

DEPARTMENT OF DEFENSE

Contract Finance Study Report



Office of the Under Secretary of Defense for
Acquisition and Sustainment
Defense Pricing and Contracting
April 2023

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Executive Summary

A financially healthy defense industry is essential to ensure that the Department of Defense (DoD) can procure the goods and services the U.S. warfighter needs to effectively defend our nation. The environment contractors operate within is established in law, the Federal Acquisition Regulation (FAR) and the DoD FAR supplement (DFARS). DoD implements policies consistent with those laws and regulations to ensure contractors have a fair opportunity to succeed and are financially compensated commensurate with the risk they bear and the performance they achieve on each contract.

In 2019, the U.S. Government Accountability Office (GAO) issued a report titled “Contract Financing” and subtitled “DoD Should Comprehensively Assess How Its Policies Affect the Defense Industry” (GAO-19-406). DoD concurred with GAO’s recommendation that it conduct a comprehensive assessment of the effect that its contract financing and profit policies have on the defense industry and update that assessment on a recurring basis. GAO noted that DoD had not performed a comprehensive review of contract financing since the Defense Financial and Investment Review (DFAIR) in 1985.

Accordingly, DoD initiated a comprehensive Finance Study at the end of 2019, to assess defense industry financial performance over a twenty-year timeframe. This report integrates the results of studies undertaken by Universities, a Federally Funded Research and Development Center, public comments, and analyses by the Department. General investigative areas included financial health, financing regulations, insight into the commercial marketplace, and impacts to subcontractors, including small businesses. Further details on the methodology and elements of study are included in Section 1 of this report. This study provides a rich resource of information which stakeholders might use to pursue specific policy improvements described herein and educational outreach.

The Department reviewed its regulatory policies through the lens of attracting new entrants into the Defense Industrial Base (DIB) while retaining existing participants. It became clear that the regulatory policies regarding contract financing and delivery payments are a substantive benefit to the large defense-oriented companies, especially in comparison to contract terms and conditions between private parties in the commercial marketplace. However, government-unique requirements may discourage non-traditional contractor interest in entering the DIB. Two frequently cited examples are in the areas of cost accounting standards (CAS) and a government accounting system. The Department found during this study that while these two requirements are perceived as onerous and thus a barrier to attracting new businesses, they pertain in limited circumstances and impact less than one eighth of prime contractors.

The *major* findings and conclusions from the study are as follows:

In aggregate, the defense industry is financially healthy, and its financial health has improved over time. Operating in the DoD environment has its advantages, especially with respect to cash flow through DoD’s contract financing policies, and this result is demonstrated by traditional major defense contractors out-performing commercial counterparts in many key financial metrics. While profit policy per se was not significantly assessed by this study, the analysis of contract financing is integral to profit and incentive policy. This report concludes that the Department does not find a need to modify its weighted guidelines structured methodology of arriving at objective profit positions for negotiation.

Defense subcontractors and suppliers generally do not receive the favorable cash flow benefits to the same extent enjoyed by defense prime contractors. This is a crucial finding, as GAO has noted estimates

of 60 to 70% of defense work being performed by subcontractors (GAO-11-61r). Improvements can be made in this area, which would not only aid in the financial health of defense subcontractors but could assist in attracting new entrants into the DIB at the supply chain level.

Small businesses are particularly vulnerable when it comes to having cash on hand to cover operating expenses. In general, they do not have the same opportunities to obtain working capital as their larger counterparts. The Department seeks to improve small businesses' financial health and assist in attracting new entrants at the prime and subcontractor levels.

This report presents detailed recommendations in each section, which the following table summarizes.

2022 Defense Contract Finance Study Report		
Tenets	Action Primary Action Type	Report Section
1. Recognize the role of profit and cash flow in a healthy defense industrial base	a. Retain existing profit approach (do not adjust weighted guidelines methodology) [No formal action required] b. Evaluate, improve, and disseminate the DoD Contract Cash Flow Model Tool c. Educate the acquisition workforce in cooperation with DAU Training/Outreach	2, 3, 4
2. Improve means to ensure timely payments to subcontractors	Consider the following: a. Extend the benefits of Prompt Payment to subcontractors Legislative b. Improve payment protections for subcontractors Regulatory c. Improve subcontractor payment oversight (and explore role of business systems review) TBD d. Improve the ability of subcontractors to assert any non-payment issues Regulatory e. Improve the implementation of accelerated payments to subcontractors Regulatory f. Conform regulations and address open questions on subcontract flowdowns (see Sec. 3, 4) and payment to small business contractors (see Sec. 4) Regulatory	3, 4
3. Ensure progress payment rates reflect the business environment	a. Return to a customary progress payment rate of 80% for large businesses, in a manner that minimizes disruption (see Sec. 3). Regulatory	2, 3, 4

2022 Defense Contract Finance Study Report		
Tenets	Action Primary Action Type	Report Section
	b. Explore the use of a higher than customary progress payment rate to motivate or reward large businesses (see Sec. 3) Regulatory c. Retain the 95% progress payment rate introduced by Class Deviation 2020-00010 for small businesses (see Sec. 4) Regulatory	
4. Assist small businesses on defense contracts with financing	Explore and pilot a new form of contract financing to meet the general financing needs of small businesses Regulatory	4
5. Address perceived challenges with government accounting system	Educate on accounting system requirements Training/Outreach	5
6. Determine effectiveness of performance-based payments	Study PBPs that have exceeded cost incurred since the elimination of the DFARS cost limitation TBD	6
7. Understand the role of interest	Retain existing policy that interest is an unallowable cost [No formal action required]	6

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DEPARTMENT OF DEFENSE

Contract Finance Study

SECTION 1

ELEMENTS OF STUDY AND METHODOLOGY

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Section 1. Elements of Study and Methodology

The General Accountability Office (GAO) recommended that DoD conduct a comprehensive assessment of the effect that its contract financing and profit policies have on the defense industry and update that assessment on a recurring basis.¹ GAO noted that DoD had not performed a comprehensive review of contract financing since the Defense Financial and Investment Review (DFAIR) in 1985. Accordingly, in late 2019 DoD initiated a comprehensive Defense Contract Finance Study. The elements of the study and the Department's methodology are addressed in this section of the Report.

Overarching Approach

The Department divided the Defense Contract Finance Study into two major phases and to the maximum extent possible employed a data-driven approach upon which to base its conclusions. The initial phase consisted of major analyses from several independent sources, i.e., universities and the FFRDC, as well as the Department's own analyses. In the interest of transparency, these study products are included as appendices to this report. Additionally, the Department obtained public feedback in July 2022 and these comments are also included in the appendices. Activities for this initial phase were essentially complete in August of 2022. The next phase consisted of the Department integrating key findings of the studies, conducting further analysis based on those findings, and producing this report.

The Department obtained advice and assistance from subject matter experts throughout the course of the study, including from the Defense Contract Management Agency and the Defense Contract Audit Agency. The Department obtained payment data from Defense Finance and Accounting Service and insight into that data.

Ultimately, the study, completed in December 2022, took three years to complete. The following factors contributed to this timeframe: limited Department personnel to oversee and conduct analysis, the comprehensive nature of the study, and delays due to COVID-19.

Primary Areas of Study

Financial Health and Cash Flow Analysis. Whereas DoD initiated the study in late 2019, it took time to develop the elements of the study and then the Department had to refocus its own resources on combatting the ill effects of the COVID-19 Pandemic, which resulted in delays to contract award for activities of the universities. To study financial health, the twenty-year period selected intentionally excluded 2020 and 2021 so as not to skew data for the impact of the COVID 19-pandemic. However, the impacts of COVID-19 and current inflation on the defense industry are addressed in Section 6 of this report. Given the criticality of analyzing financial health and studying cash flow, the Department obtained analyses from two universities for both areas. University analyses included:

Examination of the Financial Health of the Defense Industry by the University of Virginia, Darden School Foundation

Examination of the Financial Health of the Defense Sector by The University of Tennessee

Examining Free Cash Flow in the Defense Sector by The University of Tennessee

¹ GAO-19-406, "Contract Financing: DoD Should Comprehensively Assess How Its Policies Affect the Defense Industry" (June 27, 2019), <https://www.gao.gov/products/gao-19-406>

Examining Free Cash Flow in the Defense Sector by the George Mason University, Center for Government Contracting, School of Business

Government Accounting System. In order to inform the Finance Study and the greater concerns about Government related accounting regulations as a barrier to the commercial sector's willingness to do business with the government, the Department obtained the following study:

Examination of Government Accounting System Requirements by the George Mason University, Center for Government Contracting, School of Business

Small Businesses. Due to the criticality of Small Businesses in promoting competition, innovation, diversity, supply chain resilience, and national security—and the impacts of Finance and Payment policies on Small Businesses—the Department obtained the following study:

Examination of Financing and its Impact on Small Businesses by the George Mason University, Center for Government Contracting, School of Business

Contract Financing in the Commercial Sector. The Department believed it was also critical to conduct an examination of how financing works in the commercial marketplace. As the Department strives to purchase commercial items, it is important to understand commercial payment practices. The Department obtained the following study from the Institute for Defense Analyses:

Financing in the Commercial Marketplace: Pre-delivery Payments

[Departmental Analyses and Activities](#)

As summarized below, the Department conducted its own analyses, developed a tool that is currently being assessed for use, and engaged the public through the Federal Register to obtain feedback on financing topics.

2022 Payment Flowdown Regulatory Analysis. The Department conducted its own analysis of the regulations, especially by contract financing type to analyze the extent to which policy requires that cash is flowed down to subcontractors through contract clauses.

2022 DoD Contract Cash Flow Model. DoD developed the DoD Contract Cash Flow Model to allow analysis of the various elements, including contract financing, that affect contract cash flow. The model allows the user to understand how contract type, contract financing and other key elements of a contract work in concert to determine the contract cash flows and the resulting financial return. This in turn can help users better understand the contracts they are negotiating. The Naval Postgraduate School (NPS) is assessing the DoD Cash Flow Model and the Department will utilize the NPS feedback to make improvements.

2022 DoD Progress Payment Deviation Review. The Department conducted a review of the impacts of its DFARS Class Deviation 2020-O0010 issued on March 20, 2020, shortly after the Presidential declaration of a National Emergency due to COVID-19. The class deviation addressed what Industry identified as the number one issue the Defense Industrial Base was facing due to the pandemic: liquidity or cash flow challenges at all levels of the supply chain and particularly with respect to small businesses. Through the class deviation, the progress payment rate for large business concerns was increased from 80% to 90% and the small business progress payment rate was increased from 90% to 95%. The Department was able to use the results of this review to inform the greater study.

2022 “Department of Defense Contract Finance Study” Public Comments. In June 2022, the Department requested comments and information from the public, specifically companies currently in the Defense Industrial Base, to assist DoD with the study. The Notice of Request for Comments appeared in 87 Federal Register 37642—which posted on June 17, 2022 and accepted comments through July 18, 2022—and requested feedback on the following topics:

1. Financial Health
2. Financing
3. Prime Contractors on Defense Contracts
4. Subcontractors or Suppliers under a Defense Contract
5. Small Businesses Performing on Defense Contracts

The Department heard from ten commenters (4 associations, 2 small businesses, 2 large businesses, and 2 other). Public comments were valuable for gaining additional perspectives and for comparing to the results of the various studies and analyses. Public Comments are included in the appendices.

	Commenter	ID Number
Associations	National Defense Industrial Association	ID DARS-2022-0012-0005
	American Apparel & Footwear Association	ID DARS-2022-0012-0006
	Professional Services Council	ID DARS-2022-0012-0007
	Aerospace Industries Association	ID DARS-2022-0012-0008
Businesses (Large)	Anonymous	ID DARS-2022-0012-0009
	Raytheon Technologies	ID DARS-2022-0012-0010
Businesses (Small)	ICF Mercantile	ID DARS-2022-0012-0002
	Sterling Design	ID DARS-2022-0012-0011
Other	Anonymous (inquiry related to book publishing)	ID DARS-2022-0012-0003
	Republic Capital Access (specialty finance company)	ID DARS-2022-0012-0004

Way Forward

The Department recognizes the importance of obtaining feedback from stakeholders in this critical area. In the early formative stages of the study, the Department obtained feedback from some of the Defense Industry Associations. The Department also obtained feedback from the general public as described above. The Department recognizes that feedback from the general public can provide additional insights through reaching a very broad audience and can be especially useful in obtaining views from small entities and non-traditional contractors. The Department will continue to obtain a broad perspective of views as it explores and refines its recommendations. The GAO recommended the

Department update its assessment on a recurring basis. Due to the resources required to employ a study of this magnitude, the Department finds that utilization of public feedback can be a key element to achieving this goal between the points at which the Department can accomplish a full-scale study.

DEPARTMENT OF DEFENSE

Contract Finance Study

SECTION 2 FINANCIAL HEALTH OF THE DEFENSE INDUSTRY

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Section 2. Financial Health of the Defense Industry

A financially healthy defense industrial base benefits the nation, the Department of Defense (DoD), and industry. With a financially healthy supply chain, DoD can procure the goods and services the U.S. warfighter needs to effectively defend our nation. Thus, the Department is focused on fostering a business environment in which contractors have a fair opportunity to succeed and are financially compensated commensurate with the risk they bear and the performance they achieve on each contract. To assess this, the Department looked at the Financial Health of the Defense Industry, including free cash flow, and developed a DoD Contract Cash Flow Model to help educate the acquisition workforce about the impacts of cash flow.

Methodology

Key source material for this section includes the university studies covering the following areas (the studies appear in the appendices):

- The Financial Health of the Defense Industry (UVA/Darden and UT)
- Free Cash Flow in the Defense Sector (GMU and UT)
- Government Contract Accounting Requirements (GMU)
- Financing and its Impact on Small Business (GMU)
- Financing in the Commercial Marketplace: Pre-delivery Payments (IDA)

Highlights

The business environment in which defense contractors operate is particularly beneficial as it relates to cash flow (reference Attachment 1), which has an impact on financial health. Below is a snapshot of some of the fundamental differences in the Defense and Commercial business environments.

Business Environment	Defense	Commercial	Impact to Defense Firms
Customer Funds Product Design and Development?	Yes	Rare	Greatly Reduced Risk Additional Revenue & Profit \$
Use of Cost-Type Contracts?	Yes	Rare	No Cost Risk Outstanding Cash Flow Lower Fee Margins (consistent with risk)
Contract Financing Provided by Customer?	Yes	Rare	Greatly Improved Cash Flow
Delivery Payment	30 Days	IAW Contract	Predictable Cash Flow

After careful examination of the source material, the Department determined that in aggregate, the Defense Industry is financially healthy. The following are some key highlights from the various studies performed:

The defense industry, in aggregate, is financially healthy and has been improving over time. (Darden)

In 8 of 9 key financial metrics, defense contractors out-performed commercial counterparts. Those metrics include Total Shareholder Return (TSR), Return on Assets (ROA), Return on Equity (ROE) and Cash Flow Return on Net Assets (CFRONA). (Darden)

Although profit margins are somewhat lower than commercial counterparts, the gap is more than offset by lower asset and investment requirements for defense contractors. (Darden)

Defense companies have higher total returns to shareholders compared to their commercial analogs, or when compared to broad equity market indices such as the S&P 500. (Darden)

Although defense contractors operate under the same procurement laws and regulations, individual company performance varies widely within every market segment. This applies in commercial segments as well. “How well you are run is more important than in which market segment you participate.” (Darden)

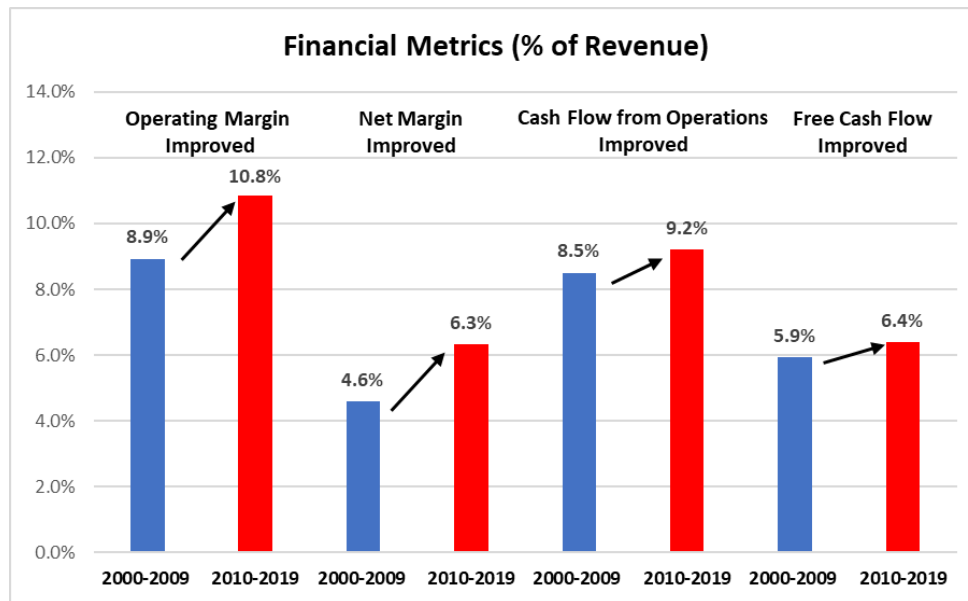
Despite improving profit margins and cash generation for defense contractors in 2010-2019 vs 2000-2009, the share of contractor spending on Independent Research and Development (IR&D) and capital expenditures declined while cash paid to shareholders in dividends and share repurchases increased by 73%. (UT)

The benefit of contract financing can be measured. Largely due to contract financing, financial returns on contracts are greater than contract profit rates and well above contractors’ cost of capital – creating value for shareholders. (DoD Contract Cash Flow Model)

In the commercial marketplace, contract financing (pre-delivery payments) is rare. (IDA)

GAO was particularly interested in understanding how DoD profit and financing policies have affected the defense industry. The study revealed that other financial measures are more indicative of financial health than profit margins, but profit margins remain relevant. For the financial measures most directly related to profit and financing policies (profit margins and cash flow), Figure 2-1 which is the weighted average of defense firms in the study, shows that profit margins and cash flow has improved over the twenty years of the study.

Figure 2-1



In June 2022, the Department solicited public comments to a number of areas being reviewed by the study. The Department received comments from several respondents, including industry associations as well as individual firms². One defense industry association characterized the health of the DIB as being “fair to poor;” another described it as “at risk;” and another cited a 2022 defense industry association report which gave it a “failing grade.” In light of the data in Figure 2-1 and the details provided in the Darden and UT reports, these industry association comments regarding the health of the Defense Industrial Base (DIB) are difficult to reconcile with defense industry financial data.

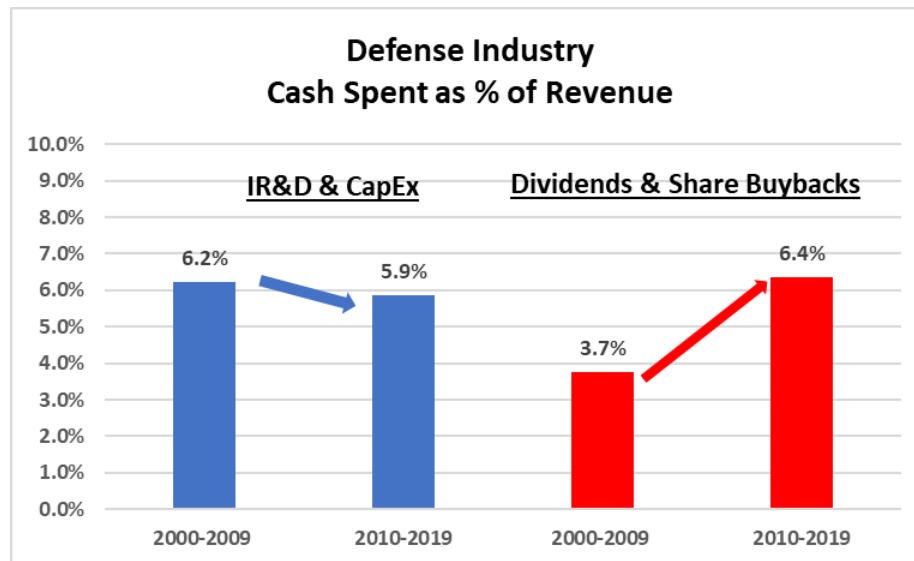
The improved financial metrics in 2010-2019 are often not in alignment with the comments made by industry regarding specific challenges, which were asserted to adversely affect defense contractors, that either occurred or worsened in the 2010-2019 timeframe. Specifically, two defense industry association commenters identified DoD budget instability and Continuing Resolutions which averaged 129 days for 2000-2009 but 177 days for 2010-2019, sequestration which began in April 2013 and ended in 2021 and the decreased use of performance-based payments which, per one defense industry association, dropped from 76% in 2010 to 36% in 2016. Based on these industry comments, financial performance should have degraded in the 2010-2019 timeframe but the financial statements for defense contractors showed a significant improvement over the prior ten years (2000-2009).

Defense industry association commenters specifically cited the importance of using cash to invest in research and development and capital assets. In its comments regarding capital investments, one defense industry association specifically stated: *“In most cases the profitability for government customers is insufficient to finance the investments.”* However, this assertion did not appear to be demonstrated by the data. Despite increased profit and cash flow, defense contractors chose to reduce the overall share of revenue spent on IR&D and Capital Expenditures (CapEx) while significantly

² The most extensive comments were submitted by the Aerospace Industries Association (AIA), the National Defense Industrial Association (NDIA) and the Professional Services Council (PSC).

increasing the share of revenue paid to shareholders in cash dividends and share buybacks by 73% as shown in Figure 2-2.

Figure 2-2



Financial Health of the Defense Industry

Given the variability in the financial performance among defense contractors, the Department understood that it would not be possible to observe and isolate the financial impact of individual DoD policies on individual firms or on the industry as a whole. What was achievable was to observe the overall financial performance of contractors operating within the framework of DoD profit and financing policies over time.

The task order for the Examination of the Financial Health of the Defense Industry, was awarded to two university teams, Darden and UT. Both teams examined a number of financial measures in order to assess financial health of the industry. As pointed out by both teams, although the often-cited accounting measure of Return on Sales (ROS) profit margins are generally lower for defense firms, that single metric is less indicative of financial performance than other returns such as Return on Net Assets (RONA)/Return on Invested Capital (ROIC), Cash Flow Return on Net Assets (CFRONA), Return on Assets (ROA) and Return on Equity (ROE³). Attachment 2 of the report identifies the financial metrics each university team examined and the definition/formula used by each.

As will be addressed later in this section, the overall findings of favorable financial metrics for defense firms at the corporate and segment level are supported at the contract level when the financial returns

³ Annual ROE, based on the book value of equity, for individual firms has become volatile due in large part to the impact of share repurchases. This can render ROE less reliable as a financial measure.

on contracts are measured by analyzing contract cash flows which reflect the limited contractor cash investment required as a result of Government contract financing.

The following is a synopsis of the analysis and reports provided by Darden and UT.

University of Virginia - Darden

The Darden study provided a comprehensive analysis of the defense industry and a comparison of the defense industry to commercial counterparts. Using financial data provided by Compustat, Darden looked at 124 publicly-traded U.S. firms categorized as Defense (32), Hybrid (40) and Commercial (52). Defense firms were identified as firms which derived 75% or more of their annual revenue from U.S. Defense/Foreign Military Sales (FMS) customers. Hybrid firms were defined as firms with between 25% and 75% of revenues derived from U.S. Defense/FMS customers. Commercial firms had less than 25% of revenue from U.S. Defense/FMS customers. Darden took the extra step of analyzing financial metrics at the segment level within corporations in order to further distinguish between defense and commercial financial results. At the segment level, Darden then further categorized the firms by “broad industry sector”. Darden classified those sectors as “Platforms and Subsystems (e.g. aircraft, ships, vehicles and spacecraft)”, “Electronic Equipment and Systems” and “Professional Technical Services”.

Darden Results

While Darden notes that caution should be applied in interpreting comparative results based on the challenges in finding “commercial peers”, the few “pure play” defense companies and “outliers” caused by one-time events, Darden was able to conclude the following in the Executive Summary section of its final report:

“The publicly traded US-based corporations in the defense industrial base are, in aggregate, financially healthy. They are profitable. They generate substantial amounts of cash beyond their needs for operations or capital investment; the bulk is returned to shareholders so they can invest it elsewhere. They generate total returns to shareholders well in excess of what one might expect given their relative low risk to investors. Bankruptcies or other signs of financial distress are exceptionally rare. Strong financial performance was maintained even during periods of market turmoil.

The performance of the industry, in aggregate, has improved over the past 20 years. Operating margins (profit as a percent of revenues) for the Defense companies in our analysis have increased from a range of 7% to 9% to a range of 11% to 13%. This is driven more by an improvement at the bottom than by higher returns for companies already operating at the top. Returns on net assets at the corporate level have more than doubled over this period, as have cash-flow returns on net assets. Returns on the market value of equity have improved. Investor risk has declined even as total returns to shareholders have increased.

While it is difficult to find direct commercial peers to defense companies, the Defense companies in our database in recent years outperformed Commercial companies with similar operational profiles. While operating margins in Defense are lower, that gap is more than offset by lower asset and investment requirements, so that returns on assets in Defense exceed those of the

Commercial analogs. Returns on the market value of shareholder equity are substantially higher in Defense than the Commercial analogs. Defense companies have higher total returns to shareholders compared to their Commercial analogs, or when compared to broad equity market indices such as the S&P 500. Finally, Defense companies have lower volatility (risk) in those returns to shareholders.”

The Darden conclusions regarding the financial health of the defense industry as compared to the commercial counterparts are summarized in Exhibits 3 and 4 of its report where it identifies the 9 key financial metrics it used to assess financial health and how defense firms out-performed similar commercial firms in 8 of the 9 metrics.

Exhibit 3 presented the data for the entire 20-year period while Exhibit 4 showed the same metrics for the most recent 5 years of the study period (2015-2019). Both exhibits display where each of the three categories of firms ranked using a left-to-right, “Worst-to-Best” performance scale for each metric. In 8 of the 9 metrics, the Defense marker is to the right of Commercial marker indicating better performance for Defense in both exhibits. In fact, Defense generally out-performed Commercial by an even wider margin in the most recent 5-year period.

Exhibit 3

(Source: University of Virginia, Examination of the Financial Health of the Defense Industry)

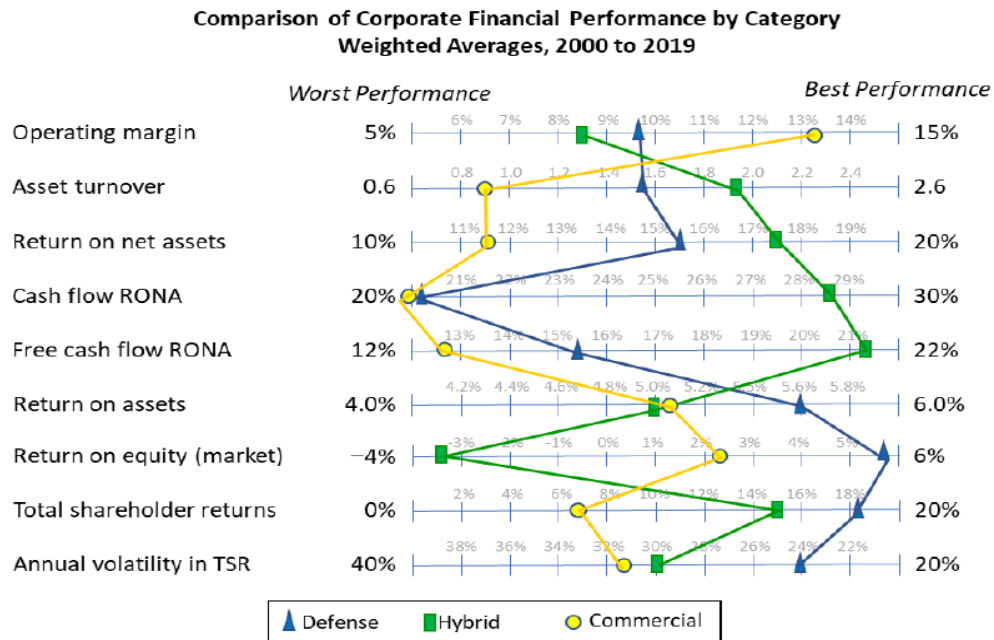
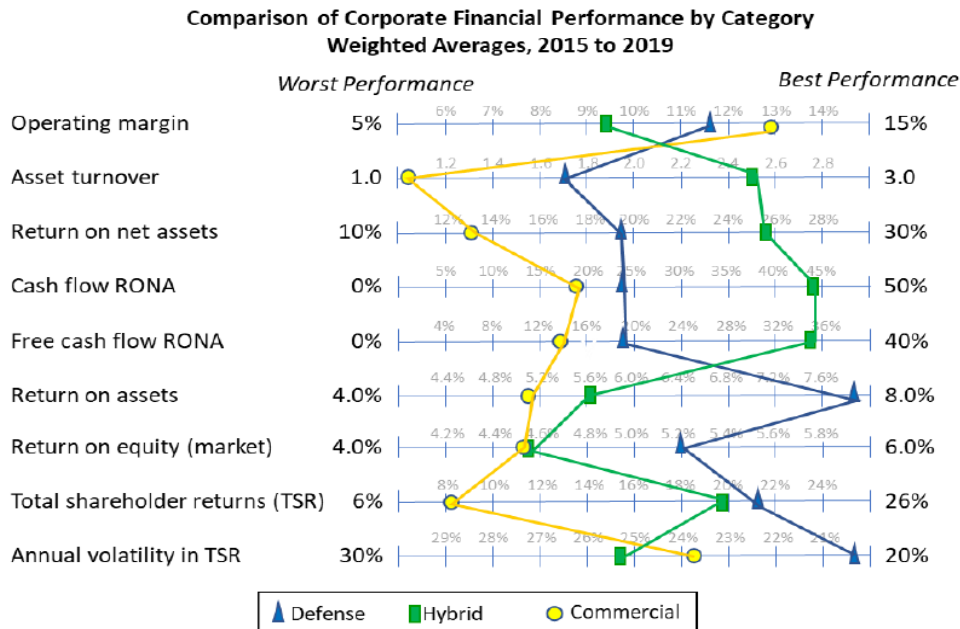


Exhibit 4

(Source: University of Virginia, Examination of the Financial Health of the Defense Industry)

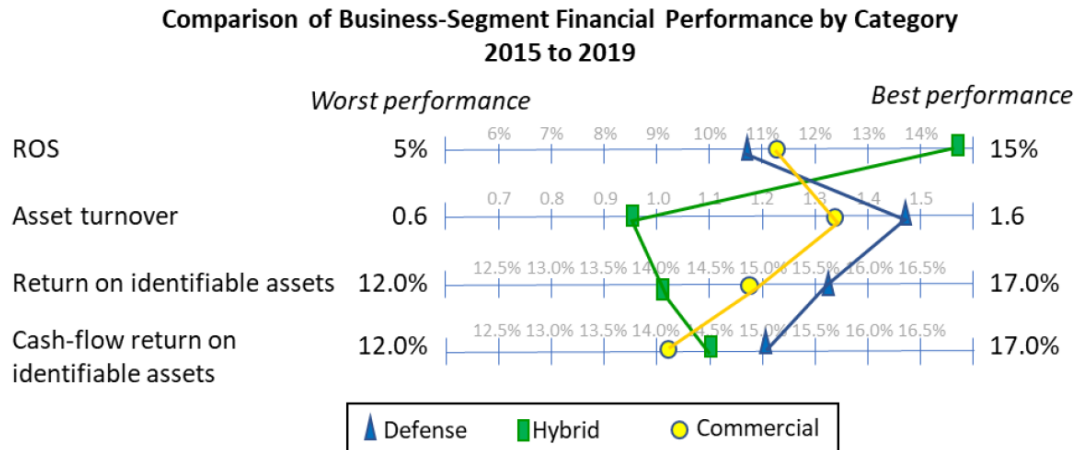


Not all financial metrics are applicable at the business segment level as some financial data is only available at the corporate level. In Exhibit 5, Darden provides a similar summary of financial metrics at

the segment level which again showed that Defense segments out-performed Commercial counterparts in 3 of the 4 metrics in the most recent 5-year period.

Exhibit 5

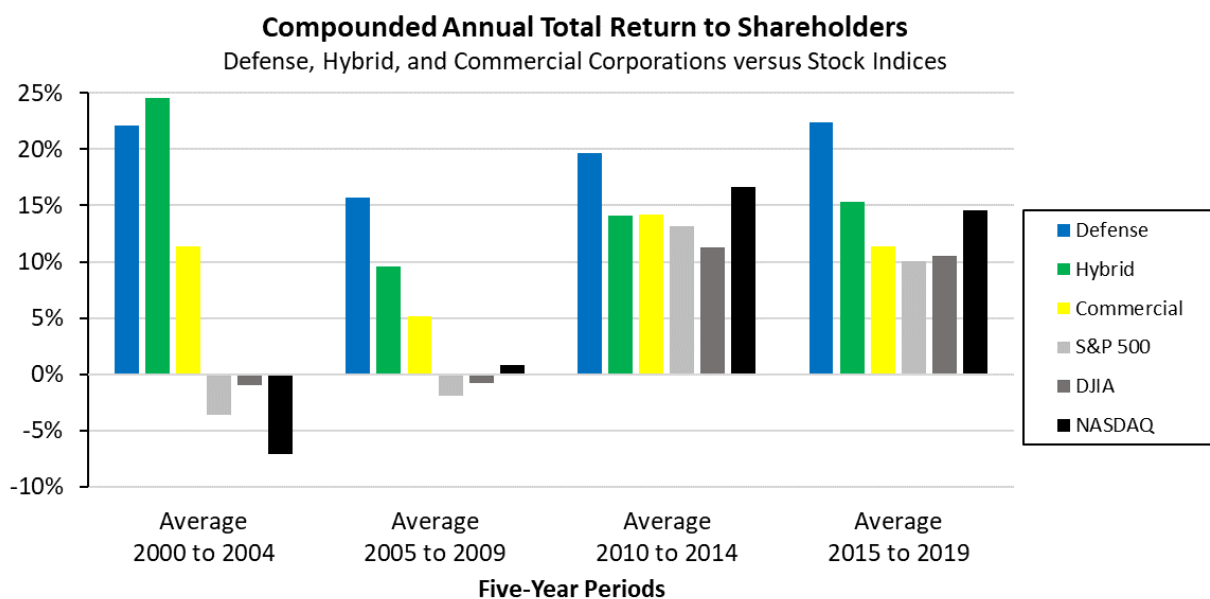
(Source: University of Virginia, Examination of the Financial Health of the Defense Industry)



The favorable financial performance for defense corporation shareholders, as noted earlier, was reflected in outstanding market returns over the twenty-year period. Darden states that *“The ultimate measure of financial health in a publicly traded stock is arguably the total shareholder return (TSR)—a measure that includes both dividends received as well as changes in stock price.”* Darden presented Exhibit 8 below to demonstrate how well defense firms did in comparison to their commercial counterparts and market indexes in each five-year period for the 20-year period.

Exhibit 8

(Source: University of Virginia, Examination of the Financial Health of the Defense Industry)



Darden pointed out that the TSR for defense firms was even more impressive when returns were adjusted for risk. In its analysis, Darden adjusted for risk from the investor's perspective, noting that defense stocks demonstrated less volatility and therefore are a lower risk to investors.

In addition to discussing risk from an investment volatility perspective, Darden also briefly discussed the intrinsic aspect of the defense industry which results in less risk for defense firms than their commercial peers. The point made by Darden is an important one. Attachment 1 of this report provides additional information on the unique aspects of defense contracting that create the lower risk profile that should be considered in evaluating the profitability of defense firms.

In light of the Darden analysis, which revealed a defense industry that was, in the aggregate, financially healthy and improving over time, the industry association comments regarding the unhealthy state of the Defense Industrial Base (DIB) are difficult to reconcile. Although industry association comments were made in 2022 when the impact of COVID-19 had adversely affected some defense contractors, as the data presented in Section 6 will show, the adverse impact was almost entirely experienced by the commercial segments of these contractors.

University of Tennessee - UT

UT was selected as an awardee for the Financial Health task order based on a streamlined approach to achieving the goals of the Financial Health task order using data compiled annually by industry group, and made publicly available by New York University's Stern School of Business. Based on limited visibility to the Stern data, UT chose to use Compustat as the data source and select the defense firms to include in its analysis.

UT recommended analyzing Aerospace and Defense (A&D) financial metrics for the "Top 10"⁴ firms and "Rest of Industry". The Government sponsor agreed with this approach. There was no question as to the disproportionate share of defense spending awarded to the largest defense contractors but it was not known if there would be a corresponding difference in financial performance and financial health between the largest firms and the smaller firms that make up the A&D sector. In the UT data set of 146 A&D firms⁵, the four largest firms accounted for 50% of total revenue and the top ten firms accounted for 80% of total revenue.

UT examined firm financial data based on three analysis techniques: Dupont Analysis, Accounting Ratio Analysis and Shareholder Value Added (SVA).

⁴ The firms in the Top 10 varied from year to year but 8 firms were in the Top 10 each of the 20 years.

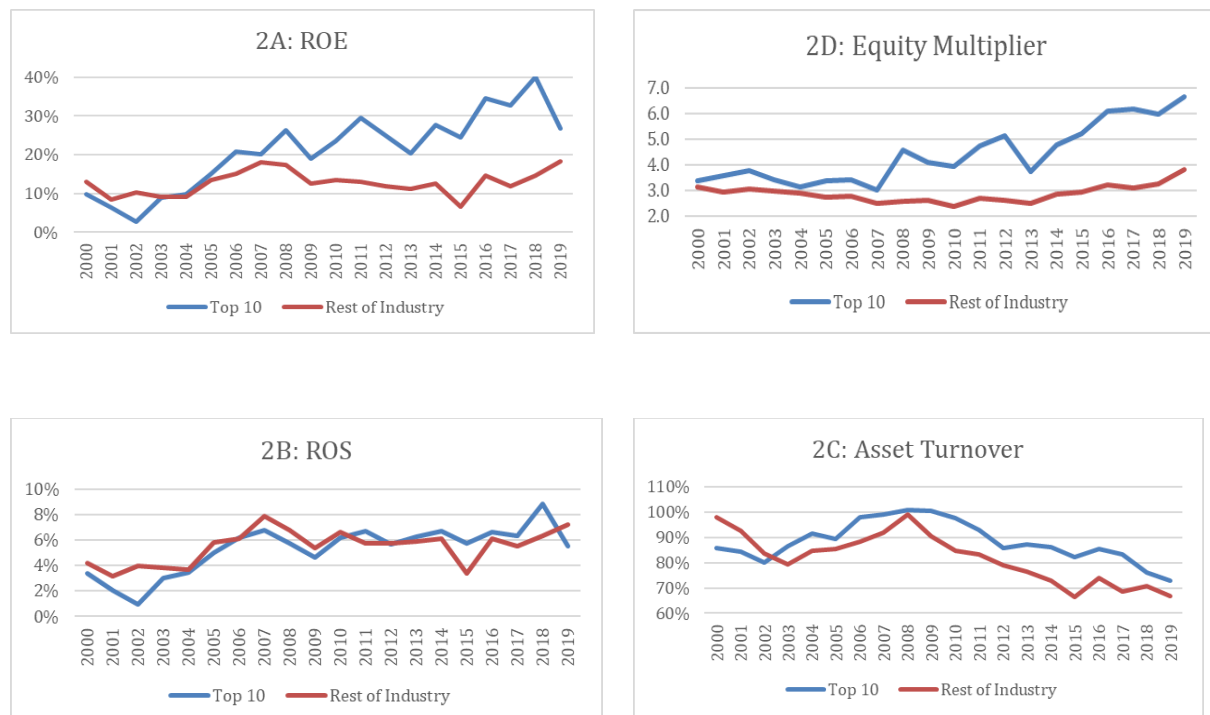
⁵ The UT report cites 49 firms but that was applicable to only 2019 when there were 39 firms with revenue greater than \$10 Million in the Rest of Industry category in addition to the Top 10. In earlier years, the number of firms in the Rest of Industry category was higher and varied by year. Overall, UT evaluated 146 firms.

UT Results

In the Dupont analysis, UT stated that Return on Equity (ROE) is what Dupont chose as its overall measure of firm performance and in its report UT decomposed ROE into three factors: ROS, Asset Turnover and Equity Multiplier. The data shows that the Top 10 trailed the Rest of Industry in ROE in the early years of the study but began to significantly out-perform the Rest of Industry by 2008 as ROE for the Top 10 continued a decidedly upward trend while the Rest of Industry experienced a downward trend. The impact of leverage, the Equity Multiplier (Assets/ Shareholder Equity), in explaining the divergence in ROE becomes apparent as the Top 10 experienced a significant increase in leverage over time but the Rest of Industry did not. This too is understandable as Assets for the Top 10 were increasing, largely due to mergers and acquisitions (M&A), at the same time as Shareholders' Equity was being reduced as a result of significant share repurchases. To further emphasize the importance of leverage, the UT data shows that that the Top 10 and Rest of Industry most closely aligned with one another in Return on Sales (ROS) and Asset Turnover with ROS generally improving over the twenty-year period for both groups but with Asset Turnover peaking in 2008 for both groups but steadily declining since then. Although the decline in Asset Turnover for the Top 10 was presumed to be associated with the increase in Goodwill assets resulting from M&A, the UT report indicates that Goodwill as a percentage of total assets was declining at the same time as Asset Turnover was also declining. UT concluded that this indicated a shift away from Lean and related initiatives within A&D.

Exhibits 2A, 2B, 2C and 2D

(Source: University of Tennessee, Examination of the Financial Health of the Defense Sector)



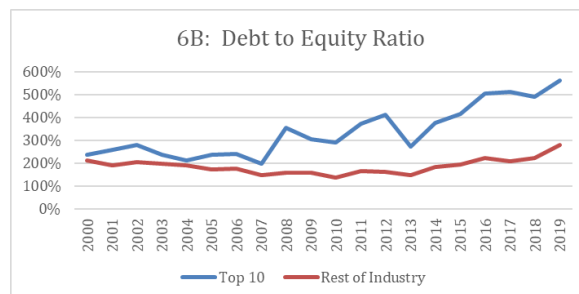
In addition to analyzing the Top 10 as a group, UT also provided the same Dupont Analysis for each firm individually. This analysis revealed certain cautions that must be taken when looking at individual

annual ROE percentages. For example, as a result of share repurchases, Lockheed Martin's book-value of shareholder equity dropped to only \$39 Million in 2012 producing a ROE of 7038% for that year even though ROS was 5.8%. However, this highlights the issue of the significant increase in share repurchases by the major contractors in recent years. This will be addressed later in this section when Free Cash Flow is addressed.

The UT analysis of the Accounting Ratios revealed that defense contractors had sound solvency and liquidity ratios with the Top 10 displaying a much greater degree of leverage since 2007 (Debt to Equity Ratio) but both groups reflect an increased use of debt as shown below

Exhibit 6B

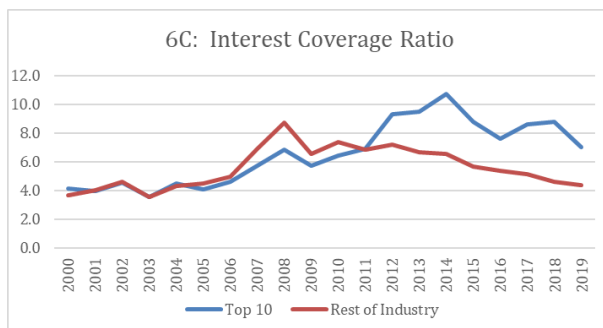
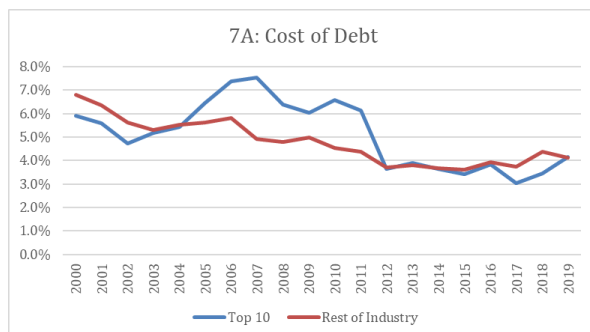
(Source: University of Tennessee, Examination of the Financial Health of the Defense Sector)



The analysis of the Cost of Debt revealed unexpected results in that the Top 10 firms had a considerably higher cost of debt than the Rest of Industry from 2005 through 2011 but the cost of debt across the industry declined significantly over the 20-year period as interest rates dropped. Both industry groups displayed healthy Interest Coverage Ratios over the entire 20-year period.

Exhibits 7A and 6C

(Source: University of Tennessee, Examination of the Financial Health of the Defense Sector)



Regarding liquidity, the data shows that the Rest of Industry has been consistently more conservative than the Top 10 firms in reflecting Current Ratios above 1.5 and Quick Ratios above 1.0 while the Top 10 had Current Ratios that were always below 1.5 (sometimes below 1.0) and Quick Ratios that were

always below .8 and predominantly in the range of .6.⁶ The Cash Ratio which measures cash as a percentage of current liabilities indicated that the Rest of Industry tends to hold relatively more cash than the Top 10 firms. Cash on-hand is not being employed to generate additional value for shareholders. Generally, the ease of access to financial markets to borrow funds as needed will be a major factor in deciding how much cash is kept on-hand to ensure normal operation of the business. Larger firms tend to have greater access to those financial markets.

