Chamber of Tax Consultants

India

Valuation

Speaker - CA. Parag V. Kulkarni

Our Agenda

01 Background

02 Process of Performing Valuation

03 Handling Valuation of Unlisted Entities

04 Aramco Valuation

05 Uber Valuation

Background

ICAI Valuation Standards

Valuation Standard Board of ICAI was constituted on 28th February, 2017; Draft Standards formulated, discussed, deliberated and adopted in 2018

Objective – to have Consistent, Uniform, and Transparent Valuation Policies *(amid local laws)*

Qualitative Characteristics of Valuation Report

Relevance, Materiality, Reliability, Faithful Representation, Substance over form, Neutrality, Prudence, Completeness

International Accounting & Valuations Thereunder

Business Combinations, Impairments, Financial Instruments

South Asian Perspective

Local Business Needs, Credit Ratings of Countries and its impact, Supplement Country's start-up eco-system

ICAI Valuation Standards

Preface, Framework, and 8 Valuation Standards

1	Preface to ICAI Valuation Standards
2	Framework
3	ICAI Valuation Standard 101 - Definitions
4	ICAI Valuation Standard 102 – Valuation Bases
5	ICAI Valuation Standard 103 – Valuation Approaches and Methods
6	ICAI Valuation Standard 201 – Scope of Work, Analyses and Evaluations
7	ICAI Valuation Standard 202 – Report and Documentation
8	ICAI Valuation Standard 301 – Business Valuation
9	ICAI Valuation Standard 302 – Intangible Assets
10	ICAI Valuation Standard 303 – Financial Instruments

IVSC Vs. ICAI Valuation Standards

Critical Differences

S. no.	Topic	International Valuation Standards	ICAI Valuation Standard
1	Usage of Multiple Valuation Methods	Preference to use one method unless circumstances require usage of multiple methods	Valuer's may use combination of methods and give weightages
2	Range of Value	Generally only one Value is provided	Permits a reasonable range of values (in line with internationally accepted practices)
3	Information to be obtained by Valuer	Requires reasonable and sufficient information to be obtained	Specified to collect following information: - Non-financial information - Ownership details - Financial information - General information

Domestic Accounting Standards

Common Practices

M&A

Fair Value of Net Assets as at Acquisition Date

Foreign Currency Assets

Exchange Rates, Forwards, Inflations, Hedging

Fair Value Measurements

Inputs, Disclosures, Sensitivity

Technology Transfers

R&D, Royalties, Direct Tax Implications, OECD Guidance

Equity Investments

Fair Value through profit or loss/ irrevocably through OCI

Financial Liabilities

Complex Instruments – OCD, CCPS etc.;

Derivatives

Fair Value as at each measurement date

Impairment

CGUs, Business Value

Insolvency

Orderly Value & Liquidation Value

Fair Value Measurement - Expectations

01 02 03

The price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date

04 05 06

Level 1 Inputs

Quoted prices (unadjusted) in active markets for identical assets or liabilities that the entity can access at the measurement date.

Level 2 Inputs

Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly.

Level 3 Inputs

Unobservable inputs for the asset or liability.

Process Driven Valuations

Guidance under ICAI Valuation Standards

Identify Asset

Asset/ Liability

Scope of Work

Deal | Reporting

Analysis

Nature | Features

Valuation Base

Fair Value | Market Participant
Specific Value | Liquidation Value

Valuation Approach

Income | Market | Cost

Modelling

Cash Flows | Discount Rates

Conclusion of Value

Control | Non-Control

Reporting & Documentation

Decision Centric

Conclusion of Value

Fairness of Fair Value

Value in Context 01

Macro Outlook | Micro Conclusions

02 **High Quality - Independence**

Faithful | Neutral | Complete

03 **Market Driven Prices**

Transactions | Multiples

SOME ISSUES

1 FAIR VALUE & PROCESS OF PERFORMING FV

2

- CASH FLOWS
  - BASE YEAR
  - GROWTH
  - MARGINS
  - TERMINAL VALUE
- DISCOUNT RATE
  - RISK FREE RATE
  - EQUITY RISK PREMIUM
  - BETA
  - TAX RATE
- MARKETABILITY
- CONTROLLING STAKE

3 FAIR VALUE Vs. FAIR MARKET VALUE

This section is for internal reading of participants. I will not be offering my commentary on this.

4

- COVID-19
  - ADJUSTING CASH FLOWS/ DISCOUNT RATE?
  - IS SENSITIVITY ANALYSIS A SOLUTION?
  - MONTE CARLO SIMULATION
  - WRITING A COMMENTARY
- MULTI-PERIOD GROWTH MODEL
- W-SHAPED RECOVERY
- FOLLOW-UP DEBT CRISIS
- FUNDAMENTAL SHIFT IN BUSINESS MODEL

Process of performing fair value

- Orderly transaction - exit price
- Uncertainty about timing/ amount of future cash flows
- Judgement
  - Valuation Technique
  - Selection of Valuation Technique
- Dissimilar results under different methods
- Analysing the ‘Price’

Process of performing fair value

Hierarchy of Valuation?

Factors while selecting most appropriate valuation technique

3 Valuation Approaches

Market Approach

Income Approach

Cost Approach

Current Market Condition

Using Level 3 inputs & making stakeholders aware through disclosures

Valuation Approach	Valuation Methodology
Market Approach	• Transaction price paid for an identical or a similar instrument of an investee • Comparable company valuation multiples
Income Approach	• Discounted cash flow (DCF) method • Dividend discount model (DDM); • Constant-growth DDM • Capitalisation model
A combination of approaches might be used	Adjusted net asset method

Process of performing fair value

- Market Approach
  - Identical/ Comparable assets
  - Technique 1 - transaction price paid for an identical or a similar instrument of an investee
  - Technique 2 - comparable company valuation multiples derived from quoted prices (ie trading multiples) or from prices paid in transactions such as mergers and acquisitions (ie transaction multiples)

Market Approach

1. Technique 1 - transaction price paid for an identical or a similar instrument of an investee
2. Going into details:
   - Part 1 - Transaction Price Paid for identical instrument of investee
   - Part 2 - Transaction Price Paid for similar instrument of investee
3. Part 1 - Transaction Price Paid for identical instrument of investee
   - Factors that might indicate that the investor's transaction price might not be representative of fair value at the measurement date
   - Test to find the trend related to price
4. Part 2 - Transaction Price Paid for similar instrument of investee
   - 4 adjustments for differing economic & control rights

Market Approach

1. Technique 2 - comparable company valuation multiples derived from quoted prices (ie trading multiples) or from prices paid in transactions such as mergers and acquisitions (ie transaction multiples)

   - NSE/ BSE (Trading Multiples)
   - Observable Transactions from M&A (Transaction Multiples)

2. 4 Step Model

   - Step 1 - Identify comparable company peers.
   - Step 2 - Select the performance measure that is most relevant to assessing the value for the investee
   - Step 3 - Apply the appropriate valuation multiple to the relevant performance measure of the investee to obtain an indicated fair value of the investee's equity value or the investee's enterprise value (EV).
   - Step 4 - Make appropriate adjustments (for example, for lack of liquidity) to ensure comparability between the unquoted equity instruments held in the investee and the equity instruments of the comparable company peers.

Process of performing fair value

Step 1 - Identify comparable company peers.

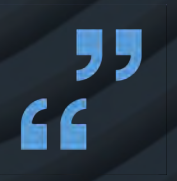
Step 2 - Select the performance measure that is most relevant to assessingthe value for the investee

Step 3 - Apply the appropriate valuation multiple to the relevant performance measure of the investee to obtain an indicated fair value of the investee's equity value or the investee's enterprise value (EV).

3 common types of multiples

Industry-specific performance benchmarks

Forward-looking multiples



Step 4 - Make appropriate adjustments (for example, for lack of liquidity) to ensure comparability between the unquoted equity instruments held in the investee and the equity instruments of the comparable company peers.

Adjusting Multiples

Normalisation

Process of performing fair value

- Income Approach
  - DCF Method
  - (Check subsequent slides)

Valuation of unlisted entities

1

Debunking VC Approach

- *is multiple based approach a valid conclusion?*
- *should we use a thumb rule eg. 5 times a revenue?*

2

Deciphering Beta

- *whether Beta of a software company in India is different from that of a company in USA?*
- *Whether beta of a same company with different capital structure would be different? (eg. Company with capital structure of 100% equity of Rs.1 Crore vs. Company with capital structure of 40% equity and 60% debt i.e. Rs. 40 L Equity and Rs. 60 L Debt?)*

3

Valuing Global Unlisted Companies

- *Can Indian Valuer perform global valuations?*
- *If 'currency of valuation changes', how related assumptions change?*
- *How geography/ location of an entity under valuation impacts a value?*

4

Capturing Uncertainty during Covid times

- *Knowns and Knowable*
- *Adjusting Vs. Non-adjusting events*
- *Quantification & Disclosures*

CASH FLOWS

BASE YEAR

GROWTH

MARGINS

TERMINAL VALUE

Estimating Revenue	1. *Are your earnings positive?* 2. *If earnings are positive & normal, what is expected inflation rate in the economy? (Price & Volume Growth)* 3. *If earnings are positive & normal, what is expected real growth rate in the economy? (Volume Growth)* 4. *What is expected growth in revenue for an entity that you are valuing?* 5. *Does this entity have significant & sustainable advantage over competitors?*
Estimating EBIT	6. *If the earnings are negative* • *Is it because the entity is into cyclical business?* • *Is it one-time or temporary occurrence?* • *Is it because entity is just starting up?*
WACC	7. *What is Current Debt ratio (in market value terms)?* 8. *Is debt ratio expected to change significantly?*
Reinvestment Rate	9. *What is dividend payout?* 10. *Can you estimate capital expenditure and working capital requirements reasonably?*

DECISION MATRIX

TYPE OF MODEL	EARNINGS TO USE	CASH FLOW	GROWTH PERIOD
DISCOUNTED CASH FLOW	CURRENT EARNINGS	FCFF	0-5 YRS
OPTION PRICING MODEL	NORMALISED EARNINGS	FCFE	5-10 YRS
		DIVIDENDS	>10 YRS

RISK FREE RATE + BETA x EQUITY RISK PREMIUM = KE

Domestic Co.

- Govt. Bond 10 Yr Vs. 30 Yr.
- Country Risk
- With Domestic Sales
- Export
- Export in Multiple Currencies
- Geography?
- Segments?

