Some consequences of digitalisation for business valuation

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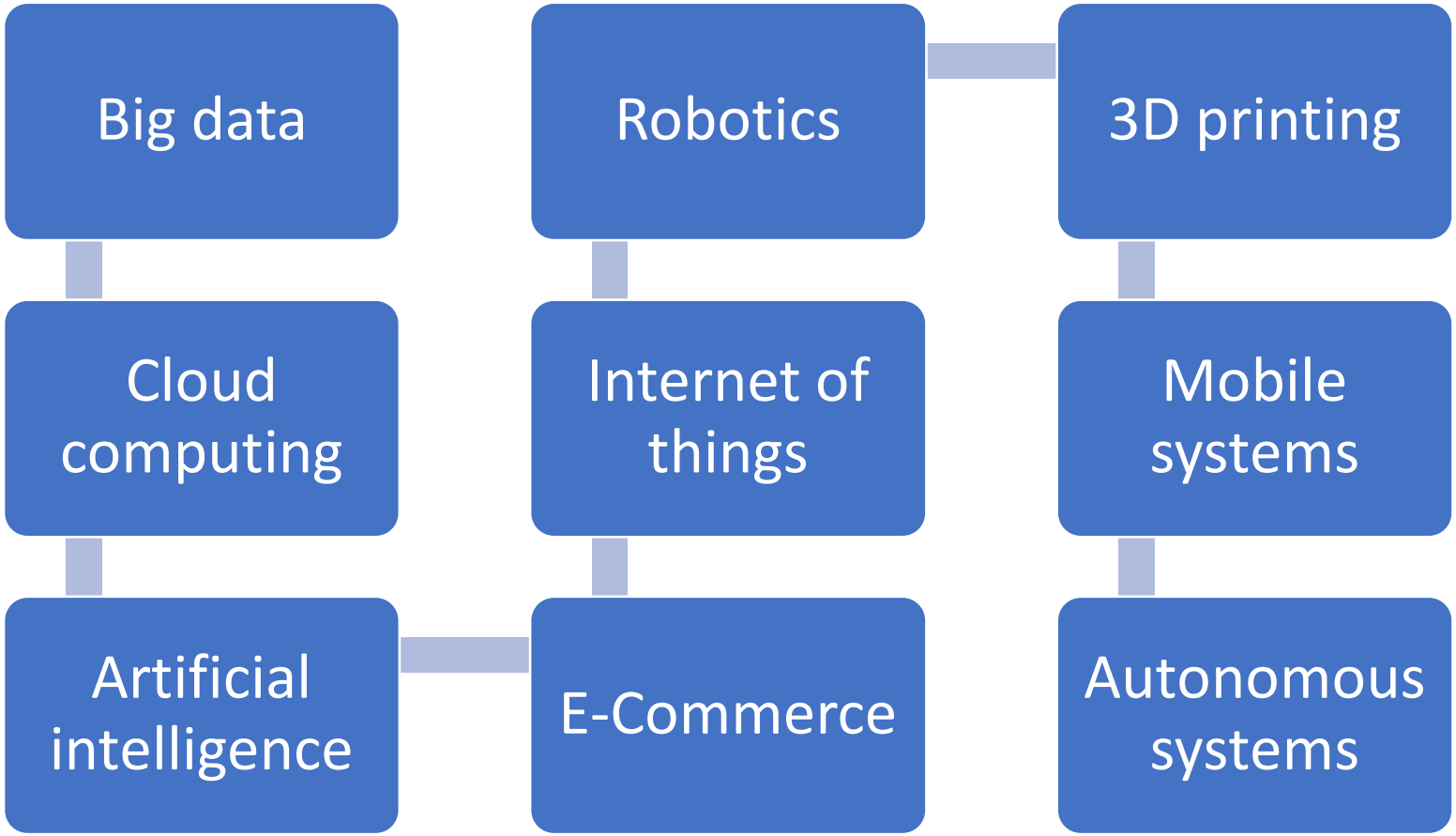
Agenda