Free Cash Flow (FCF)⁷

The phrase “Cash is King” is frequently used to explain the importance of cash in business. In its public comments, one defense industry association used the phrase and all three industry associations commented at length about the importance of cash flow. Publicly-traded corporations are required to include a “Statements of Cash Flows” in annual financial reports (10-Ks) filed with the Securities and Exchange Commission (SEC) each year. This section of the 10-K explains the annual sources and uses of cash in the three categories in which it can occur: Operating Activities, Investing Activities, and Financing Activities. Attachment 3, which addresses IR&D, provides an example of how cash is traceable from reported Earnings to the sources and uses of cash as shown in the Statements of Cash Flows. The Statements of Cash Flows explains why profit earned and cash flow generated are related but not the same. It is important to understand which cash expenditures are involved in *generating profit and cash flow* and which ones involve the spending of the cash flow generated. This is particularly true as it applies to IR&D.

The most commonly used definition of FCF is Cash Flow from Operations⁸ less Capital Expenditures⁹. Cash Flow from Operations, is cash generated or used as a result of a company’s operating activities that year. It takes into account cash received (revenue or sales) and cash spent for all operating expenses, including IR&D¹⁰, and taxes paid on reported profits. The Statements of Cash Flows begin by demonstrating that profit is not the same as cash where the company shows how Net Earnings or Income (Profit/Loss) for the year actually translated into the net cash generated or used in operations. Cash Flow from Operations can be used for Investing activities (capital expenditures or acquiring other businesses), or for Financing activities (paying down debt or providing cash payments to shareholders in the form of dividends and share repurchases). Free Cash Flow (FCF) is an important financial measure to

⁶ The current and quick ratios are liquidity ratios that help investors and analysts gauge a company’s ability to meet short-term obligations. The current ratio divides current assets by current liabilities. The quick ratio divides cash and cash equivalents by current liabilities.

⁷ Free Cash Flow is a commonly cited financial term but is not an accounting term defined by Generally Accepted Accounting Principles (GAAP). Therefore, a firm citing FCF in its annual reports is free to define FCF as it sees fit and will explain how its definition of FCF was calculated based on GAAP accounting values. In this report, for consistency across all firms, the most commonly used definition of FCF is used which is Cash Flow from Operations less Capital Expenditures.

⁸ In the Statements of Cash Flows this is most often titled “Net cash provided by operating activities” or something similar.

⁹ Capital Expenditures, although an Investing-activity use of cash on the Statements of Cash Flows, are deducted from Cash Flow from Operations in determining FCF because a continuing amount of capital expenditure is considered necessary to replace capital assets in order for a company to remain in business.

¹⁰ IR&D, it is important to note, is not shown as “Investing” use of cash. It is an operating expense, generally included as part of General and Administrative (G&A) expenses.

many investors as it is considered to be the cash a company is *free* to spend as it sees fit. What a firm does with the cash it generates is important to investors.

Cash spent on IR&D and the relationship to FCF was specifically identified in the study task. However, IR&D is an allowable, profit-bearing cost on defense contracts and already accounted for in Cash Flow from Operations. The unique treatment of IR&D for defense contractors versus commercial firms is addressed in detail in Attachment 3 to this report.

One issue which affects Cash Flow from Operations, and therefore FCF, but was not specifically addressed in the study task by either of the university teams awarded contracts for the review of FCF is the voluntary contributions contractors make to their defined-benefit pension plans. Darden, however, as part of its evaluation of the health of the defense industry, discussed this and presented data on the significance that this has had on reported financial performance in general and cash flow in particular. Darden noted that not all firms identify the voluntary portion of total annual pension contributions made and recommended this as a possible subject of further investigation because it would require access to the Form 5500 reports filed annually with the Pension Benefit Guaranty Corporation. However, based on the voluntary contributions that Darden was able to identify, the cash flow impact is significant. Darden determined that voluntary contributions accounted for 15% of Adjusted Cash Flow from Operations¹¹ for defense contractors from 2015-2019. This means that the favorable Cash Flow from Operations as reported in those years, and FCF, would have been even better if *voluntary* contributions had not been made. Because this section of the report pertains to the findings of the two university teams that performed the FCF effort, a more detailed discussion of the Darden data will not be included here. However, readers of this FCF section of the report should keep in mind that all FCF values reported by defense contractors will be *after* accounting for voluntary pension contributions.

FCF Study Tasks

The task order for Examining Free Cash Flow in the Defense Sector, was awarded to two university teams, UT and GMU. Both university teams were tasked with evaluating:

- whether Free Cash Flow (FCF) in the defense sector had increased or decreased over time;
- the uses of FCF and whether that had changed over time; and
- the relationship, if any, to FCF and spending by defense sector companies on Independent Research and Development (IR&D).

UT Results

As it did with the task order for financial health, UT examined 146 firms and evaluated FCF data for the Top 10 firms and Rest of Industry. UT defined FCF using the standard definition: Cash Flow from Operations less Capital Expenditures.

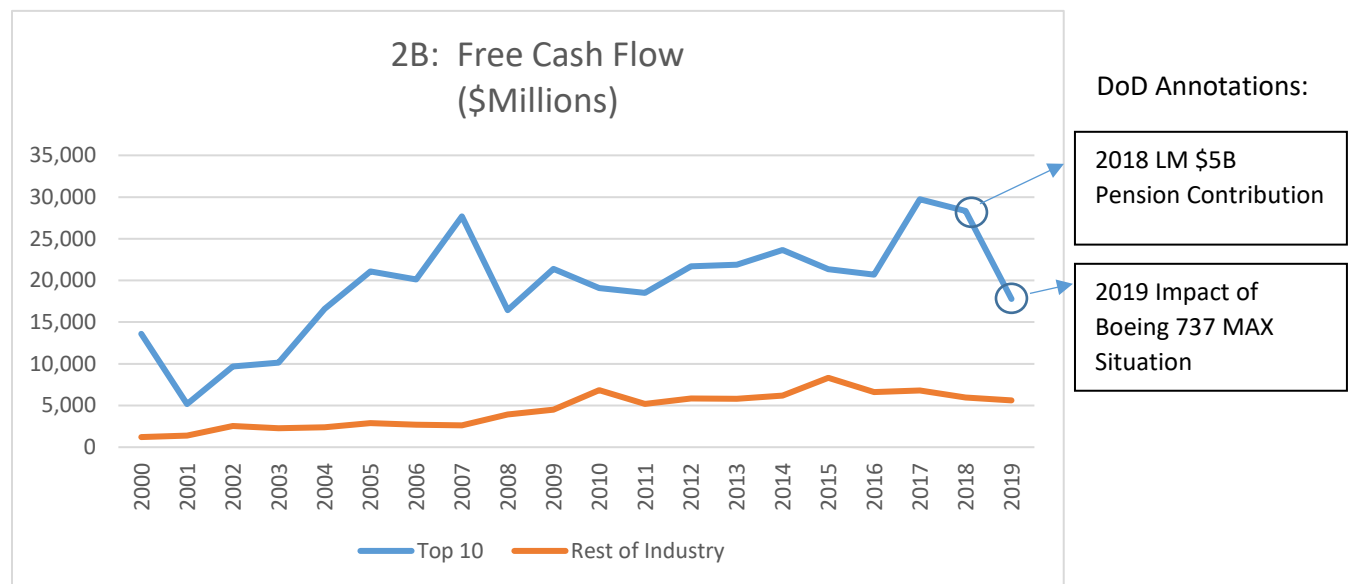
Changes in FCF. UT noted that total annual FCF dollars for both the Top 10 and Rest of Industry increased over time as shown in Figure 2B of the UT report. This increase cannot be attributed solely to

¹¹ Adjusted Cash Flow from Operations = Cash Flow from Operations + Voluntary Pension Contributions

improved financial performance as there were a number of significant mergers and acquisitions over this period of time. When one company acquires another, subsequent financial reports will reflect increased total revenue, total profit dollars and total FCF due to the acquisition. It should be noted that the decline in total FCF for the Top 10 in 2018 and 2019 were not due to changes in DoD policies or contractor performance on defense contracts. The decline in 2018 reflects an unprecedented \$5 Billion Lockheed Martin contribution to its defined benefit pension fund of which a significant portion was discretionary. In 2019, FCF for the Top 10 firms declined to \$17.8 Billion, a \$10.5 Billion reduction from 2018, but this was due to the financial aftermath of the 737 MAX situation on Boeing's commercial segment.¹² In 2019, Boeing experienced a *negative* FCF of \$4.4 Billion compared to a positive FCF of \$13.5 Billion the previous year or a \$17.9 Billion reduction due to the impact of the 737 MAX situation on Boeing's commercial business.

Figure 2B

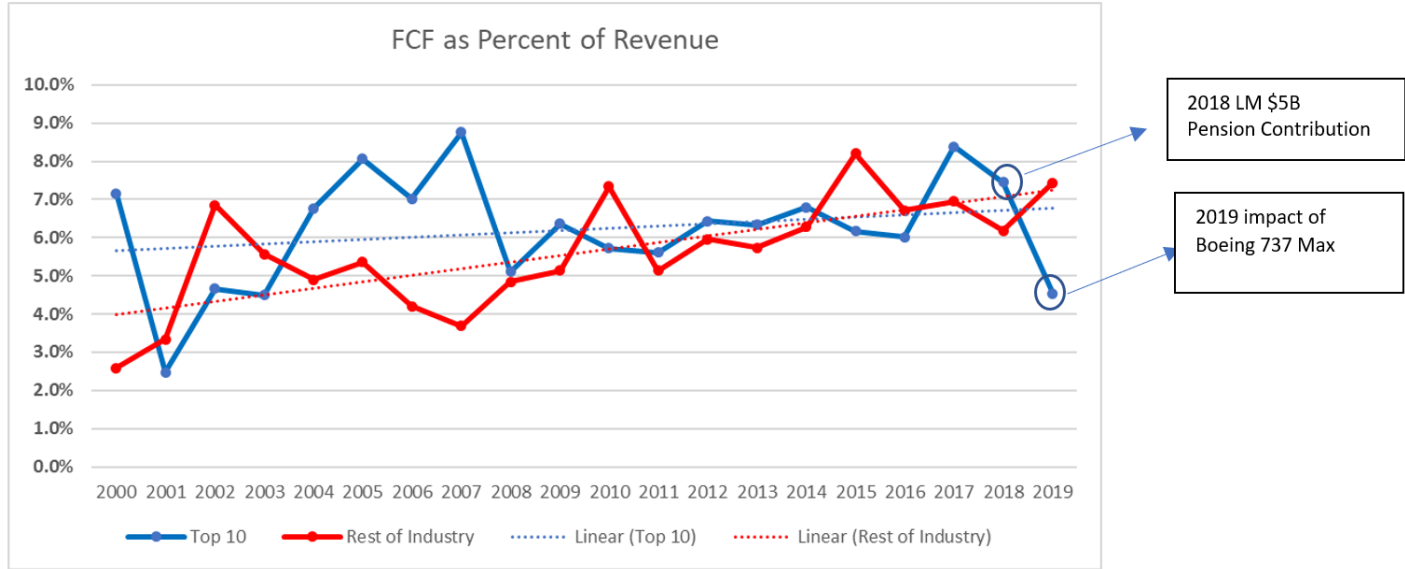
(Source: University of Tennessee, Examining Free Cash Flow in the Defense Sector)



The ability of defense firms to *effectively* generate FCF over time can be measured by calculating FCF as a percentage of total annual revenue. As can be seen in Figure 2-3 below, FCF as a percentage of revenue reflected an overall improving trend for the Top 10 and significantly so for the Rest of Industry.

¹² The Boeing 737 MAX passenger airliner was grounded worldwide between March 2019 and December 2020 (longer in some jurisdictions) after two incidents, one in October 2018 and the other in March 2019.

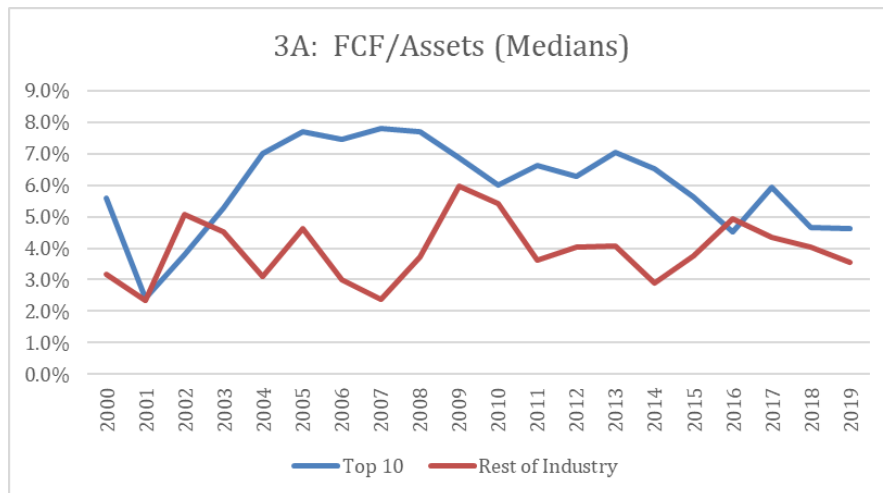
Figure 2-3



UT took a different approach in attempting to assess FCF generation over time by calculating FCF as a percentage of total assets. The UT graph of the median FCF as a percentage of assets, is shown below in Figure 3A of the UT Report. UT noted that the Top 10 FCF percentage grew steeply from 2001 to 2007, but had steadily declined since then.

Figure 3A

(Source: University of Tennessee, Examining Free Cash Flow in the Defense Sector)



The information in Figure 3A appeared incongruous with the overall improvement in FCF from Figure 2B and in viewing FCF as a percentage of revenue. Therefore, the only explanation for the downturn in the FCF/Asset percentage was a steep increase in total assets. The decline in the Top 10 line began in 2008. The total assets reported for the Top 10 firms increased from \$320 Billion in 2007 to \$537 Billion in 2019 – an increase of 68%. Total revenue at the same time increased by only 24% (\$316 Billion to \$392

Billion). The increase in assets after 2008 was not the result of greater spending on Capital Expenditures (CapEx), as CapEx spending by the Top 10 maintained the same average of 2.5% as a percent of total revenue.

A closer look at the growth in total assets turned out to be a worthwhile investigation as it revealed how Mergers and Acquisitions (M&A) have created significantly increased asset values for defense contractors.

In an acquisition, resulting *asset valuations* are based on the “fair value” rather than “book value” of assets acquired. The fair value is often considerably greater than the book value. This alone would increase the reported total assets of the “new” firm but only explains part of the increase. When a firm pays more than the fair value of assets acquired a new, intangible asset called Goodwill is created to capture the cost paid above the fair value of the assets acquired. If a Goodwill asset already exists due to prior acquisitions it will be increased based on the current acquisition. The net result of an acquisition is that the reported value of assets after an acquisition or merger (revised book value) is often much greater than the sum of the assets of the two entities at the time of the transaction. There were numerous mergers and acquisitions resulting in a significant increase in total reported assets during the last twelve years of the study.

A simple example of this was the 2015 Lockheed Martin acquisition of Sikorsky from United Technologies in which Lockheed Martin’s reported book value of total assets after the acquisition increased by \$12 Billion despite acquiring Sikorsky assets with a book-value of only \$5 Billion at the time of the acquisition.¹³

Attachment 4 to this report provides additional details regarding the impact M&As have had on reported asset totals and provides an example of how total asset values increased significantly as a result of United Technologies’ 2018 acquisition of Rockwell Collins who had just acquired B/E Aerospace the previous year.

Uses of Cash. The most interesting findings in the UT report pertained to four uses of cash: IR&D, Capital Expenditures (CapEx), Dividends and Share Buybacks. The specific study task was to examine *uses of FCF*, not uses of cash in general, but the UT analysis is illuminating.

UT expanded the task by examining IR&D and CapEx, neither of which can be a use of FCF because FCF is the cash available *after* paying all expenses, including IR&D, and after paying for CapEx. UT explained that it chose to look at these two uses because they “*are generally viewed as putting money back into the business to strengthen it*”. The UT statement is consistent with the argument that defense industry associations often make in discussing the importance of profits, cash flow and contract financing.

¹³ In its 2014 annual report Lockheed Martin reported total assets with a book value of \$37.073 Billion. At the end of 2014 Sikorsky, a division of United Technologies, had assets with a book value of \$4.973 Billion. In 2015 Lockheed Martin acquired Sikorsky from United Technologies. When Lockheed Martin acquired Sikorsky, it assigned a fair-market value for the assets acquired at \$11.998 Billion or approximately \$7 Billion greater than the Sikorsky book-value of those same assets. The assets themselves did not change, only the valuation of the assets as a result of the acquisition. At the end of 2015, after the acquisition, Lockheed Martin reported total assets with a book-value of \$49.128 Billion which was \$12 Billion greater than before the acquisition.

What the current financing study reveals, however, is that for defense firms, IR&D spending is not about “putting money back into the business”. IR&D, as an allowable, profit-generating cost on defense contracts, is a *generator of revenue, profit and cash for defense contractors*. This applies whether the IR&D efforts produce technological advances or not. Because the financial impact of IR&D in the defense industry may not be well understood, a detailed discussion is presented in Attachment 3 to this report.

IR&D Spending

IR&D charged to defense contracts is often referred to as an “investment” a contractor makes on behalf of the warfighter. However, this study demonstrates that IR&D charged to defense contracts is an investment by DoD and is a generator of revenue, profit and cash flow for the contractor.

That IR&D is sometimes referred to as “company-funded R&D” or “company sponsored IR&D” helps explain why it may be the most misunderstood element of defense business. In its public comments submitted in regard to this study, one defense industry association made a similar statement about the “investment”:

Cash flow is also significant within the Defense Sector as it touches upon other business operations as well. A company that has strong cash flow, for example, might be in the position to pursue increased innovation through more significant investment in internal R&D activities.

One defense industry association, in its public comments, stated that contractors can be forced to “invest additional dollars” by borrowing the cash needed to conduct IR&D “for Government applications”:

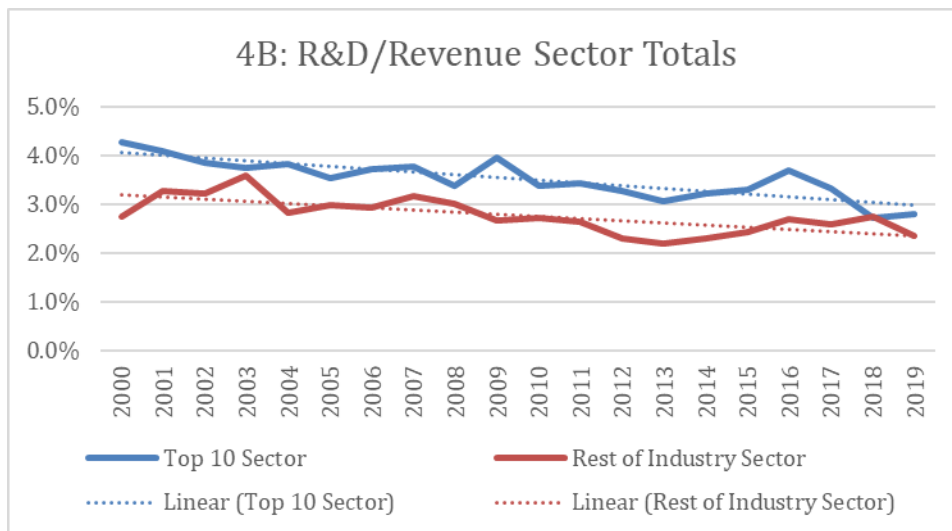
Additionally, if aerospace and defense firms do make the determination to conduct internal research and development for Government applications, these companies must find their own financing. This financing incurs a cost that is unallowable. In the case the firm chooses to invest additional dollars that are ultimately unrecoverable expenditures.

The comment is rather misleading as IR&D charged to defense contracts is an allowable cost, like all other allowable costs on a contract and is therefore reimbursable when included in cost vouchers on cost-type contracts and progress payment requests on fixed-priced contracts. Cash flow on Government contracts is exceptionally favorable versus what occurs in the commercial world. That the Government provides any reimbursement of IR&D cost stands in stark contrast to what occurs in the commercial world. Given the excellent cash generation on Government contracts and the amount of cash contractors chose to pay to shareholders in dividends and share repurchases, it can be concluded that any short-term borrowing is done at the contractor’s discretion, not need. As will be shown, when contractors generated improved cash flow, it resulted in less spending on IR&D as a percent of revenue.

Given that IR&D is a generator of revenue, profit and cash for defense contractors, the downward trends in IR&D spending are particularly surprising. The downward trend in IR&D spending as a percentage of revenue applies to both the Top 10 and the Rest of Industry as shown in Figure 4B of the UT report below (trendlines added for clarity). UT uses the term “R&D” based on the Compustat nomenclature but it corresponds to IR&D as identified in firm annual reports.

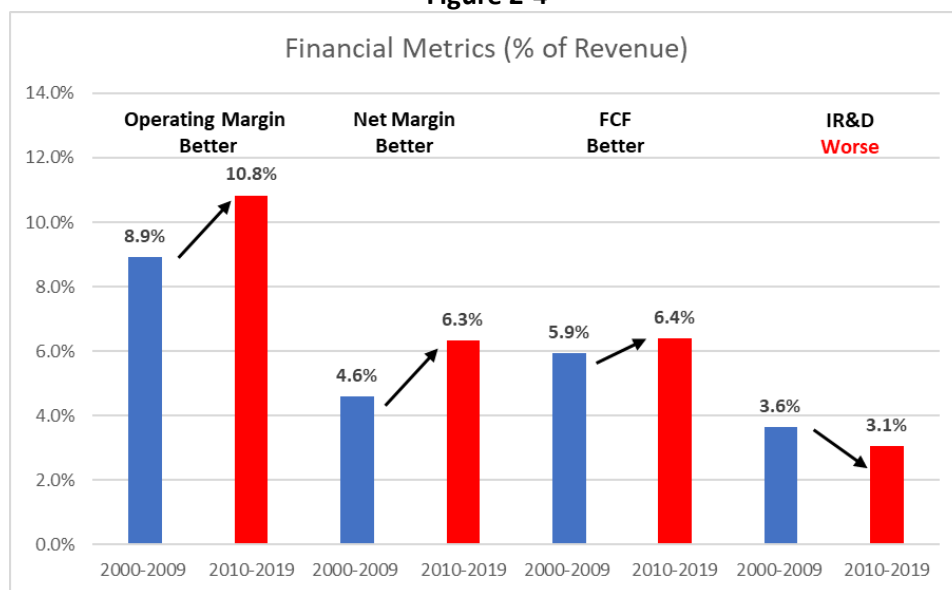
Figure 4B

(Source: University of Tennessee, Examining Free Cash Flow in the Defense Sector)



The GAO recommendation was that DoD ensure it conducts a comprehensive assessment of the effect that its contract financing and profit policies have on the defense industry and update that assessment on a recurring basis. The reduced IR&D spending as a percent of revenue could not have been caused by DoD profit and financing policies because, as shown in Figure 2-4, profit margins and FCF as a percentage of revenue were increasing for these same firms during the same period.

Figure 2-4

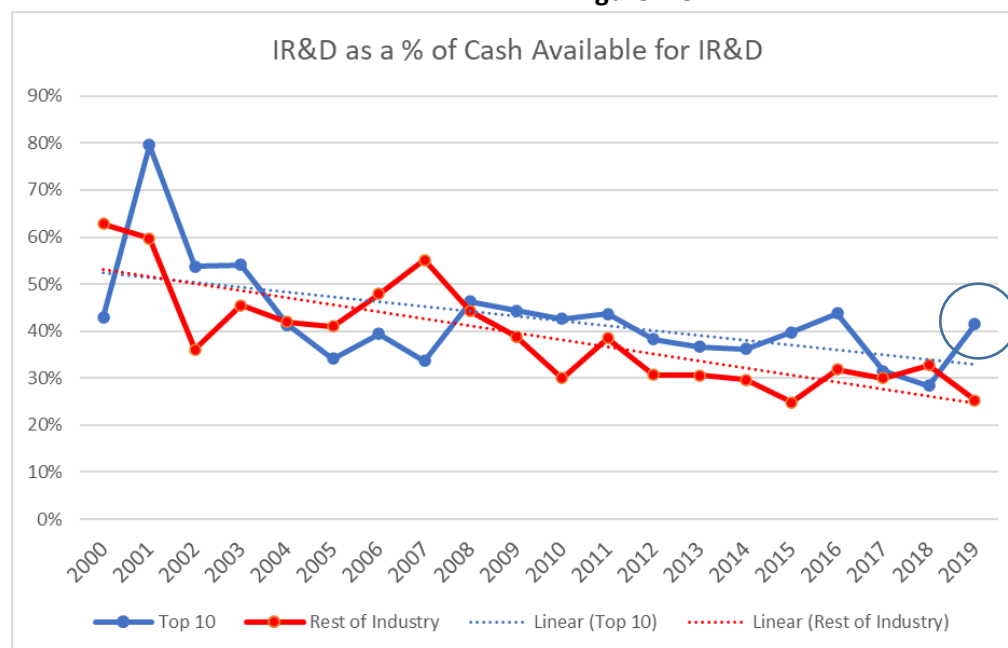


Although a new IR&D project *reporting* requirement became effective in January 2012, it was not an IR&D project *approval* process and the downward trend in IR&D spending began long before that reporting requirement was put in place. The allowability and profit-bearing treatment of IR&D costs did not change.

Industry officials often cite the importance of the availability of cash and cash flow and what it permits contractors to spend on IR&D and CapEx. As the improvement in FCF in Figure 2-4 indicates, the availability of cash for spending on IR&D did not appear to be the issue. In order to show this more clearly, it is helpful to calculate the cash available for spending on IR&D and CapEx, which is actually greater than FCF.

Since FCF was defined as Cash Flow from Operations less Capital Expenditures and IR&D is already accounted for in Cash Flow from Operations and therefore in FCF, cash generated and available for spending on both IR&D and Capital Expenditures is greater than FCF and greater than Cash Flow from Operations. To calculate the cash available to a firm each year, the after-tax value of IR&D was added back to Cash Flow from Operations¹⁴. Figure 2-5 below shows the decline in IR&D spending over time relative to cash available for IR&D spending. This is true for the Top 10 and Rest of Industry firms. Given that IR&D is an allowable and profit-bearing cost for defense contractors and therefore generates revenue, profits and cash, the downward trend is perplexing.

Figure 2-5



The spike in the IR&D % in 2019 was not due to an increase in IR&D spending. The percentage increased because the cash available declined significantly due to the negative cash generated by Boeing due to the 737 MAX.

¹⁴ IR&D is a tax-deductible operational expense. Therefore, Cash Flow from Operations, which is an after-tax value, includes the after-tax impact of IR&D spending. Therefore, the after-tax value of IR&D is added to Cash Flow from Operations to determine the amount of cash available to the firm.

Capital Expenditures (CapEx)

CapEx for property, plant and equipment are also not a use of FCF because FCF is calculated after CapEx is accounted for, but it can be an important measure of the investment a company is making in its own business. Not all industries require the same level of capital assets so comparisons between industries would be problematic. However, measuring changes in a firm's or group of firms' level of capital investment over time can be meaningful.

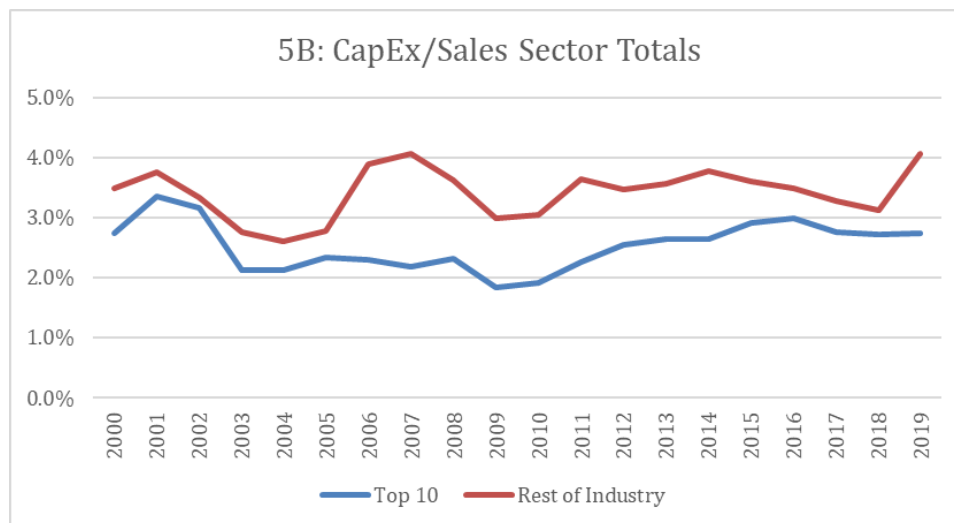
UT Results

UT looked at annual CapEx as a percentage of Revenue (Sales) for the Top 10 and Rest of Industry. Interestingly, UT found that the Rest of Industry invested a higher percentage of revenue in CapEx than did the Top 10. UT found that *"capital expenditures relative to sales have been remarkably stable for both the large firm and small firm samples in our research. As a group, the Top 10 have fairly consistently invested 2-3% of sales in CapEx, while the same number for the Rest of Industry has fairly consistently been 3-4%."*

For the Top 10 firms, CapEx as percentage of revenue increased slightly from the first ten years (2.4%) to the last ten years (2.6%). For the Rest of Industry, CapEx decreased from the first ten years (4.0%) to the last ten years (3.7%). UT presented the results in Figure 5B of its report as shown below.

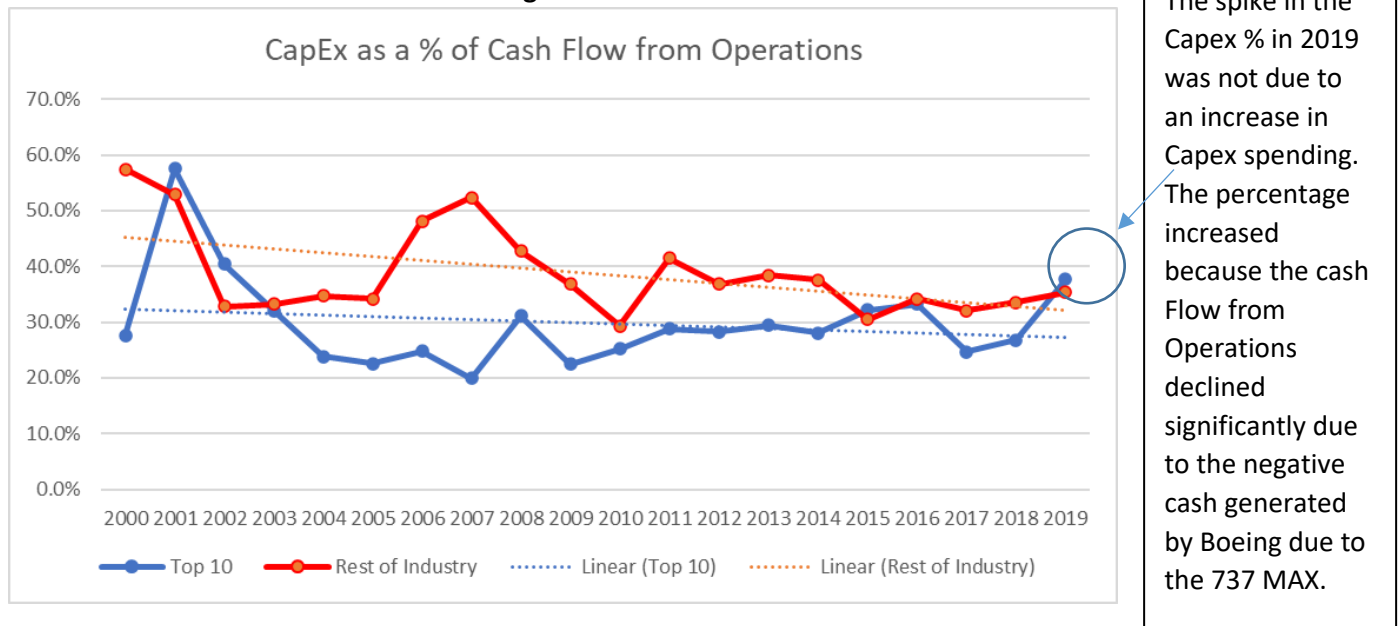
Figure 5B

(Source: University of Tennessee, Examining Free Cash Flow in the Defense Sector)



Since FCF is defined as Cash Flow from Operations less CapEx, the cash available for CapEx is the Cash Flow from Operations. When CapEx is plotted as a percentage of the cash available for CapEx (Cash Flow from Operations), the overall trend was downward for both the Top 10 and Rest of Industry as shown in Figure 2-6.

Figure 2-6



Unlike IR&D, capital expenditures, as a capital asset, are not reimbursable on defense contracts in the year the capital expenditures occur. They are recoverable through depreciation over a number of years. Depreciation is tax deductible expense for all firms. However, there are three benefits to defense contractors which do not accrue to commercial firms in regard to CapEx.

Depreciation of capital assets is an allowable cost on defense contracts meaning it is not only a reimbursable cost on those contracts, it becomes an allowable and profit-bearing cost in cost proposals submitted to the Government. Depreciation becomes an overhead expense and is allocated to defense contracts consistent with the application of overhead rates to appropriate cost bases.

In addition to the cost of depreciation, contractors are allowed to propose an imputed cost for Facilities Capital Cost of Money (FCCOM) which becomes a reimbursable cost on defense contracts. As an imputed cost, FCCOM is not a cost that appears as an expense on a defense contractor's books and records. The calculation of this imputed cost is based on the book value of assets (purchase price less accumulated depreciation). Contractors apply a published Government treasury rate to the book value of capital assets to determine the imputed cost to be proposed and reimbursed. FCCOM is **not** a profit-bearing cost.

Finally, the structured approach used by DoD to determine profit objectives in the negotiation of contract prices is the Weighted Guidelines (WGL) identified in the DFARS. Included within the WGL is a Capital Employed element that adds additional profit dollars based on the value of assets considered

“employed” on a particular contract. Only Equipment assets are considered in this element of the WGL.¹⁵

One final note on Capital Expenditures for defense firms: Costs incurred for tooling and test equipment with a useful life of more than a year would normally be capitalized for most commercial entities. However, for defense contractors, items that can be classified as “Special Tooling and Test Equipment”, with a useful life of more than one year, are allowed to be charged directly and entirely to a single defense contract if it can be demonstrated that the tooling or test equipment can only be used in support of the end-item being procured. The cost of that item becomes a *direct*, allowable, profit-bearing cost on that contract because the Government will take title to any tooling or test equipment so classified. The item itself usually remains in the contractor’s plant as Government Furnished Equipment or Property to be used by the contractor on subsequent production contracts for the same end-item.

Uses of FCF

FCF already accounts for cash spent on IR&D and CapEx, therefore the less that is spent on IR&D and Capex, the greater FCF will be.¹⁶ This is significant because when defense contractors and defense industry associations advocate for regulatory changes to increase profit margins or improve financing they often do so based on what they assert those changes will allow contractors to do on behalf of the DoD and the warfighter.

As the title implies, FCF is the amount of cash that can be used in any way a firm sees fit which is why it is considered to be an important financial measure for corporations. Since IR&D and Capex are already accounted for, the possible uses of FCF are:

Acquiring other firms (Investing)

Paying down existing debt (Financing)

Paying cash to shareholders via Dividends or Share Buybacks (Financing)

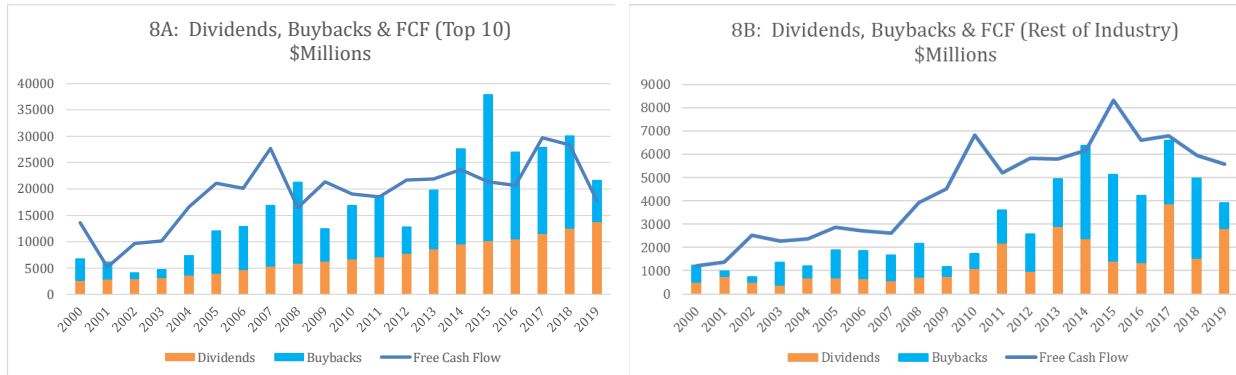
UT pointed out that the amount of FCF dollars and the percentage of FCF that defense firms have chosen to send to shareholders has grown significantly over time as shown in Figures 8A and 8B of its report. The Top 10 actually paid out more in dividends and buybacks (\$240 Billion) than the total FCF generated (\$223 Billion) over the last ten years of the study (2010-2019)

¹⁵ Although not tied to capital expenditures, but clearly related to the topic of contract financing, the WGL also includes profit recognition for the working capital not being provided by the Government through contract financing. This Working Capital Adjustment accounts for the amount of contractor working capital and length of time it is tied up.

¹⁶ As noted earlier, since IR&D is an allowable, profit-generating cost for defense contractors, the effect of reducing IR&D would not necessarily increase FCF. The impact would be based on IR&D chargeable to Government contracts which would generally correspond to the percentage of total revenue derived from sales to the Government. Furthermore, for defense and commercial firms, the increase in current year FCF resulting from a reduction in IR&D spending could reduce FCF in future years based on the loss of innovation and the revenue it could have produced.

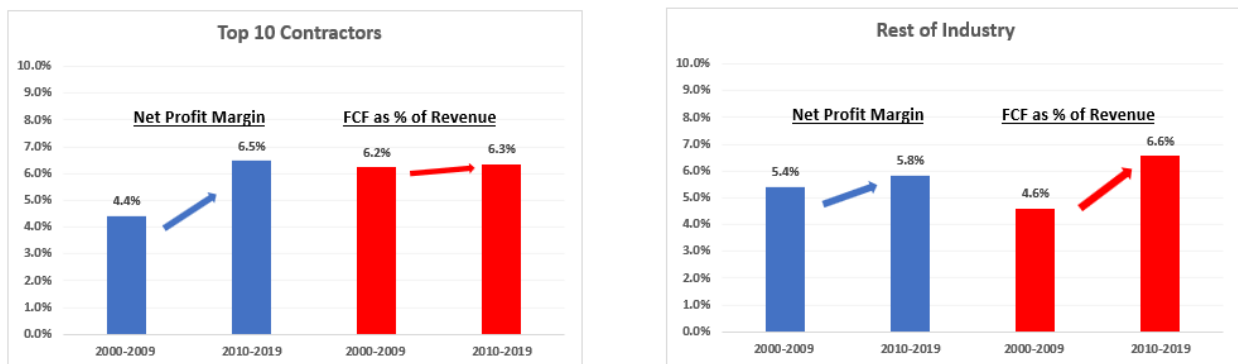
Figure 8A & 8B

(Source: University of Tennessee, Examining Free Cash Flow in the Defense Sector)



As can be seen below, in Figure 2-7, profit and FCF, as a percent of revenue, improved in the last ten years versus the prior ten years for both the Top 10 contractors and the Rest of Industry.

Figure 2-7



From DoD's perspective, to assess industry's priority in how it would spend additional cash, it is necessary to examine how industry has spent the cash it has generated. Therefore, the relevant question is this: When industry has generated additional profits and cash, what has it chosen to do with it?

The data in this study points to one answer: Industry did not choose to spend it on IR&D and CapEx. It chose instead to significantly increase the percentage of cash paid to shareholders in the form of cash dividends and share repurchases, thereby reducing the amount of invested capital for the corporation. This is true for both the Top 10 and Rest of Industry as shown in Figure 2-8A and Figure 2-8B.

Figure 2-8A

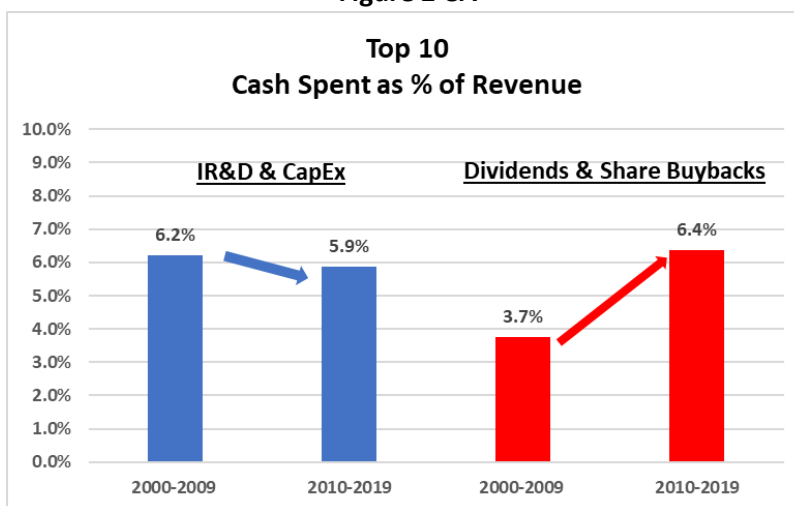
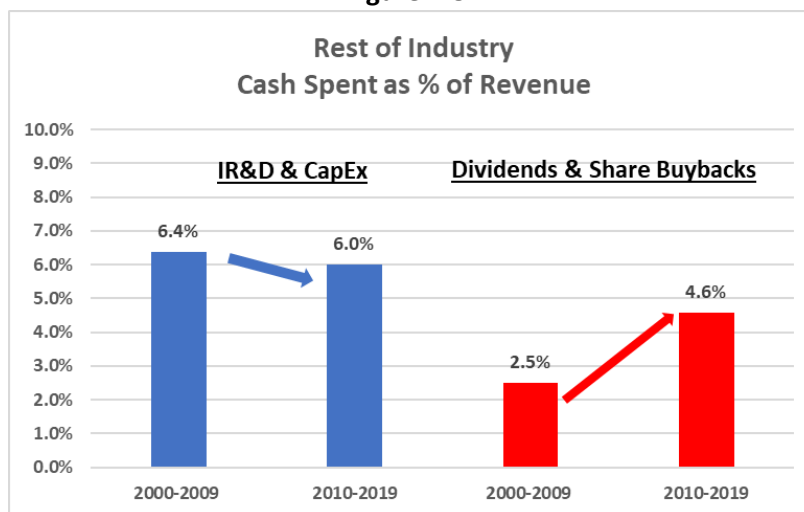


Figure 2-8B



Given that the returns generated on invested capital exceed defense firms' cost of capital, UT describes this behavior on the part of the defense industry as "eating its seed corn" as explained below.

"Both of these practices entail pulling funds out of the corporation and giving them to shareholders. When the combined amount of cash pulled out of a firm is greater than the cash generated by the firm, it is said to be "eating its seed corn," alluding to the practice of pioneer farmers to staunchly protect their seed corn held back to plant next year's crop. Eating the seed corn means damaging future prospects by overconsuming critical resources for the short term benefits they offer."

GMU Results

The GMU report focused on the statistical relationship of FCF over time (time-series regression) and changes in FCF to changes in each of the uses of FCF. GMU likewise analyzed the statistical correlation between FCF and IR&D. In analyzing FCF, GMU often used FCF Margin (FCF / Revenue) rather than FCF dollars. GMU noted the reasons for doing so.

“In the interests of informing policy towards a range of defense contractors of different sizes, we often interpreted FCF as FCF margins, to avoid outsized effects from the largest firms.”

“The distinction between FCF and FCF margins is important for crafting policy with respect to individual suppliers. Increases in FCF without increases in FCF margins suggest that a firm increased its revenues over time, but not its cash-basis profitability. Increases in FCF margins without increases in FCF suggest that a firm became rather more profitable on a cash basis. Comparable increases or decreases in both suggest a simple scaling up or down of the business as a whole.”

The statistical analysis performed by GMU and the conclusions it reached could not be utilized for this report due to the inaccurate FCF values calculated by GMU. GMU did not use the most common definition of FCF, which was used by both Darden and UT, which is Cash Flow from Operations¹⁷ less Capital Expenditures. Values for both elements are provided by Compustat but GMU chose to calculate a value for “Cash Flow from Operations” using discrete accounting elements. GMU also did not normalize working capital data for the impact of acquisitions and accounting changes, and thus GMU’s calculated values for each firm and each year were often significantly different than the values in Compustat.

Impact of Cash Flow by Contract Type and Government Financing Methods

GAO made the following statement regarding the relationship of contract financing to contract profit and contractor profitability: “Contract financing has an impact on the price of negotiated contracts and more generally, on the health and profitability of the defense contractor.” The Department recognizes the critical role of contract financing on defense contracts and that contract financing is about contract cash flow. In support of this study, the Department developed the DoD Contract Cash Flow Model to allow analysis of the various elements, including contract financing, that affect contract cash flow and the resulting financial returns generated on DoD contracts.

Basic Example

Evaluating any investment of cash, whether business or personal in nature, involves answering the following questions:

How much cash do I have to tie up?

¹⁷ In Compustat, Cash Flow from Operations is titled Operating Activities Net Cash Flow (OANCF).

How long will my cash be tied up?
 How much cash will I get in return?
 When will I get the cash?

The importance of contract cash flow and the timing of those cash flows is not intuitive for everyone. Therefore, in training regarding cash flow, profits and the financial return as measured by the Internal Rate of Return (IRR) produced on contracts, the Department has used the following simple bank example in Table 2-1 to demonstrate the impact of cash flow on financial return.

