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Valuation in Cost Estimating:
Taking a Page from the Investment Banker's Playbook

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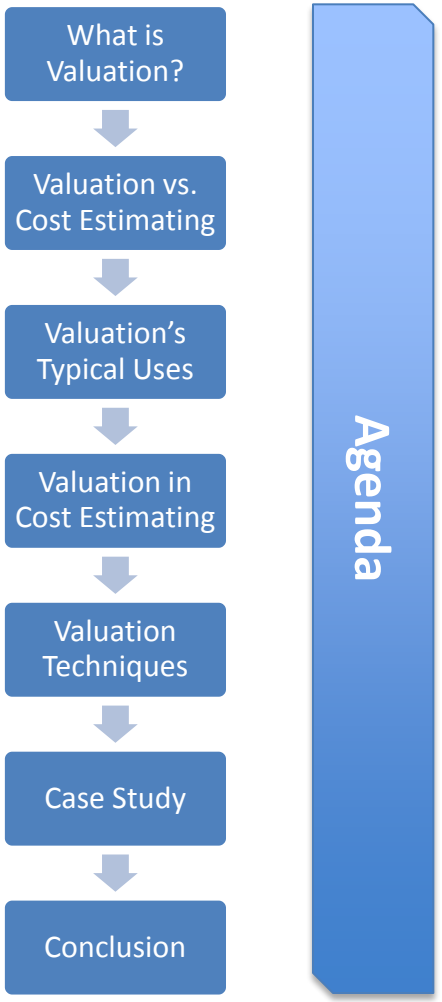
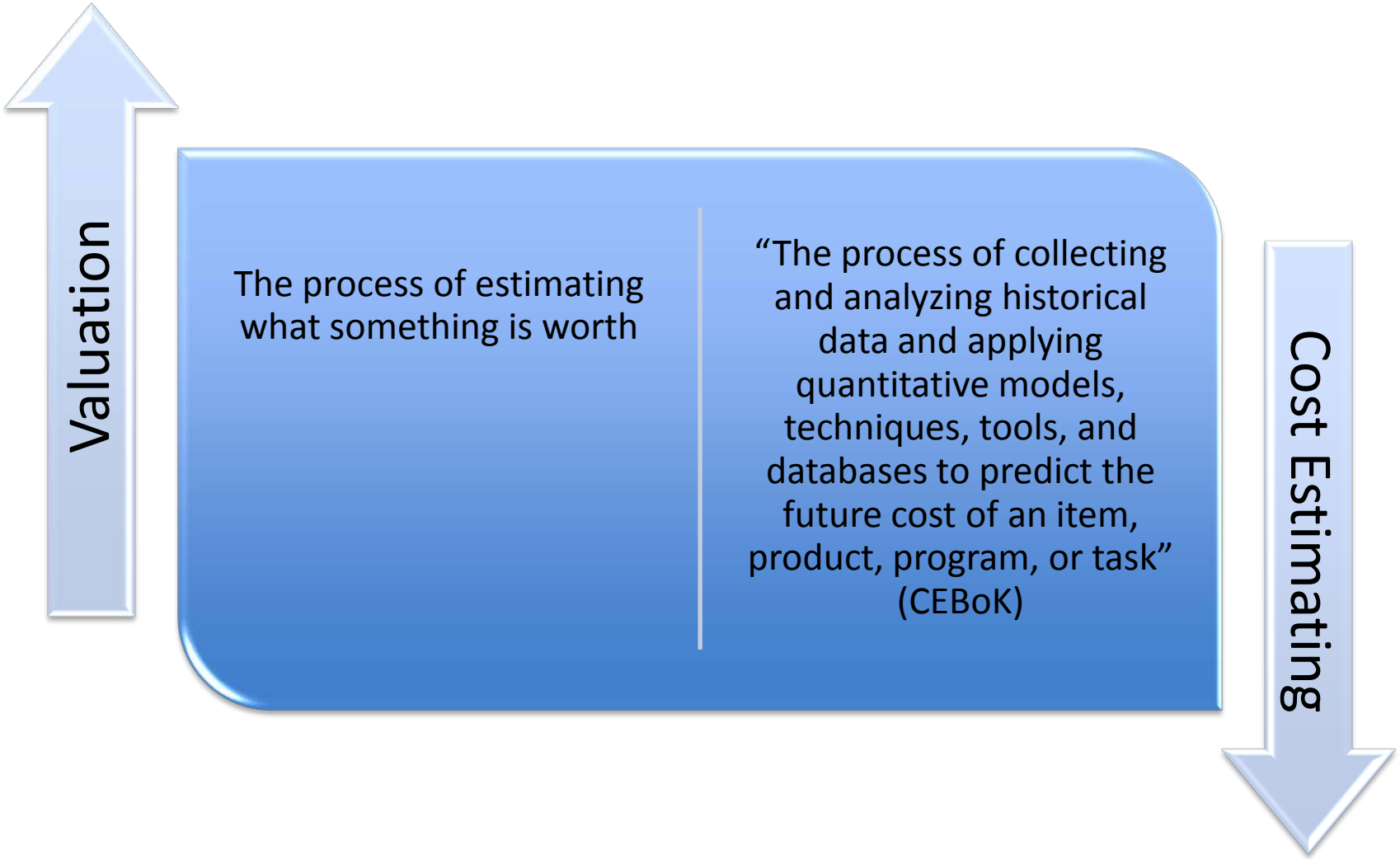
Introduction & Agenda

