Actual Obligation Rates versus Comptroller Projected Obligation Rates

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A Report of the CSIS DEFENSE BUDGET ANALYSIS PROGRAM

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AUTHORS Seamus P. Daniels **Todd Harrison**

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Abstract

This paper seeks to enhance understanding of the formulation and accuracy of Department of Defense (DoD) Office of the Under Secretary of Defense (Comptroller) projected obligation rates in the defense acquisition sector. These projections are published annually for each appropriation account in the Financial Summary Tables released by the office of the DoD Comptroller. This paper compares the Comptroller projected obligation rates for procurement and research, development, test, and evaluation (RDT&E) accounts with actual obligation rates, as well as budget execution benchmarks compiled by the Comptroller's office. This analysis assesses the reliability of the projections and their consistency with other DoD targets, identifies trends in the accuracy of obligation rates across different accounts, and attempts to isolate factors that may influence the formulation and accuracy of the projections.

Contents

1 Introduction1
2 Literature Review
3 Methodology
Collecting Comptroller Projected Obligation Rates4
Calculating Actual Obligation Rates5
Comparing Projected and Actual Obligation Rates7
Research Challenges and Sources of Error7
4 Analysis
Year-Over-Year Changes in Projected Obligation Rates8
Comparing Actual Obligation Rates to Execution Benchmarks14
Measuring the Accuracy of Projected Versus Actual Obligation Rates
5 Conclusion
References
About the Authors
Appendix
A. Comparison of Projected Obligation Rates and Execution Benchmarks
B. Comparison of Actual Obligation Rates and Execution Benchmarks

1 | Introduction

Obligation rates are considered one of the "key financial metrics" for the Department of Defense (DoD) in monitoring how programs allocate their funding and whether they remain on schedule, as demonstrated in a hearing in 2006 by the Senate Committee on Homeland Security and Governmental Affairs on *Unobligated Balances: Freeing Up Funds, Setting Priorities and Untying Agency Hands*. While budget authority and total obligational authority track how much money is appropriated by Congress each year, obligations track how funding is committed by signing contracts, employing personnel, or otherwise making commitments to spend money (Schwartz et al. 2018). When determining the amount of funding that may be made available for an appropriation account in an upcoming fiscal year, DoD offices and the authorization and appropriations committees in Congress take previous years' actual obligation rates into consideration (Defense Security Cooperation Agency 2012). Programs that have not been able to adequately obligate prior year funding are less likely to receive the funding they are requesting for future years and, in more extreme cases, may have prior year unobligated funding rescinded by Congress.

The Office of the Under Secretary of Defense (Comptroller) publishes a baseline standard for cumulative obligation and expenditure rates by title of funding (e.g., procurement, RDT&E, and Operation and Maintenance [O&M]). This table of benchmarks, derived from 30 years of execution history, is intended to serve as a rule-of-thumb for the military services when planning their program expenditures (Conley et al. 2014, p. vi-vii). For procurement accounts, the benchmarks state that a cumulative 80 percent of the funding should be obligated by the end of the first year, 90 percent by the end of the second year, and 100 percent by the end of the third year, when the funding would otherwise expire (Comptroller [OUSDC] 2017). Expenditure rates are higher for RDT&E accounts given their two-year period of availability. It is expected that 90 percent of RDT&E funding should be obligated by the end of the second year (OUSDC 2017). Congressional staffs use this table as a baseline reference for judging whether particular funding lines and programs are obligating money on track or falling behind.

The Comptroller's office also publishes Financial Summary Tables annually with the president's budget request that include a more granular projection of procurement obligation rates by individual appropriation account. These projected rates, presented as a percentage of "total operating authority," represent the percent of a particular budget year of funding that DoD expects to obligate over the course of the fiscal years that follow. Importantly, the Comptroller projected obligation rates are not cumulative, whereas the Comptroller benchmarks are cumulative obligation rates. For example, for FY 2017 appropriations for the Army's Aircraft Procurement account, DoD projected that 64.44 percent would be obligated in FY 2017, 25.00 percent in FY 2018, and 10.56 percent in FY 2019 (OUSDC 2016, p. 004). Since this is a procurement account, the money is only available for three years, and any leftover funding after that time would expire. In comparison, RDT&E funding must be fully

obligated within two years, while O&M and Military Personnel (MILPERS) accounts must be obligated within one year (Schwartz 2017). Projected obligation rates for RDT&E accounts are provided primarily at the military department level.

Given the obligation rate benchmarks set by the Department, one would expect most if not all of the projections for the first year of obligations for procurement accounts to meet or exceed the 80 percent threshold and those for RDT&E accounts to meet or exceed 90 percent. However, the projected obligation rates fail to meet the execution benchmarks for many accounts. This lack of alignment poses questions over the usefulness of the projections, as well as their accuracy in anticipating the rate of actual obligations. Similarly, even as the funding and status of programs within the accounts changed considerably, the lack of change in the projections from year to year calls into question DoD's model for deriving projected obligation rates (e.g., the Army Aircraft Procurement account has had identical projections from FY 2014 through FY 2020).

