VALUATION OF INTANGIBLE ASSETS
INTELLECTUAL PROPERTY, BRAND VALUE, PATENTS & GOODWILL

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May 2019

Agenda

1. Intangible Assets – Overview
2. Intangible Assets – Valuation Methods/Concepts
3. Calculating Goodwill – LBO Case
4. Valuing Brand Names
5. Valuing Patents
6. Valuing Intellectual Property – Option Pricing and DCF Analysis Overview
7. Case I (IP) – BioTech (Option Pricing Method)
8. Case II (IP) – EduTech (DCF Method)
9. Class Project

TRADITIONAL DEFINITION OF INTANGIBLES

Intangible assets defined as "non-physical assets such as franchises, trademarks, intellectual property, patents, copyrights, goodwill, equities, mineral rights, securities and contracts that grand rights and privileges and have value for the owner"

TREND:
OLD ECONOMY TO THE NEW ECONOMY

○ Recent Emphasis on Intellectual Property (IP) given the highest growth comes from new technological platforms such as FinTech, CleanTech, HealthTech, EduTech.

○ The largest companies by market cap are technology companies such as Apple, Amazon, Google & Microsoft that attributed to intangibles as evidenced from Market/Book ratios.

GENERAL ACCOUNTING CONCEPTS REVISITED

- Tangible vs. Intangibles Assets
- Finite vs. Infinite Intangibles
- Identifiable vs. Non-Identifiable
- Amortized vs. Impairment Assets
- Book Value vs. Market Value

INTANGIBLE ASSET VALUATION METHODS

- **Income Approach** based on cash flows from intangible assets
  - ❖ Segregating the cash flow from operation vs. cash from the intangibles
  - ❖ What Discount Rate to use? = Using Cost of Equity (Ke) vs. Cost of Debt (Kd), WACC, IRR, WARA
- **Cost or Replacement Approach**
- **Market Approach**
- **Option Pricing-Based Approach**

INTANGIBLE ASSET VALUATION METHODS

METHOD	DESCRIPTION	PROS	CONS	WHEN USED
Market	Based on comparable market transactions of intangibles	Market driven – based on what someone is willing to pay (reflecting market prices based on demand and supply equilibrium)	Comparable transactions are sometimes not available	Most desirable but rarely used since a lot of the intangible products (IP) are new and unique
Income	Based on future cash flows (Royalties, Licensing or other Incremental profits)	Top-down approach, based on expected economic returns on initial cost	Input information can be very challenging since the info deals with future projections	Most commonly used – building future benefits helps pricing the royalties, licensing fees based on return expectation
Cost/Replacement	Based on estimated cost of replacing or reproducing the intangible	Easier to calculate – calculate labor, materials and overhead (LMO)	The cost representing the book value does not always represent the market value	Not very common. Used as the basis before spending the money for the specific intangible.
Option Pricing	Based on option pricing models such as Black-Scholes measuring the current "out-of-money" to future "in-the-money" values	Using probability of success and sensitize to get a range.	Input variables to determine future value can be very challenging	Used when there is an obvious cash outflow before the cash inflow kicks in to value the specific intangible asset

SPECIFIC INTAGINGIBLE ASSET VALUATION METHODS & EXAMPLES
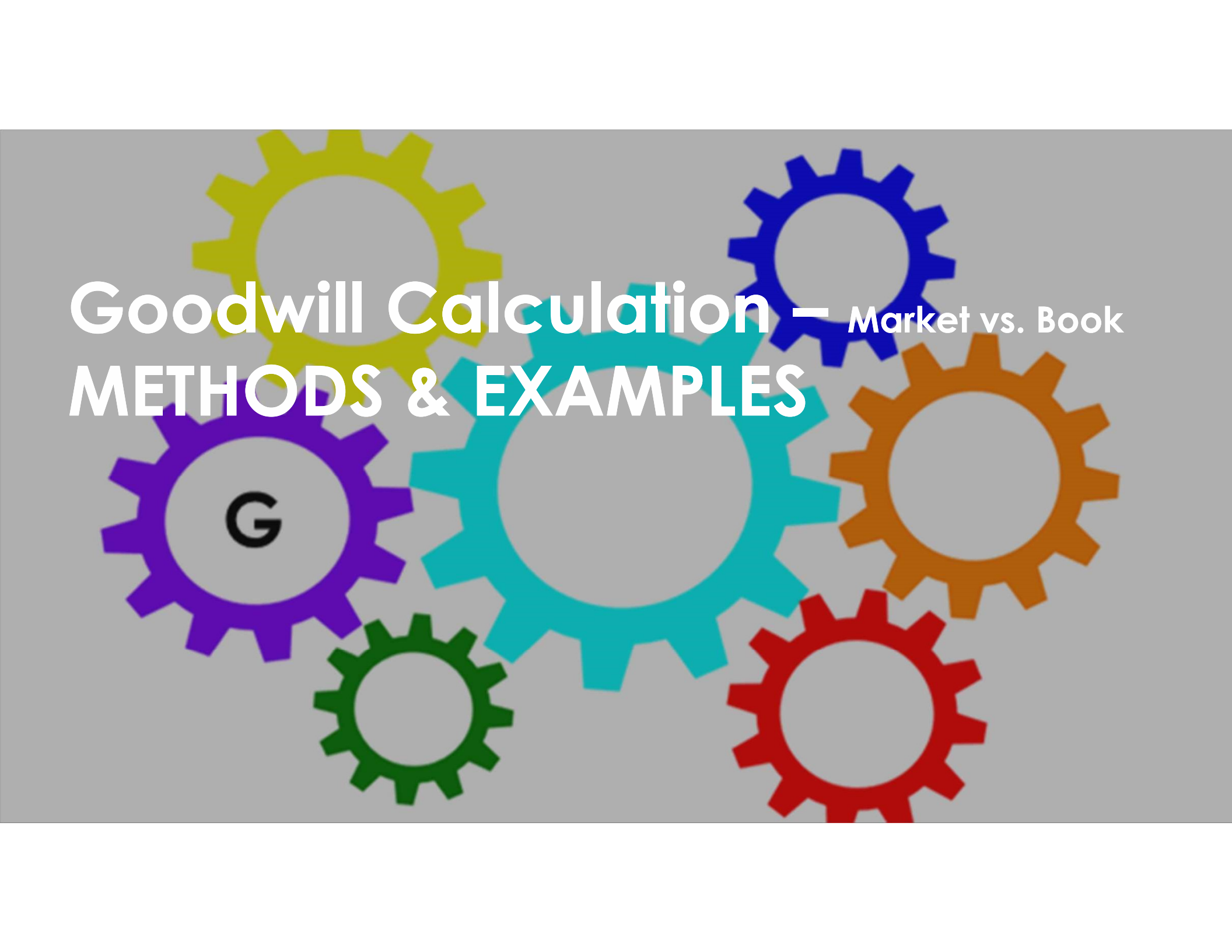
Goodwill (use LBO and Merger examples)

Brand Value using Cost & Market Methods, (Established Branded Company)

Purchased Patent and Impairment Analysis using Cost Approach and setting up for Option Pricing Approach

Intellectual Property using Market, Income, Cost Approach and Option Pricing Approach

Goodwill Calculation – Market vs. Book
METHODS & EXAMPLES

Goodwill Calculation – Market vs. Book
METHODS & EXAMPLES

- Gross Goodwill = Purchase Equity Value – Book Equity Value
  - Purchase or Market Equity Value = Corporate Enterprise Value – Debt + Cash
  - Book Equity Value taken from the last reported balance sheet statement
- Corporate Enterprise Value methods – Back to Basics:
  - **Method 1**: Using the current stock price as a basis of valuation
  - **Method 2:** Comparable method using Trading EBITDA Multiples
  - **Method 3:** Comparable method using Acquisition EBITDA Multiples
  - **Method 4:** Discount Cash Flow Method (DCF)
  - **Method 5:** Leveraged Buyout Private Equity Expectation Model (LBO)

Method 1:
Using the Stock Price as the Basis of Valuation

- The stock price represents the value of the company.

- The company issues financial statements every three months and other non-financial information as they come up, so how does the stock price behave like this?
- It is said that the stock price moves based on technical, fundamental and behavioral reasons and there are plenty of analytical approaches that back each of these three reasons.

$$EV = MVE + D - C \text{ and } MVE = (SP + SO)$$

where EV is Enterprise Value, MVE is the Market Value of the Equity, D is the total Debt Outstanding and C is the Cash and cash equivalents of the company. where MVE is the Market Value of the Equity, SP is the Stock Price and SO is the Shares Outstanding.

