

Business Valuation for Closely-Held and Family Businesses



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Education

- Graduate of LaSalle University, Philadelphia, PA, Bachelor of Science Degree in Business Administration

Experience

- Partner in the accounting and business valuation firm of Gold Gerstein Group LLC with two offices in NJ; Expert testimony in court and arbitration proceedings relating to matrimonial and minority stockholder litigation, fraud, economic damages, and bankruptcy proceedings; Qualified as an expert witness by Federal, NJ and PA courts; Preparation of valuation reports for businesses and professional practices; Preparation of damage study reports; Accounting, tax and succession planning services for closely-held and family businesses.

Professional Affiliations and Credentials

- Certified Public Accountant (CPA) in NJ and PA; Accreditation in Business Valuation (ABV) and Certified in Financial Forensics (CFF) by the AICPA; Member of Integra International, Inc., worldwide association of independent accounting and consulting firms; Member of Expert Resource Connection, LLC (ERC), national alliance of business valuation and forensic accounting professionals.

Professional Activities

- **American Institute of CPAs:** Past conference chairman – National Litigation Support Services Conference; Conference Steering Committee member – National Business Valuation Conference and Family Law Conference; Accredited in Business Valuation Examination Committee Virtual Subcommittee to formulate exam questions; Family Law Task Force; “Ask the Experts” panel member of the ABV E-Valuation Alert electronic newsletter.
- **New Jersey Society of CPAs:** Chairman – Valuation & Litigation Services Resource Group; Past Chairman – Business Valuation Interest Group and Matrimonial Accounting Interest Group; Conference Chair – Valuation and Litigation Services Conf.
- **Integra International, Inc:** Executive Board member and Past Chairman – Global Board; Past President – Americas, Asia & Australia Division.
- **Liberty USO of Philadelphia & Southern New Jersey:** Vice-chairman & Treasurer.
- **Family Law Services Handbook:** John Wiley & Sons, Inc. Co-author/Editor.
- **PPL Guide to Divorce Engagements:** Editor



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Education

- Graduate of Stockton University, Galloway Township, NJ, Bachelor of Science Degree in Business Administration with a concentration in Accounting

Experience

- Senior Accountant in the accounting and business valuation firm of Gold Gerstein Group LLC with two offices in NJ.
- Preparation of valuation reports for businesses and professional practices. Business valuation services also includes forensic accounting, economic damages, and litigation support for a wide range of businesses and professional practices for purposes such as estate and gift tax planning and compliance, divorce, business succession planning, and shareholder litigation
- Accounting and tax services for closely-held and family businesses including financial statement preparation, business and personal income tax planning and compliance, estate and business succession planning.

Professional Affiliations and Credentials

- Certified Public Accountant (CPA) in NJ
- Member of Integra International, Inc., worldwide association of independent accounting and consulting firms
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- Member of the American Institute of Certified Public Accountants

Professional Activities

- New Jersey Society of CPAs – Pay It Forward program presenter



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Business appraisal and related litigation services are necessarily fact sensitive. Therefore, participants are urged to apply their expertise to particular fact patterns that they encounter, and to seek competent professional assistance as warranted in the circumstances.

Business Valuation is about one thing ...

RISK

- How we identify risk.
- How we measure risk.
- How we compensate for risk.

What is Risk?

- The likelihood that an investor receives the cash flow they expect to receive from the investment.
- In the time period they expect to receive it.

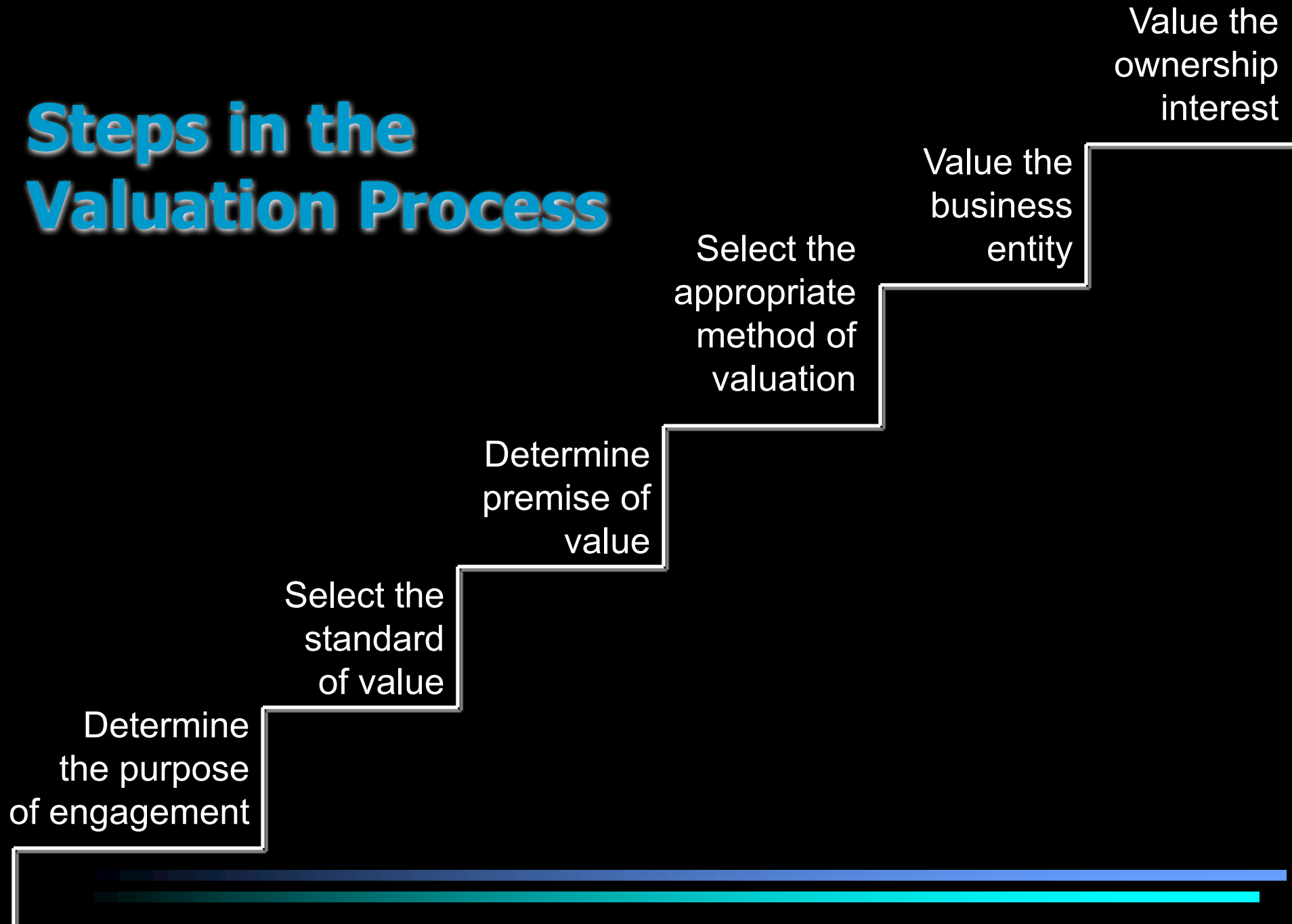
Risk Analysis

Risk and value are inversely related.

Higher risk companies generally sell at lower multiples of earnings.

Exceptions???

