

OPERATIONAL DRIVERS OF BUSINESS VALUATIONS IN THE E-COMMERCE SECTOR – FOCUS ON PUBLIC COMPANIES THAT ASSUME INVENTORY RISK

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Abstract:

Most companies in the e-commerce sector face a crucial decision when choosing between top line growth and profitability. Generally, as an industry matures, company valuations shift from a revenue driven valuation to an operating profitability driven valuation. Despite being a relatively young sector, the e-commerce sector has reached a certain maturity stage, with valuations in segment increasingly based on expected operating profitability. Furthermore, with the development of the sector, the valuation drivers (key operating performance indicators) shift from revenue growth to gross profitability or operating profitability. The article analyses through regression analysis the current revenue and operating profitability based valuation levels of ten publicly listed inventory risk bearing companies in the global e-commerce sector against several key operating performance indicators. The results of our research show that future expected revenue growth still represents the most important key operating performance indicator but valuations are increasingly driven by operating profitability and less by revenue. These findings are especially important to the numerous entrepreneurs in the e-commerce sector that are looking to sell their companies and which could face the challenge of having to implement a major strategic shift before starting a sales process and implicitly selling the company at a high business valuation.

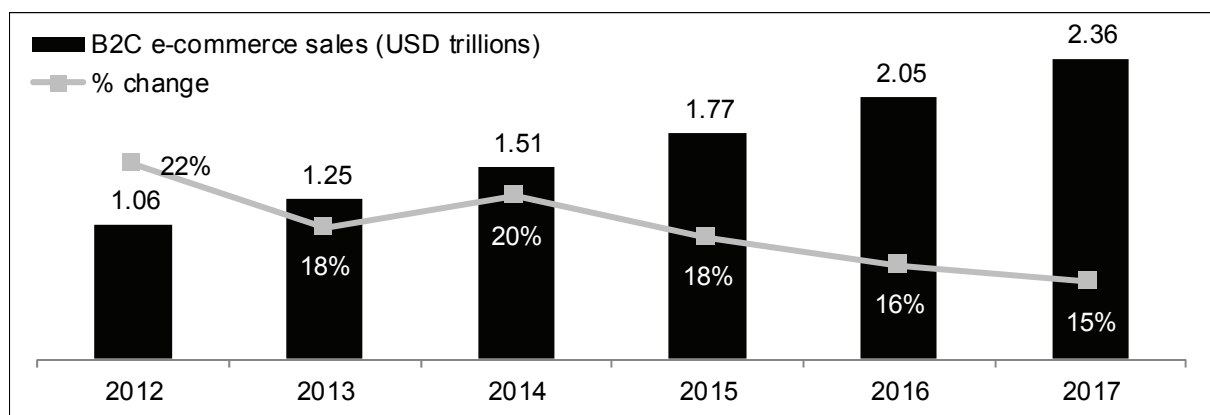
Keywords: e-commerce valuation, internet retail valuation, valuation, valuation drivers, e-commerce industry development, Revenue valuation vs. EBITDA valuation

1. INTRODUCTION

1.1. History and development of e-Commerce

Online shopping has its roots in a TV and telephone shopping system invented by Michael Aldrich in 1979 (The Michael Aldrich Archive, 2011). It was until 1995, following the apparition of the World Wide Web, that the first commercially viable online shop in the form of an online financial service appeared. Stanford Federal Credit Union was the first financial institution to offer online financial services (Stanford Federal Credit Union, 1995). Soon after, Amazon (Amazon, 2015) and eBay (Hsiao, 2015) launched their businesses. Today, the online shopping market comprises 110,000 e-commerce websites (Moore, 2014) amounting to over USD 1.5 trillion annual sales (eMarketer, 2014). See Figure 1 for e-commerce market size and growth rates.

Figure 1: B2C e-commerce sales (USD trillions), 2012 - 2017



Note: Includes products and services ordered and leisure and unmanaged business travel sales booked using the internet via any device, regardless of the method of payment or fulfilment
Source: eMarketer, January 2014

To achieve this size, e-commerce companies relied over the past 20 years on three pillars: low prices, technology and bottom up experiments (Lee, 2013). Arguably, “low prices” is the pillar which mostly influences companies in the e-commerce segment as it drives both market penetration and profitability. Despite the internet retailers offering also convenience and high product selection (Laseter & Rabinovich, 2012, p. 66), price remains the key driver of growth. “Low prices played a key role in establishing online brands and accelerating market penetration, but they have left retailers with an oversimplified value proposition: ‘price price price’ ” (Lee, 2013). In a world where prices can easily be compared via price comparison websites, the most important trade-off that internet retailers face is the trade-off between top line growth and profitability.

