

AUDITING PROCUREMENT CONTRACTS FOR DEFENSE MATERIAL IN SPAIN: IN THE FOOTSTEPS OF THE U.S. MODEL

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ABSTRACT. In Spain contract auditing has been applied since 1988 to determine the final cost of defense procurement contracts. In this respect, the Spanish Department of Defense takes the US methodology as a reference model, and therefore it may be useful to study the degree of convergence between the two models. The main objective of this paper is to analyze the degree to which the US contract auditing model for the procurement of defense materiel has influenced the system applied in Spain. Accordingly, the comparative method is used to highlight the main features of the contract auditing models used by the Spanish and the US Departments of Defense. The results obtained show that the methodology used by Spain is not an original approach, but that there is only a low degree of convergence with the US model.

INTRODUCTION

With respect to the goods and services demanded specifically by the armed forces, because of the nature of the product or for security reasons, markets are not always competitive (Linster, Slate, & Waller, 2002; McGuire, 2007). Although most countries declare their aim is to purchase all items through a competitive process, on many

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occasions single source procurement is used for specific defense requirements. However, assessing the data concerning the extent of this practice is a difficult task. In the US fiscal year 2008-2009, 35% by value of defense contracts were awarded on a single source basis (Currie, 2011). In Spain, the defense industry is composed of a small number of companies, reflecting the current international trend toward corporate concentration. The stringent technical requirements of military equipment require a mastery of technologies that have no possibility of dual use in civil markets, and defense suppliers must equip themselves with efficient production structures, which can only be financed by the prior concentration of capital (Secretary of State for Defense, 2004).

Against this background, the Spanish Ministry of Defense (MINISDEF) is in many cases obliged to place orders for services and supplies of weapons and material with a single company, there being only a single manufacturer for each type of equipment or weapons system (Fonfria & Correa, 2010). In the period 2008-2010, the contracts concluded by MINISDEF by the negotiated procedure, with no call for tenders being made, represented 34% by value of all defense contracts (Sub-Directorate General for Procurement, 2008, 2009, 2010). Accordingly, in order to supplement imperfect market mechanisms, alternative procedures and analyses have been developed in order to determine the fairness of the price paid and thus ensure efficient application of public resources (Kirat, Bayon, & Blanc, 2003; Murphy, 2009). Through these analyses and reviews, defense departments can discover whether they are paying for inefficient performance by the company, or being presented with unit costs derived from non-admissible items, or whether the supplier's profit margins, rather than reflecting the demands and uncertainties of contract implementation, are based on exploiting a situation of virtual monopoly in the market (Fonfria, 2009; McGowan & Vendrzyk, 2002).

To address the issues raised with this type of acquisitions, MINISDEF has adopted some techniques applied by other NATO countries with more experience in the application of contract auditing. Specifically, the tools used by MINISDEF in evaluating the costs of contracts are contract auditing and cost and price analyses. The methodology for both instruments was constructed on the basis of the audit standards published by the US *Defense Contract Audit*

Agency (DCAA), adapted to Spanish rules and regulations (Aguado & Zafra, 2011).

Among the contextual variables that have influenced the appearance of cost and price auditing in Spain are factors such as this country's membership of international defense bodies, particularly NATO since the 1980s, its participation in international cooperation programs related to the manufacture and supply of arms and defense material, the need to provide greater transparency in the process of awarding single-source contracts and the promotion and interest of the Secretariat of State for Defense (SEDEF) in 1988 in creating a specific working group on this issue, on the occasion of Spain's participation in the European Fighter Aircraft program.

The Cost Assessment Group (CAG) was set up in 1988 in accordance with the provisions of Section 5 of the Memorandum of Understanding (MoU) concerning the program to define collaboration, development, production and logistic support for the Eurofighter 2000 weapons system, according to which the contracts awarded to companies located in countries signatory to this MoU should be duly audited (Gómez, 2006).

Taking into consideration that the above MoU required the implementation of the Federal Acquisitions Regulations, the CAG began its work taking the latter as a reference standard, in the absence of domestic standards and methodological procedures applicable in this respect. Although the possibility was considered of signing a MoU with the USA similar to those subscribed to by France, UK, Germany, Norway and Italy, ultimately this was not possible because the criteria set out in the Spanish general accounting plan and in Spanish legislation did not provide for sufficient, appropriate instruments for an effective cost analysis of Spanish defense companies. This realization accelerated the process of developing local standards and methodology for the auditing and cost analysis of defense contracts. At that point, the Spanish system was influenced by the US model, and the reference methodology for building the Spanish model was that employed by the US Defense Contract Audit Agency.

The main goal of this paper is to analyze the degree of influence of the US contract auditing model in Spain and to identify, where appropriate, areas for improvement to achieve higher levels of convergence with the US benchmark. In other words, from the US

perspective, the aim of this study is to highlight aspects that distinguish the control of defense spending by an allied country, one that can be considered representative of the general situation in this respect in Europe, and to determine the ground remaining to be covered in order to achieve higher levels of convergence (Aguado, López, & Vera, 2013). This analysis was carried out mainly by comparing the elements that characterize the two contract auditing models in question.