Obligation rates can be important for industry and investors as a measure of government contracting for current and future fiscal years. Private-sector partners rely on projections for their own strategic planning, and they forecast the overall potential for sales and revenue based in part on the projected obligation rates. Consequently, the obligation and outlay rates can impact the stock valuations of companies via their sales and revenue forecasts. These projections are also important to defense companies themselves, particularly smaller ones, because the timing of programs can mean the difference between smooth cash flow and challenges to solvency. Given the significance these forecasts play in the acquisition sector, inaccurate projections could contribute to poor decisionmaking in the private sector that could in turn lead to inefficiencies in the market and suboptimum management decisions within companies.

In an effort to assess the reliability and accuracy of the Comptroller projected obligation rates, this paper provides an analysis of the projections for acquisition accounts. It includes a survey of the projected obligation rates for a variety of procurement and RDT&E accounts from FY 2009 to FY 2020 and compares those projections against both the obligation rate benchmarks and actual obligation rates (from FY 2009 to FY 2016 for procurement accounts and from FY 2009 to FY 2017 for RDT&E accounts). The paper analyzes that data by military department and certain types of accounts to identify trends and draw conclusions.

2 | Literature Review

Previous studies have assessed the execution of DoD programs against the Department's obligation rate goals. A 2013 Defense Acquisition University report examined potential causal factors preventing acquisition programs from meeting the execution benchmarks. The study surveyed 229 DoD personnel who ranked the impact of 64 factors on the performance of acquisition programs. According to the results, the late release of full obligation/budget authority due to continuing resolution authority, contract negotiation delays, and contract award delays had the highest adverse impact on the achievement of execution goals (Tremaine and Kinnear-Seligman, 2013).

A 2014 study from the Institute for Defense Analyses (IDA) similarly assessed the underperformance of acquisition programs against the Comptroller execution benchmarks and investigated factors related to program execution. The report found that the rates for procurement obligations and RDT&E disbursements have been decreasing since 2006 and 2009, respectively. While the research team found that the benchmarks—though "potentially arbitrary to some extent"—are "a reasonable means of identifying funds for possible reallocation to higher priority needs," it concluded that "management attention unduly focuses on meeting benchmarks" and offered recommendations to improve program execution (Conley et al. 2014, p. vi-vii).

Both of the aforementioned studies focused on the execution of acquisition programs against the benchmarks for obligation and expenditure rates. This paper builds on the existing research by comparing the actual obligation rates against the Comptroller projected obligation rates found in the Financial Summary Tables and the Comptroller benchmarks. Given the focus on the Comptroller projected obligation rates, this study is also conducted at the broader appropriation account level rather than the budget line level of detail used in the IDA analysis.

3 | Methodology

Collecting Comptroller Projected Obligation Rates

The analysis in this report was conducted in three phases. The first phase entailed the collection of the Comptroller projected obligation rates for acquisition accounts from Section F of the Financial Summary Tables (Section F also includes projected outlay rates).¹ The projections are organized by title of funding, and two years of rates are provided for the vast majority of accounts—the budget request for the upcoming fiscal year and the prior fiscal year. Occasionally, the rates differ between the current request and the prior year. The study team chose to assess the projections for the upcoming fiscal year in the request so that it could identify year-to-year changes in the projections originally in the request.² Projections were captured for procurement and RDT&E appropriation accounts from the period FY 2009 to FY 2020.

The FY 2009 to FY 2020 time frame was selected to create a comprehensive data set of relatively recent projections and actual obligation rates, allowing for the identification of broad trends in addition to granular analysis at the account level. The scope was also selected to consider policy and legislative inflection points that may have had implications on the data. In particular, the research team assessed potential changes around the imposition of the spending caps put in place by the Budget Control Act of 2011 and sequestration in March 2013. The data begins in FY 2009, the first time the obligation rates are denoted "as a percent of total operating authority." Prior to FY 2009, the rates were measured (or at least labelled) "as a percent of budget authority."

The research team then measured how often the projected obligation rates change from fiscal year to fiscal year before comparing them to the cumulative program execution benchmarks. The research team identified trends in the projections over the 12-year period. The projections were then assessed to determine how often they met the first- and second-year thresholds as defined by the benchmarks set by the Comptroller's office (for procurement accounts, 80 and 90 percent, respectively; for RDT&E accounts, 90 and 100 percent, respectively). Account alignment with the benchmarks was measured as a percentage of the total number of budget years in which the projected obligation rates met or exceeded the benchmarks. For the purposes of this analysis, the term "budget year" is used to refer to the year in which funding is originally appropriated for an account. Funding can then be obligated in that fiscal year and in the fiscal years that follow. "Account budget year" refers to the unique

¹ The projected obligation rates are contained in Section F, "Rates" in the Financial Summary Tables published by the Comptroller's office. From FY 2009 to FY 2010, the projections were contained in Section J of the same document.

² Further analysis beyond this study could measure changes between the original projected obligation rates in a request for a given budget year and the rates provided for the same budget year in the next request the following year.

combination of a budget year and corresponding account (e.g., Army Aircraft Procurement, FY 2009 budget year).