Steps in the Valuation Process



Many Reasons for Valuing a Business

- Stockholder Agreements
- Merger & Acquisition
- Estate & Gift Tax planning & compliance
- Stockholder Litigation
- Damage Study
- Divorce



“We’ll be reaching a settlement in a minute.”

Valuation Date Issues

- What are the right dates?



- Subsequent events??

Standards of Value

- Fair Market Value
- Fair Value
- Investment Value
- Intrinsic Value



Fair Market Value

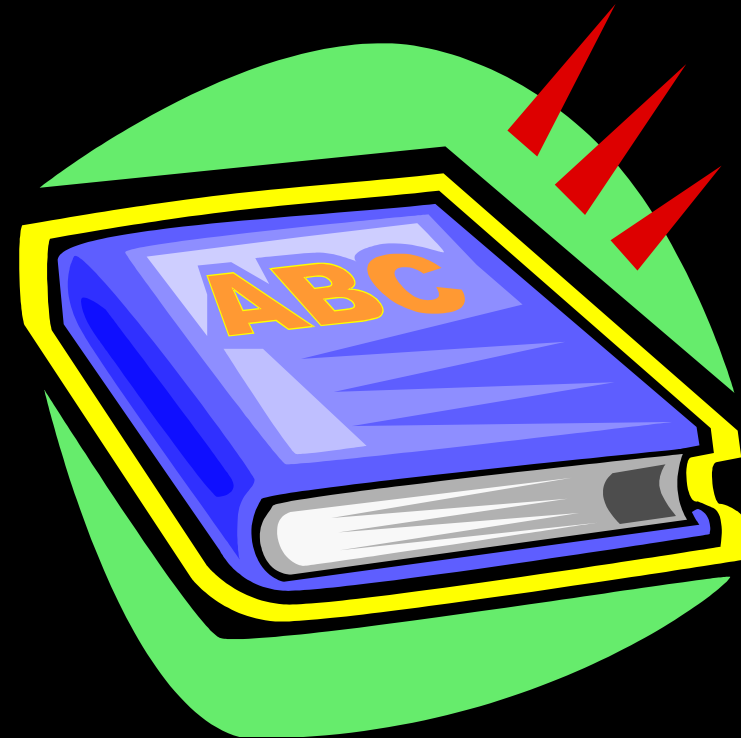
IRS Revenue Ruling 59-60

- Price at which property would change hands
- Between a hypothetical willing buyer and a hypothetical willing seller
- Not under compulsion to buy or sell
- Both having reasonable knowledge of all relevant facts



Investment Value

Value of an asset or business to a **specific** owner or prospective owner. Accordingly, this type of value considers the owner's or prospective owner's knowledge, abilities, expectations of risks and earning potential, and other factors.



Buyer Motivations Indicating “Investment Value”

- Differences in estimates of future earning power
- Differences in perception of the degree of risk
- Differences in tax status
- Synergies with other operations owned or controlled

Intrinsic Value

Valuation based on
“fundamental analysis”
of the company by a securities analyst



Premise of Value

- Going Concern
 - Operating business
 - Trained & experienced work force
 - Capital equipment in place
- Liquidation
 - Orderly closing & liquidation
 - Fire sale



Primary Approaches to Value

\$ Income Approach



\$ Market Approach



\$ Cost Approach



Income Approaches to Valuation

Methods of Valuation

Capitalizing a single period economic benefits stream (net income, pretax income, cash flows, etc.)

Discounting discrete future years expected earnings stream

Defining the Earnings Stream

- Net income
- Earnings before tax (EBT)
- Earnings before interest taxes depreciation & amortization (EBITDA)
- Gross cash flow
- Net cash flow



Discount Rates and Capitalization Rates

Discount Rate = risk adjusted rate of return required by an investor to make the investment

Capitalization Rate = discount rate reduced by a long-term sustainable growth rate

Converting an Earnings Stream into a Value

- Determine discount rate (Investors desired rate of return)
- Determine a long-term sustainable growth rate
- Determine normalized earnings
 - Economic earnings for valuation
- Capitalization Rate is a divisor, applied to an earnings stream, to compute a value

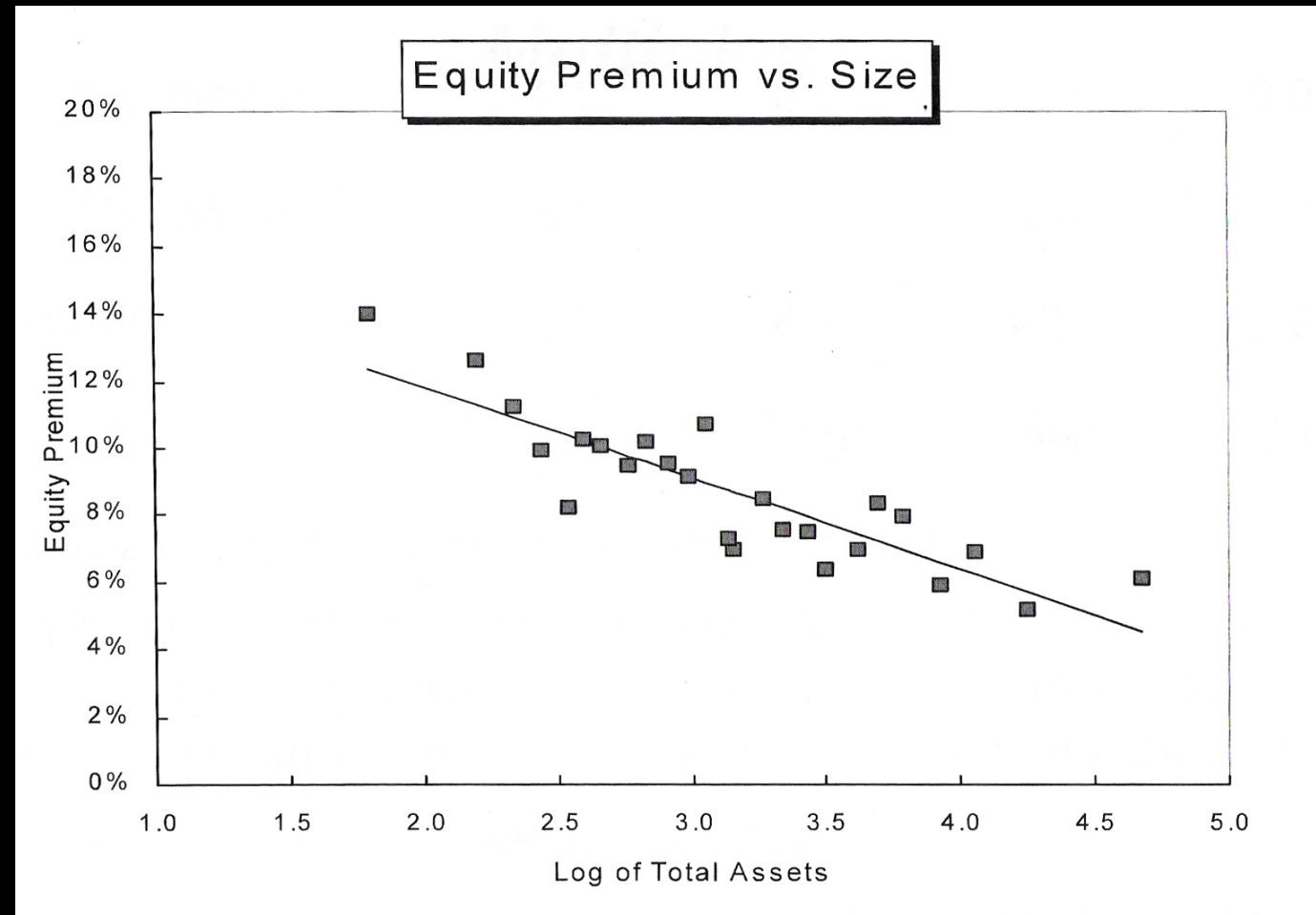


Size vs Risk

- Empirical evidence shows that small companies tend to get higher rates of return than large companies
- Academic research
- Duff & Phelps' *Risk Premium Report* (Annual Valuation Handbook – U.S. Guide to Cost of Capital)
- Smaller “size” indicates a higher discount rate