Basic Factors

- Equity Beta
- 1 Yr. Vs. 2 Yr. Vs. 5 Yr. Beta
- Simple Avg Vs. Weighted Avg.
- Levering Beta
- Unlevering Beta
- Market Beta
- Total Beta

- (Rm-Rf)
- Rm = 5 years? 10 years? 2 years?
- I do calculate Rm of mature market, USA, and then bottom up with correlation between country stock market and USA stock market

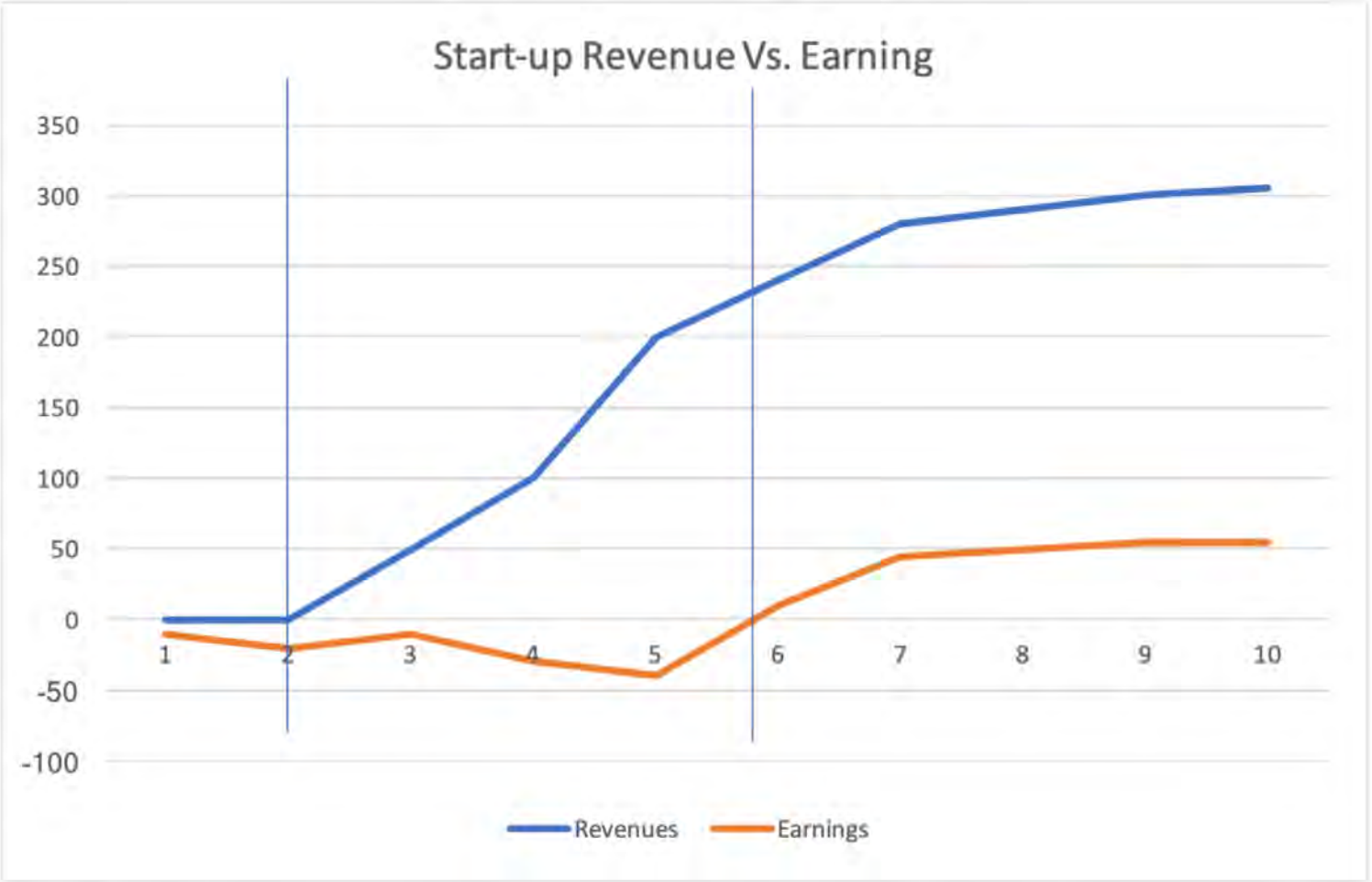
Foreign Co.

- Which Govt. Bond 10 Yr Vs. 30 Yr.
- Country Risk
- With Domestic Sales
- Export
- Export in Multiple Currencies
- Geography?
- Segments?

Domestic Vs. Foreign

- Is it okay to use international database?
- Whether beta of a particular industry in 'Indian Market' is different from beta of same industry in other markets?

- India ERP = Mature Market ERP (+) Country Risk Premium
- How do I calculate such country risk premium?
  - Method 1 : Credit Default Spread of India Treasury Bond and Mature Market Treasury Bond
  - Method 2 : Above spread adjusted for (India Equity Market Volatility / GSec Volatility)
  - Method 3 : ERP in Mature Market x (SD of Equity Market in India / SD of Equity Market in Mature Equity Market Country)



Stage I	Stage II	Stage III
Development	Positive Revenue Negative Earnings	Positive Revenue Positive Earnings


Aramco Valuation

Background

Aramco made its debut on Saudi Stock Exchange in December after raising $29.4 billion through its IPO by selling a 1.725% stake.

It overtook Microsoft and Apple to become the most valuable listed company at $1.88 trillion.

Aramco overseas listing still on the cards (but not in immediate future).

Relative valuation

Methodology

DATA COLLECTED

Data of 373 Entities world wide working in Oil & Gas as follows.

Name of Exchange on which company is listed.

57 Public Companies, 286 Private Companies, 30 Oil Assets

Data related to Public Companies

Data From Public Companies

From Latest Annual Financial Statements (Financial Data) - 9 Data Points

- *Market Capitalisation*
- *Total Debt (from latest submitted Annual Financial Statements)*
- *Total Cash & Short Term/ Liquid Investments*
- *Total Revenue*
- *EBITDA*
- *EBIT*
- *Net Income*
- *Interest Expense*
- *Equity*

From Latest Annual Financial Statements (Non-Financial Data) - 4 Data Points

- *Total Proven Oil Reserves*
- *Total Probable Oil Reserves*
- *Total Oil Equivalent Production*
- *Closing Reserves*

Methodology

DATA COLLECTED (CONTD.)

PARTICULARS	EBITDA	TOTAL REVENUE	OIL PRODUCTION
LAST 36 MONTHS	✓	✓	✓
LAST 32 MONTHS	✓	✓	✓
LAST 28 MONTHS	✓	✓	✓
LAST 24 MONTHS	✓	✓	✓
LAST 20 MONTHS	✓	✓	✓
LAST 16 MONTHS	✓	✓	✓
LAST 12 MONTHS	✓	✓	✓
LAST 8 MONTHS	✓	✓	✓
LAST 4 MONTHS	✓	✓	✓

27 Data Points

2 Data Points

&

S&P Credit Rating (Foreign Currency)
S&P Credit Rating (Local Currency)

Methodology

DATA COLLECTED (SUMMARY)

- Data of 373 Entities world wide working in Oil & Gas as follows.
- Name of Exchange on which company is listed.
- 57 Public Companies, 286 Private Companies, 30 Oil Assets
  - From Latest Annual Financial Statements (Financial Data) - 9 Data Points
  - From Latest Annual Financial Statements (Non-Financial Data) - 4 Data Points
  - Historical Data - 27 Data Points
  - Credit Rating - 2 Data Points
- i.e. 57 x (9 + 4 + 27 + 2)
- = 57 Public Companies x (42 Data Points/ Co.)
- = 2,394 Data Points

Methodology

DATA PROCESSING - 14 VALUES (5 ON THIS PAGE)

- Enterprise Value = Market Capitalisation + Total Debt - Cash & Short Term Liquid Investments (Reduced Cash & Short Term Liquid Investments for the purpose of multiple based valuation)
- Invested Capital = Equity + Total Debt - Cash & Short Term Liquid Investments
- PE Ratio = Market Capitalisation/ Net Income (you can calculate PE ratio with given set of information only if you have (+) ve income. In case of losses, you need to ignore the PE ratio. Such companies will not be used in the sample for valuations using PE multiple.)
- PBV (i.e. Price to Book Value Ratio) = Market Capitalisation/ Equity (We can calculate this ratio only if company has (+) ve equity
- EV/ Sales = Enterprise Value/ Total Revenue (we can calculate this ratio only if Total Revenues are (+) ve. Other income/ losses if netted off against revenue may turn Total Revenue (-)ve.

Methodology

DATA PROCESSING (CONTD.) - 14 VALUES (9 ON THIS PAGE)

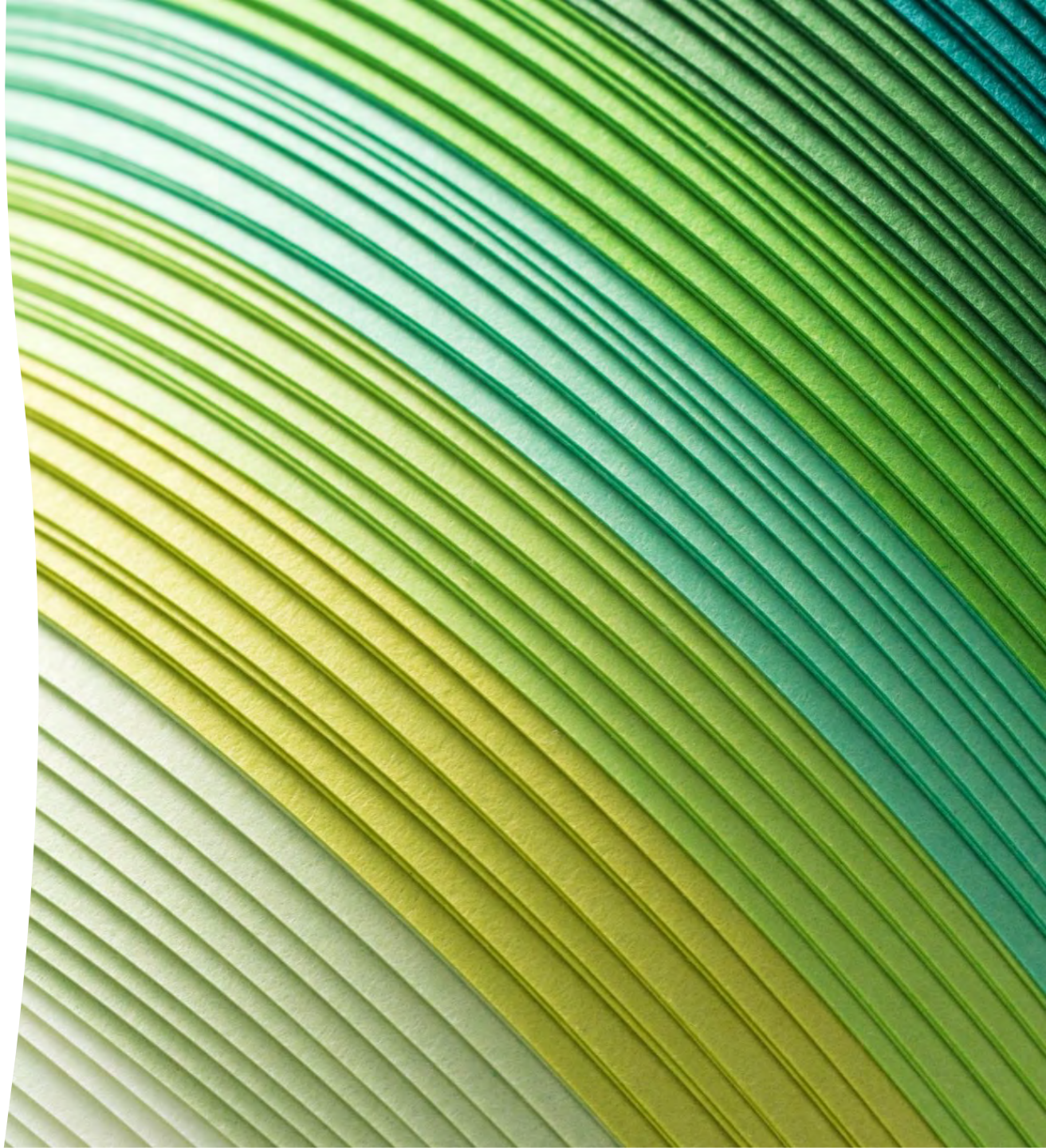
- EV/ EBITDA = Enterprise Value/ EBITDA (we can calculate this ratio only if EBITDA is (+) ve.)
- EV/ IC = Enterprise Value/ Invested Capital
- EV/ Proven Results
- EV/ Oil Produced
- ROE i.e. Return on Equity = Net Income / Equity
- ROIC = EBIT/ Invested Capital
- Operating Margin = EBIT/ Total Revenue
- D/E (book) = Total Debt / Equity
- D/E (market) = Total Debt / Market Capitalisation

