A Multicriteria, Multiplayer Model: The Protest Casino

A Pro Bono Public Policy Study

Does the Protest System Really Work?

Could it work Better?

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This presentation summarizes work Lone Star Analysis did for the United States Congress. It was prepared for the 2016 INFORMS Annual Meeting. Lone Star was asked to present the work as an example of Multicriteria Modeling for Public Policy. Of course anything touching so many voices in the pubic arena relied on the generosity and insights of many others. In particular, the authors would like to acknowledge the support of the House Armed Services Committee, and of the Congressional Research Service.

A number of scholars, congressional staff, procurement experts and others generously shared their work, time and knowledge. In this short briefing it is impossible to acknowledge them all. Some of them are cited within the presentation, but this is by no means a complete list of those to whom we are indebted.

This study was conducted in support of a policy discussion about procurement reform. Protest reform is a subset of that dialogue. Lone Star's protest study work dates back to work done at Texas Instruments by one of our founders. That work has continued in a number of forms:

- Interviews
- Survey work
- Academic collaboration and peer review

Our work on protests and acquisition has been used by OSD, the Congressional Research Service and a number of academics. We plan to focus our presentation on the model, not on the uses of it, which is a separate topic.

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Why Lone Star??

- Lone Star Analysis is a Modeling, Simulation and Analysis firm; We provide modeling and analytics software and services
- Our core competency involves solving problems with these attributes
  - Complexity
  - Uncertainty
  - Impact
  - Finance
- Public Policy matters fit these attributes and… **we perform pro bono engagements from time to time**
  - We choose problems which
    - Can benefit a significant proportion of our customer base
    - Have no direct benefit to us – our objectivity should not be a question

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The short answer for "why Lone Star" is that we took this on pro bono. The main reason we were chosen was our willingness to do the work as a pubic service.

But, the topic of procurement and protests is something we know a great deal about. Some of our team has published on the topic for about 20 years. More importantly, our Competitive Differentiation business line models multi-party competition for "Price to Win" studies. We are known for our understanding of competitions of all types, and protests.

From our perspective, the study matches three criteria for our pro bono efforts.

Fit - Public Policy matters in general fit well with our core competencies;
        Complexity – we deal with multi-domain problems which are complicated
        Uncertainty – our customers face too many variable factors to just guess
        Impact – we support issues with significant ramifications (safety…)
        Finance – our customers face large financial impacts from poor choices

Conflict of Interest – Lone Star isn't a party to protests and we didn't believe it likely there would be a perception of bias on our part.

Pro Bono Scope – because we had a great deal of domain knowledge, we felt we could roughly scope the effort to perform this study and complete it affordably.

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What is a Protest?

- Bids for contracts with state, local, and national governments can be fiercely competitive – *arguments ensue*

- Most entities have processes for accepting protests about bid methods, and most often from losing bidders protesting an award

- There are several reasons protest processes are set up
  - **Speed** – Faster (and cheaper) than litigation
  - **Specialization** – Protest review bodies know the applicable rules and laws
  - **Scrupulousness –** An antidote to bureaucratic blunders and corruption
  - **Reassurance** – A promise to the public; "we are careful with your money"

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Protests are a special class of dispute resolution. Nearly every major government body across the United States, and the world has a means of resolving disputes about contracting matters. In particular, there are disputes about how contracts are awarded.

Over time, a bureaucracy has emerged to deal with these matters, and laws have been passed to guide the officials who do this work.

For Federal purposes, the United States Government Accountability Office (U.S. GAO) is tasked by Congress to oversee protests. There are other methods to resolve such disputes, but the GAO protest is the most well known, and the one which Congress directly oversees.

Each state, most cities, and many counties have their own processes. No one knows exactly how many protest resolution bodies exist in the United States, but the number may exceed a thousand.

From a policy point of view, this function, which is essential to wise spending of tax funds, is a very interesting topic.

Study Goals and Objectives

1. Understand the *economics of protest* from the corporation's perspective
2. Understand the *benefits of protest* from a policy and transparent government perspective
3. Understand the *impacts and costs of protest* to government agencies
4. Understand *trends*
5. Evaluate *alternatives*

Goals – Develop *Directional* Understanding Across Several Interconnected Topics

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Lone Star's work had five objectives.   The first 4 are presented here.

We did test alternatives for some government organizations and policy makers – it would not be appropriate to share those, but they were used, and some changes have already been made, with further changes proposed in pending legislation.

Lone Star's goals were to bring quantitative, measurable findings.   This is what customers buy from Lone Star – we rarely sell "advice" we sell analysis or tools to enable others to do analysis.

Multiplayer/Multicriteria Summary

- **Contractors** are increasingly focused on financial performance and financial engineering – is stock value better when protests are filed?
- **Procurement agencies** are focused on buying mission essential goods and services – they value a prompt acquisition cycle – which gets worse when protests are filed
- **GAO** is focused on smooth execution of whatever rules Congress imposes – they value metrics about protest mechanics over system wide implications of protests
- **The "Protest Bar"** values their work for a source of income and a belief they are doing a social good
- **Congress** wants rules which promote BOTH fair and honest contracting, as well as fast, efficient procurement of needed goods and services

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Nearly all these participants have several criteria which matter. This summary shows some key concerns of five groups.   In addition, there are other groups and they too have multiple criteria.

Protest reform is a great example of how messy democracy can be.

Bidding and therefore protests are multi-party, multi-criteria matters.

In this example, we have six bidders. The each bidder is represented by a color, with each dot representing either a decision maker in the bidding firm, or in a firm partnered with the lead bidder; about 200 decision makers. These are diverse subcontractors, some are stakeholders like unions, and some are the executives in the organization.

Neither the bidders nor the buyer are monolithic; a number of people could "count" if we considered all the participants. In this example, we find we have something between 250 and 300 for this six bidder competition.

And each of them has more than one potential way to participate, as well as more than one criterion they care about. For example, Under U.S. Law, most of them can file a protest.

Clearly, this had the potential to become a very complex study.

After conducting interviews and a literature review, we began to simplify the problem. First we noted that the views of the protest counsel and at the GAO were remarkably similar. This is because thought leading attorneys in this field have moved back and forth between the firms, law schools and the GAO – they are a community of practice. That led to our first simplification.

