



FIRST BALKAN VALUATION CONFERENCE

19 – 21 June 2015, Sofia

***STARTUPS VALUATION: APPROACHES AND
METHODS***

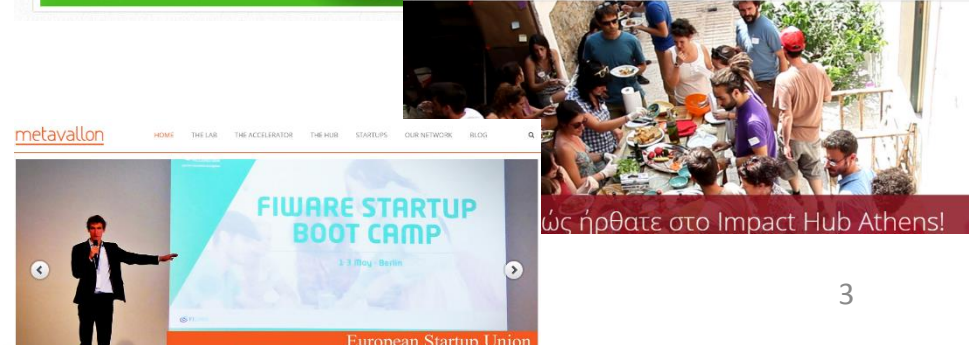
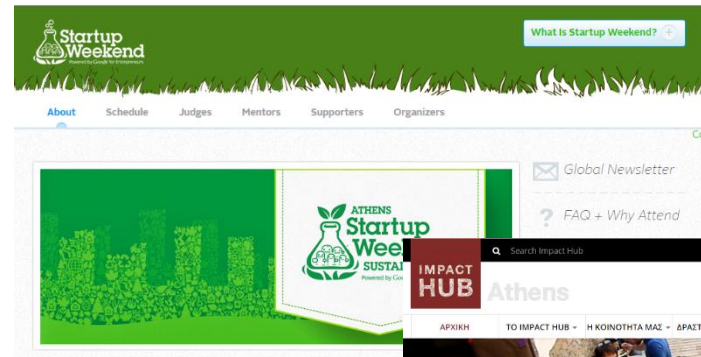
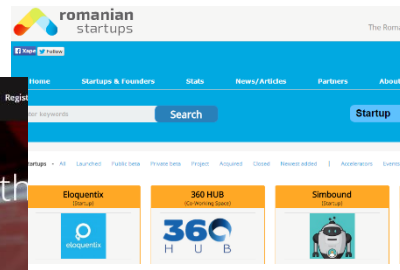
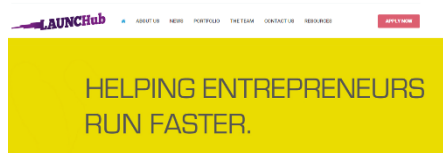
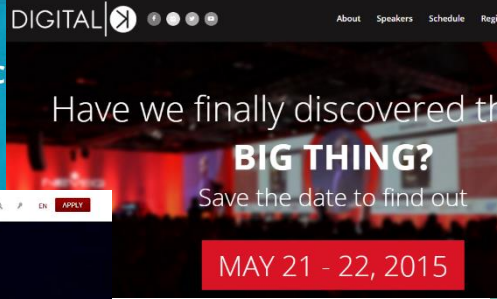
Rositsa Trichkova, CPA
Nigokhos Kanaryan, PhD

About Us

Rositsa Trichkova, CPA has 25 years of experience in accounting, auditing, consulting and valuation. She is a member of the Managing Board of the Bulgarian Institute of Certified Public Accountants. Rositsa is certified appraiser of financial assets, enterprises and receivables, and real estate.

Nigokhos Kanaryan, PhD has more than 10 years of experience in asset management and risk management. He is licensed investment consultant by Bulgarian Financial Supervision Commission. Nigokhos is assistant professor in the Department of Economics of New Bulgarian University.

