



**POLITECNICO**  
MILANO 1863

# Relative Valuation

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## Relative Valuation

In relative valuation,  
the value of an asset is compared to the values  
assessed by the market for similar or comparable assets

**Relative Valuation is widely used to estimate  
the ‘company value’**

It compares the (target) company with other similar listed ones



# Relative Valuation

## Relative Valuation is pervasive

- Most valuations on Wall Street are relative valuations
- Almost 85% of equity research reports are based upon a multiple and comparables
- More than 50% of all acquisition valuations are based upon multiples
- Rules of thumb based on multiples are often the basis for final valuation judgments

*Source: Damodaran (2002)*



# Relative Valuation

*“ A little inaccuracy sometimes saves tons of explanation”*

H.H. Munro

*“If you are going to screw up, make sure that you have lots of company”*

Ex-portfolio manager



## Relative Valuation: main steps

There four main steps in relative valuation

1. Defining comparable companies
2. Defining possible multiples, which means converting assets market values into standardized values (*absolute prices cannot be compared*)
3. Analyze multiples
4. Apply multiples



# 1. Comparable Companies

**"A comparable firm is one with cash flows, growth potential, and risk similar to the firm being valued.** It would be ideal if we could value a firm by looking at how an exactly identical firm - in terms of risk, growth and cash flows - is priced. **Nowhere in this definition is there a component that relates to the industry or sector to which a firm belongs.** Thus, a telecommunications firm can be compared to a software firm, if the two are identical in terms of cash flows, growth and risk.

In most analyses, however, analysts define comparable firms to be other firms in the firm's business or businesses. [...]. The **implicit assumption** being made here is that firms in the same sector have similar risk, growth, and cash flow profiles and therefore can be compared with much more legitimacy."

Source: Damodaran, 2002



# 1. Comparable Companies

Risk: risk rating

Growth: horizontal of sales, asset (big and growing) has impact on enterprise value

Cash flow => generating operating cashflow

The identification of comparable companies is one of the most difficult tasks of this approach to valuation

- Identify first the target company value drivers
- Identify those companies with the same value drivers
- Define companies' specificities:
  - Sector
  - Geographical Market
  - Presence of divisional structure *big company, and where they are producing*
  - Size (assets or sales)
  - Presence or not of comparative advantages
  - Innovation/development models
  - (accounting principles)

*“In the context of valuing equity in firms, the problems [of finding comparable assets] are compounded since **firms in the same business can still differ on risk, growth potential and cash flows**”* (Damodaran, 2002)



# FINCANTIERI



# Unique balanced exposure to high value-added shipbuilding segments

= Key area

	SHIPBUILDING			OFFSHORE	EQUIPMENT, SYSTEMS & SERVICES
Revenues <sup>(1)</sup> (% on total)	Cruise	Naval	Others	€1,321 MM (34%)	€163 MM (4%)
End markets	<b>Leisure</b> 	<b>Defence</b> 	<b>Transportation / Luxury / Maintenance</b> 	<b>Oil &amp; Gas</b> 	<b>Equipment / Life Cycle Management</b> 
Main products / Services	<ul style="list-style-type: none"> <li>All cruise ships (from contemporary to luxury)</li> </ul>	<ul style="list-style-type: none"> <li>All surface vessels (also stealth)</li> <li>Support &amp; Special vessels</li> <li>Submarines</li> </ul>	<ul style="list-style-type: none"> <li>High tech ferries</li> <li>Large mega-yachts</li> <li>Ship repair &amp; conversion services</li> </ul>	<ul style="list-style-type: none"> <li>Offshore Support Vessels (AHTSs, PSVs, OSCVs)</li> <li>Specialized vessels</li> <li>Drillships</li> </ul>	<ul style="list-style-type: none"> <li>Marine systems, components &amp; turnkey solutions</li> <li>After sales services</li> </ul>
Positioning	<ul style="list-style-type: none"> <li>#1 worldwide (~50% market share<sup>(2)</sup>)</li> </ul> 	<ul style="list-style-type: none"> <li>Global leader: <ul style="list-style-type: none"> <li>#1 in Italy<sup>(3)</sup></li> <li>Key supplier for US Navy &amp; Coast Guard<sup>(4)</sup></li> <li>Worldwide exporter (India, UAE, other)</li> </ul> </li> </ul> 	<ul style="list-style-type: none"> <li>Global leader in: <ul style="list-style-type: none"> <li>High tech ferries (21% market share<sup>(5)</sup>)</li> <li>Large mega-yachts</li> <li>Repair &amp; conversion</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Global leader in high-end OSVs<sup>(6)</sup> (20% market share<sup>(7)</sup>)</li> </ul> 	<ul style="list-style-type: none"> <li>Leading player worldwide</li> </ul>
Backlog	<b>€5,345 MM</b>			<b>€2,480 MM</b>	<b>€264 MM</b>



# COMPARABLE COMPANIES FOR FINCANTIERI

## Comparable companies

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### Offshore

- Keppel
- Sembcorp Marine

### Naval Vessels

- Babcock International
- BAE Systems
- General Dynamics
- Huntington Ingalls

### Systems, Components and Services

- National Oilwell Varco
- Rolls Royce
- Wartsila

### *System Integrators*

- *ABB*
- *Airbus*
- *Boeing*



## 2. Define possible Multiples

جا به جا میشیم

- $E = EV - \text{Net Financial Position}$

- $E = \text{market capitalization}$
- $\text{NFP} = (\text{long-term} + \text{short-term debts}) - \text{available cash}$

$$\rightarrow EV = E + NFP$$

enterprise value = value of company overall due to both equity holder and stake holders

equity value = value of company but we are taking out our debt holders (Net financial position)