Table 2-1

	Bank Offer	Interest Earned
Bank 1	Deposit \$12,000 today and we will give you \$13,200 one year from now	\$1,200
Bank 2	Deposit \$1,000 per month for 12 months and we will give you \$13,200 one year from now.	\$1,200
Bank 3	Deposit \$1,000 per month and we will allow you to withdraw \$800 of that \$1,000 the following month. One year from now we will pay you \$13,200 less the total of monthly withdrawals.	\$1,200

Although all three bank offers involve making deposits totaling \$12,000 and result in \$1,200 interest being earned, no one would consider the offers to be equal. Why? Because the amount of cash to be tied up and the length of time it would be tied up is significantly different. The choice of which bank offer to accept would be easy, but how much better is Bank 3? IRR will give that answer.

In the case of Bank 1 the IRR answer of 10% is easy and obvious with two cash flows exactly one year apart. The bank would offer this as a one-year CD with a 10% Annual Percentage Yield (APY) (\$1,200 interest on \$12,000 deposit tied up for one year). The Excel XIRR function would produce the same answer but wasn't really needed for Bank 1. Bank 2, however has a series of cash flows happening monthly and the XIRR function would reveal that Bank 2 was offering a 19% APY (IRR = 19%). Bank 3, the clear winner, would reflect a 60% APY (IRR = 60%).

Total interest earned was the same. The cash tied up to earn the interest was not. The investment was different. Cash flow changes everything. The same is true for contracts. If these were contract scenarios and deposits were contractor "cost incurred" values and interest earned was profit, all three contracts would reflect a 10% profit rate but the returns would be radically different due to cash flow. Bank 3 cash flow, as a contract scenario, would be a simplified version of a 12-month contract, 10% profit rate with 80% progress payments.

DoD Contract Cash Flow Model

The risk-reward formula in business and investing is simple. The more risk a project has the greater reward potential it must offer. Less risky projects can be acceptable with lesser reward potential. The one caveat is that any project must offer a return greater than a firm's "hurdle rate" to be acceptable. That hurdle rate is based on the firm's cost of "raising money". Corporations raise money with the intention of making money. The Weighted Average Cost of Capital (WACC) or Cost of Capital is the cost to a firm of raising money and is based on the two ways in which a corporation actually raises money – through debt and equity. When corporations generate returns that exceed the cost of capital, this creates value for shareholders. Businesses perform Discounted Cash Flow (DCF) analysis whenever evaluating the financial viability of a project that involves a series of cash outflows and inflows that occur over time.

From the contractor's perspective, the same questions regarding any investment of cash apply to a contract. Every contract will result in a series of cash flows for the contractor. In a simple example, the contractor spends money this month producing an item it hopes to sell next month. The contractor spends cash (cash outflow) as it produces the item and receives cash (cash inflow) when a customer pays for the item. In the world of defense contracts, the concept of cash outflow and cash inflow is the same but modeling the value and timing of cash flows is more complicated and requires a detailed understanding of contract costs and contract financing.

Once monthly cash flows are determined, a DCF analysis can be used to calculate the annual financial return (IRR) represented by those cash flows. For a corporation, that IRR can then be compared to the WACC to determine whether the project is viable or not. Alternatively, a DCF analysis can determine the viability of a contract by calculating the Net Present Value (NPV) of the same contract cash flows by discounting the cash flows at the WACC rate which produces a dollar value answer which represents the value of all cash flows if received today. The calculated NPV could be positive or negative. A positive NPV means the project is viable because the annual return is greater than the WACC. A negative NPV means the project is not viable because the annual return is less than the WACC. A NPV of zero would mean that the return was equal to the WACC. Both IRR and NPV will answer the viability question. The NPV answer, as positive or negative, will answer the question of whether the contract annual return is greater or less than the WACC. The IRR indicates how much greater or less than the WACC the return is. IRR is very much related to NPV in that the IRR is found by finding the discount rate, that would cause the NPV of the cash flows to equal zero.

If contract cash flows have already occurred (actual cash flows) the *actual* IRR achieved on a contract could be calculated using those cash flows. The DoD Contract Cash Flow Model is intended to calculate the *approximate* IRR for a *prospective* contract scenario. In creating the model, DoD sought to balance precision and ease-of-use.

The DoD contract cash flow model was designed to be simple to use, requiring the user to enter or select only a few key elements of a contract scenario to include contract cost and profit, contract type, contract length, financing method, and the number of deliveries. In addition, the user can easily adjust the cost profile curve to reflect how costs are expected to be incurred over the contract period (e.g. front loaded, normal distribution, back loaded).

Based on the user-entered data, the model creates the series of cash flows that can be expected to occur based on the elements involved in creating contract cash flow on an actual contract. Many factors contribute to how and when cash flows into and out of a contractor as it performs a contract. For example, the model takes into consideration the cash flows as they occur based on contract type, the difference between cost incurred and cash expended, between profit earned and cash received, allowable and unallowable costs, supplier costs and financing payments made to suppliers, contract and non-contract cash expenditures and tax payments. For each element, the timing of each is considered.

As with any series of cash flows and DCF analysis, by determining the amount of contractor cash actually tied up in the contract, it will reveal the financial return generated on that cash tied-up. In the case of contracts, what the model demonstrates is that the financial return, the IRR, is often much higher than the profit or fee rate of the contract. The model allows the user to understand how contract type, contract financing and other key elements of a contract work in concert to determine the contract cash flows and the resulting potential financial return. As an example of data entered by the user and the results it would produce, a screenshot of “User Entry and Results” tab is shown below in Figure 2-9. In this case, a 36-month, fixed price contract with a 10% profit rate and progress payments set at the pre-COVID, customary progress payment rate of 80% for a large business would produce an after-tax IRR of 20.77% which would be far in excess of the average Cost of Capital or WACC for a large business, defense contractor. The Net Present Value (NPV) is calculated by discounting the contract cash flows by the Cost of Capital, which is 6.79% in this example. A positive NPV means that the annual after-tax return is greater than the discount rate. Therefore, the annual, after-tax return on this contract is greater than 6.79%. The NPV of \$415,893 means that the contract cash flows have a value today of \$415,893. This NPV figure is important when comparing alternatives that affect cash flow on this contract.

Figure 2-9

Contract Data	
Subcontracts & Material Cost	\$ 4,500,000
All Other Cost (Excluding FCCOM)	\$ 5,500,000
Subtotal Cost (Excluding FCCOM)	\$ 10,000,000
Facilities Capital Cost of Money (FCCOM)	\$ 100,000
Total Cost	\$ 10,100,000
Profit/Fee	\$ 1,000,000
Total Price	\$ 11,100,000
Profit/Fee Rate	10.00%
Profit/Fee Rate on Total Cost	9.90%

Expenditure Profile

Profile Value (0 to 100): 50

0 = Max Front Loaded Max Back Loaded = 100

Contractor Category	Large Contractor (Over \$5B Revenue)
Contract Type:	Fixed Price (FFP or FPI)
Financing Method	Progress Payments
Progress Payment Rate:	80%
Contract Length (Months):	36
Deliveries (Number):	1

Contract After-tax Internal Rate of Return (IRR)	20.77%	A contract IRR that exceeds the Cost of Capital creates value for a firm's shareholders.
Cost of Capital (CoC) - Compare to IRR above	6.79%	
Net Present Value (NPV) of Contract Cash Flows	\$415,893	The NPV equals the contract cash flows discounted at the Cost of Capital. A positive NPV means the contract annual return exceeds the Cost of Capital.

One of the key benefits of the model is to allow the user to understand the financial value of cash flow from the contractor's perspective. As shown below in Figure 2-10, the same data in Figure 2-9 is used to answer the following question:

"If this were a cost-type contract, what fee rate would be necessary to produce the same financial result for the contractor as the 10.0% profit rate on the fixed price contract?"

As can be seen in Figure 2-10, the answer is that a 6.65% fee on a cost type contract produces the same Net Present Value, \$415,893, as the same contract on a fixed price basis with a 10.0% profit rate.

Figure 2-10

Subcontracts & Material Cost	\$ 4,500,000	Subcontracts & Material Cost	\$ 4,500,000
All Other Cost (Excluding FCCOM)	\$ 5,500,000	All Other Cost (Excluding FCCOM)	\$ 5,500,000
Subtotal Cost (Excluding FCCOM)	\$ 10,000,000	Subtotal Cost (Excluding FCCOM)	\$ 10,000,000
Facilities Capital Cost of Money (FCCOM)	\$ 100,000	Facilities Capital Cost of Money (FCCOM)	\$ 100,000
Total Cost	\$ 10,100,000	Total Cost	\$ 10,100,000
Profit/Fee	\$ 1,000,000	Profit/Fee	\$ 665,231
Total Price	\$ 11,100,000	Total Price	\$ 10,765,231
Profit/Fee Rate	10.00%	Profit/Fee Rate	6.65%
Profit/Fee Rate on Total Cost	9.90%	Profit/Fee Rate on Total Cost	6.59%
Contractor Category	Large Contractor (O	Contractor Category	Large Contractor (O
Contract Type:	Fixed Price (FFP or F	Contract Type:	Cost Type
Financing Method	Progress Payments		
Progress Payment Rate:	80%		
Contract Length (Months):	36	Contract Length (Months):	36
Deliveries (Number):	1		
Contract After-tax Internal Rate of Return (IRR)	20.77%	Contract After-tax Internal Rate of Return (IRR)	977.21%
Cost of Capital (CoC) - Compare to IRR above	6.79%	Cost of Capital (CoC) - Compare to IRR above	6.79%
Net Present Value (NPV) of Contract Cash Flows	\$415,893	Net Present Value (NPV) of Contract Cash Flows	\$415,893

Changes to any of the user-entered values (in Yellow) will cause the IRR and the NPV to change which allows the user to understand the significance of each in impacting contractor cash flow and the resulting financial return.

What the above comparison also demonstrates is the reason that IRR can be so much greater than contract profit or fee rate. Contract profit and fee rates are expressed as a percentage of total cost. It is not uncommon for people to assume that the profit or fee rate is the equivalent to an annualized return or the “return on investment”, but it is not. The cost-type contract produced an extremely high IRR because it is measuring the return on cash invested and the cash tied up in a cost type contract is only a small fraction of the total contract cost.

An example of how the DoD Contract Cash Flow Model can help users better understand the contracts they are negotiating is provided in Table 2-2. This provides the results from the model using the same contract cost and profit values from Figure 2-9 above but changing some of the user-changeable contract variables to observe the impact on the calculated net present value of contract cash flows. Since total revenue (contract price) and profit/fee margin are the same in every scenario, the differences are due to cash flow. The model enables users to understand the impact that various contract features can have on cash flow and therefore on the financial returns that result.

Table 2-2

Test 1: Impact of Contract Length & Contract Type					
Contract Length (Months) Varies		12	24	36	Sensitivity
	Contract Type				
Financing Method	FFP	Progress Payments	Progress Payments	Progress Payments	
Progress Payment Rate	FFP	90%	90%	90%	
Number of Deliveries	FFP	1	1	1	
Contract After-tax Internal Rate of Return (IRR)	FFP	83.68%	46.16%	31.92%	
Net Present Value (NPV) of Contract Cash Flows	FFP	\$622,466	\$549,767	\$482,773	Significant
Net Present Value (NPV) of Contract Cash Flows	CPFF	\$698,227	\$674,038	\$652,479	Less Significant
Test 2: Impact of Financing Rate					
Contract Length (Months) Held Constant		36	36	36	
Financing Method	FFP	Progress Payments	Progress Payments	PBPs¹⁸	
Progress Payment Rate	FFP	80%	90%	N/A	
Net Present Value (NPV) of Contract Cash Flows	FFP	\$415,893	\$482,773	\$540,152	Significant

The answer to the question as to whether defense contractors, overall, are creating value for their shareholders is a resounding “Yes.” The revenues and resulting profits and cash flows reported at the corporate level for defense contractors reflects the accumulated results of the many individual contracts that generated those revenues.

Naval Postgraduate School (NPS) Evaluation of the DoD Contract Cash Flow Model

NPS evaluated the DoD Cash Flow Model as a thesis project. That project is still in underway as of this writing but the first task of validating the model has been accomplished. The thesis team evaluated every element of the model to determine its applicability and the underlying assumptions for its usage. The NPS evaluation was informative and helpful as it uncovered several formula errors in the model that

¹⁸ The FAR limitation on PBPs is that they cannot exceed, in total, 90% of the total contract price or deliverable item price depending on the PBP method used. When the profit rate is 11.2% or higher, 90% of price would be more than total contract cost. The model conservatively assumes that total PBPs will not exceed total contract cost. This is to comply with the FAR requirement that PBPs “are not expected to result in an unreasonably low or negative contractor investment in the contract”.

were easily corrected by the Department so that the evaluation could continue. The evaluation noted the following:

“Based on the analysis conducted, the DoD Cash Flow Model reasonably approximates contractor NPV and IRR from contract cash flows.”

“The DoD Cash Flow Model was designed to estimate contractor cash flow using the conservatism principle that is commonly used in financial accounting and reporting. The conservatism principle represents a method for accountants to address the subjectivity involved when financial estimates are made (Whittington & Pany, 2019). In practice, the conservatism principle dictates that “when two (or more) reasonable alternative values are indicated, the accountant will choose the lower amount” (Whittington & Pany, 2019). When two or more accounting or financial methods of obtaining an estimate from the DoD Cash Flow Model were possible, the method that produced a lower estimated IRR or NPV was used, with the goal of understating the model’s NPV and IRR calculations consistent with the conservatism principle.”

“A contractor's use of DCF analysis during the contract management process is a source of asymmetric information. There is currently no requirement for the government to analyze contract cash flows. Contractors utilize DCF analysis as a primary factor in their decision to bid on a government contract and in the allocation of B&P resources for contract proposal development. The phrase “cash is king” describes the importance of cash in industry and the necessity of cash to remain a going concern. Therefore, the DoD Cash Flow Model has the potential to reduce asymmetric information and to improve acquisition outcomes with supporting policy to incentivize contractors with cash flow. Contracting policy in support of the DoD Cash Flow Model may stipulate increasing or decreasing contract payments to use cash flow as an incentive.”

NPS also made six recommendations to potentially improve the model. The Department will evaluate each of the recommendations based on continuing the goal of balancing precision and ease of use.

Conclusion

The Department concludes that in aggregate, the defense industry is financially healthy and its financial health has improved over time. The positive impacts of contract cash flow play a significant role in influencing the health of the defense industry. Looking at one financial metric, such as operating margins, does not tell the whole story of whether a company is financially healthy or whether a given contract is financially lucrative. The DoD cash flow model will provide additional insight into the impacts of cash flow on a given contract.

Recommendations

The Department recommends the actions detailed below; each recommendation has a bracketed reference to the summary table in the Executive Summary.

The Department does not recommend changing its current weighted guidelines methodology for the purpose of either improving or reducing traditional defense contractor profits. [Action 1a.]

The Department needs to continue evaluating its new cash flow model, make any improvements as needed, and use this tool to educate the acquisition workforce in partnership with DAU. [Action 1b, Action 1c.]

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DEPARTMENT OF DEFENSE

Contract Finance Study

SECTION 3

FINANCING AND PAYMENT POLICY IMPACTS TO SUBCONTRACTORS

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Section 3. Financing and Payment Policy Impacts to Subcontractors

As discussed in detail in Attachment 1, which contrasts the Defense and Commercial business environments, one of the major advantages of doing business with DoD *as a prime contractor* is more robust cash flow in comparison to what is common in the commercial marketplace. The stronger cash flow for DoD prime contractors correlates to the availability of contract financing, favorable payment terms, and the Government's commitment to pay its bills on time, or pay interest when missing a due date. However, the Department considered it imperative to examine how its policies and procedures impact the *supply base* (the members of the Defense Industrial Base operating as first-tier or lower-tier subcontractors and suppliers) and *assess whether the supply base fares as well as its (often larger) prime contractor counterparts*. According to GAO Report GAO-11-61R, "Based on some estimates, 60 to 70 percent of work on defense contracts is now done by subcontractors, with certain industries aiming to outsource up to 80 percent of the work." Because the supply base represents a significant and critical portion of the Defense Industrial Base, ensuring its financial health is vital to accomplishment of the acquisition mission of DoD. Favorable cash flow can be an incentive to attract new entrants into the Defense Industrial Base while retaining existing participants, but in order to maximize its effectiveness, it must be available for members of the DoD supply chain as well as at the DoD prime contractor level. This portion of the study also addresses subcontractor recourse for late payments.

Methodology

This section of the study was informed predominantly by the Department's Payment Flowdown Regulatory Analysis, GMU's Examination of Financing and its Impact on Small Businesses Study, the Department's Progress Payment Deviation Review, and public comments in response to two DoD requests.¹⁹ (These products can be found in the appendices to this report.²⁰) While this section does address impacts to small businesses to an extent, these are discussed in greater depth in Section 4.

Highlights

While DoD does not consider a contractor's "actual financial need" in determining the contractor's eligibility to receive contract financing, many DoD prime contractors do.

The Federal Government generally has limited insight into the payment terms established between primes and their subcontractors. Many DoD subcontractors do not enjoy the same favorable payment terms and resulting cash flow that DoD primes can generally count on from the Federal Government. Only a few regulations, with limited applicability, establish specific requirements relative to subcontract payments.

In lieu of waiting for a future payment, subcontractors may have to resort to some type of private financing in order to provide needed cash flow. One such private financing type is accounts receivable factoring, a form of borrowing wherein the subcontractor sells an account receivable to a factoring

¹⁹The two requests are: the Department's request for input on Barriers Facing Small Businesses in Contracting with the Department of Defense (86 Federal Register 50333, Sept 8, 2021), and the Department's request for public comment on the finance study topics (87 Federal Register 36472, Jun 17, 2022).

²⁰ The Barriers Facing Small Businesses in Contracting with the Department of Defense material does not appear in the appendices, but can be located online at <https://www.regulations.gov/document/DOD-2021-OS-0077-0001>.

company at a discount, in exchange for cash. The cost of accounts receivable factoring is borne by the Government (if it is passed on), or the subcontractor (through reduced profit).

When financing is unavailable to subcontractors and suppliers, the timing of delivery payments is even more critical from a supply base standpoint. Late payments to subcontractors is cause for concern, but DoD lacks oversight and is reliant on subcontractors to raise the issue.

Comparative Analysis of Cash Flow Benefits

This portion of Section 3 presents an assessment of the degree to which the DoD subcontractor community is benefiting from the same type of favorable financing and payment terms the Government affords to prime contractors.

General Results:

Business Environment	Prime Contractors	Subcontractors	Impact on Subcontractors
Availability of Financing	Yes, under fixed-price contracts meeting specified performance period and dollar thresholds. For DoD, not based on actual financial need for acquisitions with a performance period >12 months	Less common; generally need-based	Greater requirement for subcontractors to self-finance or obtain private financing; reduced cash flow
Payment Terms	Payment terms are net 30 for virtually all contracts, in compliance with the Prompt Payment Act	Customary terms vary from less than net 30 to net 120 or higher; some primes offer shorter payment terms to small business subcontractors, but this is not universal	Longer payment terms mean the subcontractor must carry the costs of performance longer; cash flow slows
Prompt Payment	Government pays interest on payments not made timely IAW payment due dates established in the applicable prompt payment clause	Prompt Payment interest is only required under construction contracts	Subcontractors have fewer assurances of timely payment
Acceleration	Delivery payments for all primes are accelerated; DoD finance payment targets are aggressive in comparison to FAR requirements	FAR 52.232-40 requires acceleration to small business subcontractors "to the maximum extent practicable"; clause flowed down to small business subcontractors	Small business subcontractors have no assurance of accelerated payments

Availability of Contract Financing

Prime Contractors. Contractors may receive progress payments or performance-based payments under fixed-price contracts with a period of performance in excess of six months and valued over \$3M for large businesses, or with a period of performance greater than four months and valued over \$250K (the simplified acquisition threshold) for small businesses. The Department has determined that, for fixed-price contracts with a performance period in excess of one year, the use of customary contract financing (except for loan guarantees and advance payments) is in DoD's best interest, and no further justification for use of such financing is required (DFARS 232.104). Specifically, for contracts that meet these criteria, **there is no requirement for the contractor to demonstrate actual financial need or the unavailability of private financing** in order to qualify for contract financing on DoD contracts. Contract financing is offered in a variety of forms, including performance-based payments, progress payments, commercial financing, and the least preferred form, advance payments. A contractor must have an adequate accounting system in order to be approved for receipt of progress payments, making it less likely for other than large businesses to receive this type of financing. However, a government-compliant accounting system is not required for receipt of performance-based payments or commercial financing, so lack of an adequate accounting system will not necessarily prevent a contractor from receiving financing.

Supply Base. It would not be expected that every supplier under a defense contract would receive financing from their prime contractor, even under a long-term Government contract where the prime contractor *is* receiving financing. First, one must look at the nature of the supplier's business: there can be hundreds or even thousands of suppliers under a large-dollar prime contract, providing a wide variety of products or services, ranging from low-cost piece parts to major subsystems. Vendors who are shipping from inventory, for example, can invoice for the item immediately upon delivery. Conversely, a subcontractor supplying a major subsystem may have a much longer period of performance in advance of delivery, incurring costs of production that arise significantly prior to when the subcontractor can expect delivery payments from the prime.

It is worth noting that, while DoD does not consider a contractor's "actual financial need" in determining the contractor's eligibility to receive contract financing on contracts with a period of performance exceeding 12 months, many DoD prime contractors do. The following criteria for supplier financing were identified in response to the Department's request for public comments on the finance study:

*"[M]embers noted that major factors include **the ability of the supplier to self-finance**, supplier size, criticality of the required part or service to the mission, speed required to perform the mission, and availability of alternate suppliers. Note: For many PSC members, the majority of suppliers receiving financing are small businesses." (Professional Services Council)*

Another respondent to DoD's request for public comments echoes this, stating:

*"Suppliers must initiate the request for contract financing and are **then considered based upon supplier financial need**, contract type, amount and duration." (Raytheon Technologies)*

In the context of the Progress Payment Deviation Review, the Department determined that approximately 19% of the value of material and subcontracts was financed for the population that was

reviewed. Significantly, 50% of the reviewed contracts offered no subcontract financing at all. A third of the contractors responding to the Progress Payment Deviation Review's questionnaire provided responses indicating they generally do not provide financing to subcontractors. The review results demonstrate that most suppliers do not receive financing and, from a big picture standpoint, these suppliers receive no cash flow under the subcontract until after they deliver.

Responses to the Department's request for public comments on the finance study topics, as well as the results of the study conducted by GMU, bear out this conclusion. From the public comments, the following responses were provided to the question, "What percentage of your suppliers receive contract financing (payments prior to delivery) from your firm?":

"Less than 30% of suppliers receive contract financing" (Raytheon Technologies)

"Roughly a quarter of our suppliers receive some form of contract financing" (An anonymous large business respondent)

From the GMU study:

"...only 1 out of the 14 respondents from 'DoD Sub' category received Prime contractor provided financing"

What this means in practice is that most suppliers performing under defense prime contracts have financial arrangements with their prime that resemble contracts awarded in the commercial marketplace much more than they resemble the prime's contract with DoD. The seemingly limited amount of contract financing provided at the subcontract level raises the question of whether additional financing, when appropriate, would be of benefit to subcontractors. Given the prevalence of payment after delivery for subcontractors and suppliers, this makes the timing of delivery payments very critical from a supply base standpoint.

[Favorable Payment Terms and the Prompt Payment Act](#)

Prime Contractors. With few exceptions²¹, prime contractors benefit from the Prompt Payment Act and its implementing FAR clauses. These clauses (FAR 52.232-25, 52.232-26, 52.232-27, or 52.212-4, as applicable²²) establish the due date for payments under the contract, and require that the Government pay interest on the amount due when a payment is not made timely in accordance with the prompt payment due date. Every Federal contract will include one of these Prompt Payment clauses. In most cases, the prompt payment due date is 30 days after the later of receipt of a proper invoice or acceptance of the supplies or services. Shorter timeframes apply for some commodities, e.g. perishable foodstuffs. While 52.232-25 and 52.212-4(i) apply only to delivery payments (payments for accepted

²¹ Narrow exceptions to applicability of the Prompt Payment Act include payments related to emergencies, utility payments, and Commodity Credit Corporation payments. (5 CFR 1315)

²² FAR 52.232-26, Prompt Payment for Fixed-Price Architect-Engineer Contracts, is prescribed for use in fixed-price Architect-Engineer Contracts. FAR 52.232-27, Prompt Payment for Construction Contracts, is prescribed for use in construction contracts. FAR 52.232-25, Prompt Payment, is prescribed for use in all other solicitations and contracts, except when the clause at 52.212-4, Contract Terms and Conditions-Commercial Products and Commercial Services, applies, or when payment terms and late payment penalties are established by other governmental authority (e.g., tariffs).

supplies or services, including payments for accepted partial deliveries but excluding contract financing payments), 52.232-26 and 52.232-27 also apply to progress payments based on percentage or stage of completion in the context of Architect-Engineer or construction contracts, respectively. With respect to Government acceptance of goods or services, the Prompt Payment clauses establish a 7-day “constructive acceptance” parameter. It would defeat the intent of the Prompt Payment Act if contractors were denied both timely payment and applicable interest because Government acceptance did not occur timely. Therefore, for purposes of the “interest clock”, Government acceptance is presumed to occur no later than 7 days after delivery, unless there is a disagreement over quantity, quality, or contract compliance. The constructive acceptance date does not impact the Government’s rights when supplies or services are non-conforming, but establishes a start date for calculation of the invoice due date if the Government’s inspection and acceptance are not accomplished timely.

Contract financing payments (authorized Government disbursements of monies to a contractor prior to acceptance of supplies or services by the Government) are not subject to the prompt payment requirements, meaning that if financing payments are not made within the timeframe specified in a contract, the Government is not required to pay interest. However, DoD policy is to make contract financing payments as quickly as possible. The Department has established aggressive payment goals of 7 days for progress payments, and 14 days for performance-based payments and interim payments on cost-type contracts (DFARS 232.007).

The payment protections provided by the Prompt Payment Act (30-day payment term and the requirement for the Government to pay interest when payment due dates are not met) are a major benefit for prime contractors doing business with the Department.

Supply Base. Absent the types of reviews accomplished under the auspices of this Finance Study, the Federal Government generally has limited insight into the payment terms established between primes and their subcontractors. With respect to payment terms, the Department’s Payment Flowdown Regulatory Analysis demonstrated that, while some of the financing and payment clauses include general expectations about subcontract payments, there are only a few instances where the regulations establish specific requirements relative to subcontract payments. An example of a general expectation is the clause language stating that subcontract invoices are to be paid “in accordance with the terms and conditions of a subcontract or invoice”; this type of statement is found at:

- 52.212-4, Contract Terms and Conditions—Commercial Products and Commercial Services, paragraph (i)(1)(ii)(B) (Alt I);
- 52.216-7, Allowable Cost and Payment, paragraph (b)(1)(ii)(A)(1);
- 52.216-26, Payments of Allowable Costs Before Definitization, paragraph (d)(2)(i)(A);
- 52.232-7, Payments under Time-and-Materials and Labor-Hour Contracts, paragraph (b)(3), applicable to the “material” component of a T&M; and
- 52.232-16, Progress Payments, paragraph (a)(2)(i).

At first glance, this general expectation may appear to provide adequate protection for subcontractors, but note that, in all the clauses cited above, no requirement is established with respect to the *length* of the contractually agreed-to subcontract payment terms.

By contrast, FAR 52.232-27, Prompt Payment for Construction Contracts, does specifically address subcontract payment terms. This clause is significant in that it requires three things, in the context of

construction contracts, that are unique among FAR and DFARS clauses. First, it establishes a specific payment timeframe for subcontractors: the contractor shall “pay the subcontractor for satisfactory performance under its subcontract not later than 7 days from receipt of payment out of such amounts as are paid to the Contractor under this contract”. (It should be noted that, while this provides a specificity as to subcontract payment timing not found elsewhere in the regulations, this specificity may or may not work to the subcontractors’ advantage, since the prime’s receipt of a payment is the trigger event, rather than the date of the subcontract invoice, or the date the goods or services were accepted.) Second, 52.232-27 imposes a requirement for the prime to pay interest to the subcontractor when that vendor is not paid timely according to the subcontract terms (as specified in the clause). No other instance exists in the regulations where the Prompt Payment requirements, with which the Government complies for all acquisitions, are imposed on the prime contractor, providing a motivation to ensure subcontract payments are made timely in accordance with subcontract terms. Third, 52.232-27 requires flowdown of both the subcontract payment term and the obligation to pay interest on late payments to subcontractors and suppliers at all levels of the supply chain.

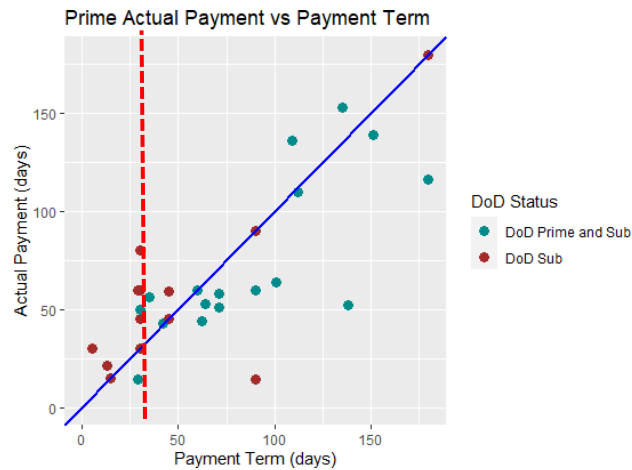
It must be noted that the efficacy of these terms is dependent on the extent to which the prime and each lower-tier supplier complies with the clause requirements. An informal interview with the owner of a construction company who performed under DoD contracts revealed that he was not advised of the ultimate customer, and the subcontract payment terms reflected in his contract with the prime were much less advantageous than those required by 52.232-27.

One other FAR requirement that specifically addresses subcontract payments is 52.232-7(a)(5), which states that, for subcontracted labor, the prime’s voucher may only include subcontractor hours for which the subcontractor has already been paid.

With respect to contract financing, there is no regulatory subcontract flowdown of the shorter due dates applicable to prime contract financing as set forth at DFARS 232.007.

In the accomplishment of the Progress Payment Deviation Review, the cognizant contractors for the reviewed contracts were asked to identify their customary payment terms with their suppliers. The responses ranged from net 30 to net 90. An internet search of major defense contractors’ customary terms and conditions found published terms as high as 120 days. The results of the survey conducted under the auspices of the GMU Examination of Financing and its Impact on Small Businesses Study showed an even wider range of payment terms between a DoD prime and its small business suppliers, with responses ranging from 1 day to 180 days. Figure 3-1 below displays the GMU survey results, with the payment terms displayed along the x-axis. The dotted, vertical line represents the equivalent of the Department’s standard 30-day payment term under the prompt payment clauses. Note the predominance of reported payment terms longer than 30 days, many of which are significantly longer.

Figure 3-1, Prime Actual Payment versus Payment Term
(Data Source: GMU, Figure 23, Prime Payment)



While payment terms are generally subject to negotiation between a prime and its subcontractors, the ability of a subcontractor to negotiate more favorable terms may, to some extent, be dependent on how much leverage they have in the context of the acquisition. About half of the prime contractors that responded to the Progress Payment Deviation Review questionnaire advised that they offer more favorable payment terms to small business subcontractors, with the respondents reporting that their small business payment terms ranged from 1 day shorter to 60 days shorter. However, it must be noted that the relative benefit from a shorter term is dependent on the standard term to which it is compared. For example, a payment term 10 days shorter than a standard 30-day term is preferable to a payment term that is 60 days shorter than a 90-day term. The Finance Study research uncovered no instances of a prime contractor agreeing to pay interest when it fails to make payment according to the subcontract payment terms, outside the contractual context of construction contracts where this is required by FAR 52.232-27.

During the course of this study, the Department identified accounts receivable factoring as a response to unsatisfactory subcontract payment terms, i.e. payment terms that are late to need when it comes to suppliers having cash flow to pay their bills. Accounts receivable factoring is a form of borrowing wherein the subcontractor sells an account receivable (its invoice which is awaiting payment from the prime contractor) to a factoring company at a discount to its face value, in exchange for cash. The transaction permits the borrower to have cash today instead of waiting for the payment from the prime contractor on the future payment due date. Small businesses, in particular, are dependent on both quick and on-time payments from buyers in order to maintain a predictable cash flow. Interruptions or delays in anticipated cash flows can cause fiscal challenges for any company, but these may be much more impactful for small businesses which do not have significant cash reserves. A subcontractor facing lengthy payment terms from a prime contractor may choose to pursue accounts receivable factoring as a method of accelerating its cash flow.

However, this factoring has a cost, both to the subcontractor in terms of the instant subcontract, and potentially to the prime contractor and, ultimately, the Government in the context of future acquisitions. To the extent that subcontractors have leverage to do so, they can be expected to increase

their proposed prices to prime contractors to cover the costs associated with the fees charged by the factoring companies. As a result, the costs of accounts receivable factoring will, in many cases, ultimately be passed on to the Government, to be borne by the taxpayers. Where a subcontractor is not in a position to pass on the costs, the subcontractor's profits are reduced, and their fiscal health is impaired.

Exhibit 4-1 to Section 4, Third Party Cash Flow Options For Government Contracting, presents the results of the Department's research into private cash flow options (i.e., other than customer-provided financing) targeted at businesses in the Government contracting sector, including accounts receivable factoring and many other financing types. This research indicates that available customer financing may not be adequate to meet businesses' working capital needs.

Based on the foregoing discussion, it is clear that many DoD subcontractors do not enjoy the same favorable payment terms and resulting cash flow that DoD primes can generally count on from the Federal Government to aid in timely paying bills. This distinction may have serious implications for those members of the Defense Industrial Base which do most of their business as a subcontractor or supplier, rather than as a prime which contracts directly with DoD. On major weapon system procurements, it is commonplace for primes to subcontract upwards of 60% of the effort to other vendors. Further, subcontractors represent a significant and critical portion of the Defense Industrial Base, and ensuring their financial health is vital to accomplishment of the acquisition mission of DoD. Therefore, the Department is concerned that the absence of regulatory or contractual requirements addressing payment terms for first-tier and lower-tier suppliers for most types of acquisitions might result in negative outcomes. This could entail undermining the health of a significant portion of the Defense Industrial Base, deterring companies that otherwise might want to enter the supply chain, and causing some in the existing supply base to leave the Government contracts sector.

Payment Timeliness

Timeliness of payments compares contract payment terms to the actual number of days from a request for payment to receipt of that payment. Timeliness is a relative term, in that a payment may be timely in the sense that it was made within the contractual payment terms, but if the terms are onerous (e.g., 120 days after receipt of invoice), the seller might be better off receiving a late payment against better payment terms. For example, if the payment terms are 120 days, and payment is made in 120 days, the payment was timely, but the supplier had to wait four months for the payment. Conversely, if the payment terms are 30 days, and the seller receives payment in 45 days, the payment was untimely (15 days late), but the seller is much better off than they would be if they receive a timely payment against 120-day payment terms. Acceleration of payments is when the customer makes payments in advance of the due date. Similar to timeliness, acceleration is relative: payment in 115 days against a 120-day term and payment in 25 days against a 30-day term both represent a 5-day acceleration, but a supplier would obviously prefer the second circumstance to the first.

Prime Contractors. In general, the Department has 30-day delivery payment terms, and the interest requirements applicable to untimely payments under the Prompt Payment clauses provide a clear incentive for the Government to pay its bills in a timely fashion, as the alternative is more costly. DFAS metrics show an average turnaround time of 12.6 days from receipt of invoice to payment of a delivery invoice: this is significantly accelerated (by 17.4 days) in comparison to the 30-day requirement in the Prompt Payment clauses. This accelerated turnaround time is greatly influenced by federal policies

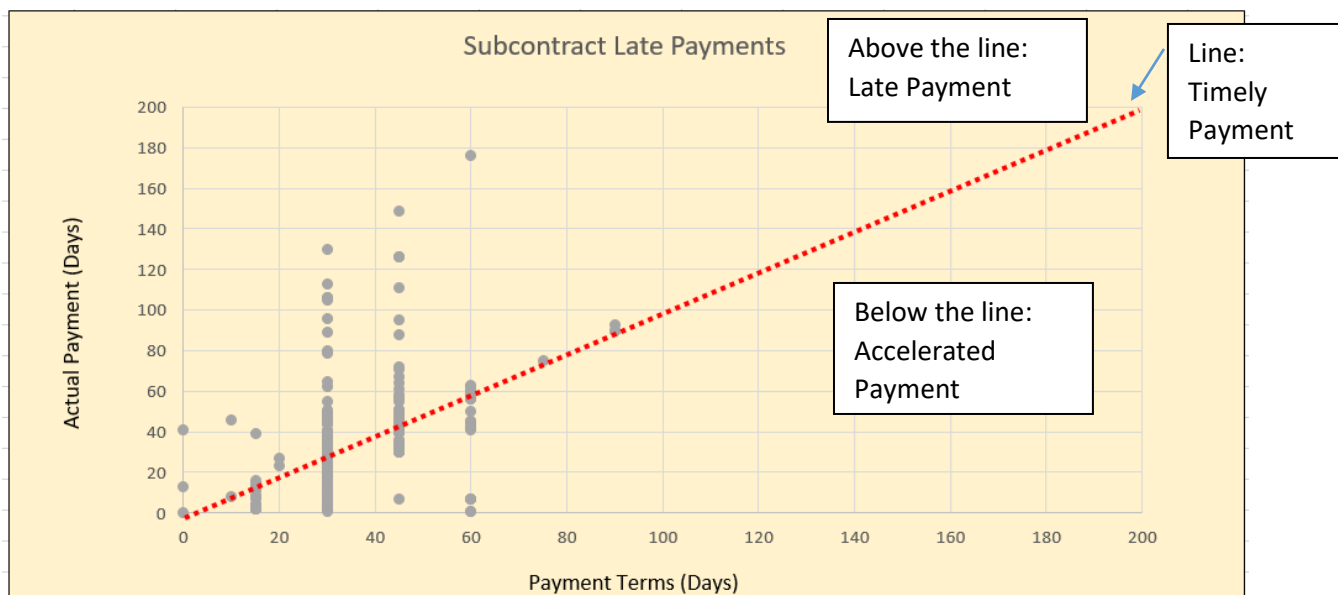
focused on cash flow for small business contractors supporting the Federal Government, whether as prime contractors, or as subcontractors. (Accelerated payments to subcontractors are addressed in a separate heading below.) DFAS metrics applicable to financing payments show that the average payment timeframes for performance-based payments and cost vouchers are shorter than the 14 days specified in DFARS 232.007, with average turnaround times of 13.9 days for PBPs and 12.3 days for cost vouchers; progress payments are averaging 12.4 days from receipt of request. While this exceeds the 7-day target specified in DFARS 232.007, it is significantly quicker than the 30-day payment term for progress payments prescribed in the FAR.

Supply Base. The Department's insight into the timeliness of prime contractors' payments to their suppliers is generally very limited, due to privity of contract between prime and subcontractor, and the paucity of regulatory requirements for primes to disclose this information. The FAR only addresses timeliness of subcontract payments in the context of small business subcontracting plans. Contracts awarded to large businesses that require a subcontracting plan include clauses requiring the subcontracting plan to include assurances that the prime will pay its small business subcontractors on time and in accordance with the terms and conditions of the underlying subcontract (FAR 52.219-9). These clauses also require the prime to self-report to the contracting officer (CO) when the prime contractor makes either a reduced or an untimely payment to a small business subcontractor (52.242-5). In the context of that requirement, "untimely" is defined as more than *90 days past due*. While a 90 days past due invoice is problematic for any company, such a lengthy delay may present insurmountable cash flow difficulties for a small business subcontractor. By contrast, should the Government be delinquent in payment of a delivery invoice from a prime contractor, the prime will be compensated via the prompt payment interest calculated from the payment due date through the actual payment date. This will be further discussed in the Oversight and Recourse paragraph, below.

While the Department normally has little insight into subcontract payment timeliness, the recent Progress Payment Deviation Review provided an opportunity to gain some understanding in this area through an inspection of actual subcontract data, rather than anecdotes or generalizations. Analysis of the data collected under the auspices of the Progress Payment Deviation Review yielded an unexpected result: measuring from date of subcontract invoice to date of payment, and comparing that number of days to the subcontract payment terms, 29.6% of the 2022 subcontract invoices (25.4% of large business invoices and 33.2% of small business invoices) were paid late. The late payments reviewed ranged up to 81 days late for small business invoices. (It is acknowledged that there may be valid reasons for an untimely payment against a subcontract invoice, such as errors on the invoice or issues with acceptance of the product or service.)

Figure 3-2 below, derived from the Progress Payment Deviation Review, presents subcontract payment terms on the x-axis, and actual payment days on the y-axis. All the points above the dotted line represent late payments. The GMU study's survey yielded similar results. While the GMU study results refer to the respondents' experience on average (the survey questions asked about the "most common payment term," and the "typical number of days between submission of an invoice and receipt of payment from the Prime Contractor"), as opposed to the Progress Payment Deviation Review investigation of timeliness of specific subcontract invoice payments, both avenues of investigation indicate that untimely subcontract payments are a significant problem.

Figure 3-2, Subcontract Late Payment
(Data Source: DoD Progress Payment Deviation Review)



The GMU Study included the following insights on this topic:

“For DoD subcontractors, payment terms are similar in time to those in the private sector, but DoD subs reported delays in actual payments from prime contractors much more so than in the private sector. (The study team also examined payment terms from DoD to small business primes and the terms and actual payment days for Prime to Sub are higher than that of DoD to Prime.”

“Private sector actual payments to subcontractors are often faster than agreed upon while DoD Subs payments from Prime lag significantly.”

Accelerated Payments to Small Businesses

Small Business Prime Contractors. In recognition of the Federal Government’s longstanding interest in supporting small businesses, in 2011 the Office of Management and Budget (OMB) issued OMB memo M-11-32, Accelerating Payments to Small Businesses for Goods and Services, which directed executive agencies to make payments to small business contractors as soon as practicable after receipt of a proper invoice and acceptance of the goods or services, with a goal of making payments within **15** days of receipt and acceptance. The stated goal was to “improve cash flow for small businesses and provide them with a more predictable stream of resources, thereby preserving and increasing small business participation in Federal contracting”. This OMB direction, applicable to small business prime contractors, is reflected in DFARS 232.903.

Large Business Prime Contractors. In July 2012, OMB followed up with memo M-12-16, Providing Prompt Payment to Small Business Subcontractors, which directed agencies to temporarily accelerate

payments to all prime contractors, in order to allow them to provide prompt payments to small business subcontractors. The memo noted that the policy of accelerating payments to small business primes, along with the new policy of accelerating payments to all prime contractors in order that they may in turn accelerate payments to their small business subcontractors “helps to improve cash flow for small businesses, increases liquidity, unlocks capital for the purposes of investment and growth, and increases small business participation in Federal contracting” (OMB memo M-12-16). These policies did not impact the contractually-required due date prescribed by the applicable prompt payment clause.

The Government implemented this second OMB policy to improve the cash flow of small business subcontractors at all levels via incorporation of FAR clause 52.232-40, Providing Accelerated Payments to Small Business Subcontractors. As of the time of this writing,²³ this clause states, in pertinent part,

“Upon receipt of accelerated payments from the Government, the Contractor shall make accelerated payments to its small business subcontractors under this contract, to the maximum extent practicable and prior to when such payment is otherwise required under the applicable contract or subcontract, after receipt of a proper invoice and all other required documentation from the small business subcontractor.”

The clause also requires flowdown to all tiers of small business subcontractors.

Although the OMB policies were issued with the intention of supporting small businesses, as implemented, these policies benefit *all* prime contractors, regardless of size status, and without taking into account whether there are small business subcontractors under the contract which could receive accelerated payments as a result of the prime’s receipt of accelerated payments. As noted above, the DFAS metrics from April 2020 through 31 Jul 2022 demonstrate that DoD is meeting, and exceeding, the 15-day goal not only for small business primes, but for all primes, and the average turnaround time of 12.6 days from receipt of invoice is significantly expedited in comparison to the 30-day requirement in the Prompt Payment Act.

Supply Base. FAR 52.232-40, Providing Accelerated Payments to Small Business Subcontractors, was incorporated into the FAR for the purpose of facilitating quicker payments from prime contractors to *small business* subcontractors in order to preserve and increase small business participation in all levels of Federal contracting by improving cash flow.

The subcontract invoice payment data collected in support of the recent Progress Payment Deviation Review provided some valuable insights into this area. Regarding acceleration to small businesses, the current DFARS regulatory language, as of the time of this writing, establishes a goal of making (accelerated) payment to the small business subcontractor within 15 days of the prime’s receipt of payment from the Government or receipt of the subcontract invoice, *whichever is later* (DFARS 252.232-

²³ The quoted text is from the Nov 2021 version of the clause. On February 14, 2023, the FAR Council published a final rule for FAR Case 2020-007 amending the clause to read: “...within 15 days after receipt of accelerated payments from the Government, the Contractor shall make accelerated payments to its small business subcontractors under this contract, to the maximum extent practicable and prior to when such payment is otherwise required under the applicable contract or subcontract, after receipt of a proper invoice and all other required documentation from the small business subcontractor.” The only wording difference between the 2021 and 2023 versions with respect to paragraph (a) (the quoted text) is that the former first word, “Upon”, was replaced with “In accordance with 31 U.S.C. 3903 and 10 U.S.C. 3801, within 15 days after.” Since a paragraph (a)(2) was added, the prior paragraph (a) is now (a)(1).

7017).²⁴ Analysis of the data collected in the context of the Progress Payment Deviation Review showed that most of the supplier invoices were submitted well in advance of when the prime submitted its invoice to the Government. This is not unexpected, as the goods and services provided by subcontractors are used by the prime to produce the contract end item. For example, the purchase of raw materials and components generally occurs at the beginning of a production process, and many of these would be delivered (and invoiced) by the subcontractor early in the production process. Another example is items purchased in large quantities and held in inventory. As a consequence, the regulatory language does nothing to benefit these suppliers which completed performance early in the prime's performance period.