Two Views of the Current System
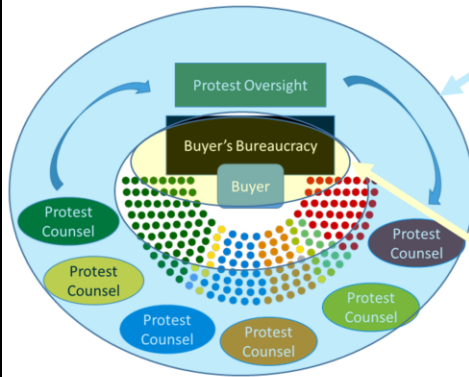
- **Contractors' (and Protest Attorney) perspective:**
  - *The Costs are Real, But the Benefits Outweigh Them*
  - Some contractors don't like this "game" but they have to play for the good of their stockholders
  - Protest Bar is aggressively arguing for more protest benefits for their clients – or at least to keep the status quo

- **Government Buying Agency perspective:**
  - *Bid Protests: The Costs "are killing us" But the Benefits are Vague*
  - Some efforts to avoid protests are not working, unlikely to work, and probably counterproductive at times

Study Approach:
Treat these as Testable Hypotheses

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We found we could simplify the study by defining two competing views.

These two perspectives are so different the sides have a hard time understanding each other. For good policy development, the Government must consider how corporations will respond; understanding *both* perspectives is critical to good policy. This research shows there is a wide gap in understanding.

Note the two arrows from oversight to protest counsel. Protest law is largely practiced in Washington D.C. Experts rotate from schools like Georgetown, to government agencies (like the GAO), to law firms, and to Congress (or at least some congressional staff positions). As a result, there is a shared mindset which spans the community involved in the legal practice of protests, and even though they may face each other in disputes, some of their perspectives are remarkably similar.

Lone Star's work had to incorporate this wide range of issues, considerations and topics into one set of research.

Investment Bank Briefing to Defense Firms

- Protests continue to climb, sustainment decisions alone underestimate impact

- When there's no downside to protest, why not?

- $1,000/hr lawyers likely have the upper hand poking holes

- If we can't have it, no one can is sometimes the best strategy

  From "A Wall St Perspective on the Defense Industry," Myles Walton, PhD, CFA

  (Dr. Walton is with **Deutsche Bank**)

CEOs are told "Protest or be a bad fiduciary"

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The shaded box is a quote from a Wall Street analyst presentation – it reflects the advice we believe CEOs and CFOs are being given about protests – do it more.

In addition, the protest bar is aggressively promoting the idea of protests as a societal good, and are seeking to expand their use in many ways. There is a culture with GAO and the protest Bar which sees the protest as the logical continuation of the competitive process.

Recent press reports suggest some corporations have adopted this view. For example, see http://washingtontechnology.com/Blogs/Editors-Notebook/List/Blog-List.aspx – the saga of TSA's TTACC protest.

So – is the protest system broken? Should CEO's be more aggressive in pursuing protests?

We will focus on our simulation work, and on the data collection which supported it – surveys in particular.

This presentation does not include all of Lone Star's work on protests. It shows some of our survey work, as well as modeling & simulation work on the subject.

This is the third time Lone Star has modeled the "Protest Casino" and roughly the 10th study our team as performed on the subject of protests. Extensive peer reviews were conducted on the work presented here.

Time does not permit us to review the source materials we used. This presentation focuses on the new, primary research we performed.

Much of the work presented here was conducted late in 2014, and built on earlier Lone Star research.

Some of the questions in the poll were based on earlier questions to support cross tabulation and validity checks.

Many of the propositions presented to respondents came from D. I Gordon's 2013 paper. Gordon defends the current Federal GAO protest system and lists a number of criticisms of the system, but many (a cynic might say most) of the objections are dismissed by the claim there is no evidence to support the criticisms. The poll treated Gordon's arguments as testable hypothesizes.

The Poll's respondents came from three sources; some selected, some purchased.

Public perceptions were tested by a purchased poll of U.S. residents. We asked the same firm to find a cadre of respondents with acquisition experience. We also sent the poll to respondents we thought were well qualified to respond. We used the second and third cadres to test for bias, and to increase the respondent pool size.
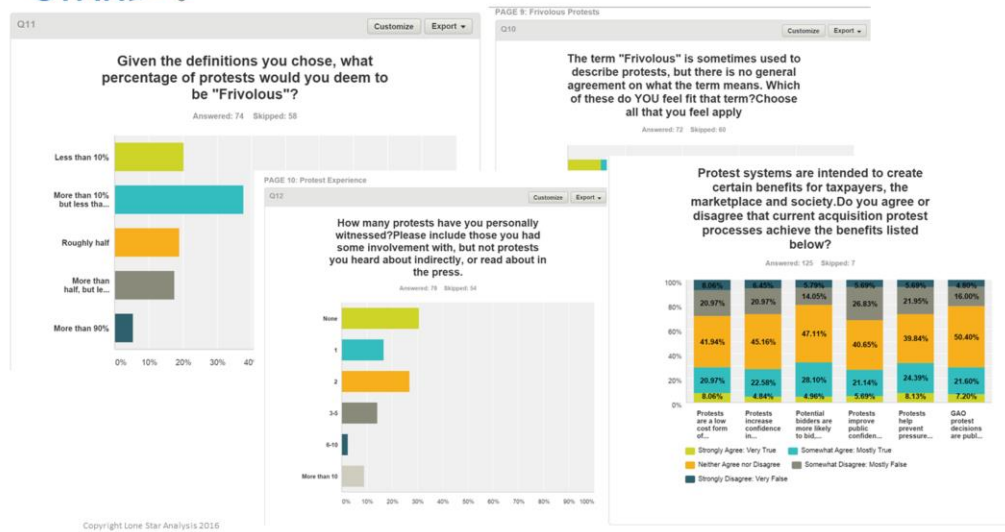
Design of survey instruments for abstract issues like protests is difficult. The survey instrument was designed using best practices, and was used with two test audiences before going "live."

Nevertheless, any one respondent could have been confused about the meaning of any given question; we believe a number of integrity checks show the quality of the response data is good enough for directional findings, and in those cases where we had existing information to compare, respondent impressions seem to match well with that other data.

Quality tests of the data and cadres show generally coherent responses and good response quality.

The response of the general public is clear – they don't have much of an opinion, but they don't see a lot of benefit – and that finding is well within the margin of error. Moreover, they had to disagree with positive statements about protest benefits, so if anything the survey creates a bias in favor of Gordon's suggested public perception benefits. The "real" level of public support is probably lower.

