The contract waterfall

Its crucial role in the due diligence process for both buyers and sellers in the U.S. federal government contracting industry

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There are certain attributes to contracting with the federal government which can make a government contractor a relatively more attractive acquisition candidate than a similar commercially based firm. These can include the difficulty in penetrating the federal government marketplace, the assuredness and quick payment of accounts receivable, and the fact that future customer funding is a matter of public record. Arguably however, the single greatest attraction offered by a federal government contractor over its commercial counterpart is the predictability of future revenue and profit streams due to the government's issuance of multiyear contracts. Federal contractor acquisition candidates who are more adept at highlighting the probability of future revenue streams often receive a payoff through higher valuations. This article addresses the critical role of the contract waterfall as a valuation tool in the sale and acquisition of government contractors, as this is the main analysis used to highlight future revenue and profit streams on multiyear contracts.

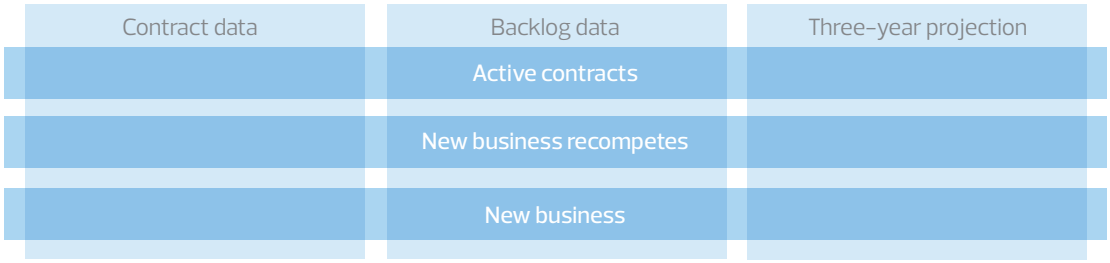
As opposed to the historical financial data used to prepare adjusted quality of earnings and working capital analyses, the contract waterfall is a forward-looking projection which attempts to convert backlog on multiyear contracts into future revenue streams by fiscal year. The term contract waterfall derives from the fact that the analysis is performed at the contractual level, and as the contracts end, projected revenues tail off over the three-year projection period, creating a waterfall effect. As the slope of the waterfall can greatly affect valuations, both buyers and sellers consider this document to be a pivotal data point to be analyzed during due diligence.

Seller's perspective: A well-developed waterfall

A well-developed waterfall can be divided into three horizontal and three vertical sections as pictured below.

Contract waterfall as of June 30, 2018

U.S.$ in thousands



Horizontal sections

Contract data: Contains pertinent attributes of each contract listed such as contract number, name, period of performance, type, etc.

Backlog data: This section includes the data needed to calculate funded and unfunded backlog for active contracts, such as contract value, funded value and revenue to date.

Three-year projection: This section contains the projected run-out of contract backlog for the current and two subsequent fiscal years (the waterfall) as well as probability weighted projections of new business awards from both recompeted contracts, and identified and unidentified new business opportunities.

Vertical sections

Active contracts: The first vertical section should contain active contracts, defined as contracts with period of performance and backlog extending past the waterfall measurement date.

New business recompetes: This section contains a projection of new business expected to be awarded subsequent to the waterfall measurement date resulting from the recompetition of active contracts which will end during the three-year projection period. Projected new business awards from recompetes of active contracts are segregated from the general new business award section due to the relatively higher probability of an incumbent being awarded a follow-on contract versus obtaining an award on a contract for which the company does not have past performance qualifications.

New business: This section contains a projection of anticipated new business awards which are not the result of recompetes of active contracts. This data is usually included in the seller's new business pipeline, and could include both identified and unidentified opportunities.

Data points in the contract data section

The schedule below contains an example of the contract data points included in a well-prepared waterfall.