Method 1:
Using the Stock Price as the Basis of Valuation

ENTERPISE VALUE: $2.72 Billion

AK Steel Holding Corp. (AKS)
CORPORATE VALUATIONS

METHOD #1 - Market Value / Using the Stock Price

Calculations →		SP	SO	SP * SO = EQ	D	C	EQ + D - C = EV
Company	Symbol	Stock Price	Stocks Outstanding ($000)	Equity Value ($000)	Debt (ST&LT) ($000)	Cash ($000)	Enterprise Value ($000)
		4/18/2019	4/18/2019	4/18/2019	12/31/2018	12/31/2018	4/18/2019
AK Steel	AKS	$2.45	316,310	773,378	1,993,700	48,600	2,718,478

Method 2
Using Comparable Trading EBITDA Multiples

- The most commonly used method by mergers & acquisitions professional
- Looks at the ratio of the Enterprise Value to Earnings Before Interest, Taxes, Depreciation and Amortization (EV /EBITDA) for each of the pier companies and applies the average to measure the company's value.
- The average multiple provides a benchmark which the analyst can establish as the basis for valuating publicly traded companies
- The basic idea is that as the company increases its earnings based on either favorable economic conditions or management decisions from year to year, then the value should also follow at a relatively consistent way.
- In general, industries with higher growth characteristics enjoy higher multiples of earnings. Similar companies that compete with the company that is being valued given the similar business and financial characteristics.

Method 2
Using Comparable Trading EBITDA Multiples

ENTERPISE VALUE: $3.04 Billion

AK Steel Holding Corp. (AKS)
CORPORATE VALUATIONS

METHOD #4 -Average EBITDA Industry Trading Multiples

		SP	SO	SP * SO = EQ	D	C	Q + D - C = E	E	EV / E	
Company	Symbol	Stock Price	Stocks Outstanding ($000)	Equity Value ($000)	Debt (ST&LT) ($000)	Cash ($000)	Enterprise Value ($000)	EBITDA ($mm)	EBITDA Multiple	Beta
United Steel	X	$ 16.41	173,340	2,844,509	2,380,000	1,000,000	4,224,509	1,470,000	2.87x	2.61x
Steel Dynamics	STLD	$ 33.96	224,100	7,610,436	2,380,000	1,060,000	8,930,436	2,040,000	4.38x	1.61x
Reliance Steel Industries	RS	$ 90.00	67,230	6,050,700	2,200,000	128,200	8,122,500	1,190,000	6.83x	1.27x
Schtzer Steel Industries	SCHN	$ 24.44	25,770	629,819	163,080	13,170	779,729	181,360	4.30x	0.92x
Olympic Steel	ZEUS	$ 15.83	11,010	174,288	302,530	9,320	467,498	74,660	6.26x	2.01x
AK Steel Holding Corp. (AKS)	AKS	$ 2.45	316,310	773,378	1,993,700	48,600	2,718,478	616,600	4.41x	2.91x
EBITDA * Average Multiple		616,600	4.93x					Average	4.93x	
Enteprise Value		3,038,377								

Method 3
Using Comparable Acquisition EBITDA Multiples

○ This method establishes a similar benchmark to what the companies in the same industry are being bought based on multiples of their EBITDA.

○ Corporate values using this method are determined based on other companies in the same business that are recently sold to either strategic investors or private equity firms.

○ The mergers & acquisition professional search for other companies in the same business that were sold to either strategic investors or private equity firms and establishes a bench mark based on average multiples over time.

○ That average acquisition multiple of the purchase price to EBITDA is then used as a measurement to value the company in question.

Method 3
Using Comparable Acquisition EBITDA Multiples

ENTERPISE VALUE: $3.86 Billion

AK Steel Holding Corp. (AKS)
CORPORATE VALUATIONS

METHOD #5 - Using Averge EBITDA Transaction Multiples (M&A Comparable Method)

Calculations		AP	SO	AP * SO = EQ	ND	EQ + ND = EV	E	EV / E
Target	Acquirer	Acquisition Price /Share	Shares Outstanding	Equity Value ($000)	Total Net Debt ($ 000)	Enterprise Value (EV)	EBITDA ($ 000)	EBITDA Multiple
ZS Steel	Archimedes PE	$ 47.50	24,000,000	$ 1,140,000	$ 1,500,000	$ 2,640,000	$ 350,000	7.54x
Celerity Steel Manufacturing	AZM Steel & Aliminum	$ 34.00	123,000,000	$ 4,182,000	$ 2,500,000	$ 6,682,000	$ 1,100,000	6.07x
Yes Steel & Aluminum Co.	Kingtom Steel	$ 45.00	13,500,000	$ 607,500	$ 450,000	$ 1,057,500	$ 190,000	5.57x
HI Steel Manufacturing Inc.	Excel Steel	$ 22.00	234,000,000	$ 5,148,000	$ 1,400,000	$ 6,548,000	$ 1,230,000	5.32x
Precision Steel	MW Inc.	$ 12.00	85,000,000	$ 1,020,000	$ 1,200,000	$ 2,220,000	$ 320,000	6.94x
Ross West Steel	Greenstone Capital	$ 8.00	45,000,000	$ 360,000	$ 240,000	$ 600,000	$ 98,000	6.12x
							Average	6.26x
Enteprise Value	3,860,606				616,600	6.26x		

Method 4
Using Discount Cash Flow Method

O   This method is the most fundamental method that is used to value many types of companies, especially companies that are tough to find any trading and acquisition multiple comparables.

O   This method called the DCF method that is broadly used by many investors, advisors, banks and academics is premised on the principal that the value of a company can be derived by the present value of its projected free cash flow (FCF).

O   We will learn later that this FCF is derived from various assumptions, starting from Revenue and subtracting operating and capital costs.

To value the company using the DCF method the analyst needs to derive the following four items:

- O Setting up a stream of cash flows
- O Identifying an exit year
- O Calculating the value at exit year (Terminal Value)
- O Using the appropriate discount rate to value the present value of the firm

Method 4
Using Discount Cash Flow Method

○ ENTERPRISE VALUE: $3.28 Billion

AK Steel Holding Corp. (AKS)
CORPORATE VALUATIONS

METHOD #6 - Discount Cash Flow Valuation Analysis

Discout Cash Flow Valuation Analysis	Historical Assumptions	Projected Assumptions	Input Actual 12/31/2018	4/2/2019	4/1/2020	4/2/2021	4/2/2022	EXIT YEAR 4/2/2023	4/1/2024
year =				1	2	3	4	5	6
Revenues			6,818,200	7,022,746	7,233,428	7,450,431	7,673,944	7,904,162	8,141,287
Revenue Growth				3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Cost of Revenues (CoGS)	86.7%	86.0%	(5,911,000)	(6,039,562)	(6,220,748)	(6,407,371)	(6,599,592)	(6,797,580)	(7,001,507)
Operating Expenses (Excl. Non-rec.)	8.0%	8.0%	(542,800)	(561,820)	(578,674)	(596,034)	(613,916)	(632,333)	(651,303)
EBIT			364,400	421,365	434,006	447,026	460,437	474,250	488,477
Less Taxes (tax rate x of EBIT)		36.0%	-	(151,691)	(156,242)	(160,929)	(165,757)	(170,730)	(175,852)
Plus Depreciation	3.7%	4.0%	252,200	280,910	289,337	298,017	306,958	316,166	325,651
Less Working Capital	0.6%	0.5%	(41,540)	(35,114)	(36,167)	(37,252)	(38,370)	(39,521)	(40,706)
Less Capex	2.2%	3.0%	(152,000)	(210,682)	(217,003)	(223,513)	(230,218)	(237,125)	(244,239)
Cash Flow			423,060	304,787	313,931	323,349	333,049	343,041	353,332
EBITDA			616,600	702,275	723,343	745,043	767,394	790,416	814,129
Debt (assuming 5% reduction of intial principal per year)			1,993,700	1,894,015	1,794,330	1,694,645	1,594,960	1,495,275	1,395,590

Terminal Value	Assumptions	Growth		
EBITDA Multiple Method	4.93x		(EBITDA x EBITDA Multiple)	3,894,879
Perpetuity Method	12.41%	3.00%	Next Year's Cash Flow / (Discount Rate - Growth)	3,755,569
Average				3,825,224
Less Debt Outstanding (at Exit)				(1,495,275)
Plus Cash (at Exit)				-
Equity Value at Terminal				2,329,949

Equity Cash Flows	32%	PV (for $1)		304,787	313,931	323,349	333,049	2,672,990
1	PV (1) =	0.7584376	$231,162					
2	PV (2) =	0.5752276	$180,582					
3	PV (3) =	0.4362743	$141,069					
4	PV (4) =	0.3308868	$110,202					
5	PV (5) =	0.2509570	$670,805					
	PV =		$1,333,820					

Enterprise Value =	PV of Equity + PV of Debt
PV of Equity =	$1,333,820
+ PV of Debt =	1,993,700
+ PV of Cash =	(48,600)

Enterprise Value	**3,278,920**

Cost of Equity Calc	
Risk Free Rate (5 year)	2.75%
Premium based on MC =	10.00%
Company Beta =	2.91x
Expected Equity Return =	31.9%

Interest LTM ($ 000s)	
151,600	
	7.60% Rate

WACC Calc:		% Cap	AT RoR	WACC
Debt	1,993,700	72.1%	4.867%	3.506%
MV Equity	773,378	27.9%	31.850%	8.902%
		100.0%		12.408%

Method 5
Using Leveraged Buyout (LBO) or Non-Recourse Method

○ This method is very similar to method 4 (DCF method) which is based on future free cash flows except the projected debt, WACC and expected return.