Motivation

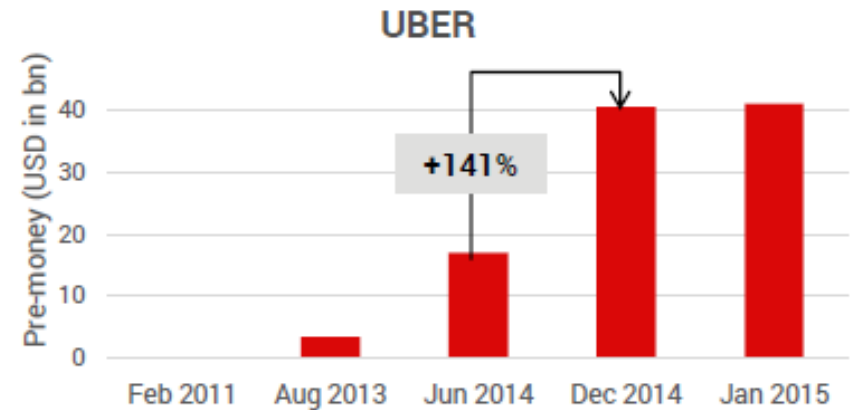
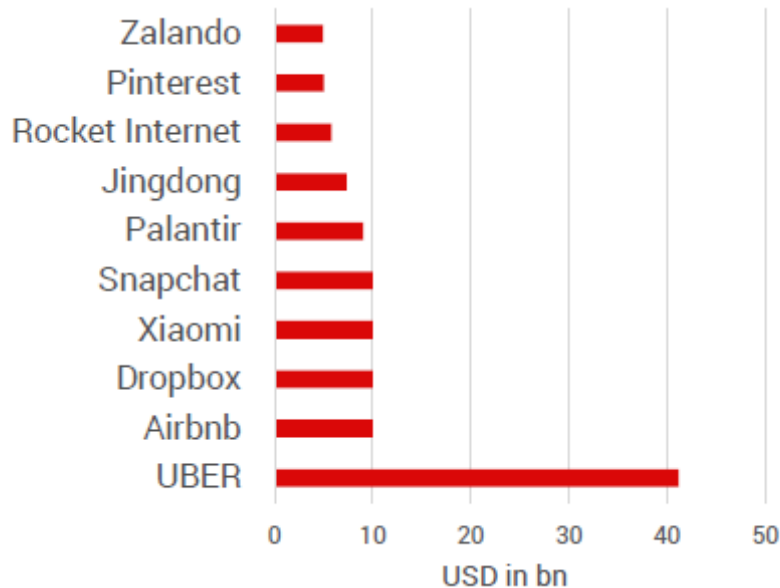


Growing Startup Ecosystem

- Startup definition (wiki):
 - is a business in the form of a company, a partnership or temporary organization designed to search for a repeatable and scalable business model.
 - These companies, generally newly created, are in a phase of development and research for markets.
 - Due to this background, many consider startups to be only tech companies, but as technology is becoming a normal factor, the essence of startups has more to do with innovativeness, scalability and growth
- We are in the beginning of the emergence of the startup ecosystem in Europe
- Targets for growth are set & they are high
- Horizon 2020 - the biggest EU research and innovation programme. €80 billion of funding is available over the period from 2014 to 2020 in addition to the private and national public investment.
- VCs are hunting for bargains
- Stock market operators create new markets segments for SMEs

