Valuing Commercial Items: Is A New COR Designation Required?

Valuing Commercial Items: Is A New COR Designation Required?

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Purpose: The objectives of this article are: (1) Calculate the value of net cash flow of cost to be recovered in commercial item contracts, (2) Calculate the value of fuzzy cash flow of cost to be recovered in commercial item contracts, and (3) Identify potential COR designations for valuing commercial items.

Design: A review of literature, FASB concept statement no. 7, and the FAR are used as vehicles to identify methodologies to value net cash flow and fuzzy cash flow as well as to identify potential COR designations for valuing commercial items.

Findings: Commercial items involving an uncertain degree of risk and dynamic costs use a fuzzy net cash flow methodology to calculate cash flow in order account for risk and changing investment and other costs. Whereas commercial items not involving uncertainty use a best estimate method to calculate the actual cost to complete a contract. The COR-C designation would provide a pool of qualified CORs to valuate commercial items.

Practical Implications: Calculating value of net or fuzzy cash flow allows for greater certainty in determining amount of actual cost to complete a contract. The COR-C designation allows for the development of a standard for educating CORs valuating commercial items.

Originality/Value: No method currently exists to calculate value of net or fuzzy cash flows in recovery of cost of work performed in contracts terminated for convivence. Nor is there currently a designation specifically for CORs valuating commercial items.

Valuing Commercial Items: Is a New COR designation required?

Foundation of the Study

The Department of Defense relies on contractors to provide the United States Armed Services with a wide variety of good and services, including tanks, food, and equipment. A recent Congressional Research Service Report found that "in FY 2017, DOD obligated $320 billion dollars or 8% of all mandatory and discretionary federal spending on contracts[1]." While the acquisition of goods and services stems from the "Officials Not to Benefit statue of 1808[2]", the precursor to the "Armed Services Procurement Regulations[1]" and the "Federal Acquisition Regulation[2]" (FAR), it does raise the question of efficiency in government procurement. Efficiency in government procurement is chiefly concerned with managing expenses.

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[1] Congressional Research Service (CRS). *Defense Acquisitions: How and Where DOD Spends Its Contracting Dollars.*

Retrieved October 13, 2019, from https://fas.org/sgp/crs/natsec/R44010.pdf

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[1] Keen, Sandy. *The Foundations of Government Contracting.* Retrieved October 13, 2019, from https://www.ago.noaa.gov/acquisition/docs/foundations_of_contracting_with_the_federal_government.pdf, Page 13

[2] Keen, Sandy. *The Foundations of Government Contracting.* Retrieved October 13, 2019, from https://www.ago.noaa.gov/acquisition/docs/foundations_of_contracting_with_the_federal_government.pdf, Page 13

[2] Keen, Sandy. *The Foundations of Government Contracting.* Retrieved October 13, 2019, from https://www.ago.noaa.gov/acquisition/docs/foundations_of_contracting_with_the_federal_gover nment.pdf, Page 13

Since the Government Accountability Office reporting in 2016 that "54 percent of DOD's spending using commercial items was on services and 46 percent of the remaining spending was for services[3]", it makes sense to focus on the efficiency of the acquisition of commercial items. Also, a recent article by the Project on Government Oversight advocates "good or services sold only to the Defense Department to be labeled as commercial". This further increases the likelihood that a contracting officer would be concerned with the efficiency of commercial items. Now that it has been established that this study is concerned with the efficiency of the acquisition of commercial items, it must be defined what are commercial item contracts. To answer this question, one must turn to the definitions section of the FAR. Far Part 2: Definitions of Words and Terms defines commercial items as meaning:

(1) Any item, other than real property, that is of a type customarily used by the general public or by non-governmental entities for purposes other than governmental purposes, and--

(i) Has been sold, leased, or licensed to the general public; or,

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[3] United States Government Accountability Office (GAO). *Report to the Chairman, Committee on Armed Services, House of Representations: Defense Contracts Recent Legislation and DOD Actions Related to Commercial Acquisitions.* Retrieved September 26, 2019, from https://www.gao.gov/assets/690/685875.pdf

(ii) Has been offered for sale, lease, or license to the general public;

(2) Any item that evolved from an item described in paragraph (1) of this definition through advances in technology or performance and that is not yet available in the commercial

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marketplace, but will be available in the commercial marketplace in time to satisfy the delivery requirements under a Government solicitation;

(3) Any item that would satisfy a criterion expressed in paragraphs (1) or (2) of this definition, but for --

(i) Modifications of a type customarily available in the commercial marketplace; or