The justifications for this study of the Spanish contract audit model are twofold: first, as the Spanish cost and price evaluation system was inspired by the US methodology, it is of interest both for the contracting authorities and for the Spanish audit body to know how much progress has been made toward full convergence with the US template, and if this has not been achieved, to identify the reasons underlying the discrepancy. Second, as the Spanish situation in this respect is similar to that of other European countries, the results obtained can help establish guidelines to achieve the desired international harmonization of auditing practices by the defense departments of allied countries, as part of their procurement of goods and services for the armed forces. In this process of harmonization, we have taken the US approach as a benchmark because this country has the most extensive experience in the implementation of contract auditing in the procurement of defense materiel.

In this area, Berry (1981) and Letzkus (1977) called for the international harmonization of cost accounting practices with respect to defense contracts. In our opinion, this issue should be addressed obligatorily and without delay to ensure the effectiveness and the unification of criteria and practices in implementing contract audit services within the NATO countries.

This paper examines the situation in Spain in particular, and we believe it would be of interest to US defense-sector companies that may conclude contracts in this country to be aware of the Spanish model of contract auditing. The findings reported could also prove useful to the Defense Contracts Audit Agency (DCAA), by highlighting the regulations applied to companies that enter into contracts with the Spanish Ministry of Defense, and by enabling the DCAA, where appropriate, to validate the audit procedures used by the Spanish authorities with respect to Spanish companies that enter into contracts with the US government. These audits are performed in

application of the NATO Guidelines for Mutual Provision of Contract Audit, or through bilateral agreements with the US government as part of Spain's participation in international weapons programs, or through contracts between States and foreign companies.

The rest of this paper is organized as follows: in the second section, we identify some differences in the economic and industrial contexts in Spain and the USA, with respect to the defense sector. In Section 3, we outline the methodology used in this study. In Sections 4 and 5, respectively, we examine the main features of the cost and price contract auditing system used in Spain and the USA, and the sixth section then sets out the results obtained for each of the items selected for comparison in the Spanish and US models. Finally, we present the main conclusions drawn.

CONTEXT

In applying the comparative method in this study, we took into account the large differences in the context (industrial, military, economic and regulatory) in which the financial control of public sector defense procurement takes place in both countries. These differences concern two main and interrelated aspects: public spending on defense and the importance of the defense industry in the economy of each country.

An analysis of the indicators shown in Table 1 reveals the existence of significant differences in the volume of public defense spending in the two countries. Therefore, in order to compare the effort made by each country in the field of defense, in relation to its

TABLE 1
Military Expenditure in 2012 (USA-Europe-Spain)

	Rank in NATO	Rank in the World	Spending (\$b.)	Share of GDP (%)	Defense Effort Index
NATO			1,034.83	3.04	
USA	1	1	745.07	4.75	1.56
EUROPE			266.31	1.61	0.54
Spain	7	19	14.10	1.04	0.34

Source: Based on Pérez (2013).

economic capacity, we compiled a "Defense Effort Index", obtained by dividing the percentage of total NATO defense spending by the percentage of total NATO GDP. A quotient greater than one, as is the case of the USA, means the country's defense spending contribution is above that corresponding to its economic capacity.

An analysis of per capita spending on defense (see Table 2) again shows the US investment to be greater than that by Spain, with respect both to total population and to the size of the armed forces.

TABLE 2
Military Expenditure per Capita in 2012 (USA-Europe-Spain)

	Population (million)	Spending per capita (\$)	Military personnel (thousands)	Defense spending per capita military personnel (\$)
Total NATO	911	1,135	3,443.7	300.50
USA	314	2,371	1,442.5	523.77
EUROPE	562	474	1,960.7	135.82
SPAIN	46	306	125.1	112.75

Source: Based on Pérez (2013).

Table 3 shows that Spain presents a major imbalance in its military spending, with a high percentage of spending devoted to personnel and much less invested in equipment and weapons, compared to the much more balanced percentages of the USA. This finding shows there is a significant investment gap between the USA and Spain as regards military equipment, which has a large impact on the operational capability and efficiency of its armed forces and, as shown below, on the development of the defense industry in both countries.

With respect to the second differentiating aspect, the USA has the largest defense industrial footprint in the world. The traditional US policy of deterrence and national security has depended on the defense industrial base to the point that goods and services are acquired from thousands of companies in 215 industry sectors, which

Table 3
Distribution of Total Defense Expenditure by Category in 2011 (USA-Spain) (%)

	Personnel ¹	Equipment ²	Equipment ³	Other expenditure ⁴
USA	41.4	26.5	1.1	31.0
Spain	64.8	6.7	1.9	26.6

Notes: ¹Personnel expenditure includes military and civilian personnel costs and pensions.

² Equipment expenditure includes major equipment spending and R&D devoted to major equipment.

³ Infrastructure expenditure includes NATO common infrastructure and national military construction.

⁴ Other expenditure includes operations and maintenance spending, other R&D spending and expenditure not allocated among the above-mentioned categories.

Source: Based on Financial and Economic Data Relating to NATO Defense (*Press Release NATO*, 13 April 2012).

reflects the very strong relationship between the vitality of the defense industry and the economic strength of the USA (Hartley, 2007). For its part, the Spanish military industry is supplied by 546 companies, producing goods, equipment and services in over 45 industry sectors within the Spanish economy (Directorate General of Armament and Equipment, 2009). To appreciate the true distance between the Spanish and US defense industries, Table 4 shows the major arms manufacturers in both countries.