Size & Return from Risk Premium

Report: Smaller Size=Higher Rate of Return



Size & Private Firm Acquisition Multiples

- If there is validity to the claim that smaller companies have higher discount rates, then we should expect to see this reflected in market prices of companies. In fact, we do...

Multiples of EBIT for Manufacturing Companies.

Revenue	1997	1998	1999	2000
\$50 Million +	6.5	6.1	6.5	7.5
\$20-50 Million	6.0	5.3	5.5	7.4
\$10-20 Million	5.5	5.3	5.5	6.6
Under \$10 Million	5.1	4.8	4.5	5.4

Source: IMAP surveys, various years

Discount Rate – Build Up Method

$$k = R_f + ERP_m + S_i + SP_i$$

- R_f = risk-free rate of return
- ERP_m = **Equity Risk Premium**:
expected premium on the market index
- Expected return on market *minus* risk free rate
- S_i = Company size premium
- SP_i = Company specific risk premium

Duff & Phelps Risk Premium Report

Equity Risk Premium over Risk-Free Rate Using Guideline Portfolios

Data through December 31, 2015

	Subject Co.	Relevant Risk Premium Exhibit	Exhibit in Report	Portfolio Ranking	Smoothed Average Equity Risk Premium	Used (1=Yes, 0=No)	Selected Relevant Smoothed Average Equity Risk Premium ¹
Market value of equity	N/A	A-1		25	13.07%	0	
Book value of equity		A-2		25	11.36%	1	11.36%
5 year average net income		A-3		25	12.26%	1	12.26%
Market value of invested capital	N/A	A-4		25	12.64%	0	
Total assets		A-5		25	12.21%	1	12.21%
5 year average EBITDA		A-6		25	12.01%	1	12.01%
Sales		A-7		25	11.95%	1	11.95%
Number of Employees		A-8		25	11.93%	1	11.93%
Median equity risk premium					12.11%		11.98%
Average equity risk premium					12.18%		11.95%

¹Smoothed average equity risk premium times Used (if "1")

* Risk Premium Report Includes Size Premium

Discount Rate – Build Up Method

$$\text{Cost of equity (K}_e\text{)} = R_f + R_m + R_{sc}$$

Assumptions:

Risk-free investment rate (Rf) ¹	2.95%
Equity risk premium (Rm) ²	11.95%
Specific company risk (Rsc) ³	8.10%
Discount rate for equity (K _e)	23.0%
Growth rate	-3.0%
Capitalization rate	20.0%

¹ Long-term (20-year) U.S. Treasury Coupon Bond Rate
(Source: H.15 Statistical Release of the Federal Reserve, Monthly Average
of Constant Maturity Rates, September 29, 2015)

² Duff and Phelps Risk Premium Report 2016 based on 2015 data

³ Valuator's judgment

Simple Capitalization Model

Capitalized Cash Flow (CCF)

$$\begin{array}{rcl} \text{Value} & = & \frac{\text{Cash Flow}}{(k - g)} \\ \$500,000 & = & \frac{\$100,000}{(.23 - .03)} \end{array}$$

*Multiple decreases as risk increases (k)
Multiple increases as growth increases (g)*

k = Risk adjusted discount rate.
g = long term sustainable growth rate.

Discounted Cash Flow Method (DCF)

DCF Formula:

$$\frac{\text{Present Value of Cash Flows}}{\frac{\text{NCF}_1}{(1+k)^1} + \frac{\text{NCF}_2}{(1+k)^2} + \frac{\text{NCF}_n}{(1+k)^n} + \dots + \frac{\text{Present Value of Terminal Period}}{\frac{\text{NCF}_n}{(k-g)} \frac{1}{(1+k)^n}}$$

where,

NCF : Normalized Pretax Debt Free Cash Flow

k : Discount Rate

g : Growth Rate

n : Number of periods

Discounted Cash Flow Method (DCF)

Example

Discrete Projection Period Calculation

Year	Normalized Pre-Tax Debt- Free Cash Flow	Normalized Income Taxes	Cash flow	Present Value Factor	Present Value of Cash Flows
2010	\$ 1,245,000	\$ (249,000)	\$ 996,000	0.93741	\$ 933,659
2011	1,024,000	(204,800)	819,200	0.82373	674,802
2012	1,336,000	(267,200)	1,068,800	0.72384	773,643
2013	1,398,500	(279,700)	1,118,800	0.63607	711,630
2014	1,454,500	(290,900)	1,163,600	0.55893	650,375
2015	1,511,500	(302,300)	1,209,200	0.49115	593,903
					<u>4,338,013</u>

Terminal Value Calculation

Cash flow per period into perpetuity	1,209,200		
Capitalization rate	<u>10.30%</u>		
Terminal value	11,739,806	0.49115	<u>5,766,051</u>

Market value of invested capital

10,104,064

Next Time: More on the Income Method

- CAPM - Capital Asset Pricing Model
- Conditional & unconditional equity risk premiums (ERP)
- More on the DCF Method
- Does capital structure matter?
 - Unlevering beta
 - WACC - Weighted Average Cost of Capital
 - Complex capital structures

The Market Approach



If the same house in the neighborhood sells for \$500,000, about how much is yours worth?

Market Approach Methods

- Guideline Company Method
- Transaction Method
- Industry Method (Rules of Thumb)
- Prior Transaction of Subject Company Stock

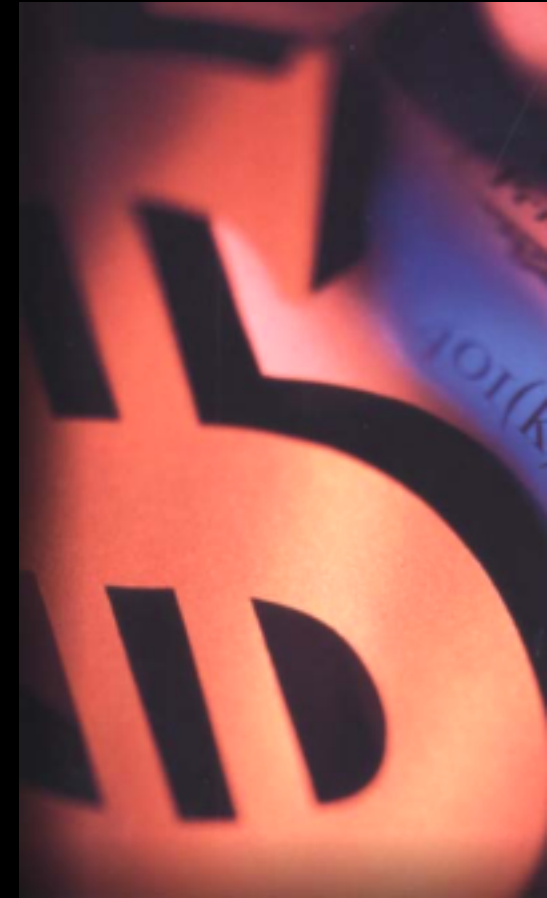
Guideline Company Method

Support for guideline method comes from IRS (Revenue Ruling 59-60)

"...market price of stocks of corporations engaged in the same or similar line of business having their stocks actively traded in a free and open market either on an exchange or over the counter."