The research team studied the projected obligation rates from 17 procurement accounts and five RDT&E accounts from FY 2009 to FY 2020. Several accounts from both titles of funding were excluded from the analysis as exceptions because they do not follow standard obligation practices (e.g., Shipbuilding & Conversion, Navy) or are not detailed in the standard format of the majority of the other projected obligation rates. For a complete list of the accounts assessed, see Table 3. In total, this study assessed projections from 194 account budget years from procurement accounts and 60 account budget years from RDT&E accounts. Each account contained 12 budget years of projections with the exception of two. The Space Procurement, Air Force account was only created in FY 2016, so there are only five budget years' worth of projections. The Joint Improvised Explosive Device Defeat Fund (JIEDDF) account also lacked projections for FY 2014 and FY 2019 to FY 2020.

Calculating Actual Obligation Rates

The second phase of this analysis entailed the calculation of the actual obligation rates of the selected procurement and RDT&E accounts. To calculate the actual obligation rate of funds, the total obligations in a given fiscal year from a particular budget year's funding is divided by the total available for obligation for that budget year, including any adjustments that may occur in subsequent fiscal years. This data can be found in Section G of the Financial Summary Tables.

For example, as shown in Table 1 on the following page, the Aircraft Procurement, Army account had \$5,902,609,000 available for obligation for budget year 2015. Over the next two fiscal years, Congress and DoD made adjustments to the 2015 budget year funding in this account, totaling a net addition in funding of \$455,317,000 in FY 2016 and \$105,597,000 in FY 2017, as shown in the table below. Thus, the total budget year 2015 funding for this account ended up being \$6,453,523,000. This is the total available for obligation used in the denominator when calculating the actual obligation rate for each year. As shown in Table 2 on the following page, the total obligations in each fiscal year of the specific budget year's funding is then divided by the total available to calculate the actual rate of obligation for each fiscal year.

Table 1. Aircraft Procurement, Army Budget Year 2015 Funding

Budget Year 2015	FY 2015	FY 2016	FY 2017	Final
Budget Authority	\$5,799,286,000	-\$25,000,000	-\$15,000,000	
Balances Transferred		-\$13,000,000	-\$22,257,000	
Recoveries of Prior Year Obligations		\$464,861,000	\$72,995,000	
Reimbursable Orders	\$103,323,000	\$18,456,000	\$69,859,000	
New Funding Available for Obligation	\$5,902,609,000	\$445,317,000	\$105,597,000	\$6,453,523,000

Table 2. Aircraft Procurement, Army Budget Year 201	15 Obligations and Obligation Rates
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Budget Year 2015	FY 2015	FY 2016	FY 2017
Total Obligations	\$3,950,184	\$1,875,308	\$536,183
Overall Total Available for	\$6,453,523,000	\$6,453,523,000	\$6,453,523,000
Obligation			
Obligation Rate	61.21%	29.06%	8.31%
Cumulative Obligations	61.21%	90.27%	98.58%

Actual obligation rates were only calculated for budget years from FY 2009 to FY 2016 for procurement accounts due to the lack of complete data (i.e., final appropriated and executed amounts) for budget years FY 2017 through FY 2020. Actual obligation rates for RDT&E accounts were calculated for budget years from FY 2009 to FY 2017 because RDT&E has a period of availability of only two years and thus an additional budget year of complete data was available. In total, this study assessed the actual obligation rates from RDT&E accounts. All procurement accounts have eight budget years of actual obligation rates with the exception of Space Procurement, Air Force, which only has one budget year of actuals, and the Joint Improvised Explosive Device Defeat Fund (JIEDDF), which lacked projections for FY 2014. Each RDT&E account has nine budget years of actuals.

Comparing Projected and Actual Obligation Rates

The actual obligation rates calculated in the second phase of the study were then compared to the historically derived benchmarks for procurement and RDT&E accounts to determine which accounts met the obligation rate goals after one year and two years of execution, respectively. The accounts were then measured against the Comptroller projected obligation rates to assess the projections' accuracy on an account-by-account basis.

To compare the accuracy of projections for different acquisition accounts, the research team calculated the difference between the actuals and projections for each fiscal year that each budget year of funding was available for obligation (three fiscal years for procurement accounts and two fiscal years for RDT&E accounts). Those differences were then averaged for each fiscal year of availability for an account. In addition to assessing the average projection error for each year of availability by account, the research team also aggregated the data by military department. The differences between projections and actuals were averaged by fiscal year across all accounts associated with each department rather than calculating the department average from the overall account average.

Research Challenges and Sources of Error

Data collection posed the greatest challenge in the course of this study. Given the Financial Summary Tables' lack of a machine-readable format, the research team was forced to manually input the projected obligation rates located in Section F for 22 total acquisition accounts from 12 different defense budget requests. Calculating the actual obligation rates for the accounts posed similar challenges. That process, which as previously discussed involved dividing the total obligations in a given fiscal year by the total available for obligation for that budget year, required the research team to input multiple figures from Section G of the Financial Summary Tables. Given that difficulty, data input posed a potential source of error. To ensure the accuracy of the data and minimize the risk to the fidelity of the analysis, the database was systematically reviewed multiple times over the course of the study.