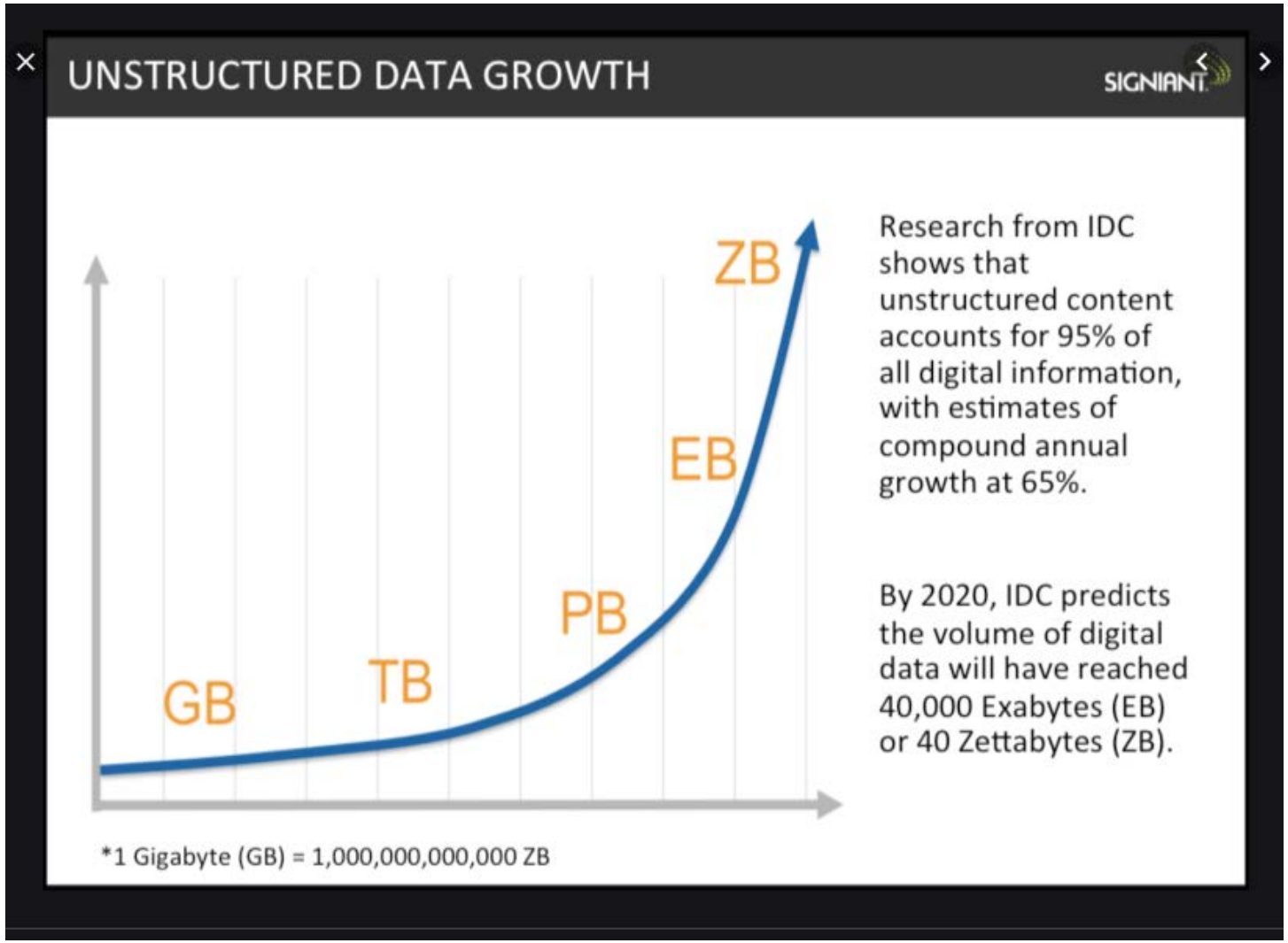
I. Introduction
II. Digitalisation & business valuation
III. New valuation objects & old valuation methods
IV. Cash flow projection, disruption, peers & terminal value
V. Discounting issues
VI. Takeaways
VII. References

I. Introduction

- Digitalisation is the process of converting data (not necessarily information) into computer-readable format; some buzzwords:



I. Introduction (cont.) Source: IDC = International Data Corporation

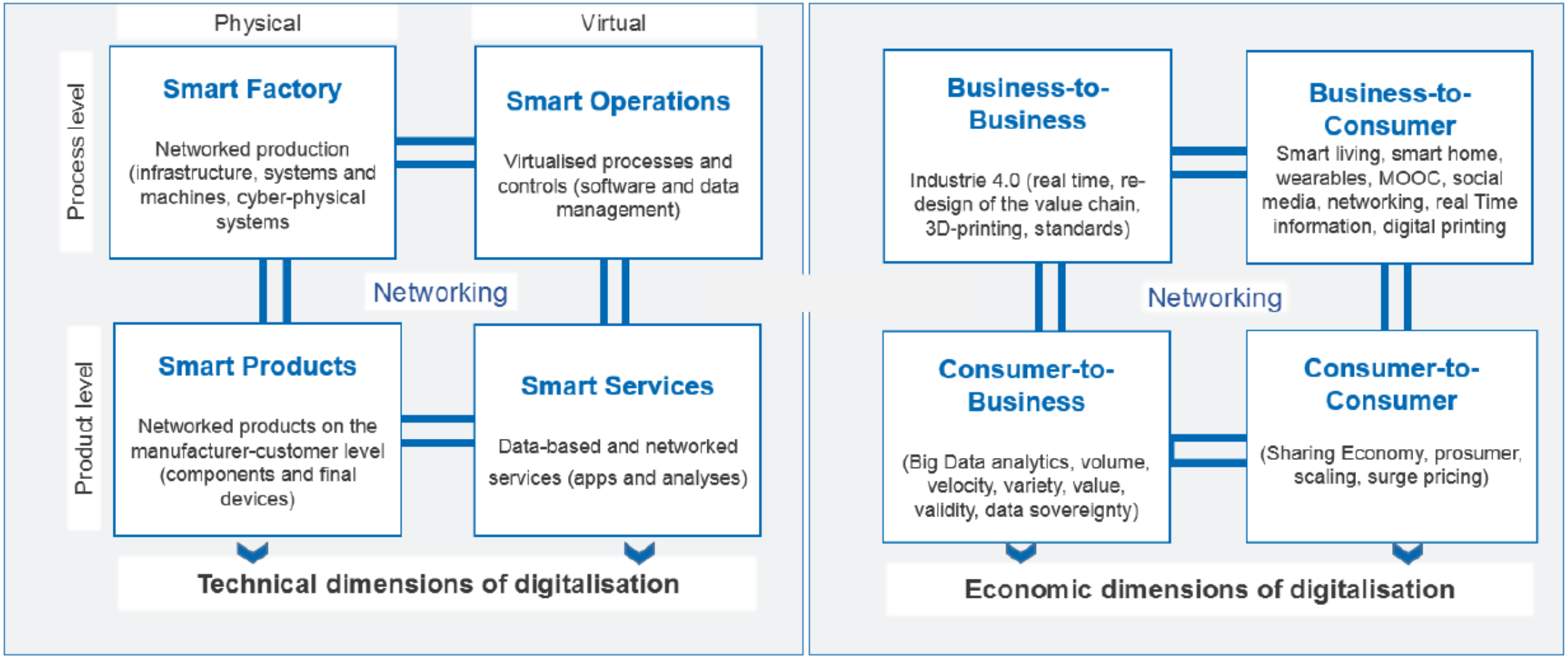


amount

time

I. Introduction (cont.) Source: Hüther, 2016, p. 5

Overview 1: Effects of digitalisation by effects context

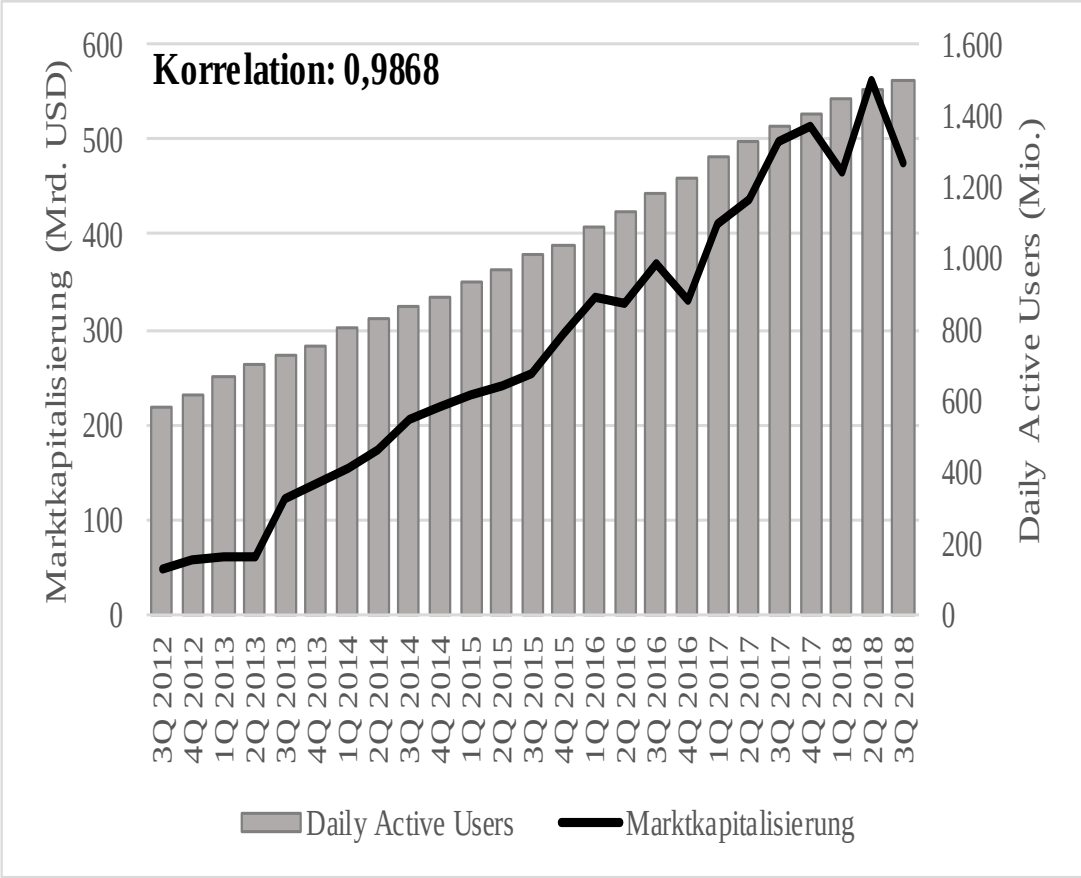


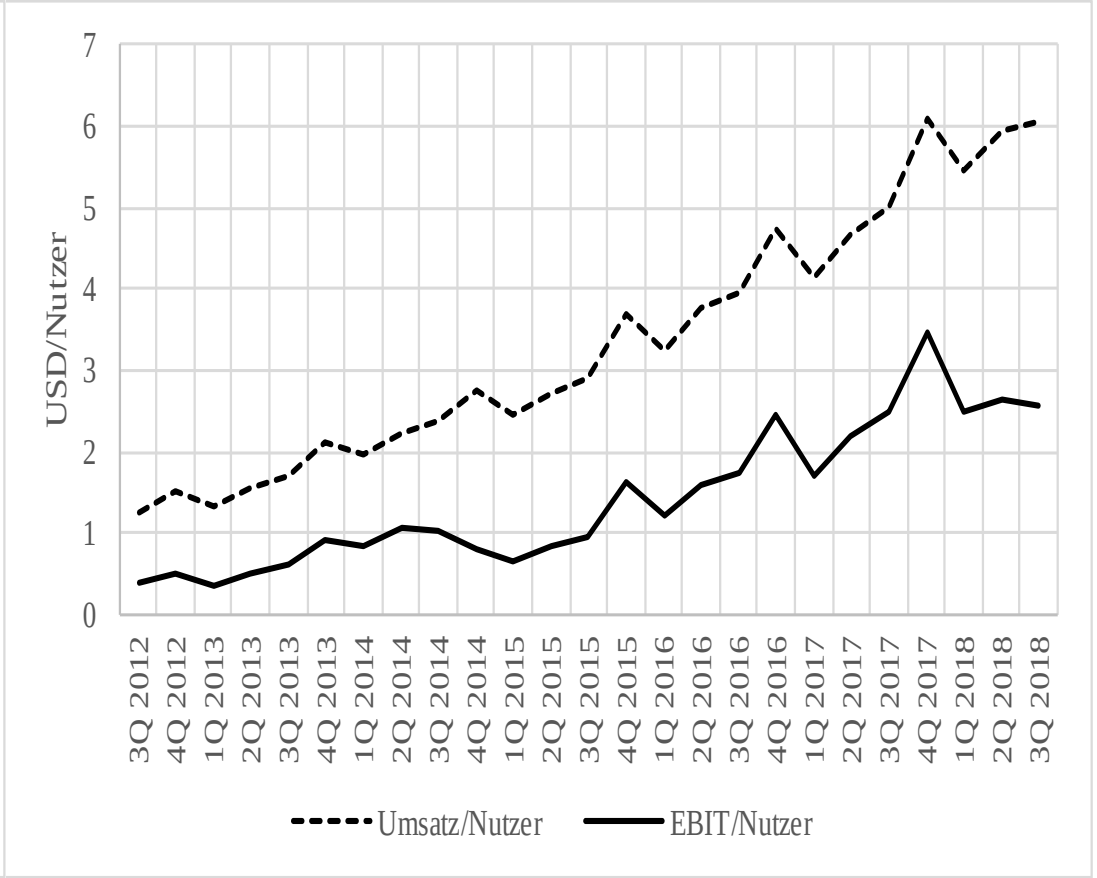
II. Digitalisation & business valuation

- **Digitalisation leads to**
  - **New valuation objects** (e.g. platform companies & Apps; XaaS: Amazon, Google, Facebook, Uber, Airbnb) **& new business models** (e.g. in banking industry: Fintech, RoboAdvisors)
  - **Vanishing sector boundaries:** car maker or mobility service company?, producer of motor vehicle or of computer (and work station) on wheels?
  - **New competitors and peers** (e.g. in auto business: Tesla vs. BMW)
  - **New customer services** (e.g. automated valuation models: Valutico)
- **Digitalisation** does not need new valuation methods, but it **influences**
  - **Cash flow projections**, e.g., what about peers and terminal value in a disruptive world?
  - **Risk analysis**, e.g. through big data support & data analytics
  - **Discounting**, e.g. through using CAPM more conveniently

