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Financial metrics adjustment for performance evaluation of digital retail companies

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“The only limit to our realization of tomorrow will be our doubts of today."
(Roosevelt, Franklin D.)

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ABSTRACT

Keywords: E-commerce, Marketplaces, Digital Retailers, Valuation, Finance, Customer Acquisition, Future Value, Accounting, Economic Value Added.

The online retail market experienced an exponential development in the last years and account today for 14,1% of the global total retail revenue. In this context, the digital retail valuations are considerably high. The first hypothesis to explain this fact is that investors believe they will generate great value in the future. The second hypothesis is that the traditional accounting methods results in financial metrics that are distorted because of the nature of the investments performed by digital retailers. This study proposes to reconsider the investment categorized as operating expenses as capital expenditures when evaluating economically digital retailers. The adjustment is performed for selected peers and different financial indicators are compared before and after adjustment, and with traditional retailers. The results show that the adjustment reduced drastically the multiples of EV / EBITDA to values even lower than the ones of traditional retailers in one the cases, showing that the hypothesis that the multiples are high due to one metric problem is valid. Also, mostly because of network effects and optionality, investors have good reasons to believe that those companies will generate value in the future. Investors believe digital and traditional retailers will to generate equivalent value in their lives, but digital retailers will perform that in a more distant future. Thus, the hypothesis that investors expect e-commerce companies to generate value in the future is too valid. Finally, the economic profit and return metrics of digital retailers were also compared. The economic profit is higher after the adjustment, as predicted, as the return metrics had a significant raise. However, most of the companies are still currently destroying value.

RESUMO

Palavras-chave: E-commerce, Marketplaces, Varejo Digital, Valuation, Finanças, Aquisição de Clientes, Valor Futuro, Contabilidade, Lucro Econômico.

O mercado de varejo online experimentou um desenvolvimento exponencial nos últimos anos e hoje responde por 14,1% da receita total de varejo global. Nesse contexto, as avaliações econômicas de varejistas digitais. A primeira hipótese para explicar esse fato é que os investidores acreditam que as empresas irão gerar grande valor no futuro. A segunda hipótese é que os métodos contábeis tradicionais resultam em métricas financeiras distorcidas devido à natureza dos investimentos realizados pelos varejistas digitais. Este estudo propõe reconsiderar o investimento classificado como despesa operacional como despesa de capital na avaliação econômica de varejistas digitais. O ajuste é realizado para pares selecionados e diferentes indicadores financeiros são comparados antes e depois do ajuste e com os varejistas tradicionais. Os resultados mostram que o ajuste reduziu drasticamente os múltiplos de EV / EBITDA para valores até mesmo inferiores aos dos varejistas tradicionais em um dos casos, mostrando que a hipótese de que os múltiplos são altos devido a um problema métrico é válida. Além disso, principalmente devido aos efeitos da rede e opcionalidade, os investidores têm boas razões para acreditar que essas empresas irão gerar valor no futuro. Os investidores acreditam que os varejistas digitais e tradicionais irão gerar valor equivalente em suas vidas, mas os varejistas digitais farão isso em um futuro mais distante. Portanto, a hipótese de que os investidores esperam que as empresas de comércio eletrônico gerem valor no futuro é também válida. Finalmente, as métricas de lucro econômico e retorno dos varejistas digitais também foram comparadas. O lucro econômico é maior após o ajuste, como previsto, pois as métricas de retorno tiveram um aumento significativo. No entanto, a maioria das empresas ainda está destruindo valor.