Possible Valuation Multiples

- Price to revenue
- Price to earnings
- Price to cash flow
- Price to book value



Selection of Guideline Companies and Comparison to Subject Company

Analyze the qualitative and
quantitative differences:

- Size
- Growth rates
- Products & Services
- Capital structure
- Geographic territory
- Depth of management
- Profitability ratios

Pitchbook/BVR Guideline Public Company Tools

- All inclusive tool that allows you to build a list of similar public companies comparable to your subject company.
- Criteria can be based on SIC codes, industry, location, financial data, multiples, ratios, and more.
- Allows you to export to excel to create schedules to be used with valuation reports.

Search criteria: Location: United States; Revenue: Max: 1,000B; SIC Code: Manufacturing > Chemicals & Associated Products > Pharmaceutical preparations;													
Financial amounts in thousands, USD. Stock price in USD													
Data as of: 31-Dec-2016													
Company Name	Country	Market Cap	Stock Price	Date - Price Close	Enterprise Value (FQ)	Revenue (TTM)	Net Income (TTM)	EBITDA (TTM)	Earnings per Share, Basic (TTM)	EV/Revenue (TTM)	EV/EBITDA (TTM)	Total Assets (FYE)	Total Debt (FYE)
Elite Pharmaceuticals	United States	110,690	0.15	30-Dec-16	133,433	13,346	1,598	1,756	0.02	9.4x	71.5x	31,879	3,126
Reliv International	United States	8,566	4.64	30-Dec-16	8,769	47,170	(1,103)	54	(0.66)	0.2x	161.3x	24,261	3,941
Sucampo Pharmaceuticals	United States	579,205	13.55	30-Dec-16	624,638	212,400	13,354	89,221	0.31	2.9x	7.0x	457,181	252,360
Teligent	United States	350,500	6.61	30-Dec-16	467,579	62,017	(12,929)	2,901	(0.24)	7.5x	161.2x	184,762	107,061
Cambrex	United States	1,723,176	53.95	30-Dec-16	1,372,354	468,965	62,108	126,318	1.95	2.9x	10.9x	505,539	30,000

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Public Fundamental Data provided by Morningstar, Inc.



Transaction Method

- Valuation based on sales, mergers, acquisitions of similar companies
- Private or public company transactions can be considered
- Apply multiples developed from transactions to the subject company

Valuation Multiples for the Transaction Method

\$ Price to gross sales

\$ Price to earnings

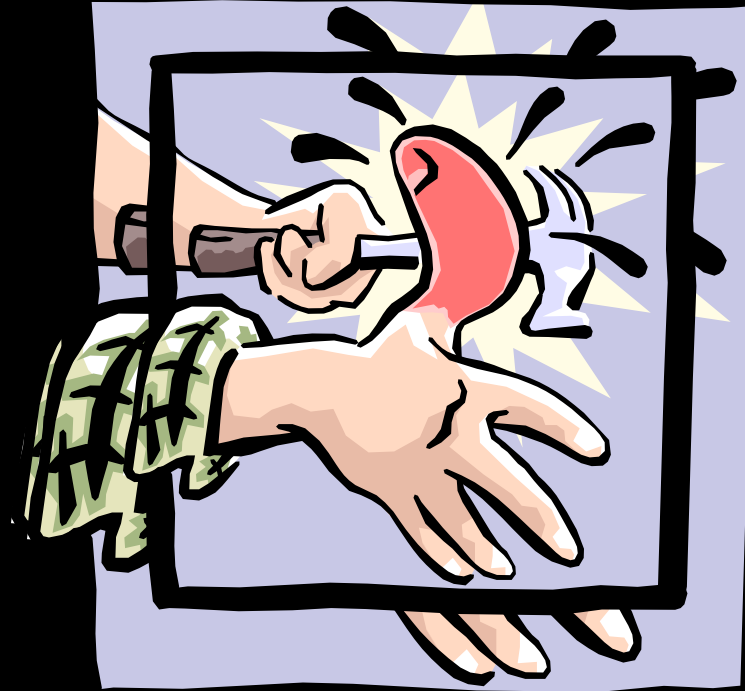
\$ Price to gross profit



Industry Methods

“Rules of Thumb”





Be wary of taking a whack at valuation using a **“rule of thumb”** method.

Rules of Thumb Valuation

Based on Sales \$ ~ Liquor Store

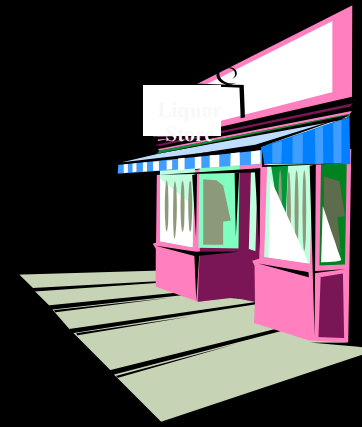
Sales-last 12 months	\$2,000,000
Multiple of sales	30%
	<hr/>
Sales price	600,000
Inventory	100,000
	<hr/>
Business asset value	<u><u>\$700,000</u></u>

Net Income Matters

Are two businesses in the same industry with the same sales worth the same amount?



Lost \$100,000 this year



Earned \$100,000 this year

Would you pay the same for each?

Often Rules of Thumb are Good Sanity Checks of Other Valuation Methods...

$$\begin{array}{r} 2 \\ +2 \\ \hline 5 ??? \end{array}$$

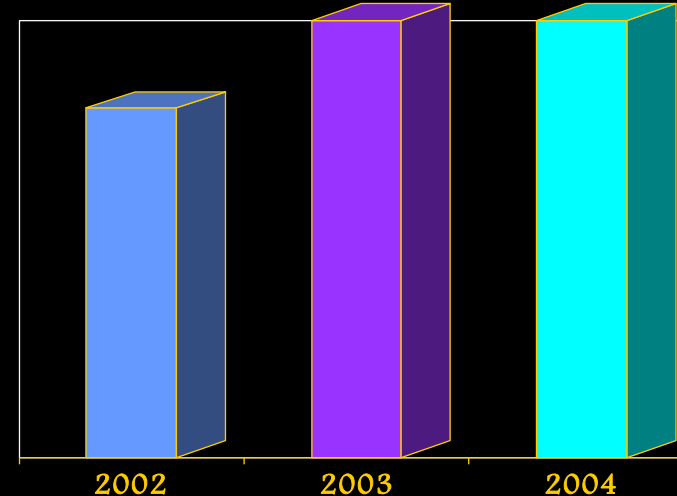
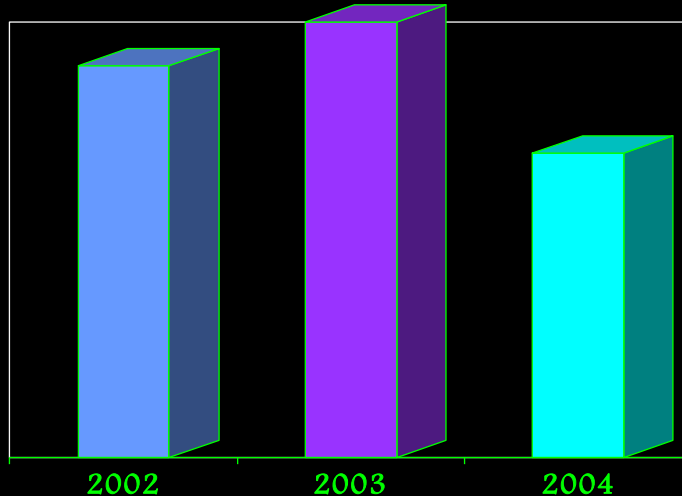
but, not as the only methods of computing value.