TABLE 4
The Major Arms-Producing Companies, 2011 (USA-Spain)

Rank	Company	Country	Arms Sales 2011 (In \$ Millions)	Arms sales as share of total sales (In %)
1	Lockheed Martin	USA	36,270	78
2	Boeing	USA	31,830	46
4	General Dynamics	USA	23,760	73
5	Raytheon	USA	22,470	90
6	Northrop Grumman	USA	21,390	81

TABLE 4 (Continued)
The Major Arms-Producing Companies, 2011 (USA-Spain)

Rank	Company	Country	Arms Sales 2011 (In \$ Millions)	Arms sales as share of total sales (In %)
9	L-3 Communications	USA	12,520	83
10	United Technologies	USA	11,640	20
22	CASA	Spain	3,940	91
44	Navantia	Spain	1,650	95
95	Indra	Spain	710	19

Source: Based on The SIPRI Top 100 arms-producing companies.

The USA has the largest and most important companies in the sector, in both economic and technological importance. Of the top ten companies in the global defense industry, seven are American. And of the top hundred, forty-seven are American. In the same ranking, Spain has just three companies, the highest-placed (dedicated to aircraft) being at number 22.

METHOD

To carry out this study and to determine the real influence of the US contract auditing model on the Spanish system, we used the comparative method (Ragin, 1987; Sartori, 1994). This approach consists of the systematic use of observations from two or more macrosocial entities (countries, societies, political systems or subsystems, organizations) or various moments in the history of a society, to examine their similarities and differences and to identify the causes of these.

In this research, we analyzed and compared qualitative elements, namely the instruments and regulations applied in each country for the exercise and regulation of contract auditing. The analysis was conducted from the perspective of the agencies responsible for the public sector procurement of defense materiel. At the outset of contract auditing in Spain, the initial influence of the US system was decisive, and so the present study is aimed at relating the

characteristics and instruments of the Spanish model with those of its main source of reference.

The study, thus, is based on a comparison between the audit models applied in Spain and the USA; for this purpose, the comparative method is the most appropriate for standardizing and matching the qualitative information that characterizes the model pertaining to each country, and thus for determining the main differences and similarities between these systems.

In order to apply the comparative method, a prior selection was made of the following:

- The context: for the reasons given above, the US model was taken as the reference for comparing contract auditing systems. The comparison made is international, among allied countries belonging to the same defensive system (NATO).
- Time: the comparison is synchronous (simultaneous), between audit models that are currently in force.
- Scope of the object of comparison: Using this comparative approach, we analyzed the main factors that define the current Spanish contract auditing model, grouped into two categories: (a) the performance of contract auditing; (b) cost rules in defense contracts.

The study was comprised of the following steps: (1) identify and distinguish the legislation governing contract auditing, and the cost rules applicable in each country; (2) identify the essential aspects that characterize the respective contract auditing models; (3) make a structured summary of the information content obtained; (4) conduct a comparative critical assessment of the characteristics and instruments of the contract auditing models studied.

The sources and techniques used for data collection consisted mainly in reviewing existing national legislation in each country on the cost criteria applied in defense contracts and on the auditing of such contracts. In the case of Spain we made use of information contained in MINISDEF documents and reports. For the USA, we relied mainly on the following regulations and guidelines: Federal Acquisition Regulation (FAR), Cost Accounting Standards (CAS), Contract Manual Audit, Contract Pricing Reference Guide, Yellow Book.

THE FORMAT OF THE SPANISH CONTRACT AUDITING MODEL

Cost and price auditing in Spain is an obligation arising from its participation in international weapons programs and from international cooperation in this area, one in which the NATO countries have a long tradition regarding the financial control of defense material procurement (Aguado, López, & Vera, 2010). The CAG was set up in 1988 in accordance with the provisions of Section 5 of the MoU concerning the program to define collaboration, development, production and logistic support for the Eurofighter 2000 weapons system. This MoU provides that the contracts awarded to companies located in countries signatory to this MoU should be duly audited (Gómez, 2006).

In Spain, the rules governing contract auditing are based on two sets of regulations issued by MINISDEF: Ministerial Order 238/1998, of 15 October, on the presentation and auditing of tenders and costing rules for certain MINISDEF contracts; and Instruction 128/2007 of the Secretary of State for Defense, on procedures for the provision of cost and price analysis services with respect to MINISDEF. The body responsible for carrying out cost and price analyses of suppliers or companies participating in defense programs is the CAG, which is responsible to the MINISDEF Directorate General for Economics Affairs.

NODECOS (*Normas de Costes* - Cost Standards), i.e., the standards on the criteria to be used in calculating costs in certain contracts for MINISDEF supplies and services, are regulated under fourteen provisions set out in the annex to Ministerial Order 283/98, of 15 October. According to NODECOS No. 1, contract costs should be calculated by reference to the full-cost model. Thus, the cost of the contract is obtained from the sum of allowable costs, namely direct costs (direct labor, direct materials, subcontracted direct work and other direct costs) and indirect costs (overheads, indirect costs of materials management, indirect costs of subcontract management, general and administrative costs, indirect trading costs and financial costs) that are associated with or attributable to the contract.

The scope of the defense contract auditing and of the NODECOS in Spain is limited to contracts for manufacturing supplies and for consulting and support services awarded by negotiated procedure without advertising and by competitive dialogue, with a budget of € 901,518.16 or more, and optionally for those with a lower budget.