Startup Value: Hot and Burning

The most valuable startups > USD 1 billion

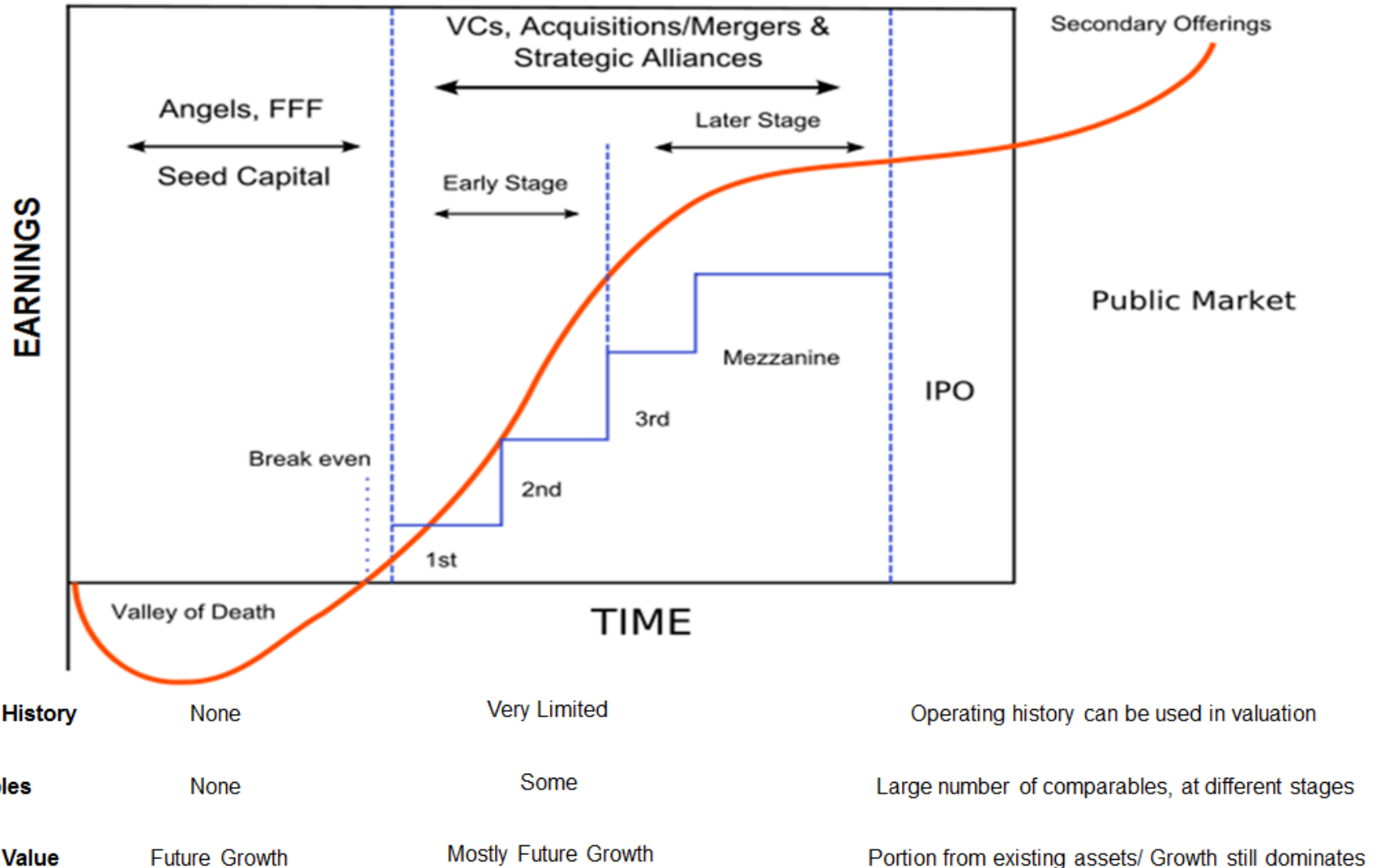


Source: i5invest Analysis

Startup Valuation: Specifics

- Requires a more creative valuation methodology that considers numerous factors:
 - Stage of development
 - Quality of the management
 - Industry prospects
 - Value of the company IPs
 - Value of comparable companies
 - Working capital requirements
- VCs, angels, and investors introduced ad-hoc approaches and methods for startups valuation