4 | Analysis

Year-Over-Year Changes in Projected Obligation Rates

An initial observation of the projected obligation rates for both procurement and RDT&E accounts displays a distinct trend from year to year. Generally, the data is consistent for both spending titles across two different time periods. Of the 15 procurement accounts containing a complete 12 budget years of data, 12 accounts had constant projected obligation rates between FY 2009 and FY 2013. Between FY 2014 and FY 2020, 9 out of the 15 accounts had constant projections (distinct from the FY 2009 to FY 2013 projections), and 5 accounts had constant projections for all but one budget year over that period.

Table 3 on the following page illustrates this consistency over the two different time frames. Each color represents a distinct set of projections. For example, Army Aircraft Procurement had an identical projection for budget years FY 2009 through FY 2013 but a different projection from FY 2014 to FY 2020. For procurement accounts, FY 2014 represents an inflection point in the data. With the exception of the JIEDDF account (which lacked a projection for budget year FY 2014) and the Air Force Space Procurement account (which did not yet exist), every account saw the projected obligation rate for the first year of funding decrease from FY 2013 to FY 2014. Additionally, the FY 2020 budget year was an outlier with five accounts (Army Missile Procurement, Army Ammunition Procurement), which all contained a projected obligation rate of 100 percent for the first year of funding. This most likely stems from the Trump administration's decision in the FY 2020 defense budget request to shift entire programs and accounts in the Overseas Contingency Operations (OCO) account (Seligman 2019). Because OCO funding only has one year of availability, 100 percent of its funds must be obligated in the fiscal year appropriated.

RDT&E accounts showed similar consistency. With the exception of the Navy RDT&E account in the FY 2011 budget year, each RDT&E account had the same projected obligation rates from FY 2009 to FY 2013. Just as FY 2014 was an inflection point in the data for procurement accounts, that budget year was also the inflection point for the RDT&E data. Between FY 2014 and FY 2020, each of the five RDT&E accounts possessed the same projections.

Table 3.	Consistency	of Projected	Obligation	Rates for	Acquisition	Accounts
Table 5.	consistency	orrojecteu	obligation	hates for	nequisition	necounts

Account	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
Army Aircraft												
Army Missile												
Army W&TCV												
Army Ammunition												
Army Other												
JIEDDF												
Navy Aircraft												
Navy Weapons												
Navy Ammunition												
Navy Other												
Marines Corps												
Air Force Aircraft												
Air Force Missile												
Air Force Space												
Air Force Ammunition												
Air Force Other												
Defense-Wide												
Army RDT&E												
Navy RDT&E												
Air Force RDT&E												
Defense-Wide RDT&E												
Op. Test & Evaluation												

Note: Table 3 depicts changes in the projected obligation rates from year to year. A change in color for a particular account designates a change in the projected obligation rate. For example, the Army Ammunition Procurement account had one projection for budget year FY 2009 (shown in blue), a different projection for budget years FY 2010 to FY 2013 (shown in red), another distinct projection for FY 2014 to FY 2019 (shown in green), and a final distinct projection for FY 2020 (shown in yellow). White spaces denote years in which no projection was provided. All accounts above the Army RDT&E account are considered procurement accounts.

The survey of the projected obligation rates presents two notable yet counterposing takeaways: (1) the projections are generally consistent from year to year, and (2) FY 2014 marked a considerable shift in the projections and their alignment to the obligation rate benchmarks.

While recognizing the shift in FY 2014, it is somewhat counterintuitive that the projected obligation rates at the account level stayed fairly consistent during these two significant periods of time because the status and mix of programs within each account can vary considerably from year to year. One might expect that the procurement obligation rate would be slower for programs that are transitioning from development to procurement, ramping up procurement, or having contract award and negotiation issues. The fact that the projected obligation rates generally stay consistent from year to year suggests that these projections are not based on the execution plans of the programs within the accounts and are instead based on historical rates or aspirational obligation plans.

Moreover, the general consistency of the accounts' projected obligation rates from year to year does not translate into alignment with the benchmarks established for budget execution. Only 52 percent of the account budget years assessed projected that the obligation rate for the first year of funding would match or surpass 80 percent. Figures 1 through 4 on the following page depict the procurement accounts' projected obligation rates by military department, comparing the first year of funding to the 80 percent benchmark. As shown in Figure 2, the Navy was the only military department which had a majority (77 percent) of its first-year projections achieve the goal established by the Comptroller's office. The Navy performed significantly better than the next closest department, the Army, which had 47 percent of its projections meet the threshold.

With the exception of the "Other" category of procurement accounts, which featured projections from only two accounts and 21 total budget years (JIEDDF and Procurement, Defense-Wide), the Air Force had the lowest percentage of its projections (40 percent) meet or exceed the 80 percent threshold. Of all the account budget years surveyed, the Air Force also had the overall lowest obligation rate projected of all those surveyed. Between FY 2014 and FY 2020, the Air Force Aircraft procurement account was projected to obligate only 41 percent of its funds in the first year of availability. Figure 1. Projected Obligation Rates for Army Procurement Accounts vs. 80% First-Year Benchmark



Figure 3. Projected Obligation Rates for Air Force Procurement Accounts vs. 80% First-Year Benchmark





Figure 4. Projected Obligation Rates for Other Procurement Accounts vs. 80% First-Year Benchmark



Compared to the projections for procurement accounts, a lower percentage of RDT&E accounts (37 percent) met or exceeded their first-year threshold of 90 percent, as shown in Figure 5 on the following page. It is worth acknowledging, however, that there were only five accounts containing 60 account budget years of data assessed. All 12 of the Navy's projections either matched or surpassed the 90 percent mark, while none of the projections in the Army or Defense-Wide accounts reached 90 percent in the FY 2009 to FY 2020 time period.



