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United States Government Accountability Office  
Washington, DC 20548

June 16, 2005

The Honorable John Warner  
Chairman  
The Honorable Carl Levin  
Ranking Minority Member  
Committee on Armed Services  
United States Senate

The Honorable Duncan L. Hunter  
Chairman  
The Honorable Ike Skelton  
Ranking Minority Member  
Committee on Armed Services  
United States House of Representatives

Subject: *Review of DOD's Report on Budgeting for Exchange Rates for Foreign Currency Fluctuations*

The Department of Defense (DOD) expends a significant amount of funds overseas, particularly from its Operation and Maintenance (O&M) and Military Personnel (MILPERS) appropriations. As the rate of overseas currencies fluctuates on a daily basis, such fluctuations have an impact on the various expenditures that DOD makes. For budgeting purposes, DOD establishes foreign currency exchange rates to determine its O&M and MILPERS funding needs. During the fiscal year, DOD incurs expenditures at the actual exchange rate, which varies from the budgeted rate. For example, if the dollar depreciates in value, more dollars are needed to pay for goods and services overseas than originally budgeted.

Concerned about whether DOD's method for selecting foreign currency rates has produced realistic estimates in its budget submissions, Congress required DOD to consider alternative methods. Specifically, the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005 required the Secretary of Defense to submit a report on the foreign currency exchange rate projections used in annual DOD budget presentations.<sup>1</sup> The act required that DOD identify alternative approaches, including the feasibility of using private economic forecasting and approaches used by other federal departments and agencies, for selecting foreign currency exchange rates that would produce more realistic estimates of the amounts required for DOD to accommodate foreign currency exchange rate fluctuations. DOD also was required

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<sup>1</sup> Pub. L. No. 108-375, §1006 (2004).

to discuss the advantages and disadvantages of each approach and to identify the department's preferred approach among the alternatives and provide a rationale for preferring that approach. Finally, the act further required that we review DOD's report, including the basis for the Secretary's conclusions for the preferred approach. DOD submitted its report to Congress on April 15, 2005.

In response to the act, we examined (1) the extent to which DOD evaluated alternative approaches for selecting budgeted foreign currency rates—such as private economic forecasting companies or approaches used by other federal departments—and DOD's basis for selecting its preferred rate selection approach and (2) the extent to which DOD's preferred approach for forecasting foreign currency exchange rates would produce a more realistic estimate than its historical approach.

In conducting our work, we examined the alternative approaches explored by DOD for selecting budgeted foreign currency exchange rates and DOD's reported advantages and disadvantages of each approach. We interviewed responsible officials from the Office of the Under Secretary of Defense, Comptroller to obtain DOD's rationale for deciding on its preferred rate selection approach. We independently calculated a sample of DOD's fiscal year 2006 budgeted foreign currency exchange rates that were generated using DOD's preferred approach to validate that the rates could easily be replicated. We also compared the use of DOD's preferred approach with its historical approach to determine their impact on developing budgetary estimates. We calculated how both the rates generated by DOD's preferred approach and the rates used to prepare the budget submissions for fiscal years 2004 and 2005 compared with current actual exchange rates as of May 2005. We conducted our work from November 2004 to June 2005 in accordance with generally accepted government audit standards.

## **Summary**

DOD evaluated several alternative approaches for selecting budgeted foreign currency rates and selected an approach that it believed would more accurately and objectively predict exchange rates. The alternative approaches included (1) estimates from a private forecasting company; (2) methods used by other federal departments, such as selecting exchange rates on the basis of past execution data and using multiple exchange rates for individual offices; and (3) various statistical methodologies. DOD selected a statistical method referred to as the centered weighted average, which combines both a long-run average of exchange rates and the most recently observed exchange rates to predict future exchange rates. DOD chose this approach because it was based on historical and current data and could be universally replicated; therefore, it was not dependent on subjective judgment. DOD used this method in developing its fiscal year 2006 budget submission. DOD believed that using a combination of both recent and historical data would be an advantage in more accurately predicting future exchange rates because the methodology allows DOD to weight individual currencies to minimize the impact of their volatility over time. According to DOD, they did not choose the private forecasting alternative because of the lack of visibility over key assumptions used in generating the forecast

nor did they choose one of the methods used by the other federal departments because the other departments either did not forecast foreign currency rates or they did not have a uniform procedure for setting departmentwide rates.