○ While the DCF analysis is used for determining today's value of the company based on future cash flows, the value of the company using this LBO method is determined based on investor expectation which is return determines the acquisition price of the firm.

○ The equity investment amount is determined after assuming that most of the financing will be via debt. This method is unique because it uses the capital markets to engineer the financing of the buyout, so the equity return expectation is met via the use of leverage.

○ This step by step method starts first with the maximum debt and then how much private equity can be raised based on the target's cash flow.

Method #5

○ Setting up the Financial Structure

AK Steel Holding Corp. (AKS)
CORPORATE VALUATIONS

METHOD #7 - Leveraged Buyout (LBO) Analysis

Transactions Uses	Current Stock Price	Premium	Purchase Stock Price	Shares Outstanding (millions)	Total Amount ($ 000's)	% Total Uses	EBITDA Multiple
Purchase of 100% Shares	$ 2.45	0%	$ 2.45	316,310	773,378	27.00%	1.25x
Refinance Short-Term & Long Term Debt					1,993,700	69.61%	3.23x
Transaction Fees & Expenses	3.50%				96,848	3.38%	0.16x
Total Cost of Transaction (Uses)					2,863,926	100.00%	4.64x

Transactions Sources	EBITDA Multiple (Capacity)	Interest Rate / Expected Return	After Tax Interest Rate Adjustments	WACC Calc	Total Amount ($ 000's)	% Capital
Bank Loan	2.00x	5.0%	3.20%	1.378%	1,233,200	43.06%
Corporate Bonds	1.00x	8.0%	5.12%	1.102%	616,600	21.53%
Total Debt	3.00x				1,849,800	64.59%
Equity	1.64x	31.9%	31.9%	11.278%	1,014,126	35.41%
Total Sources	4.64x			13.758%	2,863,926	100.00%

Cost of Equity Calc
Risk Free Rate (5 year)	2.75%
Premium based on MC =	10.00%
Beta =	2.91x
Expected Equity Return =	31.9%

Debt Schedule	Years	Rate	12/31/2018	LTM 4/2/2019	4/1/2020	4/2/2021	4/2/2022	4/2/2023	4/1/2024	4/2/2025	4/2/2026
Bank Loan	7	5.0%									
Outstanding			1,233,200	1,233,200	1,208,536	1,159,208	1,062,525	877,052	611,421	348,305	-
Scheduled Principal Payments (P)				-	24,664	49,328	96,683	185,473	265,631	263,116	348,305
Interest Payments (I)				61,660	61,660	60,427	57,960	53,126	43,853	30,571	17,415
Total Payments (P+I)				61,660	86,324	109,755	154,643	238,600	309,484	293,687	365,720
Corporate Bonds	10	8.0%									
Outstanding			616,600	616,600	616,600	616,600	616,600	616,600	616,600	616,600	616,600
Scheduled Principal Payments (P)				-	-	-	-	-	-	-	-
Interest Payments (I)				49,328	49,328	49,328	49,328	49,328	49,328	49,328	49,328
Total Payments (P+I)				49,328	49,328	49,328	49,328	49,328	49,328	49,328	49,328
Total Debt Payments				110,988	135,652	159,083	203,971	287,928	358,812	343,015	415,048
Total Debt Outstanding				1,849,800	1,825,136	1,775,808	1,679,125	1,493,652	1,228,021	964,905	616,600

Method #5

○ Enterprise Value = $2.91Billion

METHOD #7 - Leveraged Buyout (LBO) Analysis

Discout Cash Flow Valuation Analysis	Historical Assumptions	Projected Assumptions	Input Actual 12/31/2018	LTM 4/2/2019	4/1/2020	4/2/2021	4/2/2022	EXIT YEAR 4/2/2023	4/1/2024
year =				1	2	3	4	5	6
Revenues			6,818,200	7,022,746	7,233,428	7,522,766	7,823,676	8,136,623	8,462,088
Revenue Growth				3.0%	3.0%	4.0%	4.0%	4.0%	4.0%
Cost of Revenues (CoGS)	86.7%	86.0%	(5,911,000)	(6,039,562)	(6,220,748)	(6,469,578)	(6,728,361)	(6,997,496)	(7,277,396)
Operating Expenses (Excl. Non-rec.)	8.0%	8.0%	(542,800)	(559,084)	(575,857)	(598,891)	(622,846)	(647,760)	(673,671)
EBIT			364,400	424,100	436,823	454,296	472,468	491,367	511,022
Less Interest				(110,988)	(110,988)	(109,755)	(107,288)	(102,454)	(93,181)
EBT			364,400	313,112	325,835	344,542	365,180	388,913	417,841
Less Taxes (tax rate x of EBIT)		36.0%	-	(112,720)	(117,301)	(124,035)	(131,465)	(140,009)	(150,423)
Net Income			364,400	200,392	208,535	220,507	233,715	248,904	267,418
Plus Depreciation	3.7%	4.0%	252,200	280,910	289,337	300,911	312,947	325,465	338,484
Plus Amortization		7 Years		13,835	13,835	13,835	13,835	41,506	
Less Working Capital	0.6%	0.5%	(41,540)	(35,114)	(36,167)	(37,614)	(39,118)	(40,683)	(42,310)
Less Capex	2.2%	3.0%	(152,000)	(210,682)	(217,003)	(225,683)	(234,710)	(244,099)	(253,863)
Cash Flow Before Principal Payment			423,060	249,341	258,537	271,956	286,669	331,093	309,729
Debt Principal Payment				-	(24,664)	(49,328)	(96,683)	(185,473)	(265,631)
Equity Cash Flows			423,060	249,341	233,873	222,628	189,986	145,620	44,097
EBITDA			616,600	705,010	726,161	755,207	785,415	816,832	849,505
Debt			1,993,700	1,849,800	1,825,136	1,775,808	1,679,125	1,493,652	1,228,021

Terminal Value	Assumptions	Growth		
EBITDA Multiple Method	4.93x		(EBITDA x EBITDA Multiple)	4,025,046
Perpetuity Method	13.76%		4.00% Next Year's Cash Flow / (Discount Rate - Growth)	3,173,959
Average				3,599,502
Less Debt Outstanding (at Exit)				(1,493,652)
Plus Cash (at Exit)				-
Equity Value at Terminal				2,105,850

Desired Equity Return =	**35%**							
Equity Cash Flows	31.9%	PV (for $1)		249,341	233,873	222,628	189,986	2,251,471
	1	PV (1) =	0.7407407	$184,697				
	2	PV (2) =	0.5486968	$128,326				
	3	PV (3) =	0.4064421	$90,485				
	4	PV (4) =	0.3010682	$57,199				
	5	PV (5) =	0.2230135	$502,108				
		PV=		$962,815				

Enterprise Value =	PV of Equity + PV of Debt
PV of Equity =	$962,815
+ PV of Debt =	1,993,700
+ PV of Cash =	(48,600)
Enterprise Value	**2,907,915**