III. New valuation objects & old valuation methods

- **Digitalisation leads to new valuation objects: Facebook**



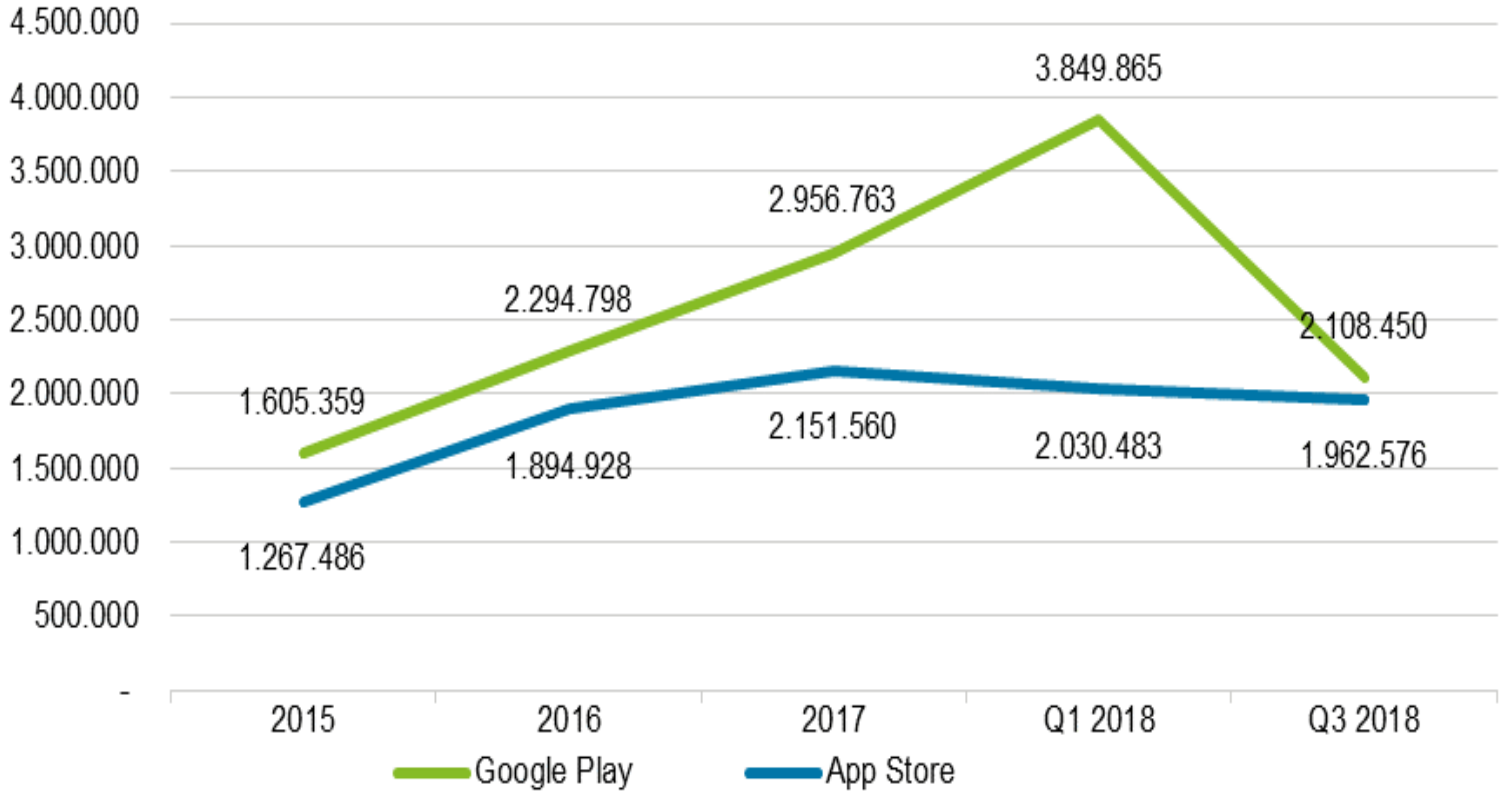


Market Cap vs. Daily Active Users / Sales & EBIT per user

Source: Blümelhofer in Ballwieser/Hachmeister, 2019, p. 70.

III. New valuation objects & old valuation methods (cont.)

- **Number of available Apps**



Source: Hayn/Bassemir in Ballwieser/Hachmeister, 2019, p. 74.

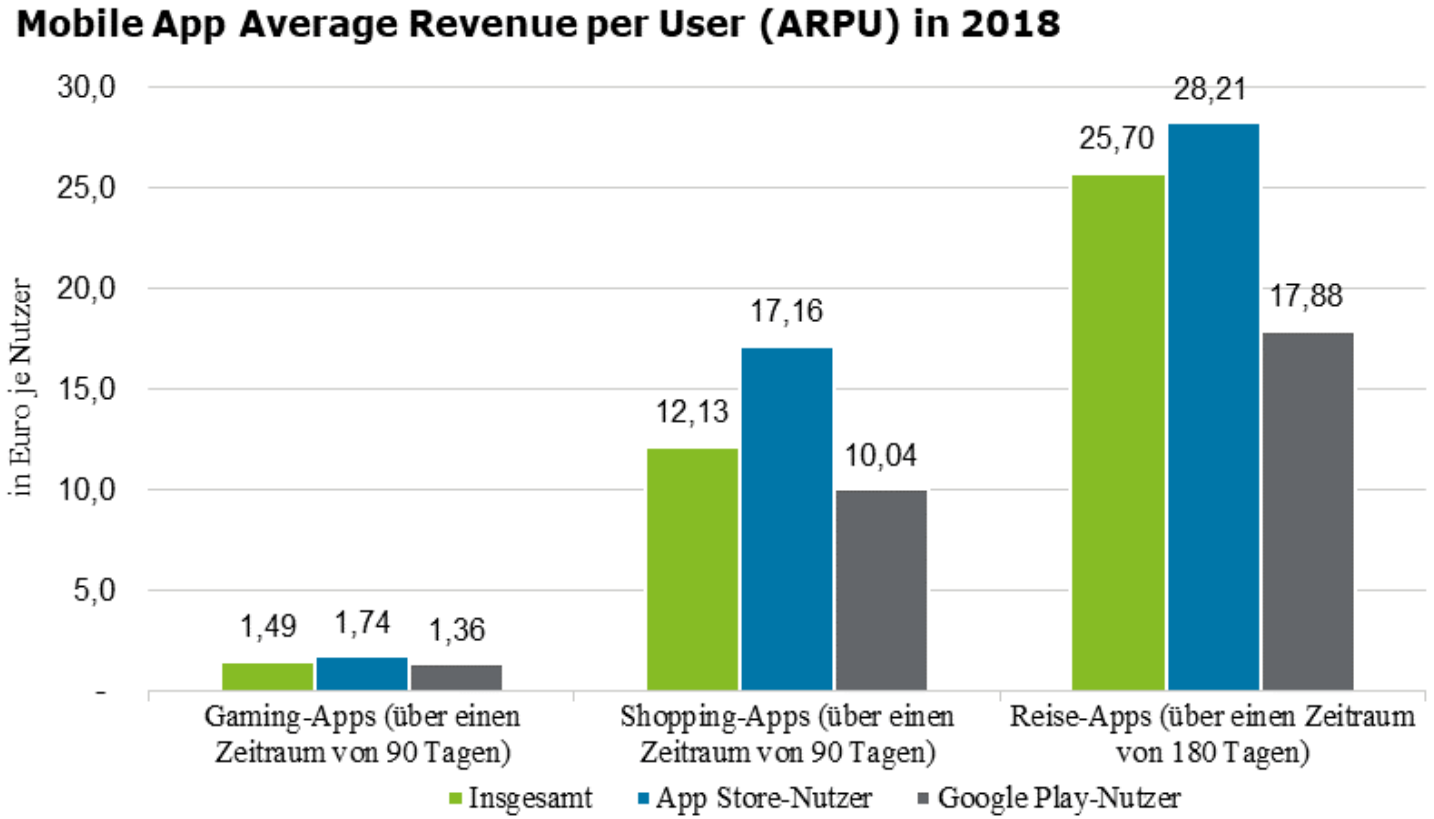
III. New valuation objects & old valuation methods (cont.)