The configuration of cost and price auditing in Spain as a right of the Administration that requires that this right be stated in writing, not only in the tender documents but also in the contract signed between the contractor and the MINISDEF contracting body. The breakdown of the elements comprising the price of non-competitive defense contracts is set out in Instruction 128/2007, which provides model statements concerning the breakdown of the price tendered and the costs incurred in performing the contract (see Table 5).

TABLE 5
Breakdown of Tender Price and Costs Incurred in Executing the Contract in Spain

Item	Concept	Formula for price tendered	Formula for costs incurred
A	Direct costs		
B	Indirect costs		
C	Total production cost	= A+B	= A+B
D	Supplier's Profit		
E	Price of the products and/or services to be delivered	= C+D	
F	Other costs accepted in the contract, non-assignable to the products or services		
G	Tax liability		
H	Price of the contract	= E+F+G	
I	Total costs incurred in the execution of the contract		= C+F

Source: Based Secretaria de Estado de la Defensa (2007).

NODECOS 12 specifies in detail the defense contract costs that are always unallowable and those that may be so under certain circumstances. The following, among others, are considered unallowable: costs classified as profit sharing; the excess value

assigned to material or services over the current value; corporate income tax payments, and any other tax on capital or income; fines and penalties imposed by the government; financial costs; losses from fixed assets and extraordinary expenses; donations and grants; allocations to provisions; severance pay and voluntary redundancy and early retirement payments; bad debts; the amortization of goodwill; revenue, discounts or subsidies linked to any of the allowable costs is classified as reducing the contract cost.

When it is established that there exists a relationship between the expenditure incurred and the contract with the MINISDEF, the following costs are considered allowable: advertising and public relations, leasing, intellectual property rights and other costs arising from the use of patents, warranty service, subactivity, training, obsolescence, and surplus stocks.

In Spain there is no rule governing the profit derived from public sector procurement nor a predetermined profit formula applicable for its objective determination in defense contracts. However, when MINISDEF establishes profit margins for public procurement contracts, it seeks to achieve a remuneration policy consisting of (a) rewarding the contractor in relation to the complexity and technical expertise required to perform the contract; (b) motivating the contractor to apply active policies to reduce costs, by establishing profit levels consistent with the type of contracts (fixed price or price based on reimbursable costs) and the nature of the risk associated with the contract; (c) encouraging investments that will raise productivity.

To facilitate the negotiation and performance of cost and price auditing, both of the tender and of the costs incurred, Spanish law requires of the companies concerned, among other obligations, the following: a breakdown of the price tendered for performance of the contract, in accordance with the model set out in Instruction 128/2007, together with the following attachments extending this information: (a) details of the concepts making up the contract price; (b) breakdown of the prices of each element (cost targets, work packages, manpower units, etc.); (c) breakdown of the costs of each element; (d) aggregation of the costs assigned to each element (cost targets, work packages, manpower units, etc.); identification and record of the costs declared unallowable, separating these from all

other costs considered allowable and allocable to contracts with MINISDEF.

Finally, companies are obliged to meet MINISDEF requirements regarding matters such as the contribution of material resources, documentation and information, and maintaining economic and accounting documentation concerning the contract for as long as is legally required (five years).

THE FORMAT OF THE USA CONTRACT AUDITING MODEL

The Department of Defense United States (DoD) has several procurement agencies for each of its four armed services (Army, Navy, Air Force and Marines). These are known as Buying Commands. Responsibility for monitoring contract pricing, including single source contracts, is between two independent agencies, which work alongside the Buying Commands. The Defense Contract Management Agency is responsible for monitoring contracts on behalf of buying agencies and ensuring compliance with contract terms. The Defense Contract Audit Agency is responsible for auditing contractor rates and costs.

The cost accounting principles and standards applied to US defense contracts date back to the early twentieth century. In 1916, due to the increased purchases of military equipment during the First World War, and in an attempt to curb the excessive profits being obtained by companies supplying military equipment, the first cost guidelines were adopted for this type of military contract, under the Revenue Act of 1916, known as the Munitions Profits Tax (Bedingfield & Rose, 1985). The most recent stage in the evolution of cost regulation for government contracts took place in 1970 with the creation of the Cost Accounting Standards Board (CASB) and the enactment of the CAS.

The CASB and CAS arose in response to the lack of consistency and uniformity in business accounting practices, which made it difficult or impossible for the government to perform meaningful comparisons between the cost data supplied by two or more contractors for a similar output.

One of the first tasks undertaken by the CASB was to create a questionnaire in accordance with the standards set out in Public Law 91-379, to oblige defense contractors and subcontractors, as a pre-

condition to the conclusion of any contract, to make a written statement of their practices and procedures relating to cost accounting. This questionnaire is formally known as the CASB Disclosure Statement (CASB-DS-1), and it is regulated in subpart 9903.202-1.

In 1965, activities concerning contract auditing for the DoD were concentrated with the creation of the Defense Contract Audit Agency (DCAA), which was established by DoD Directive 5105.36, Defense Contracts Audit Agency, on 9 June 1965. The DCAA audit authority is based on various statutes and on the regulation of the contract terms and conditions set out in the FAR. The most important law defining the scope of the DCAA is United States Code 10. Section 2313 (a) (1) and (2) Examination of records of contractor.