Startups Financial Life Cycle



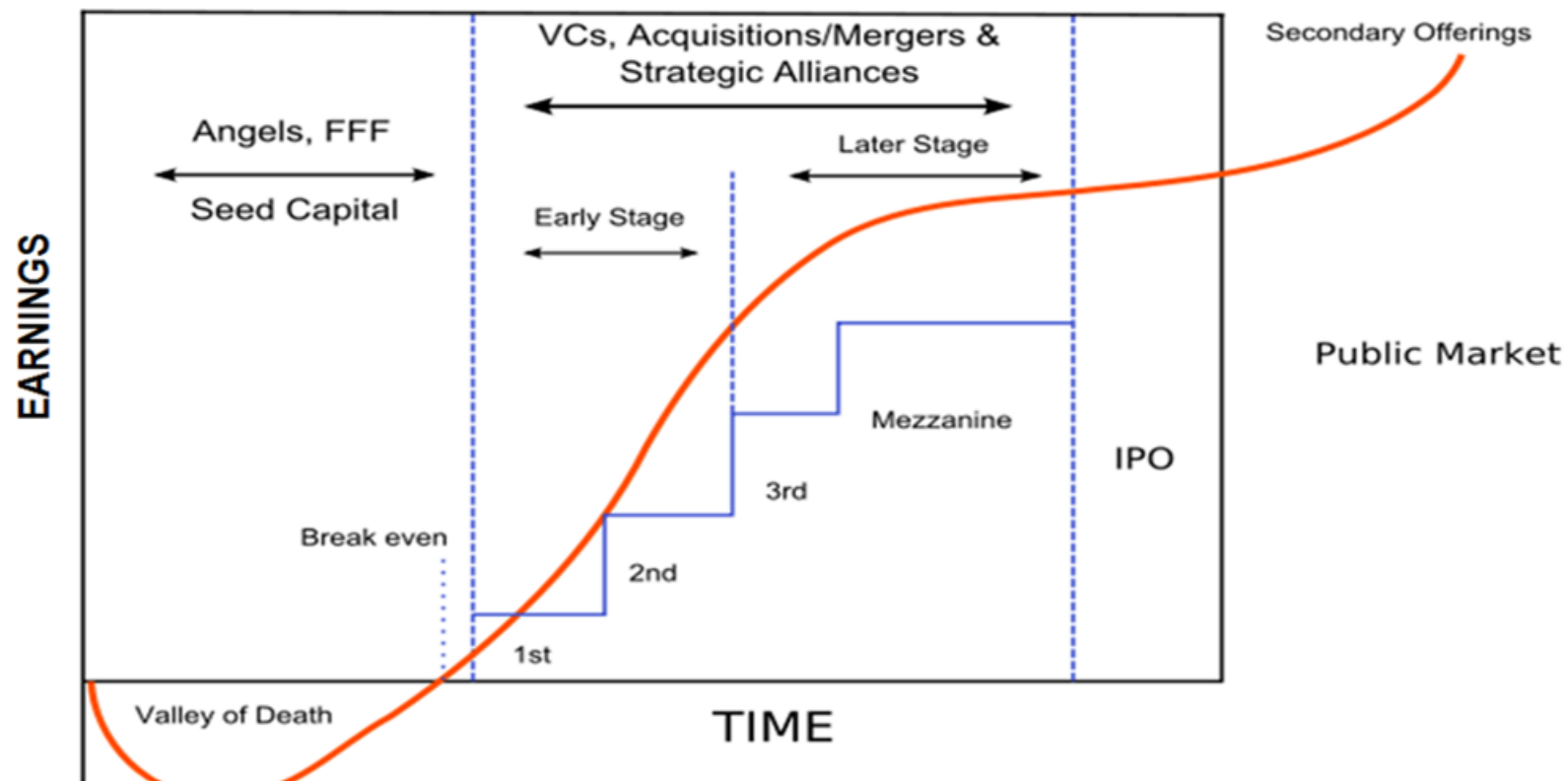
Valuation Approaches and Methods

Traditional (IVSC, IFRS 13) *	VCs, angels, investors **
Cost Approach Net Assets Value Method Liquidation Value	Qualitative Approach Net Assets Value Method Cost-based Methods Market Method
Income Approach Discounted Cash Flows Method Capitalization of Earnings