(ii) Minor modifications of a type not customarily available in the commercial marketplace made to meet Federal Government requirements. Minor modifications means modifications that do not significantly alter the nongovernmental function or essential physical characteristics of an item or component, or change the purpose of a process. Factors to be considered in determining whether a modification is minor include the value and size of the modification and the comparative value and size of the final product. Dollar values and percentages may be used as guideposts, but are not conclusive evidence that a modification is minor;

(4) Any combination of items meeting the requirements of paragraphs (1), (2), (3), or (5) of this definition that are of a type customarily combined and sold in combination to the general public;

(5) Installation services, maintenance services, repair services, training services, and other services if--

(i) Such services are procured for support of an item referred to in paragraph (1), (2), (3), or (4) of this definition, regardless of whether such services are provided by the same source or at the same time as the item; and

(ii) The source of such services provides similar services contemporaneously to the general public under terms and conditions similar to those offered to the Federal Government;

(6) Services of a type offered and sold competitively in substantial quantities in the commercial marketplace based on established catalog or market prices for specific tasks performed or specific outcomes to be achieved and under standard commercial terms and conditions. For purposes of these services—

(i) "Catalog price" means a price included in a catalog, price list, schedule, or other form that is regularly maintained by the manufacturer or vendor, is either published or otherwise available for inspection by customers, and states prices at which sales are currently, or were last, made to a significant number of buyers constituting the general public; and

(ii) "Market prices" means current prices that are established in the course of ordinary trade between buyers and sellers free to bargain and that can be substantiated through competition or from sources independent of the offerors.

(7) Any item, combination of items, or service referred to in paragraphs (1) through (6) of this definition, notwithstanding the fact that the item, combination of items, or service is transferred between or among separate divisions, subsidiaries, or affiliates of a contractor; or

(8) A non-developmental item, if the procuring agency determines the item was developed exclusively at private expense and sold in substantial quantities, on a competitive basis, to multiple State and local governments

An example of a commercial item would be a supercomputer because the price of a supercomputer from company A can be easily compared to a commercial item from company B by looking a publicly available Internet sites such as the website of Company A or Company B.

Research Questions

Now that it has been identified what a commercial item is, the next task is to identify what research questions this literature review study seeks to address:

1. How to calculate the value of net cash flow of cost to be recovered in commercial item contracts
2. How to calculate fuzzy net cash flow of cost to be recovered in commercial item contracts
3. What training do Contracting Officer's Representatives (CORs) need to value commercial item contracts.

Calculation of value of cash flow

FASB Concept Statement No. 7 gives the option of either using best estimate or expected present value. Best estimate is used to determine the amount of cost to be recovered for commercial items available in the marketplace and modifications of commercial items in the marketplace since there is a commercial item already in the marketplace to compare it to. The following steps, based on FAR Concept Statement No.7, are recommended to identify cash flow for commercial items using the best estimate method:

1. Comparison of the commercial item in the contract to another commercial item existing in the marketplace that has an observed interest rate (this is commonly referred to as "the rate commensurate with the risk[18]")

2. Identify the set of cash flows that will be discounted and then compare the cash flow sets between the two commercial items
3. Evaluate whether there are characteristics or elements in commercial items which are different from each other
4. Evaluate if changing economic conditions will cause the two commercial item cash flows to behave differently

An example of the best estimate method cash flow is that the actual cost to complete a supercomputer may be $100million, comparable supercomputers on the market are valued at $200million and $300million based on market research. The best estimate or most likely cash flow necessary to complete the supercomputer is $200million. Therefore, the contractor can expect to recover $200million on the contract to build a supercomputer.

An example of the expected cash flow estimate method is that the actual cost to complete building a commercial (e.g. supercomputer computer) may be $100million, comparable supercomputers on the market are valued at $200million and $300million with probabilities of completion of actually completing the supercomputer at 10 percent, 60 percent, and 30 percent respectively. The expected cash flow is $220million. The following formula was used to calculate expected cash flow: ($100million x .1) + ($200million x .6) + ($300million x .30) =$220million. Therefore, the contractor can expect to recover $220million on the contract to build a supercomputer. While the estimated cash flow estimate method results in a higher cost of recovery for the contractor ($220million versus $200million using the best estimate method), estimated cash flow method is preferred because it accounts for the uncertainty in the timing of the cash flow.