The CAS are 19 cost standards issued by the CASB, designed to enable contractors to achieve uniformity and consistency in their calculation, accumulation and allocation of costs related to government contracts. The regulation of the CAS is set out in the FAR rules in Chapter 99, Part 9904.

The CAS were initially applied to contracts negotiated with the DoD that exceeded a certain value; subsequently, these rules were extended to similar contracts throughout the US public administration (Bedingfield & Rose, 1985; Sourwine, 1993). The CAS are currently applied to all requests for research information and to cost-reimbursement contracts and subcontracts and, in general, to negotiated contracts worth more than \$700,000. However, there are many exceptions to this general system, specified in subpart 9903.201-1 (for example: sealed bid contracts; contracts and subcontracts with small businesses; contracts and subcontracts with foreign governments or their agents; contracts and subcontracts in which the price is set by law or regulation; subcontractors under the NATO PHM Ship program to be performed outside the USA by a foreign concern; firm-fixed-price contracts or subcontracts awarded on the basis of adequate price competition without submission of cost or pricing data).

The total cost of a contract is the sum of the direct and indirect costs allocable to the contract plus any allocable cost of money less any allocable credits (Garret, 2008; Oyer, 2005). It includes both the costs related to the production cycle, through the allocation of costs to the contract, and the costs allocable to the period, it being

necessary to discriminate between the costs strictly attributable to the contract and those corresponding to the rest of the production obtained by the contractor during the period.

While the total cost of a contract includes all costs properly allocable to the contract, the allowable costs to the Government are limited to those allocable costs which are allowable pursuant to Part 31 of Federal Acquisitions Regulations.

Each cost principle defines a particular type of cost and establishes whether it is allowable, unallowable, or allowable with some restrictions (FAR 31.205):

- a) Allowable cost. A cost is allowable, if it is expressly identified as allowable in the cost principles, and it meets the relevant tests for reasonableness; allocability; compliance with cost accounting principles and the terms of the contract.
- b) Unallowable cost. Many cost principles identify specific types of cost as unallowable. The following are specified as unallowable costs: Alcoholic Beverages, Bad Debts, Contributions or Donations, Entertainment Costs, Goodwill, Lobbying and Political Activity Costs, Losses on Other Contracts, Organization Costs, Compensation for Personal Services, Contingencies, Research & Development Costs, Fines, Penalties, & Mischarging Costs, Idle Facilities & Idle Capacity Costs, Independent Research & Development/ Bid & Proposal Costs, Insurance & Indemnification, Interest & Other Financial Costs, Legal & Other Proceedings Costs, Patent Costs, Plant Reconversion Costs, Professional & Consultant Service Costs, Public Relations & Advertising Costs, Recruitment Costs, Relocation Costs, Selling Costs, Taxes, Termination Costs, Training & Education Costs.
- c) Allowable cost with restrictions. Many cost principles state that specific costs are allowable, but establish restrictions on the amount that can be considered reasonable. Asset Valuations Resulting from Business Combinations, Compensation for Personal Services, Cost of Money, Research & Development Costs, Depreciation, Employee Morale, Health, Welfare, Food Service, & Dormitory Costs & Credits, Fines, Penalties, & Mischarging Costs, Gains & Losses on Disposition or Impairment of Depreciable Property or Other Capital Assets, Idle Facilities & Idle Capacity Costs, Independent Research & Development/ Bid

& Proposal Costs, Insurance & Indemnification, Interest & Other Financial Costs, Legal & Other Proceedings Costs, Patent Costs, Plant Reconversion Costs, Precontract Costs, Professional & Consultant Service Costs, Public Relations & Advertising Costs, Recruitment Costs, Relocation Costs, Rental Costs, Royalties & Other Costs for Use of Patents, Selling Costs, Special Tooling & Special Test Equipment Costs, Termination Costs, Trade, Business, Technical, and Professional Activity Costs, Training & Education Costs, Travel Costs.

In the USA, the contract price is agreed on the basis of estimated allowable costs plus negotiated profit (subpart 15.401).

Profit is negotiated by the Contracting Office on a case by case basis for each contract, using weighted guidelines (Soct, 2008). The weighted guidelines method set out in Defense Federal Acquisition Regulations Supplement subpart 215.404-71 is generally prescribed for use by contracting officers in computing the profit objective to be used in negotiating contracts with commercial organizations where cost analysis is performed. The weighted guidelines method focuses on four profit factors:

- (1) Performance risk: This profit factor addresses the contractor's degree of risk in fulfilling the contract requirements. The factor consists of two parts: (a) technical: the technical uncertainties of performance; (b) management/cost control: the degree of management effort necessary.
- (2) Contract type risk and working capital adjustment: the contract type risk factor focuses on the degree of cost risk accepted by the contractor under varying contract types. The working capital adjustment is an adjustment added to the profit objective for contract type risk.
- (3) Facilities capital employed: this factor focuses on encouraging and rewarding capital investment in facilities that benefit the DoD. It recognizes both the facilities capital that the contractor will employ in contract performance and the contractor's commitment to improving productivity.
- (4) Cost efficiency: this special factor provides an incentive for contractors to reduce costs. To the extent that the contractor can demonstrate cost reduction efforts that benefit the pending

contract, the contracting officer may increase the prenegotiation profit objective by an amount not exceeding 4% of the total objective cost.

