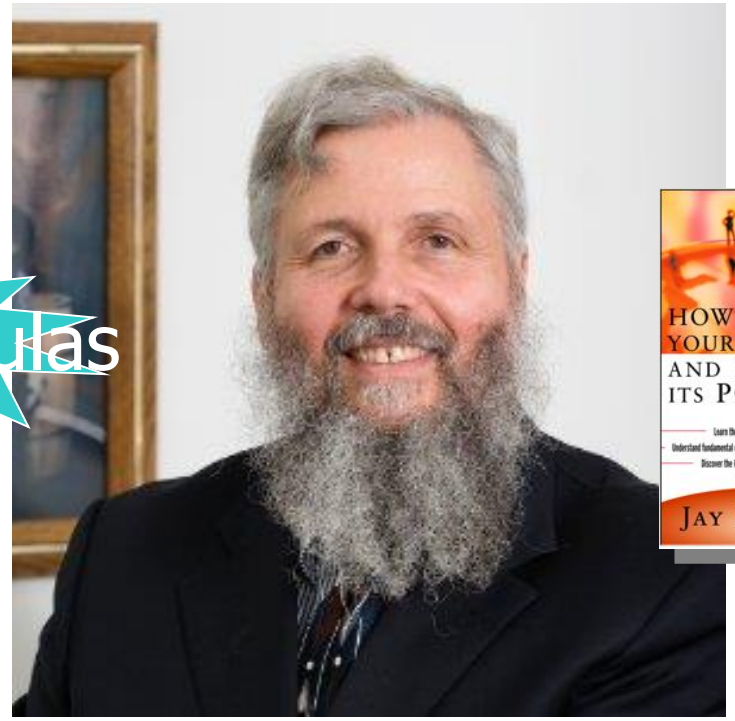
The Body & Soul of Businesses Valuation

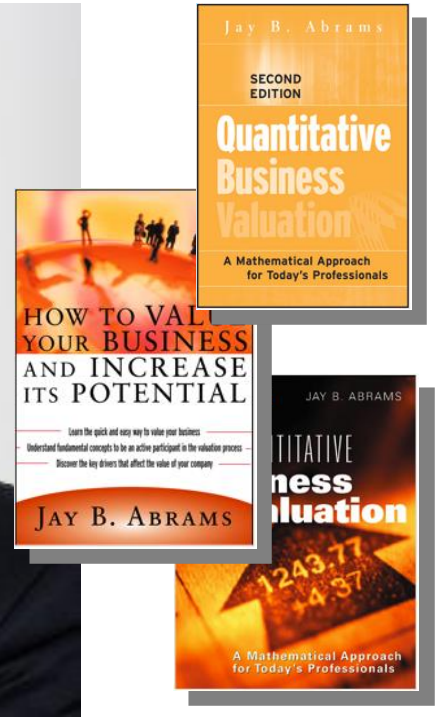
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About Jay Abrams

ASA - CPA
MBA

150 Formulas





About Jay B. Abrams, ASA, CPA, MBA

- Business appraiser since 1983
- Author of 4 books
  - Quantitative Business Valuation
  - Quantitative Business Valuation, 2nd Ed.
  - How to Value Your Business and Increase its Potential
  - Valuing S Corporations and Pass-through Entities (estimated pub date 2018)

About Jay B. Abrams

- Accredited Senior Appraiser with the American Society of Appraisers
- CPA (inactive status)
- MBA 1982, University of Chicago
- Graduate work in Economics, U of Chicago

Goals

- Provide you with a working understanding of business valuation to enable you:
  - To help ensure the appraiser correctly defines the valuation assignment
    - Even correctly measuring the wrong value can spell disaster for your client
  - To provide important information the appraiser needs to know
  - To ask good questions, be an active participant in the valuation process, and possibly affect the outcome for the better

Goals (Cont'd)

- To do your own "quick-and-dirty" valuation
- To select the right appraiser
- To help you develop the intuition whether the appraiser has the critical insight or not

Goals—Examples of Being an Active Participant

- Cancer experience
- Dr. Stein
- Attorneys who question me

Attorney as an Active Participant

- Our expertise is in the numbers
- Your expertise & strengths
  - Expertise in law
  - Facts of the case
  - The perspective of distance