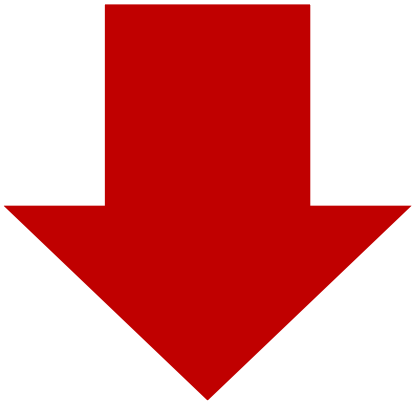
Cobec Consulting's primary experience is in providing investment analysis for Federal Government programs



What is Valuation?



Valuation vs. Cost Estimating



Cost Estimating

Market Independent

Longitudinal

Expectations are Explicit

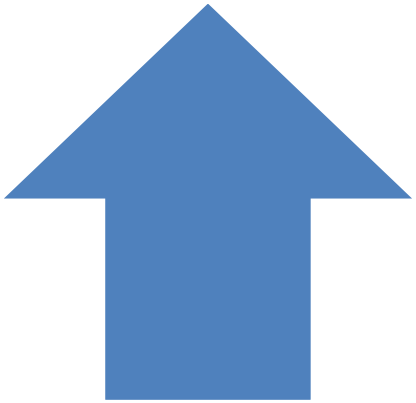
vs.