Summary Valuation

AK Steel Holding Corp. (AKS)
CORPORATE VALUATIONS

ENTERPRISE VALUATION ANALYSIS

	EV	Debt	Cash	Equity Value	Shares Outs	Stock Price	
Book Value Equity	2,045,000	1,993,700	48,600	99,900	316,310	$ 0.32	
METHOD #1 - Market Value / Using the Stock Price	2,718,478	1,993,700	48,600	773,378	316,310	$ 2.45	
METHOD #3 -Average EBITDA Industry Trading Multiples	3,038,377	1,993,700	48,600	1,093,277	316,310	$ 3.46	
METHOD #4 - Using Averge EBITDA Transaction Multiples	3,860,606	1,993,700	48,600	1,915,506	316,310	$ 6.06	Premium
METHOD #5 - Discount Cash Flow Valuation Analysis	3,278,920	1,993,700	48,600	1,333,820	316,310	$ 4.22	72.5%
METHOD #6 - LBO Analysis	2,907,915	1,993,700	48,600	962,815	316,310	$ 3.04	24.5%
Average of other methods	3,224,095	1,993,700	48,600	1,278,995		$ 3.26	

Value of Goodwill

- Purchase Goodwill= $633 mm

AK Steel Holding Corp. (AKS)
CORPORATE VALUATIONS - LBO Analysis to Calculate Goodwill

METHOD #7 - Leveraged Buyout (LBO) Analysis

Transactions Uses	Current Stock Price	Premium	Purchase Stock Price	Shares Outstanding (millions)	Total Amount ($ 000's)	% Total Uses	EBITDA Multiple
Purchase of 100% Shares	$ 2.45	0%	$ 3.04	316,310	962,815	31.46%	1.56x
Refinance Short-Term & Long Term Debt					1,993,700	65.15%	3.23x
Transaction Fees & Expenses		3.50%			103,478	3.38%	0.17x
Total Cost of Transaction (Uses)					3,059,993	100.00%	4.96x

Transactions Sources	EBITDA Multiple (Capacity)	Interest Rate / Expected Return	After Tax Interest Rate Adjustments	WACC Calc	Total Amount ($ 000's)	% Capital
Bank Loan	2.00x	5.0%	3.20%	1.290%	1,233,200	40.30%
Corporate Bonds	1.00x	8.0%	5.12%	1.032%	616,600	20.15%
Total Debt	3.00x				1,849,800	60.45%
Equity	1.96x	31.9%	31.9%	12.596%	1,210,193	39.55%
Total Sources	4.96x			14.918%	3,059,993	100.00%

Balance Sheet	Pre-Transaction	Debit	Credit	Post-Transaction
Current Assets				
Cash & Cash Equivalent	48,600			48,600
Net Receivables	635,800			635,800
Inventory	1,419,900			1,419,900
Other Current Assets	97,000			97,000
Total Current Assets	2,201,300			2,201,300
Capitalized Fees	-	103,478		103,478
Goodwill	255,000	633,315		888,315
PP&E	1,911,600			1,911,600
Long Term Investment	80,500			80,500
Intangible Assets	43,900			43,900
Other Assets	23,400			23,400
Total Assets	4,515,700			5,252,493
Current Liabilities				
Accounts Payable	801,000			801,000
Other Current Liabilities	15,100			15,100
Total Liabilities	816,100			816,100
Long-Term Debt	1,993,700	1,993,700	1,849,800	1,849,800
Other Liabilities	1,376,400			1,376,400
Minority Interest	329,600	329,600		-
Total Liabilties	4,515,800			4,042,300
Common Stock	3,200	3,200	1,210,193	1,210,193
Treasury Stock	(106,400)	(106,400)		-
Capital Surplus	2,894,900	2,894,900		-
Other Equity	(100,000)	(100,000)		-
Retained Earnings	(2,691,800)	(2,691,800)		-
Total Equity	(100)			1,210,193
Total Liability and Equity	4,515,700	3,059,993	3,059,993	5,252,493
Error	-			-

Goodwill Calculation	
Purchase of 100% Shares	962,815
Book Value of Minority	(329,600)
Book Value of Equity	100
Purchase Goodwill	633,315
Exisitng Goodwill	255,000
Post-Transaction Goodwill	888,315

Brand Value
METHODS & EXAMPLES

BV

Brand Value

○ https://www.youtube.com/watch?v=6rQtjMcrhJYanks

○ A brand is a product that is easily distinguished from other products of services
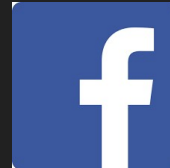
○ Adds significant value (from customer point of view)

○ Builds customer loyalty & aspiration

○ Able to change higher process + demand is more price inelastic

Brand Value Methodology

○ Identifying the portion of the product or service that is the brand value

Cost & Market Method		
Branded Product per unit	$	1,000
Other Unbranded Products unit	$	(800)
Brand Value	$	200
Number of Units sold	1,000,000	units
Annual Brand Net Revenue	$	200,000,000
Less Research & Development	$	(50,000,000)
	$	150,000,000
Multiple of Brands Revenue based on market comparable		8.0x
Value of the brand	$	1,200,000,000
Multiple of Unbranded Revenue x units		2.0x
Value of the unbranded Value	$	1,600,000,000
EV of the Company	$	2,800,000,000

Purchased Patents
METHODS & EXAMPLES

Valuing Patents

- The Questions a Buyer will ask for valuing IP – Patents, Trademarks
    - What's the market size?
    - What are the competitive advantages?
    - How much will it cost to implement?
    - How long before competitors crowd in?

- Factoring the Risks:
    - How much would it cost to develop this idea yourself
    - How long might it take to get off the ground
    - Any unexpected challenges or problems that may arise

Valuing Patent Using Option Pricing

BASIC EXAMPLE OF VALUE OF PATENTS USING OPTIONS

New Technology:	Eliminate emission on Ship enginees
Cost of Impementing: (X)	($10,000,000)
Present Value of CFs: (S)	$8,000,000
Payoff today (out of the money) S-X	($2,000,000)

Buy as an out of the money option today

Probability Theory to calculate the value of the option

1. When is there a real option embadded in a decision or an asset?
2. When does that real option have significant economic value?
3. Can that value be estimated using an option pricing model?

BUSINESS MODEL OF INTELLECTUAL PROPERTY

A FINTECH CASE – OVERVIEW

- Banks and FinTech platforms need to collaborate for a successful implementation of new technologies. The Banks need to:
  - Develop Fintech Innovation Framework
  - Choose Innovation Operations Model
  - Access FinTech Engagement Strategies
  - Manage Human Capital and Architectural Change

- The Fintech platforms need to:
  - Articulate Value Proposition that meets consumer banking
  - Differentiate with Regulatory Process
  - Be Prepared and Well-Networked
  - Build a Robust Business Case

BUSINESS MODEL OF FINTECH – OVERVIEW

- Investment - Banks invest their own capital in FinTech start-ups via strategic investment arms and new venture

- Collaboration - Banks enter into various types of arrangements with FinTech companies and other Banks – blockchain development

- On-going in-house development - Data & Human Capital

- Bank valuation & higher ROEs - build financial model to achieve 13% ROE (Financial Model to derive the minimum returns)
  - Fixed expenses shared with other parties
  - ROI from customized innovation solutions

FINANCIAL MODEL OF FINTECH – OVERVIEW

FINANCIAL MODELING: Funding Requirment / Growth / Cash Flow / ROI

```
Venture Capital      Funding      FinTech                              Retail Clients
    Funds          ──────────▶   Infrastructure 1      ─┐
                                                         │
                              ┌▶ FinTech                 ├─▶ Collaboration ──▶ Corporate Clients
                              │   Infrastructure 2       │
                              │                          │
                              └▶ FinTech                 ┘                    Other Institutional
                                  Infrastructure 3                                Clients
```