There is no regulatory requirement that addresses acceleration of subcontract payments for other than small businesses. In the context of the 52.232-40 clause, flowdown is required to all tiers of small business subcontractors. If all subcontractors at all tiers are small businesses, the benefit conferred by this clause may flow through to the bottom of the supply chain for the contract. However, if a first-tier subcontractor is a large business, then no lower-tier small business subcontractors under that large business will receive the benefit. Additionally, existence of a large business at any point in the supply chain prevents the flowdown to lower tier small business suppliers to that large business. For lower-tier small business subcontractors, whether or not they can benefit from the Government policy is random, depending on whether there was a large business supplier at any point in the tiers between the small business supplier and the prime.

Oversight Concerns and Recourse for Non-payment

Oversight Concerns: Lack of Oversight of Subcontract Payment Timeliness

Prior to March 2000, the Progress Payment clause only authorized large business contractors to request financing for costs which the contractor had already paid. This was referred to as the "paid cost rule." A May 1993 GAO report titled "Techniques to Ensure Timely Payments to Subcontractors"²⁵ characterized the paid cost rule as providing a significant payment protection for subcontractors, because the large business prime contractors receiving progress payments were "required to make payment to subcontractors before billing the government."²⁶ In March 2000, the paid cost rule was replaced with the "incurred cost rule", which authorized contractors to request progress payments against both paid costs and those which are determined to be due and will be paid in accordance with the subcontract terms and conditions, and ordinarily within 30 days of inclusion of the cost in a progress payment request to the Government.

Since the Progress Payments clause authorizes a prime contractor to claim on their progress payment request both amounts that have been paid, and those that "are determined due and will be paid" (52.232-16(a)(2)), it is recognized that some or all of the subcontract financing and delivery invoice amounts included in a prime's progress payment request may be unpaid as of submission of the progress payment request to the Government. This circumstance, combined with the fact that many

²⁴ DFARS 252.232-7017 has since been deleted. The Mar 2023 version of 52.232-40 clause includes the "within 15 days," but the "whichever is later" phrase is no more.

²⁵ Available at <https://www.gao.gov/assets/nsiad-93-136.pdf>

²⁶ GAO report, p.8

progress payment requests (which may be submitted as often as monthly) over the life of the contract include incurred costs from hundreds or even thousands of subcontracts, make it unrealistic to expect that a comprehensive subcontract payment timeliness assessment could be conducted in the context of a pre-payment review of a progress payment request. As a result, ACOs place reliance on the contractor's certification on the SF 1443 Request for Progress Payment stating that amounts due to subcontractors have been paid, or will be paid timely, in compliance with subcontract terms.

While it is neither feasible nor meaningful to perform robust oversight of subcontract payment timeliness in the context of pre-payment reviews of progress payment requests (because there is no requirement that the claimed subcontract costs actually *be* paid yet at the point when such a review would be conducted), the extent of apparent late payments indicated by a review of the subcontract payment data collected in support of the Progress Payment Deviation Review is cause for concern. If a pattern of late payments is identified, the ACO may take steps to increase oversight on an exception basis, and to implement available contract remedies, including possibly reducing or suspending progress payments or increasing the liquidation rate.

A review of the FAR and DFARS for regulatory content addressing subcontract payment timeliness disclosed that it is not a consideration when assessing the adequacy of any of the business systems. The review of the regulations did not identify any requirement that supports oversight of payment timeliness for other than small business subcontractors in the context of subcontracting plan administration.

Recourse for Non-payment

Prime contractors. In the event that a prime contractor's delivery invoice is not paid timely (and there is no issue with acceptance of the goods or services), the payment of prompt payment interest is intended to compensate the prime contractor based on the time value of money for the time between the payment due date and the actual payment date. If an invoice has not been paid timely and remains unpaid, the prime may seek assistance from the contracting officer. Should an extreme case arise, the prime has the ability to submit a claim. At the point when the invoice is eventually paid, the Government generally will pay prompt payment interest through the date of payment.

Supply Base. FAR 32.112-1 provides guidance to contracting officers on how to proceed if presented with a subcontractor assertion of non-payment by a prime contractor. The regulation indicates the CO should investigate the validity of the subcontractor's assertion, and, if the CO finds the prime has failed to comply with the subcontract payment terms, the CO *may* "encourage" the prime to make timely payments to its subcontractors and suppliers, or reduce or suspend progress payments. Additionally, FAR 32.112-1(c) advises that the CO *shall* initiate administrative or other remedial action if the CO determines that a company's certification of payment of a subcontractor or supplier accompanying its payment request to the Government is "inaccurate in any material respect". The certifications referred to here include those submitted in conjunction with a contractor's progress payment request, a request for a performance-based payment, or a payment request under a construction contract.

Although not mentioned in FAR 32.112-1, several financing clauses in addition to the Progress Payments clause cite possible remedies for a prime's failure to pay its costs of performance. The Performance-Based Payments clause (52.232-32) at paragraph (e)(3) offers reduction or suspension of PBPs as a remedy if "the Contractor is delinquent in payment of any subcontractor or supplier under this contract

in the ordinary course of business”. The CO may withhold further withdrawals from the special account holding the advance payment financing if 52.232-12, Advance Payments, applies. Lastly, in the context of cost-type contracts, the CO may elect to no longer recognize costs incurred but not yet paid when making financing payments under 52.216-7, Allowable Cost and Payment. However, if the prime is not receiving any of these forms of financing payments, the only course of action open to the CO under 32.112-1(b) is to “encourage” the prime contractor to make timely payments to its subcontractors.

While, in theory, a subcontractor should be able to elevate payment concerns under a federal contract to the cognizant contracting officer, in practice there are significant hurdles for the subcontractor that might be interested in pursuing this course of action.

Firstly, it is not clear whether or how subcontractors under DoD prime contracts are put on notice that the ultimate customer is the Federal Government. Even if they are aware, perhaps based on inclusion of FAR or DFARS flowdown clauses included in the subcontract, that the prime contract’s customer is DoD, the subcontractor generally will not know either the prime contract number under which they are performing, or the cognizant contracting officer’s name or contact information. Tracking down the prime contract number and cognizant contracting officer in order to elevate payment concerns would require a level of investigative know-how that many DoD subcontractors may not possess. As a result, the avenue of elevating subcontract non-payment concerns to the prime’s contracting officer should not be considered to be routinely available to subcontractors.

The Department’s request for public comment on the finance study topics asked prime contractors to explain how their lower-tier suppliers know they are performing under a Government prime contract, and asked subcontractors/suppliers how they know that the ultimate customer is the Federal Government; whether they know the prime contract number with the Government; and whether they know who the contracting officer is and how to contact him. The prime contractors responded that their Government contract number is incorporated into the subcontracts, while the only respondent that acknowledged knowing the prime contract number as a supplier was a major defense contractor. A large business respondent indicated that, *“The Contracting Officer is not known [by the subcontractor], but often may be determined by additional resources”*, and added that *“Most supplier Purchase Orders prohibit the subcontractor from contacting the prime’s customer directly”*. An industry association response commented that:

“Below the second tier of contractors who might see a Government contract referenced in a purchase order and might receive communications in pre-award discussions, it is likely that sub-tier contractors are unaware that they are working under a U.S. Government contract—or what that might mean for their business. There is currently no requirement or practical structural way to inform all levels of contract of the nature of the original prime contract.”

Conclusion

Taken together, the Prompt Payment clause requirements, the DFARS policies on expediting contract financing payments, and acceleration of prime contractor payments in support of FAR 52.232-40 provide very robust cash flow expectations for prime contractors holding federal contracts. However, the Department’s Payment Flowdown Regulatory Analysis demonstrated that these protections at the prime level generally are not extended to subcontractors via requirements of the prime contracts.

The Federal Government generally and DoD specifically have taken numerous steps to ensure the cash flow of our prime contractors, and these measures go far to make DoD a good customer. However, our attempts to push these cash flow benefits to the subcontractor and supplier level appear, for the most part (with the possible exception of construction contracts) neither robust nor effective. The Department believes there is more to be done to contribute to the financial health of the subcontractor/supplier component of the Defense Industrial Base.

Recommendations

The Department believes there are a number of options worth considering that can improve the business environment for subcontractors, help attract new entrants to the marketplace, and retain existing subcontractors; each recommendation has a bracketed reference to the summary table in the Executive Summary.

These recommendations stem from the analyses documented in this Section 3 as well as in Section 4, Small Business and the Importance of Cash Flow. The Department should explore the following actions:

- Make prompt payment terms, including interest for late payment, applicable to subcontracts [Action 2a]
- Improve subcontractors'/suppliers' cash flow and payment terms if the "Incurred Cost" rule (that supplanted the "paid cost rule") is to remain in place [Action 2b]
- Improve oversight of subcontract invoice payment timeliness and consider whether timely payments to subcontractors should be evaluated as part of any of the DoD Business Systems [Action 2c]
- Make sure subcontractors are aware they are performing on a DoD Contract, and that they know the prime contract number and contracting officer contact information [Action 2d]
- Improve the implementation of accelerated payments to subcontractors (detailed in Section 4) [Action 2e]

The following recommendations arise from the Progress Payment Deviation Review (see appendices).

- Return to a customary progress payment rate of 80% for large businesses, in a manner that minimizes disruption [Action 3a]
- Explore the use of a higher than customary progress payment rate to motivate or reward large businesses for behaviors the Department wants to encourage, potentially as a pilot [Action 3b]

Finally, these recommendations, predominantly technical in nature, arise from the Department's Payment Flowdown Regulatory Analysis (see appendices) [Action 2f].

- Regulatory conformances:
 - While FAR 32.901 and FAR 52.232-29(g) state that prompt payment requirements do not apply to contract financing payments, DFARS 232.206(f) provides instructions to incorporate "standard prompt payment terms for commercial item contract financing."
 - DFARS 232.906 relieves the FAR 32.906 restrictions on making invoice payments earlier than seven days prior to the due dates specified in the contract for small businesses, but not for large businesses. Therefore, it appears there remains an unresolved conflict between the intent of FAR 32.009-1 as implemented via 52.232-40 and the restriction in 32.906 in the context of large business primes.

- Open questions/observations:
 - DFARS 232.007 does not address commercial contract financing, although it provides payment timelines for several other types of contract financing.
 - The following questions pertain to FAR 52.232-40:
 - Does FAR 52.232-40 apply only to delivery payments, or to both financing and delivery payments?
 - How are prime contractors notified that they have received an accelerated payment under 52.232-40?
 - Given DoD's already-codified acceleration of contract financing payments and the goal of making payments to small business primes within fifteen days, what constitutes the baseline for an accelerated payment?
 - For purposes of flowing down accelerated payments to lower tiers, how are first-tier subcontractors put on notice they have received an accelerated payment?
 - Based on the current regulatory flowdown of the accelerated payment requirements, does this achieve the policy object of accelerating payments to small business concerns or could improvements be made?
 - FAR 32.104(d)(1)(i) authorizes the CO to provide performance-based payments or progress payments when the contract will have a performance period longer than four months before the first delivery (for small businesses) or longer than six months before the first delivery (for large businesses). Per DFARS 232.104, DoD has determined that, for fixed-price contracts with a performance period greater than a year, the use of customary contract financing is in DoD's best interest, and thus the contractor is not required to demonstrate actual financial need or the unavailability of private financing for these actions. This potentially requires additional contractor support and justification for a very narrow subset of contracts.

DEPARTMENT OF DEFENSE

Contract Finance Study

SECTION 4

SMALL BUSINESS AND THE IMPORTANCE OF CASH FLOW

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Section 4. Small Business and the Importance of Cash Flow

The Small Business Act, passed by Congress and signed by President Eisenhower in 1953, explicitly linked small businesses to competition, national security, and federal procurement. The President, Congress, and the Department of Defense have reaffirmed the importance of small businesses to our nation in the intervening time. For example, on July 9, 2021, President Biden signed Executive Order 14036, Promoting Competition in the American Economy, and identified the importance of small businesses to the U.S. In response, in 2022 the Department of Defense issued “The State of Competition in the Defense Industrial Base,”²⁷ which cited “increasing opportunities for small businesses” as a key tenet: “DoD should increase small business participation in defense procurement.” DoD’s report stated:

“Small businesses spur innovation, represent the majority of new entrants into the [Defense Industrial Base], and, through their growth, create a pipeline of the next generation of suppliers with diverse capabilities to support the DoD mission.” (page 13)

In January 2023, Secretary Austin published the Department’s Small Business Strategy noting that the initiatives in the strategy, “will streamline efforts across DoD in order to make it easier for small businesses to work with DoD, align small business activities to sustain and expand the Department’s diverse and modernized capabilities, and reduce barriers for small businesses to help reverse the declining trend in small business suppliers.”²⁸ As the Department focuses on the critically important role small businesses play in federal government procurement—including promoting competition, innovation, diversity, supply chain resilience, and national security—the Department examined how financing and payment practices impact these important partners.

Methodology

This portion of the study analyzed how the Government’s financing and payment policies impact small business primes and subcontractors and whether improvements are needed.

The key source material included the following:

- The Study, conducted by GMU, “Examination of Financing and Its Impact on Small Businesses,” provided in the appendices.
- Public comments DoD collected in 2021 regarding “Barriers Facing Small Businesses in Contracting with the Department of Defense,” available at <https://www.regulations.gov>²⁹
- Public comments DoD collected in 2022 in response to the Defense Contract Finance Study topics, provided in the appendices.
- DoD’s Payment Flowdown Regulatory Analysis, provided in the appendices.

²⁷ Available at: <https://media.defense.gov/2022/Feb/15/2002939087/-1/-1/1/STATE-OF-COMPETITION-WITHIN-THE-DEFENSE-INDUSTRIAL-BASE.PDF>

²⁸ Available at: <https://media.defense.gov/2023/Jan/26/2003150429/-1/-1/0/SMALL-BUSINESS-STRATEGY.PDF>

²⁹ Direct link to Docket DoD-2021-OS-0077 is available at: <https://www.regulations.gov/document/DoD-2021-OS-0077-0001/comment>

Highlights

Small businesses have challenges with obtaining cash flow to pay operating costs and do not have the same opportunities to obtain working capital as their larger counterparts.

When small businesses are unable to obtain working capital to perform their contracts and pay their bills through contract cash flow, the stakes can be so high that a small business may have to resort to debt (vice equity) and leverage personal assets, such as a house or car (GMU report page 13, 30).

Accounting system requirements present challenges to small businesses, and the Department has made a concerted effort to engage on this topic.

Obtaining Financing and Associated Obstacles

GMU's report addressed many obstacles for small businesses to obtain financing, including: less control over assets and heavier debt loads; the potential to pay higher costs to obtain working capital due to higher risk being associated with the small business status; and unique financial solvency pressures resulting from a degree of risk aversion and reliance on the owner's personal financial portfolio. It also addressed associated barriers, perceived or real, such as accounting system requirements.

Accounting System

Over the course of the study, the Department found that a government-compliant accounting system truly is perceived as an obstacle for companies to obtain government financing. One defense industry association noted in its public comments that policy guidance and training could help address any misunderstandings about the cost accounting requirements.³⁰ Small businesses are exempt from Cost Accounting Standards (CAS), yet numerous GMU survey respondents cited CAS as a challenge to implementing a government-compliant accounting system (GMU p. 55). Small businesses are required to have a government approved accounting system—not a CAS-compliant one—in order to receive contract awards incorporating certain contract types, as well as some types of government financing. GMU identified in its study a number of no-cost resources and assistance on the topic of a government-compliant accounting system available to small businesses.

As these concerns and misunderstandings came to light, the Department worked with the Defense Contract Audit Agency (DCAA) and DAU to improve the educational resources available not only to the acquisition workforce, but to the general public in this area. Starting in 2020, DAU began hosting an "All Things Small Business" podcast available at [All Things Small Business - Defense Acquisition University \(dau.edu\)](https://dau.edu),³¹ a continuing dialog between government, industry and academia on acquisition-related issues that impact small businesses who support the critical defense industrial base. The sessions are recorded and available at the DAU website, including a session focused on "pricing" featuring officials from key DoD offices, including Defense Pricing and Contracting and DCAA. In addition, DAU held a 2022 Summer Small Business Pricing Series designed to demystify how to do business with the Department of

³⁰ Comments provided by Comment ID DoD-2021-OS-0077-0202, in response to DoD's "Notice of Request for Comments on Barriers Facing Small Businesses in Contracting With the Department of Defense," which appeared in 86 Federal Register 50333 (September 8, 2021). The full comments are available online at <https://www.regulations.gov/document/DoD-2021-OS-0077-0001/comment>

³¹ <https://media.dau.edu/channel/All%2BThings%2BSmall%2BBusiness/170596291>

Defense for small businesses already in or seeking to enter the Defense Industrial Base. Recordings of the seven sessions, covering accounting system requirements, audit process overview, and other financial topics are available on the DAU website under “events” (<https://www.dau.edu/events-series>) under the “Small Business” heading.

Also, information on Government cost accounting is available to the acquisition workforce and the public in three DAU Cost Accounting Standards courses, CON 7040, CON 7050, and CON 7060.

The concept of a government-compliant accounting system, however, is only applicable to cost type contracts and to fixed price contracts with progress payments. Most small businesses doing business with the Government do not need a government-compliant accounting system, because they receive firm fixed price contracts. For contractors that do not qualify for progress payments because they do not have a government-compliant accounting system, performance-based payments are an alternate method of contract financing. The Department recognizes, however, that performance-based payments, while being the preferred method of contract financing, also comes with its disadvantages in terms of the time and resources required to establish performance-based payment events, criteria, and values.

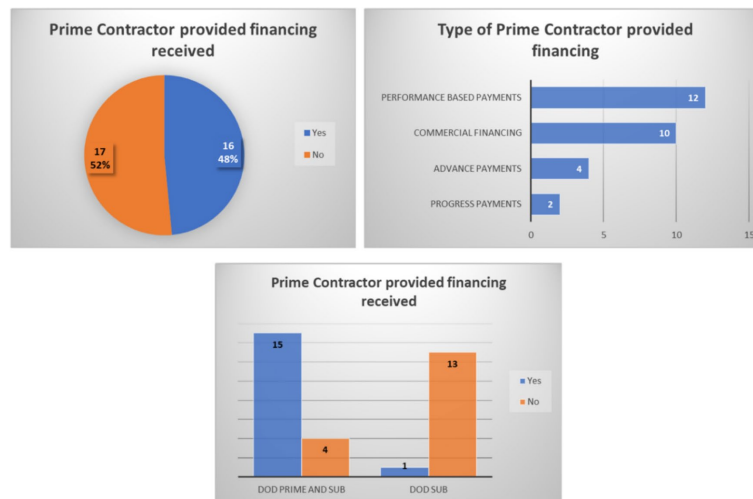
Financing

GMU assessed the extent of financing being provided as part of its Small Business study. For customer-provided financing data, GMU collected information from three angles: when the provider was a private company, DoD, or a DoD prime contractor. Survey responses indicate that financing occurs at a relatively similar rate in all three categories at an aggregate level: private companies provided financing to 45% of respondents; DoD provided financing to 49% of respondents; and prime contractors provided financing to 48% of respondents. But when looking at the third category—prime contractor-provided financing—more closely, and examining responses by type of recipient, the data shows that small businesses who are predominantly “DoD Subs” (i.e., those with more than 80% of business as a subcontractor) did not receive financing. See GMU Figure 5 below.

Figure 5

(Source: George Mason University, Examination of Financing and Its Impact on Small Businesses)

Figure 5. Prime Contractor provided financing received



To explain the vertical bar chart depicting disparate customer-provided financing, GMU notes that “DoD Subs are more likely suppliers of parts or components while DoD Primes and Subs are more likely to be partners with primes on larger and more complex programs.” In other words, a supplier drop-shipping an item from inventory (like a COTS item) likely will not need financing because they can bill immediately. Nonetheless, financing is important throughout the supply chain and it would appear prime contractors are not necessarily making contract financing (e.g., performance-based payments, advance payments, progress payments) available to DoD subcontractors, even when they themselves receive such financing. This could be because it is truly not needed, not considered to be needed, or due to obstacles associated with establishing and administering the financing arrangement. The DoD Progress Payment Deviation Review, found in the appendices, also demonstrated that financing is not necessarily received by small business subcontractors. The greater implication of a lack of financing for a small business is that delivery payment terms and timeliness of those payments become critical. It also highlights the importance of ensuring existing cash flow streams be retained for small businesses. For example, the DoD Progress Payment Deviation Review’s assessment of liquidity or cash flow for small businesses concludes that the Department should retain the higher progress payment rate of 95% for small businesses, which was a temporary increase to the standard rate of 90%, implemented by Class Deviation 2020-00010.

Payment Terms and Timeliness

GMU’s examination of small businesses as subcontractors highlighted payment issues as a concern, with differences emerging based on whether the subcontractor was supporting DoD or the private sector. GMU indicated that subcontractors report delays in actual payments from DoD prime contractors much more so than in the private sector. As far as payment terms, for small businesses performing as subcontractors on DoD contracts, the companies interviewed by GMU in support of its study provided a wide range from 5 days to 180 days. It is worth mentioning the subcontractor payment dependency on prime contractor receiving payment from DoD, which GMU identified:

More than 70 percent of respondents mentioned that as a subcontractor, getting timely payment from a prime is dependent on the prime getting payment from DoD (GMU page 46).

The Department is concerned that as a result of the elimination of the “paid cost” rule that was addressed in Section 3, a general expectation has formed that a prime contractor should not be expected to pay its supplier bills until it has received payment from the Government. This is concerning for all suppliers, but particularly so for small businesses who do not have the same means to pay their bills as their larger counterparts.

As identified in Section 3 of this report, the Department has additional observations in this area. The requirements of the Prompt Payment Act generally drive a 30-day payment timetable between the Government and its prime contractors. With one exception, in the area of construction, there is no regulatory timetable for payment terms between subcontractors performing in support of a Defense contractor and their prime contractors. The Prompt Payment Act also calls for interest when payments are not timely. Overall, based on DFAS metrics from April 2020 through July 2022, the Department is averaging 12.6 days from receipt of invoice for making its payments.³² The Department looked at payment terms with subcontractors during its Progress Payment Deviation Review (see the appendices). For the data reviewed by the Department, on average, the payment terms between government prime contractors and their suppliers in 2022 were 34.6 days, with a range of 10 to 90 days. Actual payment days averaged 34.4, with a wide range; for example, one payment term of 60 days was paid in one day (59 days early), whereas another payment term of 45 days was paid in 126 days (81 days late). While the longer end of the payment terms range is problematic for any supplier, it has potential to cause greater cash flow impact for small business subcontractors, which typically have more constrained resources.

As noted in section 3, the Department also identified accounts receivable factoring as a response to unsatisfactory subcontract payment terms, i.e. payment terms that are late to need when it comes to suppliers having cash flow to pay their bills. The GMU study also noted that some respondents cited accounts receivable factoring as an alternative to customer-provided financing.

The responses to the Department’s 2022 request for public comments on topics related to the finance study also yielded interesting insights into the practice of providing working capital for federal small business contractors by financing accounts receivables, both billed and unbilled. Regarding fees charged, a commenter indicated that: “Typically, our fees on a \$100 invoice, paid in 30 days, have ranged from \$.33 to \$1.50.” Comments indicate that: “Competition to provide working capital to small government contractors is intense and growing. Banks and commercial finance companies located in geographic regions that have large concentrations of government contractors have dedicated teams that exclusively service government contractors.”

Based on these insights, the Department conducted market research into financing services advertised in the commercial marketplace. An overview of those results is available in Exhibit 4-1, Third Party Cash Flow Options for Government Contracting, at the end of this section. In looking at over 20 companies advertising such services, located in 11 different states, the Department found that they offer a range of

³² The DFAS data does not distinguish business size.

cash flow options for government contracting, including those targeting accounts receivable (70% of the firms offered this service).

FAR 52.232-40, Providing Accelerated Payments to Small Business Subcontractors

Section 3 of the report introduces the concept of accelerated payments to small businesses, both from the Government to small business prime contractors, and from prime contractors to small business subcontractors. The Departmental policy goal of making payments to small business prime contractors within 15 days of receipt and acceptance is found at DFARS 232.903. FAR 52.232-40, Providing Accelerated Payments to Small Business Subcontractors, which implements 10 U.S.C. 3801(b), is prescribed for use in all solicitations and contracts (including commercial acquisitions). It requires prime contractors that receive accelerated payments from the Government to make accelerated payments to their small business subcontractors, “to the maximum extent practicable and prior to when such payment is otherwise required under the applicable contract or subcontract, after receipt of a proper invoice and all other required documentation from the small business subcontractor”. The clause is required to be flowed down to small business subcontractors.

Based on the DFAS metrics showing that the average days from invoice receipt to payment for all contractors, regardless of size, is 12.6 days, DoD is meeting and exceeding the 15-day goal for small business prime contractors. However, the Department has identified some serious limits on the effectiveness of FAR 52.232-40, as detailed below:

1. The clause requirement to attempt acceleration of payments to small business subcontractors is predicated upon the prime’s receipt of accelerated payment from the Government. If a prime is either unaware of receipt of an accelerated payment or uncertain as to whether it has received an accelerated payment, it is unlikely the prime will accelerate payments to its small business subcontractors as a result of this clause. If the prime does not initiate accelerated payments to its first-tier small business subcontractors, no small business subcontractors at any level under that contract will receive the benefit intended by this clause. The clause itself provides no specifics about what constitutes an accelerated payment to the prime, and the Government does not currently identify to prime contractors that it deems a specific payment to be accelerated. The same issue would apply at lower tiers: the clause does not require the prime to notify the 1st-tier supplier that the prime has made an accelerated payment.
2. Lower tier small business suppliers are not eligible to receive the potential benefit if there is a large business supplier at any point between the lower tier small business supplier and the prime. The construction of the flowdown requirement in 52.232-40 (“Include the substance of this clause, including this paragraph (c), in all subcontracts with small business concerns...”) appears to pose an unintended impediment to achieving the intent to benefit small business subcontractors at all tiers. Note that there is no requirement for the prime to accelerate payments to large business subcontractors, or to flow the clause down to large business subcontractors. If all subcontractors at all tiers are small businesses, the benefit conferred by this clause may flow through to the bottom of the supply chain for the contract. However, if a first-tier subcontractor is a large business, then no lower tier small business subcontractors under that large business are eligible to receive the potential benefit. Additionally, existence of a large business at any point in the supply chain prevents the flowdown to lower tier small

business suppliers to that large business. For lower-tier small business subcontractors, whether or not they can benefit from the Government policy seems random, depending on whether there was a large business supplier at any point in the tiers between the small business supplier and the prime. The resulting application of the flowdown seems to be an unintended consequence of the implementation.

In response to the proposed rule under FAR Case 2020-0007 (which revises the current 52.232-40 to implement section 873 of the FY2020 NDAA), one defense industry association offered these comments:

“[We are] pleased to see that the FAR Council intends to apply this rule widely to benefit as many small businesses as possible by including the Simplified Acquisition Threshold and Commercial Items, Including Commercially Available Off-The-Shelf Items. We similarly support the FAR Council’s consideration of “additional regulatory actions to further broaden the reach of accelerated payments to small business subcontractors and welcome public comment on how this broadening might best be accomplished.”

We therefore urge you to include in the final rule an expansion of the provision to apply these payment requirements to large business subcontractors, noting that this action will help “reach lower tier small business subcontractors” and “improve cashflow throughout the supply chain.” Companies of all sizes accelerating payments to subcontractors and sub-tiers—if done to the extent practicable under existing mechanisms and with the government’s agreement and required actions—would assist with timely cashflow, support supply chain stability, and facilitate economic growth. In fact, existing mechanisms and policies are already in place.”

3. The clause structure links acceleration of a small business subcontract invoice payment to the prime contractor’s payment event. As of the time of this writing, DFARS 252.232-7017, a companion clause to 52.232-40, defines an accelerated payment as “a payment made to a small business subcontractor as quickly as possible, with a goal of 15 days or less after receipt of payment from the Government or receipt of a proper invoice from the subcontractor, whichever is later.”³³ Note that this definition presumes that the subcontract payment due date agreed to between the prime and the subcontractor would be later than 15 days after the date the prime receives payment from the Government. In many cases, especially if “payment” in the context of this clause refers exclusively to delivery payments (see discussion on this point in numbered paragraph 5, below), this may not be a valid presumption. The general expectation would be that subcontracts supporting a prime contract would need to be completed before the prime contract could be completed. This, in turn, implies that either the subcontractors have payment terms that may be significantly longer than those between the prime and the Government, or the prime may have (should have) already paid its subcontractors by the time the prime receives payment from the Government. In the latter case, there may be no possibility of accelerating the subcontract payment at the point in time when the prime receives accelerated payment from the Government, thus reducing the potential benefit of this clause to small business subcontractors.

4. The subcontract payment acceleration is not mandatory: the prime’s (and each lower-tier small business subcontractor’s) obligation under this clause amounts to a “best effort”, since the clause only

³³ DFARS 252.232-7017 has since been deleted. The Mar 2023 version of 52.232-40 clause includes the “within 15 days,” but the “whichever is later” phrase is no more. It is noted that the change to 52.232-40 as a result of FAR Case 2020-0007 did not resolve any of the implementation concerns identified in this Study.

requires the prime or the small business subcontractor at any tier to accelerate small business subcontract payments “to the maximum extent practicable”. It appears the Government is giving the primes an actual benefit in the form of accelerated payments, in exchange for a “potential” benefit for “some” small business subcontractors, depending on whether the prime finds accelerated subcontract payments practicable, and whether there is a large business subcontractor between the prime and the lower-tier small business supplier. The Department is unaware of any coordinated effort to validate that prime contractors receiving accelerated payments are actually accelerating payments to small business subcontractors, nor does the clause wording (requiring the prime to accelerate small business payments “to the maximum extent practicable”) provide a basis for enforcement.

5. The clause does not explicitly state whether the acceleration requirement applies only to delivery payments, or to both financing and delivery payments, at either the prime or subcontract level. However, a review of the Office of Management and Budget (OMB) memos and FAR/DFARS cases related to acceleration of payments to small business subcontractors showed that the documents consistently referred to a goal of making payment “within 15 days of receiving a proper invoice”, which implies that “payments” for purposes of this clause are delivery payments only. If the clause is interpreted to apply only to delivery payments (a reasonable interpretation based on the plain language of the clause), the potential benefit to small business subcontractors may be significantly reduced. If the prime or higher tier subcontractor is receiving contract financing, they may receive many financing payments throughout performance, each of which is likely supported to some extent by subcontract performance (and associated subcontract invoices), while by comparison the number of delivery payments is likely smaller, and more closely grouped at the end of prime contract performance. Applying this requirement to both prime financing and delivery payments would significantly improve cash flow for small business subcontractors.

6. The clause does not account for the complexity of delivery payments: if the contract just requires one deliverable, it is easy to understand the link between the subcontract and the prime deliverable. But as the number of contract line item numbers (CLINs) and deliverables grows, it becomes more challenging to track the subcontract item to the delivery payments which are linked to it. Consider, what if the contract requires delivery of 120 end items, 10 per month. A subcontract supplied widget x for all 120 end items. The subcontractor invoiced for all 120 widgets at once, but the prime is invoicing for its related deliverables on a month by month basis. It is not clear whether or to what extent the subcontract invoice payments to be accelerated must be related to the deliverables associated with the accelerated prime contract payment.

The Department concludes there are measures that can be taken to improve small business subcontractors’ prospects of receiving accelerated payments under prime contracts with the federal government, to help ensure the improved cash flow for small businesses which is the intended result of existing statute and Federal and Departmental policies.

Oversight Concerns and Recourse for Non-payment

Section 3 of the report identifies a number of concerns in this area. However, timeliness of subcontract payment *for small business subcontractors* is addressed in the context of the small business subcontracting plan. Contracts awarded to large businesses with subcontracting opportunities will include FAR clauses 52.219-8 Utilization of Small Business Concerns, 52.219-9 Small Business Subcontracting Plan, and 52.242-5 Payments to Small Business Subcontractors.

- 52.219-8 states that “it is further the policy of the United States that its prime contractors establish procedures to ensure the timely payment of amounts due pursuant to the terms of their subcontracts with small business concerns, veteran-owned small business concerns, service-disabled veteran-owned small business concerns, HUBZone small business concerns, small, disadvantaged business concerns, and women-owned small business concerns”. This clause includes no oversight or enforcement mechanisms.
- 52.219-9 requires that the prime’s subcontracting plan will include “assurances that the offeror will pay its small business subcontractors on time and in accordance with the terms and conditions of the underlying subcontract, and notify the contracting officer when the prime contractor makes either a reduced or an untimely payment to a small business subcontractor (see 52.242-5)”. This requirement opens the door to possible oversight of subcontract payment timeliness *for small business subcontracts only*. Per FAR 19.702(c), “any contractor or subcontractor failing to comply in good faith with the requirements of the subcontracting plan is in material breach of its contract”. However, per 19.705-7(a), the penalty for such failure is liquidated damages to be paid by the prime to the Government. FAR 52.219-16 Liquidated Damages-Subcontracting Plan specifies that the liquidated damages are calculated based on “an amount equal to the actual dollar amount by which the Contractor failed to achieve each subcontract goal”. The liquidated damages calculation does not reflect or consider subcontract payment (un)timeliness, meaning there is effectively no penalty for the prime’s failure to comply with the subcontract payment timeliness aspect of the subcontracting plan.
- 52.242-5 requires prime contractors to self-report reduced or untimely payments to *small business* subcontractors. In the context of 52.242-5, “untimely” means more than *90 days past due*. However, the regulatory intent of this reporting is not to trigger the CO to take action to assist the affected subcontractors, but rather to support CPARS performance evaluations (see FAR 42.15). Additionally, it is not clear that primes proactively self-report their subcontract payment issues to the Government, despite the presence of this clause in the contracts.

The notion of establishing 90 days as the definition of a late payment for small business contractors (per 52.242-5, Payments to Small Business Subcontractors) is incongruous with how the Department otherwise does business, and the Department has concerns with this protracted timeline. Contrast, for example, the 30 days to pay invoices under the Prompt Payment Act and the Prompt Payment clauses’ establishment of a 7-day “constructive acceptance” parameter. The Department concludes this is an area to examine in further detail, to assess shortening the timeline defined for late payments for small businesses, currently in FAR 52.242-5.

Section 3 addressed recourses for non-payment and these recourses are available to small businesses. For example, small business *prime* contractors can contact the contracting officer to request assistance in getting an invoice paid, or submit a claim to the contracting officer if the informal request for assistance does not resolve the issue. The contractor will be paid prompt payment interest through the date of payment when an invoice is not paid timely in accordance with the applicable Prompt Payment clause, presuming there is no disagreement over quantity, quality, or compliance with contract requirements. Like their larger counterparts, small business subcontractors have the option of notifying the contracting officer on the defense contract through FAR 32.112-1, Subcontractor assertion of nonpayment, *if they know who to notify*. According to the GMU study, “More than 40% [of

respondents] are not familiar with...FAR 32.112-1, approximately a third of them know about the same, while the balance 24% may have some familiarity. 30% of respondents have actually taken the benefit from it.” (GMU Study, page 159). The Department notes that “may have some familiarity” or a “maybe” response can be construed as “not familiar” – in which case the lack of familiarity is 67% (43% no and 24 % maybe). When breaking down aggregate data further, to look at small businesses whose portfolio consists primarily (80%) of work lower in the supply chain, 64% are not familiar (57% no, 7% maybe), and 0% have actually taken the benefit from it. (GMU Study, page 159)

In response to the Department’s request for comments on the finance study topics, the following comments were received from a small business:

“We are not always informed about ultimate customers or Programs when orders are placed either through the Primes or the Subcontractors. This, however, has improved over previous years.

We are not aware of the Prime Contractor Number. We do not know who the Federal Contracting Officer is. Yes, we would always want to know who to contact regarding issues getting paid.” (ICF Mercantile, LLC)

While the Department believes it would be important for all subcontractors to be aware they are performing under government contracts, this “remedy” would likely not be sufficient to solve problems in this area. As noted in Section 3, FAR 32.112-1 indicates the CO should investigate the validity of the subcontractor’s assertion, and, if the CO finds the prime has failed to comply with the subcontract payment terms, the CO *may* “encourage” the prime to make timely payments to its subcontractors and suppliers, or reduce or suspend progress payments.

Conclusion

Small businesses are a critical contributor to the Defense Industrial Base, and it is common for small businesses to support the Department at lower tiers in the supply chain. Therefore, the prior discussion in Section 3 about improving cash flow benefits to the subcontractor and supplier level has particular significance to small businesses. Regulatory changes are one avenue to explore to improve small business subcontractors’ prospects of financing and timely payment. In addition, ongoing Departmental efforts to address concerns about accounting system requirements should help small businesses.

Recommendations

The Department recommends further exploration of the concepts detailed below; each recommendation has a bracketed reference to the summary table in the Executive Summary:

- First, the Department echoes the recommendations in Section 3 to explore the following options to improve the business environment for subcontractors, help attract new entrants to the marketplace, and retain existing participants, including small businesses as prime contractors and throughout the supply chain:
 - Make prompt payment terms, including interest for late payment, applicable to subcontracts [Action 2a]
 - Improve subcontractors’/suppliers’ cash flow and payment terms if the “Incurred Cost” rule (that supplanted the “paid cost rule”) is to remain in place [Action 2b]
 - Improve Oversight of subcontract invoice payment timeliness [Action 2c]

- Make sure subcontractors are aware they are performing on a DoD Contract, and that they know the prime contract number and contracting officer contact information [Action 2d]
 - Improve the implementation of accelerated payments to subcontractors [Action 2e]
- Second, the Department finds it would be beneficial to small businesses to shorten the timeframe of 90 days, which is currently how late payments are defined (reference FAR 52.242-5, Payments to Small Business Subcontractors.) [Action 2f]
- Third, the Department finds it beneficial to small businesses to have ongoing access to the 95% progress payment rate introduced by Class Deviation 2020-00010 and recommends DoD retain the deviation rate of 95% for small businesses. [Action 3c]
- Fourth, to improve accelerated payments to subcontractors, the following actions could be taken:
 - Decouple payments to suppliers from payments to prime contractors in FAR 52.232-40, in order to vastly broaden the extent to which small businesses performing as first tier subcontractors and suppliers can benefit
 - Flow the clause down to large business subcontractors, in order to enable the benefit to flow to all lower tier small business subcontractors and to improve cashflow throughout the supply chain
 - Resolve whether the policy applies to contract financing payments
 - Establish a mechanism that notifies companies they are receiving accelerated payments [Action 2f]
- Finally, the Department concludes there is an opportunity to develop a new form of contract financing to meet the general financing needs of small businesses. This financing could be time phased and not require a government accounting system but would provide less financing than its counterparts of progress payments and performance-based payments. The Department would set the parameters based on the period of performance of the small business acquisition and utilize a simple approach, in order to avoid delays to negotiations and to avoid introducing complexity into competitive acquisitions. This could be established as a pilot. [Action 4]

Exhibit 4-1, Third Party Cash Flow Options for Government Contracting

As part of the Defense Contract Finance Study, the Department heard about the commercial practice of providing working capital for U.S. Government small business contractors by financing accounts receivable. Both academia and the public noted this practice. To gain further insights into this commercial marketplace for financing receivables, the Department conducted a brief review of over 20 companies advertising such services and found that they offer a range of cash flow options for government contracting, including those targeting accounts receivable. The table below identifies service offerings targeted to government contracting found during DoD's market research.

Summary of Options Found during Market Research
(Gray = Offered Service)

	State	Accounts Receivable Factoring	Accounts Receivable Loans	Purchase Order Financing	Machinery/ Equipment Financing	Financial Commitment Letters	Acquisition/ Expansion Funding	SBA 7(a) SBA504 Loans	Line of Credit	Term Loans
Company A	PA									
Company B	VA									
Company C	TX									
Company D	NY									
Company E	MI									
Company F	GA									
Company G	CA									
Company H	VA									
Company I	CA									
Company J	MD									
Company K	TX									
Company L	FL									
Company M	NY									
Company N	NY									
Company O	WV									
Company P	CA									
Company Q	VA									
Company R	VA									
Company S	MD									
Company T	TX									
Company U	NY									
Company V	SC									

Key to Terms:

Accounts Receivable Factoring (Invoice Factoring)	The sale of your accounts receivable to a buyer (or factor), that lets your company access funds beyond its own equity, based on the strength of your customers' credit. Supplier/Buyer receives invoice. Buyer provides up to X% of the eligible funds from the invoice immediately. Once your customer has paid, you receive the rest with a deduction of a small administrative fee to cover expenses for interacting with the client and arranging payment details. (Invoice Factoring-Invoices are purchased at a discount to provide immediate availability of funds.)
Accounts Receivable Loans (Invoice Financing)	Financing arrangement in which a company receives financing capital related to a portion of its accounts receivable.
Purchase Order Financing	After a large purchase order is secured, it is considered an asset and a lender can provide capital and use the PO as collateral.
Machinery/Equipment Financing	Provides financing to existing clients with a line of credit for the acquisition of machinery and equipment (five year amortization). Relies on collateral valuation; no requirement for a working capital line of credit for eligibility for this machinery and equipment lending product.
Financial Commitment Letters	Demonstrate financial capability in order to win contract awards.
SBA 7(a) Loans	Guide the small businesses through the SBA loan process each year. The SBA 7(a) and SBA 504 loan programs provide many advantages for businesses seeking capital.
Acquisition Funding (Expansion Financing)	Includes funding for large-scale receivables and equipment purchases and is considered asset-based lending which considers: invoices or inventory, accounts receivable financing, qualifying receivables, and invoice factoring.
Line of Credit (Working Capital)	A business line of credit provides on-demand funding for the company. There are many types of lines of credit ranging from unsecured, meaning that it is not backed by any kind of assets; to secured, backed on a general basis by all assets of the company, or by specific assets that are structured into the funding formula of the line of credit. Can be based on accounts receivable, delivery orders, billed invoices or work in progress.
Term Loans (Asset Based Lending)	Designed to pay for fixed assets such as business equipment or commercial real estate. They are a static loan for a specific use.

The Federal Assignment of Claims Act (FACA): Offers protections and benefits to factoring companies that provide government contract factoring services. For assigned government contract payments, a factoring company must file a UCC-1 financing statement under Article 9 of the UCC in order to perfect its security interest, just like any other accounts receivable. However, a factoring company must comply with FACA if it intends to acquire certain rights and protections as it pertains to its assigned interests in government contract payments. FACA requires factoring companies send an original and three copies of the notice of assignment together with a true copy of the assignment document to the following persons:

1. Contracting officer or government agency head
2. Surety on any bond applicable to the contract
3. Disbursing officer designated in the contract to make payment.

The true copy should be a certified duplicate or photostat copy of the original assignment. Proper FACA assignment gives factoring companies the following protections and benefits:

1. The government is obligated to make contract payments directly to the factoring company's bank account.
2. The government cannot claw back any contract payments received by the lender that were made in error.
3. The borrower (government contractor) is unable to redirect the government contract payments.
4. The factoring company has the right to pursue collection of a government contract receivable directly against the government.

Factoring companies usually want payments sent directly to them after they have entered a factoring agreement. A factoring company will comply with FACA regulations, so they get government payments sent directly to their bank account, rather than their client's. If a government contractor has a number of small contracts with different government agencies, then a factoring company may not require the client provide FACA assignments at the closing of a factoring agreement, but instead retain the right to require them at a later date if necessary. The factoring company still perfects its interest through the UCC filing, but it forgoes any protections and benefits afforded by the FACA assignment.

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DEPARTMENT OF DEFENSE

Contract Finance Study

SECTION 5

ACCOUNTING SYSTEM AND RELATED GOVERNMENT REQUIREMENTS

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Section 5. Accounting System and Related Government Requirements

The requirement for a government-compliant accounting system is one of several requirements frequently cited as a barrier for companies seeking to do business with the Department. Further, additional accounting-related requirements such as Cost Accounting Standards (CAS), and the Cost Principles, are also cited as a barrier for companies looking to enter the Defense Industrial Base. While government unique accounting requirements may seem daunting, it is important to first objectively evaluate what the requirements are and when they apply. The purpose of this portion of the study was to obtain as much objective information in this area as possible, to:

- improve the Department’s understanding of whether this barrier is real, perceived or a combination of both;
- gain insight into the effects of the applicable regulations and how they overlap;
- establish the extent of commonalities and differences between a government-compliant accounting system and Generally Accepted Accounting Principles (GAAP, which must be followed by publicly traded companies); and
- gain insight into the cost of implementing a government-compliant accounting system.

Methodology

This portion of the study was informed by George Mason University’s (GMU’s) “Examination of Government Accounting System Requirements” and by the Department’s own analysis of data obtained from Federal Procurement Data System Next Generation (FPDS-NG) and DoD’s Contract Business Analysis Repository (CBAR).

Highlights

Cost accounting standards (CAS) do not apply to all entities seeking to do business with the Department. Only 2.2 percent of the total population of the DoD contractors had CAS-covered contracts in the past three years.

Some contract awards require a government-compliant accounting system—not a CAS-compliant one—depending on contract type and government financing type. Just 12.34 percent of DoD prime contractors required a government compliant accounting system in the past three years. While this population is larger than those subject to CAS, it is still a small minority of the overarching population.

When a company sets up and maintains such an accounting system, those costs are typically allowable and the company can allocate a portion to its government contracts, as appropriate. The approved accounting system enables companies to perform on a wider range of contract types.

The Department provides contractors with several resources to help obtain and maintain government-compliant accounting systems. Through education and outreach featuring objective facts, the Department can work to dispel misconceptions about CAS and government-compliant accounting system requirements that prospective contractors and suppliers may perceive as a barrier to entry.