Method Residual Income Method Option Pricing Models	Quantitative Approach Discounted Cash Flows Method Comparative Transactions Method
Market Approach Capital Markets Method Comparative Transactions Method Industry's Price Multiples Method	Hybrid Approach First Chicago Method

* Kasarova et.al. (2014)

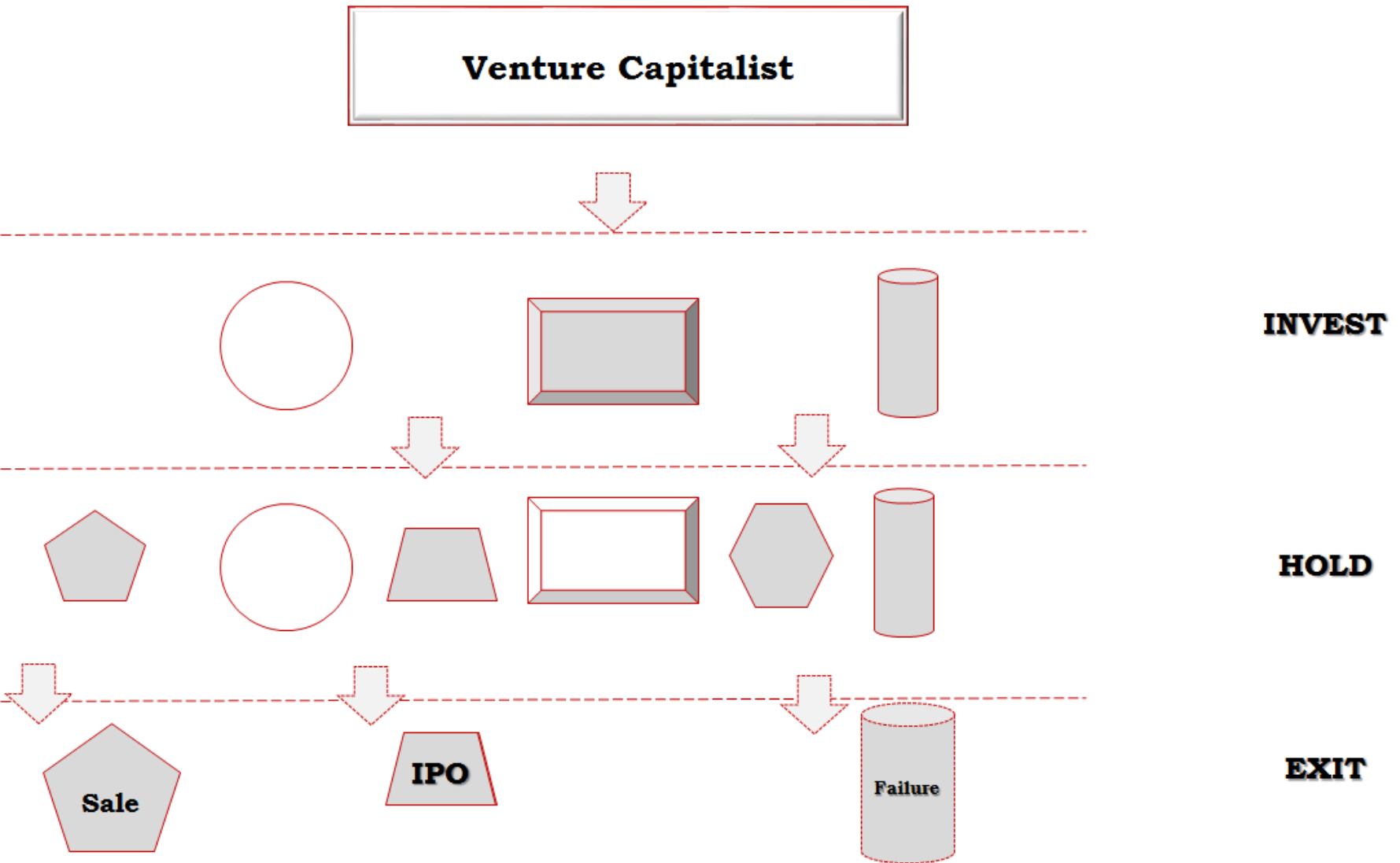
** Pressman (2015)