Figure 5. Projected Obligation Rates for RDT&E Accounts vs. Benchmarks

What is evident from Figures 1 through 5 is that FY 2014 saw a significant decrease in the projected obligation rates that minimized the percentage of account budget years in alignment with the respective first-year benchmark. Of the 80 account budget years for procurement accounts from FY 2009 to FY 2013, 88 percent met or exceeded the first-year 80 percent benchmark. However, the percentage of projections for the 114 account budget years from FY 2014 to FY 2020 fell to just 27 percent. This poses the question of what led to the shift in projected obligation rates in FY 2014. According to the IDA study, in FY 2012 and FY 2013 budget reviews, lower obligation rate goals for procurement accounts were used "[i]n recognition of the increasing difficulties that acquisition programs have in meeting the historical execution benchmarks" (Conley et al. 2014, p. 5-6). This "led to recommendations on re-phasing funding in the FY 2014 President's Budget Request, with some 400 programs having funds re-phased" (Conley et al. 2014, p. 6).

The fact that the inflection point is in FY 2014 could suggest that sequestration had an impact on the formulation of the projected obligation rates. Sequestration, originally scheduled to take effect on January 2, 2013, was delayed until March 1, 2013 (Daniels 2019, p. 3). The lowered projected obligation rates for the FY 2014 budget year were published in the Financial Summary Tables in April 2013. Even the accompanying projections for the current 2013 fiscal year had been decreased as well. Without comment from the Comptroller's office, however, it is not possible to know the extent to which sequestration contributed to the change in the projections. Notably, DoD did not prepare for

sequestration despite knowing the likelihood that it would occur (Hale 2015, p. 4). Given the time it takes to prepare the budget request, it is not likely that the projected obligation rates could have been altered in such a short time frame.

The lack of alignment between the projected obligation rates and historically derived benchmarks and the lowering of projections in FY 2014 could have also resulted from delays in defense appropriations. Between FY 2010 and FY 2018, appropriations for defense were delayed on average by 133 days (including days under continuing resolutions and government shutdowns). These delays in appropriations could translate into delays in obligations, leading to obligation rates under 80 percent for procurement accounts and under 90 percent for RDT&E accounts. However, the general lack of year-to-year changes in the projected obligation rates suggests that such delays did not have as direct an impact.

While just over half of the projections for procurement accounts met the first-year obligation rate threshold of 80 percent, approximately 82 percent of the projections anticipated they would meet the second-year benchmark of 90 percent. Figures 6 through 9 on this page and the following provide a breakdown of the cumulative second-year projections broken out by military department and account. Of the three military departments, the Navy and Air Force had the highest percentage of their projections match or exceed the second-year threshold, at 88 percent and 87 percent, respectively. Of the Army's account budget years, 65 percent met or surpassed the 90 percent benchmark. Second year projections from RDT&E accounts were not assessed given that the funding is only available for two years and must be fully obligated by the end of the second year.

Like the first-year projections, the alignment of the cumulative two-year projections with the benchmarks fell from FY 2013 to FY 2014, though to a lesser degree.







Figure 8. Projected Obligation Rates for Army Procurement Accounts vs. 90% Second-Year Benchmark Figure 9. Projected Obligation Rates for Navy Procurement Accounts vs. 90% Second-Year Benchmark



Comparing Actual Obligation Rates to Execution Benchmarks

While the previous analysis compares the *projected* obligation rates to the Comptroller execution benchmarks, this section compares the *actual* obligation rates to the execution benchmarks. As discussed in the methodology section, actual obligation rates were calculated for seven budget years (FY 2009 to FY 2016) of projections for procurement accounts and eight budget years (FY 2009 to FY 2017) of projections for RDT&E accounts.³ When compared to the cumulative execution benchmark rates, the majority of the actual obligation rates failed to meet the one-year targets for both procurement and RDT&E accounts, while only half of procurement accounts met the two-year target. Whereas the projections analyzed in the previous section displayed a notable shift from FY 2013 to FY 2014, a discernable trend in the actual obligation rates is less apparent.

Figures 10 through 14 on the following page show the actual obligation rates for procurement accounts relative to the 80 percent threshold. Only 12 percent of the 128 account budget years assessed met or exceeded the targeted goal for the first year of obligations, a significantly smaller proportion than the 64 percent for projected obligation rates over the same FY 2009 to FY 2016 period. The Air Force and Navy had the highest proportion of account budget years that matched or surpassed the 80 percent goal at 18 percent and 15 percent, respectively. Out of the Army's 40 total

³ Comparisons between the percentage of actual obligation rates that meet or exceed the Comptroller benchmarks and the projected obligation rates that meet or exceed the benchmarks are made over the same period, FY 2009-FY 2016 for procurement accounts and FY 2009-FY 2017 for RDT&E accounts. Thus, some percentages for the projected rates may not match those specified in the previous section which were compiled from FY 2009-FY 2020.

account budget years, only one met or exceeded the benchmark, a reduction from the 58 percent that were anticipated to reach the 80 percent threshold over that same time period.