Cash Flow - Return on Investment (ROI)
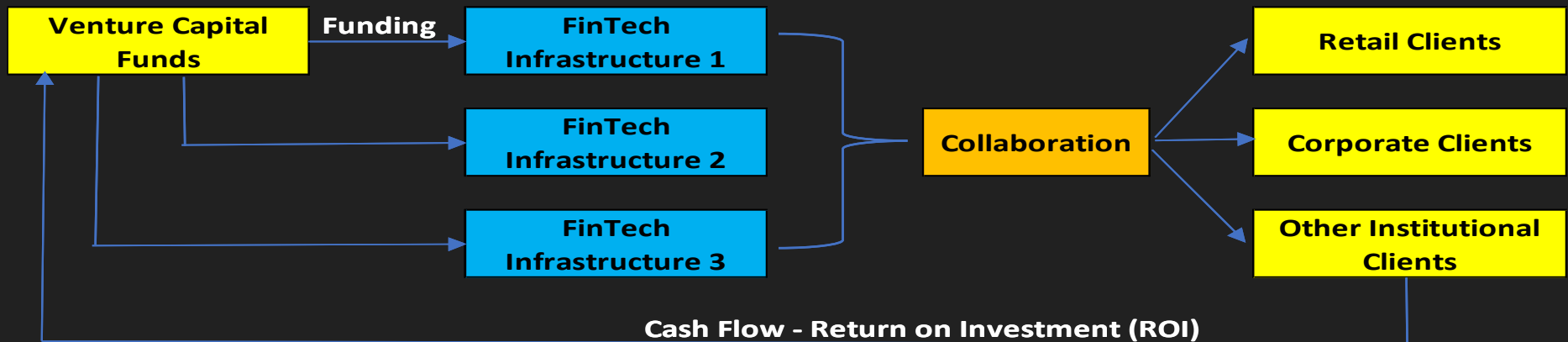
Financial Modeling to determine the following 3 outputs
Cash Needs - Transaction Sources & Uses -
Flexibility - Projections: Revenue Drivers / Cost implementation
Valuation - ownership series A, B, C
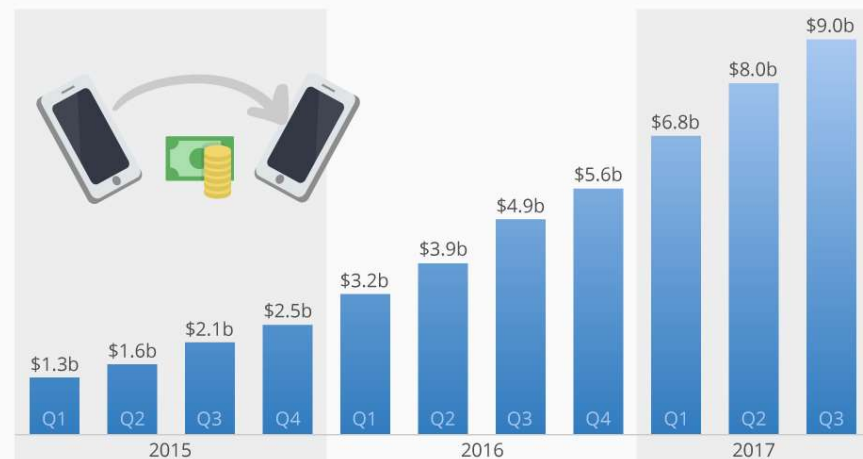
FINTECH: The Venmo Case
Mobile Peer-to-Peer Payments

venmo

- **Venmo** is a mobile payment service owned by PayPal. Venmo account holders can transfer funds to others via a mobile phone app; both the sender and receiver have to live in the U.S. Venmo is a type of payment rail. It handled $12 billion in transactions in the first quarter of 2018.

- Venmo includes social networking interaction; it was created so friends could quickly split bills, whether that is for movies, dinner, rent, tickets, etc. When a user makes a transaction, the transaction details (stripped of the payment amount) are shared on the user's "news feed" and to the user's network of friends.

- History:
  - 2009: Founded
  - 2010: $1.2 million Seed money raised – RRE Ventures
  - 2012: Sold to Braintree for $26.2 million
  - 2013: Braintree was bought by PayPal for $800 million

The Meteoric Rise of Venmo
Quarterly person-to-person payment (P2P) volume processed by Venmo in the U.S.*

2015				2016				2017		
$1.3b	$1.6b	$2.1b	$2.5b	$3.2b	$3.9b	$4.9b	$5.6b	$6.8b	$8.0b	$9.0b
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3

* Venmo is a PayPal-owned mobile app used to send money to friends' and family's mobile devices

@StatistaCharts   Source: PayPal

statista

Using Options as a Measurement of IP Valuation - 3 Questions

- Is there a real option embedded in a decision or an asset? YES
  - Call price as the investment (Premium), Strike Price (X) as the Cost and Value of the firm as the underline Asset (S)
- Does that real option have significant economic value? YES
  - No restriction on competition / exclusivity and the time until no value added
- Can that value be estimated using option pricing model? YES
 - Leading to S – X > Minimum Return Expectation

  Point worth noting why Options vs DCF:
- Delay/ Negative NPV constant pivoting

Lesson on Options – Call option

UNCOVERED (NAKED) OPTION STRATEGIES - Buying a Call Option

FB	CALLS		
Exercise Price (X)	MARCH	APRIL	MAY
150	20.00	21.50	23.00
155	15.50	16.25	17.75
160	12.50	12.85	13.50
165	8.10	9.00	10.65
170	5.20	6.30	8.50
175	3.25	4.25	5.75
180	2.50	3.40	4.45

BUY FB MAY 165 CALLS

BE $175.65

Profit
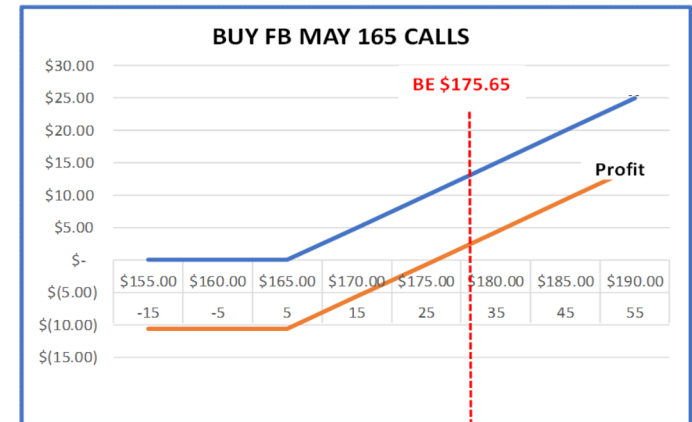
ACTION

Buy Call @ Exercise (X) = $ 165.00
Pay Premium **(p)** = $ 10.65

Break Even = $ 175.65
Max Loss = $ (10.65)
Max Gain = Unlimited

Out-of-the-money Option
On-the-money Option
In-of-the-money Option

INPUT			WHAT IF SCENARIO		OUTPUT				
	X	p		S		O = max (0,S-X)	(π) = O - p	HPR % = π / p	X + p
ACTION	Exercise Price (X)	Premium Per Share (p)		Stock Price (S)		Exercise Y/N?	Payoff (O)	Profit (π)	HPR (%)	Break Even Stock
Buy May	$ 165.00	$ (10.65)		$ 155.00		No	$ -	$ (10.65)	-100.0%	$ 175.65
Buy May	$ 165.00	$ (10.65)		$ 160.00		No	$ -	$ (10.65)	-100.0%	$ 175.65
Buy May	$ 165.00	$ (10.65)		$ 165.00		No	$ -	$ (10.65)	-100.0%	$ 175.65
Buy May	$ 165.00	$ (10.65)		$ 170.00		Yes	$ 5.00	$ (5.65)	-53.1%	$ 175.65
Buy May	$ 165.00	$ (10.65)		$ 175.00		Yes	$ 10.00	$ (0.65)	-6.1%	$ 175.65
Buy May	$ 165.00	$ (10.65)		$ 180.00		Yes	$ 15.00	$ 4.35	40.8%	$ 175.65
Buy May	$ 165.00	$ (10.65)		$ 185.00		Yes	$ 20.00	$ 9.35	87.8%	$ 175.65
Buy May	$ 165.00	$ (10.65)		$ 190.00		Yes	$ 25.00	$ 14.35	134.7%	$ 175.65

Calculating the Fair Bet based on Probability of Winning on Cointoss:

Probability (p)   Payoff (O)

Head (H) =   1/2   →   Win (W) = $20

Bet (B) =   ?   B = 1/2 W + 1/2 L

Tail (T) =   1/2   →   Loss (L) = $0

$$B = (p) W + (1-p) L$$
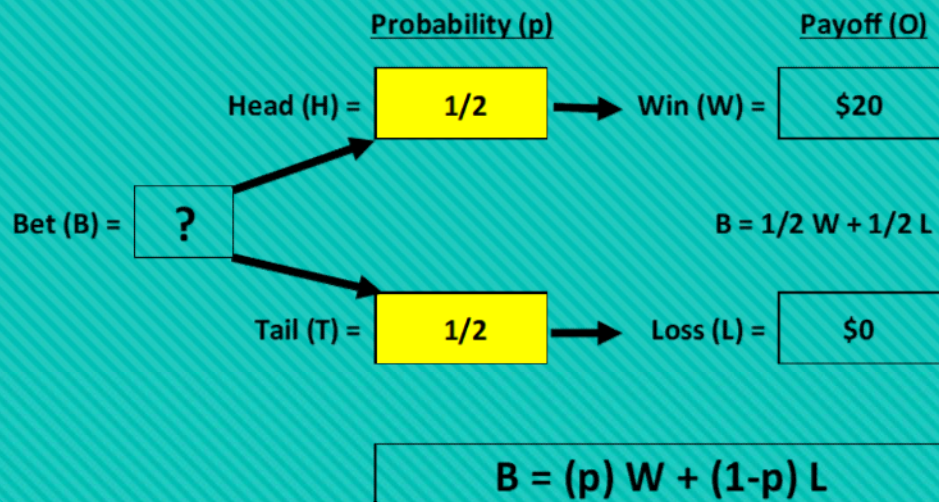
Calculating the Fair Bet based on Probability of Winning getting a "6" in one toss of a dice:

Probability (p)   Payoff (O)

6 =   1/6   →   Win (W) = $60

Bet (B) =   ?   B = 1/6 W + 5/6 L

1, 2, 3, 4, 5   5/6   →   Loss (L) = $0
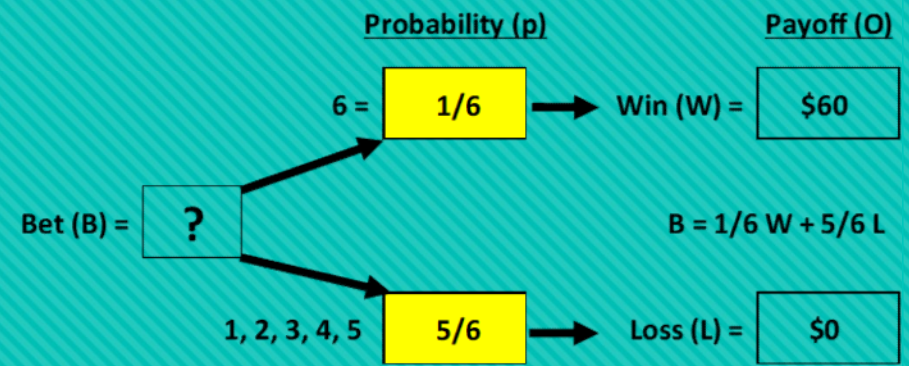
A Lesson on Probability & Option Pricing
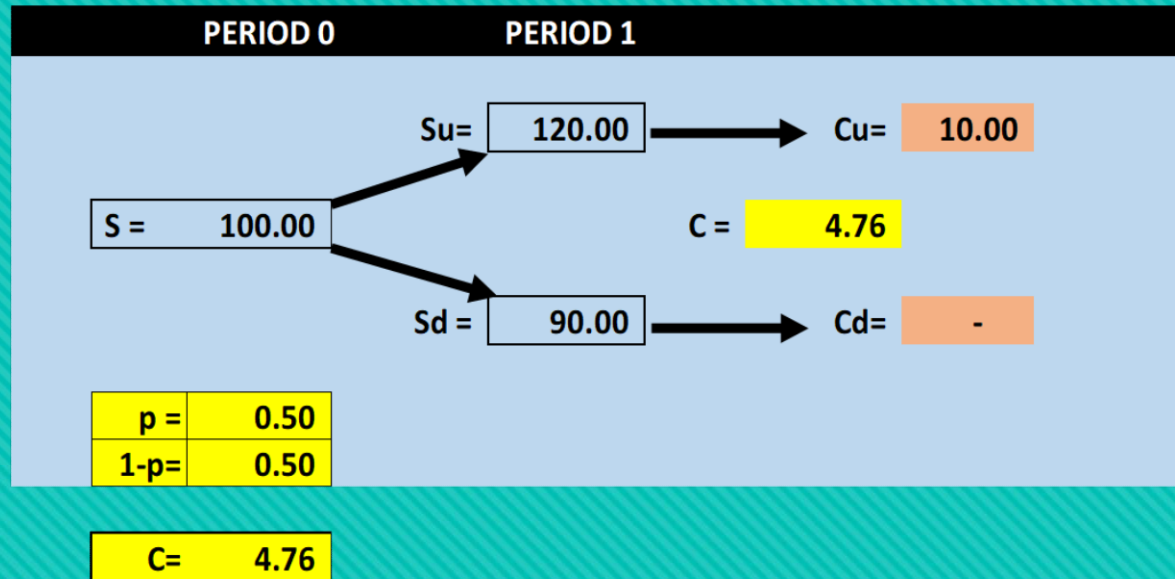
Lesson of Option Pricing – Introducing Binomial Option Pricing Model

Lesson of Option Pricing – Introducing 2-Step Binomial Option Pricing Model
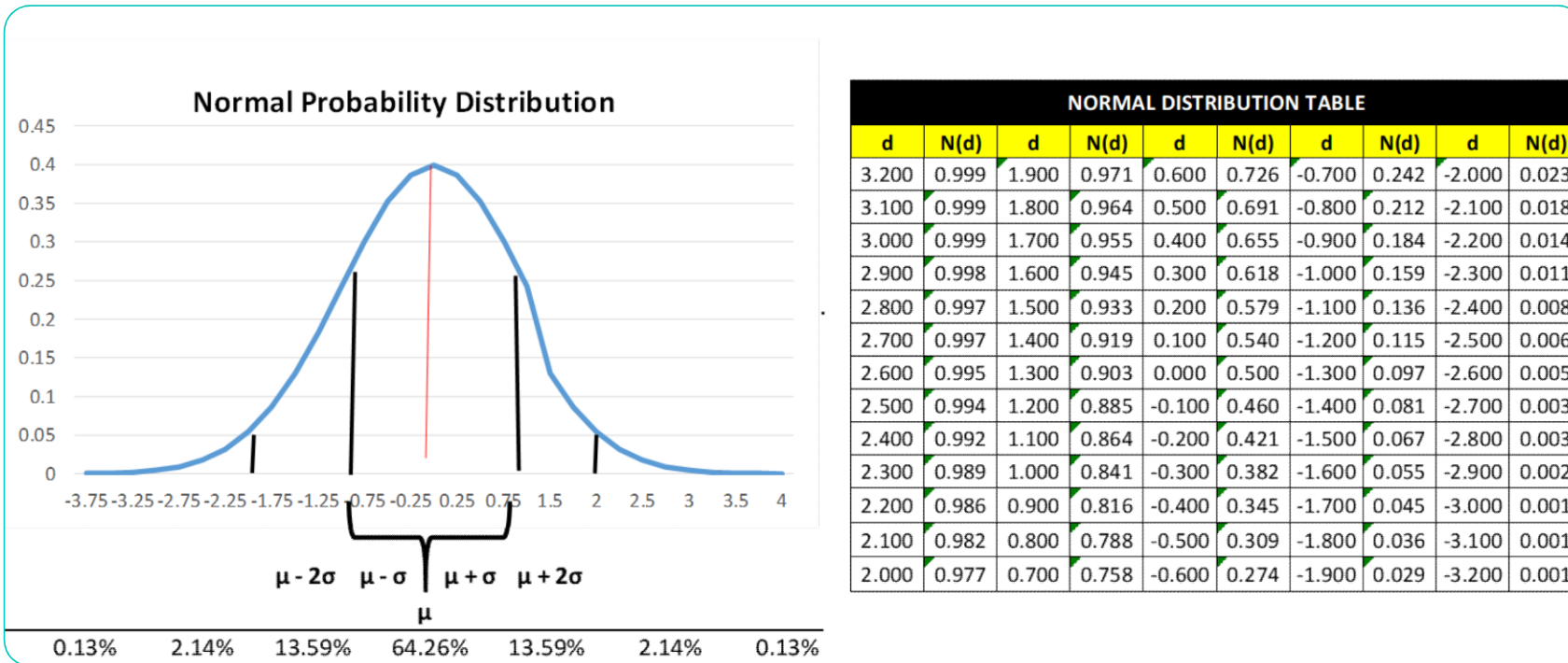
Introducing Standard Deviation Concepts and Black-Scholes

Lessons on Black-Scholes Option Pricing

$$C = S\,N(d1) - Xe^{-it}\,N(d2)$$

$$d1 = \frac{\ln\left(\frac{S}{X}\right) + \left(i - \delta + \frac{\sigma^2}{2}\right)t}{\sigma\sqrt{t}} \text{ and } d2 = d1 - \sigma\sqrt{t}$$

For example, let's assume that the that the current stock price (S) is $100 and the future exercise price (X) that expires in 6 months is $110. This out-of-the-money call option and in-the-money put option have a standard deviation (σ) of 0.40. Given the risk-free rate of 5.0% what is the fair value for both call and put option premiums?