Methodology

MAJOR OBSERVATIONS -
26 LISTED COMPANIES

9 Key Ratios/ Numbers

Thus, 26 x 9 = 234 Data Points



Company Name	*EV*	*Invested Capital*	*PE*	*PBV*	*EV/Sales*	*EV/EBITDA*	*EV/IC*	*EV/ Reserves (Mil bbl)*	*EV/Production (Mil bbl)*
Exxon Mobil Corporation	$3,20,114	$2,25,377	16.17	1.49	1.18	8.85	1.42	$23.01	$228.78
Royal Dutch Shell plc	$2,98,289	$2,60,053	11.57	1.19	0.82	5.57	1.15	$58.42	$222.94
Chevron Corporation	$2,46,788	$1,80,442	15.00	1.43	1.61	7.42	1.37	$36.35	$230.75
PetroChina Company Limited	$1,83,879	$2,15,092	25.10	0.82	0.54	3.73	0.85	$23.09	$123.27
TOTAL S.A.	$1,60,222	$1,38,135	14.06	1.19	0.89	5.12	1.16	$26.49	$158.17
BP p.l.c.	$1,76,439	$1,45,861	27.24	1.31	0.63	5.58	1.21	$16.47	$133.01
Petróleo Brasileiro S.A. -	$1,72,259	$1,41,562	12.51	1.43	2.37	6.33	1.22	$20.85	$199.70
Gazprom	$1,18,410	$2,20,324	3.40	0.47	0.90	2.78	0.54	$22.68	$31.82
China Petroleum & Chemical Corp	$79,675	$1,02,938	12.68	0.78	0.19	3.32	0.77	$47.82	$176.47
Rosneft Oil	$1,19,753	$1,06,369	7.85	1.23	0.91	3.84	1.13	$2.93	$60.96
PJSC LUKOIL	$61,254	$57,723	5.81	1.06	0.46	3.14	1.06	$5.10	$71.52
Equinor ASA	$72,985	$54,656	11.26	1.43	1.05	3.07	1.34	$28.53	$102.36
Eni S.p.A.	$72,240	$75,795	20.63	0.94	0.89	4.03	0.95	$20.41	NA
Suncor Energy Inc.	$57,445	$43,386	12.37	1.44	1.98	5.78	1.32	$14.00	$211.58
PTT Public Company Limited	$48,158	$32,403	12.50	1.58	0.63	4.74	1.49	NA	NA
Occidental Petroleum Corporation	$45,562	$29,896	9.63	1.73	2.48	5.16	1.52	$28.78	$189.84
Ecopetrol S.A.	$45,405	$25,389	10.98	2.18	2.21	5.13	1.79	$40.29	$174.23
Gazprom Neft	$37,089	$33,053	4.53	1.15	0.94	3.56	1.12	$5.79	$53.88
Repsol, S.A.	$35,761	$45,578	11.51	0.72	0.70	6.48	0.78	$56.05	$137.01
Oil and Natural Gas Corporation	$38,431	$44,826	5.98	0.80	0.63	3.40	0.86	$10.27	$89.06
Surgutneftegas PJS Co	$4,694	$43,992	3.40	0.38	0.18	0.58	0.11	NA	NA
OMV Aktiengesellschaft	$20,134	$14,669	8.73	1.40	0.77	3.05	1.37	$31.38	$129.06
Imperial Oil Limited	$21,858	$20,932	7.95	1.05	0.86	5.92	1.04	$5.92	$174.58
Galp Energia, SGPS, S.A.	$15,781	$7,609	37.64	2.56	0.87	7.03	2.07	$53.28	$402.58
Cenovus Energy Inc. (TSX:CVE)	$17,014	$19,187	19.41	0.83	1.13	5.36	0.89	$4.12	$96.39
Origin Energy Limited (ASX:ORG)	$13,598	$13,294	11.20	1.03	1.31	20.85	1.02	NA	NA
Average			13.12	1.22	1.03	4.76	1.14	$25.31	$154.45
Median			11.54	1.19	0.89	5.13	1.14	$23.01	$147.59
First Quartile			7.92	0.83	0.63	3.38	0.88	$10.27	$94.56
Third Quartile			15.29	1.43	1.21	6.02	1.37	$36.35	$202.67

(All Amounts in USD Million)

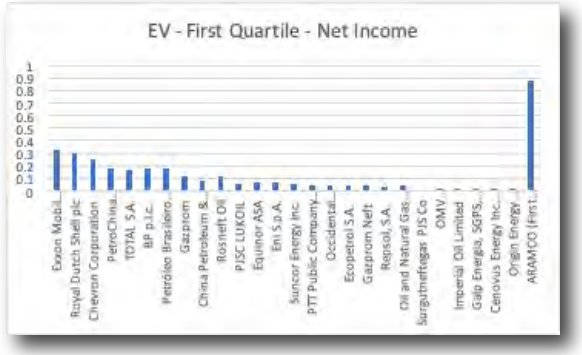
Conclusion Carried forward from previous slide (Analysis of 26 Key Companies)

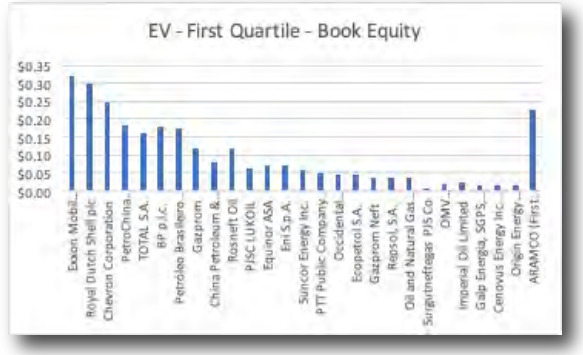
Company Name	*PE*	*PBV*	*EV/Sales*	*EV/EBITDA*	*EV/IC*	*EV/ Reserves (Mil bbl)*	*EV/Production (Mil bbl)*
Average	13.12	1.22	1.03	4.76	1.14	$25.31	$154.45
Median	11.54	1.19	0.89	5.13	1.14	$23.01	$147.59
First Quartile	7.92	0.83	0.63	3.38	0.88	$10.27	$94.56
Third Quartile	15.29	1.43	1.21	6.02	1.37	$36.35	$202.67

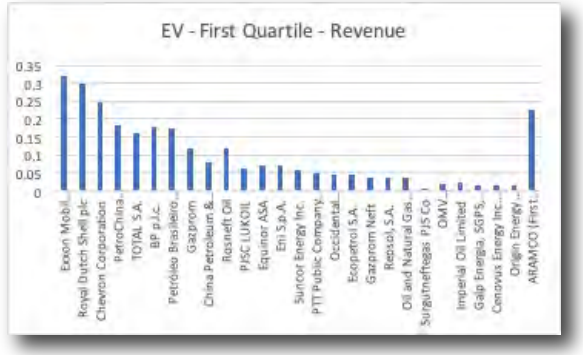
Application of Median, First Quartile, and Third Quartile Multiples to Value Aramco

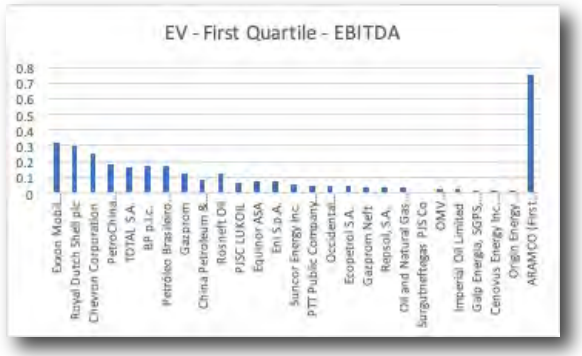
Multiple	*Pricing Metric*	*Aramco (2018)*	*First Quartile*	*Valuation on Basis of First Quartile*	*Median*	*Valuation on Basis of Median*	*Third Quartile*	*Valuation on Basis of Third Quartile*
		(A)	*(B)*	*(C) = (A) x (B)*	*(D)*	*(E) = (A) x (D)*	*(F)*	*(G) = (A) x (F)*
Net Income	Net Income	$1,11,071	7.92	$8,79,918	11.54	$12,81,898	15.29	$16,98,183
Book Value of Equity	Book Equity	$2,71,142	0.83	$2,24,630	1.19	$3,23,130	1.43	$3,87,988
Sales	Revenue LTM	$3,55,940	0.63	$2,24,230	0.89	$3,17,936	1.21	$4,31,642
EBITDA	EBITDA LTM	$2,23,931	3.38	$7,56,254	5.13	$11,47,683	6.02	$13,49,053
EV/IC	Invested Cap LTM	$2,49,319	0.88	$2,19,243	1.14	$2,83,333	1.37	$3,41,293
EV/Reserves (millions of barrels)	Proven Reserves	265900	$10.27	$27,30,512	$23.01	$61,18,768	$36.35	$96,64,349
EV/ Production (millions of barrels)	Production LTM	10300	$94.56	$9,73,978	$147.59	$15,20,173	$202.67	$20,87,488

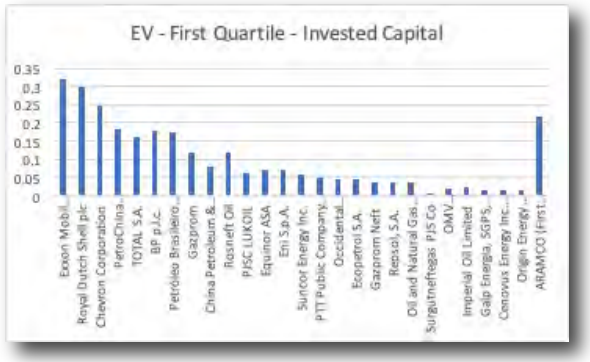
(All Amounts in USD Trillion)