Following the publication of the CAS and to ensure the effective implementation of the model established to control the costs and prices of defense contracts, the CASB imposed a series of obligations on DoD contractors and subcontractors, summarized as follows:

- 1) Successful bidders must comply with the CAS with respect to the calculation and presentation of contract costs.
- 2) A detailed questionnaire on cost accounting criteria and practices must be completed.
- 3) A contractual clause empowers the DCAA to audit the costs calculated and used in the identification and pricing of bids or contracts.
- 4) The contract price may be adjusted, and the corresponding interest will be payable, if the contractor fails to comply with the CAS or when faults are detected in the consistency of the practices declared, should such situations result in increased costs for a government contract.

THE INFLUENCE OF THE US MODEL: FINDINGS

To analyze the degree of influence of the US contract auditing model on the Spanish system, in this section we present the results of the comparison between the elements that characterize each model, highlighting their main similarities and differences. From this comparison, we discuss areas in which the American influence is particularly evident.

Regulating Cost and Price Auditing in Defense Contracts

In this section, we compare the following features of the two models.

Authority

In 1998, Spain embedded the government's authority to audit single source price proposals within a legal framework. In the USA, auditing authority is provided by Federal law (Federal Acquisition

Regulations) and by the Truth in Negotiations Act (TINA). Although not specifically intended for single source procurement, TINA imposes obligations on contractors for the full and frank disclosure of relevant information at the time of contract negotiation (Currie, 2011).

In this regard, it is noteworthy that the context (the amount of defense spending and the strength of the industry sector) in which defense equipment procurement takes place in each country has evident consequences. In the case of the USA, and compared to the situation in Spain, this context has resulted in a much earlier appearance of contract auditing, the development of broader specific legislation on the procurement of military equipment and materiel, a greater development of cost control regulations for defense contracts, and an important degree of participation by defense companies in developing cost standards applicable to public contracts.

Current Spanish legislation on contract auditing is very limited. It is issued by MINISDEF and applies only to certain defense contracts awarded by the negotiated procedure or by competitive dialogue. However, vague recognition is now granted in the Public Sector Contracts Act of the right of contracting authorities to review the pricing of provisionally-priced contracts. By contrast, in the USA, the Federal Acquisition Regulations on contract auditing are much more voluminous and detailed, and apply, moreover, throughout the public sector and not just to the Department of Defense.

Audit Bodies

The body responsible for cost and price contract auditing in Spain, as in other major NATO countries (France, Germany, UK, and USA) is organically and functionally dependent on the corresponding Department of Defense. The CAG forms part of the Secretariat of State for Defense within the MINISDEF Directorate General for Economic Affairs.

The Defense Contracts Audit Agency (DCAA)¹ is a separate organization from the DoD (although financially supported by it), which ensures that auditors enjoy a much higher level of independence from procurement agencies than is the case in Spain. However, the DCAA is under the direction, authority and control of the Assistant Secretary of Defense (Comptroller), under DoD Directive 5105.36 (Horan, 2009; Sander, 2010).

In carrying out contract auditing, the DCAA, as well as the DoD Directive 5105.36, refers to the Contract Audit Manual (CAM) which sets out technical guidance, standards and the policies and procedures to be followed by DCAA staff in implementing audits of all types of contracts. However, the contents of the CAM are not binding on contractors or on contracting authorities. The sole function of the CAM is to provide guidance for the DCAA auditors (Ford, 2006). In Spain, the CAG has published its Manual of Organization, Functions, Methodology and Working Procedures. This document, for internal use, states the CAG's methodological guidelines for the performance of its functions and although initially it was based on the recommendations given in the DCAA Manual (Gómez, 2006) it is now outdated and of no practical application.

Obligations Placed on Companies

For defense contract cost and price control to be effective, contractors must comply with various obligations. These are of a very similar nature in all countries, and are basically as follows: first, to present a statement of the estimated cost of the contract, in a given format and in accordance with applicable cost standards; and second, to allow the audit authority access to the site or to the documentation or information necessary to evaluate the costs estimated or incurred under the contract. Therefore, in this respect there does not appear to be any clear influence of the US model on the Spanish system. Nevertheless, in the USA, the obligations on contractors are somewhat stricter (Ahadiat, 1997); for example, they must provide information on accounting systems, cost accounting methods and practices in the field of cost accounting; the CAS are also extended to subcontractors; different types of CAS are applied to contractors; the contract price may be adjusted, with interest, when the contractors do not comply with the CAS or when deficiencies are detected in the consistency of the practices declared, when these situations provoke cost increases in DoD contracts.

The Rules Applicable to Defense Contract Costs

In this section, we compare the following elements in the models:

Cost Standards

In the USA, the CAS² comprise a set of nineteen standards designed and published by the CASB in its first phase, between 1970 and 1980, aimed at achieving uniformity and consistency of calculation among contractors, in quantifying and allocating costs in government contracts (Sourwine, 1991; Barlas, 1995).

The CAS were created following an analysis of standard accounting practices for industry costs. Recommendations and comments were made by Federal agencies, industry sources, and professional accounting associations. In Spain, no apparent influence by industry sources or accounting professionals can be distinguished in the preparation of the NODECOS; the main role in this respect is played by MINISDEF.

