finally, we assume that spillover effects are negligible, meaning that changes in the outcomes of non-contractors are not driven by indirect effects from defense contractors' behavior.

6. Empirical Results

6.1. Firm-Level Results

6.1.1. Effect of Fiscal Shock on Firm Performance

We find that defense contractors experienced a substantial and statistically significant increase in sales following the 9/11 attacks. The coefficient on the interaction term Defense Contractor × Post in the LogSales regression is positive at a magnitude of 0.15-0.21, and significant for all columns except column 3 (Table 4, Panel A). This indicates that firms with pre-existing defense contracts saw their sales increase in relation to non-defense contractors in the years after the shock. This divergence is significant, especially considering that defense and control firms had nearly identical pre-shock sales levels (Table 3). The effect persists and slightly strengthens when controlling for industry-by-year fixed effects, suggesting that this revenue boost is directly attributable to their status as defense contractors during the period of increased defense spending, rather than reflecting broader industry-specific trends. This substantial increase in sales highlights the direct economic stimulus provided to firms within the defense sector by the surge in government procurement.

Despite the increase in sales, profitability as measured by ROA, is not significant in the panel (Table 4, Panel B). This suggests that defense contractors may have faced higher production costs or engaged in capacity expansions, diluting the potential capture in economies of scale. It is also possible that government contracts, while boosting revenues, came with tighter margins or required substantial upfront investments in compliance and specialized production capabilities. Although the defense firms experienced a higher profit in absolute terms, the revenue growth did not immediately translate into improved asset efficiency or higher returns. The lack of a profitability jump in the short term may be caused by a delayed payoff. Firms could be laying groundwork for future profitability

at the expense of present margins, or simply experiencing diminishing returns due to capacity constraints.

Similarly, cash flow is not significant (Table 4, Panel C). One possible explanation is that while sales increased, defense contractors may have encountered longer payment cycles due to the nature of government procurement processes, which often involve delayed disbursements and complex contractual terms. Additionally, investments in production capacity or machinery could absorb much of the immediate cash inflow. As a result, the improved sales figures did not directly translate into higher cash flows.

6.1.2. Effect of Fiscal Shock on Firm Investments

Capex is statistically significant in columns 1 and 2, with an estimated magnitude ranging from 0.13 to 0.17 (Table 4, Panel D), while not being significant for columns 3 and 4. Thus, the overall increase in investment is primarily driven by larger firms, which typically have better access to external capital markets and can more readily finance capital-intensive projects. This enables them to increase investment more quickly in response to rising demand.

The limited magnitude of the investment response from small firms, indicates that they may have been cautious in translating higher revenues (controlling for industry-by-year fixed effects) into long-term expansions of production capacity. One plausible explanation is uncertainty regarding the duration of the demand shock. The wars in the Middle East (following 9/11) may have been viewed as temporary conflicts, leading firms to question whether elevated demand would persist. In such an environment, smaller firms in particular may have lacked the financial resources or risk tolerance to commit to irreversible investments in new factories or equipment. Instead, these firms may have prioritized strengthening their balance sheets or increasing financial flexibility, a behavior that becomes evident when examining their cash holdings.

Cash holdings show a notable and statistically significant effect for small firms (columns 3 and 4 in Table 4, Panel E) by approximately 0.04 following the defense spending surge. In contrast, large contractors show no statistically significant change in their cash holding levels. This pattern, where only small and likely more financially constrained firms accumulate significant cash reserves, aligns closely with the theory of precautionary saving. As demonstrated by Han and Qiu (2007), financially constrained firms tend to increase their cash balances significantly more than unconstrained firms when faced with rising cash-flow uncertainty. Our findings for small defense contractors reflect a similar dynamic. Facing potentially uncertain future demand, these firms appear to have chosen to build liquidity from the increased sales generated (controlling for industry-by-year fixed effects) by the defense spending surge. This highlights a key difference in how firms, depending on size, manage the financial benefits from such exogenous shocks, with smaller firms prioritizing the accumulation of cash rather than committing to long-term investments. This shows that, in contrast to large firms which increased their capex, small firms instead chose to increase their cash holdings.

In terms of employment, we find no statistically significant effect across any specification (Table 4, Panel F). This lack of hiring response suggests that defense contractors met the

increased demand without a proportional increase in headcount. The absence of job growth is also consistent with the uncertainty narrative. Defense firms could have been hesitant to take on the commitments of new permanent hires without confidence that higher demand would persist. Additionally, some defense projects may be capital- or skill-intensive, limiting the need for many new workers in the short run, which could be explained from the increase in capex.

6.2. Robustness Tests

To assess the credibility of the baseline results, we implement two key robustness checks designed to mitigate potential confounding factors and validate our identification strategy.

We conduct a falsification test with government contractors to validate that the observed effects are attributable specifically to the defense spending surge rather than broader government spending trends. We perform this test using an alternative treatment group, government contractors. The regression is conducted excluding firms previously categorized defense contractors, to not contaminate the data.