Respondents with Federal Acquisition Workforce had the strongest responses to some of our questions. In this case, they were the most likely to agree with some of the proposed benefits. Slightly more than half of these respondents agree with two of the six benefits offered for their evaluation:

- *Protests help prevent pressure to do the wrong thing during an acquisition*
- *GAO protest decisions are public and provide a high degree of transparency*

The most controversial benefit offered for evaluation was, "*Protests improve public confidence in the integrity of the system*"

- Contractors don't agree with this – only about 26% agree and over 40% disagree
- Respondents with Federal Acquisition experience disagree too, but only by a margin of about 3%
- But respondents with no acquisition or contracting experience (the general public) tend to slightly agree by about 8%, though 62% don't have an opinion on this proposed benefit

Example - Avoiding Discussions

- **Lack of discussions is a bad thing – most seem to agree**
  - 80% of Respondents with Federal Acquisition Experience said *"Limited discussions left bidders without needed information"*
- ***But all types of discussions clearly curtailed, due to protest concerns***
  - *Reported by a super majority of every cadre tested*
  - *Reported for every type of discussion offered to respondents*
    - Pre proposal discussions
    - Award without discussion
    - Limited debriefings
    - Requirements are not used as award criteria
- **Discussions seem so restricted as to be one of the causes of protests**

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Everyone seems to agree, lack of discussions are a bad thing. Daniel Gordon writes about this at some length, both in his 2013 ABA paper (quoted) and in a 2011 memorandum he wrote when he was at OMB. One of the problems with lack of discussion is the tendency for non-competitive bidders to attempt to participate. Bidders who don't know they can't compete should not waste their bid and proposal funds. Each losing bidder is a potential protestor.

Daniel Gordon raises (and later dismisses) this as a bad thing, *"…because they* (Contracting Officers) *fear that discussions with offerors are a legal minefield, such that conducting discussions will increase the likelihood of a bid protest and improve the protester's chances of prevailing …that would represent a loss, since the ability to conduct discussions with offerors is a good feature of our acquisition system …"*

This is consistent with prior research Lone Star has conducted.

Examples of how lack of communication promotes protests:

- Non-competitive bidders don't know they are wasting their time.
- Critical requirements are misunderstood by buyer and seller
- Evaluation criteria are misunderstood

However…..Our research shows *all types of important discussions are routinely avoided*. In some cases, the misunderstanding lead to protests.
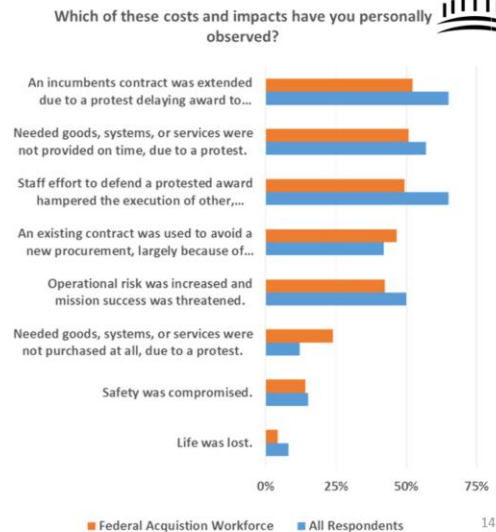
This particular question seemed to settle any argument about whether there was a problem worth fixing.

More than half the respondents reported having witnessed three or more instances of serious impact from the current system.   On average, respondents said they had seen about three.

Since many of these were indirectly caused by delay, delay was chosen as a key modeling parameter for the simulation.
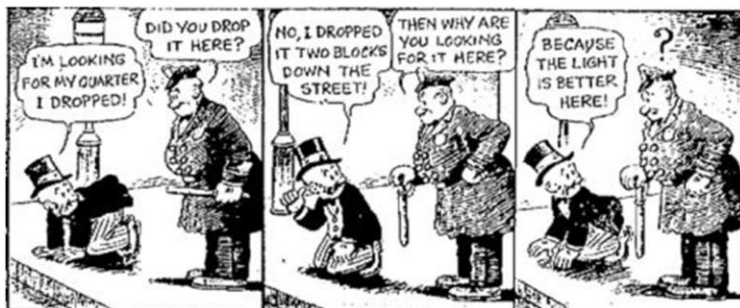
As we began to think about sources of data for our simulation, we revisited the metadata available. A great deal of it came from the GAO, or from other researchers who had used GAO information.

We found much of this to be unusable.

This seems, in most cases to be the "streetlight effect" of observational bias. Researchers don't intentionally use bad measures but it is very tempting to use free data, and to miss what it really means.

Time does not permit an expansion of this topic. For brevity, we will offer one example, but there are many others.

Confusing Metrics Example - Protest Delay
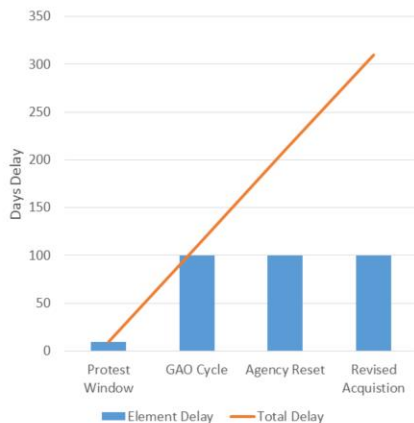
- Supporters of the current system point to GAO promptness; nearly always meets the 100 day time limit to "deal with protests"
- But – what does this metric mean?
- Chart on the left is an example
  - 100 Day GAO cycle is about 32% of the total time impact for this one example
  - Some crude modeling suggests that GAO's cycle time is **less than half the total impact in vast majority of cases**

GAO's 100 Days – Is that the right measure?

The GAO response cycle is supposed to be limited to 100 days, and this is rarely exceeded. Supporters of the current system point to GAO promptness and nearly always meeting the 100 day time limit to deal with protests – but is this really "dealing with the protest" or, just the GAO portion of the protest process?

Critics of the status quo say

> GAO takes 100 days even when 1 hour should be enough

> 100 days is defined in an introspective (or even self serving) way

> The total contracting cycle time from GAO is more than the time they take to respond

In GAO's defense, it makes sense to track the cycle time of their processes, and they can't be expected to report the cycle time outside the GAO. They can only measure their own timelines.