Prior Transactions of the Subject Company Stock

- The best proof of value is usually a recent sale
- Analyze foundation for price at which prior transaction occurred

In Search of... **Normalized Income**

- Normalized income:
The Holy Grail of Business Appraisers
- Normalized income is economic income
- Discovery and analysis allows us to make the adjustments



Appraisers Convert Various Measures of Income into Economic or Normalized Income

- GAAP - Generally accepted accounting principals
- IFRS – International Financial Reporting Standards
- National Income Tax Regulations

Possible Adjustments

- Unreported Income
- Accelerated Depreciation
- Inventory
- Rent
- Nonrecurring or personal expenses

Determining a Reasonable Level of Compensation

- Officers' Compensation
 - Impacts valuation of the enterprise under examination
 - Impacts level of available spousal and child support
- Factors accountants use when assessing level of reasonable compensation for the officers of a closely-held business



Reasonable Compensation - Criteria

- No set criteria for reasonable compensation
- Factors that impact level of compensation include industry, revenue base, product mix, profitability and geographic locale
- On the individual level, the officer's job description, formal and on-the-job experience and entrepreneurial initiative generally impact the level of compensation

Reasonable Compensation Business Valuation

- Business valuation of a controlling ownership
 - Excess compensation adjusted out of the expense category and into income
- Business valuation of a minority ownership
 - Excess compensation of the owner generally not added back to the income statement

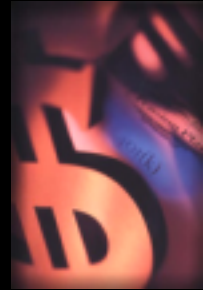
The amount of available external information for certain companies operating in different industries can vary significantly

Forms of Compensation

Compensation of management in a closely-held business



Salary or wages



Pension and/or
profit sharing plans



Stock options



Dividends



Perquisites
(automobile, life insurance,
dues and expenses, travel
and entertainment, personal
expenses, etc.)

Determination of Reasonable Compensation



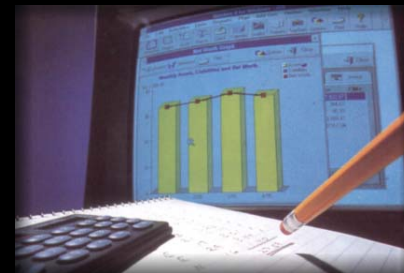
Number of officers



Responsibility of each officer



Sales volume



Level of profitability

**Achieving Fair Market Value
Through the Application of
Valuation Adjustments**

or

**The sum of the parts
doesn't always equal the whole.**

Control or Minority Position



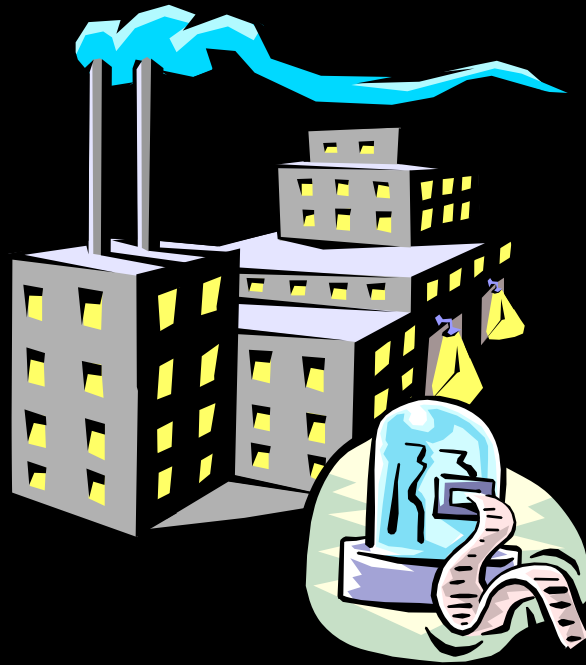
51%



49%

What's 2% worth?

Marketable or Non-Marketable



Publicly-held



Closely-held

Types of Valuation Adjustments

- Discount for lack of marketability
- Minority Discount
- Key Man Discount



Marketability Defined

“The ability to convert the asset to cash very quickly, at minimal cost, and with a high degree of certainty of realizing the anticipated amount of proceeds.”

“Valuing a Business” 3rd edition, Pratt et al.

Closely-Held

Publicly Traded



"How long?"



Empirical Studies & QA Help Quantify the Size of the Discount

- Restricted stock studies
- Pre-IPO stock transactions
- Volatility - Options Theory
- Quantitative Marketability Discount Method - QMDM



Factors to Consider in Determining the Need for a Discount

- Financial statement analysis
- Company's dividend policy



- Nature of company, its history and position in the industry, and its economic outlook
- Company's management

- Amount of control in transferred shares
- Restrictions on transferability of stock
- Holding period of the stock
- Company's redemption policy
- Costs associated with making a public offering

Marketability Discounts

Control
vs.
Minority Ownership Interests

Minority - 25 to 45%

Control - 5 to 15%

Minority Interest Discount

Recognizes that minority interests lack control power.