Overview

- Goals
- The Power of Metaphor
- The Body & Soul of a Valuation
- The Right Paradigm—Winning vs. Losing

Overview

- Infrastructure
  - Premise of value
  - Standard of value
  - Valuation approaches
- Structure
  - Valuation methods (techniques)
    - Adjustments (premiums or discounts) for degree of control and marketability

Overview

- Reconciling the DCF & Market methods
- Valuing S Corps and pass-through entities
- Probabilistic valuation models

Overview

- Demonstrating expert bias
- How does value grow?
- How accurate are valuations?
- Choosing an appraiser
- How attorneys can help appraisers
- Common valuation errors

Model Paradigm: Black-Scholes

- $P = EN(-d_2)e^{-Rft} - SN(-d_1)$, where:
  - S = Stock Price
  - $N(x)$ = Cumulative Std Normal Distrib
  - E = Exercise Price
  - R_f = Risk-free, i.e., treasury rate
  - T = Time to option expiration

Black-Scholes

- $d_1 = [ln(S/E) + (R_f + 0.5 \times \text{variance}) \times t] / [\text{std deviation} \times t^{0.5}]$
- $d_2 = d_1 - [\text{standard deviation} \times t^{0.5}]$

- Heat Exchange Equation
- Distribution of Galaxies in Universe

Physical Metaphors for Valuation

- Front stance—winning vs. losing stance
- Unbendable arm
  - Breathing connects mind and body
  - *Ruach, nefesh, neshamah*
  - As we have power beyond physical strength, the soul of the valuation goes beyond the sum of its technical components.

Body of Valuation

- **Body of valuation is the models, techniques, methods, and formulas**
  - A bad assumption, technique, etc. is like "hips out" in the stance. Opponent can push you over.
  - A series of good assumptions might make a good stance, but still lacks "the force."

Soul of the Valuation

- The imagination, creativity, intuition, passion, critical insight, and integrity of the appraiser.
  - My article, "How Does Value Grow?" is a living, breathing, reality that exists within me and possessed me.
  - Unlike one who reads it. I lived it for months before submitting it for publication.

Soul of the Valuation—A Fusion of Right & Left Brain

Left Brain	Right Brain
Critical Insight	Inspiration
Organization	Creativity
Integrity	Passion

Soul of the Valuation Cont'd

- A difficult marriage and fusion of opposite human capabilities, the intellectual 7-10 split. Much easier to be strictly technical or inspirational.
  - Technique without inspiration is lifeless and lacks impact on the reader of the report—or the jury
  - Inspiration without discernment, discipline, and organization leads to muddle-headed drivel.

Quotes from Great Physicists

- "Imagination is more important than knowledge. For knowledge is limited to all we now know and understand, while imagination embraces the entire world, and all there ever will be to know and understand."—Einstein

Quotes from Great Physicists

- "A new idea is extremely difficult to think of. It takes a fantastic imagination."—Richard Feynman (1965), "The Character of Physical Law," BBC, p. 139.

My Own Quote

- “A scientist must be a great artist; otherwise he is a technician.”—Jay Abrams

The Right Paradigm

- Win or lose on the right vs. the wrong paradigm. This requires:
  - Creativity
  - Critical Insight
  - Technical Mastery
  - Cool under pressure

U Chicago Econ Dep't Taught Intuition in Understanding Models

- Gordon Model Multiple (GMM—valuing a mature firm with constant growth.
- $GMM = \frac{1}{r-g}$, where r is the discount rate and g is the forecast growth rate.
- Assume r = 25% and g = 5%, then $GMM = \frac{1}{0.25-0.05} = 5.00$

GMM

- Thus, we are willing to pay $5.00 today for each dollar of cash flow we expect to receive 1 year from now, growing at 5% per year, i.e., $1.05 at the end of year 2, $1.1025 at the end of year 2, etc.
- For a firm with forecast cash flow (CF) in year 1 of $10M, we would value it at $10M × 5 = $50M.