Contract waterfall as of June 30, 2018

U.S. $ in thousands

Internal proj #	Prime contr. #	Sub-contr. #	Project name	Start date	Current end date	End date (Incl opt)	Prime cust.	End cust.	Type	IDIQ vehicle	Proc. method
Active contracts:											
5100	Dxxx-xx-xx		Proj 1	Jan. 15	Jan. 19	Jan. 20		DoD	FP		SBSA
5200	Fxxx-xx-xx	C1002	Proj 2	Sep. 17	Sep. 18	Sep. 22	BigCo	FAA	CPFF	SubK	SubK
5300	Gxxx-xx-xx		Proj 3	Apr. 16	Apr. 19	Apr. 19		GSA	T&M	IT70	F&O
Total active											
New business recompetes:											
5100			Proj 1	Feb. 20		Feb. 25		DoD	FP		F&O
5300			Proj 3	May 19		May 22		GSA	T&M	IT70	F&O
Total recompetes											
New business:											
			New biz 1	Oct. 18		Sep. 21			CPFF		SS
			New biz 2	Nov. 18		Oct. 23			FPLOE		F&O
			New biz 3	Sep. 19		Aug. 22			T&M		F&O
Total new business											
Totals											

Internal project number: This data point represents the project number assigned in the preparer's job cost accounting system. The inclusion of this number allows for easy cross referencing to job cost reports used to verify the revenue and profit-to-date amounts included in the backlog section of the waterfall.

Prime contract number: The prime contract number is used during due diligence to obtain publicly available information on the contract, as well as easily identify contractual documentation contained in an electronic data room.

Subcontract number: Entries in this column indicate that the project is a subcontract and should have a corresponding entry in the prime customer column.

Project name: The name should correspond to contractual information provided in the offering documents and in the company's accounting system.

Start date: The date should correspond to the period of performance start date in the contractual documentation, as opposed to the award date.

Current end date: For a multiyear contract with option periods, this column should reflect the end date of the most recently exercised option period.

End date (include option): For a multiyear contract with option periods, this column should reflect the potential end date of the contract should all option periods be exercised.

Prime customer: For projects being performed in the subcontractor role, the name of the prime contractor.

End customer: The agency that issued the prime contract.

Type: Main contract type (i.e., cost plus fixed fee, time and materials, firm fixed price).

IDIQ vehicle: For projects that represent task and delivery orders on indefinite delivery/indefinite quantity (IDIQ) contract vehicles, the name of the applicable IDIQ vehicle.

Procurement method: This important data point indicates the method used by the customer to procure the awarded subcontract. The most widely used methods include full and open competition (F&O), small business set-aside (SBSA), sole source (SS), 8(a) set-aside (8(a)) and subcontracted (SubK).

Note: As the contract type and procurement method for anticipated new business awards is frequently unknown, it is recommended to include either the best information available at the waterfall date, or entering "TBD" in the applicable cell.

Data points in the backlog section

The schedule below contains an example of the backlog data points included in a well-prepared waterfall.

Contract waterfall as of June 30, 2018

U.S. $ in thousands

	Contract value (incl opt)	Funded value	Revenue to date	Funded backlog	Total backlog	P-win	Prob weighted value
Active contracts:							
Proj 1	$ 12,000	$ 10,000	$ 7,500	$ 2,500	$ 4,500		
Proj 2	8,000	1,000	900	100	7,100		
Proj 3	6,000	5,200	4,800	400	1,200		
Total active	**26,000**	**16,200**	**13,200**	**3,000**	**12,800**		
New business recompetes:							
Proj 1	15,000					80%	12,000
Proj 3	8,000					75%	6,000
Total recompetes	**23,000**						**18,000**
New business:							
New biz 1	23,000					50%	11,500
New biz 2	18,000					25%	4,500
New biz 3	16,000					30%	4,800
Total new business	**57,000**						**20,800**
Totals	**$ 106,000**	**$ 16,200**	**$ 13,200**	**$ 3,000**	**$ 12,800**		**$ 38,800**

Contract value (including options): For prime contracts and subcontracts that are definitized (values are set for the base and option periods), the contract value is calculated as the total potential price should all option periods be exercised. These definitized contract values can be verified through review of the contractual documentation. For IDIQ contracts, the waterfall should only contain contract values for active task and delivery orders so as not to distort the active contract section with backlog from completed orders.