Valuation

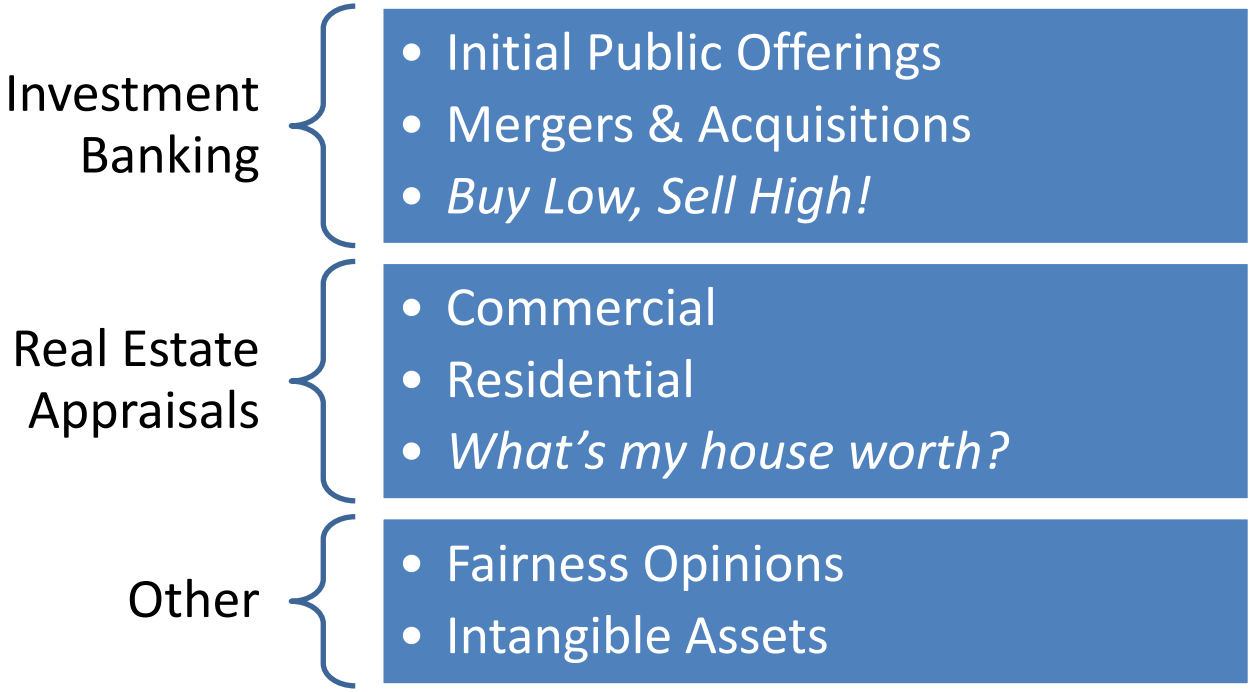
What will the Market bear?

Point Estimate

Expectations are embedded



Valuation's Typical Uses



Valuation in Cost Estimating

How did the need to use valuation techniques arise in a cost estimating setting?

Office of Management and Budget (OMB) Circular A-11, Appendix B, requires that an analysis be performed to determine whether certain contracts/purchases/acquisitions should be treated as an operating lease or a capital lease. There are 6 criteria that must be passed for it to be considered an operating lease:

1. Ownership of the asset does not transfer to the Government
2. Lease does not contain a bargain purchase option
3. Lease term does not exceed 75% of estimated economic life of the asset
4. The present value of minimum lease payments over the life of the lease must be less than or equal to 90% of the Fair Market Value of the asset at the beginning of the lease term
5. Asset is general purpose, not for a special purpose of the Government, and not built to the unique specification of the Government
6. There is a private sector market for the asset