Figure 12. Actual Obligation Rates for Air Force Procurement Accounts vs. 80% First-Year Benchmark









The actual obligation rates of RDT&E accounts underperformed relative to the 42 percent of projections that were expected to match or exceed the benchmark from the FY 2009 to FY 2017 period. As shown in Figure 14 on the following page, none of the actual obligation rates for the 45 total account budget years reached the 90 percent threshold in the first year of availability. The Army's actual obligation rates for RDT&E account budget years were furthest from the benchmark compared to the other military departments.



Figure 14. Actual Obligation Rates for RDT&E Accounts vs. 90% First-Year Benchmark

The actual obligation rates for the procurement accounts performed better when measured against the two-year execution benchmarks of 90 percent. On the following page, Figures 15 through 18 depict the actual obligation rates for procurement accounts against the second-year benchmark. Exactly half of the total 128 account budget years obligated 90 percent or more of their funds by the end of the second year of availability. Relative to the Army and Air Force, which only saw 25 percent and 39 percent of their respective account budget years meet the threshold, the Navy had an impressive 73 percent of its 40 account budget years reach or exceed a 90 percent obligation rate.

Of the 17 procurement accounts assessed in this study, the actual obligation rates associated with the Air Force's "Other Procurement" account were most aligned with both the first- and second-year benchmarks. As shown in Figure 12, six of the eight account budget years exceeded the 80 percent obligation rate target for the first year of availability, while a complete eight of eight budget years exceeded the 90 percent target for the second year, as shown in Figure 17. Such high rates, which are exceptions to the rest of the Air Force's actual obligation rates, may be attributed to the large amount of classified "pass-through" funding in this account (Hlad 2016).

Figure 15. Actual Obligation Rates for Army Procurement Accounts vs. 90% Second-Year Benchmark



Figure 17. Actual Obligation Rates for Air Force Procurement Accounts vs. 90% Second-Year Benchmark



Figure 16. Actual Obligation Rates for Navy Procurement Accounts vs. 90% Second-Year Benchmark



Figure 18. Actual Obligation Rates for Other Procurement Accounts vs. 90% Second-Year Benchmark



Measuring the Accuracy of Projected Versus Actual Obligation Rates

While the actual obligation rates for procurement accounts underperformed against the historically derived benchmarks, the question remains how accurate the Comptroller *projected* obligation rates are in comparison with the *actual* obligation rates. On the following page, Table 4 shows the average difference between the projected and actual obligation rate over the three years of funding availability for each procurement account from FY 2009 to FY 2016. On average, the difference between the projected and actual obligation rates was approximately 17 percent for the first year of availability, 12 percent for the second year, and 6 percent for the third. Assessed by department, the Navy had the smallest average difference between its estimates and actuals, with 13 percent for the first year, 9 percent for the second, and 5 percent for the third. It is worth noting that across the different phases of this study, the Navy's projected and actual obligation rates were best aligned with the execution benchmarks, and its projections were the most accurate overall compared to the other military departments.

The Army had the largest average difference between its projections and actuals, at 22 percent for the first year, 14 percent for the second, and 8 percent for the third. The error was driven by a 28 percent average difference between the projected obligation rate and actuals for the first year of availability in both the Army's W&TCV Procurement account and its Other Procurement account—the largest difference of any procurement account belonging to the three military departments.

Another comparison between the three military departments' actual obligation rates can be made by assessing the aircraft procurement accounts of each. The three accounts are not perfect comparisons given that they procure different platforms and possess different funding levels. For example, for the 2015 budget year, the total obligations for Army aircraft procurement totaled \$6,361,675,000 in current dollars; \$15,308,912,000 for the Navy; and \$12,187,879,000 for the Air Force. But they nevertheless provide some standardization in comparison because they are all procuring similar types of weapon systems. As shown in the data in Table 4, the Navy and Army had similar average differences between their projections and actuals over the three years of availability. However, the average differences for the Air Force's aircraft procurement account were significantly higher than those of the Navy and Army for the first two years of availability.

Table 4. Average Difference Between Projected and Actual Obligation Rate by Procurement Account,Budget Years FY 2009-FY 2016

Account	First Year	Second Year	Third Year
Aircraft Procurement, Army	16.05%	10.93%	5.44%
Missile Procurement, Army	19.62%	11.24%	6.88%
W&TCV Procurement, Army	28.17%	16.91%	11.07%
Ammunition Procurement, Army	16.93%	9.23%	8.31%
Other Procurement, Army	27.69%	19.90%	7.85%
Average Army Procurement	21.69%	13.64%	7.91%
Aircraft Procurement, Navy	12.27%	7.21%	5.02%
Weapons Procurement, Navy	9.63%	7.43%	4.27%
Ammunition Procurement, Navy	6.94%	5.35%	2.78%
Other Procurement, Navy	13.35%	9.94%	4.19%
Procurement, Marine Corps	23.98%	14.16%	10.29%
Average Navy Procurement	13.23%	8.82%	5.31%
Aircraft Procurement, Air Force	27.30%	15.83%	12.84%
Missile Procurement, Air Force	15.12%	13.44%	2.14%
Space Procurement, Air Force	3.06%	3.61%	0.63%
Ammunition Procurement, Air Force	11.36%	8.63%	4.16%
Other Procurement, Air Force	11.01%	8.99%	3.70%
Average Air Force Procurement	15.80%	11.48%	5.56%
JIEDDF	37.09%	28.43%	5.51%
Procurement, Defense-Wide	6.95%	7.53%	2.21%
Average Other Procurement	21.02%	17.29%	3.75%
TOTAL AVERAGE	17.45%	12.00%	6.00%