As industries mature, profitability becomes more important than growth and technology in valuing companies. In e-commerce, the declining growth rates show that the industry is approaching a certain maturity stage, despite enjoying high growth areas such as mobile commerce (Clarke, 2001). See Figure 1 for e-commerce market size and growth rates. In order to implement a shareholder value maximizing strategy, it is essential to understand the basis on which investors and financing providers look at companies and what the key operating metrics which drive the valuation are.

1.2. Experts’ opinion, literature review and recent case studies (IPOs¹)

Analysing recent opinions of industry experts, one can see that they consider both revenue driven multiples and profitability driven multiples depending on a few characteristics of the firms (Roth, 2014). Roth has identified 8 factors, see table 1, which could make the difference between a revenue driven valuation and an EBITDA driven valuation. However, considering the revenue levels mentioned under “scalability” the factors seem to be targeting very small players. Furthermore, considering that industry experts also work as advisors and that their primary goal is to acquire clients, their opinion is likely biased towards valuation metrics which typically yield higher valuation - a revenue driven valuation.

¹ Initial public offerings: first sale of stock by a private company to the public (Investopedia, 2015)

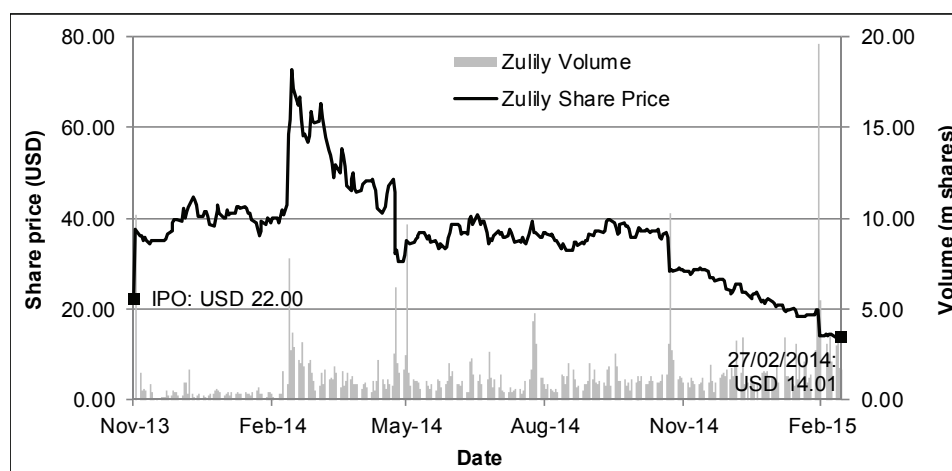
Table 1: Valuation Hallmarks of revenue multiples valuation vs. profitability multiples valuation

Valuation Hallmarks		
Markers	Revenue multiple	Earnings multiple
Disruptive model	Core competency that is extraordinarily difficult to replicate	Crowded competitive field; many already selling the products
Revenue growth profile	Sustained hyper-growth (>50% annually) with rapid customer acquisition	Revenue growth of less than 30% annually
Scalability	Credible path to over \$5 million in revenue; serving a large addressable market with broad demographic or geographical application	Niche focus with limited addressable market
Capital efficiency	Relatively low working capital requirements; high inventory turns; typically selling third-party goods	A more capital-intensive model with relatively higher working capital requirements; owned brands may lower inventory turns
Reorder rate	Continuity model enabling higher customer lifetime value dynamics	An item business with lower reorder rates and customer lifetime value
Assortment	Typically very broad product set, yet focused on a specific demographic	Typically narrow product set; focused on sub-categories within other major categories
Tech infrastructure	Robust and highly scalable systems	Patchwork of proprietary and off-the-shelf systems that limit scalability
The Company as brand	Customers know that the company stands for and are more loyal to it than brands it sells. Brands typically built through effective alternate media strategies such as TV and radio	Evidence the characteristics of a distributor; the company is known more for the brands sold. Often difficult to effectively employ alternate media strategies

Source: Roth, 2014

The evolution of some of the recent initial public offerings in the segment confirms the thesis that valuation levels are increasingly driven by operating metrics and less by pure revenues and technology. Sousa and Pinho (2014) introduce the idea of “IPO bubble 2.0” in the internet industry and argue that the recent valuations have been based on the growing number of internet users and less on company fundamentals (Sousa & Pinho, 2014). An example highlighting the apparent switch in valuation methodology is the evolution of Zulily’s share price which was offered during the IPO at USD 22.00, rallied during the following 3 months to USD 72.75 and is currently trading at USD 14.01; this represents a drop of 36% since the IPO and 81% since the all-time high. See figure 2 for Zulily’s share price evolution. Financial Times recently also recognized that “the entire market may be overdue a correction” as “more than 80 start-ups have seen their valuations rise above \$1bn” (Waters, 2015). Valuation trends are similar across valuations (Dalal, 2014).