GMM

- If we let *g* decrease to 0%, GMM = 4, and the FMV declines to \$10M × 4 = \$40M.
- If *r* decreases to 20%, GMM = 6.7, and FMV increases to \$10M×6.7=\$67M.
- Thus, value increases with expected growth and decreases with risk. These results are intuitive, and the model behaves in a way that makes sense.

Examples of Winning and Losing Paradigms

- Life Settlements vs. the Bond Paradigm
- "The subterfuge increased the risk of their business"
- "The risk disappeared"

Great Paradigms—True in the Law

- What makes Clarence Darrow, Oliver Wendell Holmes, Alan Dershowitz, and Richard Posner a cut above?
  - It can't be only that they memorized more statutes than everyone else.

Great Paradigms—True in the Law Cont'd

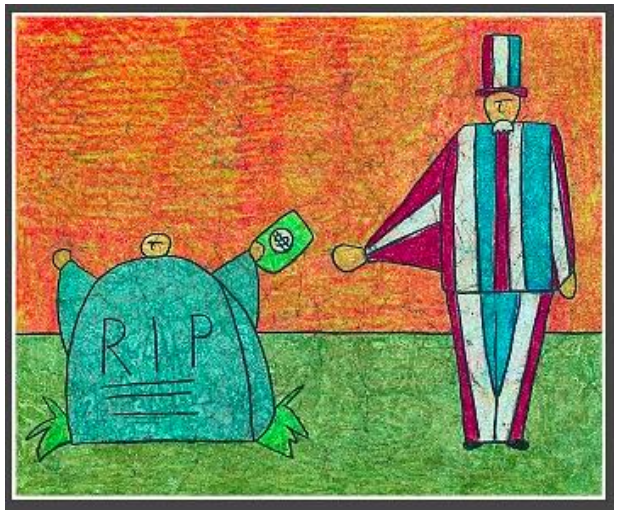
- Is it purely superior delivery? And, if so:
  - From better acting skills?
  - Are they more genuine?
- Or is there something beyond that? Genius, mastery, passion, conviction? All?

Infrastructure



Premise of Value—Assumptions in the Valuation Scenario

- Going concern vs. liquidation value — is the business worth more dead or alive?





Is the Business Worth More Dead or Alive?

- If Going Concern Value (GCV) > Liquidation Value (LV), then use GCV
- If GCV < LV
  - For a control interest, use LV
  - For a minority interest
    - Usually use GCV
    - Possibly a wtg avg if probability to convince control SHer to liquidate. Example: the Metals firm that owned real estate.

Measuring Liquidation Value

- LV is not Book Value! (construction firm example)
- Make sure to include direct and indirect costs of liquidation
  - Make an FMV Bal Sheet w/% Real. Values
  - Typically, inventory and work-in-progress have low realizable values, possibly accounts receivable as well.

Measuring Liquidation Value

- Include liabilities for severance pay, cost of a skeleton crew for 3-12 months to wind down, and legal, accounting, and admin costs.

Premise of Value

- Value in exchange vs. value to the holder





Value in Exchange

- For what would it sell in the market-place? We try to simulate the market.
  - Objective concept of value
  - Usually independent of the specific buyer or seller
  - Valuation premiums and discounts apply

Value to the Holder

- More subjective
- Example: value of a medical license. Zero value in exchange, but there is value to the holder.
- Valuation discounts might not apply

Which is Best?

- Usually doesn't matter. Civil law, case law, or regulation specifies which to use.
- The standard of value determines "the rules of the game" and affects the value outcome.
- First recorded debate in history in the Talmud, which we cover below.

Standard of Value

- A definition of value or business damages that determines the rules by which we measure value or damages
  - Are we measuring value or lost profits?
  - Which valuation discounts apply?