Calculation of fuzzy net cash flow

A fuzzy net cash flow is based on loosely based on Maravas et. al.[4] is proposed in order to calculate cash flow: Cash Flow=Time Savings + Operating Cost Savings + Accident Savings + Environmental Savings – Investment Cost – Operation and Maintenance Cost. Accident Savings could not include manpower but also facilities damage. Accident Savings, Operation and Maintenance Costs, and Environmental Savings would be most likely determined by the contractor. Investment cost is the cost of acquiring the commercial item, including research and development expenses. Time savings may include manpower as well as facilities overhead and other incurred direct and indirect costs. Time savings would be most likely provided by the contractor. Contractor provided data is verified by government auditors. Since fuzzy net cash flow has not been used yet, it is unknown how much more of an administrative burden the government and industry would incur by using fuzzy net cash flow. Thus, there is no empirical data on fuzzy cash flow. Data is collected for each of the years of operation of the commercial item regarding each of the costs and is put in a tabular format. The variables of investment cost may be reduced or increased by a certain percentage as well as the variables of time savings may be reduced or increased by a certain percentage in order to determine the valuation of cash flow in order to quantify risk inherent in the commercial item system. In the initial years of a system, the investment costs of the project, such the cost of component commercial items, may be

[4] Alexander Maravas & John-Paris Pantouvakis. "Project cash flow analysis in the presence of uncertainty in activity duration and cost." *International Journal of Project Management* 30, no. (2012): 374-384. Accessed July 2, 2019, https://doi.org/10.1016/j.ijproman.2011.08.005

present while there are no benefits or maintenance costs present. Time savings, operational cost savings, environmental savings, and operation and maintenance costs may be realized in later years of the project based on contractor provided data. Ultimately the system becomes unsustainable when the investment cost (e.g. cost of replacement parts) outweighs the benefits and savings of the project. Since it is unknown how risky a project will be the cash flow calculated from the previous formula will be multiplied by the probability of the unique system being successful in order to derive the present value of a system over time. In FASB Concept Statement No. 7 page 21, the expected present value of a system is the sum of the present value of the present values. For example, if the present value of a system being 10% successful is 95.24 in year 1, 541.64 as the probability increases to 60% in year 2, and 255.48 as the probability decreases to 30% in year 3, the total expected value is 892.36. If the contract was 30% complete at time of termination, the contractor is entitled to recover 30% of 892.36 as the amount of contract work performed prior to termination.

Watson as an example of a fuzzy cash flow

An example of a fuzzy cash flow situation would be Watson, the IBM supercomputer used in the popular television series Jeopardy. In year 1, Watson would presumably be unsustainable because of tweaks needed for its algorithm thus a 10% success rate is assigned to Watson and for the purposes of this example it is valued at 95.24 million in year 1 and the next year the probability increases to 60% because the kinks in algorithm were worked out thus probability increases to 60% which results in a value of 541.64 million. Valuation is increased to $892.36 million in year 3. If the contract to build Watson was terminated when it was 30% completed, the contractor is entitled to recover 30% of 892.36 million as the amount of contract work performed prior to termination.

COR- C designation

The next task is to discuss the potential role of a Contracting Officer's Representative or COR in valuing commercial items.

Why Use a COR

Since the valuation of commercial items to determine the cost to be recovered could arguably be a quality assurance function, it is the responsibility of the DOD organization acquiring the particular good or service with assistance from the contracting office. As defined in FAR 46.101, government contract quality assurance is defined as "the various functions, including inspection, performed by the government to determine whether a contractor has fulfilled the contract obligations pertaining to quality and quantity[5]." Most DOD organization's contracting officers delegate the responsibility of government contract quality assurance to Contracting Officer's Representatives or CORs. A COR is defined at DFARS 252.201-7000(a) as "an individual designated and authorized in writing by the contracting officer to perform specific technical or administrative functions." Determining cost to be recovered in commercial item contracts is a quality assurance function because the amount of cost to be recovered represents the extent to which the contractor fulfilled his or her obligation to the United States Government.

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[5] FAR – Part 46 Quality Assurance. Retrieved October 13, 2019, from http://farsite.hill.af.mil/reghtml/regs/far2afmcfars/fardfars/far/46.htm#P6_389

Returning to the Watson example mentioned previously, if the contract was terminated when it was 30% complete that would be the extent the contractor would be entitled to recover on that particular contract. Thus, advanced knowledge would be needed on the part of the COR to calculate the fuzzy cash flow because it is highly unlikely that the terminating contracting officer would know how to assign success rates corresponding to each year of operation of Watson. Alternatively, if Watson did not have probability of completion assigned to it, the estimated cash flow would have to be calculated based on the procedures set forth in FASB Concept Statement No. 7.