A problem arises in cases where the multiyear contract value is undefinitized, which frequently occurs under multiyear IDIQ contracts and subcontracts. Several methodologies are used by waterfall preparers in these cases, including the use of maximum IDIQ ordering values, estimates of task and delivery order awards on IDIQ contracts, or amounts included in the original subcontract or IDIQ pricing proposal. While each of these methods has its merit when consistently used, we recommend using a contract value that can be supported by definitized contract documentation. The reasoning behind this approach is that definitization most closely represents the commitment a customer has made to fund a multiyear contract. It may be helpful to add an additional column to reflect the total available IDIQ ordering ceiling, but available IDIQ ceiling is normally excluded from unfunded contract backlog by reviewers of the waterfall.

Funded value: An extremely important data point on the waterfall, funded value is the sum of all funding applied to the contract by the customer. This number, which most accurately represents a federal government customer's commitment to purchase goods and services from a company, should be clearly supported by contract documentation. Unused funding from a completed contract period that cannot be utilized in current or future contract periods should be deducted from the funded value on the waterfall. As noted in the contract value discussion, the waterfall should only contain funded values for active task and delivery orders on an IDIQ contract so as not to distort the active contract section with backlog from completed orders.

Revenue to date: This column should include revenue recognized from contract inception to the waterfall date for active contracts. Some preparers use billings to date in lieu of revenue, but since the waterfall is a companion to the due diligence quality of earnings analysis, we prefer to use revenue to date for the calculation of backlog, as billings are not necessarily reflected in revenue calculations. As is the case with contract and funded values, the waterfall should only include revenue to date for active task and delivery orders on IDIQ contracts.

Funded backlog: This column contains the result of a calculation which subtracts revenue to date from funded value. As previously discussed, we consider funded backlog as the truest measure of customer commitment to the company.

Total backlog: This column contains the result of a calculation which subtracts revenue to date from contract value (include options). Some preparers include a column for unfunded backlog, which is the difference between total and funded backlog. Preference is to use the total backlog calculation, as it can be more readily compared to the out-year revenue projections on the waterfall to determine whether sufficient backlog exists to cover these projections.

P-win: This column pertains to the new business sections of the waterfall only, and contains management's estimate of the probability of each particular new business award.

Prob weighted value: Also pertaining to the new business sections of the waterfall only, this column contains management's estimate of new business contract values as calculated by applying win probabilities to the estimate of total contract values to be awarded.

Data points in the three-year projection section

The schedule below contains an example of the three-year projection data points included in a well-prepared waterfall.

Contract waterfall as of June 30, 2018

U.S. $ in thousands

	Revenue				GP $			GP %		
	FY17A	FY18P	FY19P	FY20P	To date	FY17A	FY18P–FY20P	To date	FY17A	FY18P–FY20P
Active contracts:										
Proj 1	$ 2,400	$ 2,500	$ 2,600	$ 250	$ 2,625	$ 720	$ 1,926	35.0%	30.0%	36.0%
Proj 2	400	1,600	1,700	1,700	216	96	1,200	24.0%	24.0%	24.0%
Proj 3	2,000	2,100	600		1,920	1,000	1,242	40.0%	50.0%	46.0%
Total active	**4,800**	**6,200**	**4,900**	**1,950**	**4,761**	**1,816**	**4,368**			
New business recompetes:										
Proj 1				4,000			1,400			35.0%
Proj 3			1,500	2,100			2,160			60.0%
Total recompetes			**1,500**	**6,100**			**3,560**			
New business:										
New biz 1		3,000	4,000	5,000			3,600			30.0%
New biz 2		250	1,000	1,000			900			40.0%
New biz 3			350	1,500			833			45.0%
Total new business		**3,250**	**5,350**	**7,500**			**5,333**			
Ended in FY17	4,500					1,350			30.0%	
Totals	**$ 9,300**	**$ 9,450**	**$ 11,750**	**$ 15,550**		**$ 3,166**	**$ 13,261**		**34.0%**	**36.1%**