real value from different positions

market capitalization is overall value = enterprise value

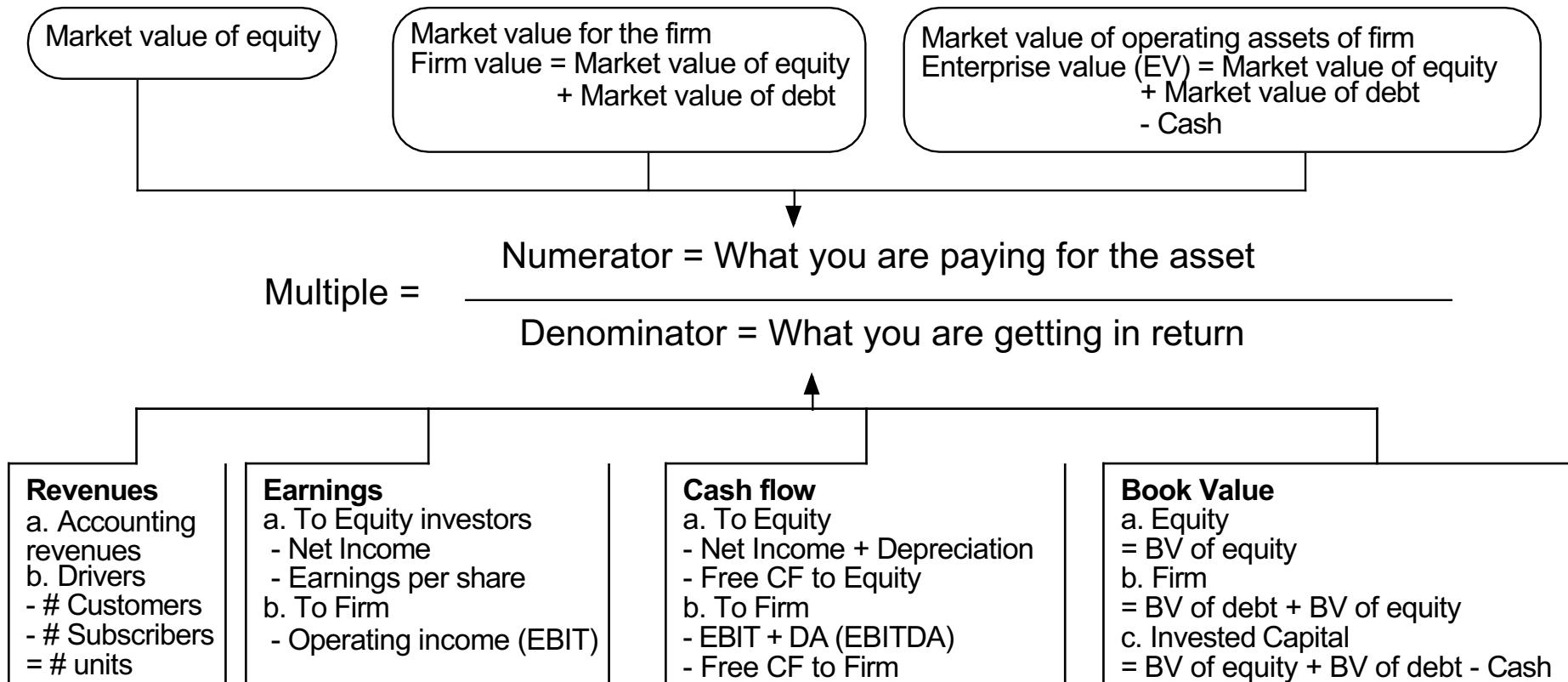
in M&A we are going to ask EV. we are buying the whole

وقتی یه ساختمنون میخری که موگیچ داره همشو میخری ... فقط نیکه ی  
(غیر بدھی رو نمیخری (اکوییتی



## 2. Define possible Multiples

Once comparable companies are identified, need to convert market values into standardized values, *since the absolute prices cannot be compared*



Source: Aswath Damodaran



## 2. Define possible Multiples

EV/EBIT    ev = company overall through revenues of operation

- Advantage: focus on operating management
- Disadvantage: it does not consider different choices in Depreciation and Amortization  
(→ cash)    ebit is not a proxy of cash. ebitda is      this is valid for company strong on assets

EV/EBITDA    most useds

- Advantage: good proxy of cash (THE MOST USED!)
- Disadvantage: neglect CAPEX for different industries

EV/FCFF

- Advantage: is a cash flow
- Disadvantage: less stable than other indicators

EV/Sales

- Advantage: if the above multiples are negative, the multiple is meaningless; in those cases an alternative is using sales
- disadvantage: it does not consider profitability

دوباره بین این تیکه رو



## Case Study #1

You are asked to evaluate company Kents, having available some data about comparable companies in the following Table:

	EV	Sales	EBITDA	D&A
Company A	1280	120	90	15
Company B	2800	230	200	30
Company C	2400	200	170	25
Company D	1650	180	110	15

The P&L of company Kents is:

A:  $\text{EV/EBITDA} = 1280/90 = 14,33$   
B:  $\text{EV/EBITDA} = 2800/200 = 14$   
C:  $\text{EV/EBITDA} = 2400/170 = 14,12$   
D:  $\text{EV/EBITDA} = 1650/110 = 15$

$14,33$

$\text{EV}_K = \text{EBITDA} \cdot \text{Multiple} = 120 \cdot 14,33 = 1720$

Sales	200
OPEX	80
EBITDA	120
D&A	15
EBIT	105

b یا a از نظر است یکی میشه با

با چند ضریب مختلف حساب میکنی و این بهترین رینج رو میده

## 2. Define possible Multiples

- P/E (or PE) = Market price / Earnings  
= market price per share / earnings per share (EPS)
  - Advantage: quick (THE MOST USED!)
  - Disadvantage: affected by depreciation, amortization, profit or loss of discontinued operations.
- Variables:
  - Price: Usually the current price; sometimes, average price over last 6 months or year
  - EPS: Time: most recent financial year (current), most recent four quarters (trailing), expected in the next fiscal year or next four quarters (leading), some future years



## 2. Define possible Multiples

- PEG → the ratio between the P/E and the earning growth.  
This allows better considering the forthcoming growth (CAGR) perspectives of the company

### Compound Annual Growth Rate

$$\text{CAGR}(t_0, t_n) = (V(t_n)/V(t_0))^{\frac{1}{t_n-t_0}} - 1$$

- $V(t_0)$  : start value,  $V(t_n)$  : finish value,  $t_n - t_0$  : number of years.

- P / BV → the ratio between the market capitalization of a company and its Equity (Share Capital + Reserves + Profit(Loss) of the year)
- P / FCFE → the ratio between the market capitalization of a company and its FCFE



## Case Study #2

You want to estimate the equity value of Water through the relative valuation. You know that water has to pay 100 euro of interests and has a corporate tax of 40%.

You have identified two listed comparable companies (Still and Sparkling) whose price per share is 2,34 and 2,75 euro per share respectively.

Furthermore, the earnings of Still have been 140 euro while the earnings of Sparkling have been 185 euro.

Finally, you know that Still has 1,000 shares while Sparkling has 1,200 shares.

### **WATER**

Sales: 800

EBITDA: 540

EBIT: 330

With the information available, select the adequate multiple and compute E (equity value) of Water

Remember that: price per share x number of shares = Price = Equity Value



Stück	Spar Kling	E 2384
P = 2,34	P = 2,75	
E = 190	E = 185	
# = 1000	# = 1200	
EPS = 0,14	EPS = 0,15	
		P/E
		P <sub>0</sub> /EPS
		= 17,28

# Is relative valuation quick and simple?

# *Multiples are easy to use and easy to misuse*



### 3. Multiples & Sectors

Multiple	Sector	Explanation
EV/Subscriber	Various	Subscriber based businesses, such as Cable and Direct To Home (DTH)
EV/EBITDAX	Oil & Gas	Excludes exploration expenses
EV/EBITDAR	Retail, Airlines	Used when there are significant rental and lease expenses incurred by business operations
EV/Reserves	Oil & Gas	Used when looking at Oil & Gas fields and companies heavily involved in upstream. Gives an indication of how much the field is worth on a per barrel basis