DOD selected a reasonable approach for forecasting foreign currency rates that can produce a more realistic estimate than its historical approach. Unlike DOD's historical approach, the centered weighted average approach provides a straightforward statistical calculation of historical data that can be easily replicated with no hidden assumptions and is not dependent on subjective judgment. In reaching our conclusion, we compared both the new rates generated using the preferred approach and the rates DOD used to prepare the fiscal year 2004 and 2005 budget submissions based on its historical approach to current actual exchange rates. We found that the new methodology generated rates that more closely reflected actual exchange rates that occurred during the budget year.

DOD officials reviewed a draft of this report and agreed with its content.

## **Background**

Each fiscal year, DOD establishes budgeted foreign currency exchange rates (units of foreign currency per one U.S. dollar) to use when determining its O&M and MILPERS funding needs. In past years, DOD tracked foreign currency exchange rates in the *Wall Street Journal* on a daily basis during the months immediately preceding the budget submission and then selected the most favorable foreign currency exchange rates, which provide the highest amount of foreign currency per dollar, during this timeframe. For the fiscal year 2004 budget submission, DOD selected the most favorable rates from August through November 2002. For the fiscal year 2005 submission, DOD did not revise its rates. It continued to use exactly the same rate contained in the fiscal year 2004 budget submission. We have previously briefed your office in the past that the use of the most favorable foreign currency rates underestimates the impact of foreign currency fluctuations and therefore results in a budget submission that does not realistically reflect funding requirements for O&M and MILPERS expenses. While many methods can be used to forecast foreign currency exchange rates, some methods may produce rates that are better estimates of actual foreign currency trends. For fiscal year 2006, DOD changed its methodology for setting budgeted foreign currency exchange rates and used a centered weighted average approach. This approach combines both a long-run weighted average of exchange rates and a weighted average of the most recently observed exchange rate to predict future exchange rates.

## **DOD Considered Alternative Approaches and Selected a Statistical Method**

In meeting its legislative requirement, DOD considered alternate approaches for determining foreign currency exchange rates to use in developing its budget request. These approaches included: estimates from a private forecasting company, methods used by other federal departments, and various statistical methodologies for selecting budgeted foreign currency rates. DOD selected a statistical method, the centered weighted average that it thought would more closely reflect actual rates that occur during the budget year. DOD used this method to set its fiscal year 2006 rates.

DOD considered using a private economic forecasting company as an approach for establishing budgeted foreign currency exchange rates and cited several advantages and disadvantages in its report. According to the report, a private forecasting company would provide DOD with forecasted foreign currency exchange rates calculated by the company using its own assumptions and methods. It also stated that the advantage of using a private forecasting company would be that it provides a quick way to acquire foreign currency exchange rates because the rates are already established by the company. The report further noted that a disadvantage of using a private forecasting company would be that DOD would incur additional costs since the department would have to purchase the forecasted rates from the private company. Also, DOD stated that another disadvantage would be that the approach would not provide a straightforward methodology that could be explained to decision makers because the assumptions and methods used to forecast the exchange rates are produced and owned by the company and would not be disclosed to DOD. Additionally, the report noted that the use of a forecasting company would raise questions as to why a particular company was selected instead of another one. According to DOD officials, for these reasons, DOD did not consider using a private forecasting company to be a viable option.