Revenue: The revenue section should contain at least four data points, including revenue for the last completed fiscal year and projections for the current year-end and two subsequent fiscal years. Note that a row is included to capture revenue and gross profit for contracts that ended in the last completed fiscal year; this is to ensure the waterfall can be reconciled to the company's financial statements. Total revenue for the projection periods should reconcile to the financial data included in offering memoranda.

Gross profit $: This section should include gross profit dollars realized on active contracts to date, for the last completed fiscal year and for the projection period. The sample schedule summarizes gross profit dollars for the projection period in a single column, as it is understandably difficult to discreetly project margins in future periods.

Gross profit %: Gross profit percentages should be included in order to facilitate the analysis of changes between periods.

Note: *Depending upon the method being used to analyze the business, bottom-line profit by contract (after all indirect costs are applied) is frequently used on the waterfall instead of gross profit. Both measures should be clearly defined and consistently used.*

A completed waterfall sample is included below.

Contract waterfall as of June 30, 2018

US$ in thousands

																		Revenue				GP $			GP %		
Internal proj #	Prime contr. #	Sub-contr. #	Project name	Start date	Current end date	End date (incl opt)	Prime cust.	End cust.	Type	IDIQ vehicle	Proc. method	Contract value (incl opt)	Funded value	Revenue to date	Funded backlog	Total backlog	P-win	Prob weighted value	FY17A	FY18P	FY19P	FY20P	To date	FY17A	FY18P–FY20P	To date	FY17A	FY18P–FY20P
Active contracts:																												
5100	Dxxx-xx-xx		Proj 1	Jan. 15	Jan. 19	Jan. 20		DoD	FP		SBSA	$12,000	$10,000	$7,500	$2,500	$4,500			$2,400	$2,500	$2,600	$250	$2,625	$720	$1,926	35.0%	30.0%	36.0%
5200	Fxxx-xx-xx	C1002	Proj 2	Sep. 17	Sep. 18	Sep. 22	BigCo	FAA	CPFF	SubK	SubK	8,000	1,000	900	100	7,100			400	1,600	1,700	1,700	216	96	1,200	24.0%	24.0%	24.0%
5300	Gxxx-xx-xx		Proj 3	Apr. 16	Apr. 19	Apr. 19		GSA	T&M	IT70	F&O	6,000	5,200	4,800	400	1,200			2,000	2,100	600		1,920	1,000	1,242	40.0%	50.0%	46.0%
Total active												26,000	16,200	13,200	3,000	12,800			4,800	6,200	4,900	1,950	4,761	1,816	4,368			
New business recompetes:																												
5100			Proj 1	Feb. 20		Feb. 25		DoD	FP		F&O	15,000					80%	12,000				4,000			1,400			35.0%
5300			Proj 3	May 19		May 22		GSA	T&M	IT70	F&O	8,000					75%	6,000			1,500	2,100			2,160			60.0%
Total recompetes												23,000						18,000		-	1,500	6,100			3,560			
New business:																												
			New biz 1	Oct. 18		Sep. 21			CPFF		SS	23,000					50%	11,500		3,000	4,000	5,000			3,600			30.0%
			New biz 2	Nov. 18		Oct. 23			FPLOE	IT70	F&O	18,000					25%	4,500		250	1,000	1,000			900			40.0%
			New biz 3	Sep. 19		Aug. 22			T&M		F&O	16,000					30%	4,800			350	1,500			833			45.0%
Total new business												57,000						20,800		3,250	5,350	7,500			5,333			
Ended in FY17																			4,500					1,350			30.0%	
Totals												$106,000	$6,200	$13,200	$3,000	$2,000		$38,800	$9,300	$9,450	$11,750	$15,550		$3,166	$13,261		34.0%	36.1%