Startups Financial Life Cycle & Valuation Methods



Operating History	None	Very Limited	Operating history can be used in valuation	
Comparables	None	Some	Large number of comparables, at different stages	
Source of Value	Future Growth	Mostly Future Growth	Portion from existing assets/ Growth still dominates	
Method	Net Assets Value	DCF with TG Comparative Transactions	DCF with Multiple Comparative Transactions	Comparative Transactions DCF

Startup Valuation: Assignors Perspective



First Chicago Method: Incorporating the Uncertainty

- Developed for First Chicago Corporation Venture Capital, a.k.a **Venture Capital Method**
- Combines both Industry's Price Multiples method and DCF
- The appraiser determines three scenarios related to the exit strategy:
 - Optimistic – successful IPO at the end of the investment horizon;
 - Stable – stable stream of dividends, but IPO never reached;
 - Pessimistic – failure. Recovering the capital by liquidating the assets of the company.
- Once the scenarios are defined, the probability of each scenario should be determined.
- Could be applied in the early and later stages of the startups life cycle

First Chicago Method: The Enterprise Value

- For both optimistic and pessimistic scenarios cash flows are calculated for the investment horizon:
 - The Terminal Value is substituted with an Industry Price Multiple as an exit in the optimistic scenario
 - Constant growth model is assumed in the stable scenario.
- The Liquidation Value is determined at failure scenario
- The Enterprise Value is probability weighted average of the enterprise value of each scenario:

$$EV = \sum_{i=1}^3 EV_i p_i$$

- $EV_{\text{optimistic}}$

$$EV_{\text{optimistic}} = \sum_{t=1}^H \frac{CF_t}{(1 + r_{\text{stage}})^t} + \frac{\text{Multiple} * \text{Fundamental Value}}{(1 + r_{\text{exit}})^H}$$

- EV_{stable}

$$EV_{\text{stable}} = \sum_{t=1}^H \frac{CF_t}{(1 + r_{\text{stage}})^t} + \frac{TV}{(1 + r_{\text{exit}})^H}$$

Startup Valuation in Action

- A Bulgarian startup company applying the SaaS model for providing financial services
- History 3 years
- The startup is in the early stage of its life cycle
- Method for valuation: First Chicago with four scenarios
- The case is posted on <http://valuationquest.blogspot.com/>