The second robustness test is a validity test excluding technology-related firms from the control group. Our main analysis includes a broad range of industries in the control group, allowing for a complete comparison. However, we recognize that the dot-com bubble could be a major potential confounder affecting the original control group in the period 1998-2005. Therefore, we re-run our regression excluding technology-related firms from the control sample. This provides a cleaner comparison group, less susceptible to the simultaneous economic shock, allowing us to assess if our key findings for defense contractors hold.

6.2.1. Falsification test with government contractors

In contrast to our main results for defense contractors, government contractors reveal no statistically significant increase in LogSales (Table A1, Panel A). This lack of significant effects on performance supports our primary finding that the impacts were specific to defense contractors. A similar pattern is observed for cash holdings, which are significant across the full sample of government contractors (Table A1, Panel E). This suggests that, alongside increased investment, goverment contractors also prioritized strengthening their liquidity positions. Consistent with the behavior of smaller defense contractors, this may reflect a precautionary response to heightened uncertainty in the post-9/11 environment, with firms opting to retain cash reserves rather than fully committing additional resources to long-term investments.

We find that capex has a positive and statistically significant effect for government contractors, suggesting that part of the investment increase may reflect a broader rise in public sector spending rather than being solely driven by the fiscal shock in defense spending (Table A1, Panel D). However, this result does not invalidate our previous findings, as these effects are not mutually exclusive. Increased investment activity may have been driven by a combination of general public and defense spending.

6.2.2. Validity test Excluding Technology Firms

When excluding technology firms, we find that the positive and statistically significant effect on LogSales for defense contractors persists and is even more pronounced for small firms (Table A2, Panel A), compared to the main results (Table 4, Panel A). This indicates that the observed increase in sales among defense contractors is robust to the exclusion of technology firms from the control group and is not simply driven by poor performance within the original control group.

However, the results for ROA change notably. In this robustness test, ROA becomes positive and statistically significant across all specifications (Table A2, Panel B). This suggests that the previously insignificant ROA results in our main analysis may have been influenced by the strong performance of the technology sector in profitability metrics during the study period. Following the dot-com bubble, many tech firms shifted their focus toward profitability after a period of aggressive spending and weak earnings (Ofek and Richardson, 2003). This shift could have affected the profitability dynamics of the control group in the main regression, making the relative increase in ROA for defense contractors appear insignificant by comparison. These profitability gains suggest defense suppliers captured quasi-rents from the rapid spending increase, consistent with procurement arrangements that guarantee margins on costs.

7. Discussion

7.1. Limitations

The primary limitation of this thesis is its focus on a specific group of publicly listed defense contractors, which excludes smaller private firms and subcontractors that also played a significant role in the post-9/11 defense expansion. While this focus enables a clean identification strategy based on available financial data, it limits the extent to which the results can be generalized to the broader defense industry. However, this limitation is common to all studies using firm-level financial data, as information for private firms in the U.S. is not public.

Another limitation is the focus on short- to medium-term effects, with the analysis period ending in 2005. This cutoff was chosen to avoid contamination from the Global Financial Crisis, but it prevents an assessment of longer-term outcomes and whether the observed firm-level adjustments persisted. Future research could explore other fiscal shock settings which allow for examining the long-term durability of these effects.

7.2. Further Research

While this study focuses on the post-9/11 period, recent geopolitical developments raise important questions that deserve further investigation. The sharp rise in global tensions since our sample period calls for a closer look at how modern conflicts affect defense-related supply chains. Russia's invasion of Ukraine in 2022, for example, triggered an unprecedented surge in Western defense budgets (Tian, Lopes da Silva, Liang, &

Scarazzato, 2024). Examining whether this shock has an influence on the operating performance, investment, and employment of U.S. contractors could be of interest.

The European context is also highly relevant. After years of underinvestment, EU member states have announced multi-year rearmament programs (Hansen, 2022). Analyzing how domestic contractors respond to these spending increases compared to similar firms elsewhere in the Union could reveal whether Europe's fragmented procurement structure limits the effectiveness of this stimulus or instead strengthens it through increased regional cooperation.

8. Conclusion

Understanding how firms respond to sudden, large-scale fiscal shocks, is critical for assessing the real-world effectiveness of government spending. This thesis examines the sharp rise in U.S. defense expenditures after 9/11 to shed light on how such fiscal shocks affect firm-level behavior. With the renewed focus on military spending amid global tensions and active conflicts, understanding the downstream effects of defense budgets on corporate decisions is central to ongoing economic policy debates.

Our central finding is that while firms with pre-existing defense contracts experienced significant revenue growth compared to similar firms, these gains did not uniformly translate into improved profitability or job creation. Larger firms responded by increasing capital investments, rather than workforce expansion to meet increased demand. Smaller firms did not increase capital investments but instead prioritized liquidity, accumulating cash reserves. The result highlights how fiscal shocks impact firms unevenly, with outcomes shaped not only by industry exposure but also by firm size. This suggests that fiscal interventions of this kind inflate top-line revenues without directly improving firms' bottom lines.