[Applicability of Government Requirements](#)

Cost Accounting Standards Applicability

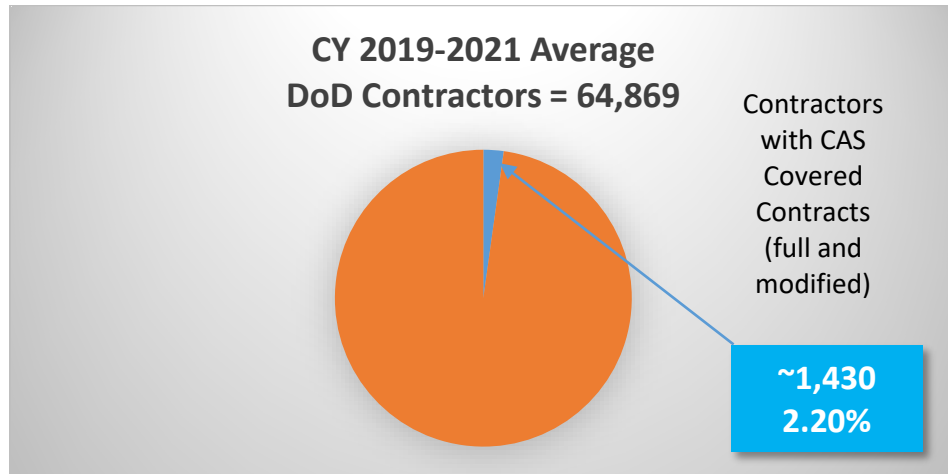
In addressing the applicability of requirements, addressing Cost Accounting Standards (CAS) is a natural place to start, especially in order to dispel misconceptions in this area. First, it is imperative for all stakeholders to understand that CAS do not apply to all entities seeking to do business with the Department and there are several exemptions. For instance, CAS does not apply to small businesses or commercial contracts. Any offeror seeking to provide commercial goods and services to the Department will never be subject to CAS, no matter the contract value. It also does not apply to contracts awarded based on sealed bids, or adequate price competition if the contract is firm-fixed price, and there are several other exemptions. Even when CAS does apply, there is modified and full CAS, with modified requiring compliance with only a small subset of the CAS principles. GMU provides more insight into the CAS exemptions and explains modified and full CAS in more detail. (George Mason University, 2022, pp. 22-23)

For new businesses seeking to become part of the Defense Industrial Base, the numerous exemptions to CAS, in addition to the fact that only modified CAS applies to smaller contracts, should be considered good news. That is not to imply that CAS is inherently problematic, as it serves a very meaningful purpose in the contexts in which it applies. Federal statute, specifically Section 422 of Title 41 United States Code, explains the purpose of CAS is “to achieve uniformity and consistency in the cost accounting standards governing measurement, assignment, and allocation of costs to contracts with the United States.” Title 48, Chapter 99 of the Code of Federal Regulations (CFR) stipulates that CAS is to ensure that each contractor’s practices used in estimating costs for a proposal are consistent with cost accounting practices used by said contractor in accumulating and reporting costs. Without a uniform standard of accounting, it would be very challenging for the Government to evaluate cost across a wide-array of contractors in a meaningful, expeditious manner. In summary, CAS ensures that contract costs are appropriately allocated to Government contracts, and that there is consistency regarding how contractors estimate cost for proposals and report cost when performing under federal contracts. While CAS requires a more detailed accounting for cost than GAAP, it serves an important purpose for the limited contracts where it is required. So, while it is important to acknowledge the purpose, it is equally important to understand the extent to which CAS applies to Government contracts when examining whether or not it serves as a barrier for companies seeking to enter the Defense Industrial Base.

To that end, the Department examined the applicability of CAS in the overall context of defense contracts, looking at CAS coverage from two perspectives: the number of contractors to which it pertains and the associated contract dollar amounts. Data was obtained from FPDS-NG for a period of three full calendar years (2019-2021) and averaged.

Figure 5-1, below, depicts CAS applicability in the context of the number of contractors.

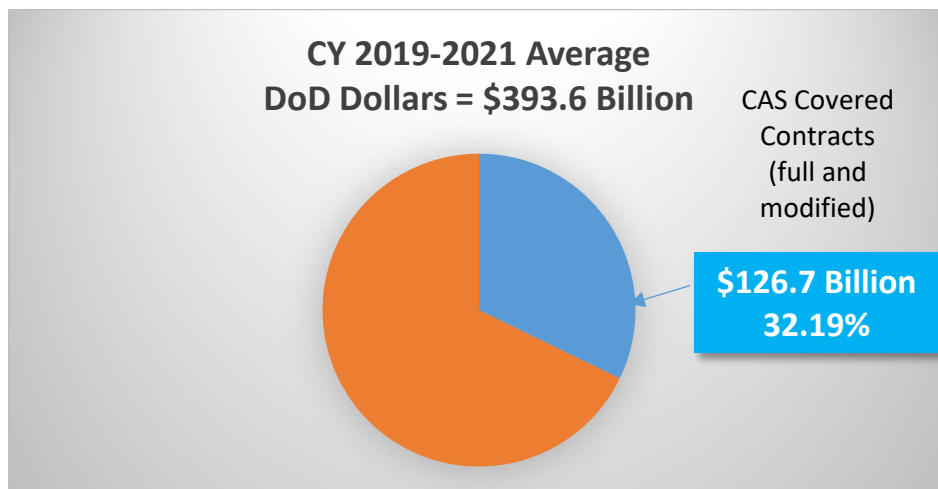
Figure 5-1, Total DoD Contractors Subject to Cost Accounting System (CAS) Coverage (CY 2019-2021)
(Source: FPDS and CBAR)



This pie chart shows an average of 64,869 prime contractors performing DoD contracts from Calendar Years 2019 through 2021. Of the total population of contractors, approximately 1,430 had CAS-covered contracts. This represents 2.2% of the population. When consolidating the contractors subject to CAS to those that report to the same parent company, the value is reduced to 1,020 or 1.57% of the population. Clearly, this is a very limited subset of companies.

The second context of CAS coverage is dollars, which is shown in Figure 5-2, below.

Figure 5-2, Total DoD Dollars Subject to Cost Accounting System (CAS) Coverage (CY 2019-2021)
(Source: FPDS and CBAR)



This chart tells a very different story. Unlike the small number of prime defense contractors subject to CAS, when examining CAS applicability as it pertains to prime contract dollar values, it is much larger by comparison. This is an inherent function of the nature of those contracts and who is performing them. GMU recognized this in their report, stating:

CAS, however, is usually required when the Government negotiates a sole source effort with a large contractor. (George Mason University , 2022, p. 1)

In fact, the dollars make sense when considering that the top 50 defense contractors received just over half of the total obligations between 2019 and 2021. When reviewing the companies who receive the greatest percentage of DoD contract obligations, it is clear that this subset is predominantly traditional defense contractors which already have systems in place that accommodate CAS.

In summary, CAS serves a very important function but the companies that will be required to comply are very limited due to numerous CAS exemptions. Small businesses and even large businesses, if they meet another exemption such as providing commercial products or services, are never required to be CAS compliant. Even if a small business is seeking to grow, or a large business is seeking to expand their government contracts to the extent CAS is required, in many cases only modified CAS will be required. Only when a company grows their business by pursuing large dollar contracts that meet no other exception, will they be required to be fully CAS compliant. For these reasons, CAS should not be perceived as a barrier to entry and educating prospective contractors as to the objective facts regarding CAS applicability and compliance should be a priority to dispel misconceptions.

Government Compliant Accounting System Applicability

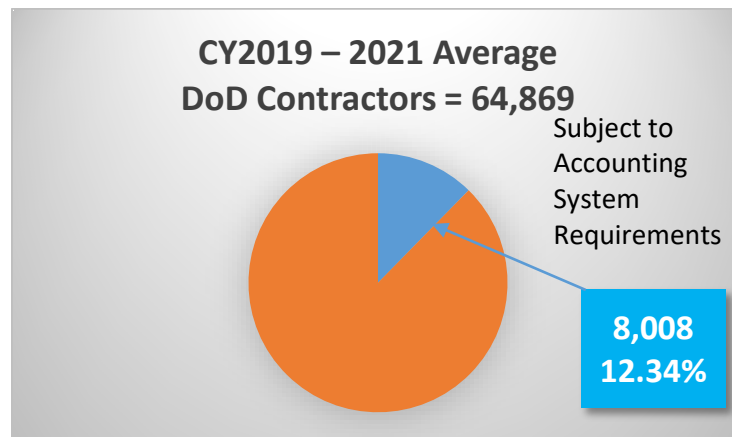
The requirement for a government-compliant accounting system applies to Federal Acquisition Regulation (FAR) Part 15 (non-commercial) contracts that are cost-reimbursable, incentive type (such as fixed-price incentive (firm target) (FPIF)), time and materials (T&M) and labor hour (LH), and contracts regardless of type that include progress payments. Small businesses are not exempt from these requirements, and a commercial company that is pursuing a T&M contract may also have to have a government-compliant accounting system. It is critical to understand, however, when government-compliant accounting-system requirements pertain to contracts: the underlying circumstance is when the Government is paying for contracts based on the accumulation of actual cost. The Government has a fiduciary responsibility to negotiate and administer contracts based on accurate financial data and therefore must ensure the contractor's accounting system can gather, record, classify, analyze and present accurate information.

In actuality, all companies have accounting systems to organize financial information, inform management decisions, and achieve financial goals. Publicly-traded companies are required to comply with GAAP and must have accounting systems that ensure it can do so. Even private firms have accounting systems and the specific needs of their business will drive how detailed their accounting practices will be. GMU discusses this in their report stating, "Private commercial companies are not beholden to any accounting system requirements beyond what is needed to satisfy their own functional business needs and possibly a few external stakeholder needs due to loan covenants" (George Mason University , 2022, p. 15). While there is a parallel concept in the commercial sector, there are unique government requirements and companies will have to make an investment to ensure compliance.

That being the case, it is first important to understand the general applicability of these requirements in the context of DoD contracting. The Department examined the number of contractors required to have a government-compliant accounting system, and the percent of total obligations subject to the accounting system requirement, using a similar methodology as the one used in evaluating CAS applicability, using FPDS-NG data.

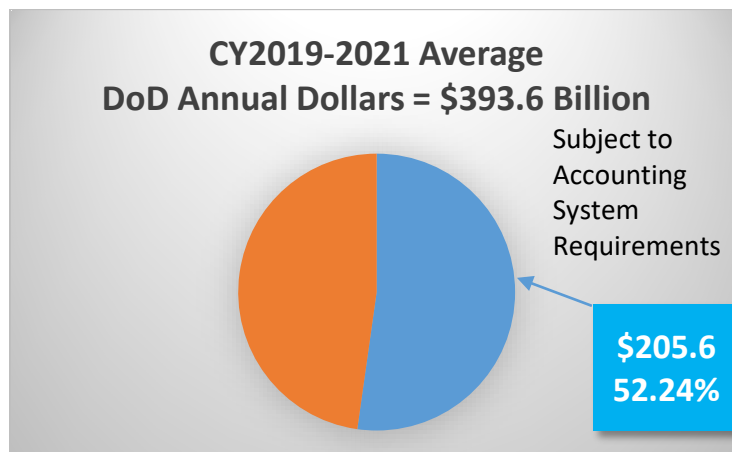
Figure 5-3, below, shows the total number of contractors awarded DoD contracts in CY's 2019-2021, and the subset of those required to have a government-compliant accounting system. Only 8,008 of the 64,869 prime contractors were subject to the requirement to maintain a government-compliant accounting system. While this population is larger than those subject to CAS, as expected, it is still a small minority of the overarching population, representing just 12.34%.

Figure 5-3, Total DoD Contractors Subject to Government-Compliant Accounting System Requirement (CY 2019-2021)
(Source: FPDS and CBAR)



The second context of accounting system coverage is by dollars, as depicted in Figure 5-4.

Figure 5-4, Total DoD Dollars Subject to Government-Compliant Accounting System Requirement (CY 2019-2021)
(Source: FPDS and CBAR)



As the graph depicts, \$205.6B of the average annual DoD dollars are subject to accounting system requirements. As expected, the contract dollars subject to government-compliant accounting system requirements are greater than the contract dollars subject to CAS.

Government-Compliant Accounting System Requirements, Cost to Implement – An Investment or Barrier?

According to DFARS 252.242-7006, in general, an acceptable accounting system will provide reasonable assurance that applicable laws and regulations are complied with, there is low risk of misallocations and mischarges, and contract allocations and charges are consistent with billing procedures. Contractor accounting systems must comply with 18 mandatory criteria stipulated in DFARS 252.232-7006. GMU generalizes the primary purpose for the accounting system regulations are to address how costs are classified, segregated, allocated, and reported by government contractors (George Mason University , 2022, p. 16). Maintaining a government-compliant accounting system does require more detailed segregating, accumulating and reporting of cost than GAAP requirements, and most likely more than those maintained by private businesses; however, these criteria do serve an important purpose: to ensure public funds are spent responsibly.

Foundationally it is easy to understand why the Government requires companies to maintain compliant accounting systems that provide detailed cost accounting; however, it is important to evaluate whether the government-approved accounting system serves as a deterrent for a prospective contractor.

Accordingly, GMU considered the investment and long-term cost for companies that develop and maintain government-compliant accounting systems in its study. GMU looked at start-up costs, annual costs such as employee costs, and software costs. Overall, there appeared to be a lack of data available from the companies interviewed by the University. GMU obtained data where possible and ultimately looked at compliance cost as a percentage of revenue, from a first year implementation high of 4% to estimates ranging from 0 to 1.5% of revenues for maintenance (George Mason University , 2022, p. 67; Table 8). GMU also noted that costs of compliance could potentially be recovered through indirect rates, and therefore a company could recover the cost invested in implementing and maintaining approved systems. Cost associated with setting up and maintaining the accounting system would typically be allowable and a portion could be allocated to Government contracts when appropriate. Through its interviews with companies that had implemented government accounting systems, GMU captured negative impacts on operations, including in the area of time-keeping, but noted advantages as well, such as more “rigorous attention to costs” (George Mason University , 2022, p. 72).

While there is investment cost, and long-term cost in maintaining the system for the small subset of companies that are required to have an approved system, GMU noted that there is no evidence to suggest that system requirements are so onerous as to create a barrier to entry into the defense base. Specifically, GMU states, *“Despite the concerns expressed by some government agencies and commercial companies, existing empirical evidence of accounting system requirements acting as a barrier for commercial companies to become federal contractors is relatively scarce.”* (George Mason University , 2022, p. 3).

Given GMU did not identify any empirical evidence that accounting systems serve as a barrier, it is tempting to declare victory on this topic. The Department, however, recognizes that perception can become reality, and lack of knowledge regarding accounting systems could, de facto, serve as a barrier.

Accordingly, the Department believes the best way to combat this perception is to educate potential new entrants. First, it is important to point out that while there are government-unique criteria, prospective contractors must understand the pervasiveness, or the extent to which these requirements apply, and more importantly do not apply. The preponderance of companies that perform on

government contracts, nearly 88% (see Figure 5-3), are not subject to accounting-system requirements, according to the Department's data analysis. Among the companies that are required to maintain a government-compliant accounting system, it is not inconceivable to imagine that a subset elected to obtain a government-compliant system to receive the benefit of increased cash flow via progress payments.

Second, while it is important to relay that the requirement is not pervasive, it is also critical to educate prospective contractors as to when government-compliant accounting system will be required, and the criteria to obtain and maintain a government-compliant accounting system so they can make informed decisions regarding whether or not to make the investment. Accordingly, the Department provides contractors with several resources regarding obtaining and maintaining government-compliant accounting systems. The Standard Form 1408, which is a pre-award survey of a prospective contractor's accounting system, provides administrative contracting officers with an evaluation checklist designed to assess whether a prospective contractor has a government-compliant accounting system in general, to make sure they can perform on government contracts.³⁴ This checklist could also be a great resource for contractors that may be interested in pursuing defense contracts, as a means to determine whether or not they already have a government-compliant system in place, and if not, some of the basics that it may entail. While the checklist is not comprehensive regarding all accounting system requirements, it is still useful. Additionally, Defense Contract Audit Agency provides ample guidance for companies via their website (www.dcaa.mil). Specifically, DCAA has compiled a pre-award accounting system checklist that contractors can use to assess whether or not they meet the requirements for a government-compliant accounting system. More importantly, DCAA has a small business focal point to provide assistance and consultation to small businesses regarding audit requirements, including those pertaining to accounting systems. As part of its small business resources, DCAA provides guidance on accounting systems to include frequently asked questions and a presentation covering accounting system requirements and criteria. Furthermore, Defense Acquisition University (DAU) has worked in partnership with other agencies in the Department, such as DCAA, to improve the educational resources available to the general public in this area. This includes the "All Things Small Business" podcast available at [All Things Small Business - Defense Acquisition University \(dau.edu\)](http://All Things Small Business - Defense Acquisition University (dau.edu)),³⁵ which includes recorded sessions, and covers topics such as government contract pricing and DCAA.

Cost Principles

Cost principles, which are codified in FAR Part 31, are another area GMU studied in its report. Cost principles are required for the pricing of contracts, subcontracts and modifications whenever cost analysis is performed, or for the determination, negotiation, or allowance of costs when required by a contract clause. More specifically, companies performing on cost-reimbursable, time and materials, and labor-hour contracts, and fixed-price contracts where cost analysis is required to determine price reasonableness, such as those that are negotiated based on certified cost or pricing data, are required to abide by the cost principles. The cost principles in FAR Part 31 address allowability of costs and

³⁴ The cognizant administrative contracting officer, in consultation with the auditor or functional specialist, will use the information collected on the SF 1408 to evaluate a contractor's accounting system in order to make an initial adequacy determination. Subsequently it may be subject to periodic audit to ensure it continues to be government-compliant.

³⁵ <https://media.dau.edu/channel/All%2BThings%2BSmall%2BBusiness/170596291>

specifically cover those that are unallowable. GMU makes an important distinction, stating “The concept of unallowable costs is a unique one to government contracting and is typically not a concern in the conduct of commercial practice” (George Mason University , 2022, p. 19). However, GMU also notes that “...there is some overlap between the concept of unallowable cost and ‘nondeductible’ costs, the latter of which [nondeductible costs] is used by the Internal Revenue Service (IRS) to identify expenses that cannot be subtracted from a company’s [gross] income before it is subjected to taxation.” GMU explains several cost categories can be identified as both unallowable and nondeductible, such as entertainment cost. (George Mason University , 2022, p. 19). As a result, it is likely that if a company can account for cost at a detail level such that they can segregate deductible and nondeductible cost for IRS purposes, that segregating allowable from unallowable cost for government contract purposes would not present a challenge to the extent it would be a barrier.

Any company that must adhere to cost principles, has to have an accounting system that allows it to segregate allowable, and unallowable costs such that they appropriately charge, or do not charge, costs to government contracts. Implementing an accounting system that allows for more detailed cost accounting than what may be performed in commercial business transactions, would be the main investment a company would have to make. There are other significant considerations regarding cost principles; companies that may wish to pursue government contracts could review cost principles in FAR Part 31 to understand what is required and assess the investment they will need to make which would likely include a potential investment in a more detailed cost accounting system. Contractors that require assistance in developing or improving their accounting systems and procedures may obtain a copy of the Defense Contract Audit Agency Pamphlet No.7641.90, Information for Contractors.³⁶

Conclusion

This portion of the study provided great insight into government accounting-related requirements and the extent to which they apply to the Defense Industrial Base. It is noteworthy that for the majority of companies that do business with the Department, many of the government-unique requirements, such as CAS, or having a government-compliant accounting system, will never apply, such as those companies that sell commercial goods and services to the Government. Government-unique requirements may be perceived as a barrier to entry, even if the requirements do not actually apply. Where the requirements do apply, the Department acknowledges some companies may find such requirements challenging to implement if the predominance of their accounting systems and procedures are based on commercial applications and business to business transactions. Therefore, the Department finds that education is a key to advancing its efforts in attracting new entrants into the Defense Industrial Base, both small and large.

³⁶ Available at https://www.dcaa.mil/Portals/88/Documents/Checklists%20and%20Tools/ICE/DCAAM_7641.90.pdf?ver=2019-03-07-153300-960

Recommendations

The Department recommends the action detailed below; the recommendation has a bracketed reference to the summary table in the Executive Summary.

The Department should focus on educating prospective contractors on two important points regarding accounting system requirements. First, the Department must ensure companies understand the applicability of the requirements to begin with, such that most companies will never be required to comply, or will be required to do so on a limited basis. Second, the Department needs to increase efforts to educate companies regarding the requirements and support them if they choose to pursue contracts that will require compliance with one or more of the accounting-related requirements.
[Action 5]

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DEPARTMENT OF DEFENSE

Contract Finance Study

SECTION 6 OTHER MATTERS

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Section 6. Other Matters

This section addresses the following study topics

The Impact of COVID-19 and Inflation on the Defense Industry

The 1985 Defense Financial and Investment Review (DFAIR) Study Revisited

Performance-Based Payments

Unallowable Interest Expense

Recommendations associated with these topics appear at the end of the specific topic area, rather than at the conclusion of this section. Not all topic areas have associated recommendations.

The Impact of COVID-19 and Inflation on the Defense Industry

The university teams were asked to evaluate the health of the defense industry over the twenty-year period (2000-2019) that preceded the COVID-19 pandemic in order to avoid skewing the results based on what could have been extraordinary economic circumstances caused by the pandemic.

Based on the following comments from a defense industry association, DoD expected to find a dramatic degradation of financial performance due to COVID and inflation to date across the defense industry.

For example, the COVID-19 pandemic impacted industries across the entire economic spectrum and did not spare the Defense Sector. This is particularly true for companies that maintain both defense and commercial applications. These companies, due to the pandemic and the subsequent widespread shutdown of the economy, saw their margins eviscerated and internal business planning severely disrupted. This extended across the supply chain, as both large and small companies experienced disruptions, delays, and other hindrances that ultimately had serious ramifications on financial health.

Yet, while the pandemic continues to evolve and impact society in new ways, a new issue has developed which is proving increasingly devastating: Inflation. Historically, inflation has existed at a level between 2-2.5%, allowing for a certain degree of stability when budget planning. However, as this economic indicator has risen dramatically over the preceding year, entities across the DIB have felt the effects of rising prices.

This is especially relevant for smaller companies that operate on firm-fixed price contracts. As costs rise, and with few remedies available to alleviate this, smaller DIB companies are finding their margins eroded. This makes it increasingly difficult to remain financially solvent, leading some to question the wisdom of remaining within this sector at all.

Therefore, DoD looked at financial data for 2020, 2021 and 2022 YTD to determine whether the data correlated to these defense industry observations. As discussed below, the data in the examined population did not support the implication that COVID-19 had serious ramifications on financial health across the defense supply chain. The contractors most affected are the ones with commercial business segments or with business segments for which commercial revenue is a significant percentage of total segments revenue.

Baseline Examined

DoD looked at financial data for 2020, 2021 and 2022 YTD for the 49 firms with reported revenue in 2019 evaluated by the University of Tennessee (UT) in its study (see appendices for the UT Study), to determine whether the data supported the defense industry association statement. The 49 firms received over 40% of total DoD obligations in 2019.

For those 49 firms, DoD calculated the same financial measures shown in Figure 6-1 for the same periods, 2000-2009 and 2010-2019 but then analyzed the data for 2020-2021, which would reflect the impact of COVID-19, and the data for the Trailing Twelve Months (TTM) as of November 2022³⁷, which would reflect the impact of the rise in inflation to date. Figure 6-1 had data for additional firms as some firms were in existence in prior periods but no longer existed in 2019. To be consistent, pre-2019 data only for firms in existence in 2019 was used in this analysis.

In examining the data for those 49 firms, it became clear that Boeing's Commercial Aircraft segment was tremendously affected by COVID-19 and the impact it had on travel world-wide. The goal of the analysis was to understand the extent to which the defense industry overall was impacted by COVID-19 and the rise in inflation to date. Therefore, it was necessary to observe the results with and without the Boeing data included. As the analysis proceeded, the impact of COVID-19 on the commercial activities of smaller firms also became apparent.

Based on Boeing's size and because it has distinct commercial and defense segments, it warrants a detailed review in this context, which is presented in Exhibit 6-1 at the end of this Section. While the impact of COVID-19 on the defense industry overall has been relatively minor, for the first time, in 2022, Boeing's defense segment is reporting a loss through the third quarter. Since Boeing defense segments did not report a single annual loss from 2020 through 2021, the circumstances surrounding the reported loss in 2022 deserve additional analysis.

As shown in Figure 6-1, when the Boeing financial data is included, it would give the impression that the impact of COVID and inflation to date has been significant on the entire defense industry. However, as shown in Figure 6-2, when the Boeing financial data is excluded, the financial data for the other 48 firms shows that the financial situation actually improved in three of the four measures after 2019.

³⁷ 27 contractors reported financial results through September 2022, 13 through June 2022, 4 through July and August 2022, and 1 through March 2022. Four firms became part of a merger or acquisition after 2019.

Figure 6-1

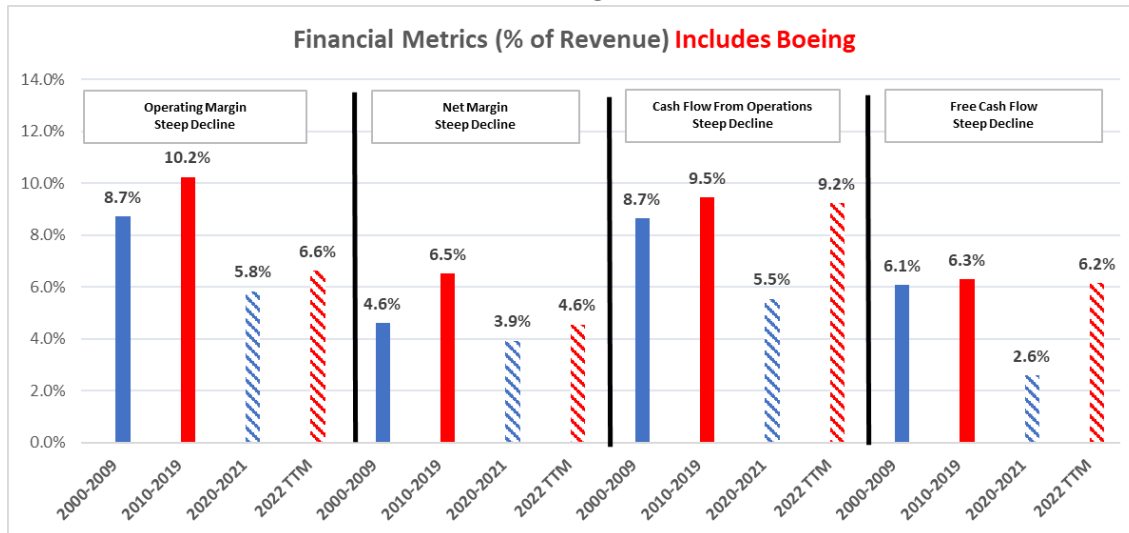
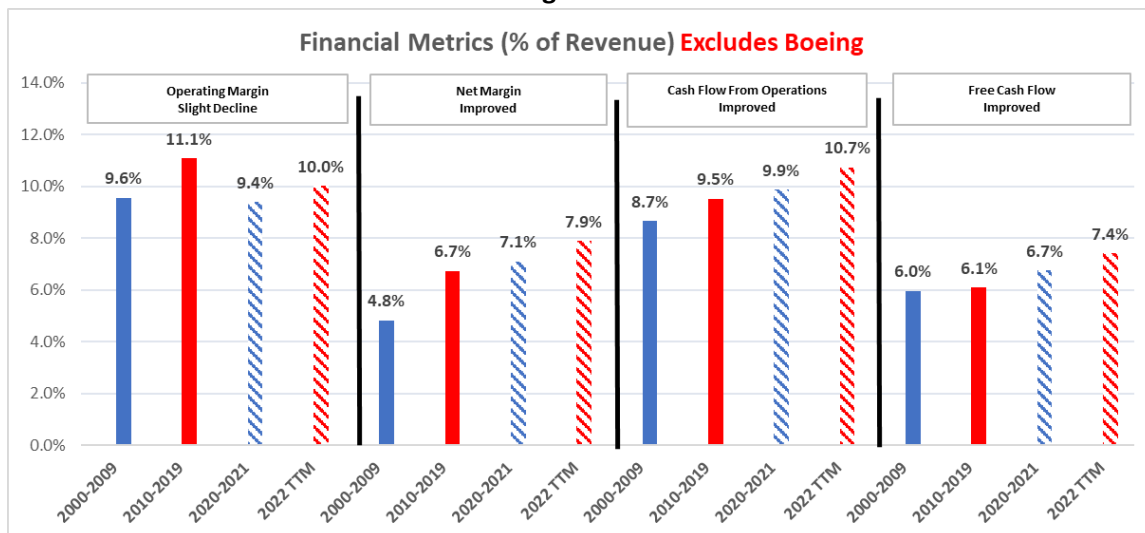


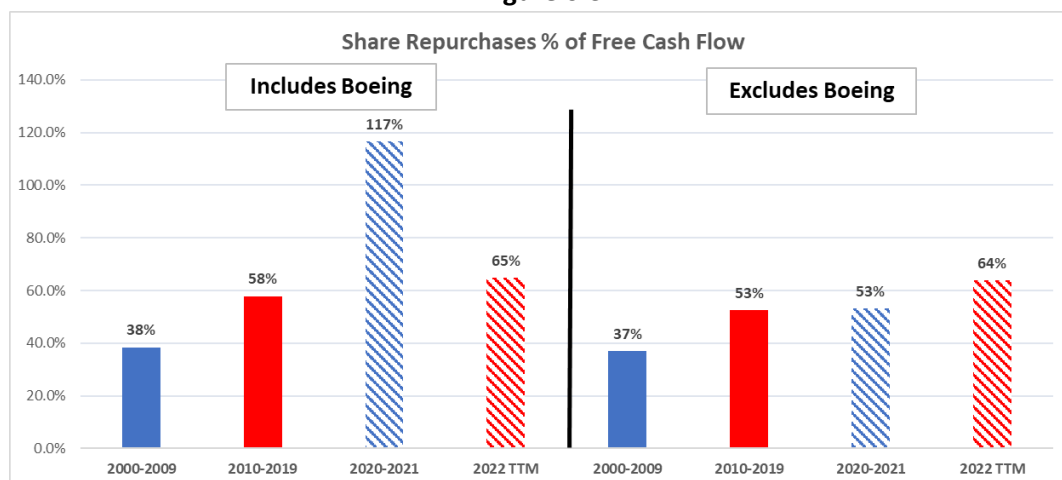
Figure 6-2



The improvement in net margins and cash flow is particularly relevant in regard to the arguments that defense industry associations made as to the cash companies spend on capital expenditures and IR&D. As shown below, neither the COVID-19 pandemic nor the rise in inflation to date slowed the defense contractor spending on share repurchases as the spending as a percentage of free cash flow increased. If the defense industry had been significantly impacted by COVID-19 and inflation to date, DoD would have expected to see a more conservative approach to cash management with more cash being held

rather than being paid out to shareholders in the form of share repurchases. Figure 6-3 also highlights how including Boeing data can change the overall picture in 2020 and 2021.³⁸

Figure 6-3



The information in Tables 6-1 through 6-3 is for all 49 firms combined, excluding Boeing data where noted. UT had presented information based on grouping the firms into the Top 10 and Rest of Industry. Therefore, the same data is presented in Figures 6-4 through 6-6 based on those groups. This data revealed that the Top 10, excluding Boeing, improved in three of the four financial measures since 2019 while the Rest of Industry showed a decline in all four measures in 2020-2021 but a recovery in operating and net margins in 2022 TTM.

³⁸ Boeing has not repurchased shares since 2019. Boeing has also had negative FCF since 2019, significantly so in 2020-2021. Including Boeing, *reduced* Total FCF resulting in the appearance of a dramatic increase in the 2020-2021 percentage. Since FCF is the denominator used in deriving the percentages, a reduction in FCF, not an increase in share repurchases, created the spike in 2020-2021. When Boeing data is excluded, the increase appears in 2022 TTM when share repurchases did increase.

Figure 6-4

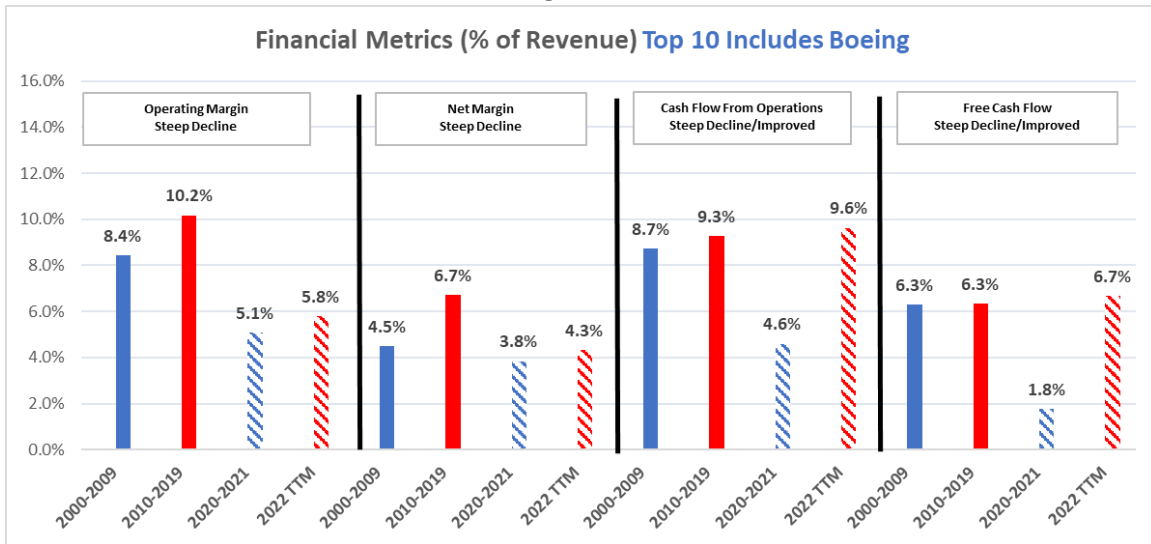


Figure 6-5

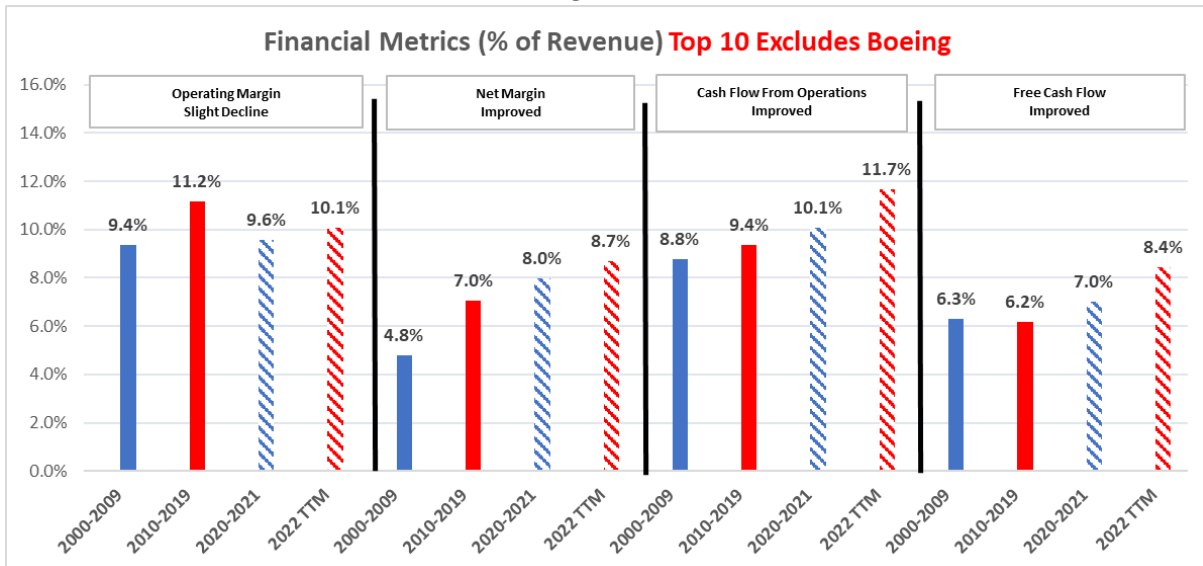
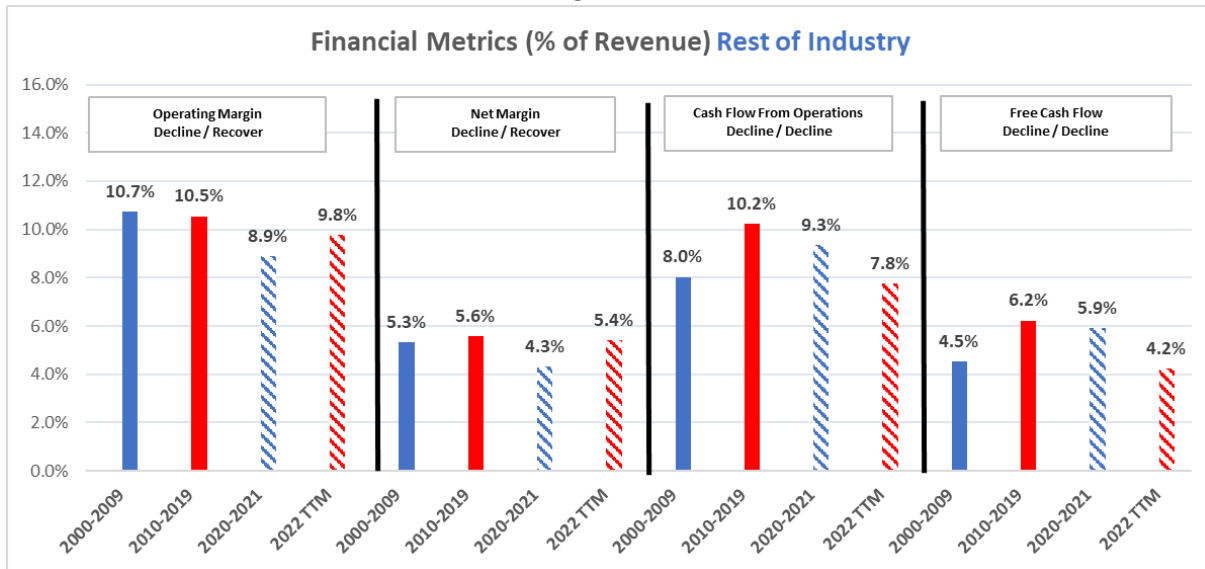


Figure 6-6



The disparity in performance between the Top 10 and Rest of Industry was less pronounced in the twenty years preceding the COVID-19 pandemic which caused DoD to look more closely at the data. The size of the firm appeared to matter but the commercial content, as evidenced by Boeing, clearly played a major role as well. DoD decided to disaggregate the data further.

Impact based on Size of Firm

First, as shown in Table 6-1, DoD looked at a further classification of the 49 firms based on size using the following criteria and 2019 revenue: Less Than \$1 Billion, \$1 Billion to < \$10 Billion, and \$10 Billion or More.

Table 6-1

2019 Annual Revenue	# of Firms	% of Total Firms	Total 2019 Revenue	% of 2019 Total Revenue
Less Than \$1 Billion	19	39%	\$ 6,580	2%
\$1 Billion to < \$10 Billion	22	45%	\$ 84,787	21%
\$10 Billion or More	8	16%	\$ 303,307	77%
Total	49	100%	\$ 394,674	100%

As shown in Figure 6-7, these size categories revealed a marked difference in financial performance in terms of Operating Margin for firms with less than \$1 Billion in annual revenue. The results for firms

with between \$1 Billion and \$10 Billion in revenue and those with \$10 Billion or more were relatively close.

Figure 6-7

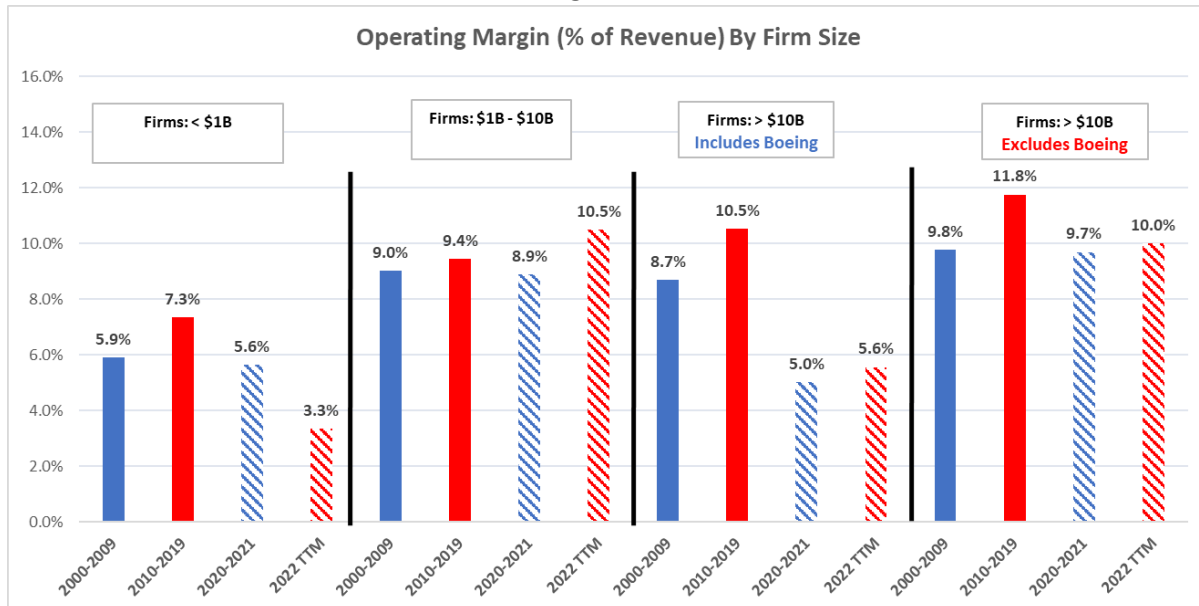
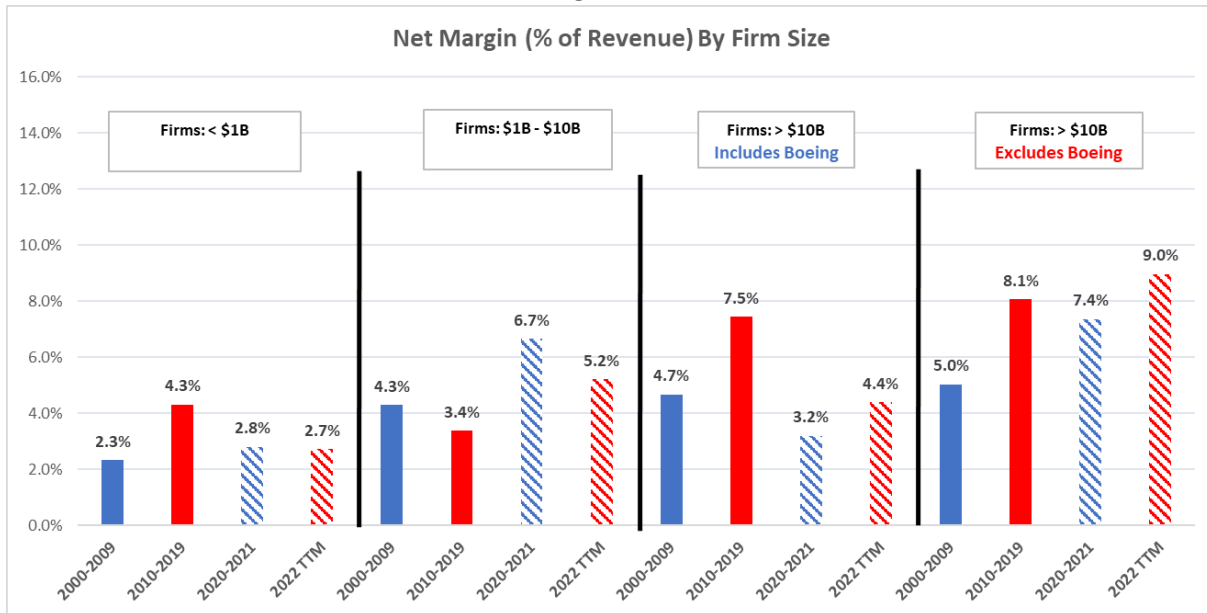


Figure 6-8 below shows a somewhat similar pattern as Operating Margin but Net Margin is after taxes and also includes non-operational factors which will produce results that do not always track closely to the operational margin.

Figure 6-8



Figures 6-9 and 6-10 show financial performance based on cash flow which reflects an even more stark contrast between smaller and larger firms in the 2020-2021 and 2022 TTM periods.