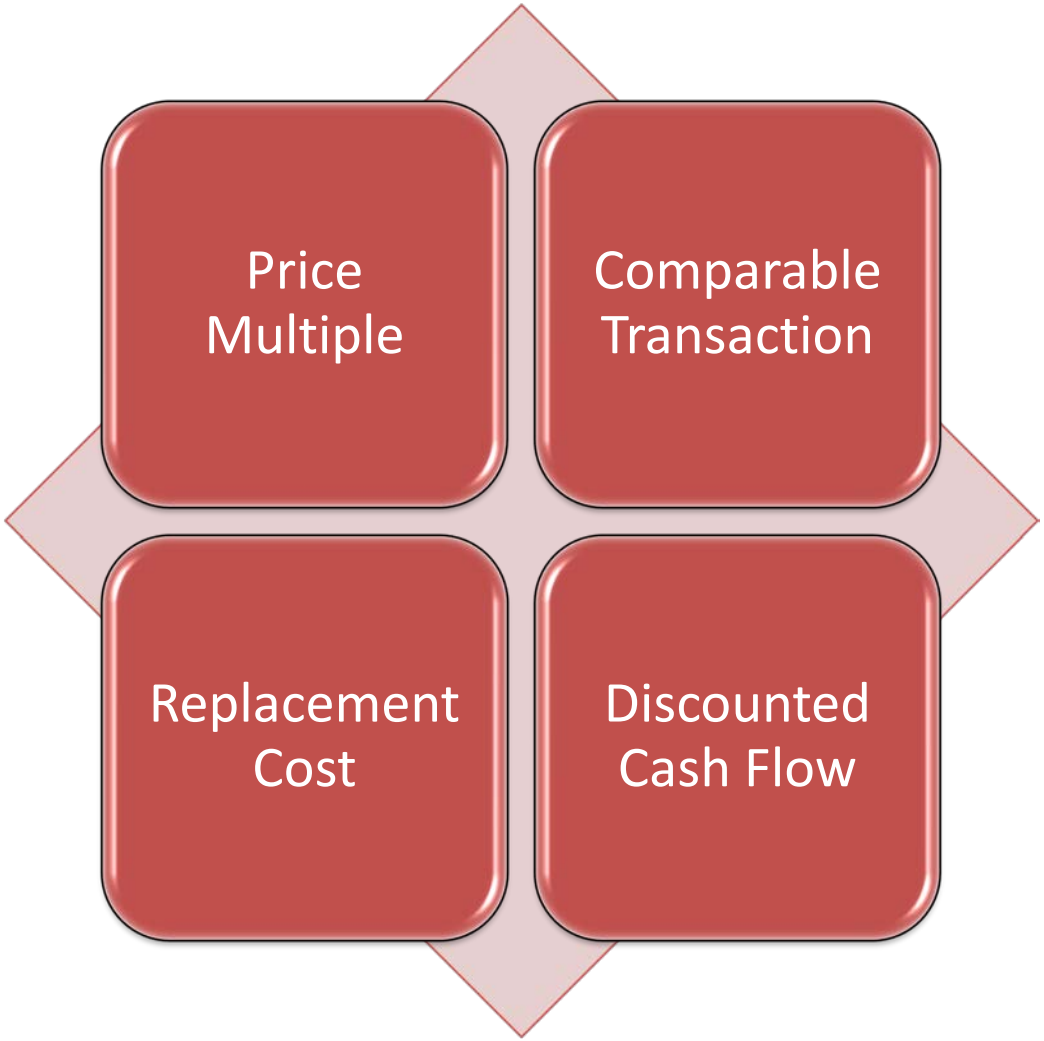
Valuation in Cost Estimating

The Fair Market Value (FMV) Criterion requires **Valuation** analysis

PV(min payments) <= 90% x FMV

"The present value of minimum lease payments over the life of the lease must be less than or equal to 90% of the Fair Market Value of the asset at the beginning of the lease term"

Valuation Techniques



Valuation Techniques: Detail

Price Multiple

- Price is based on a multiple of some financial metric, such as annual earnings (price-to-earnings), annual revenue or sales (price-to-sales), or book value of assets (price-to-book)
- The multiplier can be derived from an analysis of publicly-available information for similar companies or assets

Comparable Transaction

- Research the selling prices for transactions in the marketplace involving similar assets
- Selling prices may be adjusted for comparability and summarized (e.g., averaged)

Replacement Cost

- An estimate is made of what it would cost to replace the asset

Discounted Cash Flow

- An estimate is made of the annual "free cash flow" generated by the asset (i.e., cash available to owners after all operating expenses, interest, and taxes are paid)
- A discount rate is estimated and the annual cash flows are discounted to the present

Use Multiple Techniques to *Triangulate* a Value

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Valuation Case Study

- Acme Industries
  - Industry: Defense & Aerospace
  - Privately held. Purchased by private equity firm from original owners in mid-2000's
- What is the company's value?