Beyond the specific context of this fiscal shock, these findings offer broader insights for future fiscal policy design. They underscore the importance of accounting for financial frictions and firm heterogeneity when evaluating the effectiveness of demand-side interventions. To maximize the long-term impact of fiscal policy, governments should consider pairing spending programs with measures that reduce financing barriers and encourage firms, particularly smaller ones, to invest confidently in future growth. Understanding these heterogeneous firm-level responses is essential for designing policies that effectively translate fiscal stimulus into desired economic outcomes.

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10. AI Transparency statement

To correct grammar, spellchecking, and reduce repetitive word usage, we utilised Perplexity and ChatGPT. Additionally, it supported our coding process in Stata by assisting with syntax errors.

Table 1

Table 1 defines the accounting variables used in this paper. All data is sourced from Compustat.

Variable	Definition
LogAssets	The natural logarithm of Total Assets. Total Assets represents the total value of assets reported on the Balance Sheet, including the sum of current assets, net property, plant and equipment, and other noncurrent assets.
LogSales	The natural logarithm of Sales/Turnover. Sales represents gross sales reduced by cash discounts, trade discounts, and returned sales and allowances, reflecting the primary operating revenue.
ROA	Calculated as earnings before interest and taxes divided by total assets.
CashHoldings	Calculated as the ratio of Cash and Short-term Investments over total assets. Cash and Short-term Investments represents cash and all securities readily transferable to cash.
Employees	The number of company workers as reported to shareholders. This includes full-time, part-time, and seasonal employees of consolidated subsidiaries and can be year-end or average figures.
Capex	Capital expenditure over lagged net property, plant and equipment. Capital expenditure represents cash outflow or funds used for additions to property, plant, and equipment excluding amounts from acquisitions, and net property, plant, and equipment is the cost, less accumulated depreciation, of tangible fixed property used in the production of revenue.
CashFlow	Cash flow is a ratio of total assets. Measured as earnings before interest and taxes minus Interest and Related Expense, minus Income Taxes, minus cash dividends, all divided by total assets. Interest and Related Expense is the periodic expense of securing debt, Income Taxes is total income taxes, and cash dividends is the total amount of cash dividends declared on common/ordinary capital.

Table 2

This table provides an overview of the full firm sample for the period 1998-2005. The table reports the mean, median, standard deviation (S.D.), minimum and maximum values, as well as the number of observations for each variable.

	Mean	Median	S.D.	Min	Max	Obs
LogAssets	4.579	4.713	2.535	-2.674	10.174	43178
LogSales	4.506	4.728	2.669	-3.219	10.097	41556
Employees	5.503	0.539	15.735	0	111.600	40807
ROA	-0.276	0.036	1.189	-9.163	0.342	43032
Capex	0.458	0.214	0.845	0.000	6.158	40315
Cashflow	-0.363	0.002	1.419	-11.188	0.237	39051
CashHoldings	0.210	0.099	0.249	0	0.956	43170

Table 3

This table reports the mean, median, and standard deviation (S.D.) for the control and treatment groups (defense contractors) in the year 2000, along with the differences between the groups for each statistic and the corresponding t-statistics for the difference in means.

	Control Group			Defense			Difference		
	Mean	Median	S.D.	Mean	Median	S.D.	Mean	Median	S.D.
LogAssets	4.501	4.692	2.506	4.175	4.007	1.996	0.326	0.685	0.51
LogSales	4.361	4.59	2.655	4.35	4.286	2.164	0.011	0.304	0.491
Employees	4.892	0.497	14.627	4.851	0.342	15.102	0.041	0.155	-0.475
ROA	-0.313	0.025	1.226	-0.043	0.046	0.251	-0.270*	-0.021	0.975
Capex	0.652	0.265	1.093	0.368	0.269	0.355	0.284**	-0.004	0.738
CashFlow	-0.404	-0.011	1.472	-0.071	0.009	0.229	-0.333*	-0.02	1.243
CashHoldings	0.2	0.075	0.253	0.151	0.076	0.187	0.049*	-0.001	0.066

Table 4

Table 4 reports regression results estimating the impact of post-9/11 defense spending on firm-level financial outcomes. The dependent variable is indicated in each panel. The key coefficient of interest is from the interaction term *Defense Contractor* × *Post*, which captures the differential effect on firms with over 10% of revenue from defense contracts in 2000. All regressions include firm and year fixed effects, Columns (2) and (4) also control for industry-by-year fixed effects (2-digit SIC × fiscal year). Columns (1) and (2) use the full sample; Columns (3) and (4) restrict to small firms (below the 2020 median total assets). Variables are defined in Table 1.