Note: Averages for the overall military departments represent average of all budget years' rates associated with a particular department's procurement accounts, not an average of the account averages. The total average is the average of every projection associated with the procurement accounts. The Space Procurement, Air Force account only contains one budget year of data for the difference between the projections and actual rates.

As Table 5 illustrates, the average difference between the projected and actual obligation rate for RDT&E accounts was notably lower than it was for procurement accounts. The greater accuracy of the projections for RDT&E suggests that the obligation of that funding is less volatile than it is for procurement accounts, though it is worth noting that the RDT&E data sample was much smaller given that there are only five accounts. If the funding was broken down at a more granular level, it may show greater fluctuations.

Account	First Year	Second Year
RDT&E, Army	7.40%	6.50%
RDT&E, Navy	5.24%	4.92%
RDT&E, Air Force	3.60%	3.34%
RDT&E, Defense-Wide	3.52%	3.23%
Operational Test & Evaluation, Defense-Wide	5.40%	5.26%
TOTAL AVERAGE	5.03%	4.65%

Table 5. Average Difference Between Projected and Actual Obligation Rate by RDT&E Account, Budget Years FY 2009-FY 2017

Note: The total average is the average of every projection associated with the RDT&E accounts.

While analyzing the accuracy of the projected obligation rates by military department yields points of comparison between the different services, a temporal assessment provides more telling conclusions on the formulation of the projected obligation rates. On the following page, Table 6 compares the average difference between the projections and actual obligation rates over the two time periods on either side of the FY 2014 inflection point. In comparing the two periods, the difference between the projections and actuals was lower for FY 2014 to FY 2016, meaning the projections for that time frame were more accurate than those for the FY 2009 to FY 2013 period (while also noting that the FY 2009 to FY 2013 period contains five budget years of data as opposed to the three budget years contained in FY 2014 to FY 2016). Assessed as an average of all accounts, the average difference between the projections and actuals for FY 2013 was 22 percent for the first year, 14 percent for the second year, and 7 percent for the third year. Those average differences fell for the FY 2014 to FY 2016 period to 10 percent for the first year, 8 percent for the second year, and 4 percent for the third year.

One can conclude from this analysis that lowering the projected obligation rate in FY 2014 made the projections more accurate. While this may have led to a smaller percentage of projections in alignment with the execution benchmarks, it nevertheless made the projections a more reliable estimate for the actual obligation rate.

Table 6. Average Difference Between Projected and Actual Obligation Rate by Military Department,
Budget Years FY 2009-FY 2013 vs. FY 2014-FY 2016

Account	First Year	Second Year	Third Year
Army Procurement, FY 2009-FY 2013	26.62%	16.64%	9.63%
Army Procurement, FY 2014-FY 2016	13.47%	8.65%	5.04%
Navy Procurement, FY 2009-FY 2013	16.72%	9.53%	6.47%
Navy Procurement, FY 2014-FY 2016	7.43%	7.63%	3.37%
Air Force Procurement, FY 2009-FY 2013	19.51%	13.46%	6.28%
Air Force Procurement, FY 2014-FY 2016	10.10%	8.43%	4.44%
Other Procurement, FY 2009-FY 2013	25.78%	20.62%	4.32%
Other Procurement, FY 2014-FY 2016	11.50%	10.61%	2.60%
TOTAL, FY 2009-FY 2013	21.64%	14.12%	7.14%
TOTAL, FY 2014-FY 2016	10.47%	8.48%	4.10%

5 | Conclusion

In an effort to measure the reliability and accuracy of the Comptroller projected obligation rates published annually by DoD, this paper evaluated the projections for acquisition accounts through (1) a survey of the projections from FY 2009 to FY 2020 and their alignment with historically-derived benchmarks; (2) a comparison of the actual obligation rates from FY 2009 to FY 2016 (FY 2009 to FY 2017 for RDT&E accounts) and their alignment with the benchmarks; and (3) an assessment of the accuracy of the projections relative to the actual obligation rates.

The survey of the projected obligation rates found notable consistency in the projections from year to year, posing additional questions over the formulation of the rates given the varying programs that fall under each account. More significantly, however, FY 2014 marked a clear inflection point in the data. From FY 2009 to FY 2013, 88 percent of projections for procurement accounts met the first-year execution benchmark of 80 percent. Yet between FY 2014 and FY 2020, only 27 percent of procurement projections reached the targeted threshold.

Trends around the FY 2014 inflection point were less discernable when assessing the actual obligation rates for accounts. Yet when compared to the execution benchmarks, a lower percentage of the actual rates met the targeted threshold than the projections, particularly when measured against the first-year benchmarks. Only 12 percent of the actual obligation rates for procurement accounts met or exceeded the 80 percent first-year execution benchmark, while no RDT&E account obligated 90 percent or more of its funding for the first year of availability to meet the first-year benchmark for that respective spending title.