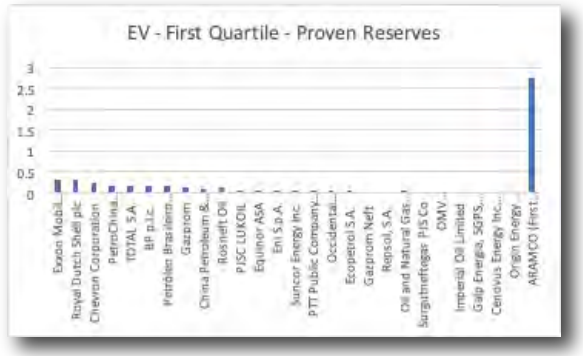


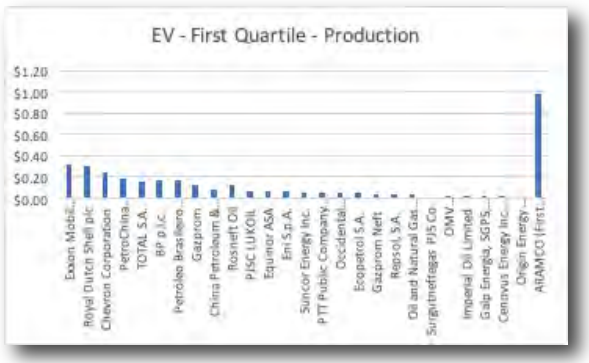




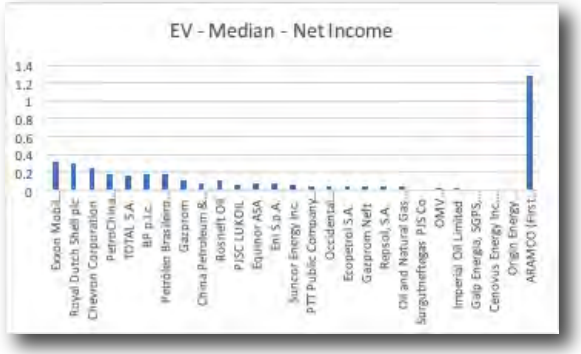


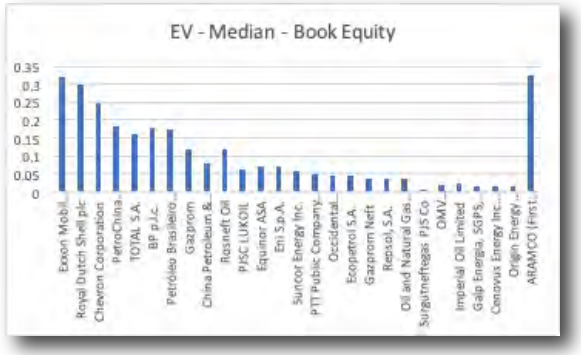


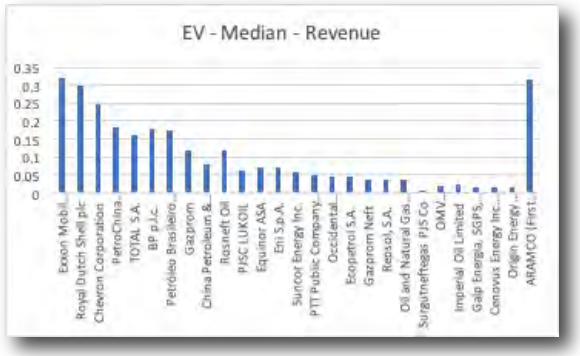


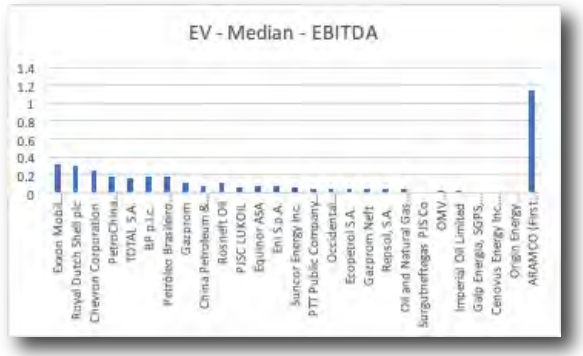


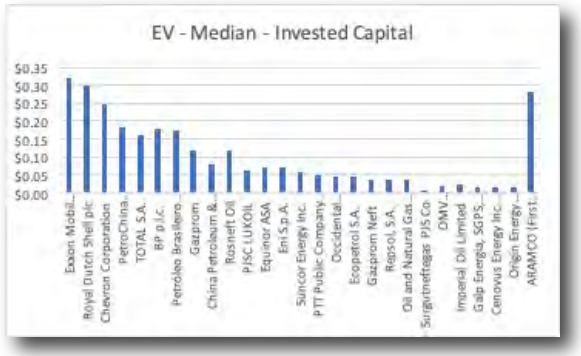
(All Amounts in USD Trillion)

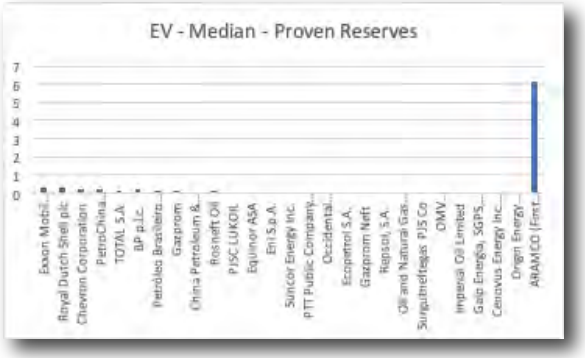


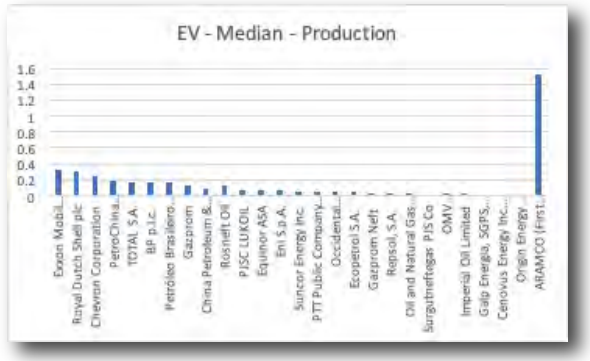








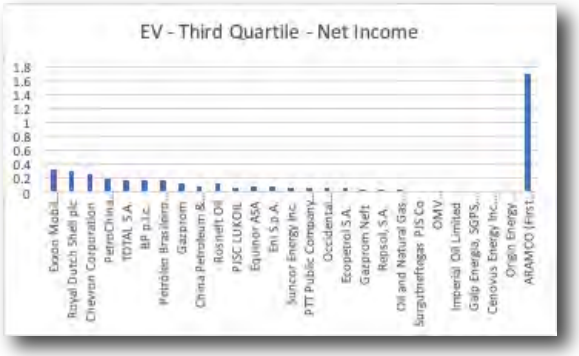


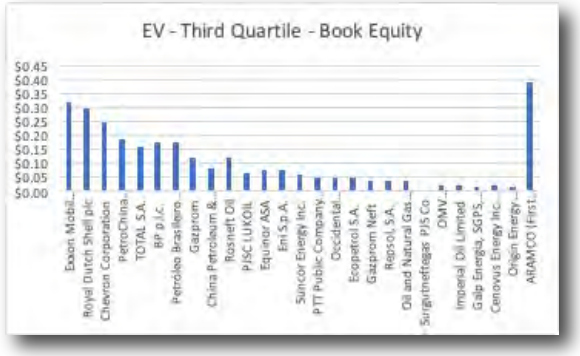


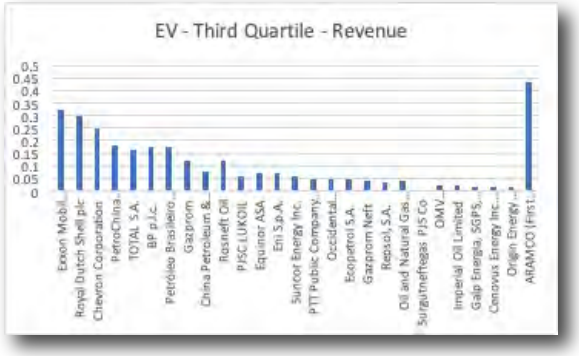
Pricing Caveats

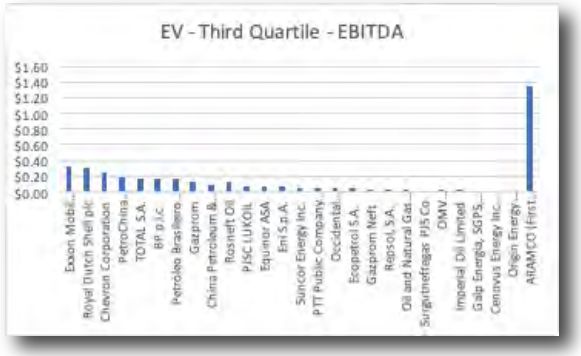
1. *Production Limits = Right for next 40 years, can be extended for another 20 years.*
2. *Governance = Govt.'s absolute control over Company.*
3. *Country Risk = Dependence on Local Production*
4. *Political Risk = Monarchy - regime change?*

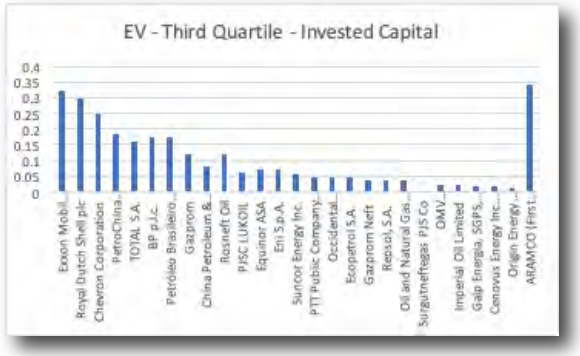
(All Amounts in USD Trillion)