Standard of Value

- Fair Market Value (FMV)
  - Most common standard of value in US



Fair Market Value



- Selling Price in Cash Equivalents
  - If seller accepts a below-market interest note, FMV < Cash Down + Note Face Value.
  - Mkt interest is usually high for private firms, especially if much debt.
  - FMV of contingent payments < face

Fair Market Value

- Hypothetical Willing Buyer & Seller



Fair Market Value

- Arm's Length Transaction



Fair Market Value

- Open & Unrestricted Mkt



  - Restrictions on transfer decrease FMV

Fair Market Value



- No Compulsion to Buy or Sell—
  A Fire Sale is not FMV

Fair Market Value

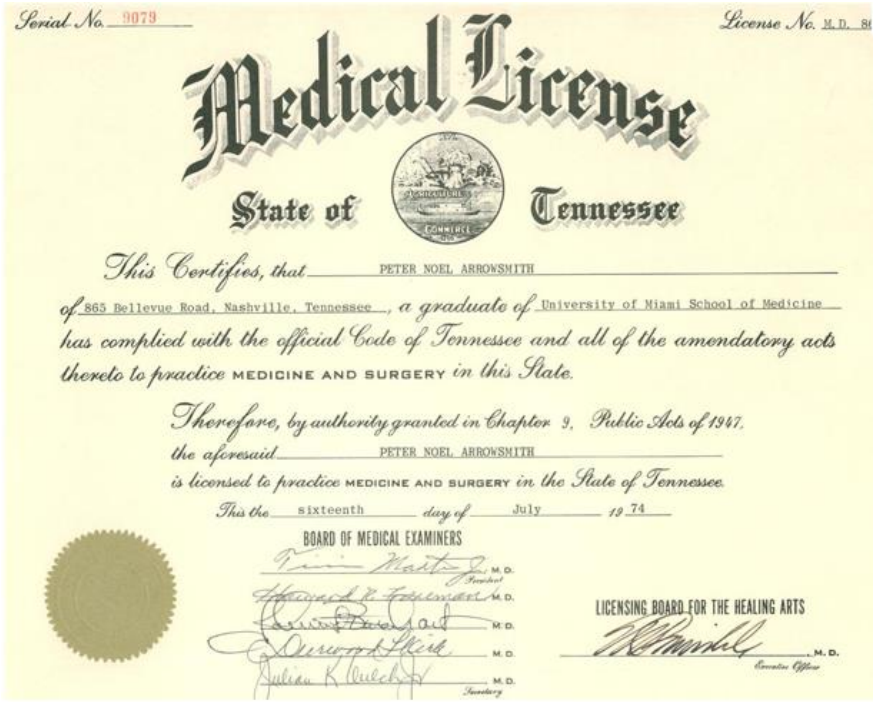
- Reasonable knowledge of the relevant facts
  - Known or reasonably knowable on the valuation date
  - Was the data source extant on the valuation date?
  - US Tax Court sometimes allows subsequent data as a sanity check

Fair Market Value

- Minority Interest - actual owners matter



When FMV Doesn't Exist!



Serial No. 9079 License No. M.D. 8

Medical License

State of Tennessee

This Certifies, that PETER NOEL ARROWSMITH

of 865 Bellevue Road, Nashville, Tennessee, a graduate of University of Miami School of Medicine

has complied with the official Code of Tennessee and all of the amendatory acts thereto to practice MEDICINE AND SURGERY in this State.

Therefore, by authority granted in Chapter 9, Public Acts of 1947,

the aforesaid PETER NOEL ARROWSMITH

is licensed to practice MEDICINE AND SURGERY in the State of Tennessee.

This the sixteenth day of July 19 74

BOARD OF MEDICAL EXAMINERS

M.D. President

M.D.