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LIST OF ABBREVIATIONS

B2B	Business-to-business
B2C	Business-to-consumer
BRL	Brazilian Real
C2C	Consumer-to-consumer
CapEx	Capital Expenditures
CEO	Chief Executive Officer
CV	Current Value
EBIT	Earnings Before Interest and Taxes
EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortization
EV	Enterprise Value
EVA ®	Economic Value Added
FV	Future Value
IRS	Internal Revenue Service
MVA	Market Value Added
NOPAT	Net Operating Profit After Tax
OpEx	Operating Expenses
PE	Price to Equity
R&D	Research and Development
ROA	Return Over Assets
ROE	Return Over Equity
ROIC	Return Over Invested Capital
SG&A	Selling, General and Administrative Expenses
TTM	Trailing Twelve Months
USD	United States Dollar
VR	Virtual Reality
WACC	Weighted Average Cost of Capital

SUMARY

1. INTRODUCTION

1.1 PROBLEM AND MOTIVATION

The global e-commerce sales had a huge development in the last years. E-Marketer estimates that global e-commerce will rise 20.7% in 2019 to $3.535 trillion. That represents over 14,1% of the global total retail revenue.

In this context, the digital retail multiples (e.g. EV/EBITDA, EV/Revenue) are abnormally high. There are two main hypotheses that can explain this phenomenon:

a) The companies are in their early stage of development, and the investors believe they will generate great value in the future. Therefore, the Revenue and EBITDA for the companies are still very low, while the expectation of value creation in the future raises the Enterprise Value;
b) The accounting methods were developed for companies with large investments in fixed assets. The main investment of digital retailers is customer acquisition, and the accounting rules treat it as an operating expense. The inadequacy of traditional accounting metrics creates a great distortion in the valuation of companies.

This study proposes to reconsider the investment categorized as operating expenses as capital expenditures when evaluating economically digital retailers. The adjustment will be performed for selected peers and different financial indicators will be compared before and after adjustment, and with traditional retailers. Then, it will be possible to understand how much of the multiples of digital retailers are explained by the expectations of future value creation and how much explained by one metric problem.

1.2 OBJECTIVES

The main objectives of this study are:

a) Analyze the current performance and financial metrics of digital retailers;
b) Discuss the problems of accounting rules for the segment;
c) Propose one adjustment to reflect their true performance;
d) Analyze how much of the high multiples are explained by value creation expectation, and how much is explained by one accounting problem;
e) Analyze financially digital retailers and compare the results before and after the adjustment with traditional retailers.

1.3 WORKPAPER STRUCTURE

There are two main structures, or styles, for scientific research. The most common is to detail the methodology, the references and only after present the content of the study. The major benefit of this structure is that, if the reader feels comfortable with the theory that supports the study, he or she can skip the references and read the results directly. And, in case needs one better explanation of one concept, won't have much trouble finding the reference for it. The downside is that it can be a very exhausting read, especially when references are not so trivial. In this case, the reader may have greater difficulty understanding the concepts, as they can be too abstract, and not fully understanding the results consequently.

The second style is to detail the methodology and references when needed, before the disposal of new thoughts and results. The major benefit of this structure is that the reading becomes more fluid and easier. The downside is that whenever the reader needs to find one explanation of a concept detailed before, he or she may not find it so easy to find the explanation as such in the first style.

Both structures are acceptable, and the one chosen in this study is the second. Its downside will be mitigated by disposing the page of the reference of the concepts in the footnotes ever possible.

In chapter 2, the development of the e-commerce sector and its differences are discussed.

In chapter 3, the peer set to be analyzed is presented, with a focus on aspects of each peer relevant to the study.

In chapter 4, the relatives valuation method is detailed, as well as the multiples of both digital and traditional retailers. The two main hypotheses to explain the difference will be discussed.

In chapter 5, the adjustment will be proposed and will be performed for one of the peers.

In chapter 6, the results of selected financial indicators will be compared before and after the adjustment. They will also with the results of traditional retailers.

2. THE E-COMMERCE AND MARKETPLACE RETAIL SECTOR

To introduce the discussion about the financials of digital retailers and their valuation problem, it is necessary first to define what is understood to be a digital retailer in all their varieties of business models, products sold channels used. This definition will be detailed in this chapter, as well as the relevance of the segment, its brief history and recent growth

2.1 BRIEF HISTORY AND PROSPECTS

E-commerce (electronic commerce) is the activity of electronically buying or selling of products on online services or over the internet. It brings convenience for customers as they do not have to leave home and only need to browse website online, especially for buying the products which are not sold in nearby shops. It helps customers buy a wider range of products and save time. Consumers also gain power through online shopping. They can research products and compare prices among retailers. Also, online shopping often provides sales promotion or discounts code, thus it is more price effective for customers. Moreover, e-commerce provides products' detailed information; even the in-store staff cannot offer such detailed explanation. They don't rely only on seller's speech though. Consumers can read reviews of previous customers and, if the product does not reach their expectation, they can also write a new review.