Figure 2: Zulily share price development



Source: own figure based on data from Factset

The current academic literature addresses only the dot-com bubble, also called the “Information Technology Bubble” which took place between January 1994 and February 2000 (Galbraith & Hale, 2004, p. 2), and only limitedly the current hype in the e-commerce market. Furthermore, current studies do not directly analyse the connection between operating metrics and valuation multiples and do not try to assess whether the switch from a revenue driven valuation to a profitability driven valuation has happened.

1.3. Research objective

The purpose of the study is to identify the valuation metric on which internet retail companies that assume inventory risk are valued at this moment and to assess which key operating performance indicator drive the valuation by analysing valuations of listed companies in the segment and trying to find the valuation metric and operating performance indicator with the highest correlation. Implicitly, the study tries to find out what are the strategic implications of current valuation methodologies and the areas which the management should mostly pay attention to in order to achieve a shareholder-value maximization strategy.

2. STUDY METHODOLOGY AND RESULTS

2.1. Study methodology

The study uses data sourced from FactSet Research Systems Inc., a company providing extensive company and industry intelligence for investment professional, through the Factset Excel add-in. The data is based on annual report figures for historical numbers and on brokers’ consensus provided by Factset for forecast period.

The primary research tool used for the analysis is the simple, linear, cross-sectional regression analysis where the independent variables are the valuation multiples and dependent variables are the key operating performance indicators. A multivariate regression analysis has not been used due to significant drop in the statistical significance of the regressions when multiple dependent variables were included and due to the effect of multicollinearity among operating performance indicators in the same category. Overall, 6 valuation metrics have been individually regressed against 21 key operating performance indicators yielding 126 different regressions. The tested regression equation is:

$$\text{Valuation multiple} = \beta_0 + \beta_1 * \text{key operating performance indicators} + \epsilon_i$$

Where:

β_0 is the intercept

β_1 is the slope, and

ϵ_i is the error term of a particular observation

2.2. Companies included in the study

The study considered 15 publicly listed internet retail companies that assume inventory risk but has included only 10 of them due to limited data availability and inconsistent share price development (companies which due to recent IPOs or other material adverse factors are trading at less than 30% of the 52-week high). The analysis focuses on companies with inventory risk as companies which do not assume inventory risk (e.g. daily deals and couponing) experience different margins and business risks (Laseter & Rabinovich, 2012, pp. 16-20). An overview of the included companies is given in table 2.

Table 2: Overview of all companies included in the study

Company	Country	Description	Inclusion	% 52w high
1-800-FLOWERS	US	Online florist and gift shop	Excluded	84.7%
Amazon	US	General merchandise online retailer	Included	92.5%
AO.com	UK	Online retailer with focus on kitchen	Included	74.5%
ASOS	UK	Online fashion and beauty retailer	Included	38.2%
Blue Nile	US	Online retailer of diamonds and jewelry	Included	71.4%
boohoo.com	UK	Online fashion retailer	Excluded	27.9%
Delticom	DE	Online tire retailer	Included	43.6%
MySale	UK	Online shopping club	Excluded	26.6%
Ocado Group	UK	Online retailer of groceries	Included	65.8%
Overstock	US	General discount online retailer	Excluded	82.0%
PetMed Express	US	Online pet pharmacy	Included	95.4%
YOOX	IT	Online fashion retailer	Included	58.1%
Zalando	DE	Online fashion retailer	Included	88.6%
zooplus	DE	Online retailer of pet supplies	Included	97.7%
Zulily	US	Online shopping club	Excluded	25.2%

Source: own table

1-800-FLOWERS and Overstock have been excluded due to unavailable figures for 2016, while boohoo.com, MySale and Zulily have been excluded due to historically low share prices, defined as current share price being under 30% of 52-week high.