Startup Valuation in Action: Basic Figures

Values in BGN	2013 A	2014 A	2015 E	2016 F	2017 F	2018 F	2019 F	2020 F
Number of Customers	6	7	7	9	11	13	15	15
Number of New Customers	5	3	3	5	6	7	5	3
Number of Churn Customers	-2	-2	-3	-3	-4	-5	-3	-3
Net New Customers	3	1	0	2	2	2	2	0
Lost Customers in %	0.0%	33.3%	42.9%	42.9%	44.4%	45.5%	23.1%	20.0%
% ARR Churn	0.0%	28.6%	42.9%	33.3%	36.4%	38.5%	20.0%	20.0%
% ARR Expansion	0.0%	50.0%	42.9%	71.4%	66.7%	63.6%	38.5%	20.0%
% Net ARR Churn	0.0%	-21.4%	0.0%	-38.1%	-30.3%	-25.2%	-18.5%	0.0%
Life Time Value, LTV	0	-678.04	-452.03	32,844.09	52,055.27	65,407.39	145,367.92	145,367.92
Cost to Acquire a Customer, CAC	0	1,714.29	4,000.00	2,400.00	2,000.00	1,714.29	2,400.00	4,000.00
LTV/CAC	0	-0.40	-0.11	13.69	26.03	38.15	60.57	36.34
Churned Annual Recurring Revenue, ChARR	0	- 61,714.29	- 112,408.16	- 87,428.57	- 131,710.58	- 181,524.19	- 118,155.75	- 139,969.11
Expansion Annual Recurring Revenue, ExpARR	0	108,000.00	112,408.16	187,346.94	241,469.39	300,340.02	227,222.59	139,969.11
Net New Annual Recurring Revenue (ARR)	0	46,285.71	-	99,918.37	109,758.81	118,815.83	109,066.84	-
ARR Beginning Value	0.00	216,000.00	262,285.71	262,285.71	362,204.08	471,962.89	590,778.73	699,845.57
ARR Ending Value	216,000.00	262,285.71	262,285.71	362,204.08	471,962.89	590,778.73	699,845.57	699,845.57
Revenues	216,000.00	262,285.71	262,285.71	362,204.08	471,962.89	590,778.73	699,845.57	699,845.57
EBITDA	-49,321.80	-1,356.09	-1,356.09	98,532.28	208,221.09	327,036.93	436,103.77	436,103.77
Earnings	-59,321.80	-11,356.09	-11,356.09	79,679.05	176,148.98	283,083.23	381,243.39	381,243.39
FCFE	-49,321.80	-5,984.66	-1,356.09	29,687.22	177,673.10	283,701.65	382,836.71	353,743.39
TTM Growth Rate of								
Revenues		21.43%	0.00%	38.10%	30.30%	25.17%	18.46%	0.00%
EBITDA		nm	nm	nm	111.32%	57.06%	33.35%	0.00%
Earnings		nm	nm	nm	121.07%	60.71%	34.68%	0.00%
FCFE		nm	nm	nm	498.48%	59.68%	34.94%	-7.60%
Margin								
EBITDA	-22.83%	-0.52%	-0.52%	27.20%	44.12%	55.36%	62.31%	62.31%
Earnings	-27.46%	-4.33%	-4.33%	22.00%	37.32%	47.92%	54.48%	54.48%

Startup Valuation in Action: Scenarios, Assumptions, and Enterprise Value

	Scenario 1. IPO *	Scenario 2. M&A Deal **	Scenario 3. Stable Growth	Scenario 4. Failure
EV/Revenue	3.1	2.4	-	-
FCFE Growth Rate	-	-	6%	-
First Stage Discount Rate	40%	40%	40%	-
Discount Rate @ Exit	20%	20%	20%	-
Exit Value in 2020	2,169,521.27	1,679,629.37	2,678,342.83	-
Liquidation Value in 2020	-	-	-	325,000.00
PV FCFE	380,673.13	380,673.13	380,673.13	-
Enterprise Value	1,252,555.06	1,055,678.50	1,457,039.04	130,610.21
Probability	13.0%	40.0%	45.0%	2.0%
Enterprise Value	1,243,383.33			

Source: The Software Industry Financial Report Q1 2015, Software Equity Group, L.L.C.

* Multiples in Q1 2015 of Financial & Accounting Startups

** The median exit multiple in Q1 2015 for private on-premise software sellers.

Discount rates source: Sahlman, William A., and Daniel R Scherlis. [A Method For Valuing High-Risk, Long-Term Investments: The "Venture Capital Method"](#). Harvard Business School Background Note 288-006, July 1987. (Revised October 2009)

Thank you very much!