### 3. Multiples & Sectors

▪ Airline	EV/EBITDA, EV/Sales
▪ Banks	P/BV
▪ Chemicals	EV/EBITDA
▪ Cement	EV/EBITDA, P/E
▪ Drinks	EV/EBITDA, EV/Sales
▪ Healthcare	P/E, PEG
▪ Insurance	P/Embedded Value
▪ Mobile Communications	EV/Sales, R&D/Assets
▪ Semiconductors	EV/EBITDA
▪ Engineering	P/E, EV/EBITDA
▪ Retailing	EV/Sales, EV/EBIT
▪ Utility	Div. Yield, EV/EBITDA
▪ Oil	EV/EBITDA



# Why strong fundamentals support Delta Airlines' valuation

Market Realist 

By Tejeshwari Chandrappa

June 23, 2014 1:00 PM



*Investing in Delta Airlines: A must-know company overview (Part 14 of 14)*

(Continued from Part 13)

## DAL valuation

For airline companies, EV/EBITDAR (enterprise value to earnings before interest, tax, depreciation, amortization, and rent) is a better valuation metric than the P/E (price-to-earnings) ratio for two reasons.

1. Airline companies generally have high debt levels. Price multiples don't consider debt, while EV multiples do.
2. Airline companies also have high leases, as aircraft can either be purchased or leased and multiples vary accordingly. EV/EBITDAR is considered after adding back lease rentals in order to make companies with different lease and ownership structures comparable.



### 3. Multiples & Sectors for Global companies

*(calculated in January 2021)*

<b>Industry Name</b>	<b>Number of firms</b>	<b>PBV</b>	<b>ROE</b>	<b>EV/ Invested Capital</b>	<b>ROIC</b>
Advertising	348	2,51	-3,95%	3,89	9,34%
Aerospace/Defense	255	4,62	-0,18%	3,62	11,42%
Air Transport	156	2,62	-35,47%	1,52	-9,24%
Apparel	1188	3,65	2,44%	3,24	8,75%
Auto & Truck	144	1,76	1,91%	1,24	2,02%
Auto Parts	709	1,72	-1,61%	1,37	3,40%
Bank (Money Center)	620	0,81	7,70%	0,93	0,02%
Banks (Regional)	850	0,81	7,26%	0,94	-0,03%
Beverage (Alcoholic)	223	4,95	9,14%	3,63	11,49%
Beverage (Soft)	108	5,90	19,34%	4,85	19,81%
Broadcasting	146	1,35	1,95%	1,66	12,96%
Brokerage & Investment Banking	575	1,60	10,25%	1,19	0,15%
Building Materials	439	2,90	8,69%	2,93	12,21%
Business & Consumer Services	923	4,54	8,88%	5,19	16,20%
Cable TV	60	2,75	10,47%	2,45	11,27%
Chemical (Basic)	844	1,90	3,97%	1,62	5,83%
Chemical (Diversified)	73	1,45	-2,95%	1,31	3,12%
Chemical (Specialty)	861	2,87	5,33%	2,72	8,83%
Coal & Related Energy	222	0,96	7,60%	0,97	10,53%
Computer Services	1007	3,87	14,32%	4,32	19,18%
Computers/Peripherals	337	6,21	19,09%	4,41	15,10%
Construction Supplies	753	1,76	7,99%	1,60	9,45%



### 3. Multiples & Sectors for US companies

*(calculated in January 2021)*

Industry Name	Number of firms	Price/Sales	Net Margin	EV/Sales	Pre-tax Operating Margin
Education	38	2,48	-4,82%	2,81	8,72%
Electrical Equipment	122	3,33	7,63%	3,66	12,82%
Electronics (Consumer & Office)	22	1,36	-1,53%	1,32	2,05%
Electronics (General)	157	2,39	3,49%	2,54	7,57%
Engineering/Construction	61	0,77	0,75%	0,90	4,32%
Entertainment	118	6,24	-3,00%	6,81	6,98%
Environmental & Waste Services	86	2,72	3,52%	3,34	12,09%
Farming/Agriculture	32	0,97	3,81%	1,35	6,67%
Financial Svcs. (Non-bank & Insurance)	235	3,26	20,13%	31,49	12,20%
Food Processing	101	1,71	6,38%	2,19	12,95%
Food Wholesalers	18	0,38	-0,36%	0,54	1,54%
Furn/Home Furnishings	40	1,08	4,63%	1,31	8,15%
Green & Renewable Energy	25	8,13	-34,82%	13,15	25,84%
Healthcare Products	265	6,94	10,91%	7,42	14,29%
Healthcare Support Services	129	0,55	2,63%	0,68	4,84%
Heathcare Information and Technology	139	6,78	10,61%	7,33	13,19%
Homebuilding	30	1,03	9,04%	1,21	11,82%
Hospitals/Healthcare Facilities	32	0,84	3,70%	1,54	9,48%
Hotel/Gaming	66	5,54	-30,78%	8,08	-14,77%



### 3. Multiples & Sectors for European companies

*(calculated in January 2021)*

Industry Name	Number of firms	EV/EBITDAR&D	EV/EBITDA	EV/EBIT	EV/EBIT (1-t)
Restaurant/Dining	40	25,23	25,23	144,56	NA
Retail (Automotive)	22	8,57	8,59	12,28	15,62
Retail (Building Supply)	19	7,99	8,01	9,90	14,56
Retail (Distributors)	113	14,91	14,96	20,33	29,09
Retail (General)	18	10,01	10,04	16,54	22,05
Retail (Grocery and Food)	30	9,27	9,27	13,98	18,26
Retail (Online)	87	42,99	52,34	NA	NA
Retail (Special Lines)	67	16,61	16,79	40,71	53,90
Rubber& Tires	8	7,60	9,21	17,78	24,27
Semiconductor	37	11,70	20,73	62,23	77,85
Semiconductor Equip	19	24,02	36,18	42,67	49,32
Shipbuilding & Marine	68	10,97	11,02	20,83	25,98
Shoe	7	40,22	49,98	NA	NA
Software (Entertainment)	53	26,81	34,64	49,50	66,43
Software (Internet)	28	16,35	17,77	51,34	82,45
Software (System & Application)	310	14,55	24,21	32,52	43,20
Steel	57	8,97	10,60	NA	NA
Tobacco	6	8,93	9,14	10,15	13,62
Transportation	36	11,84	12,09	23,72	29,71
Transportation (Railroads)	6	3,17	3,17	5,57	5,68
Trucking	27	15,48	15,49	40,51	54,84
Utility (General)	19	9,10	9,25	17,68	23,99
<b>Utility (Water)</b>	<b>10</b>	<b>13,82</b>	<b>13,94</b>	<b>21,75</b>	<b>41,68</b>
<b>Total Market</b>	<b>6830</b>	<b>11,46</b>	<b>13,47</b>	<b>24,32</b>	<b>32,09</b>
Total Market (without financials)	6035	11,42	13,58	25,69	34,00



### 3. Analyse Multiples

To choose the best multiple:

- Identify a subset of multiples that are significant from a theoretical point

	Comparable company <b>A</b>	Comparable company <b>B</b>	Comparable company <b>C</b>	Comparable company <b>D</b>
EV/EBITDA	3.8x	6.6x	5.4x	4.1x
P/E	10.9x	10.1x	11.5x	11.8x

- Identify one or more driver that could explain the variance among the multiples of the different comparable companies
  - Average
  - Adjusted average
  - Standard deviation
- Check the relation between fundamentals and multiples



# MULTIPLES ON MARGINS OF FINCANTIERI COMPARABLE COMPANIES

Comparable companies	EV / EBITDA	P/E	P/BV
<b>Offshore</b>			
• Keppel	9,6 x	10,5 x	1,9 x
• Sembcorp Marine	9,1 x	15,5 x	3,1 x
<b>Naval Vessels</b>			
• Babcock International	15,7 x	24,9 x	4,5 x
• BAE Systems	8,4 x	81,6 x	4,1 x
• General Dynamics	10,7 x	18,1 x	3,1 x
• Huntington Ingalls	9,6 x	19,1 x	3,2 x
<b>Systems, Components and Services</b>			
• National Oilwell Varco	7,7 x	14,2 x	1,5 x
• Rolls Royce	8,9 x	14,8 x	3,6 x
• Wartsila	13,5 x	20,5 x	4,7 x
<b>System Integrators</b>			
• ABB	8,8 x	18,0 x	2,6 x
• Airbus	10,1 x	28,6 x	3,7 x
• Boeing	13,8 x	22,5 x	7,1 x



### 3. Four steps for understanding multiples

#### 1. Define the multiple

In use, the same multiple can be defined in different ways by different users. When comparing and using multiples, estimated by someone else, it is critical that we understand how the multiples have been estimated

#### 2. Describe the multiple

Too many people who use a multiple have no idea what its cross sectional/industry distribution is. If you do not know what the cross sectional/industry distribution of a multiple is, it is difficult to look at a number and pass judgment on whether it is too high or low.

#### 3. Analyze the multiple

It is critical that we understand the fundamentals that drive each multiple, and the nature of the relationship between the multiple and each variable.

#### 4. Apply the multiple

Defining the comparable universe and controlling for differences is far more difficult in practice than it is in theory.



## **Comprehensive case study: Whatsapp**



## Case overview



**19\$<sup>b</sup>**  
**LARGEST**  
**FACEBOOK**  
**ACQUISITION**

**19<sup>th</sup> FEBRUARY 2014**



# Case overview



Add free mobile instant messaging application with the mission of allowing people to communicate with out any barriers all over the world

**19\$ billion** price tag acquisition on the **19<sup>th</sup> February 2014** (more than Iceland GDP and one tenth of Facebook market value)

Acquired by Facebook through a mixed acquisition, 4\$ billion cash and about 184 millions shares of Facebook Class A common stocks

Launched in 2009 it was acquired when it was a 5 years old company

Founders Jan Koumand Brian Acton are still into the business and WhatsApp is still running its operations completely independently



# Case overview



Facebook acquired 72 companies

WhatsApp it's largest acquisition

Acquisition date	Company	Business	Value (\$m)
2014	WhatsApp	Mobile messaging	19,000
2014	Oculus VR	Virtual reality technology	2,000
2012	Instagram	Photo sharing	1,000
2014	LiveRail	Publisher Monetization Platform	450
2012	Face.com	Face recognition platform	100
2018	Redkix	Team Messaging via E-Mail	100
2013	Atlas Solutions	Atlas advertiser suite	100
2013	Parse	Mobile app backends	85
2011	Snaptu	Mobile app developer	70
2015	Pebbles	Computer vision, augmented reality	60

Source: Wikipedia, September 2018



# Steps of Relative Valuation

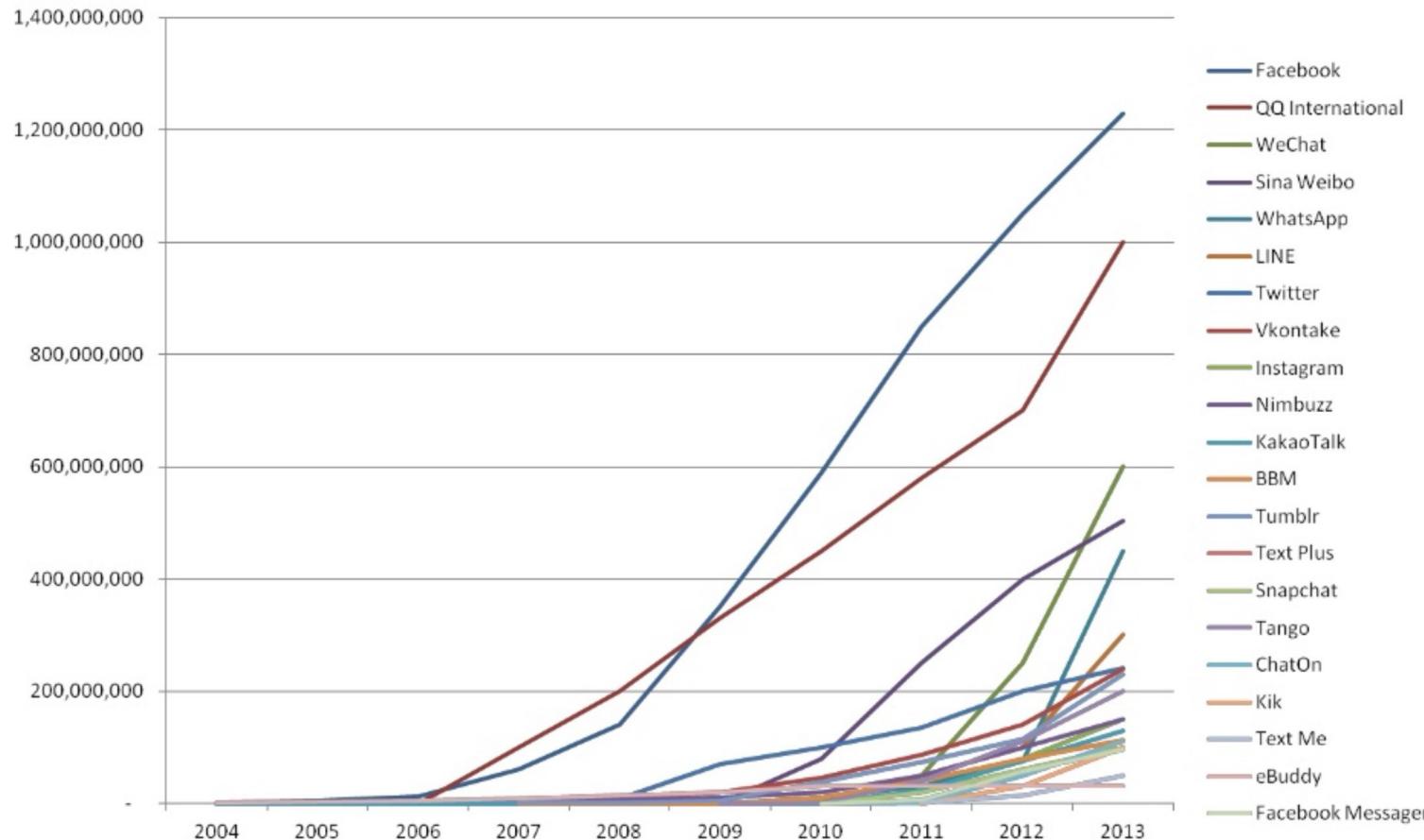


- Analyse performance of Whatsapp
- Identify of the comparable companies
- Find and choose multiples
- Calculate EV of Whatsapp
- Considerations