Table 4, Panel A: Firm-level regression

Dependent Variable:	LogSales			
	All Firms		Small Firms	
	(1)	(2)	(3)	(4)
Defense Contractor × Post	0.221**	0.270***	0.236*	0.305**
	(0.091)	(0.092)	(0.129)	(0.134)
Observations	41487	41473	18996	18942
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Abs.	Yes	Abs.
Industry × Year FE	-	Yes	-	Yes

Standard errors in parentheses

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

Table 4, Panel B: Firm-level regression

Dependent Variable:	ROA			
	All Firms		Small Firms	
	(1)	(2)	(3)	(4)
Defense Contractor × Post	0.051*	0.059*	0.074	0.083
	(0.028)	(0.033)	(0.046)	(0.061)
Observations	43014	43000	20399	20349
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Abs.	Yes	Abs.
Industry × Year FE	-	Yes	-	Yes

Standard errors in parentheses

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

Table 4, Panel C: Firm-level regression

Dependent Variable:	Cash Flow			
	All Firms		Small Firms	
	(1)	(2)	(3)	(4)
Defense Contractor × Post	0.056**	0.067*	0.094*	0.122
	(0.027)	(0.036)	(0.048)	(0.077)
Observations	38906	38894	18183	18129
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Abs.	Yes	Abs.
Industry × Year FE	-	Yes	-	Yes

Standard errors in parentheses

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

Table 4, Panel D: Firm-level regression

Dependent Variable:	Capex			
	All Firms		Small Firms	
	(1)	(2)	(3)	(4)
Defense Contractor × Post	0.121	0.144*	0.097	0.081
	(0.084)	(0.086)	(0.132)	(0.134)
Observations	40123	40110	18551	18495
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Abs.	Yes	Abs.
Industry × Year FE	-	Yes	-	Yes

Standard errors in parentheses

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

Table 4, Panel E: Firm-level regression

Dependent Variable:	Cash Holdings			
	All Firms		Small Firms	
	(1)	(2)	(3)	(4)
Defense Contractor × Post	0.02	0.016	0.034*	0.039*
	(0.015)	(0.016)	(0.02)	(0.022)
Observations	43159	43145	20504	20454
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Abs.	Yes	Abs.
Industry × Year FE	-	Yes	-	Yes

Standard errors in parentheses

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

Table 4, Panel F: Firm-level regression

Dependent Variable:	Employees			
	All Firms		Small Firms	
	(1)	(2)	(3)	(4)
Defense Contractor × Post	0.091	0.398	0.064	0.062
	(0.516)	(0.567)	(0.039)	(0.045)
Observations	40731	40722	19085	19038
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Abs.	Yes	Abs.
Industry × Year FE	-	Yes	-	Yes

Standard errors in parentheses

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

Figure 1

Figure 1 plots year-specific coefficients for defense contractors and non-defense contractors relative to the omitted base year (2001). The figure illustrates the change of key variables before and after the fiscal spending shock. Coefficients are estimated separately for each year to capture the dynamic effects over time. Variables are defined in Table 1.