However, the GAO portion of the delay to a procurement is only about one third of the typical impact. While some protest research focuses on the GAO's cycle time, this may not be the best measure of delay. **And, the real delay looks more like a year – not 100 days.**

From Survey to Simulation

- The survey cadres of those in the procurement/protest system provided data about impacts and costs

- These impacts were used as key elements the simulation framework

- The survey showed public perception and political considerations were not meaningful – very few seem to think the status quo is sacred – political and public perception were NOT included in the model

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The survey served to help select topics and measures which should be in the simulation.

While Lone Star has done models of political matters in the past, the survey data showed public perceptions were not significant in this case, so the model design did not include these matters.

Instead, the model was built to reflect the effects which the procurement professionals, and the bidding contractors said were most commonly important.

Acquisition Professionals Report Significant Effort to Avoid Protests

How frequently to you feel the actions and behaviors described below occur within the organizations you are most familiar?	Half the Time Or More	Less than Half the Time	Never
Stringent rules restrict procurement package preparation to avoid protest, rather than improve acquisition	70%	30%	0%
Pre-proposal discussions are curtailed to avoid the appearance of improper discussions	74%	22%	4%
Post selection debriefings are "dumbed down" to avoid protest - losers are not given needed feedback.	70%	26%	4%
Legitimate sole source providers are re-competed due to protest concerns	63%	30%	7%
Use of Lowest Price Technically Acceptable (LPTA), when a different criteria would be better to avoid protest	67%	22%	11%
Multiple Awards, beyond the need are granted to avoid protests	56%	33%	11%
Teaming is allowed or encouraged to avoid protest rather than improve value	63%	19%	19%
The operational or mission need is less important than protest prevention	52%	30%	19%
Important requirements are not used as award criteria due to protest concern	67%	11%	22%
Incumbents are extended, at least in part to avoid protests	59%	19%	22%
Awards are made without discussion of proposals to avoid protests	48%	22%	30%

Federal Acquisition Workforce Respondents Report a Typical Acquisition Includes Half a Dozen Questionable or Counterproductive Actions & Behaviors to Avoid Protests

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Part of this list of counterproductive efforts was taken from Daniel I. Gordon's 2013 paper on protest cost/benefits.

These were not suggested to respondents as being bad things (though most would agree they are bad). The question posed was "Various efforts to avoid protests have been described in procurement organizations. How frequently do you feel the actions and behaviors described below occur within the organizations you are most familiar?"
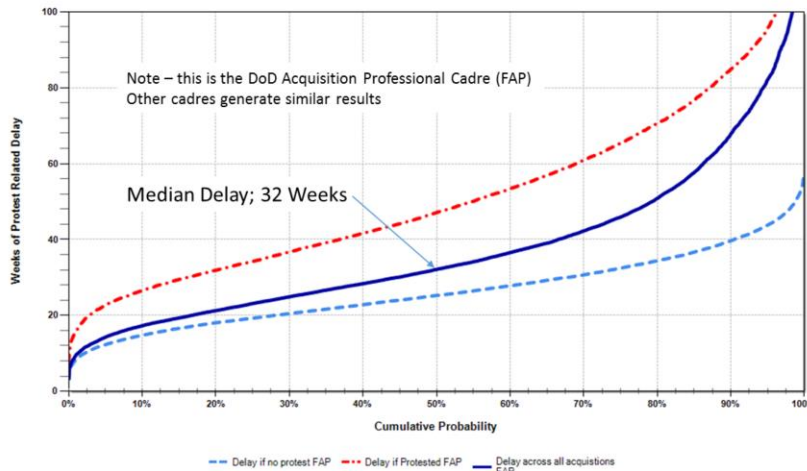
We might hope a majority of respondents would say they never observed these behaviors, or that they occurred very rarely. Instead, the majority said nearly all of these bad things happen… a lot.

Based on these responses, we'd expect that _a typical acquisition includes about 6 counterproductive actions_ which are intended to avoid or defeat protests rather than improve mission or taxpayer outcomes.

Note – nearly all these "bad things" were reported by a large majority of the respondents, and not a single respondent said they have never seen strict rules aimed at avoiding protests rather than doing good acquisition – this is a striking finding. According to these respondents, the typical acquisition includes about 6 actions/behaviors which are counterproductive in an effort to avoid protests.

Efforts to Avoid/Defeat Protests
Take Time and Delay Acquisitions

Note – this is the DoD Acquisition Professional Cadre (FAP)
Other cadres generate similar results

Median Delay; 32 Weeks

Weeks of Protest Related Delay

Cumulative Probability

- - Delay if no protest FAP   · · · Delay if Protested FAP   — Delay across all acquisitions FAP

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The Federal Acquisition Professionals (FAP) report about 6 months of delay attempting to avoid or defeat protests, whether there was a protest or not. If there was a protest, the median delay was about 48 weeks, and the median for all acquisitions was about 32 weeks.

Since this research has been published, some government agencies, in an effort to streamline their procurements, have told their acquisition professionals to shift their efforts from protest prevention to winning a protest.

Because the shape of these statistical distributions are asymmetric, it is not possible to draw one-to-one comparisons from these cumulative probability distributions. This led to adding model features to correctly preserve the relationships.

Corporate perspective
Protest Cost Benefit Analysis – *Should I File a Protest?*

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To complete the simulation design, we shifted to the corporate perspective.

From a Game Theory perspective, it is usually the losing bidders who choose to file protests.

We felt we should include the decisions which would motivate them to do so.

One change in the industry over the last 20 years is the shift from operational management (and managers) to corporate finance managers. The end of the cold war ended the generation of managers who were mentored by defense industry leaders like Ben Rich of Lockheed, Sandy McDonnell, Sam Williams, and Pat Haggerty. These leaders and their disciples had long term career commitments to their industries, technologies, and to their industry communities.

The current industry is more dominated by corporate attorneys and finance executives, who can move from industry to industry and may not feel a long term commitment to the defense and aerospace community.

For example, Jim McNerney, of Boeing worked at General Electric, Procter & Gamble and McKinsey & Co.   To boost share prices, Boeing's board authorized a $12 Billion stock buy back.

Buying stock, rather than doing product development is widespread. Northrop Grumman has repurchased about 90 million shares, or about 30% of its common stock since the end of 2010. Raytheon has bought back 16% of its outstanding stock and Lockheed Martin and General Dynamics have bought back over 13% of their shares. Raytheon recently appointed a finance executive to lead it's intelligence business, which for nearly 40 years had been lead by an engineer; the unit provides NRO, NSA and other intelligence customers with sophisticated sensors, signal processing, satellite control, SIGINT and ELINT – this is rocket science and cryptography. A few years ago it would have been unthinkable to select a leader from finance.