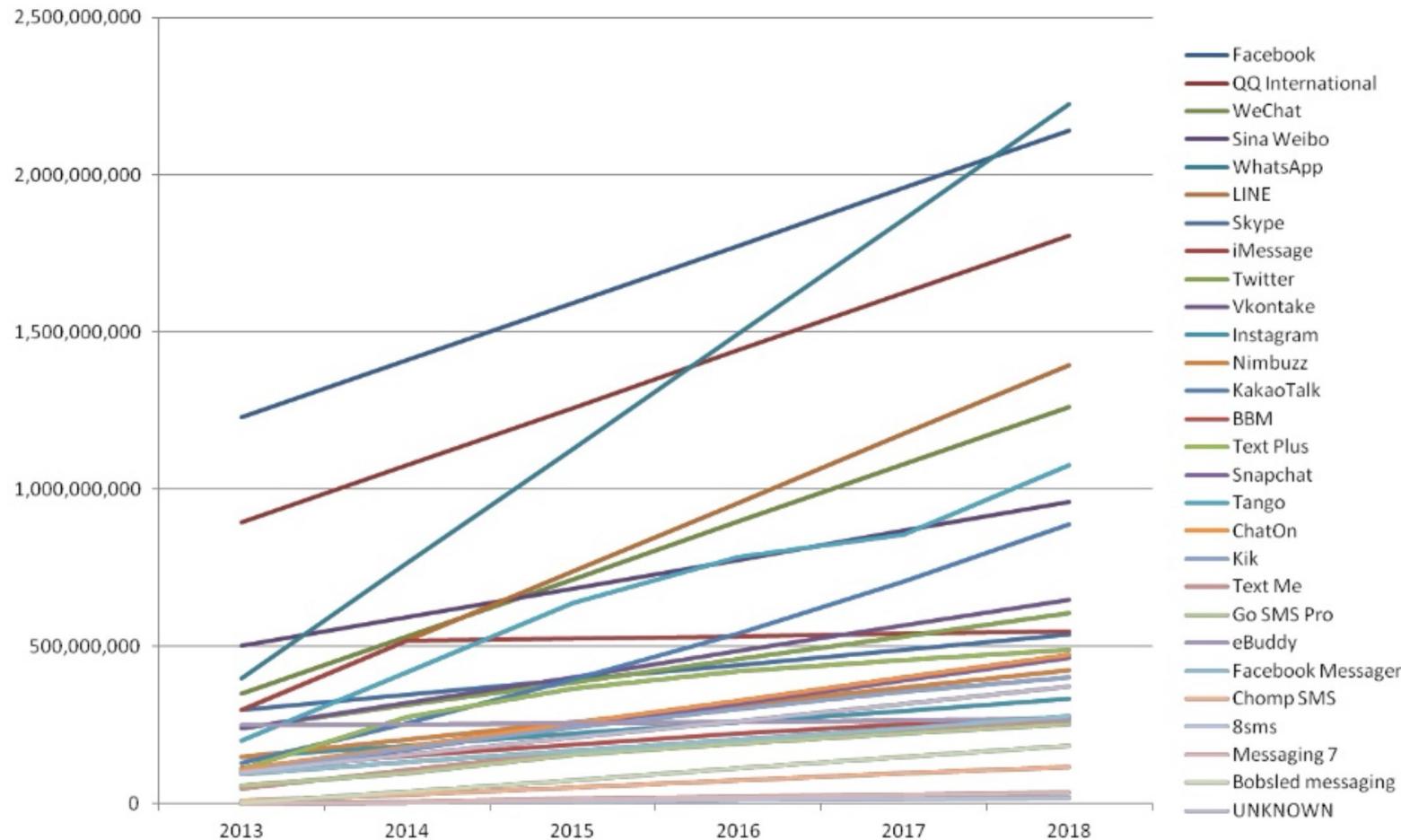
# Market overview

## State of play



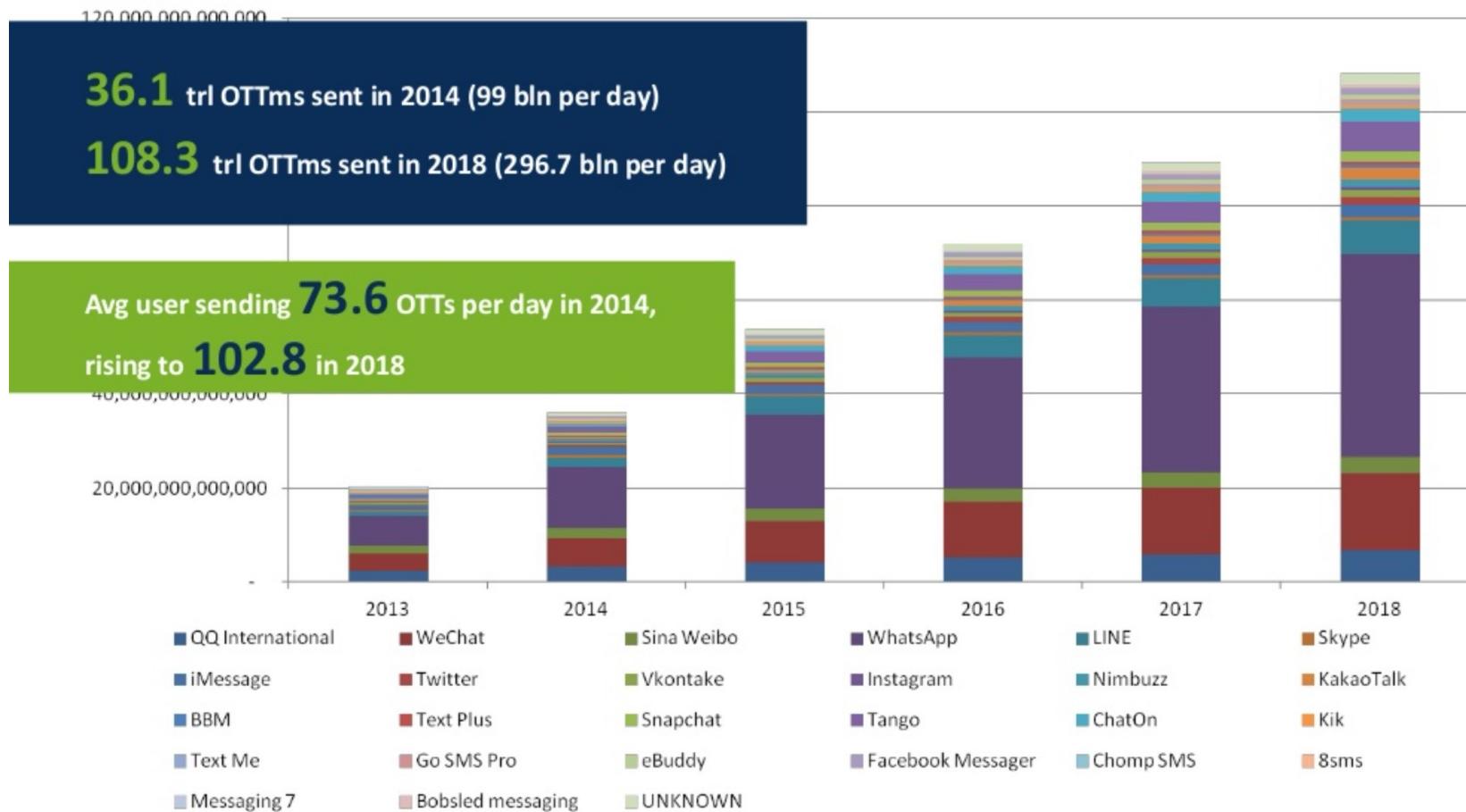
# Market overview

WhatsApp goes top in 2018



# Market overview

## OTTm traffic forecasts



# Market overview

## Global outlook



12% of global OTT users in 2014, and 10% in 2018

18% of global OTT users in 2014, and 18% in 2018

1% of global OTT users in 2014, and 2% in 2018

7% of global OTT users in 2014, and 8% in 2018

60% of global OTT users in 2014, and 59% in 2018



# **Analysis of Whatsapp performance**



## Whatsapp – overview

- Revenues - each user was charge 0.99\$
- According to Forbes valuation Whatsapp was worthy 20\$ billion