Figure 1A: LogSales

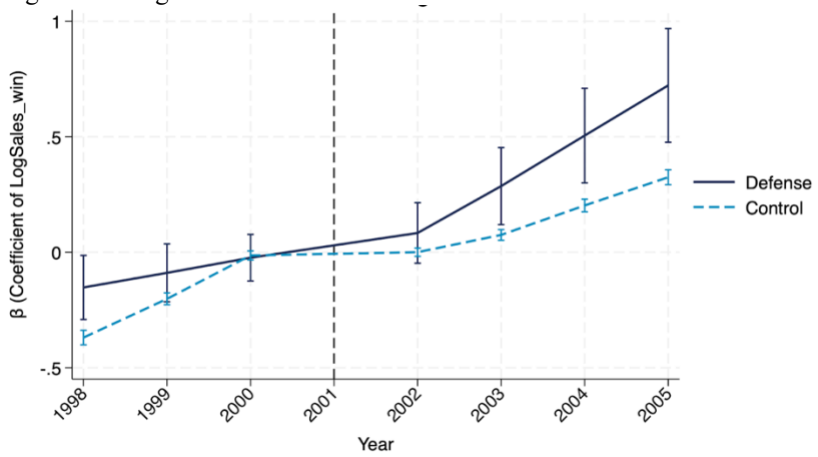


Figure 1B: ROA

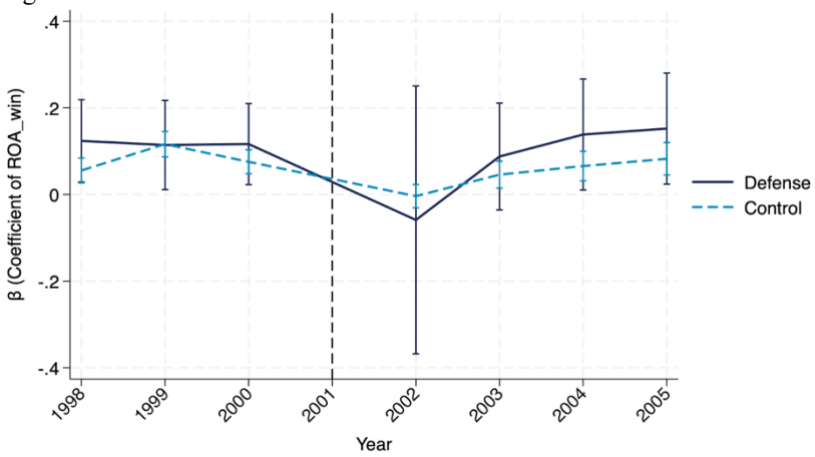


Figure 1C: Cashflow

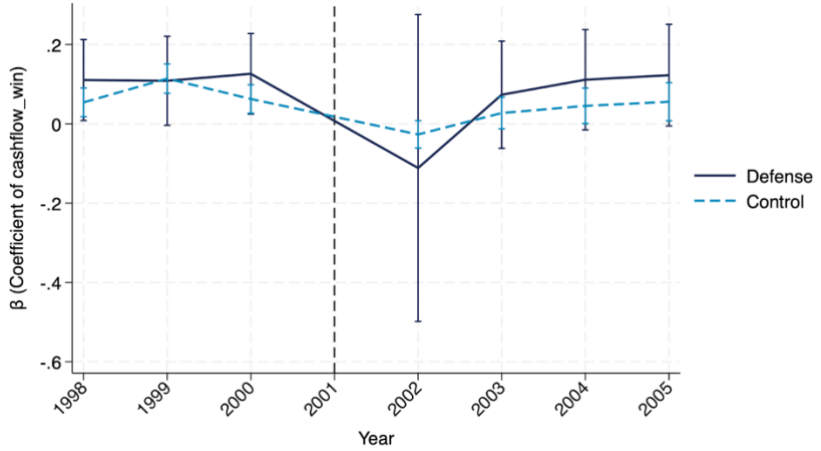


Figure 1D: Capex

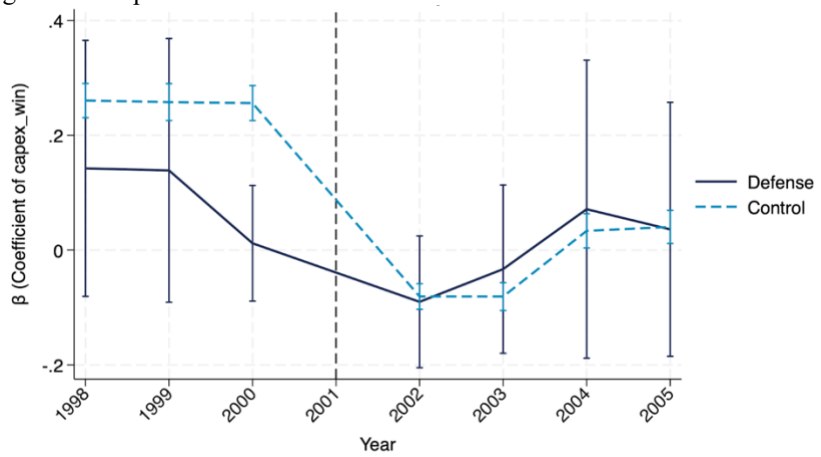


Figure 1E: CashHoldings

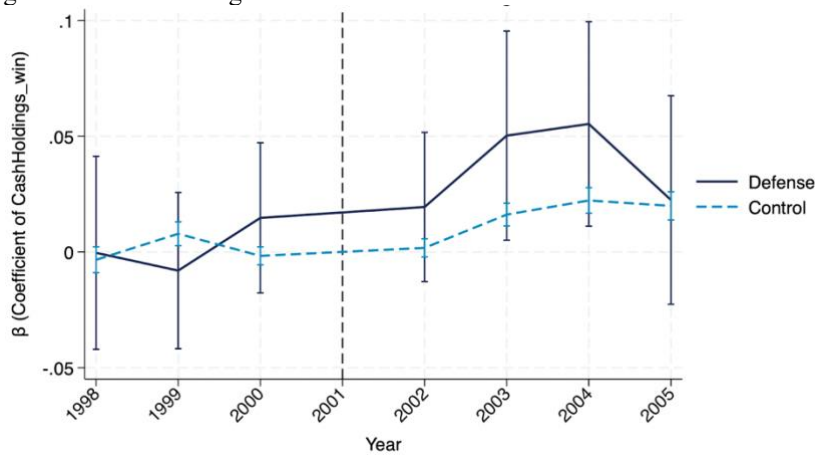
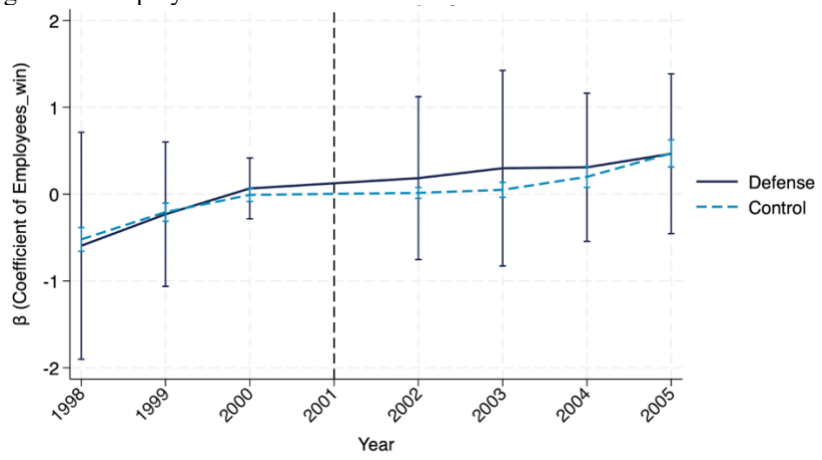