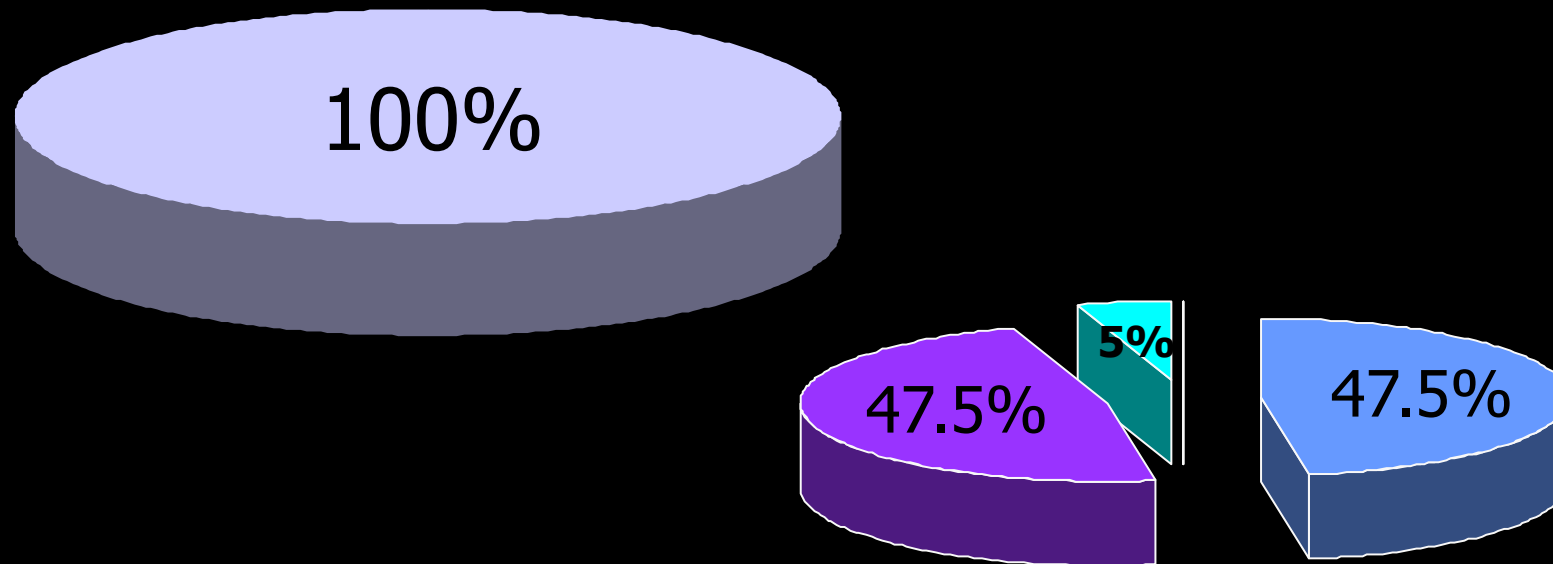
Some Control Prerogatives Minority Stockholders Lack:

- Declare/pay dividends
- Sell, acquire, merge, or liquidate the company
- Appoint and terminate management and establish compensation levels
- Determine strategic corporate goals
- Appoint corporate directors
- Award and terminate business contracts

Query?

Is an ownership interest
without
these control rights just as valuable,
proportionately as an interest
with
the control rights?

Minority Ownership Interests are Generally Worth Less Than Proportionate Value



Swing Vote Issues

Size does matter!

How much control and value does this 5% stockholder have?

Majority Stockholder	95%
Minority Stockholder	5%
	<hr/>
	100%

Compared to this 5% stockholder?

Stockholder 1	47.5%
Stockholder 2	47.5%
Stockholder 3	5.0%
	<hr/>
	100.0%

Which 5% stockholder has more value?

International Valuation Issues

International Valuation Standards

- International Valuation Standards Council (IVSC)



- Current Publication:
 - International Valuation Standards 2017

Valuation in the USA

- The American capital markets have reliable trading information dating back to at least 1926 at the Center for Research in Security Prices (CRSP) and 1963 with Standard and Poor's Compustat database.
- Relatively transparent market
- Mature markets
- Stable government
- World's reserve currency
- Observable data
- Single business language



Focus – International



- Issues Europe, Asia and Latin America face in business valuation
 - Fragmented market – causes:
 - Language barriers
 - Different government goals & policies
 - Debt burden/sovereign interest rates
 - Cross-border regulation
 - Fragmented markets – symptoms
 - Little cross-border historical data
 - Lack of empirical data...there are no databases except in the UK:
 - Pratt's Stats
 - Duff & Phelps
 - PitchBook GPC Comps
 - Premium & Discount Studies





**In Business...
"Cash is King"**



**In Valuation...
Free Cash Flow is Emperor**

Using cash flow vs earnings
avoids accounting differences



- IFRS vs. GAAP
- Local GAAP Issues
- IFRS for SMEs



Riskfree Rate

- On a risk free asset, the actual return is equal to the expected return. Therefore, there is no variance around the expected return.
For an investment to be risk free, it has to have
 - No default risk
 - No reinvestment risk
- So, after 2008 maybe “Least Risk” should be considered instead of “Risk Free”??

Riskfree Rate

- Time horizon matters:
 - The riskfree rates in valuation will depend upon when the cash flow is expected to occur and will vary across time.
- Not all government securities are riskfree:
 - Some governments face default risk and the rates on bonds issued by them will not be riskfree.
- Currency of cash flows dominates:
 - Best to use the risk-free rate which corresponds to the currency in which the cash flows are denominated

Risk Free Rate in the United States

U.S. Treasuries
20 Year Maturities



Investor's Time Horizon
for Closely Held Businesses

International Risk Free Rate

- Relevant substitute for US Treasuries???
 - Sovereign credit default swaps?
...not likely



Greece



Venezuela

- Interest rate swaps...a good proxy?
Maybe...

US \$

Euro €

Yen ¥

Sterling £

Swiss Franc CHF

Source – Financial Times (Market Data)

Interest Rates Swaps

FT
FINANCIAL
TIMES

Oct 1	Euro €		Stg. £		SwFr		US \$		Yen	
	Bid	Ask	Bid	Ask	Bid	Ask	Bid	Ask	Bid	Ask
1 year	1.28	1.33	0.81	0.84	0.29	0.35	0.39	0.42	0.37	0.43
2 year	1.44	1.49	1.26	1.30	0.49	0.57	0.59	0.62	0.36	0.42
3 year	1.61	1.66	1.53	1.57	0.72	0.80	0.86	0.89	0.37	0.43
4 year	1.78	1.83	1.80	1.85	0.94	1.02	1.17	1.20	0.39	0.45
5 year	1.96	2.01	2.06	2.11	1.15	1.23	1.49	1.52	0.46	0.52
6 year	2.12	2.17	2.30	2.35	1.32	1.40	1.79	1.82	0.54	0.60
7 year	2.26	2.31	2.52	2.57	1.47	1.55	2.04	2.07	0.64	0.70
8 year	2.38	2.43	2.71	2.76	1.60	1.68	2.24	2.27	0.75	0.81
9 year	2.49	2.54	2.87	2.92	1.70	1.78	2.41	2.44	0.88	0.94
10 year	2.58	2.63	3.01	3.06	1.78	1.86	2.55	2.58	1.00	1.06
12 year	2.74	2.79	3.21	3.28	1.90	2.00	2.78	2.81	1.20	1.28
15 year	2.88	2.93	3.39	3.48	2.00	2.10	3.01	3.04	1.43	1.51
20 year	2.97	3.02	3.50	3.63	2.00	2.10	3.20	3.23	1.67	1.75
25 year	2.93	2.98	3.55	3.68	1.97	2.07	3.29	3.32	1.77	1.85
30 year	2.83	2.88	3.57	3.70	1.93	2.03	3.34	3.37	1.81	1.89

Interest Rates Swaps

- How they were calculated:
 - US \$ quoted annual money actual / 360 basis against 3 month Libor
 - £ and ¥ quoted on a semi-annual / 365 basis against Libor
 - Euro/Swiss Franc quoted on annual bond 30/360 basis against 6 month Euribor/Libor with exception on the 1 year rate which is quoted against 3 month Euribor/Libor
- How are you feeling about Libor these days?
- Do we have concerns about the Euro € or British £?

Interest Rates Swap Calculation

- Series of cash flows occurring at known future dates
- Valued by summing the present value of the cash flows
- Necessary to first estimate the correct discount factor (df), which is typically LIBOR, for each period (t) on which a cash flow occurs
- Swap Rate Formula:
 - $$\frac{\sum \text{PV of floating rate payments}}{\sum \text{PV of notional principal}}$$
 - Rates can easily be found in the Financial Times or Bloomberg.