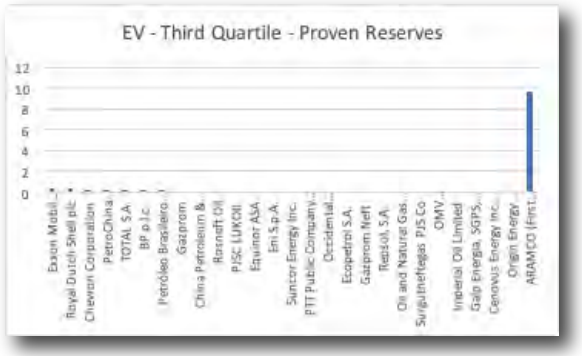


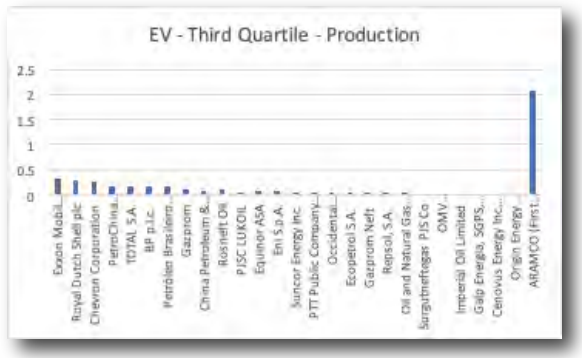




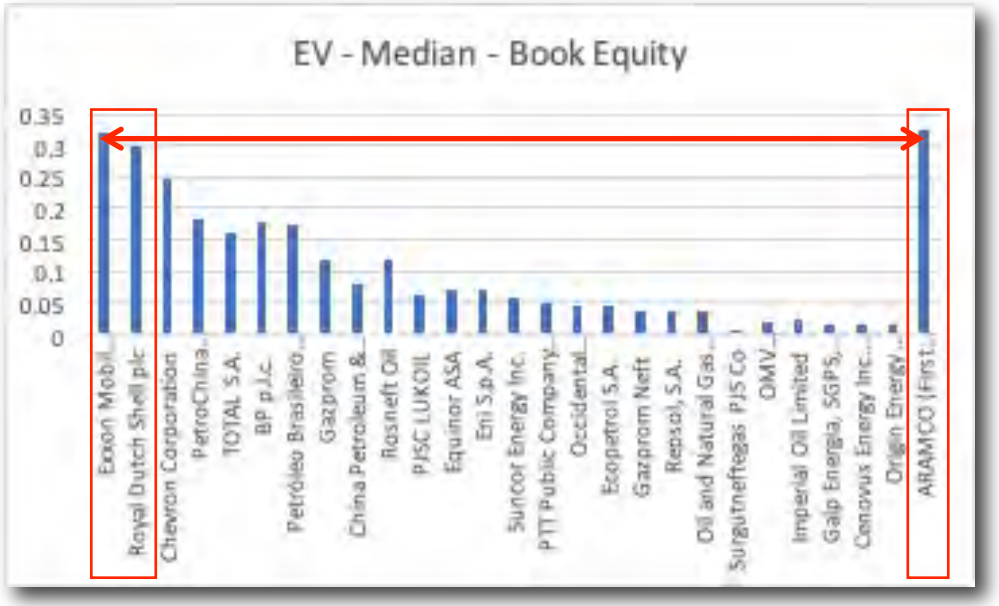


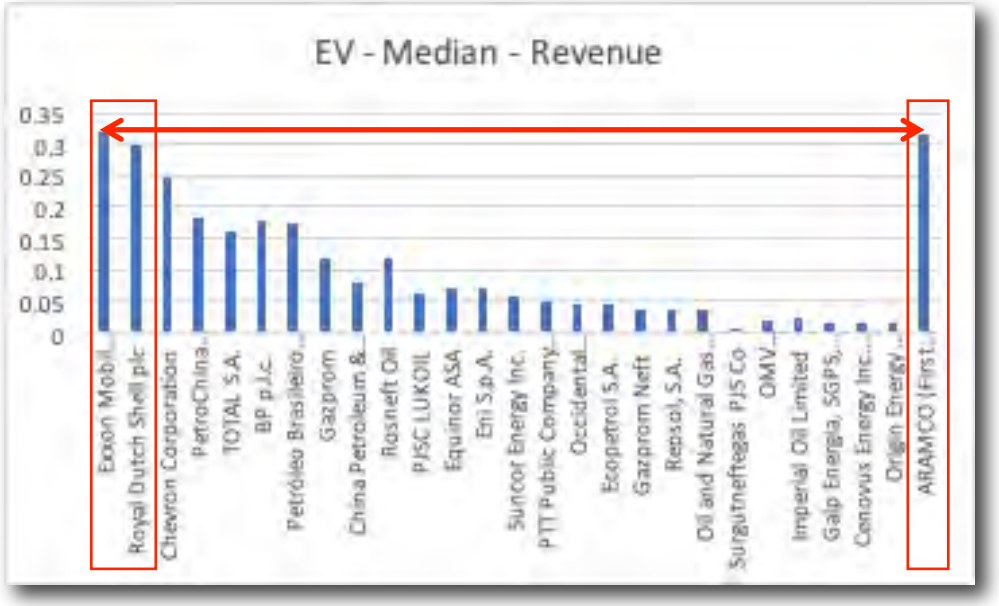






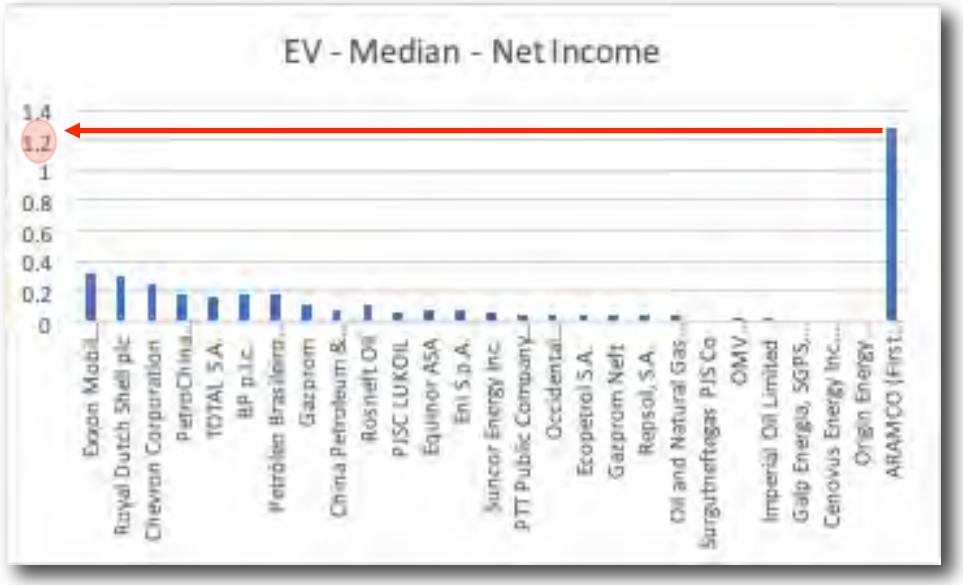
(All Amounts in USD Trillion)

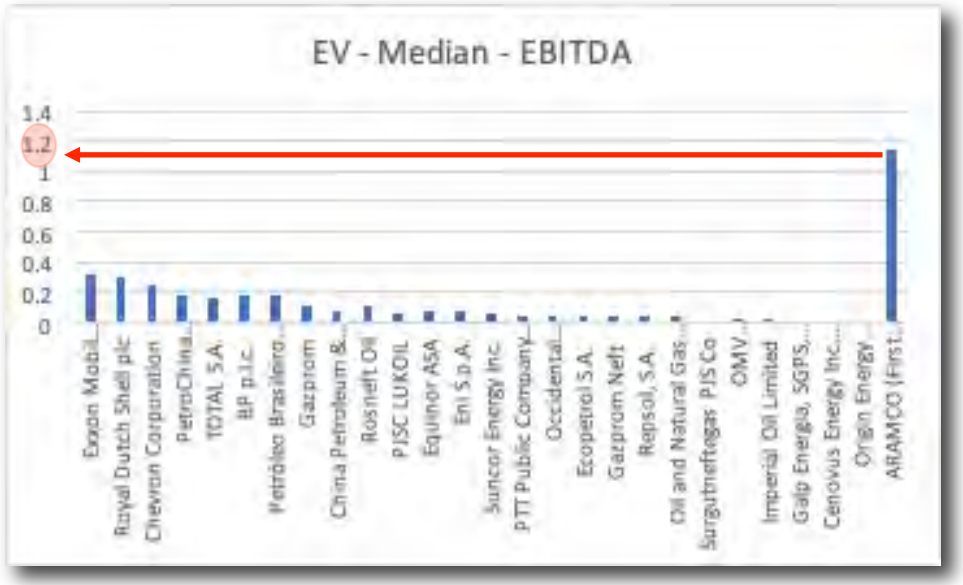




Value of Aramco on the basis of Book Equity Multiple and Revenue Multiple, is similar to value of Exxon Mobil and Royal Dutch.

(All Amounts in USD Trillion)

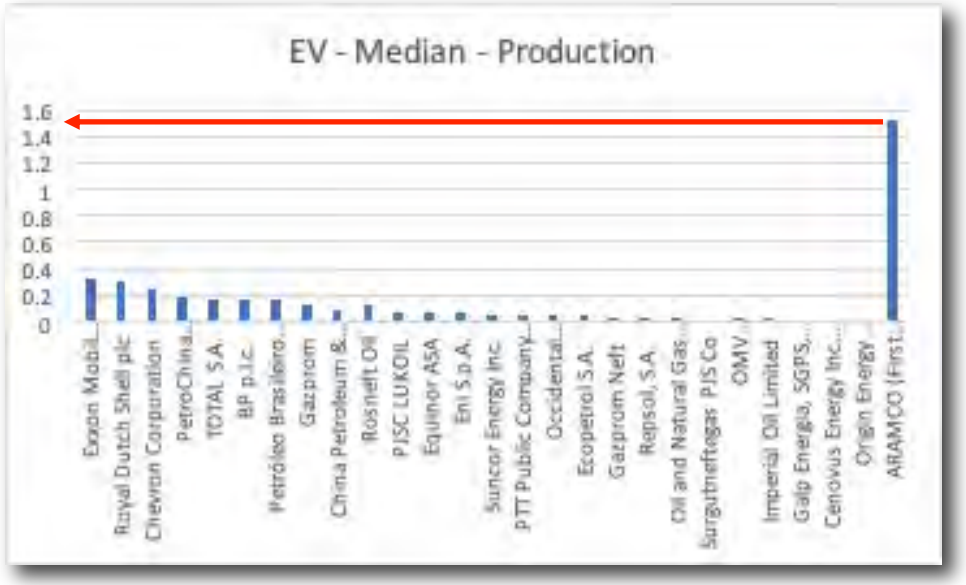


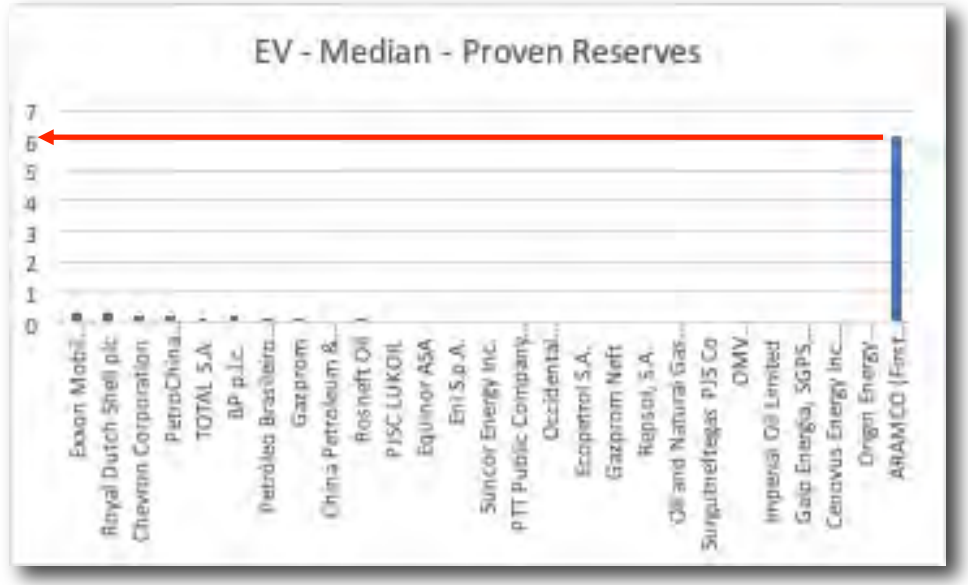


Aramco's Extraction Cost of $20/ Barrel vs. Other's Minimum Extraction Cost of $40-45/ Barrel is reflected in Income Based Valuations.

Low gearing and finance cost moves $1.2 Trillion Value (on EBITDA Multiple) to $1.3 (plus) (on Net Income Multiple)

(All Amounts in USD Trillion)





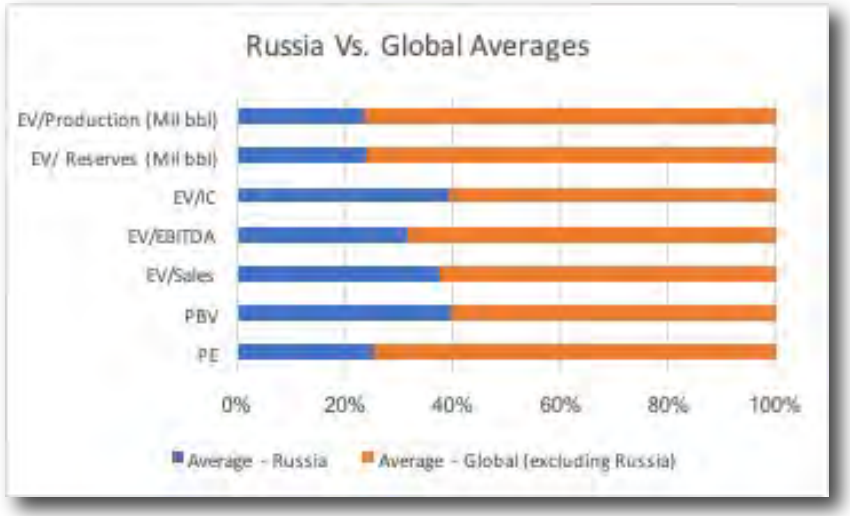
Valuation is highest when carried on the basis of Actual Production Multiple. Aramco is valued at approx $1.5 Trillion on such basis.