Case Study: Applying Valuation Techniques

- Research required! Can be a bit of a scavenger hunt
- Sources used in the actual valuation exercise underlying this case study include:
  - Company & competitors' websites
  - WashingtonTechnology.com
  - Dun & Bradstreet
  - Federal Register
  - Financial websites (Morningstar.com, Seeking Alpha.com)
- Assumptions required to fill in gaps in the data

Estimate #1: Comparable Transaction Method

- One of the original owners declared income of $200M from the sale of its stake in Acme in 2005 to private equity firm PE Capital
- News reports indicated this stake was 33%
- Implied Total Value in 2005: $200 / 0.33 = $606M
- Scaled/Escalated to 2010: **$690M**
  - Although Acme is private, data from public websites and Dun & Bradstreet reports provide company revenue through 2010
  - Scaling Factor: 2010 Revenue $1,100 / 2005 Revenue $966 = 1.138
  - $606 (2005 value estimate) x 1.138 (scaling factor) = $690M

Estimate #2: Price-to-Sales Multiple

- Price Multiple (price-to-sales)
- Acme 2010 Revenue (Sales): $1,100M
- Price-to-Sales ratio for “Defense & Aerospace” companies* = 0.66X
- $1,110 x 0.66 = **$726M**

* http://seekingalpha.com/instablog/687866-frank-seehawer/94489-7-aerospace-and-defense-companies-with-highest-yield

Estimate #3: Price-to-Operating Profit

- Price Multiple (price-to-operating profit)
  - Operating Profit: Income left after paying operating expenses. Not affected by investment income, interest income, or taxes
- Acme 2010 Operating Profit: $102.6M *
- Price-to-Operating Profit ratio for “Defense & Aerospace” companies** = 8.0X
- $102.6 x 8.0 = **$821M**

* Dun & Bradstreet

** http://seekingalpha.com/instablog/687866-frank-seehawer/94489-7-aerospace-and-defense-companies-with-highest-yield

Estimate #4: Price-to-Earnings

- Price Multiple (price-to-earnings)
- Acme 2010 Net Income (earnings): $47.9M *
- Price-to-Earnings ratio for “Defense & Aerospace” companies** = 10.5X
- $47.9 x 10.5 = **$503M**

* Dun & Bradstreet

** http://seekingalpha.com/instablog/687866-frank-seehawer/94489-7-aerospace-and-defense-companies-with-highest-yield

Discounted Cash Flow

- Similar to economic analysis in cost estimating:
  - Discount benefit stream to present
  - Discount cost stream to present
  - Subtract present value of costs from present value of benefits to obtain net present value
- Discounted Cash Flow
  - Project “free cash flow” (cash available after all costs are paid)
  - Usually projections are made in detail for 5-10 years, after which an estimate of “terminal value” is applied (based on formula for a perpetuity, or based on a price-to-free cash flow multiple)
  - The cash flow projection and terminal value are discounted to present
- Typically an accounting-intensive method
  - Very little accounting detail available on Acme, a non-public company
  - However, we can use Net Income as “proxy” for free cash flow
- Expectations
  - In contrast to Price Multiple technique, in which expectations about the future are embedded into the multipliers…
  - …DCF allows for more explicit specification of expectations (projections, growth rates, discount rates

Estimate #5: Discounted Cash Flow

	Actual						
	2004	2005	2006	2007	2008	2009	2010
Cash Flow Proxy: Net Earnings	10.0	30.0	12.0	38.0	120.0	55.0	122.0

Projection (3-year moving average)									
2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
99.0	92.0	104.3	98.4	98.3	100.3	99.0	99.2	99.5	99.2

$$Terminal\ Value = \frac{Final\ projected\ cash\ flow\ x\ (1 + long\ term\ cash\ flow\ growth\ rate)}{(Discount\ Rate - Long\ term\ cash\ flow\ growth\ rate)}$$