While there is more than one way to prepare a good contract waterfall, it is beneficial to keep the following guidelines in mind:

1. **Give the waterfall top priority** – Acknowledge the criticality of this schedule to your overall offering package and ultimate valuation.
2. **Update the waterfall after each monthly close** – Frequently, acquisitions stretch out over many months. It is good practice to update the contract waterfall after every accounting close. Keeping the waterfall current and ensuring that contract documentation is uploaded to the electronic data room in real time will lead to a more efficient and timely diligence process.
3. **Support your contract and funded values** – Following the aforementioned methodologies for stating contract and funded values should allow for easier verification of contract documents.
4. **Timing is everything** – Make sure your active contract revenue projections correspond with period of performance endings. For example, contracts that end during a future fiscal year should not have a full year of revenue projected for that year, or the next. New business recompetes should be timed to immediately follow the end of the active contract. In all cases, projected revenue should make sense given periods of performance and historical burn rates.
5. **Prepare for due diligence on your waterfall** – The following section provides insight as to how the waterfall document is analyzed during due diligence procedures. A proactive approach to preparing your responses to diligence questions is highly recommended and will certainly result in a more efficient waterfall review.

Buyer's perspective: Due diligence on the contract waterfall

As discussed earlier, the main objective of the contract waterfall is to provide reasonable estimates of future revenue and profit streams on federal government multiyear contracts. Due diligence procedures with regard to the waterfall are centered around the verification of factual information using contract documentation and job cost accounting reports and an assessment of the risks that may hinder the achievement of these future revenue and profit streams.

Factual verification: Factual verification is performed on a sample of active contracts from the waterfall, usually enough to cover the majority of out-year revenue projections. A review of contract documentation and job cost records is performed to verify factual information such as period of performance, contract type, procurement method, contract and funded values, backlog and historical financial performance. From this review, certain risk areas can be assessed, such as:

- **Contract concentration risk** – The fewer the number of contracts it takes to reach the majority of out-year revenue coverage, the greater the risk to achieving future financial projections.

- **Customer concentration risk** – As with contract concentration, the lack of a diversified customer base poses a risk should relations with a significant customer sour or should the customer lose funding for projects on which the company relies.
- **Subcontract risk** – A company performing mainly in the role of subcontractor has less control over its future financial performance, as prime contractors can decide to switch subcontractors or self-perform on work it historically had subcontracted. Subcontracts are also subject to incremental funding for short periods and subcontractors are frequently required to work at risk while awaiting funding modifications from prime contractors.
- **IDIQ risk** – Companies who generate a majority of their revenue from task and delivery orders on IDIQ contracts frequently need to receive new orders to maintain the historical financial performance on the IDIQ. As these contracts are undefinitized, there is inherent risk in the company not maintaining the historical financial performance should opportunities for new orders not become available.
- **Transition risk** – A company with a high proportion of small business set-aside contracts may find it difficult to repeat historical financial performance should it lose the small business socioeconomic preference through acquisition by a large business. The risk stemming from this transition from small to large business is very difficult to measure, as a seller's management will frequently contend that business size will not play a factor in the continuance or recompete of a small business contract. It is usually recommended that the buyer hold transition discussions directly with a seller's customers if possible, although it is unlikely that federal contracting offices will provide positive assurance with regard to transition.
- **Contract end dates** – A company with a majority of active contracts ending during the three-year projection period will need to rely on a greater proportion of new business awards to meet its out-year forecast. This effect will most likely be seen by relatively lower total and funded backlog levels and more abrupt waterfalls of active contract revenues in the three-year projection period.
- **Total or funded backlog** – Backlog can be expressed in monthly terms by dividing the backlog on the waterfall by the current year projected revenue total. The lower the number of months of backlog calculated, the harder it could be for the company to achieve its out-year forecasts.