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M.D. Secretary

LICENSING BOARD FOR THE HEALING ARTS

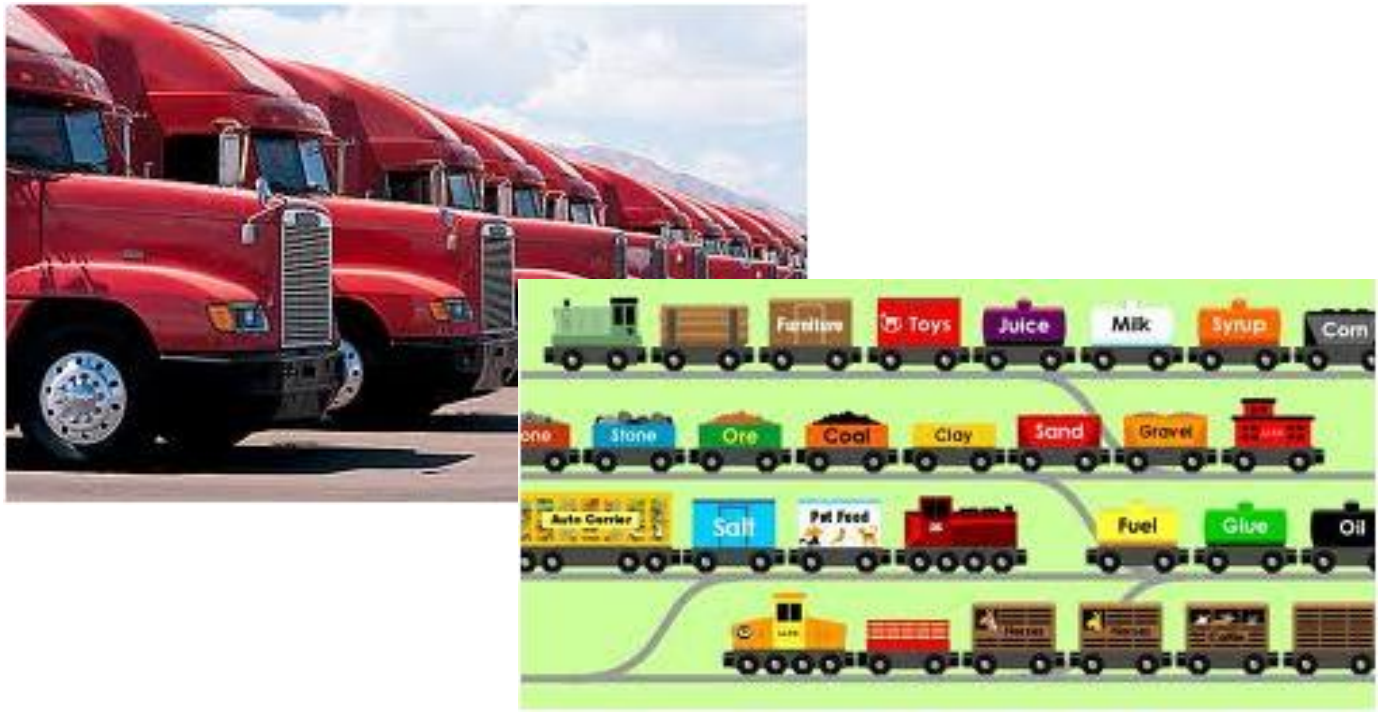
M.D. Executive Officer

When FMV Doesn't Exist!

- Pipe Mfg



Investment Value—Value to Buyer



Investment Value

- Where synergies, Inv Value 20%-50%+ higher than FMV
- Example: Armour-Dial acquisition of Purex shipping synergies floor and ceiling values
- The most likely win-win scenario in acquisitions

Investment Value

- What if the database of private transactions is all investment values?
  - Contrary to intuition, our recent research shows strategic buyers do not pay more than financial buyers do.

Fair Value—Shareholder Oppression



Shareholder Oppressor!

Fair Value—Shareholder Oppression

- For shareholder oppression, corporate dissolution suits
  - Usually defined in case law
  - Varies by state
  - May or may not allow valuation discounts, as case law follows value in exchange or value to the holder

Fair Value 4 Financial Reporting

- Defined by FASB
- Similar but not identical to FMV
  - Specifies exit price, which differs with FMV when there are wholesale and retail prices.
    - Example: stock with a bid price of $96 and ask price of $100. FMV is $98, but FV is $96.
  - Unlike FMV, may allow synergy with buyer
  - Value in exchange

Marital Value in San Diego

- Mix of value to holder & value in exchange
- Forbids discount for lack of marketability but permits discount for lack of control



Talmudic Standard of Value

- An eye for an eye?