Figure 6-9

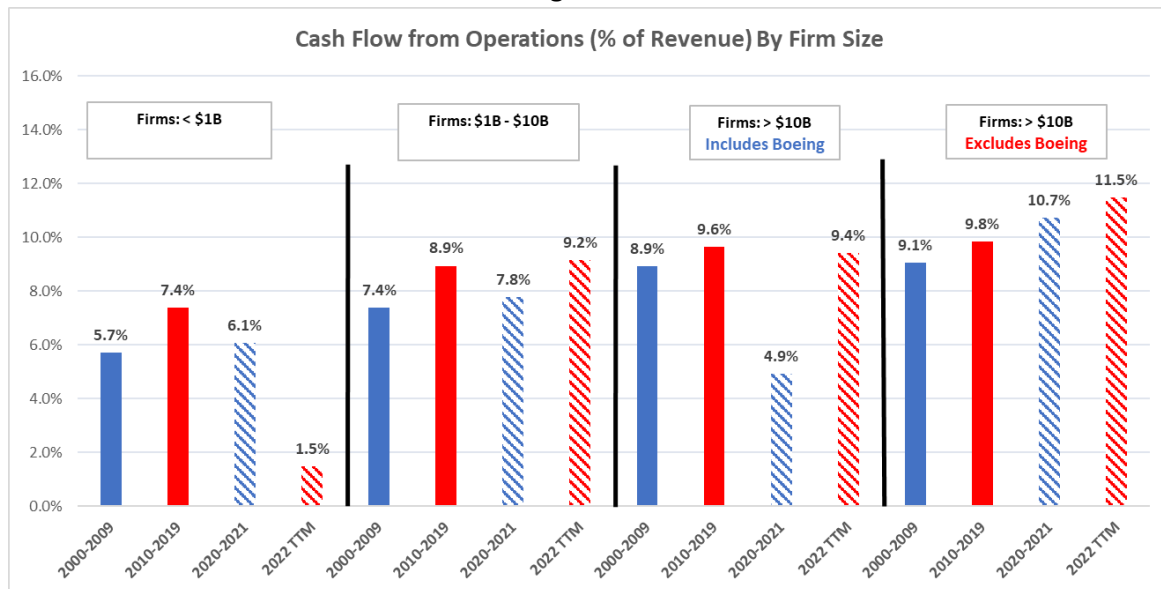
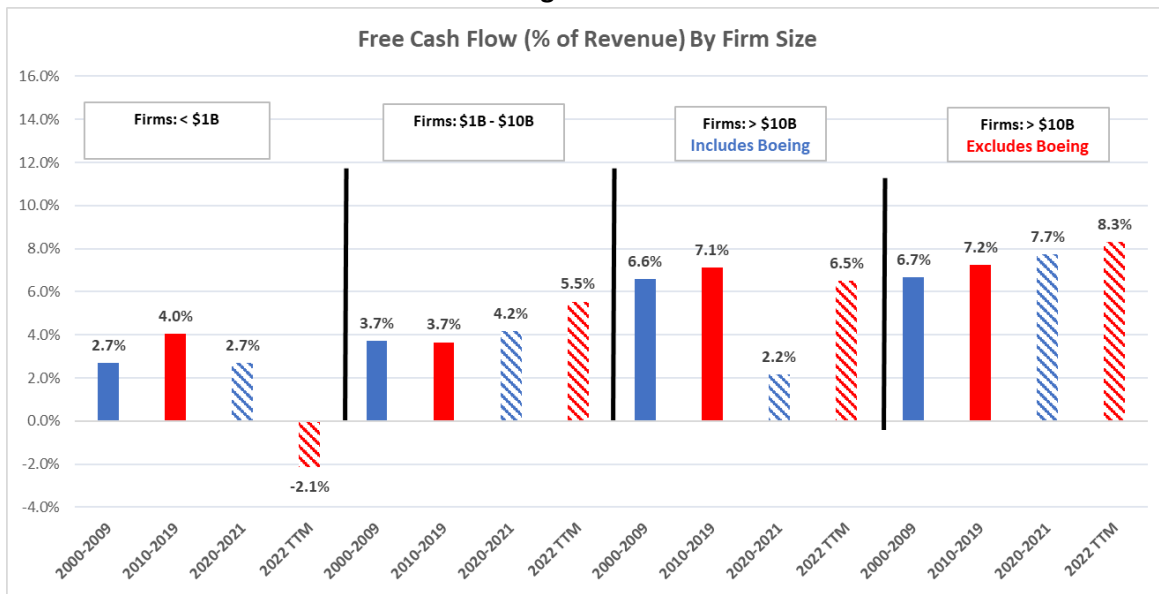


Figure 6-10



Although there is an observable difference in weighted average financial performance between smaller and larger firms throughout the entire timeframe, the range of outcomes among the firms in each size group is very wide as shown in Table 6-2.

Table 6-2

Firm Size	2000 – 2009		2010 - 2019		2020 - 2021	
	Lowest	Highest	Lowest	Highest	Lowest	Highest
< \$1B	-3.8%	23.6%	-7.9%	16.3%	-28.9%	18.8%
\$1B - \$10B	3.1%	46.0%	3.1%	40.4%	-15.9%	35.1%
> \$10B	5.5%	12.4%	7.3%	14.0%	-13.6%	13.4%

Although the significant losses in the 2020-2021 period were largely due to the impact of COVID-19 on commercial activities within those firms, the wide range in outcomes in the prior periods indicates that the Darden comment cited earlier: *“How well you are run is more important than in which market segment you participate”*, may also be applicable to the size of a firm as well. Table 6-3 is sorted on the 2020 – 2021 data, from lowest to highest operating margins. The firms in the < \$1B category that experienced the most significant impact of COVID-19 were Environmental Tectonics (ETCC) and Astronics (ATRO). For ETCC, sales to the U.S. Government accounted for less than 4% of annual revenue and ETCC saw total revenue drop by 60% in the first year of COVID while sales to the U.S. Government more than doubled in that same year. For ATRO, prior to COVID, sales to the military accounted for only 13% of annual revenue with commercial air transport being the primary market for its products. ATRO saw revenue drop by 35% in 2020. In the \$1B - \$10B category, Spirit Aerosystems (SPR) which relied

heavily on commercial sales to Boeing (60%) and Airbus (23%) was the firm most adversely affected by the COVID-19 pandemic.

Table 6-3

	Operating Margin			
	2000-2009	2010-2019	2020-2021	2022 TTM
A: < \$1B				
ETCC - Environmental Tectonics Corp	-3.4%	5.4%	-28.9%	-15.9%
ATRO - Astronics Corp	9.6%	9.9%	-5.0%	-6.5%
TATT - TAT Technologies Ltd	9.7%	2.2%	-4.1%	-3.4%
CVU - CPI Aerostructures Inc	13.3%	1.0%	0.5%	2.2%
SIF - SIFCO Industries Inc	1.9%	1.5%	0.5%	-10.7%
AIRI - Air Industries Group	23.6%	-0.4%	1.0%	4.4%
AVPFF - Avcorp Industries Inc	-3.8%	-7.9%	1.8%	-8.7%
MALJF - Magellan Aerospace Corp	5.4%	10.0%	3.4%	-0.8%
KTOS - Kratos Defense & Security Solutions Inc	-2.9%	3.0%	3.9%	1.2%
AVAV - AeroVironment Inc	20.5%	8.9%	4.0%	-0.2%
OPXS - Optex Systems Holdings Inc	-2.2%	-4.7%	5.4%	0.6%
KAMN - Kaman Corp	2.8%	6.3%	6.9%	3.3%
DCO - Ducommun Inc	8.5%	5.7%	7.6%	6.6%
HERXF - Heroux-Devtek Inc	7.8%	8.6%	8.3%	7.4%
MRCY - Mercury Systems Inc	6.5%	9.6%	8.7%	5.9%
ASLE - AerSale Corp	N/A	8.5%	12.1%	15.3%
NPK - National Presto Industries Inc	12.6%	16.3%	12.2%	5.7%
ISSC - Innovative Solutions and Support Inc	10.1%	-0.1%	14.9%	24.8%
PKE - Park Aerospace Corp	9.6%	14.4%	18.8%	18.4%
B: \$1B - \$10B				
SPR - Spirit AeroSystems Holdings Inc	26.8%	7.8%	-15.9%	-4.8%
BDRBF - Bombardier Inc	4.5%	3.8%	-0.3%	7.0%
ERJ - Embraer SA	11.8%	5.4%	0.4%	3.0%
HXL - Hexcel Corp	5.7%	16.5%	2.3%	10.5%
PSN - Parsons Corp	N/A	3.1%	3.2%	3.9%
VEC - Vectrus	N/A	4.9%	3.3%	3.4%
MAXR - Maxar Technologies Inc	13.0%	5.5%	5.1%	8.1%
CUB - Cubic Corp	5.9%	5.6%	5.3%	Acquired by Veritas Capital
AIR - AAR Corp	5.5%	4.5%	5.6%	
HII - Huntington Ingalls Industries Inc	N/A	8.8%	6.6%	5.0%
TGI - Triumph Group Inc	10.6%	7.4%	6.6%	8.9%
ESLT - Elbit Systems Ltd	8.1%	7.8%	7.5%	7.6%
MOG.A - Moog Inc	10.4%	9.5%	8.2%	8.7%
CAE - CAE Inc	15.8%	13.6%	10.1%	10.3%
LHX - L3Harris Technologies Inc	11.1%	16.8%	11.4%	11.5%
AJRD - Aerojet Rocketdyne Holdings Inc	3.1%	7.7%	11.7%	10.6%
BWXT - BWX Technologies Inc	9.7%	10.0%	15.0%	13.8%
CW - Curtiss-Wright Corp	11.3%	12.8%	15.4%	15.7%
HWM - Howmet Aerospace Inc	N/A	9.8%	15.9%	16.9%
HEI - Heico Corp	16.7%	19.7%	21.1%	22.1%
TDG - TransDigm Group Inc	46.0%	40.4%	35.1%	41.4%
LLL- L3 Communications	9.4%	10.3%	Merged to be L3Harris	
WAIR - Wesco Aircraft Holdings Inc	21.9%	11.1%	Acquired by Pattoair	
C: > \$10B				
BA - Boeing Co	5.5%	7.3%	-13.6%	-12.0%
RTX - Raytheon Technologies Corp	12.4%	13.5%	5.2%	7.9%
TXT - Textron Inc	10.5%	7.5%	5.7%	7.3%
BAESY - BAE Systems PLC	8.4%	7.9%	9.4%	8.0%
NOC - Northrop Grumman Corp	7.8%	12.3%	10.7%	9.8%
GD - General Dynamics Corp	11.2%	12.0%	10.9%	10.7%
LMT - Lockheed Martin Corp	8.1%	11.3%	13.4%	13.1%
RTN - Raytheon Co	9.3%	14.0%	Merged to be Raytheon Technologies	

Note: RTX Raytheon Technologies data prior to 2020, is United Technologies data before the merger.

Impact to Defense Services Sector

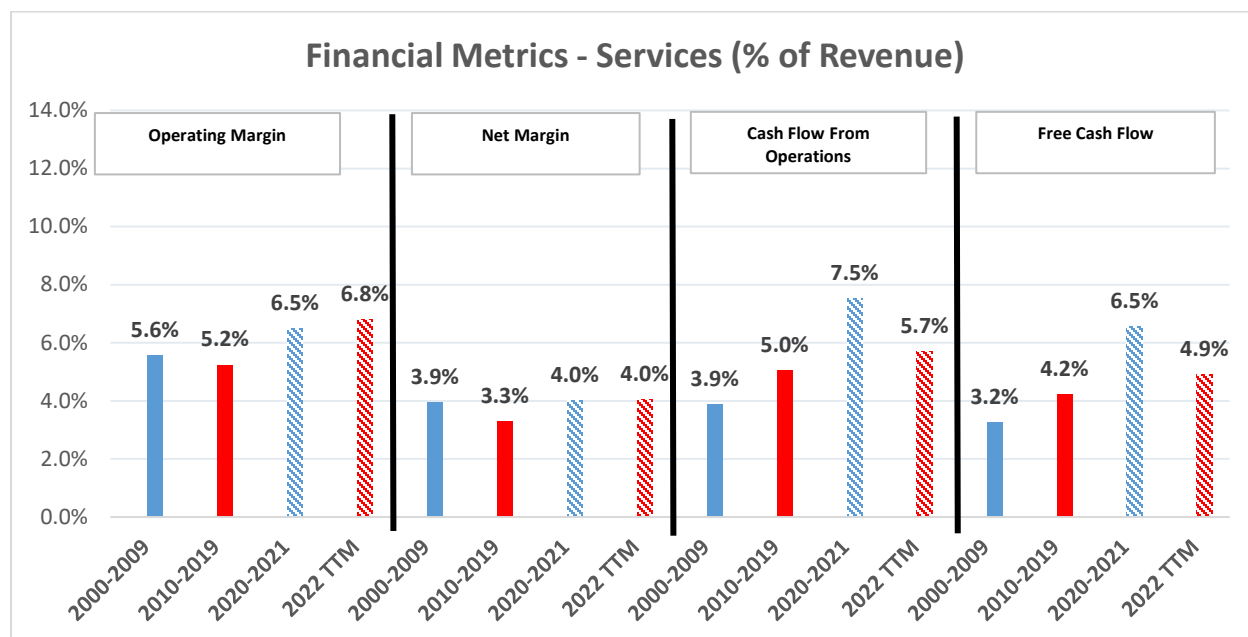
One defense industry association focused comments on the health of service-oriented defense firms. As noted by the commenter, service contracts normally do not include contract financing as payment is made for invoices only. The reason for this is that fixed-price service contracts generally provide for monthly invoicing. Since customary contract financing on fixed-price contracts (progress payments or PBPs) is made no more frequently than monthly, contract financing would be superfluous. The commenter also broadly stated that *“for many services contracts, costs are incurred months or even years in advance of invoicing”*. DoD is unaware of such situations since service contracts are for services *being provided*, not for services that were performed months or years ago.

Although many of the contractors reviewed by UT and Darden provided both products and services, DoD decided to analyze the data for five firms that are predominantly service-oriented. The five firms were CACI, Jacobs, KBR, Leidos and Mantech.

The data in Figure 6-11, which depicts data for all five service-oriented firms as a cohort, shows that operating and net margins dipped somewhat in the 2010-2019 timeframe but improved considerably during the COVID-19 period (2020-2021) and still remained higher than the twenty-year averages preceding COVID margins for the trailing twelve months as of September 2022.

Where operating margins are lower for service contracts than fixed price production contracts, it is worth pointing out that service contracts generally provide for monthly invoicing which means contractors receive profit each month. The robust cash flow provided by monthly invoicing provides excellent financial returns at the margins shown in Figure 6-11. The DoD Contract Cash Flow Model, which allows the user to analyze such a service contract arrangement, confirms the excellent financial returns provided by service contracts.

Figure 6-11



Recommendations

The review of the financial data in the COVID period (2020-2021) and a time of high inflation (2022) demonstrates that major defense firms have proven to be less vulnerable to the economic challenges than commercial counterparts. The fact that major defense firms, overall, are financially healthy is not only a good sign, but it also shows that DoD's regulations and policies are creating the intended business environment in which contractors have a fair opportunity to succeed and are financially compensated commensurate with the risk they bear and the performance they achieve on each contract.

The Department has no recommendations in this area.

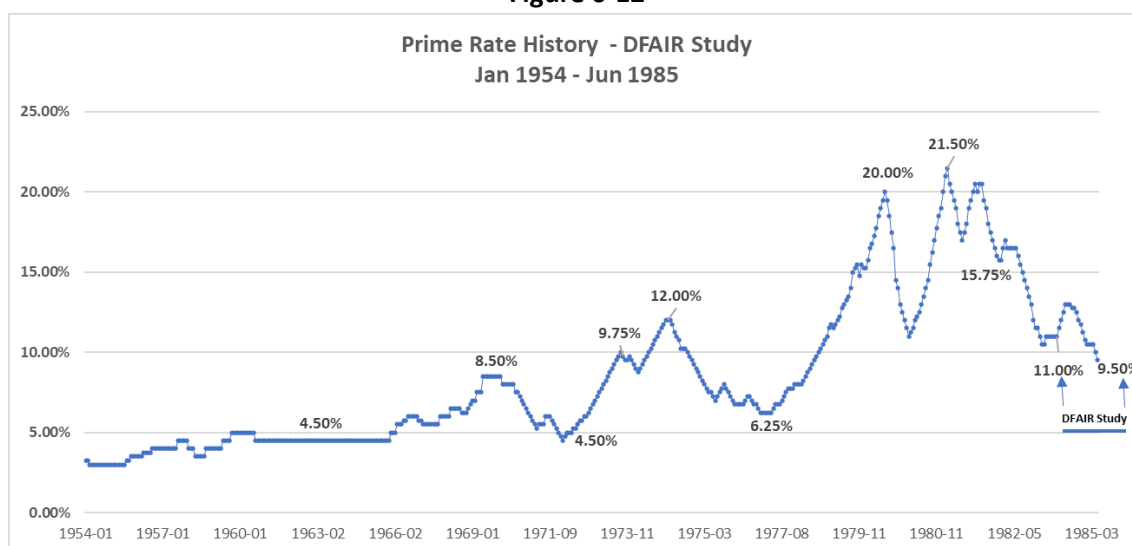
The 1985 Defense Financial and Investment Review (DFAIR) Study Revisited

In its 2019 report, GAO recommended that DoD conduct a comprehensive assessment of the effect that its contract financing and profit policies have on the defense industry and update that assessment on a recurring basis. In that report, GAO made numerous references to the last comprehensive review of contract financing conducted by DoD: the 1985 Defense Financial and Investment Review (DFAIR) to study contract pricing, financing and profit policies.

As demonstrated by this report, this Contract Finance Study accomplishes what the GAO recommended, but it is important to revisit the DFAIR study, the economic situation at the time it was conducted and a key recommendation from that study regarding financing.

In December 1983, the Deputy Secretary of Defense chartered the DFAIR after the most prolonged period of unprecedentedly high short-term commercial borrowing rates³⁹ since progress payments were established in 1954. From October 1978 through December 1983, the Prime Rate never fell below 10.0%, and from November 1980 to August 1982 it never fell below 15.0%, hitting a peak of 21.5% in December 1980. By the time the DFAIR study was published in June of 1985, the Prime Rate had fallen to below 10.0% (9.5%) for the first time since 1978. The Prime Rate history at the time of the DFAIR study is shown in Figure 6-12.

Figure 6-12

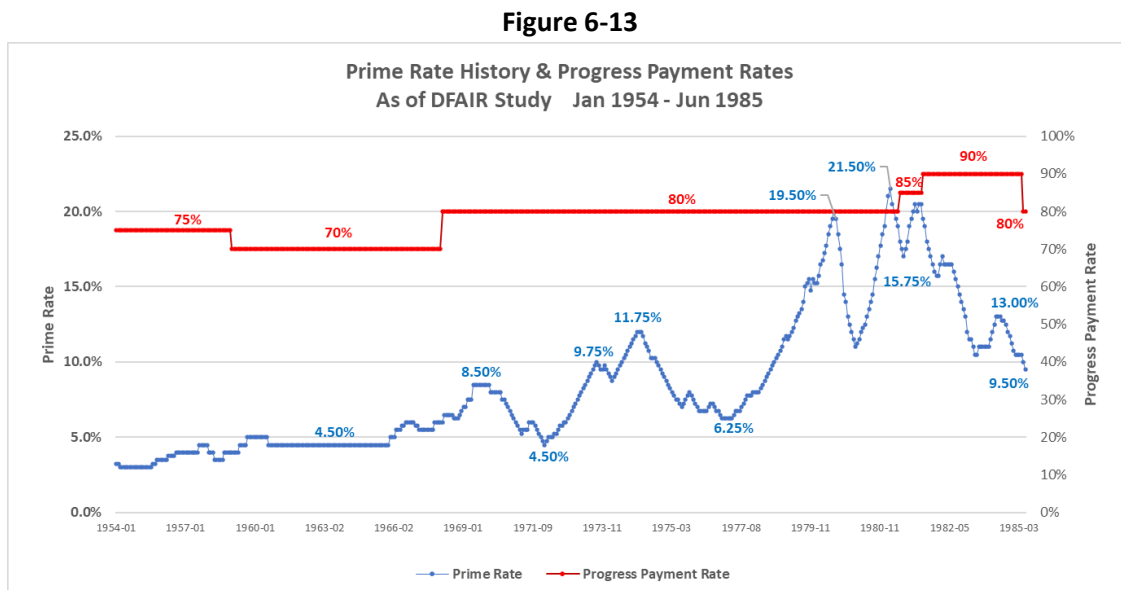


As the DFAIR study pointed out, short-term borrowing rates should be the key consideration in determining the amount of Government contract financing actually required. As FAR 32.104(a)(1) states, the contracting officer must: *“Provide Government financing only to the extent actually needed for prompt and efficient performance.”* The cash a contractor *needs* to pay contract costs incurred prior to delivery is referred to as working capital. Cash not provided by Government financing must be provided by the contractor’s cash on hand or through short-term borrowing by the contractor.

³⁹ DFAIR referred to a “short-term borrowing rate.” The Prime Rate as published by the Wall Street Journal was found to be very consistent with the rates cited in the DFAIR study and is therefore used in this DoD analysis.

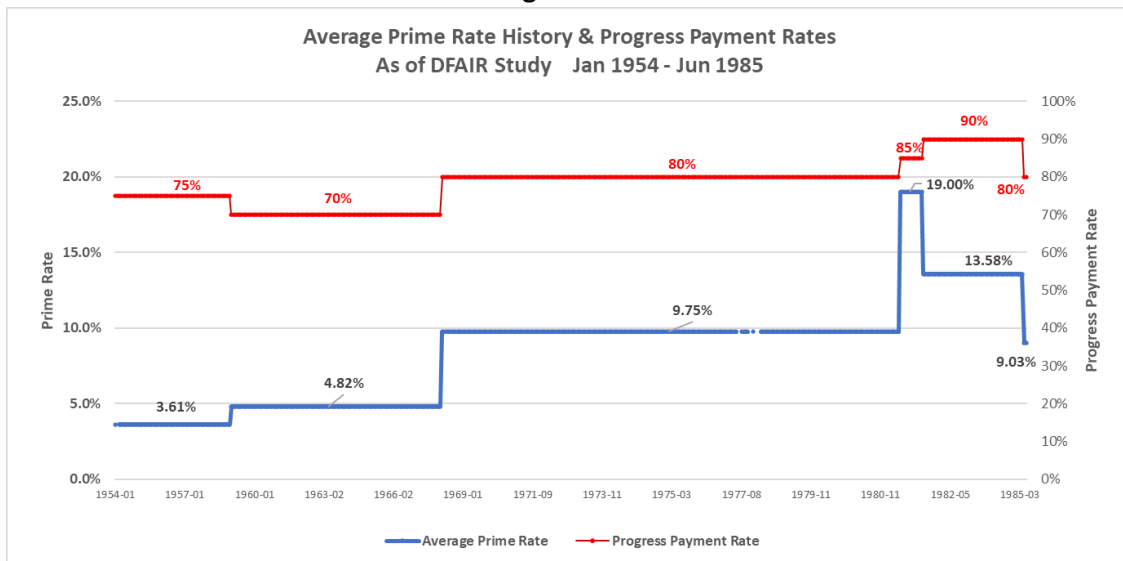
Certainly, for large contractors, the access to short-term borrowing is not the limiting factor. The issue is the interest expense incurred in borrowing the cash. Therefore, the logical linkage between short-term borrowing rates and the degree of contract financing needed was clear.

The history of progress payment rates at the time of the DFAIR study shows that the progress payment rate had not been reflective of changes in the short-term borrowing rates (based on the Prime Rate) as there were only two changes to the progress payment rate in the twenty-six years from 1954 to 1980. The first change, a reduction in the progress payment rate from 75% to 70% in 1959 was not tied to a major drop in the Prime Rate and the increase to 80% in 1968 occurred when the Prime Rate was only at 6.00%. It was not until 1981 that the Government began to change progress payment rates, in a noticeably delayed reaction to significant changes in the Prime Rate. As shown in Figure 6-13, in less than five years from 1981 to June 1985, there were three changes to the progress payment rate (two increases and one decrease).



In Figure 6-14 the same data is displayed using the average Prime Rate in effect during the period when the progress payment rate was constant. Even when average borrowing rates are presented, the progress payment rates were not well calibrated with borrowing rates.

Figure 6-14



Throughout the period studied by the DFAIR team, contractors were awarded, performed and completed contracts based on the progress payment policies in effect at the time. The DFAIR study calculated the interest cost that a contractor would have experienced in borrowing funds to cover working capital needs on a “typical” contract in the 31 years from 1954 to 1984 and found that it averaged approximately 2.0% of total contract cost based on the borrowing rates and the progress payment rates in effect each year. In 20 of the 31 years the calculated interest cost would have been between 1.5% and 2.5% of total contract cost. In 5 of the years it would have been less than 1.5%, and in 6 years it would have been greater than 2.5%. DoD was able to confirm the DFAIR calculations for those years using the DFAIR assumptions for the “typical” contract, the average Prime Rate and progress payment rates in effect each year with the average interest cost being 2.16% of total contract cost for all 31 years.

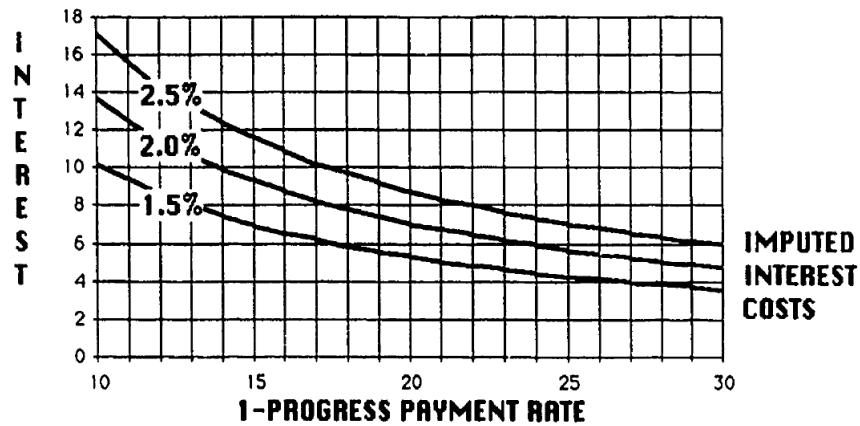
The DFAIR assumptions for the typical contract were as follows:

Type	Fixed-Price Production
Length	40 Months
Financing	Monthly Progress Payments
Deliveries	4 equal values at Months 34, 36, 38 and 40.
Cost Make-up	44% of Total Cost for Subcontracts and Material, 56% Labor and Overheads
Cost Profile	Although not a “bell curve” of expenditures, essentially equivalent to it

Based on that typical contract, the DFAIR study presented a set of “Indifference Curves” in its Exhibit 13. The purpose of the curves was to show the progress payment rate (from 70% to 90%) needed to result in contractor interest expense on its working capital to be equal to 1.5%, 2.0% and 2.5% of total contract

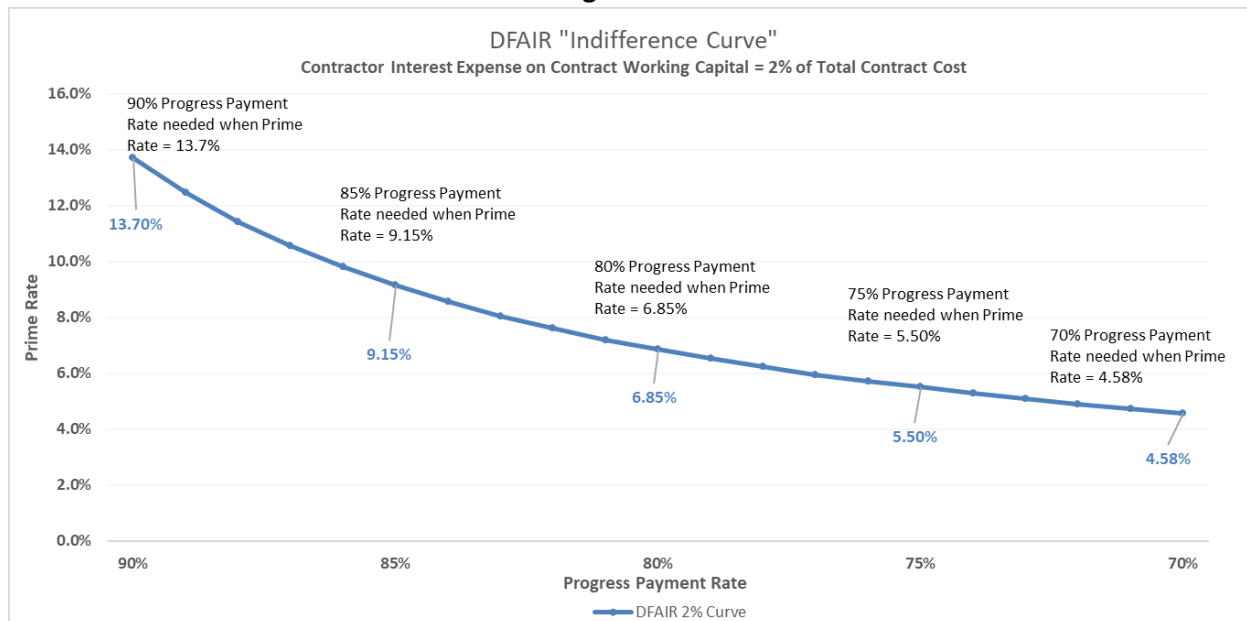
cost respectively based on borrowing rates between 0% and 18%. As expected, the lower the interest rate, the lower the progress payment rate needed to be. That DFAIR exhibit is presented below.

EXHIBIT 13
CONTRACTOR FINANCING COSTS
INDIFFERENCE CURVES
(AS % OF TOTAL COSTS)



The same DFAIR data for the 2.0% indifference curve above is presented in Figure 6-15 in an easier to understand format using the Prime Rate for the "Interest" in the DFAIR exhibit.

Figure 6-15



The "Indifference Curves" were not only logical, they became the basis for the DFAIR recommended approach to setting progress payment rates at that time and in the future. At the time, the DFAIR study

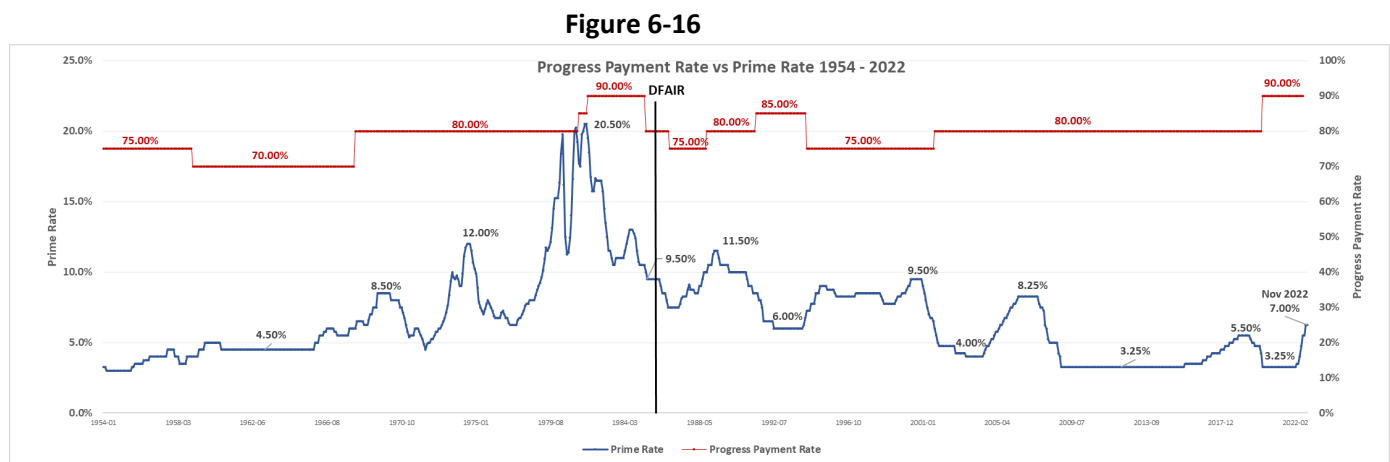
recommended a progress payment rate of 85% for large business based on a 10% borrowing rate. It then made a second recommendation regarding the allowability of interest expense and when and how future progress payment rates should be reset.

“2. Interest expense should remain unallowable and progress payment rates should be reset in the future based on changes in interest rates. If the Short Term Commercial Loan Rate should change enough to cause the level of contractor-supplied financing to be less than 1.5% or more than 2.5% of total costs on the “typical” contract, the uniform standard progress payment rate should be reset to the nearest five-point increment that approximates 2% of costs, and the flexible progress payment investment criteria should be adjusted accordingly.”

The DFAIR recommendation to make changes to the progress payment rate only when calculated interest cost fell below 1.5% of total contract cost or above 2.5%, was a sound, practical approach in that it would avoid the need for frequent progress payment rate adjustments while ensuring that the level of financing would continue to have a logical tie to short-term borrowing cost.

Post DFAIR Study Data

The 37 years since the DFAIR study have reflected less volatility and lower borrowing rates as evidenced by the Prime Rate history as shown in Figure 6-16.



In the years immediately following the DFAIR study, from 1986 to 1994, progress payment rates were adjusted, in apparent response to changes in short-term borrowing rates. When the progress payment rate was increased from 80% to 85% in 1991, the final rule indicated that DoD’s intent was to make annual adjustments, each February, based on the average of quarterly short-term borrowing rates in the prior calendar year as published in the Federal Reserve Bulletin. Although different than the DFAIR study recommendation to establish a range for progress payment rates based on calculated interest cost, the 1991 Final Rule specifically cited the DFAIR study methodology in establishing a table of progress payment rates based on a range of short-term borrowing rates. The table from the Final Rule is shown in Figure 6-17 and was applicable to Large Businesses. Small Business rates would be 5% higher and small-disadvantaged rates, applicable at the time, would be 10% higher.

Figure 6-17

The following chart depicts the customary uniform progress payment rates that will result from variations in the average short-term commercial borrowing rate:

interstate rate range (%)	Progress payment rate (%)
5.7 to 6.7	75
6.8 to 8.3	80
8.4 to 11.0	85
11.1 to 16.1	90

The rule also stated that “In no event will the progress payment rate for large businesses drop below 75 percent (80 percent for small businesses; 85 percent for small disadvantaged businesses) or exceed 90 percent (95 percent for small businesses; 100 percent for small disadvantaged businesses)”.

At some point, the Federal Reserve Bulletin stopped including the data table cited in the Final Rule. However, the Final Rule stated that for 1990, the average short-term commercial borrowing rate was 9.8%. Since the average Prime Rate for 1990 was 10.0%, DoD was comfortable with using the Prime Rate as the short-term rate in its analysis.

The subsequent change in 1994 was pursuant to Section 8155 of the FY 1994 Defense Appropriations Act that stated progress payments to large business could not exceed 75%. In 2001, when the rate was increased to 80%, it was only after the Prime Rate had been at or above the high side of the 80% table-range for more than six years. In the Proposed Rule (DFARS Case 2001–D012), DoD stated that the increase was warranted in prior years based on increases to the short-term borrowing rates but funding constraints prohibited the change from being made. This delayed response to the changes in the Prime Rate create the appearance of an inverse relationship in Figure 6-18 where, when the Prime Rate went up, the progress payments rate went down and vice versa, which is exactly the opposite of what should have occurred. Figure 6-19 shows the same data with arrows indicating the delayed response to the data that supported the change in the progress payment rate. Figure 6-19 also highlights the most important point for this analysis which is that all progress payment rate linkage to the short-term borrowing rates ended in 2001.

Figure 6-18

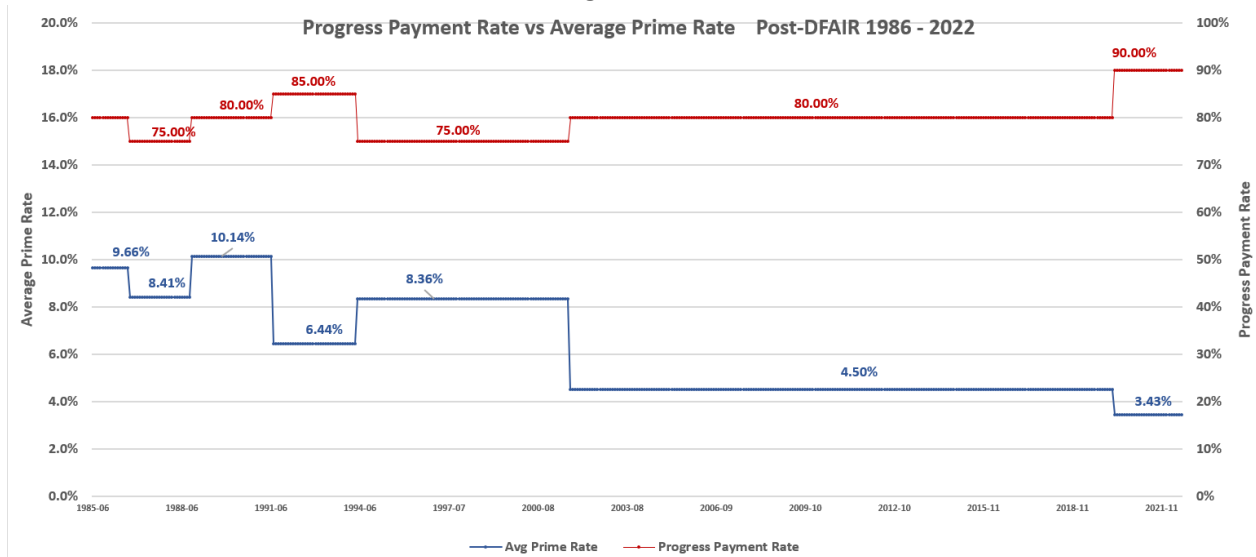
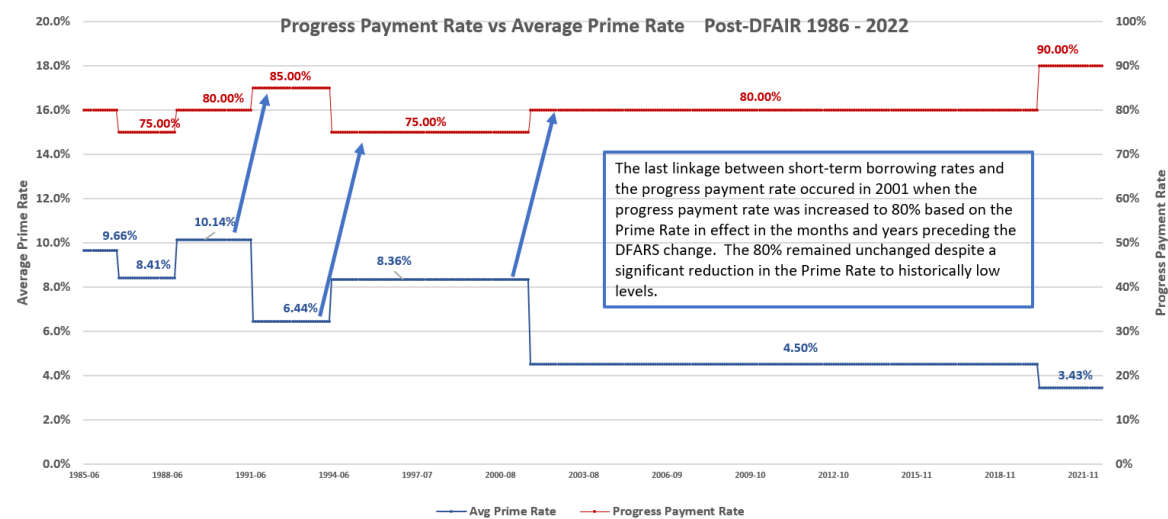


Figure 6-19



Despite steep reductions to the short-term borrowing rates as demonstrated by the Prime Rate, the progress payment rate remained unchanged at 80% for over 18 years until it was increased to 90% in April 2020 in response to the COVID-19 pandemic. For 85 months, from December 2008 to November 2015, the Prime Rate remained steady at 3.25%. That rate was far below the lowest range in the table in Figure 6-17. Furthermore, according to the DFAIR recommendations and using the DFAIR methodology, the progress payment rate would have been reduced to 60% when the Prime Rate was 3.25%. Using the DFAIR methodology, since December 2008 to October 2022, the progress payment rate should have ranged from a low of 60% to a high of 75% based on the Prime Rate. Based on the language in the 1991 Final Rule, the progress payment rate would have reduced to minimum rate

allowable of 75%. Only when the Prime Rate reached 7.0% in November 2022 would the DFAIR methodology have supported an 80% progress payment rate but, by then, the progress payment rate was 90% and had been since April 2020 when it was increased from 80% in response to COVID-19.

The result has been an unprecedented period in which the contractor calculated interest cost on working capital fell well below the DFAIR recommended “floor” of 1.5%. During the 32 months of the 90% “COVID rate”, the DFAIR methodology shows a contractor interest cost, on average, of .55% versus the 2.0% DFAIR recommended as the appropriate target.

The DFAIR Model – Updated

The DFAIR recommendation to reset progress payment rates based on short-term borrowing rates was a sound recommendation but, as shown, it was not consistently implemented in the years since that study. As part of this Finance Study, DoD reviewed the DFAIR model and assumptions used to calculate the contractor interest cost based on short-term borrowing rates and progress payment rates.

Based on the contracting regulations as they existed in 1985, the DFAIR model was found to be accurate. However, as part of the Contract Finance Study DoD developed a more robust contract cash flow model in order to assess the factors that affect a contractor’s financial return on a contract such as contract type, degree of financing, contract length, profit rate and others. The DoD Contract Cash Flow Model was used to calculate the contractor interest cost on working capital in order to compare results with those produced in the DFAIR study. The DoD model reflects contract cash flows as they exist today based on current contracting regulations, some of which have changed since 1985, and taking into account some things not considered in the DFAIR model:

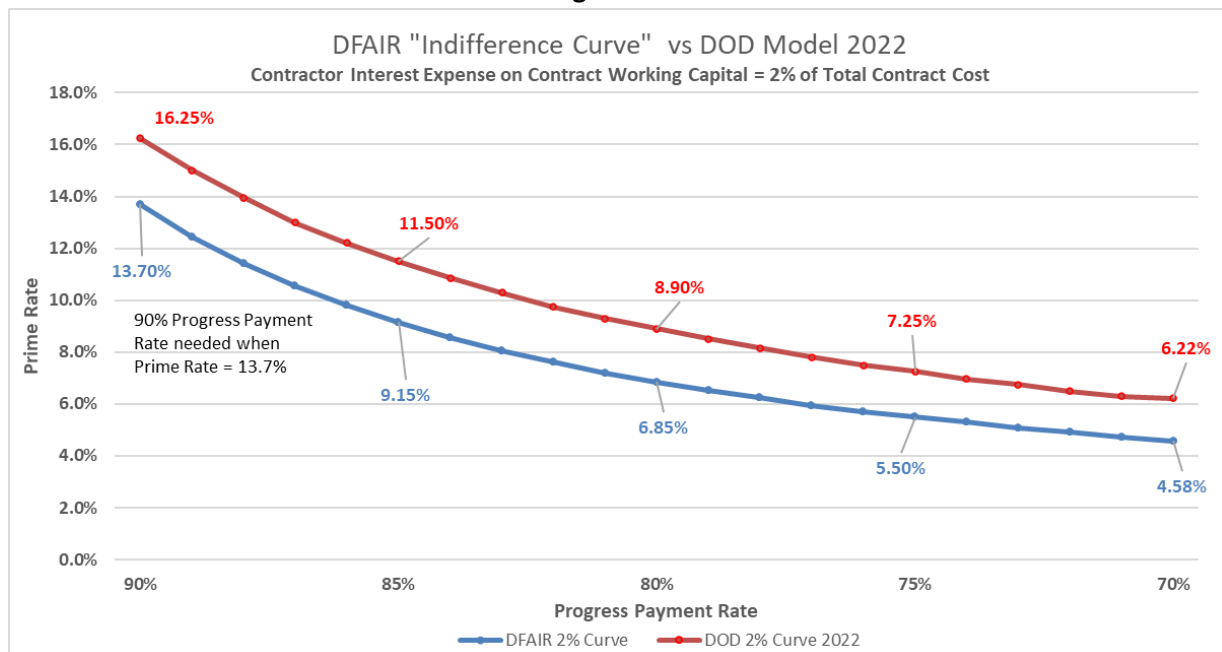
1. The DFAIR model did not reflect the 100% reimbursement of prime contractor financing payments made to suppliers regardless of the progress payment rate for the prime contractor. The impact of the 100% reimbursement for financing payments is that it results in an “effective” progress payment rate that is higher than the stated progress payment rate. It is unknown if 100% reimbursement of supplier financing was in effect in 1985 or was simply not considered by the DFAIR team.
2. From 1971 to 2000, the “paid cost rule” for large businesses was in effect. Therefore, at the time of the DFAIR study, large businesses were required to have paid supplier invoices before including that cost as a “cost incurred” for progress payment purposes. In 2000, the “paid cost rule” was eliminated which means that large businesses could include, as “cost incurred”, invoices received from suppliers that had not yet been paid by the prime contractor. The impact of eliminating the paid cost rule is that it can allow contractors to be paid by the Government before they pay the supplier. This does not change the total financing the contractor receives from the Government but does reduce the amount of time working capital must be financed by the contractor thereby reducing interest expense.

3. The DFAIR model did not consider profit or the taxes that must be paid on those reportable profits. The DoD model considers both as profits are a contract-generated source of cash and corporate income taxes paid on those profits are a contract-related disbursement of cash.
4. The DFAIR model did not attempt to account for the cash flow impact of depreciation, amortization and facilities capital cost of money which are *non-cash costs*, nor the impact of unallowable costs which can require the expenditure of cash by the contractor regardless of allowability.

The DoD model was run using the same DFAIR assumptions regarding cost mix, contract length and deliveries as they pertain to the “typical” contract. The DoD model assumed a “bell-curve” of expenditures, a 13.0% profit rate and a 21% corporate tax rate.

Since the more robust DoD model was structured to measure the impact of Government financing methods and rates among other things, it was easily adaptable to calculate contractor interest cost on working capital at various borrowing rates as well. Using the DoD model, an equivalent Indifference Curve was calculated for comparison to the DFAIR curve. Based on the regulatory changes and factors not accounted for in the DFAIR model that benefited contractor cash flow, the DoD model revealed that the contractor would incur the same interest cost on working capital at higher short-term borrowing rates than predicted by the DFAIR model. For example, as shown in Figure 6-20, the Indifference Curve for the DoD model shows that an 80% progress payment rate would yield 2.0% in interest cost when the Prime Rate is 8.90% whereas the DFAIR model indicated that would be true at a Prime Rate of 6.85%.