- **Value drivers (KPIs) of Apps**
  - **Numbers of downloads & registered users**
  - Daily Active Users (DAU) & Monthly Active Users (MAU)
  - **DAU/MAU relation**; e.g., 20 percent means: the average user uses the App on six days of a month with 30 days
  - Social media & communication Apps aim at DAU/MAU relation of 50 percent, at least
  - Facebook realised DAU of 1.4 bn and MAU of 2.13 bn in 2017, leading to a DAU/MAU relation of 66 percent
  - Between 68 percent and 78 percent of all Apps will not be used any longer three months after download
  - **Average Revenue per User (ARPU)**

Source: Hayn/Bassemir in Ballwieser/Hachmeister, 2019, p. 40 f.

III. New valuation objects & old valuation methods (cont.)

- **Value drivers (KPIs) of Apps** (cont.)



Source: Hayn/Bassemir in Ballwieser/Hachmeister, 2019, p. 42.

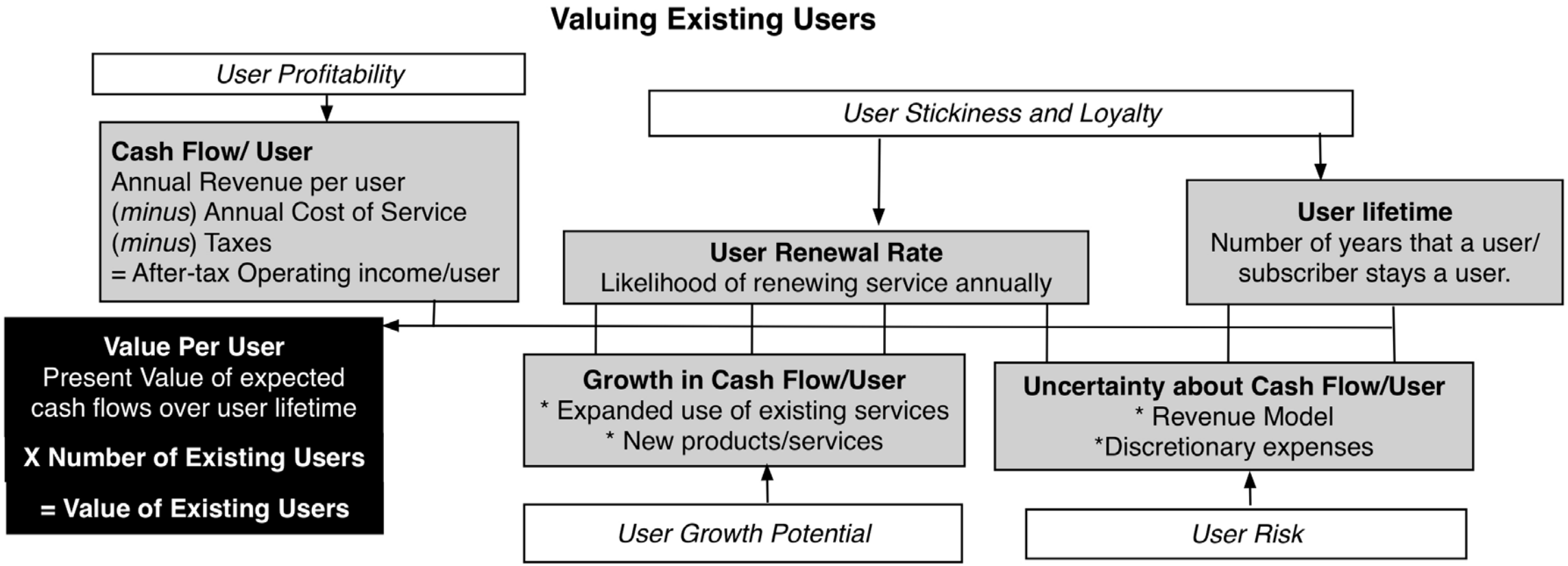
III. New valuation objects & old valuation methods (cont.)

- **Simple kind of valuation by means of life time value (LTV)**
- LTV = Numbers of Users x (User Lifetime Value – Customer Acquisition Cost)
- User Lifetime Value= (Average Value of a Sale) x (Average Number of Repeat Transactions per Month) x (Average Retention)
- **But**: Substantial issues like customers‘ growth, development of ARPU and detailed quantification of cost are missing
- Since Apps have similar valuation relevant characteristics like start-ups or growth companies, one may look for support from those literature, esp. Venture-Capital method (VC) or First-Chicago method (FC)
- **Perhaps better:** more detailed user-based valuation models

Source: Hayn/Bassemir in Ballwieser/Hachmeister, 2019, p. 46.