The NODECOS are derived from and modeled on the CAS, but lack the depth and level of development of the latter. A comparison of Spanish and American cost standards shows that the content and structure of the NODECOS are similar to those of the CAS, although the latter have a broader scope and a greater variety and depth of nuances and examples for greater clarity. For this reason, the CAS were taken as the inspiration for the Spanish NODECOS. With respect to their content, like the CAS, the NODECOS do not analyze contract profits; but they do enumerate and categorize unallowable costs, an aspect that is not addressed in the CAS. Finally, Table 6 provides an equivalence between the cost standards applied in the two countries.

Authorities Responsible for Interpreting Cost Standards

In Spain there is no independent body to arbitrate on cost standards, as is done in the USA by the CASB. Nor is there a specific agency to resolve any disputes that may arise between contractors and MINISDEF following discrepancies in the implementation of defense contract cost standards, as is also done by the CASB (Abel, 2006; Sourwine, 1993). In addition, the CASB issues mandatory standards for defense contractors and subcontractors to ensure uniformity of their practices (Barlas, 1995). In Spain, it seems that MINISDEF, acting through various bodies, is to some extent both judge and jury in the matter, given the existence of common interests with contracting authorities and the reduced independence of the

TABLE 6
Correspondence between the NODECOS and the CAS

TITLE	NODECOS	CAS	TITLE
Costs of contracts with MINISDEF	NODECOS 1	CAS 418	Allocation of direct and indirect costs
Consistency between the cost estimation procedure and the accounting system for registration, calculation, and information	NODECOS 2	CAS 401	Consistency in estimating, accumulating and reporting costs
Consistency in allocating costs incurred for the same purpose	NODECOS 3	CAS 402	Consistency in allocating costs incurred for the same purpose
Period for the calculation and estimation of costs	NODECOS 4	CAS 406	Cost accounting period
Regulations on direct and indirect costs	NODECOS 5	CAS 418	Allocation of direct and indirect costs
Use of standard costs for direct material and direct labor	NODECOS 6	CAS 407 CAS 408 CAS 411 CAS 412 CAS 413 CAS 415	Use of standard costs for direct material and direct labor. Accounting for costs of compensated personal absence. Accounting for acquisition costs of material. Composition and measurement of pension costs. Adjustment and allocation of pension cost. Accounting for the cost of deferred compensation.
Costs assigned to depreciation of immovable assets	NODECOS 7	CAS 404 CAS 409	Capitalization of tangible assets. Depreciation of tangible capital assets.
Financial cost associated with productive activity	NODECOS 8	CAS 414 CAS 417	Cost of money as an element of the cost of facilities capital. Cost of money as an element of the cost of capital assets under construction
Allocation of management costs of central services, addressed by a central area of the organization to its secondary areas	NODECOS 9	CAS 403	Allocation of home office expenses to segments

TABLE 6 (Continued)

TITLE	NODECOS	CAS	TITLE
Costs of contracts with MINISDEF	NODECOS 1	CAS 418	Allocation of direct and indirect costs
Allocation of general and administrative costs of fundamental areas to final cost objectives	NODECOS 10	CAS 410	Allocation of business unit general and administrative expenses to final cost objectives
Costs of independent R&D, and bidding and bid preparation costs	NODECOS 11	CAS 420	Accounting for independent research and development costs and bid and proposal costs.
Approach taken to specific costs	NODECOS 12	-----	
Register of unallowable costs	NODECOS 13	CAS 405	Accounting for unallowable costs
Glossary of terms on cost identification and calculation, in accordance with the present regulations	NODECOS 14	-----	
		CAS 416	Accounting for insurance cost

Source: Vera and Buendía (1999).

audit body with respect to the recipient and user of the audit report. Ultimately, the parties may resort to the courts to resolve their differences.

Scope of Application

In our view, in Spain the scope of application of the NODECOS is not sufficiently defined, and this fact allows a wide range of discretionality to the MINISDEF contracting authorities. On the one hand, the NODECOS can optionally be applied to contracts with a budget of less than €901,518.16 and on the other, contracts can be excluded even when their amount and purpose are clearly within the NODECOS scope. To understand this approach to contracts that could be subject to the NODECOS, let us not forget that their application constitutes a right or a power (that is contract auditing) that is open to the government, and not an obligation.

Although the arguments or reasons put forward for employing defense contract auditing are similar in both countries, their scope of objective and subjective application varies; in the USA there are different types of CAS coverage according to the type of contract. From a subjective standpoint, the CAS are applied to both contractors and subcontractors. Thus, if a contract requires a contractor to follow the CAS, the subcontractors to the contract must also submit to them, unless they are included in any of the legal exceptions set out in subpart 9903.201-1 cited above. In Spain, on the other hand, there is no rule that expressly subjects subcontractors to the NODECOS. Only when there exists a contractual clause with the main contractor is it possible to evaluate the costs of the services provided by subcontractors, when these are of significant economic importance within the contract.

Applicability of Cost Standards

In Spain, audited MINISDEF contracts are always subject to all the NODECOS and there are no differences in coverage. By contrast, in the USA (Casas, 2003) a government contract subject to the CAS may be subject to them under various forms of coverage (subpart 9903.201-2):

- 1) Full coverage: the contractor must comply with all CAS in effect on the date of contract award. Full coverage currently applies to contracts worth 50 million dollars or more.
- 2) Partial or modified coverage: compliance is required only of CAS 401, 402, 405 and 406. Partial coverage is thus reserved for cases not subject to full coverage.
- 3) Other types of coverage: this includes the treatment to be applied to subcontracts and contracts with foreign companies. In the latter case, only CAS 401 and 402 need be met.