2.3. Valuation metrics

The valuation metrics considered include Enterprise Value (EV) divided by revenue as indicator of the revenue driven valuation and EV divided by Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA) as indicator of the operating profitability driven valuation. The EV has been based on the most recent balance sheet available in Factset and has been calculated as follows:

$EV = \text{Equity Value} + \text{Short Term Debt} + \text{Long Term Debt} + \text{Minorities} + \text{Unfunded Pensions} - \text{Cash}$

The Equity Value is based on the share price as of 02/02/2015 and the larger of the diluted shares outstanding and the common shares outstanding (including additional share classes). Revenue and EBITDA years considered are 2014, 2015 and 2016. All figures represent forecasted financials based on broker consensus provided by Factset. 2014 consensus include the "actual" financials of the first three quarters. All operating metrics sourced from Factset have been annualized to match reporting periods of companies. Six different multiples (3 revenue multiples and 3 EBITDA multiples) have been consequently considered in the study.

2.4. Key operating performance indicators

The study considers 5 key operating performance indicators: size, top line growth, Gross margin (Gross profit divided by revenue), EBITDA margin and EBIT margin. Please see table 3 for the actual operating performance indicators used.

Table 3: All operating performance indicators used included in the study

Indicator	Actual numeric indicator used
Size	EV, Revenue in 2014, 2015 and 2016
Top line growth	Sales Growth in 2013, 2014, 2015 and 2016, CAGR ² : 2012-2014, 2013-2015; 2014-2016
Gross margin	Gross margin in 2012; 2013
EBITDA margin	EBITDA margin in 2013, 2014, 2015 and 2016
EBIT margin	EBIT margin in 2013, 2014, 2015 and 2016

Source: own table

2.5. Finding the best valuation metric and key operating performance indicator

Finding the best valuation metric and the best key operating performance indicator is done by regressing each key operating performance (independent variable) against each valuation metric (dependent variable) and observing what happens to the R-squared in each scenario. Tables 4 and 5 present the obtained R-squared values as well as the obtained slopes and intercepts. Counterintuitive relations (negative slopes) were excluded from the analysis where appropriate.

Table 4: R-square, slope and intercept of all regressions involving an EV/Revenue multiple as dependent variable and operating performance indicators as independent variables

Key operating performance indicator	EV/Revenue								
	R-square			Slope			Intercept		
	2014	2015	2016	2014	2015	2016	2014	2015	2016
EV (EUR)	0.00	0.01	0.01	0.0	0.0	0.0	1.7	1.5	1.2
Sales 2014 (EUR)	0.00	0.01	0.01	0.0	0.0	0.0	1.8	1.5	1.2
Sales 2015 (EUR)	0.00	0.01	0.01	0.0	0.0	0.0	1.8	1.5	1.2
Sales 2016 (EUR)	0.00	0.01	0.01	0.0	0.0	0.0	1.8	1.5	1.2
Sales growth 2013	0.35	0.25	0.15	3.4	2.2	1.4	1.0	1.0	0.9
Sales growth 2014	0.34	0.24	0.14	4.2	2.8	1.8	1.0	1.0	1.0
Sales growth 2015	0.38	0.24	0.13	5.0	3.2	1.9	0.9	0.9	0.9
Sales growth 2016	0.31	0.19	0.09	5.1	3.2	1.8	0.9	1.0	1.0
Sales CAGR '12-'14	0.39	0.27	0.16	4.2	2.8	1.8	0.9	0.9	0.9
Sales CAGR '13-'15	0.37	0.25	0.14	4.8	3.1	1.9	0.9	1.0	0.9
Sales CAGR '14-'16	0.35	0.22	0.11	5.1	3.2	1.9	0.9	0.9	0.9
EBITDA margin 2013	0.01	0.00	0.00	(1.2)	(0.1)	0.6	1.8	1.5	1.2
EBITDA margin 2014	0.01	0.04	0.11	1.9	3.9	5.1	1.7	1.3	1.0
EBITDA margin 2015	0.02	0.07	0.15	3.3	5.1	6.2	1.6	1.2	0.9
EBITDA margin 2016	0.03	0.08	0.17	4.5	6.0	7.0	1.4	1.1	0.8
EBIT margin 2013	0.08	0.05	0.03	(4.3)	(2.8)	(1.8)	1.9	1.5	1.3
EBIT margin 2014	0.04	0.02	0.00	(4.9)	(2.4)	(0.6)	1.9	1.6	1.3
EBIT margin 2015	0.03	0.01	0.00	(4.2)	(1.8)	0.0	1.9	1.6	1.3
EBIT margin 2016	0.03	0.01	0.00	(4.4)	(2.0)	(0.0)	2.0	1.6	1.3
Gross Margin 2012	0.16	0.20	0.22	3.1	2.8	2.4	0.8	0.6	0.5
Gross Margin 2013	0.20	0.26	0.29	3.8	3.4	3.0	0.6	0.4	0.3