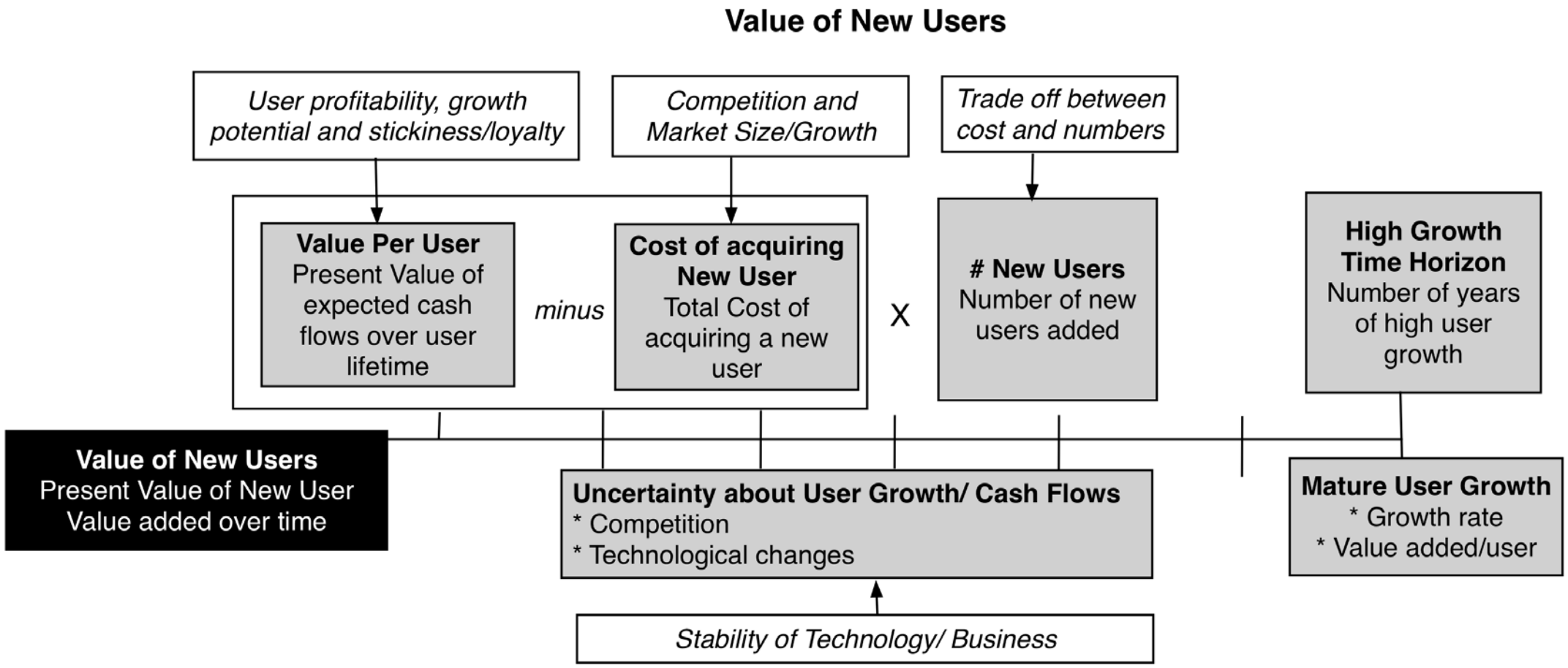
III. New valuation objects & old valuation methods (cont.)

- For a user-based model see Damodaran, 2017b



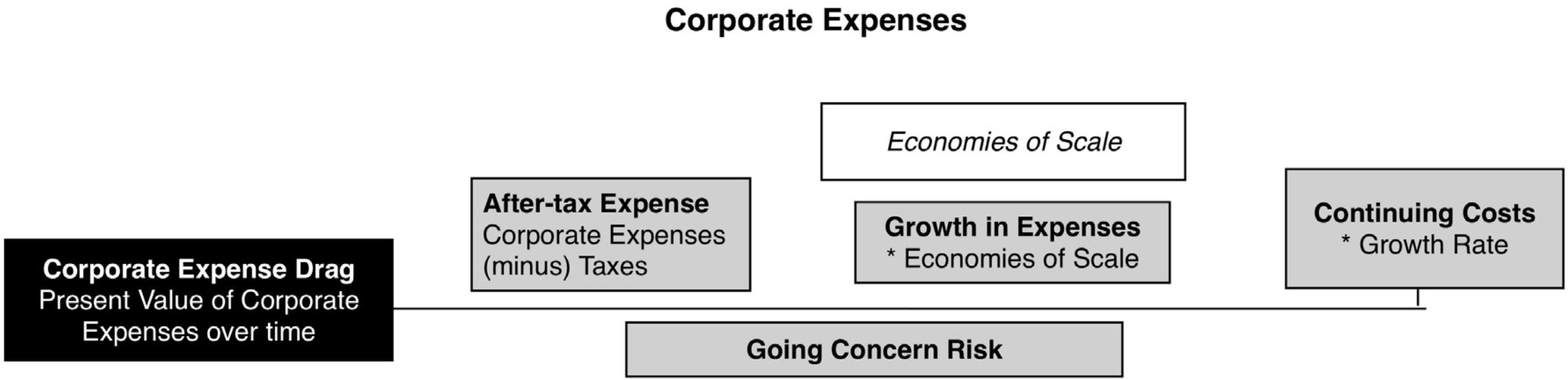
III. New valuation objects & old valuation methods (cont.)

- Damodaran, 2017b (cont.)



III. New valuation objects & old valuation methods (cont.)

- Damodaran, 2017b (cont.)



III. New valuation objects & old valuation methods (cont.) Source: Damodaran, 2017b

Uber Valuation

	User Value	*Asset value*	*Company Value*	*Equity Value*
Existing Users	$16,412.49			
New Users	$20,190.70			
User Value	$36,603.19	**$36,603.19**		
- Corporate Expense Drag		$(10,369.28)		
Uber Operating Assets		$26,233.91	**$26,233.91**	
+ Cash			$5,000.00	
+ Didi Cross Holding			$6,000.00	
Uber Firm Value			$37,233.91	**$37,233.91**
- Debt				$-
Value of Equity				**$37,233.91**

- Market Cap **$82 bn on 6 May 2019**, $42/share
- $31/share (26% loss) in September
- Share price is expected to decrease strongly on 6 November (end of lock-up period)

- **VALUATION vs. PRICING**
  (Market Cap greater than **$70 bn in June 2017**; Source: Damodaran 2017a)
  or HYPE ?