Questionnaire or Cost Statement

The CASB Disclosure Statement (CASB DS-1) is required of all contractors subject to full CAS coverage. The Spanish questionnaire is very detailed but focuses solely on the description of cost elements; it contains no general information about the company or about the contractor's management systems, as does the CASB DS-1, the complete CAS coverage. The only requirement comparable to the US

disclosure statement is the Questionnaire on the Method of Allocation of Costs, used in the UK. In summary, the CASB DS-1 is broader and more complete than the statements required in Spain.

Contract Cost Breakdown

In the USA, the contract price is agreed on the basis of estimated allowable costs plus negotiated profit (subpart 15.401). This method is much more stringent than in Spain, with allowable costs being more narrowly defined, and restricted to contracts within the FAR. The content of defense contract costs in all the NATO countries that implement contract auditing corresponds to the structure of the full cost models.

Unallowable Costs

In Spain there are no fixed rules for distinguishing between allowable and unallowable costs attributable to the contract. The absence of a complete list of unallowable costs is common to all countries that carry out defense contract cost and price auditing. The regulation of unallowable costs lacks the breadth of nuances and consideration of the different situations that can arise that are present in the FAR. In the USA subpart 31.205 and 10 USC 2324 Defense Contracts Allowance Costs are applied, addressing both admissible and inadmissible costs in a comprehensive and very detailed way. In fact, much of the content of NODECOS 12 is a simplified and abbreviated version of some (but not all) of the costs listed in the FAR, adapted to business and accounting terminology in Spain. In the legal field, it can also be seen that while Spanish law in these matters is not comparable to the development of the US standards, in practice the Spanish audit authority addresses unallowable costs in accordance with the guidelines set out in the FAR. Although there continue to be differences (for example, with respect to severance pay, the cost of alcoholic drinks, business class flight expenses, public relation and advertising and some others) between the CAG and the DCAA as regards the attribution of allowable and unallowable costs in defense contracts, greater harmonization between the two countries is being achieved.

Profit

Although in Spain there are no standards regulating contract profit, certain circumstances are now beginning to be considered to establish profit margins in defense contracts awarded by the negotiated procedure or competitive dialogue. These circumstances are business risk, the procedure for determining the contract price, the technical difficulty in achieving the required results and the degree of independent research and technical advance. However, there are no clear-cut, objective criteria for weighing those circumstances in each particular contract which hampers any profit review by the CAG. The situation in the USA is very different, where profit ratios are based on over 30 different factors. In this regard, DoD Form 1547 provides an excellent guide for review of the DoD weighted guidelines approach to profit/fee analysis.

CONCLUSIONS AND RECOMMENDATIONS

This study shows that the methodology applied by Spain in its development and implementation of contract auditing does not constitute an original approach, but is a partial transfer of the US model to the Spanish context. Comparison of the basic characteristics of each model shows that there is only a low degree of convergence between the Spanish system and the US model as regards the following points: 1) the regulation of the elements making up the contract price (costs and profit); 2) the legal status of the audit authorities; 3) the existence of organizations to interpret the cost standards applicable to contracts; 5) the scope of application of contract auditing; 6) the types of coverage of cost regulations; 7) the setting and reviewing of profits for defense contracts.

Nevertheless, despite this low degree of convergence between the two models, we consider the influence of the US model has been decisive in the implementation of contract auditing in Spain and has contributed to the creation in this country of a set of defense-contract cost standards similar to the CAS, filling the previous vacuum in this respect.

Finally, in view of the results obtained in this study we believe it necessary to make some proposals that could improve the performance of defense contract auditing in Spain. Taking into account the good practices carried out in the USA, we recommend a

the following: (a) a broader and more precise regulation of contract auditing, in accordance with the human and material resources available for this purpose; (b) updating the NODECOS, bringing their wording into line with Spanish accounting terminology, modifying their scope (updating the value of contracts subject to auditing), deepening the distinction between allowable and unallowable costs, establishing criteria for the calculation of hourly labor rates and defining the basis for allocating the indirect costs attributable to the contract; (c) establishing clearer objective criteria for the negotiation; (d) establishing standards for the objective regulation of how contract profit is to be determined and mechanisms for the audit authorities to review this parameter; (e) expanding the content of the cost statements presented by companies in their tenders, including not only data on the elements of the contract price but also on the financial information and management accounting models employed; (f) setting up a government agency to keep the NODECOS up to date and to resolve conflicts arising between companies and MINISDEF in the interpretation and application of the cost standards for defense procurement, among other functions.

The above proposals are addressed to those responsible for determining procurement and contracting policies in MINISDEF, and are aimed at the following objectives: (1) making the Spanish model more comparable with the US model, in terms of the requirements imposed on contractors; (2) providing a framework of greater legal security for businesses in their contractual relations with MINISDEF.

Finally, the comparative analysis described in this paper highlights the need for further progress toward international harmonization of the standards governing contract auditing and the cost standards applicable to defense contracts entered into by NATO governments. This process should contribute to standardizing and validating the audit practices of the corresponding authorities in NATO countries and, ultimately, to fostering international trade relations between NATO countries and foreign companies.

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