Input:
S = $100
X = $110
t = 0.50 (6 months)
i = 5.0%
σ = .40
δ = 0 %

Formulas:

$$d1 = \frac{\ln\left(\frac{100}{110}\right) + \left(0.05 + \frac{.4^2}{2}\right)0.50}{0.40\sqrt{0.5}} = \frac{\ln(0.9091) + (0.05 + 0.08)\,0.50}{(0.40)(0.7071)} = \frac{-0.0953 + 0.065}{0.2828} = -0.1071$$

and

$$d2 = -0.1071 - 0.2828 = -0.3899$$

N (d1) = 0.4573
N (d2) = 0.3482

The call option for the call option is calculated using the Black-Scholes formula below:

$$C = 100\,(0.4573) - 110\,e^{-(0.05)(0.5)}\,(0.3482) = 45.73 - 110\,(0.9753)(0.3482)$$

$$= 45.73 - 37.36 = 8.37$$

C = 8.37

Case Study I – Pharma Inc.
Using Options to build financial model for valuating IP

- Pharma Inc, a biotech firm, has a patent on a drug to treat multiple sclerosis, for the next 17 years, and it plans to produce and sell the drug by itself.

- The drug will be priced at $46.50 per patient per day taking it for an average of 2 years

- After an extensive market research, it was determined that 100,000 patients will be buying this drug immediately

- The total cost of development for commercial use is estimated at $2.75 billion

- Patent life is 17 years

- The 17-year treasury bond rate is 3.50%

- Variance in Expected Present Values = 0.224 based on industry average firm variance for bio-tech firms

Case Study
Using Options to build financial model for valuating IP with patent

INPUT	PROCESS
Value of the Underlined Asset (S)	PV of Cash Flows expected from the commercialization of the IP
Exercise Price on Option (X)	Cost of Development of the IP
Variance in Value of Underlined Asset (σ^2)	Variance in Cash Flows of similar assets on firm (i.e. the stock price of other companies with similar applications) or Variance in present value from capital budgeting simulation
Expiration of the Option (t)	Life of the IP patent
Dividend Yield (δ)	Cost of Delay- each year of delay translates to one less year of value-creating cash flows 1/t

Case Study I Using options to build financial model for valuating IP

$$C = S\,N(d1) - Xe^{-it}\,N(d2)$$

Pharma Inc.
Using Black-Scholes Option Pricing Model

Number of Patients=	100,000
Drug Price (per pill) - net of cost of producing =	$46.50
Daily Use =	365 Days
Average Length for Usage =	2 Years
Present Value of =	$3,394,500,000
Total Development Cost (X) =	$2,750,000,000
IP Patent life (t)=	17 years
Cost of Delay (δ)=	5.882% 1/17 years
Risk Free Rate (i) =	4%
Variance =	0.224

USING BLACK-SCHOLES OPTION MODEL

INPUT		OUTPUT	
Standard Deviation (σ) =	47.33%	d1 =	0.8761
Expiration (in years) (T) =	17	d2 =	-1.0753
Risk-Free Rate (Annual) (i) =	4%	N(d1) =	0.8095
Stock Price (S) =	3,394,500,000	N(d2) =	0.1411
Exercise Price (X) =	2,750,000,000		
Dividend Yield (annual) (δ) =	5.882%	**Value=**	**796,844,462**

Case Study II
Using Income Method (DCF Analysis) for valuating IP

- The Value of a firm's new innovative products that will be put to commercialization can be derived using the option pricing model

- Value of the Firm = Value of products after it is commercialized or licensed (DCF Analysis)

- Measuring the efficiency of the firm for converting its Development Cost into a commercial product.

Case Study II
Using Income Method (DCF Analysis) for Valuating IP

- **The Company:** EduTech Company developed an innovative SaaS platform that allows professionals working with children to teach and reinforce soft-skills using digital customizable immersive storybooks (B2B). The application is also used directly by parents that choose the right content to help their children develop into strong, confident, joyful adults (B2C). The company identified that there is a global shift in children's emotional wellness education and training. The development of soft skills is becoming a more critical focus in education for not only children with pre-existing conditions but also as a preventive method for their longer-term mental health and well-being.

- The Market: Education Technology market in the US 2018: 89,000 Elementary Schools, 160,000+ Psychologists, 665,500 + Counselors. - $40 billion

Case Study II Using Income Method (DCF Analysis) for valuating IP

EduTech Company
VENTURE CAPITAL ANALYSIS
BASE CASE

TRANSACTION SOURCES & USES

Sources	Funded	% Cap	Interest	Uses	Amount	% Total	First Year Cash Needs (Before Tax Benefits)
Trade Payable & Bank Loan	-	0.0%	0.0%	Cash	443,240	73.9%	(394,294) (EBT - WC - Capex)
Mezzanine Loan	-	0.0%	0.0%	Equipment & Software (Wacom Cintiq Pro 24)	11,760	2.0%	
Total Debt	-	0.0%		WebDesign Expense	50,000	8.3%	
Cash Equity	600,000	100.0%		Marketing Expenses (upfront)	75,000	12.5%	(Note: Additional $150K in 2020 - check line 338)
				Other Fees & Expenses	20,000	3.3%	
Total Sources	600,000	100.0%		Total Uses	600,000	100.0%	156,760

SUMMARY

					PROJECTED				
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
B2B REVENUES									
Private Practice									
Total Institutions		5	25	100	150	250	400	600	800
Average Subscribers (Children) per Institution		25	25	25	25	25	25	25	25
One-time Set-up Fee		$350.00	$350.00	$360.50	$371.32	$382.45	$393.93	$405.75	$823.66
Subscription Fee per Subscriber per Month		$10.00	$10.00	$10.30	$10.61	$10.93	$11.26	$11.59	$11.94
Total Revenues from Private Practice		7,750	44,500	212,438	352,749	693,882	1,139,578	1,750,504	2,457,313
Large Institutions									
Total Institutions		2	10	35	85	135	185	235	285
Average Subscribers (Children) per Institution		150	150	150	150	150	150	150	150
One-time Set-up Fee		$1,200.00	$1,236.00	$1,273.08	$1,311.27	$1,350.61	$1,391.13	$1,432.86	$2,908.71
Subscription Fee per Subscriber per Month		$15.00	$15.00	$15.45	$15.91	$16.39	$16.88	$17.39	$17.91
Total Revenues from Large Institutions		24,000	144,888	615,837	1,769,899	3,253,922	4,567,090	5,956,118	7,496,022
B2B Revenue		31,750	189,388	828,275	2,122,649	3,947,804	5,706,667	7,706,622	9,953,335
B2C REVENUES									
Number of Subscriptions - Retail - Volume		14,000	20,000	26,000	40,000	50,000	60,000	70,000	80,000
Retail Electronic Downloads - Volume		18,000	24,000	32,000	50,000	65,000	80,000	95,000	110,000
Printable Books - Volume		-							
Average Subscription Fee per Subscriber per Month (3 packages)		$16.69	$16.69	$17.19	$17.71	$18.24	$18.78	$19.35	$19.93
Average $ Per Download (3 packages)		$4.99	$4.99	$5.14	$5.29	$5.45	$5.62	$5.78	$5.96
Average $ Per Print (3 packages)		$14.99	$14.99	$15.44	$15.90	$16.38	$16.87	$17.38	$17.90
B2C Revenue		186,251	1,295,160	2,255,432	3,988,420	5,675,586	7,681,953	9,238,860	10,882,268
Total Revenue		218,001	1,484,548	3,083,707	6,111,068	9,623,390	13,388,621	16,945,482	20,835,603
Less Churn		(32,700)	(222,682)	(462,556)	(916,660)	(1,443,508)	(2,008,293)	(2,541,822)	(3,125,340)
NET REVENUE		185,301	1,261,866	2,621,151	5,194,408	8,179,881	11,380,328	14,403,660	17,710,262
EBITDA		(367,987)	404,749	1,256,703	2,739,000	5,036,194	7,355,852	9,765,716	12,491,471
EBITDA Margin		-198.6%	32.1%	47.9%	52.7%	61.6%	64.6%	67.8%	70.5%
Cash Balance	443,240	188,982	335,550	978,097	2,420,402	5,241,801	9,468,712	15,194,406	22,577,878
Source / (Use) of Cash		(254,258)	146,568	642,547	1,442,305	2,821,399	4,226,911	5,725,694	7,383,471
Equity Outstanding	600,000	600,000	600,000	600,000	600,000	600,000	600,000	600,000	600,000
Equity Contribution	+600,000	+00	+00	+00	+00	+00	+00	+00	+0