Curiously, the e-commerce didn't start with Amazon or eBay, as most people could think. In John Markoff 's 2005 book What the Dormouse Said: How the Sixties Counterculture Shaped the Personal Computer Industry, he reveals that the world's first online transaction was a drug deal:

> *"In 1971 or 1972, Stanford students using Arpanet accounts at Stanford University's Artificial Intelligence Laboratory engaged in a commercial transaction with their counterparts at Massachusetts Institute of Technology. Before Amazon, before eBay, the seminal act of e-commerce was a drug deal. The students used the network to quietly arrange the sale of an undetermined amount of marijuana."* (MARKOFF, 2005 apud POWER, 2013) .

Of course, this kind of e-commerce were very limited in their own networks. It was with the development of the World Wide Web, in 1990, that millions with access to the internet could now have browse e-commerce platforms with greater ease, and the development of thousands of platforms had it start. In 1995, Amazon.com is launched by Jeff Bezos as a book store, as shown in figure 1:

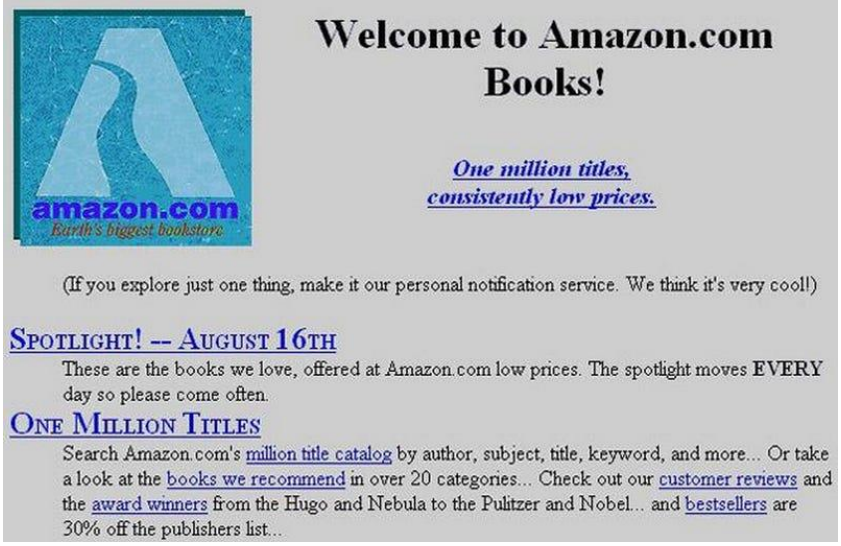


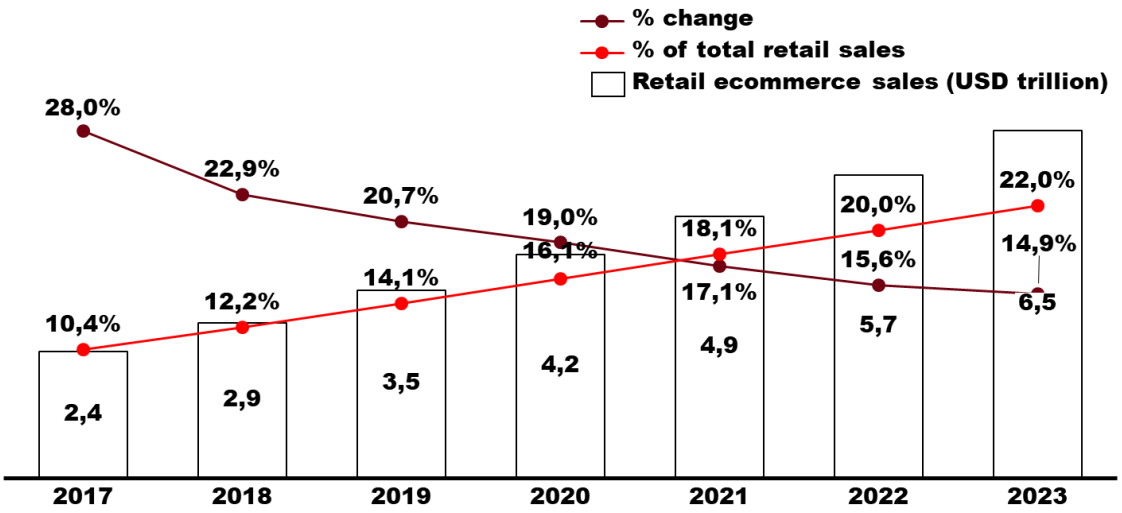
Figure 1 - Amazon's website in 1995

Source: Business Insider

Since then, the e-commerce business raised exponentially. In 1995, eBay is launched as the first online auction site supporting person-to-person transactions. In 1999, Alibaba Group is established in China and the global e-commerce reached $150 billion (TERZI, 2011). In 2003, some digital retailers, such as Amazon and Alibaba, already posted their first year of profit. In 2015, Amazon accounted for more than half of all e-commerce growth, selling almost 500 Million SKU's in the US. (GARCIA, 2015)

E-Marketer estimates that global e-commerce will rise 20.7% in 2019 to $3.535 trillion and, by 2021, it is expected that global e-commerce will approach $5 trillion (CEURVELS *et al.*, 2019), as shown in chart 1:

Chart 1 - E-commerce global sales



Source: E-marketer

According to the study, in 2019, the top global e-commerce market will be China, with $1.935 trillion in e-commerce sales - more than three times greater than the US at No. 2 with $586.92 billion. On its own, China represents 54.7% of the global e-commerce market, a share nearly twice that of the next five countries combined. In 2019, China's e-commerce sales growth was over 27,3%, almost two times the growth of USA's e-commerce growth (14%).