Figure 6-20



The DoD model can assist the Department in understanding how future changes to the progress payment rates could be based on changes to the Prime Rate, as envisioned by the DFAIR Study.

Recommendations

The Department has no recommendations in this area.

Performance-Based Payments (PBPs)

Given that this is a study on contract financing and PBPs are the statutorily preferred method of contract financing, a more detailed discussion of PBPs is warranted. PBPs are not like customary progress payments and cannot be included on a contract by simply including a standard FAR clause. PBPs require a mutual agreement on all aspects of the PBP schedule which will become part of the contract. A PBP schedule requires agreement on the following *before work begins*:

1. A list of PBP events that will result in a financing payment
2. The criteria for successful completion of each PBP event
3. The amount of the financing payment for each PBP event
4. Identifying whether each event is severable or cumulative to other events

Based on what is required to be agreed upon, the effort to propose, evaluate and negotiate a PBP schedule can be significant and time consuming. It is not unusual for the negotiation of a PBP schedule to take several months. In order for PBPs to be in effect at contract award, the effort to establish a PBP schedule should begin well in advance of contract award.

Since PBPs can provide up to a maximum of 90% of the contract price—which is more than the 90% of contract cost provided by customary progress payments through the Department’s Deviation 2020-O0010, Revision 1—the DFARS requires the contracting officer to obtain adequate consideration for the cash flow benefits to the contractor provided by PBPs. Therefore, the evaluation and negotiation of the PBP schedule and the consideration obtained become an integral part of the overall price negotiations for a contract.

There are three regulatory statements regarding PBPs that guide DoD contracting officer actions in the analysis and negotiation of a PBP schedule:

DFARS 232.1000(a)	<i>“As with all contract financing, the purpose of performance-based payments is to assist the contractor in the payment of costs incurred during the performance of the contract.”</i>
FAR 32.1004(b)(2)(i)	<i>“Total performance-based payments shall reflect prudent contract financing provided only to the extent needed for contract performance”</i>
FAR 32.1004(b)(3)(ii)	<i>“The contracting officer shall ensure that performance-based payment amounts are commensurate with the value of the performance event or performance criterion and are not expected to result in an unreasonably low or negative level of contractor investment in the contract.”</i>

Since the purpose of PBPs is to assist in the *payment of cost incurred* and should be provided *only to the extent needed*, there is no reason for PBPs received to ever exceed total cost incurred. A contractor cannot *need* more than total cost incurred to pay cost incurred on a given contract. However, the Department has observed there can be an incentive for companies to front load their PBP schedules in

order to maximize cash flow. The complexity of PBPs and the requirement to provide financing only to the extent needed, work in concert to put great responsibility on the Government team to effectively analyze and negotiate a PBP schedule.

In 2013 the DoD Inspector General issued its report on the Award and Administration of Performance-Based Payments in DoD Contracts.⁴⁰ In that report the IG cited serious deficiencies in each of the elements involved in establishing a PBP schedule: identifying valid events, establishing event criteria, valuing events and identifying events as cumulative when appropriate. The IG concluded that DoD was at risk of paying as much as \$11.2 billion in advance payments on PBP schedules totaling \$13.4 billion.

DoD agreed with the IG report findings. In January 2012, DoD published DFARS Case 2011– D045 to ensure that that cumulative PBPs could never exceed cumulative cost incurred, thereby eliminating the possibility of advance payments from occurring. The proposed change became final in 2014.⁴¹ DoD had also already begun developing a new PBP Guide that was ultimately published in 2014.

In its public comments in response to the Department’s June 2022 request, one defense industry association cited a steep decline in the use of PBPs from 2010 (76%) to 2016 (38%). The implication was that the Government had restricted the use of PBPs during that time. The DoD preference for PBPs did not change during that timeframe as the FAR 32.1001 policy regarding the preference for PBPs remained the same:

FAR 32.1001 Policy.

(a) Performance-based payments are the preferred Government financing method when the contracting officer finds them practical, and the contractor agrees to their use.

The policy identifies two critical considerations: practicality and mutual agreement. It is not in the Government’s best interest to use a financing method that is not practical for the contract to which it would apply. Conversely, a PBP schedule must be mutually agreed-to and therefore, the Government cannot force a contractor to use PBPs.

In practice, the process generally works in reverse. Contractors request the use of PBPs and the contracting officer then determines whether or not they are practical. Even when deemed practical and desired by both sides, actual use of PBPs requires the negotiation of a mutually agreeable PBP schedule. Failure to agree on a PBP schedule prevents the use of PBPs.

Keeping the normal practice in mind, any decline in the use of PBPs could have been caused by DoD contracting officers determining that PBPs were not practical for their contract or because contractors requested the use of PBPs less frequently. There were no regulatory changes that would cause PBPs to become less practical.

⁴⁰ Report No. DoDIG-2013-063 dated April 8, 2013

⁴¹ Available at <https://www.federalregister.gov/documents/2014/03/31/2014-07069/defense-federal-acquisition-regulation-supplement-performance-based-payments-dfars-case-2011-d045>

The only regulatory change pertaining to PBPs that occurred in that period was the March 2014 DFARS Final Rule change implementing the changes proposed in DFARS Case 2011– D045. The Final Rule did two things when negotiating and implementing PBPs on a contract:

1. It required that the parties would agree to a price based on progress payments and then negotiate the price based on PBPs which would be supported by the mandatory use of the DoD PBP Analysis Tool.
2. It included language in the implementing DFARS clauses that stated “At no time shall cumulative performance-based payments exceed cumulative contract cost incurred under this contract”.

This version of DFARS was in place beyond the 2016 timeframe cited by the defense industry association. Based on industry comments to the proposed rule for DFARS Case 2011-D045, defense contractors were not in favor of either aspect of the proposed change but were particularly concerned with the “cost limitation”.

Given that the cost limitation only became operable on a PBP contract if financing payments would exceed total cost incurred and would still result in contractors receiving financing payments equal to 100% of cost incurred, this seems indicative of a desire to receive financing payments beyond the extent needed. On contracts awarded with the cost limitation in effect, the reason for industry’s attitude toward it became understandable. On several major programs, the cost limitation prevented the payment of financing payments well above actual cost incurred. On one program, PBPs would have exceeded cost incurred by more than \$2 Billion. Only the DFARS cost limitation prevented the excessive financing payment from being made.

Although PBPs, as financing payments, are fully recoverable in the event a contract is terminated for default, the treatment in a termination for convenience situation is less clear. However, even for an on-going contract, the intent in FAR that the contractor is expected to have an investment in the contract is a sound one. The cash a contractor is paid upon delivery is always an incentive to complete the contract requirements and deliver as early as possible. To the degree that the amount payable at delivery is reduced, so is the financial incentive for the contractor to deliver.

The DFARS cost limitation was subsequently eliminated by legislation, not based on a change in DoD policy or mindset. The DFARS cost limitation was in effect from March 31, 2014 until April 2020 when the Final Rule for DFARS Case 2019–D002 was implemented to reflect the 2017 National Defense Authorization Act (NDAA) change to 10 USC 2307 which added paragraph (b)(2) which said: “Performance-based payments shall not be conditioned upon costs incurred in contract performance but on the achievement of performance outcomes listed in paragraph (1).”

Since the requirement is to provide contract financing only to the extent needed, and the need can never exceed the actual cost incurred, the elimination of DFARS cost limitation has made the contracting officer’s job much more challenging. In examining the contracts in which the cost limitation prevented a

significant over-payment, it might be tempting to conclude that the Government team did an inadequate job of evaluating the contractor's proposed PBP schedule. While some problems can be attributed to a lack of training, the fact is that determining the reasonableness of a PBP schedule is often far more difficult than determining the reasonableness of the overall contract cost. With the cost limitation removed, the evaluation becomes more crucial and no less difficult.

Because PBPs are established up-front, every aspect of the PBP schedule and the process that produced it is based on forecasts. Every PBP schedule is predicated on the *expected need* for financing each month which is based on the contractor's forecasted expenditure profile of expected cost incurred each month. Therefore, the reliability of the expenditure profile is critical. Disagreements over the reasonableness of the expenditure profile can prevent agreement on a PBP schedule.

Assuming the expenditure profile has been determined to be reasonable, the parties must agree upon events, frequency of events, the completion criteria for each event, and when each event will occur. Finally, based on the expected financing need as indicated by the (agreed-to) expenditure profile, the parties must agree to the financing payment the contractor will receive for the successful completion of each event (event value).

Once negotiated and placed on contract, the performance against the PBP schedule, not actual contractor financing need, determines when and how much the contractor will receive in financing payments. In the situations in which the DFARS cost limitation prevented payments significantly in excess of cost incurred, the contractor performance against the PBP schedule was not an indication that the contractor was ahead of schedule in meeting the contract delivery schedule or performing so well that it was underrunning the contract cost.

Because PBPs are negotiated in advance of performance and are based on *forecasts of expected* monthly cost incurred, there is a real possibility for PBPs paid to exceed actual cost incurred and to do so by a significant amount. This creates the *negative level of contractor investment* that FAR specifically states *is not the intent of PBPs*. This can occur for several reasons. It can be due to an inaccurate and front-loaded expenditure profile. Accurately predicting how cost will occur *monthly* is far more difficult than predicting what the total contract cost is likely to be. Paying in excess of cost incurred can also occur because the parties failed to accurately project the timing of the occurrence of an event. This is particularly true for events identified as severable as those events can often be performed "out of sequence" and ahead of schedule but do not result in early delivery of the contract end item. Therefore, the Department finds that in the absence of the cost limitation clause, there can be major disconnects between what the contracting officer intended to provide in terms of cash flow vice what the company ultimately received.

With the removal of the DFARS cost limitation, the current situation is not dissimilar to the circumstances in place when the DoD Inspector General issued its report in April 2013. Given the challenges in analyzing and negotiating a PBP schedule, despite the DoD PBP Guide and training materials, the possibility for advance payments to occur on PBP contracts is considered to be high.

Recommendations

The Department recommends the action detailed below; the bracketed reference ties to the summary table in the Executive Summary.

The Department should study the frequency and magnitude of PBPs that have exceeded cost incurred since the elimination of the DFARS cost limitation. This would assist in determining whether PBPs are resulting in a minimum level of contractor investment in contracts. Since PBPs are so complex to evaluate and negotiate, the Department should also obtain insight into whether this preferred form of contract financing is resulting in contract award delays and consuming more resources than it should.

[Action 6]

Unallowable Interest Expense

The Contract Cost Principles and Procedures, located in Federal Acquisition Regulation (FAR) Part 31, identify the specific costs that are unallowable in Federal contracts. One key area raised in public comments that is very relevant to this study is that of interest expense, with commenters noting its status of being an unallowable cost. Per FAR Part 31.205-20 (Interest and other financial costs), interest expenses related to financing are unallowable and must be excluded from billings, claims and proposals on Government contracts.

The Department determined it would be prudent to examine the “why” behind interest being an unallowable cost and concluded that fundamentally, interest should remain an unallowable cost. To inform its assessment on this topic, the Department examined a Naval Postgraduate School Thesis from December of 1987 that remains relevant, today, entitled “Should Interest be an Allowable Expense on Government Contracts?” Interestingly, at the time the thesis was written, it noted that the unallowability of interest had been government policy “for nearly fifty years”, which makes unallowability, today, an 85 year policy. Ultimately, the thesis concluded that interest should remain unallowable, and the Department concurs with that conclusion, today.

Both the NPS Thesis and the DFAIR study concluded that interest expense was an expense incurred in the ordinary conduct of business but should remain unallowable on Government contracts. The Department finds that this remains a correct conclusion.

Some have argued that since the IRS considers interest expense an ordinary and tax-deductible expense for tax purposes, it should be an allowable cost on Government contracts. However, there is a difference between tax deductibility and allowability, from a defense contractor perspective. Like much in business the difference is best observed in the bottom line, which is Net Profit (Profit after taxes) from the contractor perspective and the contract price from the Government perspective.

Tax deductibility reduces the after-tax cost of interest expense, it does not eliminate it. This is true for all companies, not just defense contractors. After-tax interest expense reduces Net Profit. Therefore, there is always a reason for contractors to want to reduce interest cost. That is, if borrowing is necessary, obtaining a lower interest rate is better than settling for a higher interest rate.

Table 6-4 presents the situation for a company when, all other things being held equal, interest expense increases. The contractor, like all businesses, will be better off incurring less interest expense, since the Net Profit decreases as interest expense increases.

Table 6-4

	Scenario 1	Scenario 2 Higher Interest Rate	Scenario 3 Increased Borrowing
Contract Price	\$112,000	\$112,000	\$112,000
Contract Cost	\$100,000	\$100,000	100,000
Contract Profit	\$ 12,000	\$ 12,000	\$12,000
Interest Expense	\$ 1,000	\$ 1,500	\$ 2,000
Taxable Income	\$ 11,000	\$ 10,500	\$10,000
Taxes @ 21%	-2,310	-2,205	-2,100
Net Profit	\$ 8,690	\$ 8,295	\$ 7,900

The above scenario is what will occur on a commercial contract in a competitive marketplace in which the price of an item is set by the market and does not allow a business to increase its price based on increased interest expense. While increased interest expense lowered the tax paid, based on tax-deductibility, the end result was lower Net Profit. This also happens to be what occurs on a Government contract when interest remains an unallowable cost. Interest is still a tax-deductible expense for defense contractors.

In Table 6-5, the impact of allowability on a Government contract demonstrates the difference by taking the Scenario 1 example above and recognizing interest as an allowable but not profit-bearing cost in Scenario 2 and then allowing it as a profit-bearing cost in Scenario 3.

Table 6-5

	Scenario 1 Interest Unallowable	Scenario 2 Interest Allowable But Not Profit Bearing	Scenario 3 Interest Allowable And Profit-Bearing
Contract Price	\$112,000	\$113,000	\$113,120
Contract Cost	\$100,000	\$101,000	101,000
Contract Profit	\$ 12,000	\$ 12,000	\$12,120
Interest Expense	\$ 1,000	Included above	Included above
Taxable Income	\$ 11,000	\$ 12,000	\$12,120
Taxes @ 21%	-2,310	-2,520	-\$2,545
Net Profit	\$ 8,690	\$ 9,480	\$9,575

As expected, by making interest an allowable cost, it increases the contract price to the Government and increases the Net Profit for the contractor. If interest is allowable and profit-bearing, it increases Net Profit and the price to the Government even more. The results are intuitive: higher prices benefit the seller (Increased Revenue and Profit) at the expense of the buyer (Increased Prices).

As Table 6-5 demonstrates, treating interest as an allowable cost changes the nature of interest expense from how it is viewed in the commercial marketplace and creates the scenario in which it increases revenue and profit on Government contracts. Higher interest rates or increased borrowing only increase Revenue and Profits further. This creates the real risk of a “moral hazard” as it pertains to interest.

Generally, the cost of equity is greater than the after-tax cost of debt which creates a cost-preference for debt over equity as a source of capital. The greater the amount of capital raised through debt, the more “leveraged” a firm is said to be. It is leveraging the money borrowed from financial institutions to create value for its investors rather than using the investors’ cash to accomplish the same result. If debt is less expensive than equity, why wouldn’t firms finance all capital needs through borrowing? The reason is that the interest charged by the financial institutions loaning money is based on the riskiness of the loan. The more leveraged a firm becomes, the more interest cost it incurs. Lenders demand to be paid in accordance with the terms of the loan. A business pays the interest using the cash (profits) generated through operations. The greater the interest cost becomes, the greater the risk that profits will not be adequate to provide the cash needed to pay the interest on outstanding loans. The greater the perceived risk of default, the higher the interest rates become on subsequent loans. Higher interest rates create higher interest cost and the risk-interest rate spiral continues. Smaller firms are more likely to experience this situation as they struggle to stay afloat. This notional spiral rarely continues for major firms because a relative ratio between the amount of debt and equity develops for healthy firms.

It is important to note the Government provides assistance in the area of capitalization:

First, the Department does provide favorable financing, including in comparison to the commercial marketplace, and this financing reduces the need for privately funded working capital on DoD contracts.

Second, the Department recognizes what is called “cost of money” as an allowable cost. Cost of Money is addressed in FAR 31.205-10, which states that it is “an imputed cost that is not a form of interest on borrowings.” According to the Defense Contract Audit Agency Contract Audit Manual (CAM), Cost Accounting Standard 414 “recognizes the cost of facilities capital as a contract cost.” Further details on the calculation can be found in the DCAA CAM.

Third, the Department also recognizes additional profit as it relates to the concept of “working capital” through its Weighted Guidelines. For example, if the progress payment rate is 80% on a given contract, the profit recognition will be given to the remaining 20% that is considered to be financed by the company. The WGL uses the length of time required to perform the substantive portion of the acquisition and the Treasury rate in its calculation.

If interest were to be made an allowable expense, the government would have to relook at CAS 414 and the Department would have to relook at the working capital adjustment recognized in profit negotiations. The mechanics of making interest an allowable expense would be extremely complicated, in terms of allocability to contracts and the determination of reasonableness. Most significant, there could be some very serious unintended consequences, such as the government’s influence on the capital structure of a given company. As companies have a duty to maximize value for their shareholders, there would be an incentive for debt to be used to finance share buy-backs and pay dividends, at the cost of United States taxpayers. Debt could also be used to finance mergers and acquisitions and perhaps inflated amounts of goodwill in the process.

Recommendations

The Department recommends the action detailed below; the bracketed reference ties to the summary table in the Executive Summary.

The Department finds that interest should remain an unallowable cost. [Action 7] The Department recognizes that small businesses do not necessarily have the same opportunities as their larger counterparts to raise capital, but rather than making interest allowable, the Department should look for opportunities to assist small businesses on defense contracts from being in a position where they need to raise capital through debt. As described in Section 4, improving small business prime contractors’ access to Government financing could include the Department exploring the development of a new form of contract financing.

Exhibit 6-1. Boeing Commercial and Defense Segments Financial Results

Based on the size of its commercial and defense segments, Boeing provides a unique opportunity to compare the risks and opportunities afforded by commercial and defense segments. Both segments are managed by the same Chief Executive Officer, but function largely independent of one another and report financial results specific to each segment.⁴²

Boeing Reporting Segments: Commercial, Defense, Hybrid

Boeing has reorganized a number of times since 2000, which has resulted in various reporting segments. Table 6-6 lists the segment titles identified by Darden and the years they were in effect for financial reporting purposes. The one constant is the Boeing Commercial Airplanes (BCA) segment. Darden classified each of the segments based on the percentage of revenue attributed to defense. The criterion for a segment to be classified as Defense was that the segment had to have derived 75% or more of its revenue from defense. Hybrid had more than 25% but less than 75% of revenue from defense.

Some programs involve the combined efforts of Boeing's commercial and defense segments. For example, the KC-46 Tanker is a Boeing Defense Space & Security (BDS) program but as a 767 variant, airframe production occurs at BCA's Everett, WA plant. The conversion to a tanker occurs at the BDS facility at Boeing Field in Seattle. Although it represented a relatively small amount of total revenue reported for its commercial segment, the revenue and costs for BCA efforts on all military derivative programs like the KC-46, were reported as part of BCA financial data until 2019. As of 2019, Boeing no longer reports military derivative efforts at BCA and records all revenue and costs under BDS. Since the KC-46 has experienced challenges and financial losses, the shift in reporting has had an impact on BDS financial results.

⁴² Not all financial measures are applicable at the segment level. For example, Operational Profit and Margin will generally be reported at the segment level but Net Profit and Margin will only appear at the corporate level.

Table 6-6

BOEING CO Reporting Segment	Years Reporting	Commercial / Defense / Hybrid
Commercial Airplanes	2000 – 2022	Commercial
Aircraft and Weapon Systems	2000 – 2003	Defense
Network and Space Systems	2001 – 2014	Defense
Precision Engagement and Mobility Systems, Boeing Military Aircraft	2004 – 2009	Defense
Boeing Military Aircraft	2010 – 2014	Defense
Defense Space & Security	2015 – 2022	Defense
Space and Communications	2000	Hybrid
Global Services & Support Systems	2001 – 2009	Hybrid
Launch and Orbital Systems	2001 – 2003	Hybrid
Global Services & Support	2010 – 2014	Hybrid
Global Services	2015 – 2022	Hybrid

Boeing and COVID-19

Firms with significant revenues tied to commercial air transportation experienced significant financial impacts during COVID-19. The losses reported by Boeing's Commercial Airplanes segment (BCA) were the largest amongst defense contractors with commercial segments. The highlighting of the situation as it relates to COVID-19 and Boeing is not to be critical of Boeing commercial practices. It is to reinforce the relative safety of the defense-specific segments of the defense industry.

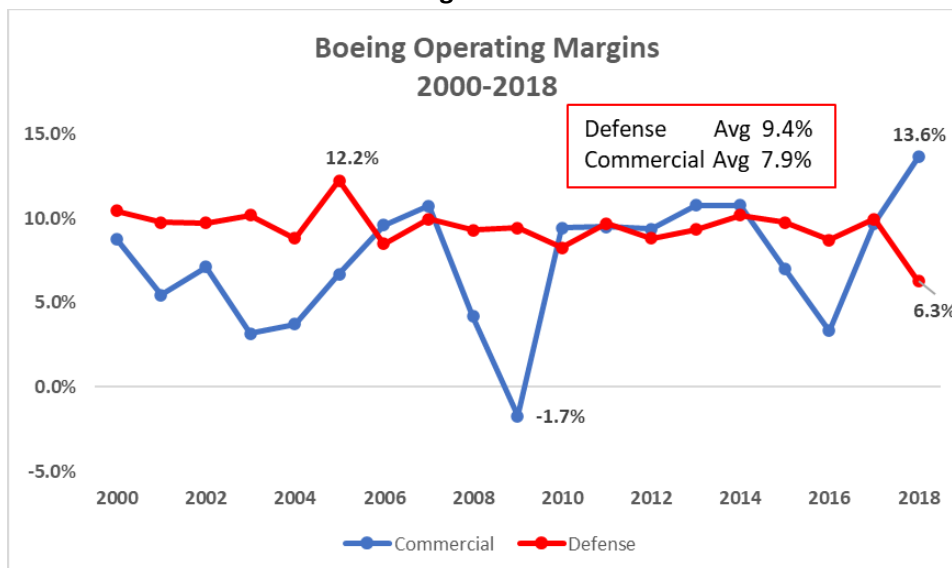
At the corporate level, Boeing began reporting significant losses prior to COVID-19 which were related to risks in the commercial market. In 2019, in the aftermath of the commercial 737 MAX situation, Boeing Commercial Airplanes reported an operating loss of \$6.7B. Losses at BCA due to the 737 MAX continued in 2020 but were dwarfed by the impact of COVID-19 which continued into 2021. DoD wanted to understand the degree to which COVID-19 and inflation to date impacted Boeing's Commercial and Defense segments. However, as of the 3rd quarter 2022, Boeing reported a \$3.7B loss for its Defense segment. While Boeing's losses in Defense, as reported in its Annual Report filed pursuant to the SEC's 10-K requirement⁴³, were not attributed primarily to COVID or inflation to date, they warrant discussion here. Since the Hybrid segment was a combination of both Commercial and Defense, it was not examined as it would not be possible to determine the impact on each.

Before looking at the periods impacted by 737 MAX and COVID-19, it is helpful to understand the relative consistency of the Defense segment profitability versus the Commercial segment. Figure 6-20 shows the operating margins for both segments from 2000 to 2018. This relative consistency of the Defense Segment is not surprising based on the difference in business environment between defense

⁴³ U.S. Securities and Exchange Commission (SEC) Form 10-K, ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934. Blank form available at: <https://www.sec.gov/files/form10-k.pdf>

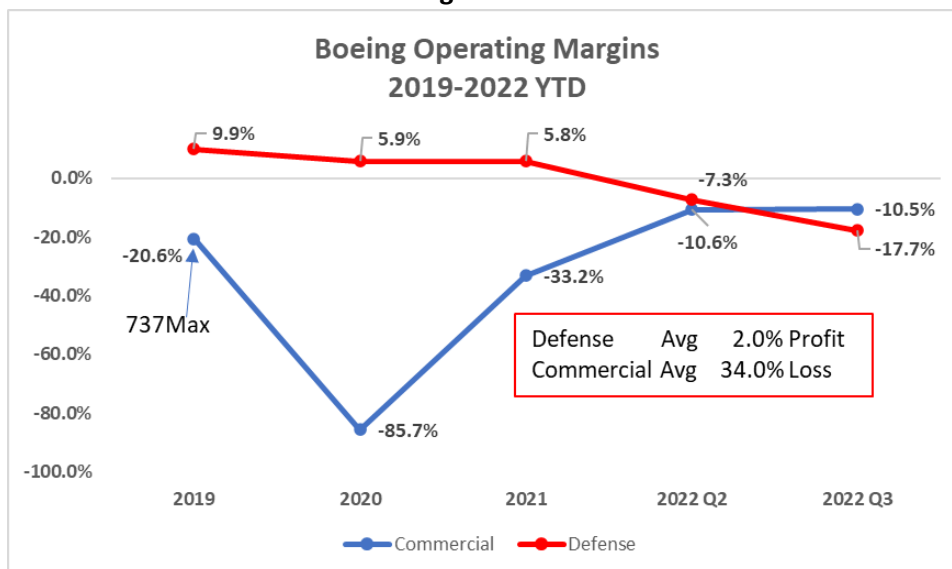
and commercial businesses (see Attachment 1). As disclosed by Boeing in its 2018 10-Q and 10-K reports, the drop in Defense operating margin in 2018 is due to Boeing winning two competitions for development efforts and declaring a loss on both programs in the same quarter it won the competitions.

Figure 6-20



The magnitude of the COVID-19 impact on the Commercial segment is obvious as shown in Figure 6-21 but the Defense segment also saw margins decline noticeably during 2020 and 2021. Although not full-year results, in September 2022, the Defense segment Year-to-Date (YTD) operating loss percentage was worse than Commercial segment for the first time.

Figure 6-21



The 2019 operating loss of 20.6% for Boeing Commercial in Figure 6-21 is as reported by Boeing in its 2019 10-K which showed a \$6.657B *operating loss*. The Compustat database reflected a 5.0% operating margin based on a \$2.608B *operating profit*. It is unclear how the Compustat value was derived but DoD utilized the value as reported in the Boeing 10-K.

In Table 6-7, the results for the Commercial and Defense segments are summarized. The data shows that the Defense segment, while generating \$304B less in total revenue (\$531B vs \$835B), generated \$11.7B more in total operating profit (\$42.5B vs \$30.8B) since 2000.

Table 6-7

	2000-2009	2010-2019	2020-2021	2022 YTD	Total
Commercial					
Revenue	\$ 282,477	\$ 500,198	\$ 35,655	\$ 16,643	\$ 834,973
Operating Profit (Loss)	\$ 16,467	\$ 36,393	\$ (20,322)	\$ (1,744)	\$ 30,794
Operating Margin⁴⁴	5.8%	7.3%	-57.0%	-10.5%	3.7%
Defense					
Revenue	\$ 218,813	\$ 238,751	\$ 52,797	\$ 20,678	\$ 531,039
Operating Profit (Loss)	\$ 21,418	\$ 21,627	\$ 3,083	\$ (3,656)	\$ 42,472
Operating Margin	9.8%	9.1%	5.8%	-17.7%	8.0%

Boeing Defense Segment

Although Boeing Defense segment was more consistent and significantly more profitable than Boeing Commercial over the entire 2020 to 2022 YTD time period, the 2022 data indicates that it is not immune from suffering significant losses. Relative to this study however, DoD profit or financing policies are not considered drivers for the reported losses.

⁴⁴ Boeing Commercial Airplanes uses a “Program Accounting” approach for commercial aircraft, which essentially spreads production costs over all units expected to be produced over the life of the program (Program Quantity). Boeing uses that average cost, not actual cost, to calculate profit or loss reported each period. When actual cost exceeds the average, Boeing records the difference as an Inventory account titled Deferred Production Cost which will be allocated to future units as they are produced and sold. The Boeing 10-K will identify the amount of Deferred Production costs, by program, that remains in inventory at the end of the year. As of Sep 2022 Boeing Commercial Airplanes still had \$15.5B in Deferred Production Cost in inventory.

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DEPARTMENT OF DEFENSE

Contract Finance Study

ATTACHMENTS

1. BUSINESS ENVIRONMENT – DEFENSE VS. COMMERCIAL
2. DARDEN AND UNIVERSITY OF TENNESSEE FINANCIAL METRICS
3. INDEPENDENT RESEARCH AND DEVELOPMENT (IR&D)
4. IMPACT OF MERGERS & ACQUISITIONS (M&A)

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Attachment 1. Business Environment – Defense vs. Commercial

In order to evaluate the financial health of the defense industry, or any industry, it is important to understand the business environment in which it operates, and the factors that are unique or different in how business is conducted. This especially true whenever comparisons are made between companies in different industries. The business environment for a defense contractor is very different from the one a commercial company operates within.

Table 1 highlights the key differences between defense and commercial industries. Each will be discussed in more detail below the table.

Attachment 1, Table 1

Business Environment	Defense	Commercial	Impact to Defense Firms
Customer Funds Product Design and Development?	Yes	Rare	<ul style="list-style-type: none">▪ Greatly Reduced Risk▪ Additional Revenue & Profit \$
Use of Cost-Type Contracts?	Yes	Rare	<ul style="list-style-type: none">▪ No Cost Risk▪ Outstanding Cash Flow▪ Lower Fee Margins (consistent with risk)
Contract Financing Provided by Customer?	Yes	Rare	<ul style="list-style-type: none">▪ Greatly Improved Cash Flow
Delivery Payment	30 Days	IAW Contract	<ul style="list-style-type: none">▪ Predictable Cash Flow

Who Pays for Product Design and Development?

Commercial Model – The seller generally pays for development of new products

A company invests cash to develop new products, improve existing products or develop innovations that will reduce the cost of producing products with the hope and expectation that it will eventually recover that investment, plus an adequate return. That recovery can only occur if the product can be sold in the future, at a price sufficient to generate the profits necessary to yield an adequate return. Development of a major, complex commercial product can sometimes take many years and billions of dollars to accomplish. Companies are only willing to take such an enormous risk when the potential market for the product is also enormous.

Although the Institute for Defense Analyses (IDA) study (see appendices) was specifically focused on financing in the commercial marketplace, the report also addresses who pays for R&D in each product segment it analyzed. Based on the IDA report it is fair to say that sellers generally pay for R&D but IDA did provide limited examples where buyers make some contribution toward R&D. IDA cited one example in which a consortium of oil companies and shipyards paid for the development of liquefied natural gas ships.

Defense Model – DoD pays directly for the design, development and testing of new products

DoD issues contracts for the Research, Development, Testing and Evaluation (RDT&E)⁴⁵, for major weapons systems it acquires to meet specific military needs. Defense contractors are often asked to develop products that are extremely complex and re-define “state-of-art”. Also, the market for a defense-unique product can be very significant but not nearly as large as it would be for a commercial product. The limited and controlled market and the Government budget process make the business case for self-funded development problematic for a defense contractor. In recognition of this, DoD, not the contractor, pays for the design and development of the products it needs. The Government will normally conduct a competition to select the contractor⁴⁶, but once selected, the Government will pay the contractor whatever cost it incurs, plus a fee through the use of a cost-type contract. This design and development phase often takes many years and costs billions and sometimes tens of billions of dollars to complete. The direct paying of RDT&E costs by the Government dramatically changes the risk environment for defense contractors versus commercial firms. Although DoD awards the vast majority of RDT&E efforts using cost-type contracts, it has awarded contracts competitively for development on a fixed-price (usually Fixed Price Incentive Firm-Target) basis when a risk assessment supports it.

Examples:

In 2002, Boeing announced the beginning of development of a 7E7 wide-body aircraft which would become the commercial 787 Dreamliner. In 2011, after years of delays and overruns resulting in Boeing spending a reported \$32 Billion on development and production costs, Boeing began delivery of 787s but did so at a selling price that was less than the recurring cost to manufacture the aircraft. Usually when a company sells an item for less than it costs to produce, it results in a reported loss on financial statements. However, Boeing is allowed to record the difference, not as a loss, but as an element of inventory called “Deferred Production Cost”. While this allows Boeing’s Commercial segment to report more favorable profit margins, it does not change the fact that Boeing was very much “underwater” on the 787. After having delivered 1,006 aircraft over ten years, at the end of 2021, Boeing still had \$11.6 Billion in Deferred Production Cost for the 787 included in inventory which means that ten years after it began deliveries and 19 years after it began development, the Boeing Commercial segment was still “underwater” on the 787 production program *based on production cost alone*. The \$11.6 Billion in Deferred Production Cost does not include the approximately \$15 Billion that Boeing incurred for development as of 2011. Because of the enormous commercial market, Boeing may ultimately earn an adequate return on the 787 program.

By comparison, in 2001, DoD awarded System Design and Development (SDD) contracts for the F-35 Joint Strike Fighter program to Lockheed Martin and Pratt & Whitney, the prime contractors for the

⁴⁵ The effort may be described as Research and Development (R&D), Systems Design and Development (SDD) or Engineering and Manufacturing Development (EMD) as each describe efforts that DoD includes within budget documents as part of RDT&E. These efforts should not be confused with Independent Research & Development (IR&D) which is not part of the RDT&E budget because it is not contracted for separately. However, the cost of IR&D is also paid by DoD as it is included by contractors, in all DoD contracts as an element of proposed G&A cost. A full discussion of IR&D is included as Attachment 3 of this report.

⁴⁶ In some cases, DoD awards contracts to more than one contractor to design, develop and demonstrate a prototype which then allows a final competition to take place to select the contractor that will ultimately manufacture and deliver the product. All future contracts are awarded on a “sole-source” basis to that contractor.

aircraft and the engines respectively. By 2011 the SDD effort was 6.5 years behind schedule and \$13.5 Billion over budget and estimated to cost \$55 Billion. As of May 2022, the cost had grown to \$70 Billion.⁴⁷ Because it was contracted for using cost-type contracts, DoD has paid the entire cost, as incurred, plus fee to Lockheed Martin and Pratt & Whitney. Under cost-type contracts Lockheed Martin and Pratt & Whitney were entitled to be reimbursed for their actual cost incurred, plus fee every two weeks.

The Use of Cost-Type Contracts

Commercial Model – Cost type contracts are virtually non-existent

In the commercial world, a firm-fixed-price contract, in which all cost risk is borne by the seller, is used almost exclusively.

Defense Model – In FY 22, 30% of DoD procurement dollars were awarded using cost-type contracts

Although DoD prefers to use firm-fixed price contracts, when asking contractors to perform efforts in which the risk of successful performance is considered to be high, the Government does award cost-type contracts. The use of a contract type is mutual decision by the Government and the contractor. Although the Government may specify the contract type to be used in a competitive solicitation, it cannot compel any contractor to bid on any contract.

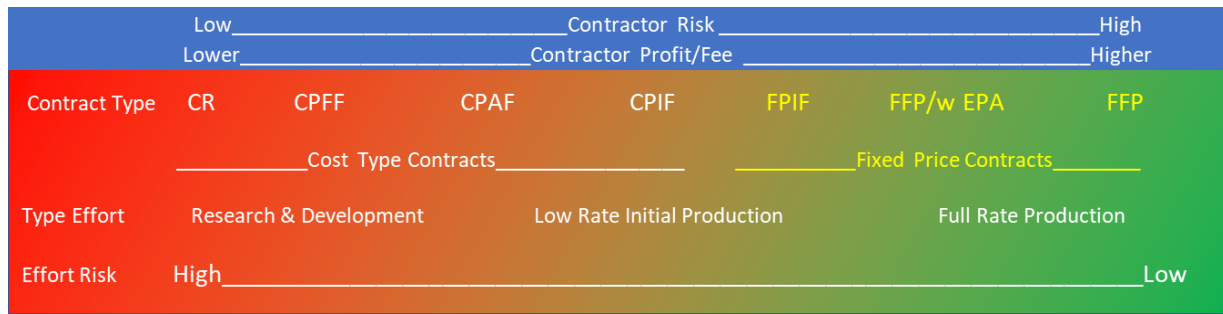
The nature of a cost-type contract is that the Government bears virtually all cost risk on the contract. That is, the contractor is only responsible for making “best efforts” in performing the contract and is required to do so only as long as the Government provides the funds to pay the contractor’s actual cost, regardless of the amount of cost overrun. On a cost-type contract the contractor is entitled to be paid all allowable cost incurred, plus fee, every two weeks.⁴⁸ Based on the risk allocation and the cash flow provided by the Government, the fee (profit) rates on cost-type contracts are lower than fixed-price contracts.

The linkage between risk, contract type and corresponding profit opportunity is shown in Figure 1.

⁴⁷ Congressional Research Service, F-35 Joint Strike Fighter (JSF) Program, Updated May 2022

⁴⁸ Payment of fee occurs pursuant to the established Schedule; the disbursement of an increment of fee with every cost voucher payment is the norm.

Attachment 1, Figure 1



In the commercial world, almost all contractual arrangements utilize Firm-Fixed-Price (FFP) contracts.

Even when fixed-price contracts are employed by DoD, the contract often authorizes contract financing, which is significantly different than what occurs in the commercial world and is explained below.

Contract Financing Provided by Customer

Commercial Model – Limited working capital financing by buyers – buyers typically pay at delivery

The concept of working capital and contract financing is simple. A company spends cash as it incurs expenses in producing an item it will sell in the future. The expenses for labor, materials and overhead (management and administrative personnel, utilities, maintenance etc.) involve cash expenditures over the entire production period until the item is sold, delivered and the customer pays for the item. The longer it takes to produce and sell an item, the longer cash is tied up. The cash needed to pay the expenses incurred prior to the delivery is referred to as working capital. A company needs cash to pay its bills.

In the commercial world, the cash needed to pay these bills can come from cash on hand from profits earned on prior sales, or a company can borrow cash needed, which means incurring additional cost for interest. If a company borrows cash, it is obtaining “*private financing*” of the working capital. Whether a commercial company uses cash on hand or borrows cash, the cash tied up in working capital creates a strong incentive for the seller to deliver the product to the customer as soon as possible. The customer benefits by the increased likelihood of on-time or early delivery.

In the commercial world, the seller produces the item and delivers the item to the buyer and then receives payment from the buyer. In the vast majority of cases in the commercial world, this is the only time cash flows from a buyer to the seller.

Based on the FAR requirement to determine if financing is customary in the commercial marketplace, the study conducted by IDA (see appendices) is particularly informative. IDA conducted a study on Financing in the Commercial Marketplace, specifically looking at “Pre-delivery” Payments (PDPs) which are advance payments and commercial interim payments made by buyers to sellers. While IDA found that financing was rare in the commercial marketplace, IDA did describe circumstances in which PDPs are provided. In Table 1 of its report, IDA described the type of commercial products for which PDPs are provided and the type of financing provided.

Table 1. Overview of Results by Industry
(Source: IDA, Financing in the Commercial Marketplace: Pre-delivery Payments)

Industry (Sorted by Seller Market Concentration Ratio: Descending Order)	Market Concentration*		PDP Practice					
	Low	Med	High	Customary		Sometimes	Not Customary	
	Market Concentration for Seller	Market Concentration for Buyer	Money Due on Contract Signing	Fixed Date (i.e., X Mos from Planned Delivery)	Milestone Driven	Progress Payments (Cost- Based)	R&D Contribution from Buyer	PDPs Cover >50% Price
Large Commercial Aircraft								
Business Jet - Luxury								
Satellite Launch Services								
Business Jet - Standard								
Helicopter								
Satellite Geosynchronous								
Shipbuilding								
Aviation 1st Tier Supplier								
Cloud Computing								
Railroad								
Automotive 1st Tier Supplier								
Packaging Machinery Mfg.								
Utility/Power Plants								
Construction								

* As measured by four firm concentration ratio (CR4): <50=low; >50 <85=med; >85=high.

In Table 2, IDA provided the primary factor (driver) in the use of PDPs and the ranges in the level of financing provided.

Table 2. PDPs by Industry Percentage of Price
(Source: IDA, Financing in the Commercial Marketplace: Pre-delivery Payments)

PDPs by Industries				
Industry	Concentration	PDPs as % of Price	PDP Driver	Type of PDP
Business Jets - Luxury	High	Up to 90%	Custom luxury product	Fixed date from delivery
Large Commercial Aircraft	High	30–67%*	Seller duopoly	Fixed date from delivery
Satellite Launch Services	High	90–100%	Time-sensitive launch window	Milestone
Satellite Geosynchronous	Medium	85–90%	Custom product	Milestone
Shipbuilding	Medium	20–60%	Industry standard	Milestone
Railroad Transportation	Medium	40–70%	PDPs for custom equipment only	Milestone
Aviation First-Tier Supplier	Medium	0%	No industry standard for PDPs	Delivery
Helicopters	Medium	15–25%	Competitive market; limited PDP	Fixed date from delivery
Business Jets - Standard	Medium	20%	Competitive market; limited PDP	Fixed date from delivery
Cloud Computing	Medium	0	Usage drives revenue	N/A
Public Utility	Low	90%	Industry standard/custom product	Progress
Construction	Low	90%	Industry standard/custom product	Progress
Packaged Machinery Mfg.	Low	25–30%	Competitive market; limited PDP	Milestone
Automotive First-Tier	Low	0	Competitive market; relational	

* The PDP is the percentage of price paid for the aircraft at discounted prices; see Table 3.

It is important to note that IDA found that the instances of financing in the commercial marketplace were rare, and in the situations described above, the total amount of financing provided is generally less than provided by the Government in progress payments or PBPs; IDA also found that commercial payments are provided less frequently. One of the intended benefits of the DoD-developed Contract Cash Flow Model is the ability to compare the financial returns for the same contract under various financing scenarios. This allows the user of the model to appreciate the financial benefits of improved cash flow.

Defense Model – Provided on fixed-price contracts

The criteria for when contract financing can be provided are in FAR 32.104(d) and DFARS 232.104 as shown below.

32.104 Providing contract financing.

(d) Unless otherwise authorized by agency procedures, the contracting officer may provide contract financing in the form of performance-based payments (see [subpart 32.10](#)) or customary progress payments (see [subpart 32.5](#)) if the following conditions are met:

(1) The contractor-

(i) Will not be able to bill for the first delivery of products for a substantial time after work must begin (normally 4 months or more for small business concerns, and 6 months or more for others), and will make expenditures for contract performance during the predelivery period that have a significant impact on the contractor's working capital; or

(ii) Demonstrates actual financial need or the unavailability of private financing.

(2) If the contractor is not a small business concern-

(i) For an individual contract, the contract price is \$3 million or more; or

(ii) For an indefinite-delivery contract, a basic ordering agreement or a similar ordering instrument, the contracting officer expects the aggregate value of orders or contracts that individually exceed the simplified acquisition threshold to have a total value of \$3 million or more. The contracting officer must limit financing to those orders or contracts that exceed the simplified acquisition threshold.

(3) If the contractor is a small business concern-

(i) For an individual contract, the contract price exceeds the simplified acquisition threshold; or

(ii) For an indefinite-delivery contract, a basic ordering agreement or a similar ordering instrument, the contracting officer expects the aggregate value of orders or contracts to exceed the simplified acquisition threshold.

DFARS 232.104 was added in 2017 to eliminate the need for the contracting officer to consider the FAR preference for private financing. This regulation makes the provision of customary contract financing the default situation for any fixed-price DoD contract valued at \$3 Million or more (for a large business) with a period of performance longer than one year, as shown below.

232.104 Providing contract financing.

For fixed-price contracts with a period of performance in excess of a year that meet the dollar thresholds established in FAR 32.104(d), and for solicitations expected to result in such contracts, in lieu of the requirement at FAR 32.104(d)(1)(ii) for the contractor to demonstrate actual financial need or the unavailability of private financing, **DoD has determined that—**

- (1) The use of customary contract financing (see FAR 32.113), other than loan guarantees and advance payments, is in DoD’s best interest; and**
- (2) Further justification of its use in individual acquisitions is unnecessary.**

[emphasis added]

In DFARS Publication Notice 20161222⁴⁹, the stated reason for the change was to provide “improved cash flow as an incentive for commercial companies to do business with DoD.” In that statement was the acknowledgement that Government contract financing is about contractor cash flow and that the financing is not generally present in the commercial world.

Government-provided contract financing is commonplace and is a significant advantage of the defense industry versus the commercial industry. That Government contract financing is provided at all creates a significantly better cash flow on Government contracts than is available in the commercial world. The level to which it is provided makes it exceptionally better than the commercial world.

Contract financing, in the form of progress payments at a rate of 75%, began in 1947. For large businesses, the customary progress payment rate has fluctuated between 70% and 90%. In 2020, in response to COVID-19, the rate applicable to DoD contracts was increased from 80% to 90% for large businesses and from 90% to 95 for small businesses. Prior to 2020, the only other time that the rate for large business was set at 90% was in August 1981 when the Prime Rate was at 19.50% and had stayed at 17.0% or higher for 19 consecutive months. By contrast, the current Prime Rate, in November 2022, had *risen* to 7.0% which was the highest it had been in 15 years but almost one-third of what it was in August 1981.

Since the main topic of the current study was contract financing, the following explains the two customary forms of contract financing provided by DoD to defense contractors.

Customary Contract Financing

The Federal Acquisition Regulation (FAR) recognizes that, as a customer, the Government prefers the commercial business model when it comes to contract financing. The FAR makes it clear that the preference is for contractors to obtain cash for working capital needs through private financing as stated in FAR 32.106(a) as shown below.