Case Study II Using Income Method (DCF Analysis) for valuating IP

EduTech Company
LBO Equity Analysis using CAPM - NO LEVERAGE
Tuesday, May 7, 2019

TRANSACTION SOURCES & USES

	Amount	% Capital	Expected Return	WACC (After Tax)
Sources:				
Bank Loan	-	0.0%	7.00%	0.000%
Mezzanine Note	-	0.0%	10.00%	0.000%
Total Debt	-	0.0%		0.00%
Equity	14,409,751	100.0%	22.15%	22.15%
Total Sources	14,409,751	100.0%		22.15%

	Amount	% of Total Uses	CAPM	
Uses:				
Purchase Price (EV - including Debt)	14,409,751	100.0%	Risk Free Rate=	2.75%
Other Up-Front Expenses	-		Beta=	1.2x
Transaction Fees & Expenses		0.0%	Premium=	12%
			Firm Specific=	5.00%
Total Uses	14,409,751	100.0%	CAMP Rate=	22.150%

SUMMARY VALUATION

Description	Average Multiple / Expr. IRR	Value $ Based on
Comparable Trading Multiples (2022 EBITDA)	8.00x	21,912,000
Comparable Acquisition Multiples (Strategics)		
Discount Cash Flow (DCF) Expect. Ret=	22.15%	16,152,406

VALUATION SCENARIO TABLE (Based on Return Exp and TV Multiple)

Exp. Ret % Ent. Val. $	EBITDA Terminal Value Multiples		
	7.0x	8.0x	9.0x
25.0%	13,564,550	14,409,751	15,254,951
30.0%	11,171,788	11,866,481	12,561,174
35.0%	9,267,904	9,843,133	10,418,362
40.0%	7,739,965	8,219,554	8,699,143
45.0%	6,503,939	6,906,350	7,308,761

DCF & VENTURE CAPITAL EQUITY RETURN METHODS ANALYSIS

Company Projections	Post Exit Assumpions	Entry Year — Year 0	1 Year 1	2 Year 2	3 Year 3	4 Year 4	5 Year 5 (Exit Year)	6 Year 6	7 Year 7
Revenues	12.00%		185,301	1,261,866	2,621,151	5,194,408	8,179,881	11,380,328	14,403,660
Cost of Revenue	1.1%		(11,934)	(8,567)	(17,897)	(37,927)	(85,929)	(119,550)	(151,310)
Payroll			(77,517)	(157,517)	(171,545)	(174,017)	(176,563)	(192,557)	(195,259)
Selling Expenses	33.7%		(380,678)	(607,873)	(1,046,306)	(2,125,764)	(2,757,495)	(3,582,543)	(4,155,119)
Hosting Expenses	0.0%		(1,200)	(1,200)	(1,200)	(1,200)	(1,200)	(1,200)	(1,200)
Genera & Administrative	1.5%		(81,960)	(81,960)	(127,500)	(116,500)	(122,500)	(128,625)	(135,056)
EBITDA			(367,987)	404,749	1,256,703	2,739,000	5,158,694	7,484,477	9,900,773
Less Depreciation	3.0%		(5,559)	(37,856)	(78,635)	(155,832)	(245,396)	(341,410)	(432,110)
Less Amortization of Fees									-
EBIT			(373,546)	366,893	1,178,069	2,583,168	4,913,297	7,143,067	9,468,663
Less Interest (Unlevered for DCF Analysis)									-
EBT			(373,546)	366,893	1,178,069	2,583,168	4,913,297	7,143,067	9,468,663
Less Taxes (adj out Interest Exp)	36.0%		134,477	(132,081)	(424,105)	(929,940)	(1,724,687)	(2,525,199)	(3,360,098)
Plus Depreciation & Amortization			5,559	37,856	78,635	155,832	245,396	341,410	432,110
Less Working Capital (Growth Capital)			(15,189)	(88,243)	(111,417)	(210,923)	(244,711)	(262,332)	(247,814)
Less Capex	3.00%		(5,559)	(37,856)	(78,635)	(155,832)	(245,396)	(341,410)	(432,110)
Cash Flow Before Financing (CFBF)			(254,258)	146,568	642,547	1,442,305	2,943,899	4,355,536	5,860,750
Less Financing (P + I)			-	-	-	-	-		
Equity Cash Flows			(254,258)	146,568	642,547	1,442,305	2,943,899	4,355,536	5,860,750

Terminal Value						
EBITDA Multiple Method	Growth	8.0x					41,269,548
Perpetuity Method (using WACC + growth)	10.00%	22.15%					35,848,034
Average Terminal Value							38,558,791
Debt Outstanding							
Equity Value (TV - Debt)							38,558,791

Equity Cash Flows	(14,409,751)	(254,258)	146,568	642,547	1,442,305	41,502,690
DCF - CAPM Valuation =	16,152,406	22.15%	(208,153)	98,232	352,553	647,863	15,261,910
Venture Capital Exp. Model =	14,409,751	25.0%	(203,407)	93,804	328,984	590,768	13,599,602
IRR=		25.0%				

Case Study II Using Income Method (DCF Analysis) for valuating IP

SUMMARY VALUATION

Description	Average Multiple / Expr. IRR	Value $ Based on
Comparable Trading Multiples (2022 EBITDA)	8.00x	21,912,000
Comparable Acquisition Multiples (Strategics)		
Discount Cash Flow (DCF) Expect. Ret=	22.15%	16,152,406

VALUATION SCENARIO TABLE (Based on Return Exp and TV Multiple)

Exp. Ret % Ent. Val. $	EBITDA Terminal Value Multiples		
	7.0x	8.0x	9.0x
25.0%	13,564,550	14,409,751	15,254,951
30.0%	11,171,788	11,866,481	12,561,174
35.0%	9,267,904	9,843,133	10,418,362
40.0%	7,739,965	8,219,554	8,699,143
45.0%	6,503,939	6,906,350	7,308,761

CLASS PROJECT

Consider a FinTech SaaS based start-up company with an estimated subscription market opportunity of 10 million subscribers that are willing to sign up and pay $20 per month the first year. For the first year, the cost of revenue is estimated at $3 per subscriber and operating expenses including marketing is estimated at $2 per subscriber.

The following assumptions are for year 2-10:

Assumptions	Years 2-10
Monthly Subscription Price increase per year	5.0%
Number of Subscribers increase per year	2.0%
Monthly Cost of revenue per subscriber increase per year	3.0%
Monthly Operating Cost per subscriber increase per year	5.0%
No Tax Assumed	

Brand Terminal Value (year 10) – Multiple of EBIT (x)	0x
IP Expected Return	25%

IP ASSUMPTIONS:

The present value of the development cost is initial estimated $400 per subscription (cost per customer acquisition). The firm has the IP patent to exploit for the next 10 years.

The 10-year riskless rate is 3.0%, and the variance is 0.05 based on stock variance of similar companies' stock price.

Given this information above, calculate the value of the IP patent using the Black-Scholes pricing method:

Biography

Chris Droussiotis' training and expertise is in the area of Investment Banking. Possessing over 30 years of experience by working for numerous corporations in various executive management positions at Bank of America Merill Lynch, CIBC Oppenheimer, Mizuho Financial Group, Bank of Tokyo-Mitsubishi Trust UFJ, Sumitomo Mitsui Banking Corporation and Mitsui Nevitt Banking Corporation.

He is a former Managing Director, General Manager and the Head of the Leverage Finance, Private Equity Sponsor Group & Structured Finance Department at Sumitomo Mitsui Banking Corporation (SMBC) managing a loan portfolio of over $8 billion of large cap and middle market leveraged loans, as well as investments in SPV funds, CLOs and BDCs that are backed by leveraged loans and high yield bonds. He left SMBC recently and join as a Senior Managing Partner of Kinisis Ventures Limited (www.kinisisventures.com), a business accelerator company that helps international company start-ups expand in the U.S. markets. At Kinisis Ventures he leads the firm's deal-flow review, valuations and strategic capital raising team.

Academic Experience

Adjunct Professor for Columbia University's School of Professional Studies – Enterprise Risk Management, Fordham University's Gabelli School of Business, Baruch College's Economics & Finance Department in NY, Baruch College's Continuing and Professional Studies (CAPS), Stillman School of Business at Seton Hall and Fairleigh Dickinson University's International School of Hospitality and Tourism Management in NJ. Courses include Quantitative Analysis in Business, Investment Analysis, Managerial Finance, Commercial Credit $ Banking, Debt & Fixed Income Markets, Derivative Strategies, Business Statistics, Equity Valuation and Advanced New Venture Management.