We don't claim this is bad, or that these finance pros are bad people. We do think it frames the perspective about "what is rational" in choosing criteria to represent their choices.

This shift to focus on financial engineering (vs. products) may be related to the shift in philosophy on protests.   And, as Wall Street analysts and investment banks pressure publicly traded firms, there is no reason to think the trend toward more protests will ease.   This in turn puts pressure on firms who would otherwise not protest, to level the playing field.
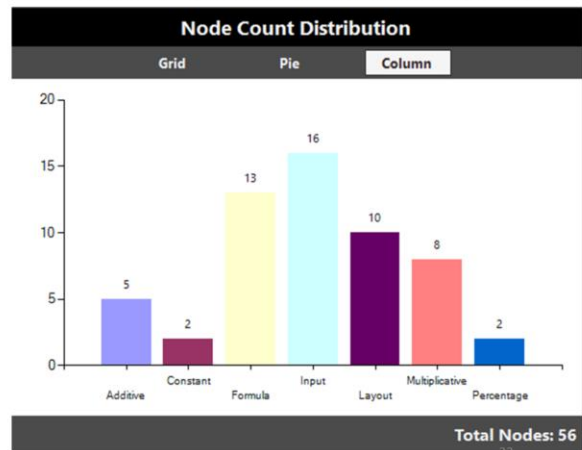
The model is loosely based on Game Theory. It assumes a purely rational corporate decision maker would like to know if protesting is rational. We set the model to compete two players – one always protests, and one never protests.

"Winning" is NOT WINNING THE PROTEST. Winning is the policy which creates the most valuable company. This is the financial engineering mindset.
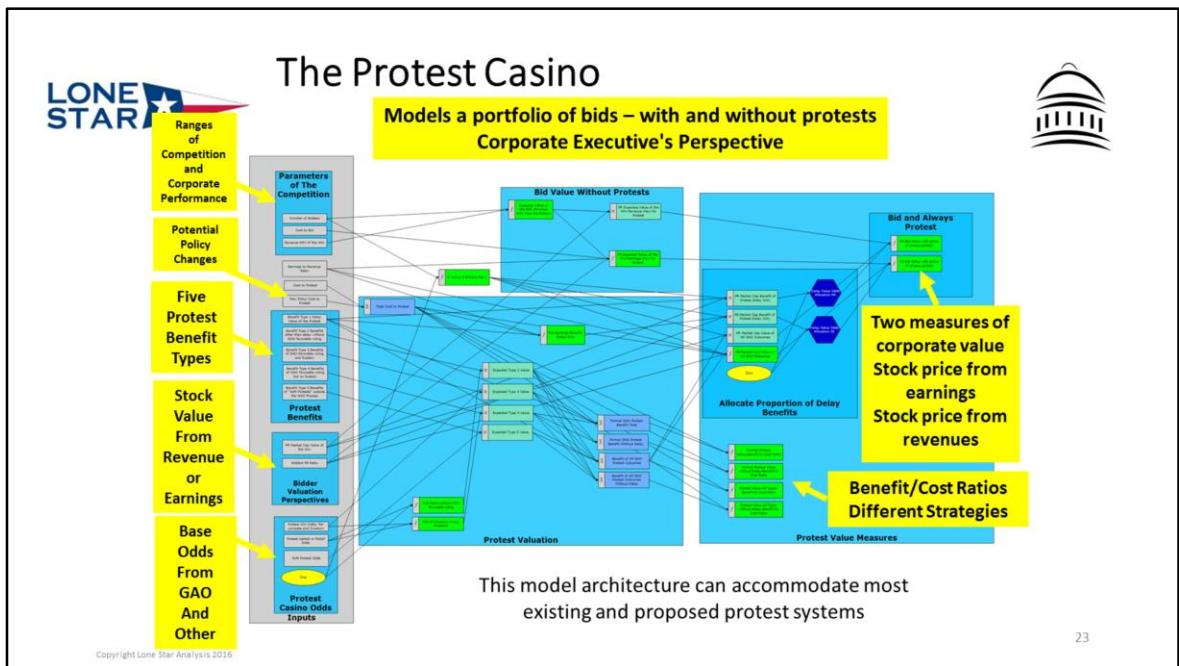
This model is low complexity by the standards of most Lone Star models. At 56 nodes (46 of which are "objects" or "mathematical things") in the simulation; it compares to our models which often have thousands, and may have millions of objects.

This fairly simple model seems adequate to model the current system, and some proposed alternatives. The architecture of the model was designed to accept additional objects, which would reflect other protest resolution systems.

Another simplification was not using Prospect Theory. Normally, we would expect to use this to "distort" the purely rational perspective, but we assumed the CEO/CFO view – market value of the company from price : earnings ratio or, price : revenue ratio was purely rational.

Most of the model is scaled from contract value, a typical budgeting and valuation method; example – Bid & Proposal costs were set as a ratio of contract value, where contract value is a random variable – reflecting a portfolio of bids.

The simulation runs 50,000 Monte Carlo trials; calculates over 2 million values in about 2 seconds (46 math objects X 50,000) (model performance in a 2012 laptop, and 2014 version of our software – it would be much faster now). The simulation was developed in TruNavigator™ Model Builder, a software title developed by our firm specifically for the kinds of analysis we deliver.

The Protest Casino

Models a portfolio of bids – with and without protests
Corporate Executive's Perspective

This model architecture can accommodate most existing and proposed protest systems

Lone Star is certainly not the first organization to model auctions or conflict resolutions. A good example which compares many types of systems is Comparative Analysis Of Litigation Systems: An Auction-theoretic Approach - Michael R. Baye, *et al*, CESifo Working Paper Series Nov 2000.

Baye *et al* describes several different means of conflict resolution, including the American litigation system, the British system, the Continental system and two others they call the "Marshall system" and "Matthew System"

The Marshall System describes the US approach to Post WW II Europe **– the winner paid the loser's costs**. From a winning contractor forced into teaming with a losing competitor – it does feel like the Marshall plan.