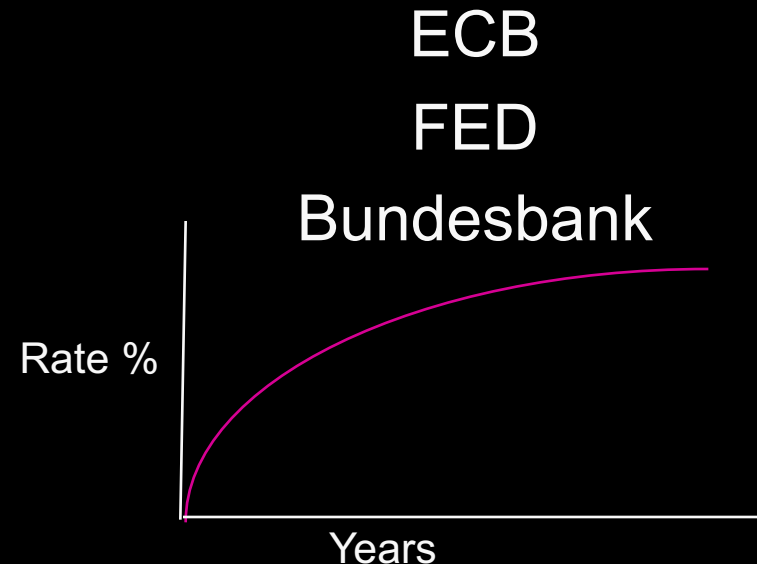


A new model gaining consensus in Europe...

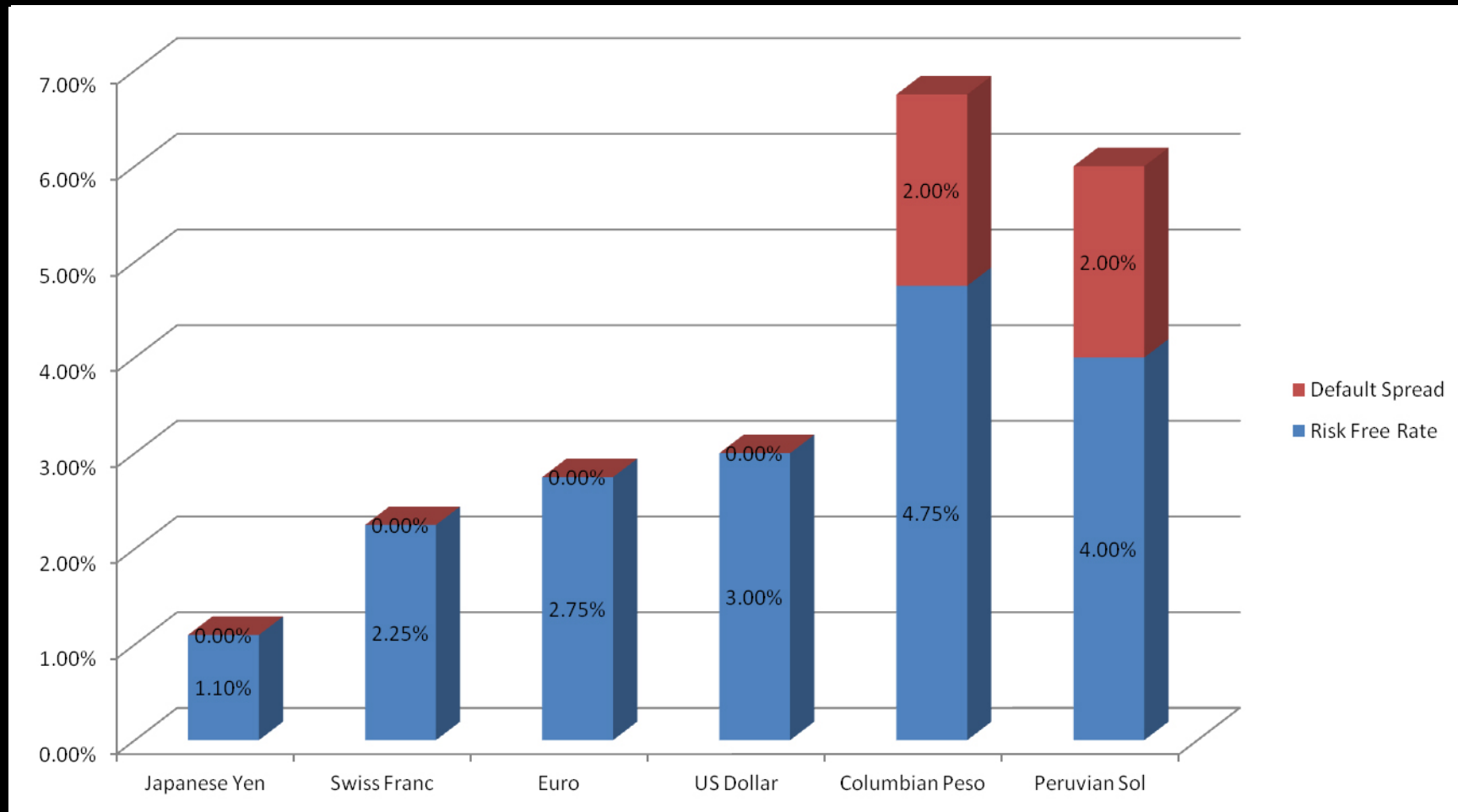
“Svensson Procedure”

Recommended by the German Institute of CPAs (IDW)

Development of a risk free yield curve
from published bond yields:



Comparing Riskfree Rates



Market Data Sources Available in the USA

- Duff & Phelps' Valuation Handbook – U.S. Guide to Cost of Capital (issued annually)
- Damodaran Online (Aswath Damodaran – NYU Stern School of Business)
- Business Valuation Resources – BVMarketData
- Jim Hitchner's Valuation Products and Service
- PitchBook / BVR Guideline Public Company Comps Tool

Cost of Capital Outside of the USA

- American macroeconomic factors cannot be applied to companies that are located outside of the USA.
 - Adjustments for country and currency risk have to be made.
 - US Cost of Equity + Risk Premium for Foreign Country



≠



- More difficult to find data sources, but there are sources available...

Data Sources

- Country Risk Ratings

- Economist Intelligence Unit

- Provides risk assessment for 120 countries.
 - Produces 2 year forecast for the economic variables that are most important for sovereign risk assessment.

The Economist logo, featuring the words "The Economist" in white serif font on a red rectangular background.

- Euromoney Country Risk Rating

- Biannual survey of 186 countries.
 - Ratings based on factors such as, political risk, access to bank finance, credit ratings, etc.

The EUROMONEY logo, featuring the word "EUROMONEY" in white, bold, sans-serif font on a blue rectangular background.

Data Sources

- Country Risk Ratings (cont.)

- Institutional Investor Country Credit Rating

- Annual survey of 178 countries.
 - Based on information provided by senior economists and sovereign risk analysts at leading financial institutions.



- International Country Risk Guide

- Published by the PRS Group
 - Provides ratings for 140 countries on a monthly basis.