Valuation (approx $6 Trillion) becomes exorbitantly high when carried on the basis of Multiple of Proven Reserves
(Aramco has right to extract for next 40 years and this right may be extended for another 20 years)

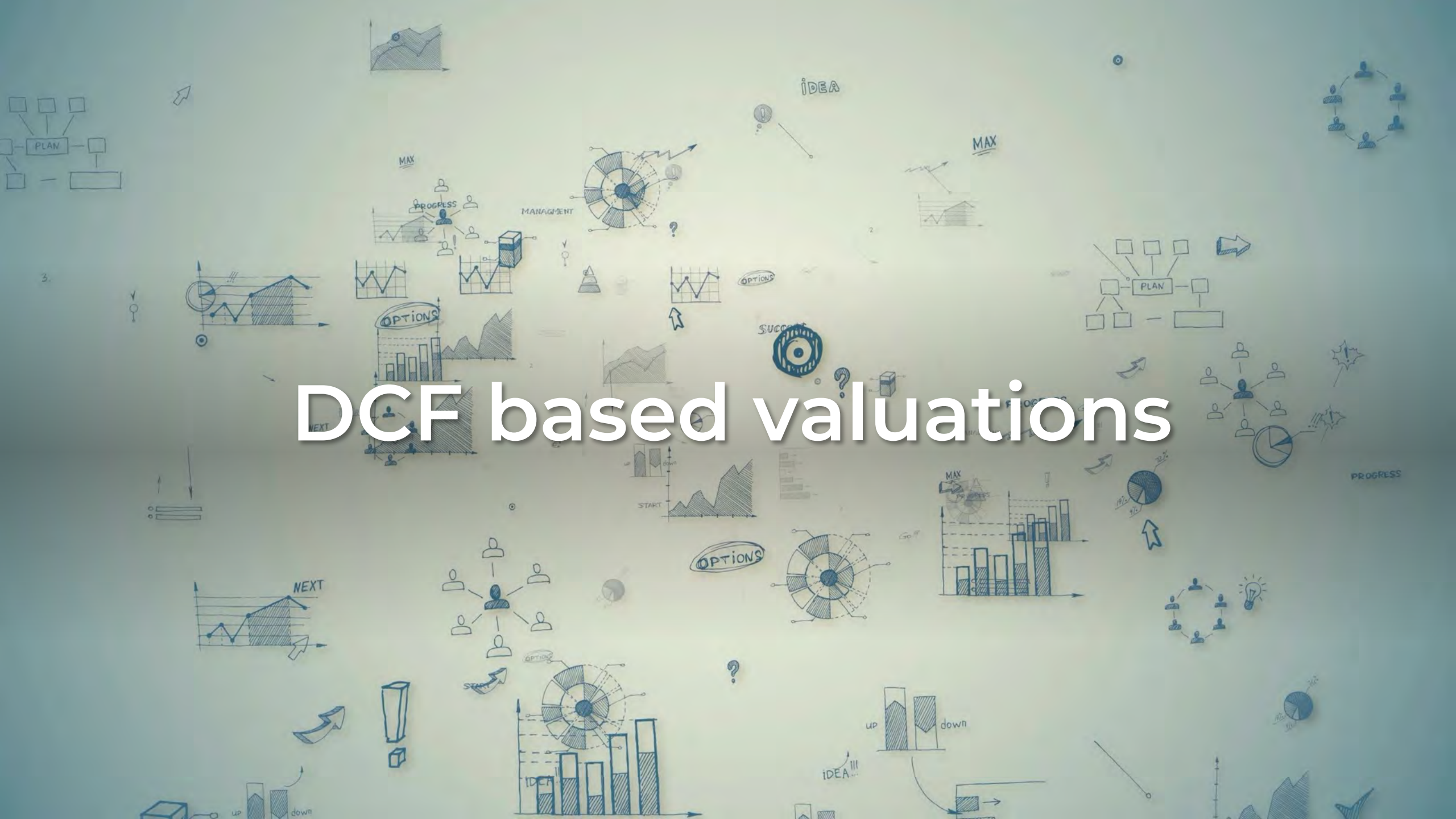
Discount for country risk

RUSSIA - A COMPARABLE FOR SAUDI ARAB?

Company Name	EV	Invested Capital	PE	PBV	EV/Sales	EV/EBITDA	EV/IC	EV/ Reserves (Mil bbl)	EV/Production (Mil bbl)	Country of Incorporation
Gazprom	$1,18,410	$2,20,324	3.40	0.47	0.90	2.78	0.54	$22.68	$31.82	Russia
Rosneft Oil	$1,19,753	$1,06,369	7.85	1.23	0.91	3.84	1.13	$2.93	$60.96	Russia
PJSC LUKOIL	$61,254	$57,723	5.81	1.06	0.46	3.14	1.06	$5.10	$71.52	Russia
Gazprom Neft	$37,089	$33,053	4.53	1.15	0.94	3.56	1.12	$5.79	$53.88	Russia
Surgutneftegas PJS Co	$4,694	$43,992	3.40	0.38	0.18	0.58	0.11	NA	NA	Russia
Average - Russia	$68,240	$92,292	5.00	0.86	0.68	2.78	0.79	9.13	54.55	
Average - Global (excluding Russia)	$1,02,002	$87,480	14.96	1.30	1.13	6.00	1.22	28.71	176.65	
Average Russia/ Average Global (excluding Russia)			33.41%	65.91%	60.10%	46.37%	64.85%	31.79%	30.88%	
Hence, Potential Discount			66.59%	34.09%	39.90%	53.63%	35.15%	68.21%	69.12%	
Value of Aramco (on Median Basis)			$12,81,898	$3,23,130	$3,17,936	$11,47,683	$2,83,333	$61,18,768	$15,20,173	
Value of Aramco After Discount			$4,28,248	$2,12,972	$1,91,088	$5,32,186	$1,83,738	$19,44,854	$4,69,385	



Maximum Value on 'Multiple of Reserve Basis' is at $1.9 Trillion


DCF based valuations

Methodology

ASSUMPTIONS

- Valuation is carried in US $
- Valuation is not carried in Saudi Riyals
  - This is because, almost all transactions are entered in US $ i.e. functional currency is USD (can refer to IAS 21 to understand meaning of functional currency)
- Inflation = US Treasury Bond Rate - US TIPS Rate
  - Treasury Inflation-Protected Security (TIPS) is a Treasury bond that is indexed to inflation to protect investors from the negative effects of rising prices. The principal value of TIPS rises as inflation rises.
- Equity Risk Premium
- Life/ Tenure

DIVIDEND DISCOUNT MODEL - PROMISED DIVIDENDS

	Input		*Source of data*
Expected Dividends next year =	$ 75.00	(in billions of dollars)	Prospectus, under section on dividends
Expected Growth rate	1%		Inflation rate in US $, US T Bond rate minus US TIPs rate
Number of years =	50.00		Years of production left, given reserves and expected production
Risk free Rate in US $	1.80%		US T. Bond rate on November 14, 2019
ERP for Saudi Arabia	6.23%		Mature Market ERP of 5.44% (+) Country Risk Premium for Saudi Arabia of 0.79%
Beta	0.5		Global beta for REITs for Promised Dividend Model
Cost of Equity	4.92%		i.e. 1.80% + 0.5 x 6.23%
Value of Equity	$ 1,629.61	(in billions)	(This is value of Finite Annuity i.e. Annuity for 50 years at a constant growth rate of 1%)
Probability of regime change	20%		Your best judgment of cumulative probability over time
Value of Equity with regime change (as % of status quo value)	50%		If you expect expropriate, this can be 0%
Regime Change Adjusted Value	$ 1,466.65	(in billions)	

Expected Value of Equity =

Value of Equity i.e. $1,629 Billion

x

Probability That House of Saud Rules (i.e. 1- Probability of Regime Change)

(+)

Value of Equity with Regime Change i.e. (50% of $1,629 Billion)

x

Probability of Regime Change

DIVIDEND DISCOUNT MODEL - PROMISED DIVIDENDS

Sensitivity Analysis - Point of Sensitivity = Probability of Regime Change

	Original Scenario	Regime Scen. I	Regime Scen. II	
Expected Dividends next year =	$ 75.00	$ 75.00	$ 75.00	(in billions of dollars)
Expected Growth rate	1%	1%	1%	
Number of years =	50.00	50.00	50.00	
Risk free Rate in US $	1.80%	1.80%	1.80%	
ERP for Saudi Arabia	6.23%	6.23%	6.23%	
Beta	0.5	0.5	0.5	
Cost of Equity	4.92%	4.92%	4.92%	
Value of Equity	$ 1,629.61	$ 1,629.61	$ 1,629.61	(in billions)
Probability of regime change	20%	10%	5%	
Value of Equity with regime change (as % of status quo value)	50%	50%	50%	
Regime Change Adjusted Value	$ 1,466.65	$ 1,548.13	$ 1,588.87	(in billions)

Can we reasonably say, value of Aramco (Regime Change Adjusted Value) is around $1.5 Trillion?

DIVIDEND DISCOUNT MODEL - POTENTIAL DIVIDENDS

	Input		*Source of data*
Net Income	$ 111.00	(in billions)	Prospectus, Income Statement for 2018
Expected growth in earnings =	1.80%		Nominal Global GDP growth = Risk free rate
Expected return on equity =	40.96%		Prospectus, Income Statement for 2018
Number of years =	50		Years of production left, given reserves and expected production
Risk free Rate in US $	1.80%		US T. Bond rate on November 14, 2019
ERP for Saudi Arabia	6.23%		Mature Market ERP of 5.44% (+) Country Risk Premium for Saudi Arabia of 0.79%
Beta for integrated oil	1.02		Global beta for integrated oil companies, start of 2019
Cost of Equity	8.15%		
Imputed Payout Ratio =	95.61%		(i.e. 1- Expected Growth in Earnings/ Expected Return on Equity)
Value of Equity *(Dividend Growth Model)*	$ 1,589.12	(in billions)	*inside the calculation, Potential Dividend = Expected Earnings x Potential Payout Ratio*
+ Cash	$ 48.84		Prospectus, Balance Sheet for 2018
+ Cross Holdings	$ 10.61		Prospectus, Balance Sheet for 2018
Value of Equity	$ 1,648.57		
Probability of regime change	20.00%		Your best judgment of cumulative probability over time
Value of Equity with regime change (as % of status quo value)	50.00%		If you expect expropriate, this can be 0%
Regime Change Adjusted Value	$ 1,483.71		

Points to be Noted:

1. Here I have used beta for Integrated Oil Companies instead Beta of REITs (which I used for Promised Dividend Growth Model)
2. The reason that dividend discount models often fail is because they look at the actual dividends paid and don't factor in the reality that some companies pay out more than they can afford to do in dividends, in which case they are unsustainable and will fall under that weight, and some companies pay too little, in which case the cash that is paid out accumulates in the firm as a cash balance, and equity investors get a stake in it. While I noted that Aramco has signaled that it will pay at least $75 billion in dividends over the next five years, it has not indicated that it will cease investing and with potential dividends, you value the company based upon its capacity to pay dividends, rather than actual dividends. In computing the potential dividends, I assumed that the company would be able to grow earnings at 1.80% a year, and be able to do so by continuing to generate sky high returns on equity (its 2018 return on equity was about 41%). However, the shift from promised dividends to potential dividends will also expose investors to more of the risk in an integrated oil company and I adjust the cost of equity accordingly

DIVIDEND DISCOUNT MODEL - POTENTIAL DIVIDENDS

Sensitivity Analysis - Point of Sensitivity = Probability of Regime Change

	Original Scenario	Regime Scen. I	Regime Scen. II
Net Income	$ 111.00	$ 111.00	$ 111.00
Expected growth in earnings =	1.80%	1.80%	1.80%
Expected return on equity =	40.96%	40.96%	40.96%
Number of years =	50	50	50
Risk free Rate in US $	1.80%	1.80%	1.80%
ERP for Saudi Arabia	6.23%	6.23%	6.23%
Beta for integrated oil	1.02	1.02	1.02
Cost of Equity	8.15%	8.15%	8.15%
Imputed Payout Ratio =	95.61%	95.61%	95.61%
Value of Equity *(Dividend Growth Model)*	$ 1,589.12	$ 1,589.12	$ 1,589.12
+ Cash	$ 48.84	$ 48.84	$ 48.84
+ Cross Holdings	$ 10.61	$ 10.61	$ 10.61
Value of Equity	$ 1,648.57	$ 1,648.57	$ 1,648.57
Probability of regime change	20.00%	10.00%	5.00%
Value of Equity with regime change (as % of status quo value)	50.00%	50.00%	50.00%
Regime Change Adjusted Value	$ 1,483.71	$ 1,566.14	$ 1,607.36

Once again, can we reasonably assume that Aramco is valued around $1.5 Trillion?