# Why WhatsApp?



# Whatsapp – overview

- Facebook wanted to enhance its customers and market power level within the Global Internet Media Industry a large number of users attract more users (network effects)
- Monthly active WhatsApp users, as in December 2013, were 450 million against the 1.3 billion Facebook users. However only 556 m are mobile active users
- Moreover, Facebook Messenger (Facebook chat service, similar to WhatsApp) had only 120 million monthly active users

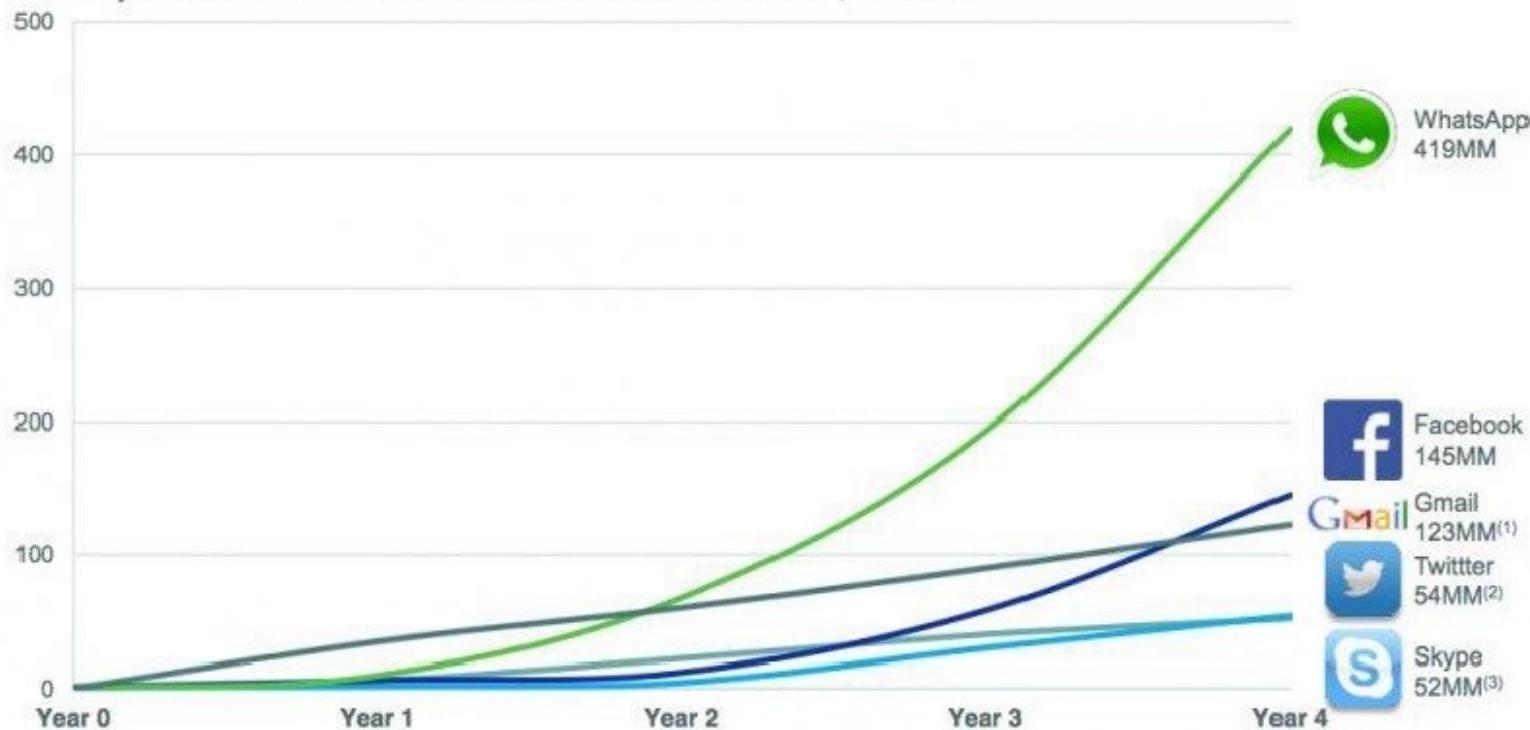


# Whatsapp – overview

## WhatsApp Extraordinary Growth in Users

### First Four Years Growth after Launch

Monthly Active User Accounts of Selected Services that are 4+Years Old, in Millions