III. New valuation objects & old valuation methods (cont.)

Uber has nosedived 26% since its May IPO, as you can see here:

Source: https://www.forbes.com/sites/oliviergarret/2019/09/19/why-uber-could-crash-on-november-6/#39e8095c185a

IV. Cash flow projection, disruption, peers & terminal value

- In case of disruption – connected with digitalisation – two material questions arise at least
  - **What are peers?**
  - **How can I estimate terminal value (or the other side of the coin: multiples)?**
- Cash flow projections are the result of expected states of the world and the company‘s strategy based on
  - Business model
  - Technical, personal and financial strength & structure

  Strategy
  - Customer demand
  - Supplier performance
  - Competitive behaviour
  - Regulation behaviour

  Uncertain states of the world

IV. Cash flow projection, disruption, peers & terminal value (cont.)

Auto business	Tesla	BMW
Founded	2003	1917
Financial results	Cash burning; more than $11bn equity since 2012	Profitable
Products	Few: 250.000 in 2018; 360.000 expected for 2019, at most	Many: about 2.5 mio. cars in 2018
Strengths	Electric vehicles, own battery production, software updates, own charging stations, autopilot	Many premium cars with gasoline and Diesel motors, esp. SUVs with high profit margins
Weaknesses	Production, sales & service department, logistics, hire & fire of management, code red situation of financial analysts, clumsy CEO	Diesel emission scandal („deceit devices“); i3 was forerunner in Germany (2013), but is out of production now; 25 e-vehicles planned for 2023
Regulation attractiveness	Positive for climate debate	Negative for climate debate
Market Cap Sept. 2019	€38bn	€42bn

What are Tesla‘s peers?

IV. Cash flow projection, disruption, peers & terminal value (cont.)

- Terminal Value (TV) explains most of DCF value
- TV requires „steady state“: stable condition of KPIs and financial results
- Disruption as result of digitalisation has strong implications for business model‘s life cycles
- Company‘s history is no good base for projection of cash flows and risk
- **Need companies to be seen as a chain of start-ups?**
- **An infinite chain?**
- **What are the valuation consequences?**
- How helpful are scenario and risk analysis?
- How useful can be multiple analysis?

V. Discounting issues

- **Digitalisation leads to new services**, e.g. of Valutico, headquarted in Vienna, Austria
- Valutico delivers a complete web-based valuation tool since end of 2017
- Website refers to **Big Data**, **Proprietary Algorithms** and **Swarm Intelligence**
  - „Valutico integrates the world's leading financial databases and does the number crunching. So that you don't have to.”
  - “Valutico's proprietary algorithms are there to help you make sense of all your data and support your analysis.”
  - ”Valutico anonymously feeds user opinions back into our system. You get the benefits, with smarter and more intuitive recommendations to help refine your analysis.” (https://valutico.com/)

V. Discounting issues (cont.) Source: Dierkes/Sümpelmann, 2019, p. 184

- **Valutico shows peers & calculates raw betas of peers**
  - Input is information about valuation object, e.g. sector, sales etc.
  - User can choose number of peers
  - Peers are listed companies of national and international stock markets
  - Peers can be added discretionally by means of search function with filter
  - Criteria for detecting peers are KPIs like sales growth rate, EBIT margin, leverage, credit spread etc.
  - Data comes from »Capital IQ« or »Bloomberg«
- **Not shown are the assumptions for the estimation of raw betas**

V. Discounting issues (cont.) Source: Dierkes/Sümpelmann, 2019, p. 184

- **Unlevering procedure for peers and estimation of asset beta**
  - Based on peer group‘s raw betas, asset beta is calculated by means of Modigliani-Miller (MM) formula
  - MM formula needs leverage and tax rate for debt‘s interest, which is not shown
  - Even though credit spreads of peers are shown, debt beta is not used
  - Tool does not allow to use growth rate as component of MM formula (perpetuity assumption)
  - Tool does not allow to consider value-driven financing policy according to Miles-Ezzell (ME) or Harris-Pringle (HP)
  - Median of peer group‘s asset betas determines asset beta of valuation object; no option to calculate arithmetic mean

V. Discounting issues (cont.) Source: Dierkes/Sümpelmann, 2019, p. 185

- **Relevering procedure of asset beta and estimation of equity beta**
  - MM formula for perpetuity is used for relevering, no option for periodic specific leverage
  - No reconcilement of debt‘s book value and debt‘s market value which usually leads to an inconsistent consideration of financing policy
  - Use of company‘s total tax rate instead of tax rate for debt‘s interest
  - Relevering without debt beta
- **Additional equity cost element**
  - In addition to CAPM‘s equity cost of capital another cost element can be calculated
  - It is based on market‘s growth rate, company‘s size and leverage; leverage will then be double-counted
  - The additional element can also be filled in by hand; no theory
- **Does the user understand what the tool delivers?**
- **How substantial is the effect of wrong or inconsistent assumptions?**

VI. Takeaways

1. Digitalisation does not change valuation methods, but it leads to new valuation objects and offers options for using valuation tools to support cash flow projection, discounting and finding multiples
2. Valuation tools tend to be black boxes; valuers need to know how tools work and need to accept (or to refuse) it; valuers bear responsibility
3. Historical performance of business is no good basis for cash flow projection in times of digitalisation
4. Great problems are peer group determination (necessary for beta and multiples estimation) and terminal value estimation
5. A look at platform companies shows that market capitalisation and valuation do not coincide; another hint that valuation and pricing (of shares) is not the same

VII. References

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Thank you very much! Questions welcome!

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