Analysis of projection data: Although most due diligence procedures are generally geared toward the analysis of factual historical financial data, the review of projection data in the contract waterfall focuses on using historical trends to inform a buyer of potential risks or pitfalls in their valuations based off of future results. During the diligence process, a buyer will want to thoroughly understand the assumptions used in management's projections, perform sensitivity analysis to test these assumptions and talk with customers and industry experts to be able to gain an additional level of comfort with projected future results as depicted in the waterfall. An excerpt of the sample waterfall highlights certain areas on which comments can be made:

Contract waterfall as of June 30, 2018

U.S. $ in thousands

					Revenue				GP $			GP %		
	Funded backlog	Total backlog	P-win	Prob weighted value	FY17A	FY18P	FY19P	FY20P	To date	FY17A	FY18P-FY20P	To date	FY17A	FY18P-FY20P
Active contracts:														
Proj 1	$2,500	$4,500			$2,400	$2,500	$2,600	$250	$2,625	$720	$1,926	35.0%	30.0%	36.0%
Proj 2	100	7,100			400	1,600	1,700	1,700	216	96	1,200	24.0%	24.0%	24.0%
Proj 3	400	1,200			2,000	2,100	600		1,920	1,000	1,242	40.0%	50.0%	46.0%
Total active	**3,000**	**12,800**			**4,800**	**6,200**	**4,900**	**1,950**	**4,761**	**1,816**	**4,368**			
New business recompetes:														
Proj 1			80%	12,000				4,000			1,400			35.0%
Proj 3			75%	6,000			1,500	2,100			2,160			60.0%
Total recompetes				**18,000**		**-**	**1,500**	**6,100**			**3,560**			
New business:														
New biz 1			50%	11,500		3,000	4,000	5,000			3,600			30.0%
New biz 2			25%	4,500		250	1,000	1,000			900			40.0%
New biz 3			30%	4,800			350	1,500			833			45.0%
Total new business				**20,800**		**3,250**	**5,350**	**7,500**			**5,333**			
					4,500					1,350			30.0%	
Totals	**$3,000**	**$12,800**		**$38,800**	**$9,300**	**$9,450**	**$11,750**	**$15,550**		**$3,166**	**$13,261**		**34.0%**	**36.1%**

Active contracts: For active contracts, the review should start with determining whether total backlog is sufficient to cover out-year revenue projections without the requirement for a modification that raises the contract ceiling. Inquiries of management should be made as to historical gross profit fluctuations as highlighted on active projects 1 and 3 above. Contracts which have experienced historical margin fluctuations may affect a buyer's confidence in future profitability projections.

New business recompetes: The analysis of the recompetes section begins with the verification of timing and inquiries of management should revenue and gross profit projections vary from the historical results on the contract. For example, an inquiry would be made as to why total revenue for project 1 has increased from $2.6 million in FY19P to a combined $4.25 million in FY20P. On the other hand, project 3 looks to be consistently forecasted with regard to revenue, but the gross profit percentage has increased from 46 percent on the active contract to 60 percent for the recompete, which would also generate a management inquiry.

New business: Typically, financial due diligence on a company's new business forecast assumptions would be limited to an analysis as to the proportion of out-year revenue and profit dependent upon new business awards. However, the buyer should perform detailed operational and customer due diligence to properly vet out the company's ability to achieve out year projections based on the strength of the pipeline, business development personnel, etc.

Summary

The contract waterfall plays an important role for both the buyer and the seller in an acquisition involving a federal government contractor. In fact, it is arguably the most important document that a buyer and seller will use to base their negotiations on value. While this article addresses the basics of developing and analyzing the waterfall from both a buyer's and seller's perspective, the actual process is much more involved than can be described in this forum. In addition, the waterfall requires the context provided by many other due diligence procedures performed on the historical financials of a company. These include observations as to proper revenue recognition, job costing, indirect rate variances, compliance risk and other matters that may skew the historical financial results which provide the baseline for backlog and projection assumptions on the waterfall. It is, therefore, highly recommended that the preparation and analysis of the contract waterfall be performed in conjunction with advisors experienced with the complexities of contracting with the federal government.

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