Terminal Value
2021+
1012.3

Discount Rate Assumption: 12%

Long Term Cash Flow Growth Rate Assumption: 2%

$557.9 2011-2020 stream, discounted to 2010

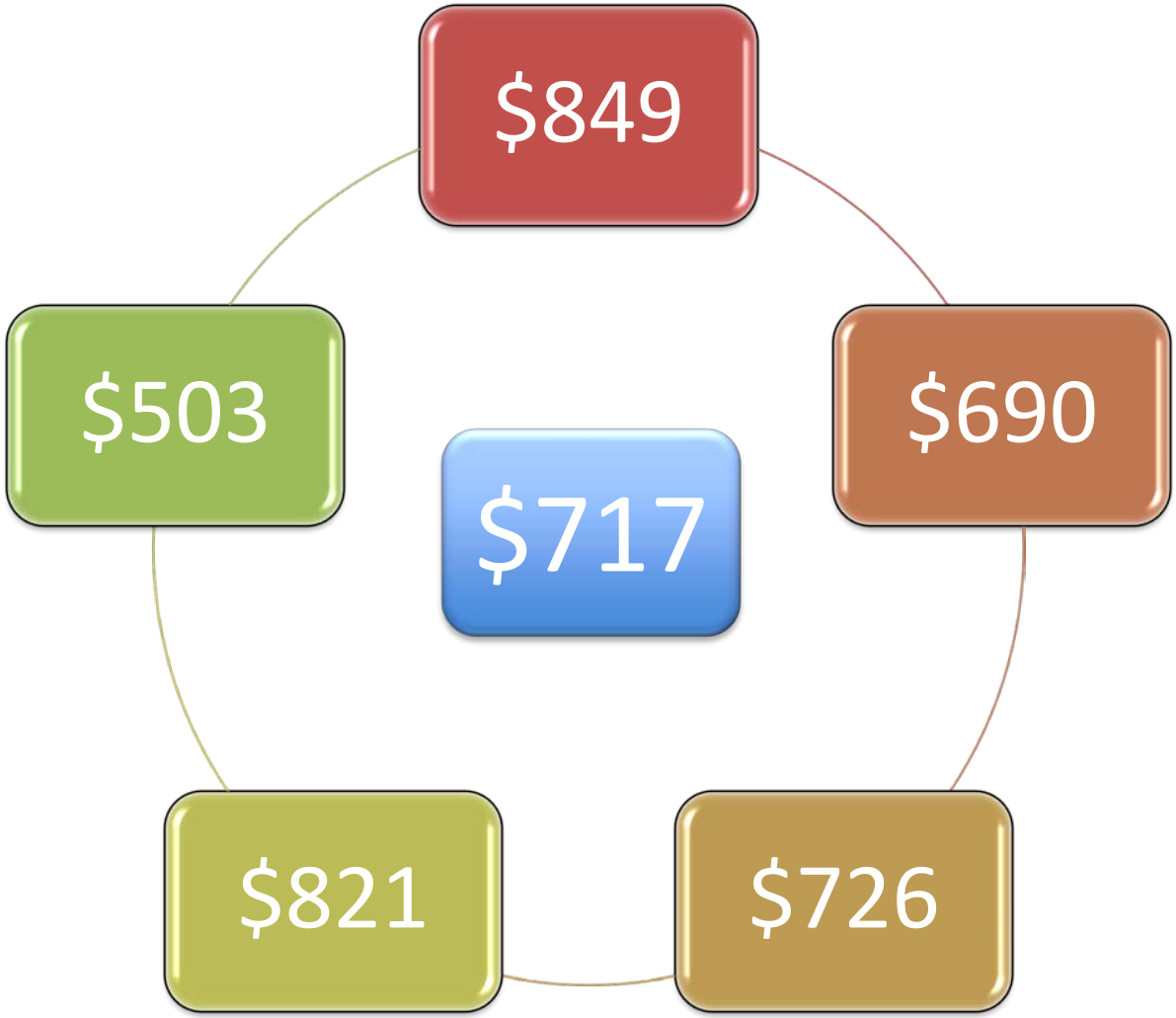
\+ $291.0 Terminal Value (2021+), discounted to 2010