They define the Matthew System this way;

" We call this the Matthew system because Matthew 5: 39-41 states:
"But I say unto you, that ye resist not evil: but whosoever shall smite thee on thy
right cheek, turn to him the other also. And if any man will sue thee at the law, and
take away thy coat, let him have thy cloak also. And whosoever shall compel thee to
go a mile, go with him twain."

Loosely translated: **If you are forced to spend $1 defending yourself in court, go the extra mile and pay an additional amount to your adversary."**

Many procurement teams in government feel as if they are operating under the Matthew plan.

This "hostage taking" explains the frustration many expressed to us in interviews.

Screen Shot – Base Odds
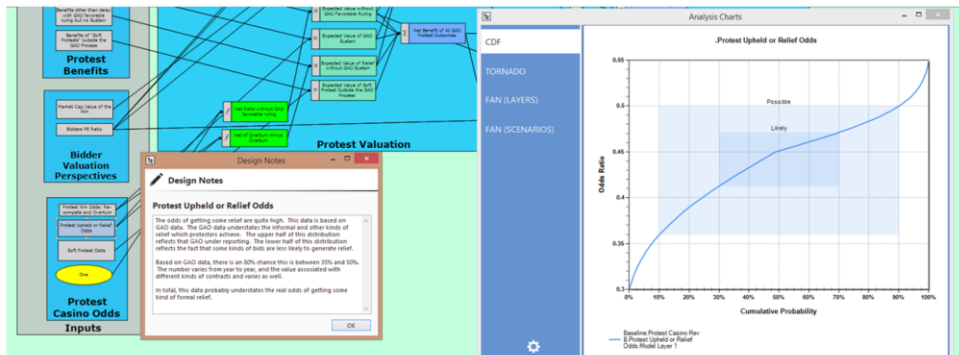
This screen shot shows the TruNavigator™ Tool & Data in this protest model
- Example – odds of some kind of relief for protesters varies with procurement type, ranging from about 3 out of 10, to better than 50-50

These screen shots show something of how each mathematical object in the model is represented, documented, and displayed in TruNavigator™
- The tool provides full internal documentation of data, formulas, and relationships
    - Example – "Design Notes" are used in peer reviews and client reviews to ensure the model reflects the best understanding of the topic
- The tool accommodates uncertainty - Example – odds of some kind of relief for protesters varies with procurement type, ranging from about 3 out of 10, to better than 50-50

One feature of this type of modeling is the high degree of transparency. It is easier to do "what if" when it's easy to see "what is" in the model.

These are not "black box" simulations – they are "glass box" models.

Cost of Protesting
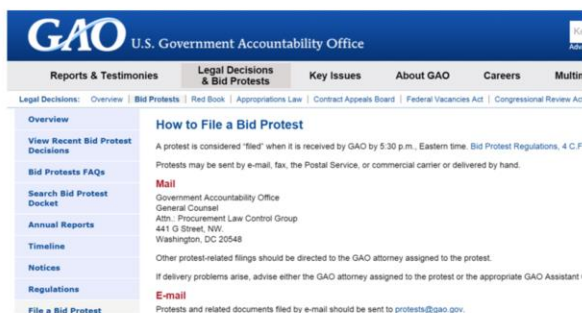
- Protest Cost at the Time of the Study
  - 10% probability cost = $0; anyone can file a protest by email – cost can be less than a stamp
    - Note – free filing means any contractor employee can protest, and not worry about filing an expense account – *there is low PROCEDURAL cost,* not just financial low cost
  - Median cost modeled is one half percent of contract value; $100M contract costs $500K to protest
  - 90% probability the cost is 2% or less ($2M to protest a @100M contract)

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The GAO seems to feel a duty to help would be protestors. And they do. The GAO website makes it easy to protest. Our interview work show that some protests start when a fairly junior employee logs a protest with the GAO. There is no filing fee, no attorney needed.   We believe some protests are not what the company wanted, but once started, management sees there is something to gain – so they don't withdraw the complaint.

GAO and the Protest Bar believe protests should be encouraged – that more protests are good, and claim congressional intent is to promote protests as a natural extension of the competition systems.

For example, one attorney wrote, "*Put in perspective, Congress empowered the bid protest system as an essential component to full and open competition. Yet, without proper incentives, losing offerors are less likely to protest, …., Federal Acquisition Regulation 31.205-47(f)(8)…that makes protest costs unallowable—subverts (FASA)… to motivate disappointed offerors to help police the award of Government contracts to better assure full and open competition.*"

Aside from the question as to whether Congress intended protests to be a rarely needed relief, or an integral part of the system, there is second question; ***should*** protests be a continuation of the competition by other means (apologies to Clausewitz)????

Protest literature looks at "winning" from a number of perspectives. From the point of view of a CEO/CFO considering protest policy, we identify 5 types of protest benefits. All of these appear in the work of other researchers. Generally, internal government work focuses on types 3 and 4. Our work shows these may not be the most valuable to the protestor, and therefore not the "real question" from the corporate point of view. Research on protests tend to focus on Type 1 (delay), 3 and 4. Types 2 and 5 are worth describing in more detail.

Type 2 – value outside the GAO process is really a collection of subtypes. It includes the "Marshal System" where a winner is coerced into giving some of the contract work to a loser, in order to avoid a protest delay.

- Getting some work share from the winner – this is reported in other research
- Collecting intelligence – GAO believes their redaction process precludes this – our research interviews and our client work shows protestors often get valuable intelligence in spite of the GAO's efforts to preclude it, and the firm losing trade secrets usually does not know it happened, so they can't protect themselves
- A strategy shown in our research is the "winner's curse" in which the protest is used to ratchet down the contract between the winner and the government, so the value of winning is greatly diminished, in some cases to such an extent the "winning" competitor is damaged and weakened in future competitions. (CGI's recent successful protest may be an example of this)

Type 5 – Our work suggests this may be the most common. Our interview works shows this can happen by accident, when a fearful PCO overreacts or misunderstands a question or comment from a contractor who never meant to protest.

Valuing the Benefits for the Model

- There are a few cases where any of these five types of benefit can be VERY valuable
    - Many anecdotes heard in our research
- The model does NOT include these extreme/rare cases
    - Example – Type 5 (soft) protests are described by a distribution with a nominal value of ½ Percent of the contract value
- Value of each type of winning is further de-rated by the odds of occurrence to reflect the potential uncertainty faced in deciding whether to pursue a protest

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In our research we found anecdotes of extreme cases; incumbents who were able to _hang on for years._ From the point of view of a CEO considering the policy of "always protest" these extreme events are not very likely, and therefore not very interesting.