While declining growth is always a cause for concern, it is important to put these trends in perspective. E-commerce is still growing by double-digit rates and represent significant opportunities for retailers and brands that are willing to shift to digital. The share of online sales show how powerful digital commerce will be in the future: 22% of total retail sales in 2020 is expected to be sold online. This astonishing growth partially explain why digital retailers' multiples are so highly, as will be discussed in the next chapters.

All this growth is the consequence of an accelerated development of technology and its democratization. Increasingly, the internet will become present in the lives of consumers. The world has seen a large increase in smartphones, mobile broadband and Internet penetration, especially in the poorer regions, thus transforming how locals interact with each other and with businesses.

E-commerce has been cited as a major force for the failure of major U.S. retailers in a trend frequently referred to as a "retail apocalypse." The rise of e-

commerce outlets like Amazon has made it harder for traditional retailers to attract customers to their stores and forced companies to change their sales strategies. Many companies have turned to sales promotions and increased digital efforts to lure shoppers while shutting down brick-and-mortar locations. Most of the traditional retailers are struggling because of online retailer's ability to offer lower prices and higher efficiency.

There are some companies, however, that have taken advantage of the downturn and invested in planning and management, in the training of its employees, in leading technologies, in operational efficiency and in improvements in the quality of customer service. Obviously, these companies are much more prepared and, therefore, very excited to benefit in this new moment of the economy and the investments that they have made. Walmart and Magazine Luiza are great examples.

Consumers are becoming increasingly demanding and well-informed, and businesses need to adapt their sales and communication channels. Retailers who did not do a good job of integrating their points of sale had less dynamic growth than those who invested beforehand, such as Magazine Luiza. Even the most traditional retailers saw this change, and in all categories, companies saw the importance of having an online presence or developing and integrating their platforms in a cross-channel solution.