⁴⁹ Available at https://www.acq.osd.mil/dpap/dars/archive/2017/change_notices.html. The DFARS Publication Notice addressed two final rules (including Contract Financing, DFARS Case 2015-D026), one proposed rule, and two PGI changes).

32.106 Order of preference.

The contracting officer must consider the following order of preference when a contractor requests contract financing, unless an exception would be in the Government's best interest in a specific case:

- (a) **Private financing without Government guarantee.** It is not intended, however, that the contracting officer require the contractor to obtain private financing-
 - (1) At unreasonable terms; or
 - (2) From other agencies.
- (b) Customary contract financing other than loan guarantees and certain advance payments (see 32.113).
- (c) Loan guarantees.
- (d) Unusual contract financing (see 32.114).
- (e) Advance payments (see exceptions in 32.402(b)).

[emphasis added]

It should also be noted that the last three types of contract financing are not commonly used, and that advance payments are the least preferred method.

Even when the determination is made to provide Government contract financing, FAR 32.104(a) makes it clear that contracting officers must consider the availability of private financing in determining the extent of Government financing actually needed for "prompt and efficient performance" as shown below:

32.104 Providing contract financing.

(a).....contracting officers must:

- (1) Provide Government financing **only to the extent actually needed for prompt and efficient performance, considering the availability of private financing and the probable impact on working capital of the predelivery expenditures and production lead-times associated with the contract**, or groups of contracts or orders (e.g., issued under indefinite-delivery contracts, basic ordering agreements, or their equivalent);

[emphasis added]

The purpose of all Government contract financing is to assist the contractor in paying the cost it incurs prior to making delivery. The two customary methods of Government contract financing are progress payments and performance-based payments. Each is explained below:

Progress Payments

From a contract award perspective, progress payments are the simplest of the customary contract financing methods if the contractor has an adequate accounting system. There is no negotiation required to utilize progress payments. Progress payments are authorized on the contract when the standard progress payment clause is included in the contract. Progress payments are a form of non-commercial financing.

The concept is simple: the Government will pay the contractor a specified percentage of whatever its allowable incurred cost is each month. At the end of each month, the contractor submits a request for a progress payment to the Government based on its total cost incurred as of that month. The Department has a goal of paying progress payment requests within 7 days of receipt; recent DFAS metrics show progress payments are made, on average, 12.4 days after receipt of request. In 2020, via Class Deviation 2020-00010, the temporary progress payment rates became 90% for large businesses and 95% for small businesses. This deviation was issued in response to the COVID-19 pandemic, based on DoD's desire to improve cash flow to affected suppliers, particularly the smaller firms at the lower levels of the supply chain. (The customary progress payment rates are 80% for large businesses and 90% for small businesses.)

This means that a large-business defense contractor receiving progress payments will receive monthly cash payments from DoD equal to, at least, 90% of its actual contract cost incurred in the prior month. In other words, compared to a commercial firm performing an equivalent contract, no more than 10% of the cash required to perform the defense contract will come from the contractor's cash reserves, while the commercial company must utilize its own funds, or rely on debt or equity—each of which has a cost—to come up with 100% of the funds required to perform the commercial contract.

One important but little understood feature of progress payments that further benefits defense contractors is how financing payments made between a prime contractor and a supplier are handled as part of the progress payment process. If a prime contractor is a large business and provides progress payments or performance-based payments to a supplier, those payments are not subject to the 90% progress payment rate. **The prime contractor is reimbursed 100% for financing payments made to suppliers regardless of the progress payment rate that applies to all other costs.** The net effect of this treatment of financing payments to suppliers is that the large-business prime contractor may have an "effective" progress payment rate higher than 90% meaning even better cash flow, depending on the extent to which its subcontractors receive financing.

Progress payments are commonly described as "reimbursing" a contractor a set percentage of its allowable contract cost incurred each month. Reimbursement is a misnomer as it pertains to progress payments in that reimbursement generally refers to providing someone with cash to replenish cash previously spent. Progress payments are made based on "cost incurred," not cash spent by a contractor. The distinction is important.

For example, a contractor will receive invoices from suppliers and when a valid invoice is received, it creates an "incurred cost" in the contractor's accounting system even though the supplier invoice has not been paid yet by the contractor. The unpaid invoice, however, is included in the total incurred cost reported to the Government on a progress payment request. The Department's goal is to pay the contractor cash within seven days of receiving a valid progress payment request. Depending on when the supplier invoice was received and the payment terms between the contractor and the supplier, the contractor could receive the progress payment from the Government *before* it has paid the supplier. This is not a reimbursement. It means, for that cost, the contractor has use of Government money received until the supplier is paid. Prior to 2002, there was a "paid cost rule" in effect which required large businesses to have actually paid supplier invoices before they could include that cost in a progress payment request submitted to the Government. The "paid cost rule" did not apply to small businesses. In 2000, the paid cost rule for large business was eliminated.

Less significant, but positively affecting cash flow, is the fact that some incurred cost submitted for progress payments do not involve the expenditure of cash at all by the contractor. Costs for depreciation, amortization and the imputed cost of Facilities Capital Cost of Money (FCCOM) all result in cash payments to the contractor without a cash expenditure by the contractor.

Performance-Based Payments (PBPs)

Per FAR 32.1001(a), performance-based payments are the preferred Government financing method when the contracting officer finds them practical, and the contractor agrees to their use. PBPs do not require the contractor to have an adequate accounting system but do require the contractor to be compliant with Generally Accepted Accounting Principles (GAAP). This can allow non-traditional contractors to receive contract financing when PBPs are determined by the contracting officer to be practical. PBPs are a form of non-commercial financing.

Unlike progress payments which are tied directly to whatever actual cost incurred happens to be each month, PBPs are based on a *forecast* of what monthly cost are *expected* to be. PBPs are also different than progress payments in that total PBPs cannot exceed *90% of the contract price* which is greater than the *90% of cost* (the limit applicable to progress payments to large business contractors under Class Deviation 2020-O0010).

Commercial Financing

32.201 Statutory authority.

10 U.S.C. 3805 and 41 U.S.C.4505 provide that payment for commercial products or commercial services may be made under such terms and conditions as the head of the agency determines are appropriate or customary in the commercial marketplace and are in the best interest of the United States.

There are two types of commercial financing: advance payments and commercial interim payments. Advance payments cannot exceed 15% of the contract price before any performance of work under the contract. Any time commercial financing is provided, the Government must obtain security from the contractor.

Financing can be provided when the Government procures a commercial item if financing is customary in the commercial marketplace for the product being procured. In making the determination of what is customary in the commercial marketplace, the overall level of contract financing normally provided must also be considered. To that end, Tables 1 and 2 of the IDA study presented earlier in the Commercial Model section of this attachment can be a useful market research resource for contracting officers in making the determination of whether financing is applicable and to what level if it is.

Delivery Payments

Commercial Model – Payment terms negotiated on a contract-by-contract basis

There are no standard payment terms in the commercial environment. Instead, payment terms are typically negotiated on a contract-by-contract basis. As noted above, buyer financing, i.e., pre-delivery

payments to the seller for the purpose of helping the seller cover the costs of performance, is not common in many commercial markets. When the seller receives the entire amount due from the buyer after delivery, the timing of delivery payments becomes very important to the seller. The seller will always prefer the contractual payment terms negotiated with the buyer to be as short as possible, but their success in achieving this goal is largely dependent on which party to the contract has greater leverage in the negotiation. If the seller has the greater leverage, they may be able to negotiate a shorter payment term, such as net 30 or better. Alternately, if the buyer has the greater leverage, they may be able to dictate the payment terms, and this may result in the seller having to wait longer, perhaps 60 or 90 days after delivery, to receive payment. Small businesses, in particular, are dependent on both quick and on-time payments from buyers in order to maintain a predictable cash flow. Interruptions in anticipated cash flows can cause fiscal challenges for any company, but these may be much more impactful for small businesses which do not have significant cash reserves.

Defense Model – 30-day payment terms, with interest on late payments

With few exceptions⁵⁰, prime contractors benefit from the Prompt Payment Act and its implementing FAR clauses. These clauses (FAR 52.232-25, 52.232-26, 52.232-27, or 52.212-4, as applicable⁵¹) establish the due date for payments under the contract, and require that the Government pay interest on the amount due when a payment is not made timely in accordance with the prompt payment due date. Every Federal contract will include one of these Prompt Payment clauses. In most cases, the prompt payment due date is 30 days after the later of receipt of a proper invoice or acceptance of the supplies or services. Shorter timeframes apply for some commodities, e.g. perishable foodstuffs. While 52.232-25 and 52.212-4(i) apply only to delivery payments (payments for accepted supplies or services, including payments for accepted partial deliveries but excluding contract financing payments), 52.232-26 and 52.232-27 also apply to progress payments based on percentage or stage of completion in the context of Architect-Engineer or construction contracts, respectively. With respect to Government acceptance of goods or services, the Prompt Payment clauses establish a 7-day “constructive acceptance” parameter. It would defeat the intent of the Prompt Payment Act if contractors were denied both timely payment and applicable interest because Government acceptance did not occur timely. Therefore, for purposes of the “interest clock”, Government acceptance is presumed to occur no later than 7 days after delivery, unless there is a disagreement over quantity, quality, or contract compliance. The constructive acceptance date does not impact the Government’s rights when supplies or services are non-conforming, but establishes a start date for calculation of the invoice due date if the Government’s inspection and acceptance are not accomplished timely.

DoD’s payment terms provide prime contractors with predictable cash flow, and compensation in the form of prompt payment interest when an invoice payment is not made timely. Defense Finance and

⁵⁰ Narrow exceptions to applicability of the Prompt Payment Act include payments related to emergencies, utility payments, and Commodity Credit Corporation payments. (5 CFR 1315)

⁵¹ FAR 52.232-26, Prompt Payment for Fixed-Price Architect-Engineer Contracts, is prescribed for use in fixed-price Architect-Engineer Contracts. FAR 52.232-27, Prompt Payment for Construction Contracts, is prescribed for use in construction contracts. FAR 52.232-25, Prompt Payment, is prescribed for use in all other solicitations and contracts, except when the clause at 52.212-4, Contract Terms and Conditions-Commercial Products and Commercial Services, applies, or when payment terms and late payment penalties are established by other governmental authority (e.g., tariffs).

Accounting Service (DFAS) metrics from April 2020 through 31 Jul 2022 show that delivery invoices from DoD prime contractors were paid, on average, 12.6 days after receipt of invoice.

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Attachment 2. University of Virginia/Darden and University of Tennessee Financial Metrics

Darden Financial Metrics

Darden provided Exhibits 1 and 2 below to explain the Compustat data elements used in its analysis, the financial measures it analyzed and the formula for each measure.

Exhibit 1
Abbreviations for Primary Data Items

Corporate Database		Business-Segment Database	
REVT	Total revenue	REVTS	Total revenues
OP	Operating profit	OPS	Operating profit
NOPAT	Net operating profit after tax	IAS	Identifiable total assets
NI	Net income	DPS	Depreciation and amortization
ICAPT	Invested capital (net assets)	CAPXS	Capital expenditures
ACT	Current assets		
LCT	Current liabilities		
AT	Total assets		
SEQ	Shareholder equity		
NOPAT	Net operating profit after tax		
NI	Net income		
SEQ	Shareholder equity		
OANCF	Net cash flow from operations		
CAPX	Capital expenditures		
CSHO	Common shares outstanding		
PRCC_F	Closing share price (fiscal year)		
PRCCM	Monthly closing stock price		
MTRF	Monthly total return factor		
YE	Year end		
WACC	Weighted-average cost of capital		

Exhibit 2
Full Set of Financial Measures Examined in Analysis

Financial Measure	Corporate Calculation	Business-Segment Calculation
Return on sales (ROS) or operating margin	$\text{NOPAT} \div \text{REVT}$	$\text{OPS} \div \text{REVTS}$
Asset turnover	$\text{REVT} \div \text{ICAPT}$	$\text{REVTS} \div \text{IAS}$
Return on net assets (RONA)	$\text{NOPAT} \div \text{ICAPT}$	
Cash-flow return on net assets (CFRONA)	$\text{OANCF} \div \text{ICAPT}$	
Cash-flow return on identifiable assets (CFROA)		$(\text{OPS} + \text{DPS} - \text{CAPXS}) \div \text{IAS}$
Free cash-flow return on net assets (FCFRONA)	$\text{OANCF} - \text{CAPX} \div \text{ICAPT}$	
Return on assets (ROA)	$\text{NI} \div \text{AT}$	$\text{OPS} \div \text{IAS}$
Return on book value of equity (ROE)	$\text{NI} \div \text{SEQ}$	
Return on market value of equity (Market ROE)	$\text{NI} \div (\text{CSHO} \times \text{PRCC_F})$	
Total shareholder return (TSR)	$\% \text{change} (\text{PRCCM}_{\text{YE}} \times \text{MTRF}_{\text{YE}})$	
Volatility in TSR (investor risk)	$(\sigma \% \text{change} (\text{PRCCM} \times \text{MTRF})) \times (\sqrt{12})$	
Economic value added (EVA)	$\text{NOPAT} - \text{WACC} \times \text{ICAPT}$	

UT Financial Metrics

UT identified the financial measures it analyzed in its Exhibit 2 below and the Compustat data elements and formulas used to measure each.

Exhibit 2
Full Set of Financial Measures Examined in Analysis

Financial Measure	Corporate Calculation	Business-Segment Calculation
Return on sales (ROS) or operating margin	$\text{NOPAT} \div \text{REVT}$	$\text{OPS} \div \text{REVTS}$
Asset turnover	$\text{REVT} \div \text{ICAPT}$	$\text{REVTS} \div \text{IAS}$
Return on net assets (RONA)	$\text{NOPAT} \div \text{ICAPT}$	
Cash-flow return on net assets (CFRONA)	$\text{OANCF} \div \text{ICAPT}$	
Cash-flow return on identifiable assets (CFROA)		$(\text{OPS} + \text{DPS} - \text{CAPXS}) \div \text{IAS}$
Free cash-flow return on net assets (FCFRONA)	$\text{OANCF} - \text{CAPX} \div \text{ICAPT}$	
Return on assets (ROA)	$\text{NI} \div \text{AT}$	$\text{OPS} \div \text{IAS}$
Return on book value of equity (ROE)	$\text{NI} \div \text{SEQ}$	
Return on market value of equity (Market ROE)	$\text{NI} \div (\text{CSHO} \times \text{PRCC_F})$	
Total shareholder return (TSR)	$\% \text{change} (\text{PRCCM}_{\text{YE}} \times \text{MTRF}_{\text{YE}})$	
Volatility in TSR (investor risk)	$(\sigma \% \text{change} (\text{PRCCM} \times \text{MTRF})) \times (\sqrt{12})$	
Economic value added (EVA)	$\text{NOPAT} - \text{WACC} \times \text{ICAPT}$	

Attachment 3. Independent Research and Development (IR&D)

IR&D in the defense industry is often inaccurately referred to as an “investment” a contractor makes on behalf of the warfighter. This study reveals that the opposite is true. IR&D is an investment by DoD and IR&D is a generator of revenue, profit and cash flow for the contractor.

That IR&D is sometimes referred to as “company-funded R&D” or “company sponsored IR&D” helps explain why it may be the most misunderstood element of defense business. In its public comments submitted in regard to this study, NDIA made a similar claim regarding the “investment”:

Cash flow is also significant within the Defense Sector as it touches upon other business operations as well. A company that has strong cash flow, for example, might be in the position to pursue increased innovation through more significant investment in internal R&D activities.

The confusion also may lie in assuming IR&D for defense contractors is similar to IR&D in the commercial sector. While the efforts may be very similar, defense industry IR&D bears little semblance to IR&D in the commercial sector from a financial standpoint. The difference between the two business models is significant.

Commercial Sector IR&D

In the commercial sector, companies make the decision to spend cash on IR&D with the goal being a technological advance that will ultimately improve the firm’s financial situation in the future and return more than the cost spent on IR&D. In a competitive, technological, commercial environment, IR&D is usually a necessary annual expenditure despite the risk that it may not be successful. In a competitive, commercial market, the market sets the price for a firm’s goods and services. To the degree that a firm’s *prior* IR&D investments have yielded advancements in the product it is selling today, the market price for that product will reflect the value that consumers place on those advancements. Therefore, in the commercial sector it is the market and market price that determine whether a commercial firm’s investment in IR&D has paid off for that firm.

Defense Sector IR&D

Sometimes the terms R&D and IR&D are used interchangeably in corporate annual reports. For defense contractors, the distinction often lies in who the contractor considers to have directly “funded” the effort. When R&D is described as “customer-funded” it refers to R&D contracts awarded by and performed for Government customers. IR&D on the other hand is not incurred in the *direct* performance of a specific contract and is usually described as being “company-funded” in annual reports. However, “company-funded” is a misnomer as the Government will generally pay for all IR&D incurred on its behalf based on the relative share of annual revenue derived from Government

business⁵². For example, Lockheed Martin derives nearly all its annual revenue from Government customers and therefore will also charge those Government customers for nearly all “company-funded” IR&D cost it incurs each year, plus profit on that cost. However, the confusion over what company-funded actually means is understandable in the way it is sometimes described in annual reports. For example, in Lockheed Martin’s 2019 annual report it makes two statements regarding “company-funded” R&D. The first statement appears early in its annual report on Page 16 and indicates that company-funded means “using our own funds” while the clarifying statement referenced in Note 1 appears 51 pages later and indicates that “company-funded” costs are “generally recoverable on customer contracts with the U.S. Government”. Relevant excerpts from the 2019 annual report are shown below.

Page 16 of Lockheed Martin 2019 Annual Report:

“We conduct research and development (R&D) activities using our own funds (referred to as company-funded R&D or independent research and development (IR&D)) and under contractual arrangements with our customers (referred to as customer-funded R&D) to enhance existing products and services and to develop future technologies. R&D costs include basic research, applied research, concept formulation studies, design, development, and related test activities. See “Note 1 – Significant Accounting Policies” (under the caption “Research and development and similar costs”) included in our Notes to Consolidated Financial Statements.”

Page 67 of Lockheed Martin 2019 Annual Report under Note 1 referred to above:

“Company-funded R&D costs are allocated to customer contracts as part of the general and administrative overhead costs and generally recoverable on our customer contracts with the U.S. Government.”⁵³

If IR&D costs were simply recoverable on Government contracts, long after the costs were actually incurred, it would still be a huge advantage when compared to a commercial firm which hopes to recover those costs on future sales of products produced by or benefitting from the IR&D. In reality, the “recovery” of IR&D cost on Government contracts happens essentially in real time as the cost is included on cost vouchers and progress payment⁵⁴ requests submitted to the Government on cost-type and fixed-price contracts respectively.

As will be shown in the next section, defense contractors do not “hope to recover” IR&D at some later date like commercial counterparts, they include *future* IR&D cost plus profit in prices they negotiate with the Government today.

⁵² Most defense companies will account for IR&D at the corporate level, as an element of General and Administrative (G&A) costs that is allocated to all customers on an equitable basis. A notable exception to this is Boeing which separately identifies IR&D by business segment allowing visibility into specifically commercial IR&D.

⁵³ U.S. Government customers include foreign governments as part of Foreign Military Sales (FMS) contracts which are awarded under U.S. Government contracts to defense contractors.

⁵⁴ Performance-based payments are the preferred financing method on fixed-price contracts and provide even better cash flow than progress payments as described in Attachment 2 of this report.

IR&D is a Profit and Cash Generator for Defense Firms

IR&D for defense contractors contains virtually none of the risk present in the commercial sector and provides a near guaranteed, current-year return on IR&D spending. UT correctly points out that, for defense contractors, IR&D is an allowable, reimbursable cost on Government contracts. What UT did not specifically address, but is also true, is that because IR&D is allowable and reimbursable on Government contracts, contractors include *forecasted, future* IR&D expenses as a profit-bearing cost in all proposals submitted to the Government. Therefore, for defense contractors, IR&D is a *generator of revenue, profit and cash* regardless of whether the IR&D projects themselves ultimately yield a technological advance or not.

For those unfamiliar with the way allowable costs *generate* profit for defense contractors it will be helpful to understand how the prices DoD pays for the products it buys are proposed and negotiated. A contracting officer in the Government is required to negotiate fair and reasonable prices for the products it buys. Whenever possible, the Government relies on prices set by competition to ensure a fair and reasonable price is obtained. When competition does not exist, and there is only one source for the product, the fair and reasonable price will be achieved through negotiation with that sole-source contractor.

For a contractor, the profit ultimately realized on a contract is simply the difference between the price it was paid for the item and the cost it incurred in producing that item. Since the contract price is negotiated *before* the item is actually produced, the basis for the price negotiation will be a *cost proposal* submitted by the contractor to the Government. The contractor will provide the estimated cost it expects to incur and then adds a proposed level of profit (profit %) *to that cost* to arrive at the proposed price. In the absence of a competitive situation in which competition will produce a fair and reasonable price, this is a logical approach to determining the price to be proposed to the Government. The Government will analyze each element of the contractor's proposal before negotiations commence to determine the reasonableness of each estimate. The Government, like the contractor, will add profit, as a percentage of the *evaluated* cost, to determine its price objective in negotiations. The contractor's proposal and the Government evaluation of it will be the basis of negotiations. The result of the negotiation will be an agreement on price. Depending on the contract type negotiated, the contract will separately identify the total cost and profit/fee negotiated or just the total price negotiated.

However, in either case, it is apparent that because a profit % is applied to the proposed and evaluated cost, the greater the cost, the greater the proposed profit dollars will be. In other words, each dollar of profit-bearing cost *generates* the same percentage of profit in a contractor's proposal. This is the natural outcome of a cost-based profit method. When a fair and reasonable price is negotiated it is the expectation of both parties that the price includes all costs expected to be incurred plus a fair profit applied to that cost. Actual contract performance will ultimately determine the level of profit realized on the contract by the contractor.

In Table 1 that follows, an example of a contractor cost proposal is provided to show the elements of cost included in a typical cost proposal. Note that G&A, which includes IR&D, is included as a profit-bearing cost and therefore *generates* profit just like all other profit-bearing cost. G&A is allocated to all

contracts so that all contracts bear a proportionate share of total G&A costs, which means all contracts bear a proportional share of IR&D costs.⁵⁵

Keep in mind that, due to the relative timing of contract negotiation and contract performance, the contractor's proposal presents costs *estimated* to be incurred *in the future* based on the contract period of performance. For major weapon system contracts, the period of performance can be three years or longer. In that case, the costs shown in Table 1 would be broken out by year in the contractor's cost proposal. The key point, as it pertains to IR&D, is the estimated cost of *future* IR&D that is included in the price of a contract negotiated today.

Attachment 3, Table 1

Cost Element	Proposed Amount	
Material & Subcontracts	\$ 50,000,000	
Direct Labor	12,000,000	
Overhead	22,000,000	
Other Direct Costs (e.g. travel)	1,000,000	
G&A	15,000,000	
Subtotal Costs (Profit Bearing)	\$100,000,000	The proposed profit % will be applied to this value. All costs above, including G&A and therefore IR&D, are included in this total and therefore <i>generate</i> profit.
Facilities Capital Cost of Money (FCCOM) ⁵⁶	1,000,000	Not a profit-bearing cost
Total Cost	\$101,000,000	
Profit (@ 15%)	15,000,000	15% of Subtotal Costs above
Total Price	\$116,000,000	

To demonstrate how IR&D actually generates revenue, profit and cash flow for the contractor, Table 2 provides a side-by-side comparison, of the same proposal from Table 1 with and without IR&D cost included. The "without IR&D" situation would be if the contractor, before submitting its proposal, decided to cancel all future IR&D spending and therefore removed the estimated IR&D cost from its cost proposal.

⁵⁵ Cost accounting standards define "allocation" as "the process of assigning a cost, or a group of costs, to one or more cost objective(s), in reasonable proportion to the benefit provided or other equitable relationship." If a contractor has both defense and commercial revenue, IR&D would be included in G&A and allocated to defense and commercial work accordingly. Therefore, if a firm derives 80% of revenues from sales to the Government, it is reasonable to assume that approximately 80% of G&A, including IR&D, is being paid for by the Government. Similarly, approximately 20% of IR&D would be allocated to commercial customers.

⁵⁶ FCCOM is an allowable, *imputed* cost on Government contracts. It is not a profit-bearing cost in cost proposals. However, since it is not a true accounting cost for contractors, dollars received for FCCOM itself contribute dollar-for-dollar to the total profit reported on the contractor's financial statements.

Attachment 3, Table 2

Cost Element	Proposed Amount With IR&D	Proposed Amount Without IR&D	
Material & Subcontracts	\$ 50,000,000	\$ 50,000,000	
Direct Labor	12,000,000	12,000,000	
Overhead	22,000,000	22,000,000	
Other Direct Costs (e.g. travel)	1,000,000	1,000,000	
G&A	15,000,000	10,500,000	Assume 30% ⁵⁷ of total estimated G&A cost (\$4.5M) was for IR&D
Subtotal Costs (Profit Bearing)	\$100,000,000	\$95,500,000	
Facilities Capital Cost of Money	1,000,000	1,000,000	
Total Cost	\$101,000,000	\$96,500,000	
Profit (@ 15% of cost)	15,000,000	14,325,000	15% of Subtotal Costs
Total Price	\$116,000,000	\$110,825,000	

The immediate impact of ending all future IR&D spending is that cost proposals to the Government would reflect less cost and therefore less profit dollars even though the profit rate remained the same. For the contractor the impact is this: Sales or Revenue values drop by 4.46% ($110,825,000 / 116,000,000 = 95.54\%$) and profit dollars and cash flow drop by 4.5% ($14,325,000 / 15,000,000 = 95.50\%$).

Reductions in total revenue, profit and cash flow are generally not a desirable outcome for a company, although this is what would happen if IR&D spending were eliminated. From the Government's perspective, the price for the item being bought is 4.5% lower, which is generally a desirable outcome. Based on the fact that DoD pays a higher price because it pays for IR&D plus profit, it is DoD that makes the investment in IR&D.

The Table 2 example is not advocating for an end to IR&D efforts on the part of defense contractors. In fact, the opposite is true. DoD is committed to making the investment in IR&D and encourages contractors to pursue IR&D projects that can be of benefit to DoD. What Table 2 shows is that IR&D spending by defense contractors is a generator of revenue, profit and cash flow for those contractors.

As noted earlier, in the commercial world, if IR&D fails to produce the desired results, the cost is never recovered by the company. For defense contractors, the cost of IR&D is not only recoverable as incurred, *future* IR&D costs are included in the cost and price of items being acquired today. This is true regardless of whether future IR&D efforts are successful.

The only requirement for IR&D costs to be allowable on defense contracts applies to major defense contractors. For IR&D purposes a major contractor is one for whom total IR&D/B&P costs exceeded \$11 Million in the preceding year. A major contractor must report IR&D projects into the Defense Innovation Marketplace maintained by the Defense Technical Information Center (DTIC) in order for costs associated with those projects to be allowable on DoD contracts. It is a reporting requirement, not

⁵⁷ The assumed 30% is used for simplicity but is based on the Northrop Grumman data for 2019 as shown in the final section of this attachment. In 2019, IR&D expenses accounted for 29% of total reported G&A expenses.

an approval process on the part of DTIC. To be allowable, a project must comply with the reporting requirements in DFARS 231.205-18. The cognizant Administrative Contracting Officer (ACO) for each contractor will determine the allowability of IR&D cost in accordance with that DFARS requirement. GMU, in a footnote in its report on the FCF task, noted that the allowability of IR&D costs is rarely challenged.⁵⁸

As another example of how IR&D costs are addressed in a contractor's annual 10-K report, the last section of this attachment will walk the reader through what Northrop Grumman said about IR&D in its 2019 10-K and how the financial statements confirm that IR&D, as an allowable cost, is not an investment on the part of the contractor.

IR&D and Intellectual Property Rights

The lack of risk on the part of the contractor, the allowability and reimbursement of IR&D cost and increased profit the Government pays on that cost are not the only things that make IR&D spending an attractive decision for defense contractors. When IR&D efforts do result in a technological advance, despite the fact the Government paid the cost of the IR&D (plus profit), current laws and regulations allow the contractor to own the intellectual property (IP) rights to anything developed *with IR&D funds*. When this occurs, and the contractor receives the IP rights, it only strengthens the contractor's position as a sole-source contractor for a product and can lessen the likelihood of facing competition for sustainment efforts for that product in the future. When technological advances are the result of a directly-funded effort by the Government on a specific R&D contract, the Government would own the intellectual property rights under that contract.

IR&D and the R&D Tax Credit

It would appear that IR&D efforts meet the qualifications for the federal R&D Tax Credit. One of the IRS qualifications is that the company must hold the IP rights for anything developed from qualifying R&D expenses. Since the Government owns the IP rights for directly funded R&D contracts, those efforts would not qualify. IR&D efforts, however, would meet that requirement.

Not all contractors separately identify the amount of the R&D Tax Credit they received but all tax credits benefit the company. Below are specific references to the R&D Tax Credit contained in the 10-K for four of the top DoD contractors. To the degree that these tax credits were earned as a result of IR&D expenses, this becomes an additional benefit of IR&D.

Lockheed Martin: *"The R&D tax credit reduced our effective tax rate by 2.0 percentage points in 2019 and 2.4 percentage points in 2018."*

General Dynamics: *"Our effective tax rate was 17.1% in 2019 and 17.8% in 2018. The decrease in our effective tax rate in 2019 is due primarily to increased R&D tax credits and favorable 2019 regulatory developments associated with implementing the Tax Cuts and Jobs Act (tax reform), which was enacted on December 22, 2017, and was generally effective in 2018."*

⁵⁸ Per GMU: As one accountant with long experience in both government and industry told us, "I have never seen an unallowable R&D cost. I'm sure it exists. I've just never seen it." Eubank, 27 August 2021.

Raytheon: “Our effective tax rate in 2019 was lower than the statutory federal tax rate of 21% primarily due to FDII, which decreased the rate by 3.3% and the R&D tax credit, which decreased the rate by 2.3%. The offsetting increase of 1.1% is composed of various unrelated items, which individually and collectively are not significant.”

L3Harris:

A reconciliation of the U.S. statutory income tax rate to our effective income tax rate follows:

	Fiscal Year Ended	Two Quarters Ended	Fiscal Years Ended	
	January 1, 2021	January 3, 2020	June 28, 2019	June 29, 2018
U.S. statutory income tax rate	21.0 %	21.0 %	21.0 %	28.1 %
State taxes	3.2	1.4	2.4	1.9
International income	0.4	0.9	(0.5)	(0.5)
Non-deductible goodwill impairment	5.8	—	—	—
Research and development tax credit	(9.2)	(4.7)	(4.5)	(2.9)
Foreign derived intangibles income deduction	(1.3)	(0.8)	(1.3)	—
Change in valuation allowance	0.5	(4.8)	(1.8)	0.2
U.S. production activity benefit	—	—	—	(0.9)
Equity-based compensation ⁽¹⁾	(1.0)	(5.4)	(2.1)	(1.8)
Settlement of tax audits	(1.8)	—	—	(2.2)
U.S. tax reform	—	—	—	0.4
Other items	0.1	0.4	1.2	0.4
Effective income tax rate	17.7 %	8.0 %	14.4 %	22.7 %

The 10-K and IR&D – Northrop Grumman Example

In order to understand that IR&D is a *generator* of profit and cash flow and not an “investment” that contractors make with the profits and cash flow generated, it is important to be able to understand what the 10-K actually says about IR&D and where it will and will not be reflected in financial statements. The Northrop Grumman 2019 10-K is used as an example but other contractor 10-Ks would address IR&D in a similar fashion.

First, on Page 50, under the explanation of G&A expenses, Northrop Grumman explains that IR&D and bid and proposal (B&P) are costs included within G&A and therefore allocated to contracts. Without saying it explicitly, by acknowledging that G&A is a component of total estimated contract cost, the contractor is acknowledging that it is included as a cost in every contract proposal submitted to the Government. G&A is a contract cost, therefore IR&D is as well.

On Page 51, under the title of Research and Development, Northrop Grumman uses the phrase that often causes confusion when it discusses “company-sponsored IR&D” and cites the amounts spent. Some people wrongly assume that “company-sponsored IR&D” is different than the IR&D discussed under G&A on page 50. It is not. They are one and the same.

NORTHROP GRUMMAN CORPORATION

Page 50 of the 2019 Annual Report:

General and Administrative Expenses

In accordance with the regulations that govern cost accounting requirements for government contracts, most general management and corporate expenses incurred at the segment and corporate locations are considered allowable and allocable costs. **Allowable and allocable G&A costs, including independent research and development (IR&D)** and bid and proposal (B&P) costs, are allocated on a systematic basis to contracts in progress and are included as a component of total estimated contract costs. [emphasis added]

Page 51 of the 2019 Annual Report:

Research and Development

Company-sponsored research and development activities primarily include efforts related to government programs. **Company-sponsored IR&D expenses totaled \$953 million, \$764 million and \$639 million in 2019, 2018 and 2017, respectively**, which represented 2.8 percent, 2.5 percent and 2.5 percent of total sales, respectively. Customer-funded research and development activities are charged directly to the related contracts. [emphasis added]

If company-sponsored IR&D was an actual investment, and not a contract cost, it would be listed as an “Investing” use of cash flow on the Statements of Cash Flows. It does not appear at all on that financial statement. Capital Expenditures, on the other hand, is an actual investment, not a contract cost, and does appear as an investing use of cash on the Statements of Cash Flows as will be shown.

Since the company has told us that IR&D is included in G&A, we need to find where G&A is listed in the financial statements. It will be found in the “Consolidated Statement of Earnings and Comprehensive Income” which will be referred to hereafter as the “Income Statement”. An income statement will show “Sales” (i.e. Contract Prices) and the “Operating costs and expenses” (i.e. Contract Costs), therefore, we can expect to find G&A on this financial statement and do. As expected, G&A appears as an operating cost as shown in Figure 1.

Attachment 3, Figure 1

NORTHROP GRUMMAN CORPORATION				
CONSOLIDATED STATEMENTS OF EARNINGS AND COMPREHENSIVE INCOME				
		Year Ended December 31		
		2019	2018	2017
<i>\$ in millions, except per share amounts</i>				
IR&D is included in General and Administrative expense	Sales			
	Product	\$ 23,852	\$ 20,469	\$ 16,364
	Service	9,989	9,626	9,640
	Total sales	33,841	30,095	26,004
	Operating costs and expenses			
	Product	18,675	15,785	12,527
	Service	7,907	7,519	7,547
	General and administrative expenses	3,290	3,011	2,712
	Operating income	3,969	3,780	3,218
	Other (expense) income			
Net Earnings is the starting point for the Statements of Cash Flows	Interest expense	(528)	(562)	(360)
	FAS (non-service) pension benefit	800	1,049	699
	Mark-to-market pension and OPB (expense) benefit	(1,800)	(655)	536
	Other, net	107	130	136
	Earnings before income taxes	2,548	3,742	4,229
	Federal and foreign income tax expense	300	513	1,360
	Net earnings	\$ 2,248	\$ 3,229	\$ 2,869
	Because they are included in G&A, IR&D expenses are already accounted for in Net Earnings and will not separately appear in the Statements of Cash Flows.			

This income statement, like most, provides almost no visibility into the costs incurred by cost element that would be provided in a contractor cost proposal. Although Northrop Grumman would have incurred costs for material, labor, and overheads, those costs are summarized here into operating costs and expenses titled “Product” and “Service.” Fortunately, G&A expenses are identified and Northrop Grumman told us, on page 51 of the 10-K that IR&D costs were \$953 Million in 2019. Since total G&A costs were \$3,290 Million, IR&D accounted for 29% of all G&A costs in 2019 ($953/3290 = 29\%$).

The Income Statement will identify “Net earnings” (Net Profit after Taxes), which is profit earned after accounting for all expenses, including Taxes on the profits reported.

Profits and cash generated are clearly related but not the same. The Statements of Cash Flows shown in Figure 2, begins by explaining how Net Earnings translated into the “Net cash provided by operating activities” (Cash Flow from Operations). In 2019, although reported net earnings were \$2,248 Million, cash generated was actually much greater at \$4,297 Million.

The financial statement then identifies all other sources and uses of cash. Cash can be generated or used in “Investing activities” and “Financing activities.” Purchasing capital assets (Capital Expenditures) is an “Investing” use of cash as it is investing in the future of the company. Contrary to industry association claims that IR&D is also an “investment,” IR&D does not appear here or anywhere on the Statements of Cash Flows because it is considered to be a normal operating cost is and is already accounted for on the Income Statement as part of G&A.

This Statements of Cash Flows is very important because it indicates how a corporation chooses to spend the cash it generates. A key data point in that regard is the amount the company chooses to give back to shareholders in cash dividends and common stock repurchases which shows up under “Financing activities.” Generating the cash needed to make capital expenditures and have a surplus to provide to shareholders is an indication of the financial health of the corporation. When the amount paid to shareholders exceeds the amount spent on capital expenditures, industry arguments regarding the *need* for better cash flow in order to make capital expenditures are clearly not supported by the facts and since IR&D has already been shown not to be an “investment,” but a cash generator, better cash flow cannot affect IR&D either.

Attachment 3, Figure 2

NORTHROP GRUMMAN CORPORATION		Year Ended December 31		
CONSOLIDATED STATEMENTS OF CASH FLOWS		2019	2018	2017
<i>\$ in millions</i>				
Net Earnings from Income Statement	Operating activities			
	Net earnings	\$ 2,248	\$ 3,229	\$ 2,869
Net Earnings is not the same as Cash. These adjustments explain how earnings translated into Cash generated.	Adjustments to reconcile to net cash provided by operating activities:			
	Depreciation and amortization	1,018	800	475
	Mark-to-market pension and OPB expense (benefit)	1,800	655	(536)
	Non-cash lease expense	247	—	—
	Stock-based compensation	127	86	94
	Deferred income taxes	(509)	234	985
	Changes in assets and liabilities:			
	Accounts receivable, net	122	202	(209)
	Unbilled receivables, net	(335)	(297)	(422)
	Inventoried costs, net	(135)	(37)	25
	Prepaid expenses and other assets	(78)	(56)	(92)
	Accounts payable and other liabilities	617	381	570
	Income taxes payable, net	(63)	(258)	(157)
	Retiree benefits	(703)	(1,083)	(946)
	Other, net	(59)	(29)	(43)
Cash Flow from Operations	Net cash provided by operating activities	4,297	3,827	2,613
Capital Expenditures are an Investing use of Cash	Investing activities			
	Acquisition of Orbital ATK, net of cash acquired	—	(7,657)	—
	Capital expenditures	(1,264)	(1,249)	(928)
	Other, net	57	28	39
	Net cash used in investing activities	(1,207)	(8,878)	(889)
Share Repurchases and Dividends are cash payments to shareholders	Financing activities			
	Payments of long-term debt	(500)	(2,276)	—
	Net proceeds from issuance of long-term debt	—	—	8,245
	Payments to credit facilities	(31)	(320)	(13)
	Net (repayments of) borrowings on commercial paper	(198)	198	—
	Common stock repurchases	(744)	(1,263)	(393)
	Cash dividends paid	(880)	(821)	(689)
	Payments of employee taxes withheld from share-based awards	(65)	(85)	(92)
	Other, net	(6)	(28)	(98)
	Net cash (used in) provided by financing activities	(2,424)	(4,595)	6,960
	Increase (decrease) in cash and cash equivalents	666	(9,646)	8,684
	Cash and cash equivalents, beginning of year	1,579	11,225	2,541
	Cash and cash equivalents, end of year	\$ 2,245	\$ 1,579	\$ 11,225

Attachment 4. Impact of Mergers and Acquisitions on Total Assets

Mergers and Acquisitions (M&A) are not unique to the Aerospace and Defense industry, as they are also common in the commercial sector. In 2019, United Technologies (UTX) and the Raytheon Company (RTN), merged to become Raytheon Technologies (RTX).⁵⁹ In this particular case, it was the merger of what was a predominantly commercial firm (UTX) with a defense firm. In this process UTX divested itself of its two entirely commercial segments (Otis and Carrier) while bringing its aerospace segments (Pratt & Whitney and Collins Aerospace) with it to become RTX. This move away from the commercial sector and to the defense sector for UTX was begun in 2018 when it acquired Rockwell Collins. That acquisition by UTX of Rockwell Collins will be used in this attachment to demonstrate the impact that a M&A can have on reported asset values.

For simplicity, the term “acquisition” will be used for both mergers and acquisitions. It is important to note that acquired firms did not go out of business; they were acquired because the acquiring company saw value in the company being acquired. The acquired firm (shareholders) views the price it receives as being attractive based on the current value of its net assets. The acquiring firm expects the combined revenue, profits and cash generation will be worth the premium being paid for the assets being acquired. Like all business decisions, not all acquisitions produce the anticipated results.

One predictable result of an acquisition, however, is that total assets after the transaction will be greater than the combined total of assets at the time of the acquisition. This happens with defense and commercial firms. This occurs primarily because the price paid for the acquired assets is often far greater than the value of the assets. But the increase in the total value of the assets happens for three reasons.

First, when Firm A acquires Firm B, Firm A values the assets acquired at what it determines the “fair value” to be, which can be greater than Firm B’s “book-value” of those same assets. The tangible assets acquired (the land, buildings and equipment) have not changed, but there may be an increase in “book value” of those assets on the books of Firm A after the acquisition based on Firm A’s “fair value” assessment.

Second, as part of the determination of the fair value of assets acquired, intangible assets such as “Customer Relationships” and “Collaboration” can be created or the value of Firm B’s existing intangible assets can also be increased based on a “fair value” assessment.

Third, if Firm A pays a price for Firm B that exceeds the total fair value of Firm B’s net assets and liabilities acquired, the excess cost is recorded as Goodwill on the books of Firm A. If a Goodwill asset did not exist in Firm A at the time, it is created. If a Goodwill asset already exists due to previous acquisitions, the value of the Goodwill account is increased accordingly.

In many cases, an acquisition will result in an increase in all three categories of assets but the most significant increases will occur in Goodwill and other intangible assets. The bottom line is that the book

⁵⁹ While it was a merger of only two companies at the time, it was the culmination of many previous acquisitions since 2000, involving more than 80 companies. When Firm A acquires Firm B, it is acquiring all the firms previously acquired by Firm B. For example, when United Technologies acquired Rockwell Collins, it meant that it acquired all the companies that Rockwell Collins had previously acquired.

value of total assets will have increased because the acquiring firm paid more than the existing value of the assets acquired.

To demonstrate the impact acquisitions can have, we will look at one example: the acquisition of Rockwell Collins by United Technologies in 2018. This is a good example of the layering effect that acquisitions have on total assets, as Rockwell Collins had acquired B/E Aerospace in 2017. The acquisition of B/E Aerospace was announced in 2016 but occurred in 2017 and the subsequent acquisition of Rockwell Collins by United Technologies was announced in 2017 but occurred after the close of the Rockwell Collins fiscal year in Sep 2018. Because of the timing of these acquisitions the “before and after” effect is easy to see.

At year-end, 2016 the three firms were functioning as independent companies and submitted the following financial data in 10-Ks submitted to the SEC.

Before the Acquisitions (2016):

	Fixed Assets Property-Plant- Equipment	Goodwill	Intangible Assets	Total Assets	Total Revenue	Net Income	Cash Flow From Operations
United Technologies	\$9,158	\$27,059	15,684	\$89,706	\$57,244	\$5,436	\$6,412
Rockwell Collins	1,035	1,919	667	7,699	5,529	727	723
B/E Aerospace	407	799	213	3,370	2,730	452	307
Total Before Acquisitions	\$10,600	\$29,777⁶⁰	\$16,564	\$100,775	\$65,503	\$6,615	\$7,442

By December 31, 2018 only United Technologies would exist as a publicly traded corporation. As expected, based on the earlier discussion, the impact of the acquisition was a significant increase (“write-up”) in the reported book value of the Goodwill (62%), Intangible Assets (60%) and Total Assets (33%) as shown below.

After the Acquisitions (2018):

	Fixed Assets Property-Plant- Equipment	Goodwill	Intangible Assets	Total Assets	Total Revenue	Net Income	Cash Flow From Operations
United Technologies	\$12,297	\$48,112	\$26,424	\$134,211	\$66,501	\$5,654	\$6,322
Impact of Acquisitions	\$1,697	\$18,335	\$9,860	\$33,436	\$998	(\$961)	(\$1,120)
% Change	16%	62%	60%	33%	2%	-15%	-15%

Therefore, all profit and cash flow returns, measured as a percentage of total assets, would look much less attractive in 2018 after the acquisition than they did in 2016 for each firm, before the acquisitions. This would be inevitable unless there was a correspondingly significant increase in profit and cash flow.

⁶⁰ The existence of Goodwill meant that each company had prior acquisitions. In fact, there had been 39 prior acquisitions involving these three firms as of 2016. B/E Aerospace had 9 acquisitions between 2006 and 2014, Rockwell Collins had 21 acquisitions between 2000 and 2016 and UTX had 9 acquisitions between 2003 and 2016.

Unfortunately, although total revenue increased slightly by 2%, Net Income and Cash Flow from Operations actually declined by 15% in 2018 versus 2016. Even if both improved, the improvement would have to be dramatic to keep pace with the increase in assets. In the case of the United Technologies acquisition of Rockwell Collins and B/E Aerospace, what is clear is that the combined financial health of the three firms individually was better before the acquisition than it was after the acquisition. The long-term impact of these acquisitions is not known but the merger of United Technologies and Raytheon in 2019 will make that assessment more complicated as United Technologies divested itself of its Otis and Carrier segments at the same time.

This impact of acquisitions is important to consider when evaluating the financial health of the defense industry over time. That is, if two firms performing independent of one another can each demonstrate a healthy financial return on its assets, and one of those firms acquires the other, any degradation in the aggregate financial measures as a result of that acquisition distorts the health of the defense industry overall.

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