Figure 1F: Employees



Appendix

Table A1

Table A1 reports a robustness test using firms with substantial pre-9/11 government contract exposure (excluding defense contractors) as the treatment group. The dependent variable is indicated in each panel. The key coefficient of interest is from the interaction term *Government Contractor* × *Post*, capturing the differential effect on firms with over 10% of revenue from government contracts in 2000. The control group consists of firms with no significant defense or government exposure. All regressions include firm and year fixed effects, Columns (2) and (4) also add industry-by-year fixed effects (2-digit SIC × fiscal year). Columns (1) and (2) use the full sample, Columns (3) and (4) restrict to small firms (below the 2020 median total assets). Variables are defined in Table 1.

Table A1, Panel A: Robustness test Goverment Contractors

Dependent Variable:	LogSales			
	All Firms		Small Firms	
	(1)	(2)	(3)	(4)
Gov Contractor × Post	-0.041	-0.064	-0.113	-0.105
	-0.047	-0.051	-0.088	-0.091
Observations	41011	40995	18680	18631
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Abs.	Yes	Abs.
Industry × Year FE	-	Yes	-	Yes

Standard errors in parentheses

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

Table A1, Panel B: Robustness test Goverment Contractors

Dependent Variable:	ROA			
	All Firms		Small Firms	
	(1)	(2)	(3)	(4)
Gov Contractor × Post	0.022	0.008	0.055	0.043
	-0.038	-0.044	-0.089	-0.102
Observations	42537	42521	20082	20037
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Abs.	Yes	Abs.
Industry × Year FE	-	Yes	-	Yes

Standard errors in parentheses

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

Table A1, Panel C: Robustness test Goverment Contractors

Dependent Variable:	Cash Flow			
	All Firms		Small Firms	
	(1)	(2)	(3)	(4)
Gov Contractor × Post	0.059	0.04	0.133	0.119
	-0.045	-0.054	-0.111	-0.129
Observations	38461	38447	17893	17844
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Abs.	Yes	Abs.
Industry × Year FE	-	Yes	-	Yes

Standard errors in parentheses

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

Table A1, Panel D: Robustness test Goverment Contractors

Dependent Variable:	Capex			
	All Firms		Small Firms	
	(1)	(2)	(3)	(4)
Gov Contractor × Post	0.137***	0.158***	0.1	0.126*
	-0.03	-0.036	-0.068	-0.074
Observations	39659	39641	18241	18190
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Abs.	Yes	Abs.
Industry × Year FE	-	Yes	-	Yes

Standard errors in parentheses

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

Table A1, Panel E: Robustness test Goverment Contractors

Dependent Variable:	Cash Holdings			
	All Firms		Small Firms	
	(1)	(2)	(3)	(4)
Gov Contractor × Post	0.024***	0.026***	0.032*	0.034*
	-0.009	-0.01	-0.019	-0.019
Observations	42684	42668	20188	20143
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Abs.	Yes	Abs.
Industry × Year FE	-	Yes	-	Yes

Standard errors in parentheses

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

Table A1, Panel F: Robustness test Goverment Contractors

Dependent Variable:	Employees			
	All Firms		Small Firms	
	(1)	(2)	(3)	(4)
Gov Contractor × Post	0.308	0.519	0.126	0.126
	-0.488	-0.488	-0.097	-0.108
Observations	40266	40255	18776	18734
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Abs.	Yes	Abs.
Industry × Year FE	-	Yes	-	Yes

Standard errors in parentheses

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

Table A2

Table A2 reports a robustness test addressing concerns that the observed effects may reflect the dot-com crash rather than the post-9/11 defense spending shock. The model is re-estimated excluding technology-related firms (SIC codes 3570-3579, 3660-3669, 3670-3679, 4810-4813, and 7370-7379) from the control group. The key coefficient is from the interaction term *Defense Contractor* × *Post*, capturing the effect on firms with over 10% of revenue from DoD contracts in 2000. Columns (1) and (2) use the full sample (excluding technology firms), Columns (3) and (4) restrict to small firms (below the 2020 median total assets). All regressions include firm and year fixed effects, Columns (2) and (4) also control for industry-by-year fixed effects (2-digit SIC × fiscal year). Variables are defined in Table 1.