By 2018, consumers can purchase their needs through delivery platforms, access online services such as music and streaming movies, shop online for home appliances and electronics during Black Friday, pay for clothes with their digital wallet or rent a bicycle through an application. On the other hand, it was a year in which marketers positioned themselves through their own online channels, joined with market partners through outsourced services, used social media as their main marketing channel, and invested in technology that attracted online and offline customers such as behavioral analysis, big data, IoT (Internet of Things) and artificial intelligence.

Soon, the entire shopping experience is set to evolve, with voice commerce (shopping through voice assistants), t-commerce (remote control shopping), VR (virtual reality) and ultra-personalized offers.

2.2 ONLINE RETAIL DIFFERENCES BY TYPE

The e-commerce business is very broad and can be operated in a variety of business models, channels and products.

There are three main basic types of e-commerce:

Business-to-Business (B2B): encompasses all electronic transactions of goods or services conducted between companies. Producers and traditional commerce wholesalers typically operate with this type of electronic commerce. It is not the focus of this study.

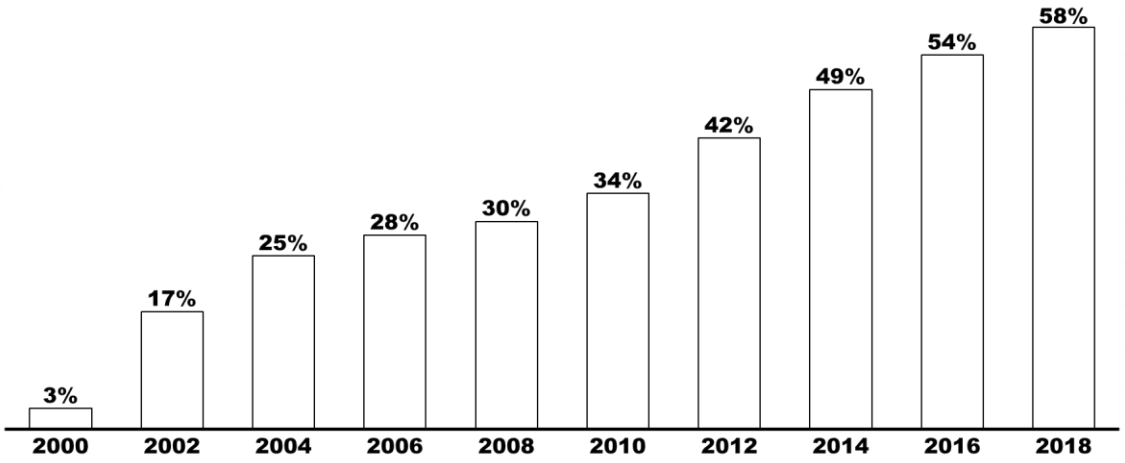
Business-to-Consumer (B2C): it is distinguished by the establishment of electronic business relationships between businesses and final consumers. It corresponds to the retail section of e-commerce, where traditional retail trade normally operates. Is one of the focus of this study.

Consumer-to-Consumer (C2C): encompasses all electronic transactions of goods or services conducted between consumers. Generally, these transactions are conducted through a third party, which provides the online platform where the transactions are carried out. It is one of the focus of this study.

One of the most important business models is the Marketplace. A marketplace is an e-commerce platform that lets third parties sell directly to customers. Unlike a distributor, marketplaces don’t own inventory. Globally, the top 100 online marketplaces transacted $1.66 trillion in 2018, accounting for 52% of all online sales, according to February 2019 findings from Internet Retailer.

Marketplaces' share of industry revenue is also expected to grow in 2019. It is considered advantageous for the consumer, since it brings together several brands and stores in one place, facilitates the search for the best product and best price. In the other hand, it is also advantageous for the platform owners (such as Amazon), since they are not the owners of the products, not having to deal with inventory or even transportation costs. All those advantages lead most of online retailers to seek raising the share of marketplace sells in their platform. The evolution of the share of Amazon’s marketplace relative to its e-commerce is shown in chart 2:

Chart 2 - Amazon's share of third-party sales



Source: Amazon's 2018 letter to shareholders

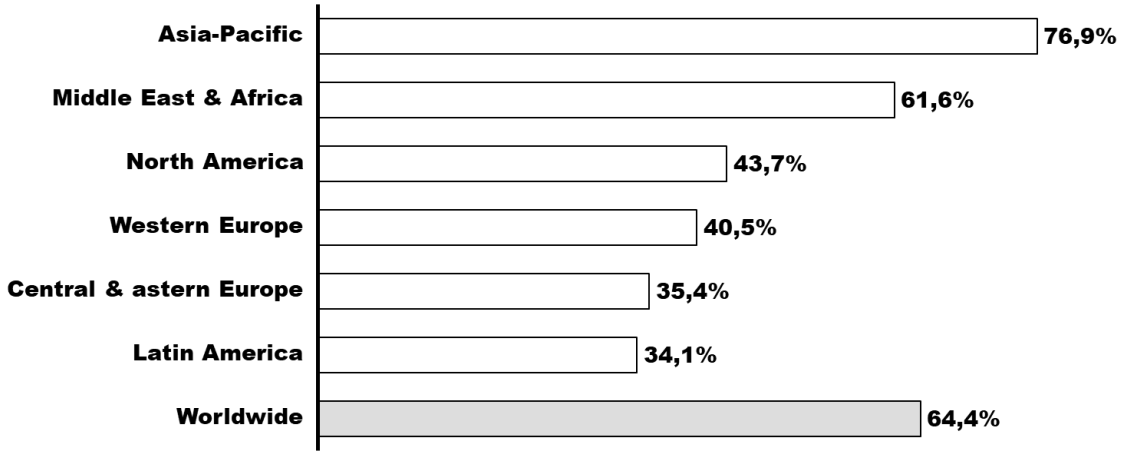
Jeff Bezos, Amazon's CEO, analyses this result in his letter to shareholders (2018):

> "Third-party sellers are kicking our first party butt. Badly.
>
> And it's a high bar too because our first-party business has grown dramatically over that period, from $1.6 billion in 1999 to $117 billion this past year. The compound annual growth rate for our first-party business in that time period is 25%. But in that same time, third-party sales have grown from $0.1 billion to $160 billion – a compound annual growth rate of 52%. To provide an external benchmark, eBay's gross merchandise sales in that period have grown at a compound rate of 20%, from $2.8 billion to $95 billion.
>
> Why did independent sellers do so much better selling on Amazon than they did on eBay? And why were independent sellers able to grow so much faster than Amazon's own highly organized first-party sales organization? There isn't one answer, but we do know one extremely important part of the answer:
>
> We helped independent sellers compete against our first-party business by investing in and offering them the very best selling tools we could imagine and build. There are many such tools, including tools that help sellers manage inventory, process payments, track shipments, create reports, and sell across borders – and we're inventing more every year. But of great importance are Fulfillment by Amazon and the Prime membership program. In combination, these two programs meaningfully improved the customer experience of buying from independent sellers. With the success of these two programs now so well established, it's difficult for most people to fully appreciate today just how radical those two offerings were at the time we launched them. We invested in both of these programs at significant financial risk and after much internal debate. We had to continue investing significantly over time as we experimented with different ideas and iterations. We could not foresee with certainty what those programs would eventually look like, let alone whether they would succeed, but they were pushed forward with intuition and heart, and nourished with optimism." (BEZOS, 2018)

The will to raise marketplace participation in the business is huge, and so is the investment to achieve it. Bezos detailed many investments performed to acquire sellers, but an equivalent investment is performed to acquire customers. Those investments are a key aspect of this study and will be detailed in chapter 5, section 5.2. As most of them are considered an Operating Expense, and not a Capital Investment, many accounting and financial distortions are created when evaluation those companies economically.