Talmudic Standard of Value

- Oral Law—Mishnah and Gemarah
- The Mishnah
  - A short recitation of laws
  - Approx. 200 C.E.
  - Older part of the Talmud
- Gemarah (approx. 500 C.E.)
- Both existed orally 3,300+ years ago

When A Puts Out B's Eye

- 5 Categories of Damages in Mishnah, Bava Kamma 86a
  - Economic value of the eye (Slave mkt)
  - Pain & Suffering (Mkt Research)
  - Medical expenses
  - Unemployment
  - Embarrassment for being disfigured

How to Value Embarrassment?

- 3 Opinions of the victim in the Gemara
  - Rabbi Meir—former aristocrat who lost much of his wealth. 1 size fits all, like FMV
  - Rabbi Yehudah—damage unique to the financial position of victim and perpetrator—like Investment Value
  - Rabbi Shimon—dual class—wealthy like Rabbi Meir, poor as poorest of the poor. Like more sophisticated FMV with size effect

3 Valuation Approaches



Asset

Income

Market

3 Valuation Approaches

- A general way of looking at value—not a specific technique
- Asset Approach—balance sheet based—like Cost Approach in Real Estate Val
- Income Approach—usually PV cash flow
- Mkt Approach—mathematical relationship of selling price to "valuation drivers"—sales, net income, cash flow

Synthesizing Valuation Premise & Approach

Approach	Asset	Income (DCF)	Market
Time Orientation	Present	Future	Present (Stk Price) & Past (Net Inc, Sales)
Strengths	Values the company dead	Custom tailored; Only method for startups	Objective; Regression gives feedback
Weaknesses	May ignore intangible value	Subjective; Many forecasting assumptions	Data issues; expensive; not 4 startups; Selection Bias

Synthesizing Valuation Premise & Approach—Digital (0-1) Qualities

Fear/Strength	Love/Kindness
Risk	Return
Micro	Macro
Introvert (boundaries, self-oriented)	Extrovert (concerned with others)
Objective	Subjective
Thinking	Feeling
Fairness in Process	Fairness in Results
Law	Equity
Fair Market Value	Fair Value
Market / Guideline Companies	Discounted Cash Flow

Importance of Digital Qualities

- Marketing appeal to judge or jury
  - Know your audience
  - Emphasize what will appeal to them
  - A kind judge is more favorable to argument that final result is unfair than a stern judge, who is concerned with fairness of the process.

Elements of an Engagement Letter

- Identify the client
- Clear recital of facts
- Purpose(s) of valuation—critical to identify all purposes. A $20k omission.
- Standard of value
- Interest to value
- Valuation date

Elements of an Engagement Letter

- Intended Users
- Identify if Appraisal or Calculations Assignment
  - Calculations is a lower level of service—often number crunching only
  - Appraisal is higher, with due diligence and market research
- Timing

Elements of an Engagement Letter

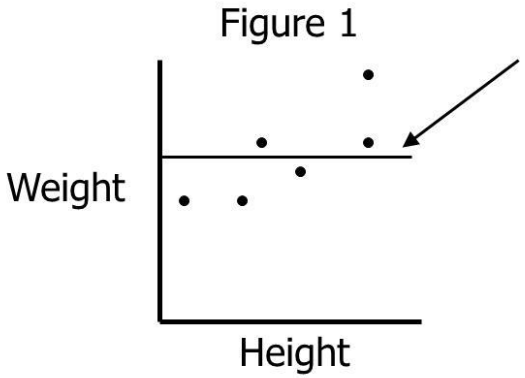
- Fees
  - Ordinary
  - Data errors or expansion of scope
- Dispute Resolution & Jurisdiction