Table A2, Panel A: Robustness test excluding tech firms (excl. Tech)

Dependent Variable:	LogSales (excl. Tech)			
	All Firms		Small Firms	
	(1)	(2)	(3)	(4)
Defense Contractor × Post	0.195*	0.223*	0.275*	0.360**
	-0.117	-0.116	-0.157	-0.179
Observations	31090	31076	14220	14166
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Abs.	Yes	Abs.
Industry × Year FE	-	Yes	-	Yes

Standard errors in parentheses

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

Table A2, Panel B: Robustness test excluding tech firms (excl. Tech)

Dependent Variable:	ROA (excl. Tech)			
	All Firms		Small Firms	
	(1)	(2)	(3)	(4)
Defense Contractor × Post	0.059	0.068	0.087	0.107
	-0.039	-0.048	-0.059	-0.097
Observations	32375	32361	15426	15376
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Abs.	Yes	Abs.
Industry × Year FE	-	Yes	-	Yes

Standard errors in parentheses

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

Table A2, Panel C: Robustness test excluding tech firms (excl. Tech)

Dependent Variable:	Cash Flow (excl. Tech)			
	All Firms		Small Firms	
	(1)	(2)	(3)	(4)
Defense Contractor × Post	0.044	0.049	0.078	0.118
	-0.032	-0.048	-0.054	-0.116
Observations	30150	30138	14075	14026
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Abs.	Yes	Abs.
Industry × Year FE	-	Yes	-	Yes

Standard errors in parentheses

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

Table A2, Panel D: Robustness test excluding tech firms (excl. Tech)

Dependent Variable:	Capex (excl. Tech)			
	All Firms		Small Firms	
	(1)	(2)	(3)	(4)
Defense Contractor × Post	0.141	0.171	0.155	0.14
	-0.13	-0.134	-0.193	-0.209
Observations	30318	30305	14071	14015
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Abs.	Yes	Abs.
Industry × Year FE	-	Yes	-	Yes

Standard errors in parentheses

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

Table A2, Panel E: Robustness test excluding tech firms (excl. Tech)

Dependent Variable:	Cash Holdings (excl. Tech)			
	All Firms		Small Firms	
	(1)	(2)	(3)	(4)
Defense Contractor × Post	0.022	0.021	0.03	0.04
	-0.019	-0.021	-0.028	-0.034
Observations	32463	32449	15497	15447
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Abs.	Yes	Abs.
Industry × Year FE	-	Yes	-	Yes

Standard errors in parentheses

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

Table A2, Panel F: Robustness test excluding tech firms (excl. Tech)

Dependent Variable:	Employees (excl. Tech)			
	All Firms		Small Firms	
	(1)	(2)	(3)	(4)
Defense Contractor × Post	-0.698	-0.283	0.005	0.001
	-0.625	-0.749	-0.051	-0.059
Observations	30797	30788	14465	14418
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Abs.	Yes	Abs.
Industry × Year FE	-	Yes	-	Yes

Standard errors in parentheses

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

Table A3

Table A3 lists the SIC code exclusions applied to the dataset. Firms are excluded if their primary SIC code falls within Electric, Gas, and Sanitary Services (4900-4999), Financial Services (6000-6999), or International Affairs and non-operating entities (≥ 9000) (SEC, 2024).

SIC Code Table

Code	Office	Description
4900	Office of Energy & Transportation	ELECTRIC, GAS & SANITARY SERVICES
4911	Office of Energy & Transportation	ELECTRIC SERVICES
4922	Office of Energy & Transportation	NATURAL GAS TRANSMISSION
4923	Office of Energy & Transportation	NATURAL GAS TRANSMISISON & DISTRIBUTION
4924	Office of Energy & Transportation	NATURAL GAS DISTRIBUTION
4931	Office of Energy & Transportation	ELECTRIC & OTHER SERVICES COMBINED
4932	Office of Energy & Transportation	GAS & OTHER SERVICES COMBINED
4941	Office of Energy & Transportation	WATER SUPPLY
4950	Office of Energy & Transportation	SANITARY SERVICES
4953	Office of Energy & Transportation	REFUSE SYSTEMS
4955	Office of Energy & Transportation	HAZARDOUS WASTE MANAGEMENT
4961	Office of Energy & Transportation	STEAM & AIR-CONDITIONING SUPPLY
4991	Office of Energy & Transportation	COGENERATION SERVICES & SMALL POWER PRODUCERS
6021	Office of Finance	NATIONAL COMMERCIAL BANKS
6022	Office of Finance	STATE COMMERCIAL BANKS
6029	Office of Finance	COMMERCIAL BANKS, NEC
6035	Office of Finance	SAVINGS INSTITUTION, FEDERALLY CHARTERED
6036	Office of Finance	SAVINGS INSTITUTIONS, NOT FEDERALLY CHARTERED
6099	Office of Finance	FUNCTIONS RELATED TO DEPOSITORY BANKING, NEC
6111	Office of Finance	FEDERAL & FEDERALLY-SPONSORED CREDIT AGENCIES
6141	Office of Finance	PERSONAL CREDIT INSTITUTIONS
6153	Office of Finance	SHORT-TERM BUSINESS CREDIT INSTITUTIONS
6159	Office of Finance	MISCELLANEOUS BUSINESS CREDIT INSTITUTION
6162	Office of Finance	MORTGAGE BANKERS & LOAN CORRESPONDENTS
6163	Office of Finance	LOAN BROKERS
6172	Office of Finance	FINANCE LESSORS
6189	Office of Structured Finance	ASSET-BACKED SECURITIES
6199	Office of Finance or Office of Crypto Assets	FINANCE SERVICES
6200	Office of Crypto Assets	SECURITY & COMMODITY BROKERS, DEALERS, EXCHANGES & SERVICES
6211	Office of Finance or Office of Crypto Assets	SECURITY BROKERS, DEALERS & FLOTATION COMPANIES
6221	Office of Crypto Assets	COMMODITY CONTRACTS BROKERS & DEALERS
6282	Office of Finance	INVESTMENT ADVICE
6311	Office of Finance	LIFE INSURANCE
6321	Office of Finance	ACCIDENT & HEALTH INSURANCE
6324	Office of Finance	HOSPITAL & MEDICAL SERVICE PLANS
6331	Office of Finance	FIRE, MARINE & CASUALTY INSURANCE
6351	Office of Finance	SURETY INSURANCE
6361	Office of Finance	TITLE INSURANCE
6399	Office of Finance	INSURANCE CARRIERS, NEC
6411	Office of Finance	INSURANCE AGENTS, BROKERS & SERVICE
6500	Office of Real Estate & Construction	REAL ESTATE
6510	Office of Real Estate & Construction	REAL ESTATE OPERATORS (NO DEVELOPERS) & LESSORS
6512	Office of Real Estate & Construction	OPERATORS OF NONRESIDENTIAL BUILDINGS
6513	Office of Real Estate & Construction	OPERATORS OF APARTMENT BUILDINGS
6519	Office of Real Estate & Construction	LESSORS OF REAL PROPERTY, NEC
6531	Office of Real Estate & Construction	REAL ESTATE AGENTS & MANAGERS (FOR OTHERS)
6532	Office of Real Estate & Construction	REAL ESTATE DEALERS (FOR THEIR OWN ACCOUNT)
6552	Office of Real Estate & Construction	LAND SUBDIVIDERS & DEVELOPERS (NO CEMETERIES)
6770	Office of Real Estate & Construction	BLANK CHECKS
6792	Office of Energy & Transportation	OIL ROYALTY TRADERS
6794	Office of Real Estate & Construction	PATENT OWNERS & LESSORS
6795	Office of Energy & Transportation	MINERAL ROYALTY TRADERS
6798	Office of Real Estate & Construction	REAL ESTATE INVESTMENT TRUSTS
6799	Office of Real Estate & Construction	INVESTORS, NEC
9721	Office of International Corp Fin	INTERNATIONAL AFFAIRS
9995	Office of Real Estate & Construction	NON-OPERATING ESTABLISHMENTS