We left these out – even at the tails of our distributions. We could not credibly assess how rare they were.

But by leaving them out, the Lone Star Protest Casino may understate the extent to which the odds are stacked in favor of the protesting bidder.

It wasn't big and rare windfalls which drove corporate value – it was the small wins, and how they are treated by corporate accrual accounting. For example, getting the government to refund the cost of a losing bid. This drops to the bottom line as pure profit.

Again - These benefits which seem small compared to the gross size of the contracts are amplified by the fact that they drop to the corporation's bottom line; they are most often an earnings improvement.
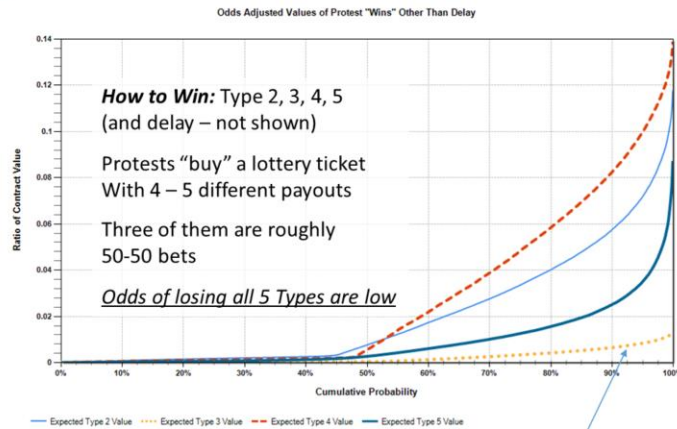
Since stocks can be valued on a price: earnings basis, this can have important implications to corporate value.

Government officials often fail to grasp that $1 of profit is more important to corporate value than $10 of gross revenue in most cases.

The "small" sums won by protests are important b**ecause of this P:E leverage**.

Value of Four Protest Benefits other than Delay

Odds Adjusted Values of Protest "Wins" Other Than Delay

How to Win: Type 2, 3, 4, 5
(and delay – not shown)

Protests "buy" a lottery ticket
With 4 – 5 different payouts

Three of them are roughly
50-50 bets

Odds of losing all 5 Types are low

Fully Sustained Protest is the
LEAST valuable because it occurs so rarely

The ways a bidder can win are not statistically independent. For example, by our definition, the type 3, 4 and 5 are mutually exclusive (this is really too pessimistic from the protestor's point of view).

But there are five different ways to win, all creating some "expected value" in the portfolio of protests.   So – *it's hard to lose all five bets.*

This is a great example of how a disciplined simulation design draws us to findings which make "common sense"…. After we see the simulation results.

Protest Benefit – Cost Ratio May Be Quite High
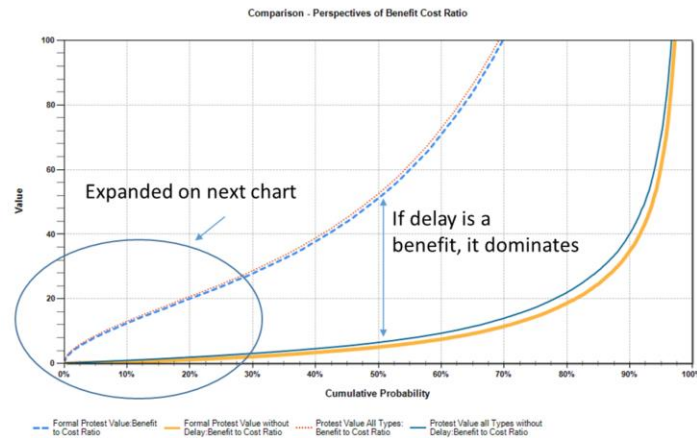
Because some protests cost very little, the benefit to cost ratio can be quite large.

This is particularly true for bidders who are in a position to benefit from a delay.

Interview anecdotes suggest one reason incumbents don't protest, even if they stand to benefit from delay is the knowledge some other bidder is protesting. From an incumbent's perspective, this is the best of both worlds; benefiting from a protest filed by a third party.
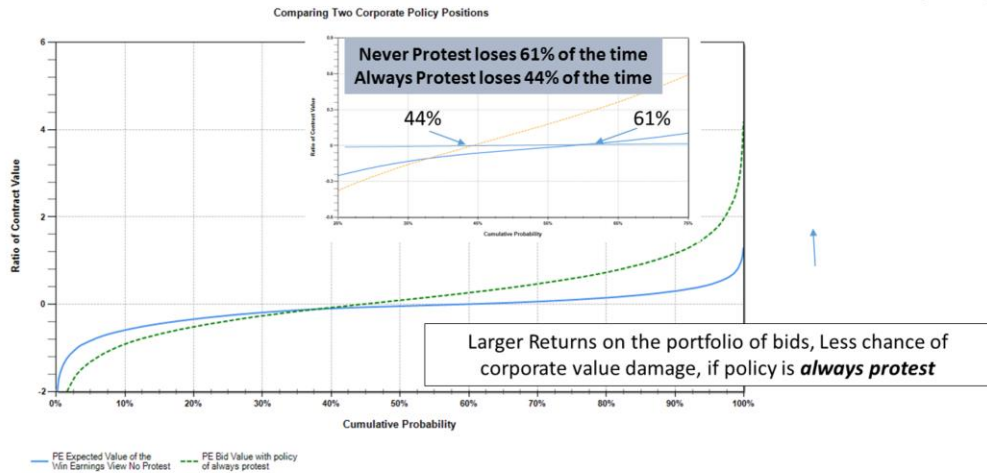
Because Protests Can be Cheap "Really Losing" is Hard
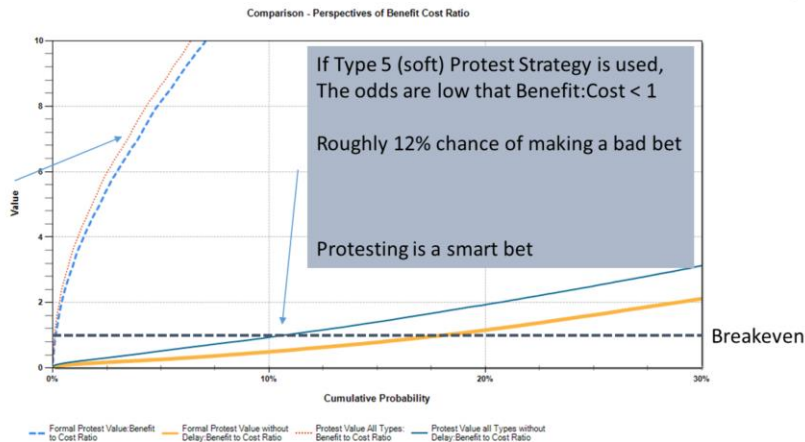
While the top curves showing the benefit of delay dominate (when they apply), the lower two curves are interesting. It shows the value of 'soft protests.' These are outside the GAO, and not included in the GAO's statistics.