Note: Margins and growth as percentage; negative slopes in parenthesis

Source: own table

² Compound Annual Growth Rate

Table 5: R-square, slope and intercept of all regressions involving an EV/EBITDA multiple as dependent variable and operating performance indicators as independent variables

Key operating performance indicator	EV/EBITDA								
	R-square			Slope			Intercept		
	2014	2015	2016	2014	2015	2016	2014	2015	2016
EV (EUR)	0.01	0.02	0.02	(0)	(0)	(0)	34	29	20
Sales 2014 (EUR)	0.01	0.02	0.02	(0)	(0)	(0)	34	29	20
Sales 2015 (EUR)	0.01	0.02	0.02	(0)	(0)	(0)	34	29	20
Sales 2016 (EUR)	0.01	0.02	0.02	(0)	(0)	(0)	34	29	20
Sales growth 2013	0.80	0.61	0.68	136	96	51	3	6	8
Sales growth 2014	0.72	0.80	0.88	165	137	73	6	4	7
Sales growth 2015	0.70	0.88	0.83	218	164	80	(0)	(0)	6
Sales growth 2016	0.61	0.85	0.81	220	181	89	0	(1)	5
Sales CAGR '12-'14	0.86	0.77	0.86	169	127	68	1	2	6
Sales CAGR '13-'15	0.73	0.87	0.89	192	155	79	3	1	6
Sales CAGR '14-'16	0.66	0.88	0.83	222	174	85	(0)	(1)	5
EBITDA margin 2013	0.70	0.32	0.36	(313)	(184)	(99)	46	36	23
EBITDA margin 2014	0.32	0.40	0.30	(360)	(321)	(140)	55	47	28
EBITDA margin 2015	0.28	0.38	0.28	(348)	(328)	(143)	57	49	29
EBITDA margin 2016	0.28	0.35	0.27	(357)	(333)	(148)	59	52	30
EBIT margin 2013	0.68	0.27	0.37	(315)	(172)	(103)	39	32	22
EBIT margin 2014	0.20	0.20	0.21	(274)	(233)	(120)	43	36	24
EBIT margin 2015	0.19	0.19	0.21	(274)	(236)	(124)	44	38	24
EBIT margin 2016	0.19	0.19	0.21	(286)	(247)	(133)	47	40	26
Gross Margin 2012	0.26	0.00	0.05	109	0	18	(3)	28	14
Gross Margin 2013	0.13	0.00	0.03	84	(10)	15	5	31	15

Note: Margins and growth as percentage; negative slopes in parenthesis
Source: own table

2.6. Results

It can be easily observed that regressing EV/EBITDA against revenue growth (independently from the numeric indicator used) yields by far the largest R-squared. In the case of the EV/Revenue multiple, revenue growth also yields the highest R-squared. EV/Revenue multiple R-squared figures are significantly lower than EV/EBITDA multiple R-squared figures demonstrating that the valuation multiples to which investors pay most attention at this time are the EV/EBITDA multiples. Furthermore, the analysis demonstrates that the switch from a revenue driven valuation to a profitability driven valuation has already happened.

Having generated the highest R-squared figures regressed against both EV/Revenue and EV/EBITDA multiples, revenue growth represents the key operating performance indicator to which investors pay most attention. Despite companies being currently valued on an EV/EBITDA multiple basis, growth still represents the key operating performance indicator which derives the valuation multiple.

3. CONCLUSIONS

Our empirical study demonstrates that valuations in the e-commerce segment are currently driven by profitability multiples and not by revenue multiples. However, top line growth still represents the most important driver. Investors that are looking to sell their companies or to raise growth money should keep these findings in mind when deciding on the company's future strategy. Unless the sales process brings to the table players which could pay a strategic premium (Mocciaro Li Destri, Picone, & Minà, 2012), a growth only focused business model will yield a less than optimal valuation level, or will likely not be successful. Managers that until now only focused on top line growth will likely face the challenge of having to demonstrate profitability in the near future. Finding the ideal balance between growth and profitability by correctly implementing the e-commerce dimensions as identified by Torres,

Lisboa and Yasin: marketing, innovation and efficiency (Torres, Lisboa, & Yasin, 2014) is key to position an internet retail company for the future and for a sales or financing process.

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