REGRESSION ANALYSIS—A GENERAL TOOL

Definition of Regression Analysis

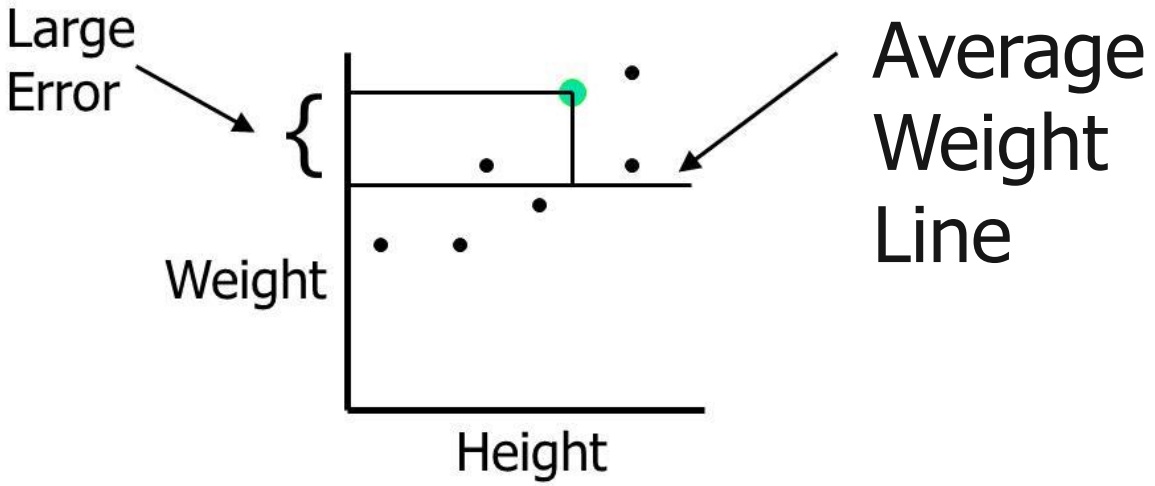
- A statistical technique that estimates the relationship between a dependent variable & 1 or more independent var.
  - In DCF, use to forecast
    - Sales as a function of time (and perhaps others)
    - Costs & Expenses as a function of Sales
  - Market Approaches—Value as a function of sales, net income, cash flow, etc.

Why Use Regression



Let's say you have sample data with men's heights and weights, and you want to forecast their weight. You could use the average weight from the sample.

Why Use Regression

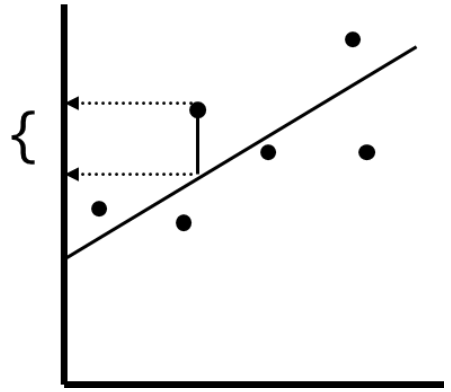


Using average weight as an estimate produces a large error.

Regression Data & Line

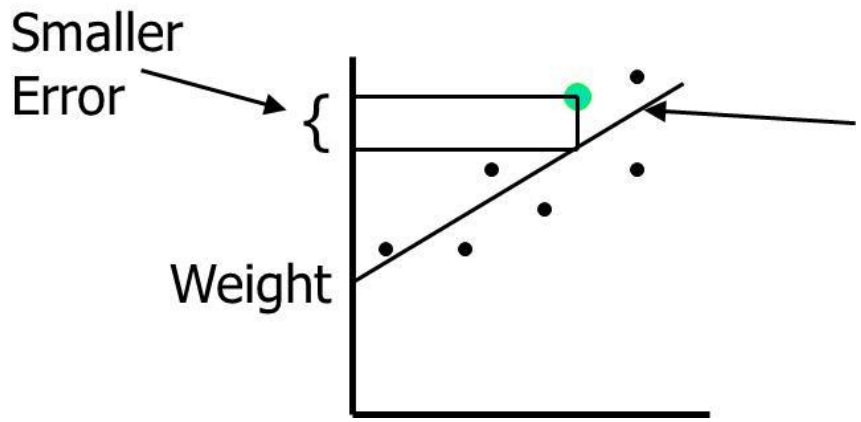
Figure 4

Minimize the square of the distances



The regression line is the one that minimizes the sum of the squared distances between the data points and the line.

Regression Reduces Forecast Error



Regression Line: Weight as a Function of Height

Using the regression line to estimate height reduces forecast error.

Multi-Variate Regression

- We can be more accurate forecasting weight if we also include the waistline as an independent variable.
- The data points would be in 3-D space, with a regression plane fitted