Source: (1) comScore Media Metrix

(2) comScore Media Metrix, news, and company filings

(3) News and company filings in addition to estimates derived from these sources



WhatsApp

facebook



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# Whatsapp – overview



## WhatsApp Monetization Potential

	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E
User Base (MM) Yr End	419	719	982	1,218	1,431	1,623	1,795	1,950	2,090	2,216	2,329
New User Additions Per Day (MM)	0.8	0.7	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.3	0.3
% of Paying Users	20%	35%	45%	55%	65%	70%	70%	70%	70%	70%	70%
Total Paying Users (MM)	144	344	548	787	1,055	1,257	1,365	1,463	1,551	1,630	
Avg Rev Per Paying User	\$1.00	\$1.00	\$1.25	\$1.50	\$1.75	\$2.00	\$2.25	\$2.50	\$2.75	\$3.00	
Total Revenue (\$MM)	\$20	\$144	\$344	\$685	\$1,181	\$1,846	\$2,513	\$3,072	\$3,658	\$4,265	\$4,891
EBITDA Margin %	50%	65%	80%	80%	80%	80%	80%	80%	80%	80%	80%
EBITDA \$MM		\$72	\$223	\$548	\$945	\$1,477	\$2,011	\$2,457	\$2,926	\$3,412	\$3,912
EBITDA Growth Y/Y			211%	145%	72%	56%	36%	22%	19%	17%	15%

Source: Company Reports & Sterne Agee Estimates



# Whatsapp – overview



Facebook looks for other ways of making money through WhatsApp, i.e. mobile money transfer

WhatsApp as a channel for digital payments

WhatsApp seems to be the right tool to be integrated with money transaction, more than Facebook, due to its efficiency and immediacy

What about the opportunity to associate money to WhatsApp messages?



**Identify comparable companies  
&  
explain the choice**



# Comparable companies

Thus it is fundamental to take into account following:

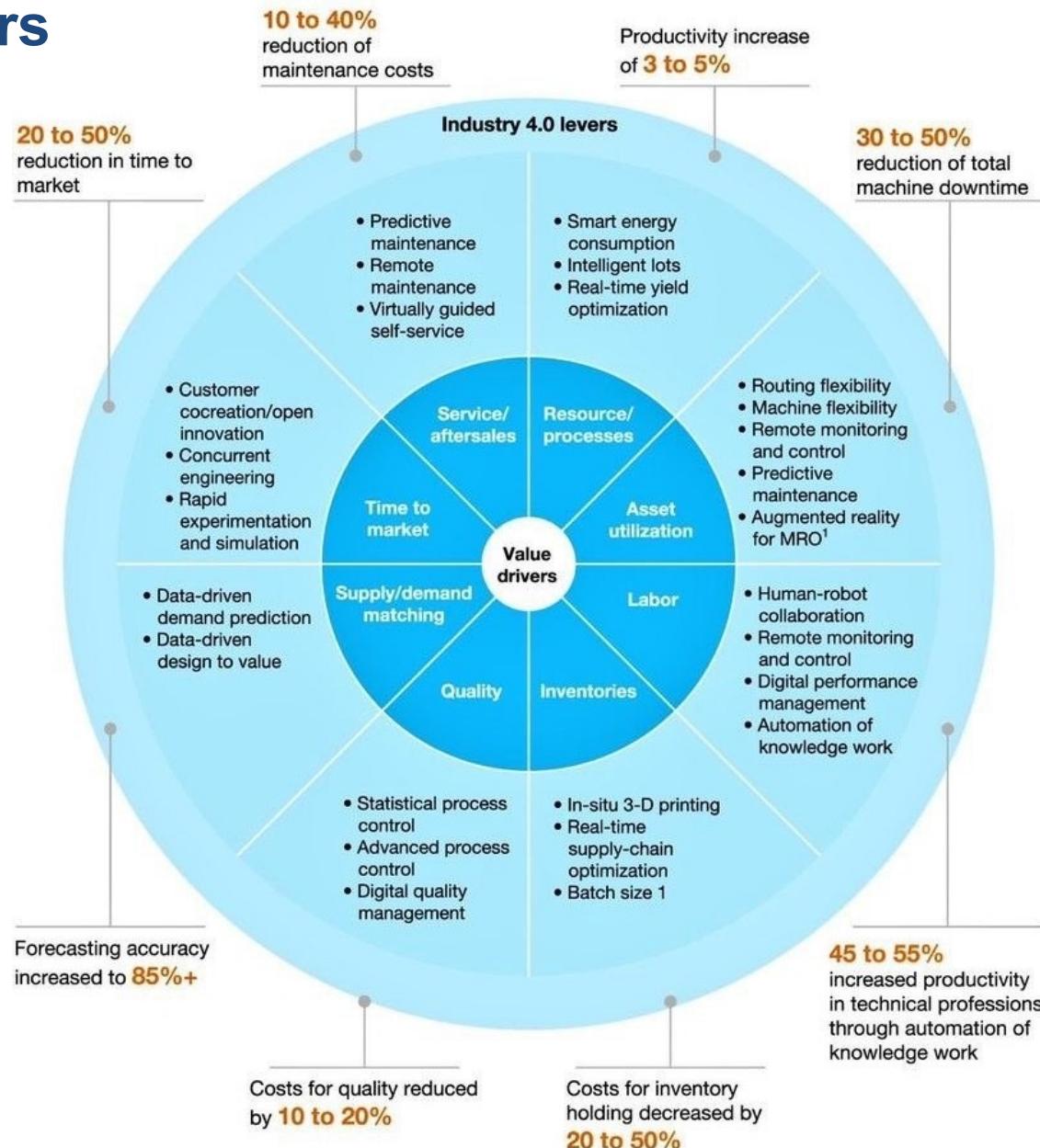
- **Growth rate**
- **Cash flows**
- **Risk**

in the another words the financial structure of the companies.

For the purpose of this exercise we assume that firms in the same sector have similar risk, growth, and cash flow profiles and therefore can be compared with much more legitimacy



# Value drivers



# Comparable companies



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	EV (\$m)	Revenues (\$m)	Users/month (m)	EV/Revenues	EV/Users
Facebook	160,090	7,870	1,230	20.34	130.15
Linkedin	19,989	1,530	277	13.06	72.16
Twitter	18,790	665	243	28.26	77.33
Pandora	7,150	665	73	10.75	97.41
Groupon	5,880	2,440	43	2.41	136.74
Netflix	25,380	4,370	44	5.81	576.82
Yelp	5,790	233	120	24.85	48.25
Opentable	1,500	190	14	7.89	107.14
Zynga	2,930	873	27	3.36	108.52
<b>Average</b>				<b>12.97</b>	<b>150.50</b>



# **Identification of multiples and choice of appropriate for calculation**



# Multiples



Multiples have a short-term nature since they are based on historical data or short term forecasts so they might be distorted for long term perspectives.

Good for fast growing companies like WhatsApp

According to Wall street analyst the two most used multiples for the IT companies and start-ups in the last 10 years were:

1. EV/Sales or EV/Revenues
2. EV/EBITDA
3. EV/Users (which is multiple specific for social media)

Another parameter to take into consideration is ROIC ratio.



# Multiple details

## Enterprise Value/Revenue

Formula: *Enterprise Value / Total Revenues*

The firm value compared against revenue. Provides a more rigorous comparison than the Price/Sales ratio by removing the effects of capitalization from both sides of the ratio. Since revenue is unaffected by the interest income/expense line item, the appropriate value comparison should also remove the effects of capitalization, as EV does.

## Enterprise Value/Users

Formula: *Enterprise Value / Total Users*

The firm value compared against effective number of users of the service. It provides a more clear approach to estimate the value of the company, which is driven by penetration of the market.