= **$848.9** Total Acme

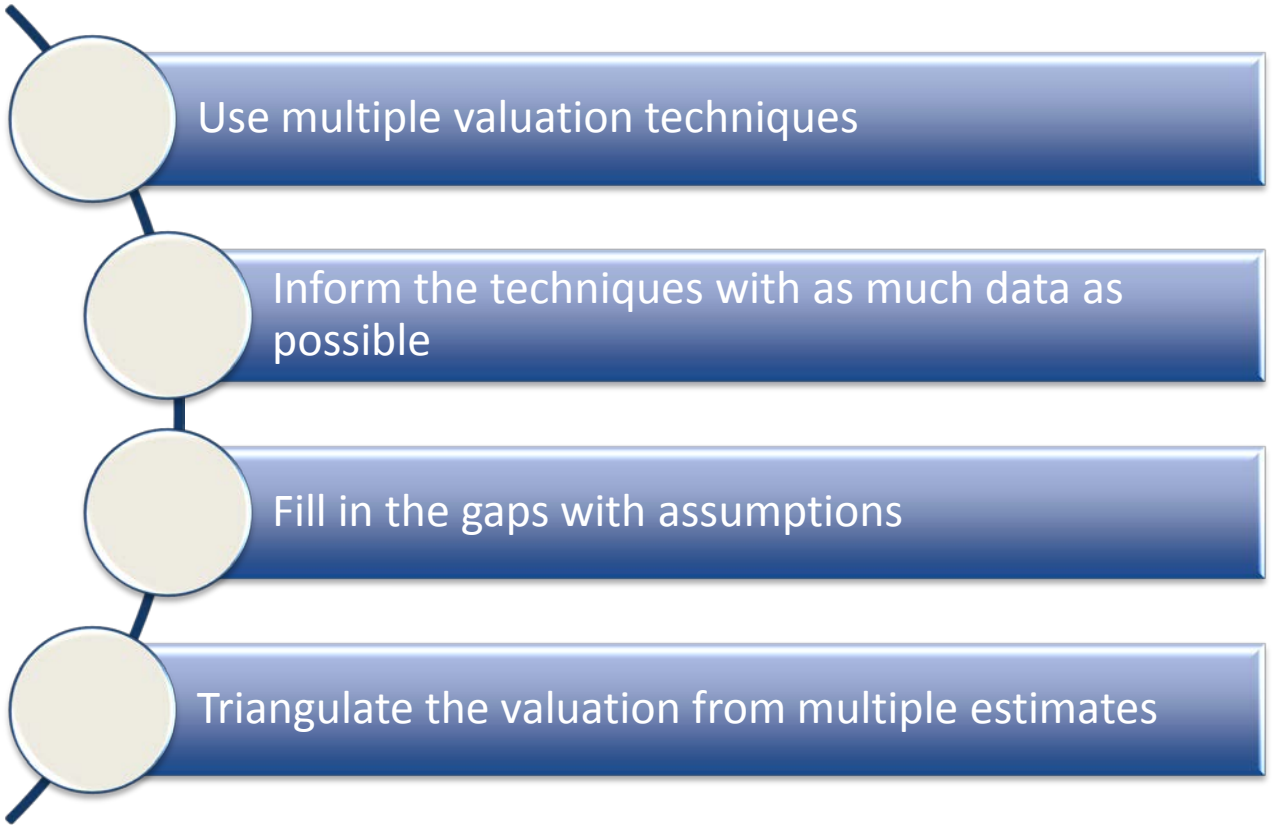
Replacement Cost

- Not used in this company value estimate example
- The intangibles (brand names, human capital, future growth prospects) of a successful corporation would not likely be captured in a "sum of the parts" cost build up
- Replacement Cost is more appropriately used for valuation of a tangible asset, a discrete cash flow-generating entity

Company Value Estimate Summary



Conclusion


Use multiple valuation techniques
Inform the techniques with as much data as possible
Fill in the gaps with assumptions
Triangulate the valuation from multiple estimates