These are powerful and cheap to do, and a company with a reputation for protests is in a better position to use this strategy than firms who never protest.

The Investment Bank Seems to be Right About Fiduciary Duty…

Comparing Two Corporate Policy Positions

Never Protest loses 61% of the time
Always Protest loses 44% of the time

44%   61%

Larger Returns on the portfolio of bids, Less chance of corporate value damage, if policy is *always protest*

Ratio of Contract Value

Cumulative Probability

PE Expected Value of the Win Earnings View No Protest   PE Bid Value with policy of always protest
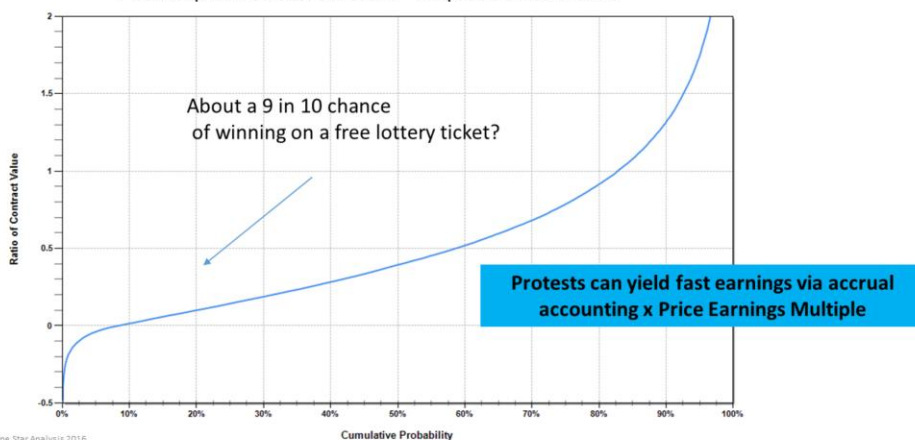
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The Monte Carlo simulation shows the expected value of a bid is greater than zero less than half the time – 61% of the time, a company loses money on a bid. If the policy includes a plan to protest every loss, the losses occur only 44% of the time.

The Odds are Stacked Against "The House"

PE Multiple is A Powerful Lever – Amplifies Protest Value

About a 9 in 10 chance of winning on a free lottery ticket?

Protests can yield fast earnings via accrual accounting x Price Earnings Multiple

Ratio of Contract Value

Cumulative Probability

Several versions of the "Protest Casino" model suggest that smart strategy can yield some kind of benefit roughly 9 times out of 10.

This is an astonishing result. Remember the COST of the "lottery ticket" is nearly free. This discovery led us to think of our work as a casino which stacked the odds against itself.

This chart shows the impact on the stock price (corporate value). One factor driving the slope of this curve is the range of PE multiples. Since most wins (across the 5 types) create some kind of earning benefit, and, since earnings drive corporate value by a typical multiple of 14, the savvy CEO can drive some benefit to stock price from a protest strategy – with plenty of upside, and little downside.

While the multicriteria assessments did support protests for other reasons, the Price:Earnings multiple effect on stock price dominated other criteria.
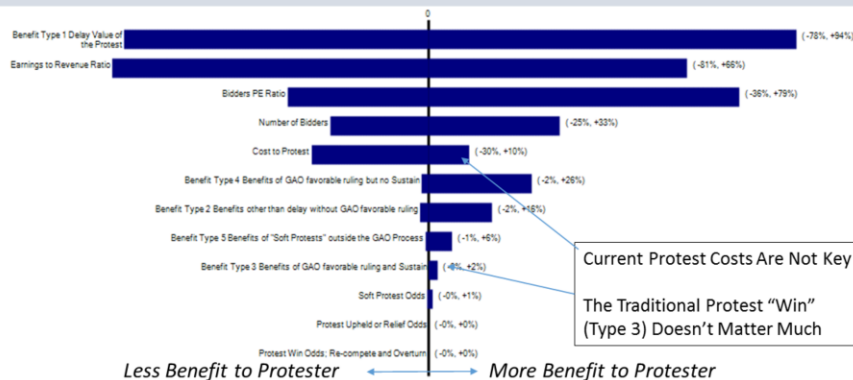
Moreover, to sustain these benefits, companies MUST protest often, in order to sustain this unusual earnings stream.   Only the CEO who has a policy to protest as much as possible will see the value of his stock (and therefore his bonus) improve.

Note that top four variables causing most of the variability are not easy for the government to control, and the 5th (cost to protest) is currently not being controlled.

One way to fix the system is to lower the benefits of protesting by making it much harder to win. The problem with this approach, is that it seems to allow bad awards, because it discourages valid protests.

There are other approaches. Some have suggested accounting changes which would tend to lessen the P:E gains from winning. We did not find these to be testable. Time does not permit us to deal with these suggestions for accounting reform. These might be useful for other researchers to pursue.

The cost to protest is the obvious thing to consider changing. Many state systems do this. We benchmarked a number of "looser pays" systems in the course of this study.

Since we first published our findings, the GAO has proposed a modest fee to file a protest. It will be interesting to see if even a small cost changes behaviors.

Our work shows the current protest system is a good deal for the contractors who take advantage of it.

Apparently it's a good deal for the members of the Bar who focus on protests.

It's a bad deal for contractors who, on principle refuse to protest, or at least refuse frivolous protests.

It's a bad deal for the government, and for the missions supported by our acquisition system.

While the current protest system was created with the best of intentions, and many of its defenders deeply believe they are doing a good thing for society, the model suggests something else.

The system as it existed in 2014/15 (and largely still exists today) rewards the most cynical and frivolous of protests, and it punishes bidders whose ethics don't allow them to behave this way. Given these perverse incentives, the question is why don't we see more of this bad behavior?

Summary – Policy Choices

SLOT MACHINE

OR

QUESTIONS???