Chapter 12

THE LCAMR MISSILE

A Case Study

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Abstract: This paper presents a fictional case study of an aerospace firm's analysis of whether to undertake a new missile program for sale in foreign markets. The adoption of this new program will affect fully allocated accounting costs on all of its programs. The issue explored is whether and how the firm ought to take into account the fact that the prices it receives on many of the products it sells to the U.S. government are based on fully allocated accounting costs and how this potentially affects the firm's incentives to produce as efficiently as possible

Key words: Cost allocation, cost-based pricing, defense procurement, overhead

1. INTRODUCTION

This is a purely fictional case study that I originally prepared in 1992, to teach to senior executives of Lockheed as part of a one-week executive education course that they attended at the Kellogg Graduate School of Management. It is designed to illustrate the main conclusions that I reached in an article published in *The Accounting Review* (Rogerson 1992), on how overhead allocation rules used by defense contractors distort their incentives to produce as efficiently as possible when the prices they are allowed to charge the Department of Defense are based on these fully allocated costs. Although I never attempted to formally publish this case, over the years a number of professors have asked me for permission to use it in MBA cost accounting courses, and I am delighted to be given the opportunity to make this case available to a wider audience by including it in this volume in honour of Joel Demski on the occasion of his 65th birthday. Joel has published

research related to this subject that I highly recommend to the reader (Christensen and Demski 1997, 2003). A more comprehensive overview of the entire subject of cost allocation is contained in chapter 6 of Demski(1994).

Although the data in the case is purely fictional, the cost structure of Advanced Missiles is based upon actual cost data for four major aerospace contractors described in a report prepared by the Institute for Defense Analysis (McCullogh and Balut, 1990). Therefore, the cost data is representative of that exhibited by real aerospace firms. However, other than for the fact that the AMRAAM missile exists, all circumstances in this case are fabricated and are not based upon any particular firm or project.

The nature of the contracting procedures and cost allocation rules used in defense procurement have not changed substantially in the thirteen year period since this case was written, so the incentive effects identified in this case are still as real and important as they were when the case was first written.

2. BACKGROUND: GENERAL

In January 1991, Sandy Crosberg, manager of financial analysis at Advanced Systems Corporation, told a case writer, "What I learned about incremental analysis at Business School doesn't always apply in the defense contracting arena. Although plenty of our program costs are sunk, revenues on our government programs are largely based on costs and therefore sunk costs are hardly irrelevant." He was convinced that some sort of full-allocation approach to project analysis was required in this environment. Crosberg used the LCAMR (pronounced *el-cam'-er*) project as an example. The LCAMR (Low Cost Advanced Medium Range) missile was a new air-to-air missile designed exclusively for foreign sales. It was essentially a less sophisticated and therefore cheaper version of the very successful AMRAAM (Advanced Medium Range Air-to-Air Missile) which Advanced had just begun full-rate production on for the US Government.

3. BACKGROUND: ADVANCED SYSTEMS

Advanced Systems Corporation was a large aerospace firm primarily engaged in the business of being a prime contractor and major subcontractor on aerospace systems for the US Government. It was organized into two