FCFE APPROACH

	Input		Source of data
Operating Income	$ 213	(in billions)	Prospectus, Income Statement for 2018
Tax rate	47.77%		Prospectus, Effective tax rate for 2018
Expected growth rate	1.80%		Nominal Global GDP growth = Risk free rate
Return on invested capital (after-tax)	44.61%		Prospectus, Return on invested capital in 2018
Number of years	50.00		Years of production left, given reserves and expected production
Risk free Rate in US $	1.80%		US T. Bond rate on November 14, 2019
ERP for Saudi Arabia	6.23%		Mature Market ERP of 5.44% (+) Country Risk Premium for Saudi Arabia of 0.79%
Beta for integrated oil	1.02		Global beta for integrated oil companies, start of 2019
Cost of debt Iin US$)	2.70%		Based on A1 rating assigned by Moody's to company
Debt Ratio =	1.80%		Prospectus, Debt Ratio in 2018
Cost of Capital	8.08%		
Imputed Reinvestment Rate =	4.04%		i.e. Expected Growth Rate/ Return on Invested Capital
Value of Operating Assets	$ 1,643.44	(in billions)	
+ Cash	$ 48.84	(in billions)	Prospectus, Balance Sheet for 2018
+ Cross Holdings	$ 10.61	(in billions)	Prospectus, Balance Sheet for 2018
- Debt	$ 27.02	(in billions)	Prospectus, Balance Sheet for 2018
- Minority Interests	$ 3.11	(in billions)	Prospectus, Balance Sheet for 2018
Value of Equity	$ 1,672.76	(in billions)	
Probability of regime change	20.00%		Your best judgment of cumulative probability over time
Value of Equity with regime change (as % of status quo value)	50.00%		If you expect expropriate, this can be 0%
Regime Change Adjusted Value	$ 1,505.49		

Finally, can we reasonably assume that Aramco is valued around $1.5 Trillion?

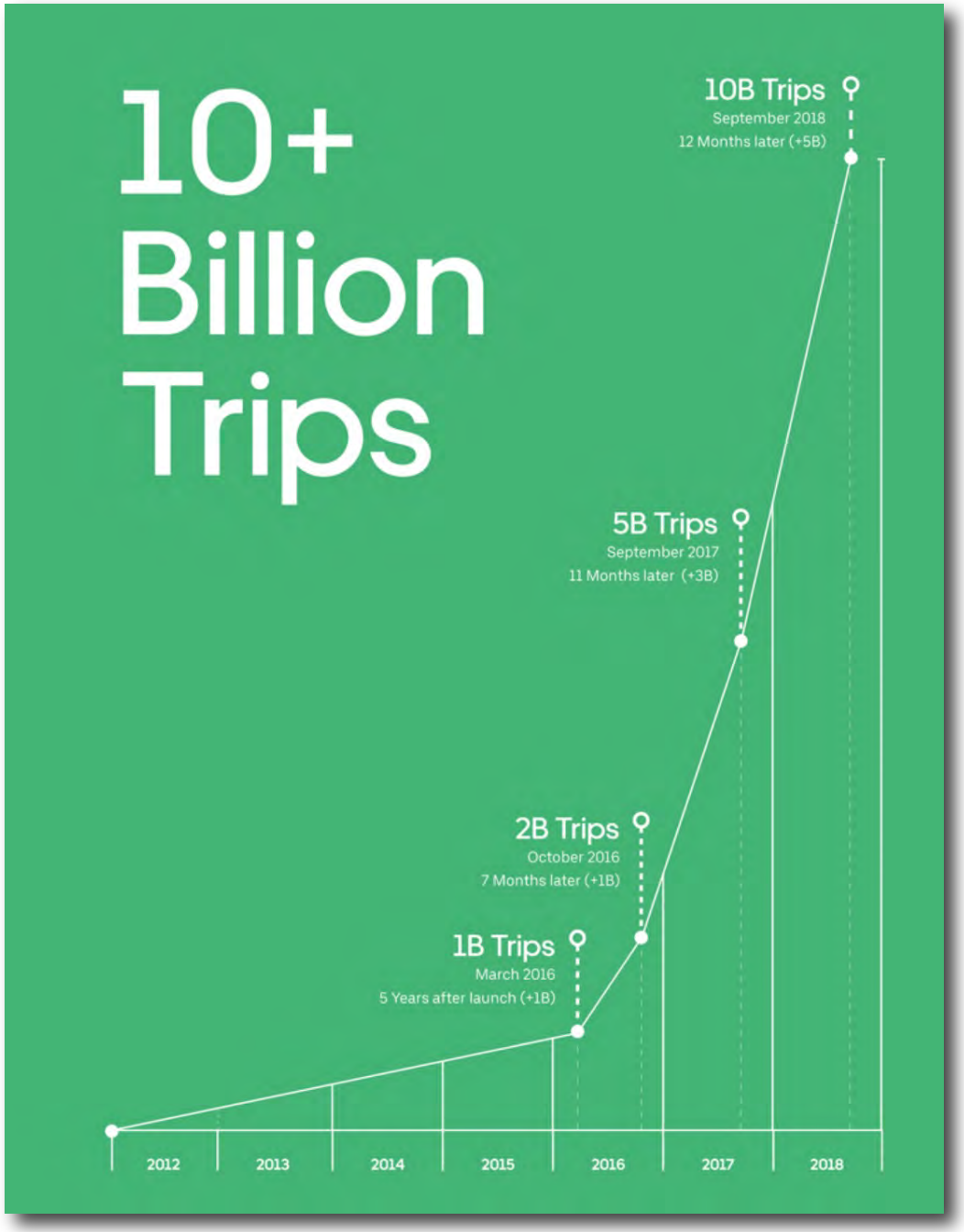
UBER VALUATION

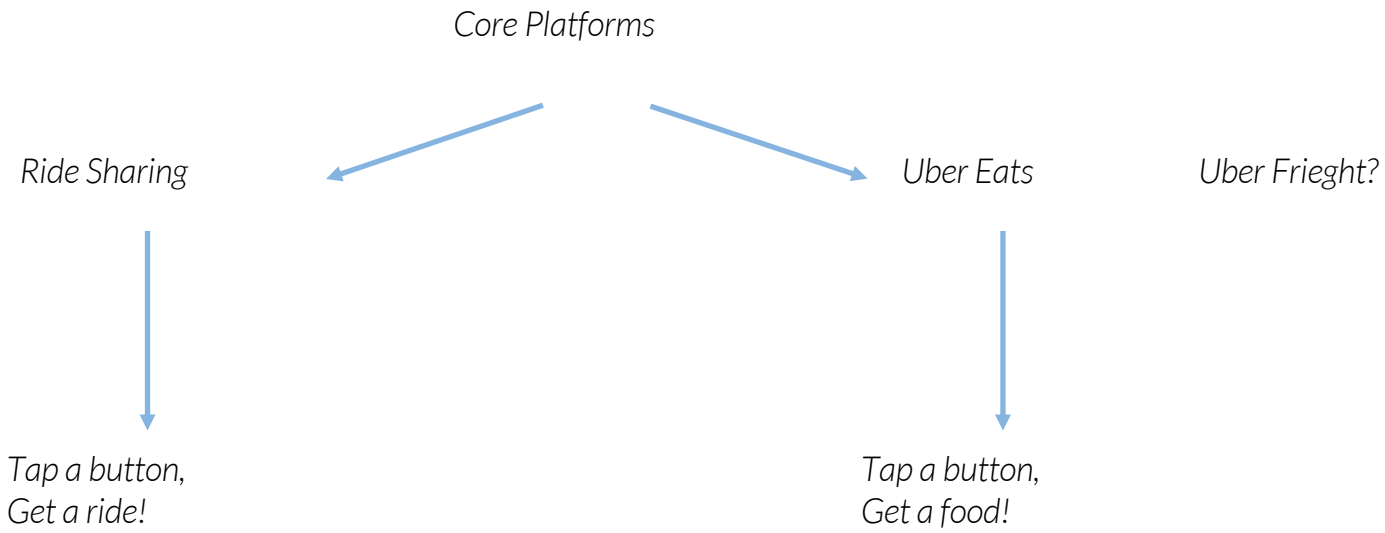
ABOUT

UBER

We ignite opportunity by setting the world in motion.

6 Continents
3 Platform Offerings
700+ Cities
91M MAPCs
14M Trips a day
$78B Paid to Drivers

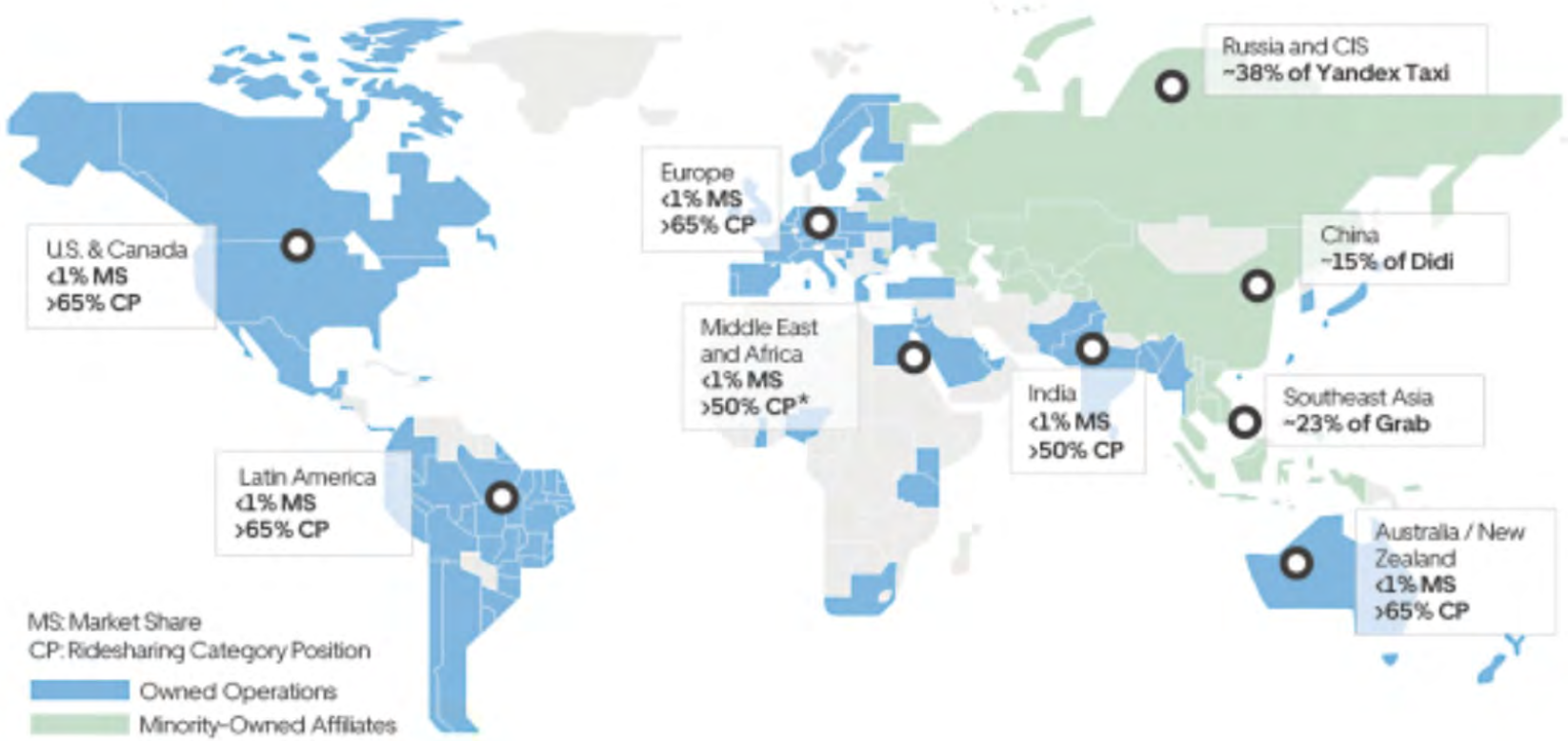




Today Uber accounts for less than 1% of miles driven globally!
It is not merely a car service company but an urban mobility company.
Presently serves in 63 countries.