COR-C Designation

As noted in an NCMA Magazine article by Tatum, et. Al[6]. advocates the establishment of a "COR career field or career path" within the DAWIA certification however it stops short of identifying what such certification would look like. This is a critical misstep because it fails to identify the necessary skillset and continuing education requirements needed to value commercial items.

To address this issue, a COR-C designation is proposed in a similar manner to the Certified Valuation Analyst (CVA) designation. A COR would first have to be qualified as a COR by

[6] Tatum, Denise, A. & Yoder, E. Cory. "Is It Time To Professionalize DOD's COR?" *NCMA Magazine.* Retrieved October 14, 2019, from https://www.ncmahq.org/news/magazinedetails/is-it-time-to-professionalize-dod-s-cors

following the FAI curriculum and either be a CPA or Chartered Accountant and obtain the CVA designation or be a COR and be eligible to obtain the CVA designation.

To be qualified as a COR, one has to meet the following FAC-COR requirements as identified on FAI.gov.

FAC-COR Requirements			
Requirements for:	**Level I**	**Level II**	**Level III**
Experience*	None	1 year of previous COR experience required	2 years of previous COR experience required
Training	8 hours of training	40 hours of training	60 hours of training

Appropriate for:	This level of COR is generally appropriate for low-risk contract vehicles, such as supply contracts and orders.	This level of COR is generally appropriate for contract vehicles of moderate to high complexity, including both supply and service contracts.	Level III CORs are the most experienced CORs within an agency and should be assigned to the most complex and mission critical contracts within the agency. These CORs are often called upon to perform significant program management activities and should be trained accordingly.

Commercial Item contracts run the gauntlet from low-risk contract vehicles to complex contracts thus the FAC-COR designation standards would be appropriate for commercial item contracts.

The COR training is also identified on FAI.gov and is as follows:

Recommended FAC-COR Training		
Level I	**Level II**	**Level III**
Option 1: • FCR 103 - Classroom Option 2: Choose one of the below;	Option 1: • FCR 201 - Classroom Option 2: • FCR 110 - Online	Option 1: • FCR 201 - Classroom • CLE 028 - Online

• FCR 110 - Online Or • CLC 106 - Online	• Agency Directed Elective (1 hr) • FAC 043 (FED) - Online • FAC 060 - Online • FAC 065 - Online • CLE 028 - Online • CLM 031 - Online • CLC 013 - Online • CLM 005 - Online • CLC 011 - Online • CLM 017 - Online Option 3: • CLC 106 – Online • FAC 043 (FED) - Online • FAC 060 - Online • FAC 065 - Online • CLE 028 - Online • CLM 031 - Online • CLC 013 - Online • CLM 005 - Online • CLC 011 - Online • CLM 017 - Online Option 4:	• CLM 031 - Online • CLM 014 - Online • CLV 016 - Online • HBS 435 - Online • CLC 065 - Online • FAC 060 - Online Option 2: • CLC 222 - Online • CLE 028 - Online • CLM 031 - Online • CLM 017 - Online • CLM 014 - Online • CLV 016 - Online • CLC 013 - Online • FAC 060 - Online Option 3: • FCR 110 - Online • ACQ 101 - Online • ISA 101 - Online Option 4: • CLC 106 - Online • ACQ 101 - Online • ISA 101 - Online

	• CLC 222 - Online • CLE 028 - Online • CLM 031 - Online	

Additionally, the following CLPs are required to maintain COR certification per FAI.gov:

- Level I - 8 hours of CLPs every 2 years,
- Level II - 40 hours of CLPs every 2 years,
- Level III - 40 hours of CLPs every 2 years,

Using the FAC-COR as a baseline, the DAWIA career path would be established and the Commercial Item or C subspecialty within the FAC-COR designation would require a valid CPA license or CA license to give credence to the valuation of commercial items if a contractor were to challenge it in the Board of Contracting Appeals or Court of Claims. The basic through senior level (DAWIA Level III) would require CPA license or CA license or alternatively demonstrated knowledge of valuation methods in order to obtain the COR-C designation.

The DAWIA path would resemble the FAC-COR educational requirements with the added requirement of a CPA or CA licensure in the educational requirements.