## Enterprise Value/EBITDA

Formula: *Enterprise Value / EBITDA*

Firm value compared against EBITDA (Earnings before interest, taxes, depreciation, and amortization). See Enterprise Value/Revenue.



# **Calculation EV of Whatsapp & Cnsiderations**



# Relative Valuation



## EV/Revenues

EV/Revenues = 12.97

WhatsApp revenue at the time of the acquisition = 20\$m

WhatsApp enterprise value = 20\$m x 12.97 = **0.26\$b << 19\$b**

- Knowing that WhatsApp was acquired for 19\$b, EV/Revenues suggests that WhatsApp was **overvalued**
- As a buyer you would like to pick this multiple for valuation since you are interested in multiples which give you the lowest valuation



# Relative Valuation



## EV/Users

EV/Users = 150.50

WhatsApp users at the time of acquisition = 450 million

WhatsApp enterprise value = 450 million x 150.50 = **67.7\$b >> 19\$b**

- Knowing that WhatsApp was acquired for 19\$b, EV/Users suggests that WhatsApp was **undervalued**
- As a seller you would like to pick this multiple for valuation since you are interested in multiples which give you maximum valuation



# Relative Valuation

Based on comparing similar companies transactions

Now we compare acquisition prices through multiples

We look for acquisitions made by the **same acquirer**, Facebook

We choose as a comparable transaction the acquisition of Instagram by Facebook in 2012

Acquired companies are both **mobile applications** and they share some similar functionalities



# Relative Valuation



Let's use as a multiple **Acquisition price/User**

	Acquisition price (\$m)	Monthly users at acquisition (m)	Acquisition price/user
Instagram	1,000	30	33.33

*Source: Wikipedia, September 2018*

WhatsApp monthly active users at acquisition were 450 million

WhatsApp acquisition price = 450 million x 33.33 = **15\$b < 19\$b**

The result is **quite close** to the real price-tag paid by Facebook to acquire WhatsApp

However, basing on this multiple, WhatsApp seems to have been a little overvalued

In order to obtain exactly 19\$b, WhatsApp multiple should have been 42.22



# Comments & Summary

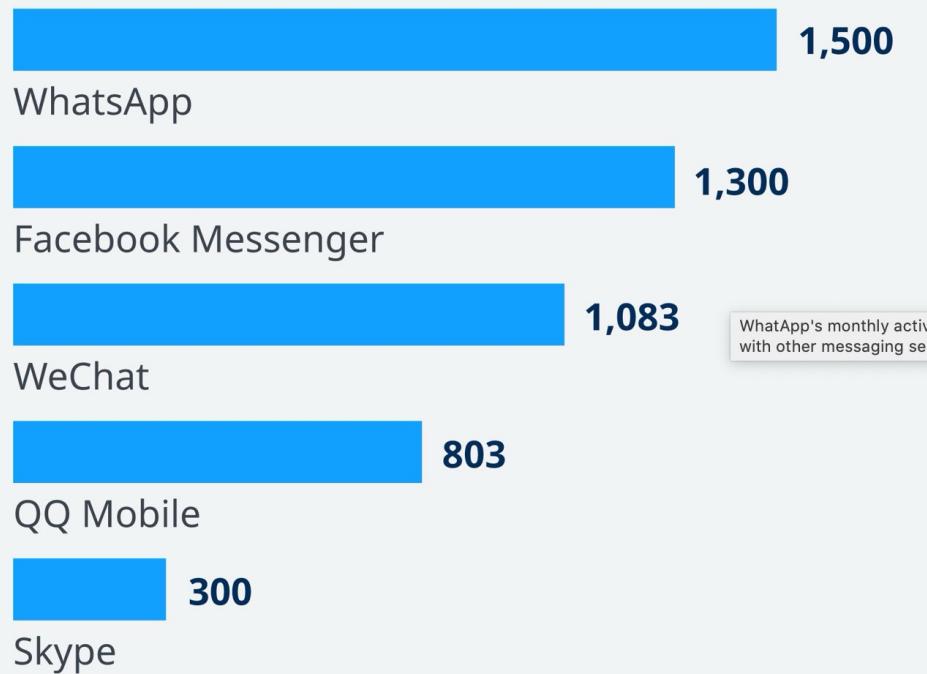


# Relative Valuation



It now has roughly 1.5 billion users in 180 countries, thus being the most popular messaging app globally, even ahead of Facebook's own rival. WhatsApp itself says it's getting roughly 1 million new users every day.

## Monthly active users of messenger apps (in millions, January 2019)



Source: Statista

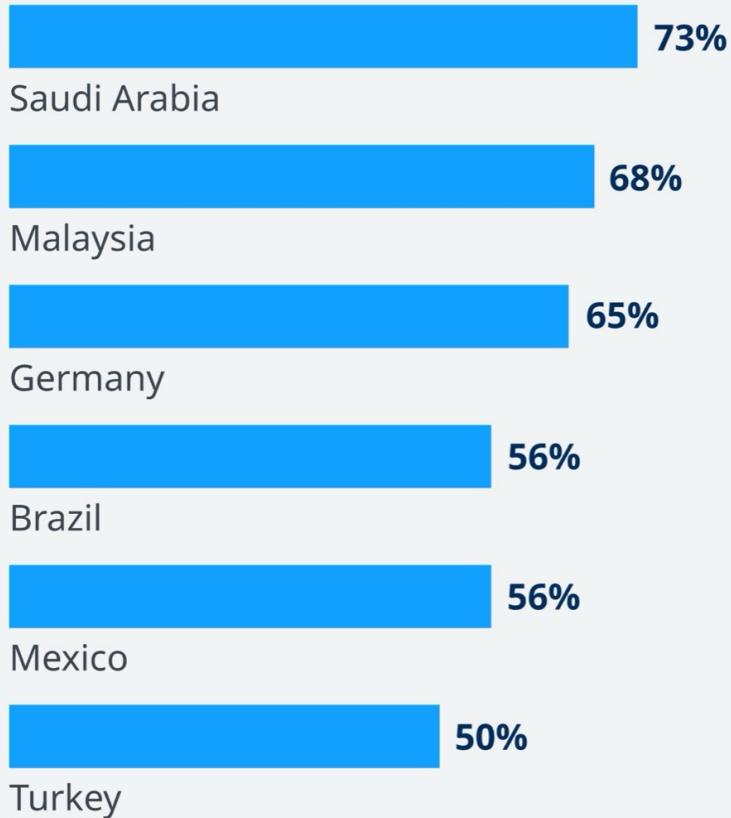
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# Relative Valuation



## WhatsApp market penetration



Source: Statista

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"...analysts say a couple of million dollars are now coming in through the WhatsApp Business segment, the company's first serious monetizing attempt, if you will, and meant to facilitate communication between small and medium-sized enterprises and their customers..."

(<https://www.dw.com/en/assessing-whatsapp-s-5-years-with-facebook/a-47562799>)