Data Sources

- Government Ratings (ratings of bonds issued by local government)
 - Moody's
 - Standard & Poors
- Duff & Phelps' Handbook Guide to International Cost of Capital
 - Estimates COE for 188 countries
 - Uses 2 models:
 1. Country Credit Rating Model
 2. Country Yield Spread Model

Data Sources

- BVB Insights – Data & Analysis on UK Private Multiples
 - Details on transaction multiples on sold businesses in the UK
- Morgan Stanley Capital International (MSCI)
 - Barra products
 - Industry-standard models to predict risk
- Damodaran Online
 - White papers on risk free rate, ERP has international component
 - <http://pages.stern.nyu.edu/~adamodar/>

Country Risk Factors

- Political risk
 - Unstable government
 - Free market or Central party rule?
 - Property Rights
- Currency / Exchange rate volatility
 - Purchasing power parity (law of one price)
 - Big Mac Index...



Big Mac Index



- Big Mac Index
 - Informal way of explaining and measuring PPP between 2 countries
 - It is assumed that cost of production will be similar in each country
 - Example (Big Mac in Norway and China):
 - Note: Price of Big Mac in USA = \$3.73

Price of Big Mac in local currency	Implied PPP of the US\$	Exchange Rate Per US\$	Over or Under Valued against US\$
Kroner 45.0	12.06	6.25	Over valued
Yuan 13.2	3.54	6.78	Under valued

Country Risk Factors

- Industrial development
 - Highly dependent on one or two industries
 - E.g. extractive industry
- Poor financial institutions
 - Difficult to access credit
 - Corruption
 - Sovereign Interest Rate
- Monetary / Fiscal Policy
 - High / Hyper inflation
 - E.g. Venezuela inflation rate, 800% (2016) GDP shrunk 19%
 - Reliability of Accounting Information



Country Risk Factors

- Infrastructure
 - Transportation / Distribution
 - Urban development
 - Utilities
 - Maintenance
- Ability to withstand natural and man made disasters
 - Earthquakes / Volcanoes
 - Weather related (drought, flooding, etc.)
 - War or threat of war



Additional Country Risk?

- Even if we accept the proposition that an equity risk premium of about 6% is reasonable for a mature market, you would expect a larger risk premium when investing in an emerging market.
- Consider Peru. There is clearly more risk investing in Peruvian equities than there is in investing in a mature market. To estimate the additional risk premium that should be charged, we follow a 3-step process:

- Obtain a measure of country risk for Peru. For instance, the sovereign rating for Peru is Baa3 and the default spread associated with that rating in early 2010 was 2%.
- Estimate how much riskier equities are, relative to bonds. The standard deviation in weekly returns over the preceding 2 years for Peruvian equities was 26% and the standard deviation in the bond was 17%.
- Additional risk premium for Peru = $2\% (26/17) = 3\%$
= **Total equity risk premium for Peru = $6\%+3\%=9\%$**

How to Calculate International Cost of Capital?

- Many models are available such as:
 - International / World CAPM
 - Country risk rating model
 - Country spread model
 - The Erb-Harvey-Viskanta Model
 - Damodaran model
 - Others

Quantifying Additional Country Risk

- Damodaran:

1. Global Betas (denominator)

2. Cash Flows (numerator)

3. Additional risks in the Equity Risk Premium (denominator)

- Country Risk Premium

ERP = Base ERP for mature country and Country Risk Premium

- Damodaran (cont.)

Does the market assist us?

- Bond Default Spreads
(US\$ denominated only)
- Credit Default Swap Spreads
(net of US spread)

Prof Damodaran's Methodology in His Spreadsheets

Estimating Country Risk Premiums

Enter the current risk premium for a mature equity market

6.00%

Do you want to adjust the country default spread for the additional volatility of the equity market to get to a country premium?

Yes

If yes, enter the multiplier to use on the default spread (See worksheet for volatility numbers for selected emerging markets)

1.73

Must adjust

<i>Country</i>	<i>Region</i>	<i>Local Currency Rating</i>	<i>Rating-based Default Spread</i>	<i>Total Equity Risk Premium</i>	<i>Country Risk Premium</i>	<i>CDS Default Spread</i>	<i>Total Equity Risk Premium</i>	<i>Country Risk Premium</i>
Brazil	Central and South America	Baa2	1.75%	9.03%	3.03%	2.07%	8.37%	2.37%
Russia	Eastern Europe & Russia	Baa1	1.50%	8.60%	2.60%	2.91%	9.82%	3.82%
Venezuela	Central and South America	B1	4.00%	12.92%	6.92%	9.46%	21.15%	15.15%
Vietnam	Asia	B1	4.00%	12.92%	6.92%	3.89%	11.52%	5.52%

Damodaran

- Should all companies in a country with substantial country risk be equally exposed to country risk?...

No!

- Country risk exposure should be scaled to a parameter such as, λ (lamda)
 - λ : proportion of company's risk to country risk

Damodaran

Typical Cost of Equity =

Rf Rate + β^* (Mature Market Premium) + Country Risk Premium

(β : proportion of company's risk to all other market risk)

Need to adjust for proportion of company risk to country risk:

Modified Cost of Equity =

RF Rate + β^* (Mature Market Premium) + λ^* (Country Risk Premium)

Reasons for Having λ

- Revenue sources
 - A company with 25% of revenues generated in Turkey is less exposed to country risk than a company with 50% of revenues generated in Turkey.
- Production facilities
 - A company with 80% of production in Egypt is more exposed to country risk than a company with only 20% of production in Egypt.

How to Calculate λ

- Regression Analysis
- Regress company stock prices against foreign country's government issued bond prices
- Result: $y = mx + b$, where $m = \lambda$
- Problems:
 - Large standard errors
 - Bonds should be liquid and widely circulated
 - Bonds should preferably be in a stable currency, for example US \$, UK £ or Euro €

Survey Methods for Establishing ERP's...

- One quarterly survey comes from three finance professors from IESE Business School in Madrid, Spain.

Prof. Pablo Fernandez

Prof. Vitaly Pershin

Prof. Isabel Fernandez Acin

“Market Risk Premium used in 41 countries in 2017”

A survey with 4368 answers issued April 17,2017

(There were responses from 68 countries
but 27 had less than 25 answers and were excluded)

Survey Selected Answers...

- Via email from:



- Professors
- Analysts
- Company CFOs / Treasury
- Financial Companies

Sources Cited by Survey Respondents

- Damodaran
- Morningstar/Ibbotson
- Internal Estimate
- Historical Data
- Bloomberg
- Analysts / Investment Bankers
- Experience, subjective / own judgment
- Fernandez Survey
- DMS
- Duff & Phelps



Survey Results (Sample of Countries, not complete)

April 17, 2017

Country	Km	Rf	MRP
US	8.2	2.5	5.7
Spain	8.8	2.2	6.6
Germany	7.2	1.4	5.8
UK	8.1	2.2	5.9
Italy	9.0	2.6	6.4
China	10.8	3.3	7.5
Argentina	26.7	10.4	16.3
Greece	20.9	4.8	16.1
Russia	16.5	8.7	7.8
India	15	6.5	8.5
South Africa	15	7.5	7.5

Remember
ECB
Quantitative
Easing is in
effect

Fernandez cautions readers to recognize differences in usage of the Market Risk Premium (MRP) or Equity Premium (EP)

HEP	Historical Equity Premium
EEP	Expected Equity Premium
REP	Required Equity Premium
IEP	Implied Equity Premium



And remember...

“...often wrong, but never in doubt!”

Thank You.

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