Future - how future of urban mobility will reshape cities for the better.

Our Global Ridesharing Footprint



	Year Ended December 31,		
	2016	2017	2018
	(in millions, except %)		
Other Financial and Operating Data:			
Monthly Active Platform Consumers(1)	45	68	91
Trips(2)	1,818	3,736	5,220
Gross Bookings(3)	$ 19,236	$ 34,409	$ 49,799
Core Platform Adjusted Net Revenue(4)	$ 3,219	$ 7,191	$ 10,025
Core Platform Contribution Margin(5)	(23)%	0%	9%
Adjusted EBITDA(6)	$ (2,517)	$ (2,642)	$ (1,847)

	Year Ended December 31,		
	2016	2017	2018
	(in millions)		
Adjusted EBITDA Reconciliation:			
Net income (loss) attributable to Uber Technologies, Inc.	$ (370)	$ (4,033)	$ 997
Add (deduct):			
(Income) loss from discontinued operations, net of income taxes	(2,876)	—	—
Net income (loss) attributable to non-controlling interest, net of tax	—	—	(10)
Benefit from (provision for) income taxes	28	(542)	283
Income (loss) from equity method investment, net of tax	—	—	42
Interest expense	334	479	648
Other income (expense), net	(139)	16	(4,993)
Depreciation and amortization	320	510	426
Stock-based compensation expense	128	137	172
Legal, tax, and regulatory reserves and settlements	49	440	340
Asset impairment/loss on sale of assets	9	340	237
Acquisition and financing related expenses	—	4	15
Restructuring charges	—	7	(4)
Adjusted EBITDA	$ (2,517)	$ (2,642)	$ (1,847)

(Amounts in USD Million)

Company's current status	
What was the total grossed (RECEIPTS) by the company in the most recent twelve months?	$49,799.00
What revenues did your company generate in the most recent twelve months?	$10,025.00
What operating profits (losses) did your company report in that twelve-month period?	-$2,445.00

This is the gross receipt from the customers who use Uber for their transportation. These receipts are shared between Uber and the car driver. The most recent estimate was of $1.2 billion but since it is a few months old, I scaled it up to reflect the company's rapid growth.

20% of Gross Receipts

Loss = Revenue (-) Costs

Overall Market	
What is the potential market for Uber?	A4. Global Logistics
Based on your potential market choice above, this is the potential market	$4,00,000.00
What effect will Uber have on the size (growth) of the potential market?	B4. Double market size
Expected annual growth rate (next 10 years) based on your growth rate choice	10.39%

Potential Market	**Market size (in millions)**	**Description**
A1. US Transportation Services	$1,20,000	*Taxi cabs, limos & car services(US)*
A2. Global Transportation Service	$2,00,000	*Taxi cabs, limos & car services(Global)*
A3. US Logistics	$2,50,000	*+ Moving + Local Delivery (US)*
A4. Global Logistics	$4,00,000	*+ Moving + Local Delivery (Global)*
A5: Direct input	$2,00,000	*Enter your number*

These assumptions are open for debate

Company's share of that market	
How strong will Uber's network effect be in the potential market?	C6: Direct input
Expected market share (based upon your network choice)	30.00%
When do you expect the company to get to this market share?	10
How strong and sustainable are Uber's competitive advantages	D5: Direct input
What portion of the gross billings will accrue to the company as revenues?	20.13%
How much incremental revenue do you expect for every dollar of incremental investment?	G3. Small investment in autonomous cars, small acquisitions (4.00)
If direct input of incremental investment, enter the number here	4.00

Competitive Advantages	**Slice of Gross Receipts**	
D1. None	5%	*Unrestricted entry + No pricing power*
D2. Weak	10%	*Unrestricted entry+ Some Pricing Power*
D3. Semi-strong	15%	*Unrestricted entry + Pricing Power*
D4. Strong & Sustainable	20%	*Restricted entry + Pricing Power*
D5: Direct input	20.13%	(let's assume it to be Revenue/ Receipts ratio)

Margin Improvement	**Year target margin reached**	
F1. Fast convergence	3	Target margin reached in year 4
F2. Moderate convergence	7	Target margin reached in year 7
F3. Slow convergence	10	Target margin reached in year 10
F4. Direct Input		Enter the year

Reinvestment	**Sales to Capital Ratio**	
G1. Minimal capital needs, no acquisitions (10.00)	10.00	*No car ownership, miminal infrastructure*
G2. Minimal capital needs, small acquisitions (5.00)	5.00	*Acquisitions of small companies*
G3. Small investment in autonomous cars, small acquisitions (4.00)	4.00	*Autonomous cars are small part of service*
G4. Big investment in utonomous Cars, Large acquisitions (2.50)	2.50	*Changed investment model*
G5. Tech company median (2.00)	2.00	*Tech company median*
G6. Capital intensive company median (1.50)	1.50	Capital intensive business median
G7. Direct input	2.25	Enter your number

Profitability	
What employment relationship do you see Uber having with its drivers?	E3: Full employee
What is the expected operating margin (in steady state)?	15.00%
How quickly will operating margins improve in the next year?	F2. Moderate convergence
Year in which target margin reached	7
What is the effective tax rate on your income?	25.00%

Expense Profile	Operating Margin	
E1: Independent contractor	40%	Drivers stay as independent contractors
E2: Partial employee	25%	Drivers become employees in some states
E3: Full employee	15%	Drivers are employees
E4: Direct input	20%	Enter the operating margin

Risk	
What cost of capital would you assign to this company, ignoring surivival risk?	75th percentile of US companies (9.97%)
If direct input, what is the cost of capital you would like to use initially (first 5 years)?	
What cost of capital would you assign to established players in this business?	Median of US companies (8.24%)
If direct input, what is the cost of capital you would like to use in steady state (after year 10)?	
What is the probability that the company will fail sometime in the next 10 years?	5%
What return on capital do you see the company generating in steady state?	75th percentile (ROIC=20%)

This cost of capital is for the operating risk in Uber.
One of the risks is that the company is young and may not survive but don't incorporate that into the cost of capital. Instead, build it into the probability of failure a few cells below this one.

Your narrative for Uber	
Uber's potential market is	A4. Global Logistics
Uber's effects on growth in the potential market will be	B4. Double market size
Within this market, Uber will have	C6: Direct input
Uber's competitive advantages in that market will be	D5: Direct input
A Uber's driver will be treated as	E3: Full employee
Uber' reinvestment for growth will be	G3. Small investment in autonomous cars, small acquisitions (4.00)
Uber's operating risk will result in a cost of capital that puts it in	75th percentile of US companies (9.97%)
Uber's chance of failure (not making it) is	5%
And your resulting valuation of Uber is	
Value of the operating assets =	$44,420.89
Imputed multiple of current revenues =	4.43

	Base	1	2	3	4	5	6	7	8	9	10	Terminal year
Overall market	$4,00,000.00	4,41,560.00	4,87,438.08	5,38,082.90	$5,93,989.71	$6,55,705.25	$7,23,833.02	$7,99,039.27	$8,82,059.45	$9,73,705.43	$10,74,873.42	$11,01,745.26
Share of market (gross)	12.45%	14.205%	15.960%	17.715%	19.470%	21.225%	22.980%	24.735%	26.490%	28.245%	30.000%	30.00%
Revenues as percent of gross	20.13%	20.13%	20.13%	20.13%	20.13%	20.13%	20.13%	20.13%	20.13%	20.13%	20.13%	20.13%
Annual Revenue	$10,025.00	$12,626.64	$15,660.68	$19,188.89	$23,281.20	$28,016.74	$33,485.00	$39,787.12	$47,037.34	$55,364.65	$64,914.59	$66,537.46
Operating margin	-24.39%	-18.76%	-13.14%	-7.51%	-1.88%	3.75%	9.37%	15.00%	15.00%	15.00%	15.00%	15.00%
Operating Income	-$2,445.00	-$2,369.01	-$2,057.03	-$1,440.70	-$437.92	$1,049.50	$3,138.55	$5,968.07	$7,055.60	$8,304.70	$9,737.19	$9,980.62
Effective tax rate	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
- Taxes	-$611.25	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$676.11	$1,763.90	$2,076.17	$2,434.30	$2,495.15
After-tax operating income	-$1,833.75	-$2,369.01	-$2,057.03	-$1,440.70	-$437.92	$1,049.50	$3,138.55	$5,291.96	$5,291.70	$6,228.52	$7,302.89	$7,485.46
Sales/Capital Ratio		4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
- Reinvestment		$650.41	$758.51	$882.05	$1,023.08	$1,183.89	$1,367.07	$1,575.53	$1,812.56	$2,081.83	$2,387.49	$935.68
Free Cash Flow to the Firm		-$3,019.42	-$2,815.54	-$2,322.76	-$1,461.00	-$134.38	$1,771.48	$3,716.43	$3,479.15	$4,146.70	$4,915.41	$6,549.78
Terminal value											$1,14,107.68	
Present value of FCFF		-$2,745.68	-$2,328.17	-$1,746.55	-$998.97	-$83.55	$1,004.75	$1,928.93	$1,657.71	$1,819.55	$1,992.66	
Present value of terminal value											$46,258.15	
Cost of capital	9.97%	9.97%	9.97%	9.97%	9.97%	9.97%	9.62%	9.28%	8.93%	8.59%	8.24%	
Cumulated cost of capital =		1.0997	1.2093	1.3299	1.4625	1.6083	1.7631	1.9267	2.0988	2.2790	2.4668	

Imputed Return on capital	20.00%

PV of cash flows during next 10 years	$500.67
PV of terminal value =	$46,258.15
Value of operating assets	$46,758.83
Probability of failure	5%
Adjusted value of operating assets	$44,420.89
+ Cash on hand	$6,406.00
+ Crossholdings	$8,700.00
+ IPO Proceeds left in business	$9,000.00
Value of all assets	$68,526.89
- Debt	$6,869.00
Value of Equity	**$61,657.89**
Number of shares outstanding	1143.87
Value per share	**$53.90**

NOL at start of year		$ 1,147.00	$ 3,516.01	$ 5,573.05	$ 7,013.75	$ 7,451.67	$ 6,402.17	$ 3,263.62	$ -	$ -	$ -

Thank You

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