A comparison of the average difference between the projections and actuals over the two periods, FY 2009 to FY 2013 and FY 2014 to FY 2016, found lower average differences in the second time frame. This means that the projections for that period were more accurate. Notably, as previously mentioned, the FY 2014 to FY 2016 timeframe also saw the projected obligation rates lowered such that a smaller percentage of the projections were in alignment with the execution benchmarks. Thus, when fewer projections met the benchmark thresholds, they were more accurate relative to the actual obligation rates.

A central conclusion based on these findings is that the Comptroller benchmarks may not be a useful way to measure program execution. This is because the services do not appear to be planning or expecting to meet the benchmarks from the outset of the budget process, and it is not clear who, if anyone, is using the projected obligation rates. The benchmarks, however, are used by the Comptroller and congressional staff to gauge the execution of programs. However, the data suggests that if the intention of the benchmarks is to have a common standard based on historical execution patterns by which to hold programs accountable, then the benchmarks may need to be updated to account for changing patterns in the congressional budgeting process. For example, over the past 10 years the frequency and length of continuing resolutions has increased markedly, which may be having a systemic impact on the ability of programs to obligate funding in the first year of availability (Harrison and Daniels 2017, p. 4-5). Moreover, a common set of execution benchmarks may not be realistic because of the wide variation observed in the actual obligation rates across procurement accounts.

These findings also have notable implications for both private-sector partners in industry and the financial sector. The general consistency in the projected obligation rates from year to year is not conducive to financial planning and investment given that the projections fail to take into account varying programs. Similarly, fluctuations in the accuracy of the projections relative to the actual obligation rates present few identifiable trends besides a lack of alignment with the execution benchmarks.

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| Appendix

A. Comparison of Projected Obligation Rates and Execution Benchmarks

Table I. Comptroller Projected Obligation Rates for Procurement Accounts vs. Execution Benchmarksfor First Year, FY 2009-FY 2020

Military	Account Budget	Total Number of	Percentage of Account Budget Year
Department	Years with First Year	Account Budget	Projections Meeting or Exceeding
	Projection ≥ 80%	Years of Data	First Year Benchmarks
Army	28	60	46.7%
Navy	46	60	76.7%
Air Force	21	53	39.6%
Other	6	21	28.6%
TOTAL	101	194	52.1%

Table II. Comptroller Projected Obligation Rates for Procurement Accounts vs. Execution Benchmarksfor Second Year, FY 2009-FY 2020

Military	Account Budget	Total Number of	Percentage of Account Budget Year
Department	Years with First Year	Account Budget	Projections Meeting or Exceeding
	Projection ≥ 90%	Years of Data	First Year Benchmarks
Army	39	60	65.0%
Navy	53	60	88.3%
Air Force	46	53	86.7%
Other	21	21	100.0%
TOTAL	159	194	81.9%

Table III. Comptroller Projected Obligation Rates for RDT&E Accounts vs. Execution Benchmarks for First Year, FY 2009-FY 2020

Military	Account Budget	Total Number of	Percentage of Account Budget Year
Department	Years with First Year	Account Budget	Projections Meeting or Exceeding
	Projection ≥ 80%	Years of Data	First Year Benchmarks
Army	0	12	0.0%
Navy	12	12	100.0%
Air Force	5	12	41.7%
Defense-Wide	0	12	0.0%
Op Test & Eva	5	12	41.7%
TOTAL	22	60	36.7%

B. Comparison of Actual Obligation Rates and Execution Benchmarks

Table I. Actual Obligation Rates for Procurement Accounts vs. Execution Benchmarks for First Year, FY2009-FY 2016

Military	Account Budget	Total Number of	Percentage of Account Budget Year
Department	Years with First Year	Account Budget	Projections Meeting or Exceeding
	Projection ≥ 80%	Years of Data	First Year Benchmarks
Army	1	40	2.5%
Navy	6	40	15.0%
Air Force	6	33	18.2%
Other	2	15	13.3%
TOTAL	15	128	11.7%

Table II. Actual Obligation Rates for Procurement Accounts vs. Execution Benchmarks for SecondYear, FY 2009-FY 2016

Military	Account Budget	Total Number of	Percentage of Account Budget Year
Department	Years with First Year	Account Budget	Projections Meeting or Exceeding
	Projection ≥ 80%	Years of Data	First Year Benchmarks
Army	10	40	25.0%
Navy	29	40	72.5%
Air Force	13	33	39.4%
Other	12	15	80.0%
TOTAL	64	128	50.0%

Table III. Actual Obligation Rates for RDT&E Accounts vs. Execution Benchmarks for First Year, FY2009-FY 2017

Military	Account Budget	Total Number of	Percentage of Account Budget Year
Department	Years with First Year	Account Budget	Projections Meeting or Exceeding
	Projection ≥ 80%	Years of Data	First Year Benchmarks
Army	0	9	0.0%
Navy	0	9	0.0%
Air Force	0	9	0.0%
Defense-Wide	0	9	0.0%
Op Test & Eva	0	9	0.0%
TOTAL	0	45	0.0%

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