Proposed DAWIA Career Path for COR-C designation

Requirements for:	Level I	Level II	Level II
Experience	No experience as a COR, but at least 3 years of public accounting experience under the	1 year experience as a COR in addition to meeting level 1 requirements	2 years experience as a COR in addition to meeting level 2 requirements

	supervision of a CPA or Chartered Accountant. Also at least two year's experience in business valuation to obtain CVA designation or performance of 10 or more business valuations with role significant enough to be referenced in valuation report or signatory of valuation report[7] or Being able to demonstrate substantial knowledge of business valuation Being able to demonstrate substantial knowledge of business valuation		

[7] Based on NACVA website

	theory, methodologies, and practices[8].		
Training	Possession of a valid CPA license issued by a state or US Territory or possession of a valid Chartered Accountant designation and 8 hours of training as a COR.	Training as specified level 1 and 40 hours of training	Training as specified in level 2 and 60 hours of training
Appropriate for:	Low-Risk Contract Vehicles	Moderate to High Risk Contract Vehicles	Complex and Mission Critical Contract Vehicles

[8] Based on NACVA website

The requirements for level 1 COR-C designation also include the requirements set forth by the Massachusetts Board of Public Accountancy to obtain a CPA license. Such requirements include:

- Complete 150 semester hours from a nationally or regionally accredited institution (252 CMR 2.07)
- Applicants must pass all 4 sections of the Uniform CPA Examination within a rolling 18 month window (252 CMR 2.06)
- Full- or part-time experience in public accounting that extends over a period of no less than a year no more than 3 years, and includes no fewer than 2,000 hours of service
- Or full- or part-time experience in non-public accounting that extends over a period of no less than three years and no more than nine years, and includes no fewer than 2,000 hours of experience
- Three character reference letters dated and addressed to the board
- **CORI Permission form**

The Massachusetts Board of Public Accountancy's mission per its website is : "The Board's mission is to provide quality guidance and services to its licensees and to the consumers they serve. Before granting a certificate to these candidates, the Board determines their competency by evaluating their education, experience and character in its application process"

Other state boards of accountancy in other jurisdictions have similar requirements to obtain a CPA license. The Chartered Accountant designation has different requirements as set forth by the ICAS. ICAS website states it is "ICAS is the global professional body for Chartered Accountants. We educate, examine and lead, enabling excellence whilst always working for the wider public good." The mission of the Massachusetts Board of Public Accountancy and ICAS

Accountants. We educate, examine and lead, enabling excellence whilst always working for the wider public good." The mission of the Massachusetts Board of Public Accountancy and ICAS helps to provide context to the COR-C designation.

Substantial knowledge of business valuation is demonstrated by having a Doctorate in Business Administration or similar business doctorate. The Recommended FAI FAC-COR Training and CLP requirements would be followed for COR-C designations as set forth on FAI.gov. Additionally, the COR-C would be required to follow the requirements to maintain an active CPA or CA license as set forth by each state board of accountancy and the ICAS. Also, the 80 hour requirement of CPE or equivalency must be met in order to maintain a valid CPA license in order to continue to hold the COR-C designation.

For example, if Jane Doe was licensed as a CPA in Massachusetts, she would have to have 3 years of public accounting experience in addition to holding a Doctorate in Business Administration to obtain the COR-C designation. If Jane Doe's valuation of the fuzzy value of the Watson supercomputer purchased by the Airforce was challenged by Boeing before the Armed Services Board of Contracting Appeals, the Airforce would be able to substantiate Jane Doe's expertise in valuation by pointing to her COR-C designation.

Conclusion and Recommendations

This literature review study sought to address the following research questions:

1. How to calculate the value of net cash flow of cost to be recovered in commercial item contracts

2. How to calculate fuzzy net cash flow of cost to be recovered in commercial item contracts
3. What training do Contracting Officer's Representatives (CORs) need to value commercial item contracts.

The following recommendations seek to answer the research questions:

- The value of net cash flow be calculated using the estimated cash flow method rather than the best estimate method because it accounts for uncertainty in the timing of the cash flow. The best estimate method is when the actual cost to complete a commercial item is compared against the prices of comparable commercial items obtained through market research. The estimated cash flow method is when there are probabilities of completion assigned to completing the commercial item.
- A fuzzy cash flow is calculated using the following formula: Cash Flow=Time Savings + Operating Cost Savings + Accident Savings + Environmental Savings – Operation and Maintenance Cost. Fuzzy cash flow data is provided by the contractor. Fuzzy cash flow is designed to assign a percentage of recovery to work performed prior to termination
- The training requirements for COR-C designation start off with the FAC-COR requirements and then require the attainment of CVA designation.

In order to implement these recommendations, additional studies are needed as there is no empirical evidence to suggest that contracting activities have used the COR-C designation or have valuated net or fuzzy cash flows.

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