In its report, DOD also evaluated approaches used by other federal departments to set budgeted foreign currency exchange rates. DOD contacted five federal departments but found no foreign currency budgeting procedures in use that would meet DOD's needs. DOD contacted the Departments of Education, Energy, Justice, State, and Agriculture. The Departments of Education, Energy, and Justice did not purchase foreign currency. Therefore, they had no reason to forecast. The Department of State used past execution rates and thus did not forecast future market foreign currency exchange rates in its budget submissions. The Department of Agriculture used forecasted exchange rates in developing its budget. However, the department included 80 different budget estimates from its various offices and each office could use a different methodology to produce the forecasted rates. Thus, Agriculture had no uniform procedure for setting departmentwide budgeted foreign currency exchange rates. Consequently, DOD did not choose one of the methods used by another federal department because they either did not forecast foreign currency rates or they did not have a uniform procedure for setting departmentwide rates.

DOD also reviewed several statistical methodologies to forecast foreign currency exchange rates, such as linear forecasting, moving averages, exponential smoothing, simple average, and a centered weighted average. All of these statistical methodologies are traditional techniques that use data to predict future trends. DOD found that the advantages of statistical approaches are that the methodologies are clear and can be replicated. In addition, these statistical methods do not have hidden assumptions and the subjectivity associated with DOD's selection of past foreign currency exchange rates would be eliminated. We have previously briefed your office that the use of the most favorable foreign currency rates underestimates the impact of foreign currency fluctuations and therefore results in a budget submission that does not realistically reflect funding requirements for O&M and MILPERS expenses.

DOD selected the centered weighted average approach as its preferred approach for establishing budgeted foreign currency exchange rates for fiscal year 2006. DOD believed that this method would result in rates that more closely reflect actual foreign currency rates because it combined both a long-run average of exchange rates and the most recent observed rates. This approach allowed DOD to weight individual currencies thus minimizing volatility over time. The centered weighted average was the only statistical methodology that used individual weighting factors for each currency to combine recent data with the historical average to predict exchange rates. DOD also reported that a possible disadvantage of using this approach would be that it could produce a rate that might not appear reasonable if the current market exchange rates significantly increased or decreased at the time of the budget submission.

### **DOD Selected a Reasonable Approach That More Realistically Estimates Foreign Currency Exchange Rates**

DOD selected a reasonable approach for forecasting foreign currency rates that can produce a more realistic estimate than its historical approach. Unlike DOD's historical approach, the centered weighted average approach provides a straightforward statistical calculation of historical data that can be easily replicated with no hidden assumptions. This type of calculation eliminates the subjectivity in the rate selection process that was present in the method DOD used to set budget estimates in prior years, when DOD selected only the most favorable rates for each foreign currency. We independently verified DOD's claim that the rates can easily be replicated using this approach. We calculated a sample of DOD's exchange rates using its centered weighted average methodology. Our calculations matched the same rates that DOD generated for its fiscal year 2006 budget submission.

Our analysis shows that DOD's preferred method for developing foreign currency exchange rates for budgetary purposes more closely approximates actual exchange rates that occurred during the budget year. We compared both (1) the foreign currency rates DOD included in its fiscal year 2006 budget submission using the centered weighted average approach and (2) the rates that DOD included in its fiscal year 2004 and 2005 budget submissions using the most favorable rates with current foreign currency exchange rates as of May 2005. Our analysis showed a projected

loss of almost \$775 million (potential difference between using the budgeted versus actual rates) for fiscal year 2006 using the centered weighted average rates. However, DOD would have incurred additional losses of about \$908 million, totaling about \$1.7 billion, had it used the rates it used to build its budget submissions for fiscal years 2004 and 2005 to predict its fiscal year 2006 budget estimates.

### **Agency Comments**

DOD officials reviewed a draft of this report and agreed with its content.

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We are sending copies of this letter to the Senate and House Armed Services Committees. We also will make copies available to others upon request. In addition, this letter will be available at no charge on GAO's Web site at <http://www.gao.gov>.

If you have any questions concerning this letter, please contact me at (202) 512-9619 or [pickups@gao.gov](mailto:pickups@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this letter. Key contributors to this assignment were Bonita P. Anderson, Renee S. Brown, Laura L. Durland, Charles W. Perdue, Gina O. Ruidera, and Michael C. Zola.



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