Table A4

Table A4 lists SIC code exclusions used in the validity test excluding technology firms. Technology-related firms are excluded based on primary SIC codes: 3570-3579 (Computer Equipment), 3660-3669 (Communications Equipment), 3670-3679 (Electronic Components), 4810-4813 (Telephone Communications), and 7370-7379 (Computer Services), following SEC (2024) classifications.

SIC Code Table (excl. Technology firms)

Code	Office	Description
3570	Office of Technology	COMPUTER & OFFICE EQUIPMENT
3571	Office of Technology	ELECTRONIC COMPUTERS
3572	Office of Technology	COMPUTER STORAGE DEVICES
3575	Office of Technology	COMPUTER TERMINALS
3576	Office of Technology	COMPUTER COMMUNICATIONS EQUIPMENT
3577	Office of Technology	COMPUTER PERIPHERAL EQUIPMENT, NEC
3578	Office of Technology	CALCULATING & ACCOUNTING MACHINES (NO ELECTRONIC COMPUTERS)
3579	Office of Technology	OFFICE MACHINES, NEC
3661	Office of Manufacturing	TELEPHONE & TELEGRAPH APPARATUS
3663	Office of Manufacturing	RADIO & TV BROADCASTING & COMMUNICATIONS EQUIPMENT
3669	Office of Manufacturing	COMMUNICATIONS EQUIPMENT, NEC
3670	Office of Manufacturing	ELECTRONIC COMPONENTS & ACCESSORIES
3672	Office of Manufacturing	PRINTED CIRCUIT BOARDS
3674	Office of Manufacturing	SEMICONDUCTORS & RELATED DEVICES
3677	Office of Manufacturing	ELECTRONIC COILS, TRANSFORMERS & OTHER INDUCTORS
3678	Office of Manufacturing	ELECTRONIC CONNECTORS
3679	Office of Manufacturing	ELECTRONIC COMPONENTS, NEC
4812	Office of Technology	RADIOTELEPHONE COMMUNICATIONS
4813	Office of Technology	TELEPHONE COMMUNICATIONS (NO RADIOTELEPHONE)
7370	Office of Technology	SERVICES-COMPUTER PROGRAMMING, DATA PROCESSING, ETC.
7371	Office of Technology	SERVICES-COMPUTER PROGRAMMING SERVICES
7372	Office of Technology	SERVICES-PREPACKAGED SOFTWARE
7373	Office of Technology	SERVICES-COMPUTER INTEGRATED SYSTEMS DESIGN
7374	Office of Technology	SERVICES-COMPUTER PROCESSING & DATA PREPARATION
7377	Office of Trade & Services	SERVICES-COMPUTER RENTAL & LEASING