The channels in which the products are sold also play an important role in e-commerce's growth. Mobile devices purchases are increasing in the mix of e-commerce. This is also commonly called mobile commerce, or m-commerce. It is interesting to note the split between desktop and mobile commerce across the globe, as shown in chart 3:

Chart 3 – Retail M-commerce sales worldwide by region, 2019



Source: E-marketer

According to the E-marketer study "Global E-commerce" (CEURVELS *et al.*, 2019):

> "The more developed e-commerce markets in North America and Western Europe have lower levels of m-commerce penetration, projected at 43.7% and 40.5%, respectively. This mobile monetization lag is due in part to these markets' growth periods coinciding with the desktop era. Legacy retailer infrastructure and ingrained consumer behaviors may prevent a swifter transition to mobile commerce, despite mobile's obvious prevalence in consumers' daily lives. On the flipside, the most mobile regions of the world are Asia-Pacific (76.9%) and Middle East/Africa (61.6%). Both regions largely skipped over the desktop internet era, and when their hundreds of millions of citizens first came online, they went straight to mobile. As a result, both regions have always been mobile-first in most of their internet behavior—particularly m-

> commerce. China, the most mobile e-commerce market in the world, will surpass 80% penetration in 2019 for the first time— the only market to do so. “

Finally, the e-commerce business is also distinguished by the product it sells. Euromonitor distinguishes the sectors in the following 12 categories: Apparel and Footwear, Beauty and Personal Care, Consumer Appliances, Consumer Electronics, Consumer Health, Home Care, Home Improvement and Gardening, Homewares and Home Furnishings, Personal Accessories and Eyewear, Pet Care, Traditional Toys and Video Games. The ease to sell products online varies by segment. For instance, in Brazil in 2018, 21,8% of consumer electronics were bought online in the country, while only 4,7% of apparel items were sold online[1].

[1] Source: Euromonitor

3. DEFINITION OF COMPANIES ANALYSED

In chapter 4, the EV / EBITDA multiples for digital retailers will be compared to the multiples of traditional retailers. One of the hypotheses that explain the differences is the distortion created by the way accounting rules are followed on the case of customer acquisition expenses.

Customer acquisition is a very important success factor for e-commerce businesses. The importance is even higher for marketplaces, since the customer are not only the final clients, but also the sellers. So, the proposed adjustment will focus on digital retailers with a developed marketplace.

By the other hand, it is necessary to compare the results with a control group composed of traditional retailers. So, two peer sets were developed: digital retailers and traditional retailers. A detail of each selected company will be exposed in the next sub chapters. The goal is to justify the selection of the peer set and allow the results of the study to be analyzed in a granular view.

Bloomberg and Capital IQ were used as support tools to select the companies.

3.1 DIGITAL RETAILERS

The first step to select the digital retailers was to extract all companies classified as e-commerce businesses in the Bloomberg Panel sorted by their Market Cap. As this study focuses on digital retailers with developed marketplaces, only companies with the word “marketplace” in the detailed Bloomberg or Capital IQ description were filtered. One last filter regarded the available data. To perform the study, it is needed the data availability of specific financial data, as the selling expenses, of more than 5 years. Finally, all filtered companies were analyzed one by one to decide whether they should compose or not the final peer set. All companies are detailed below.

AMAZON

Amazon.com, Inc. is an online retailer that offers a wide range of products. The Company products include books, music, videotapes, computers, electronics, home and garden, and numerous other products. Amazon offers personalized shopping services, Web-based credit card payment, and direct shipping to customers. In 2018, it was the 13th biggest company in the world by revenue, and the second biggest retailer, just after Walmart. Amazon still grows like a startup: in 2018, the revenue growth was 30,9%[2].

The company initially started as an online marketplace for books but later expanded to sell electronics, software, video games, apparel, furniture, food, toys, and jewelry. In 2015, Amazon surpassed Walmart as the most valuable retailer in the United States by market capitalization[3]. In 2018, Bezos announced in his letter to shareholders that its two-day delivery service, Amazon Prime, had surpassed 100 million subscribers worldwide. In the same letter, he stated that in 2017, for the first time in the history of Amazon, more than half of the units sold worldwide were from third-party sellers (marketplace).

ALIBABA

Alibaba Group Holding Limited is a Chinese multinational conglomerate holding company that provides internet infrastructure, e-commerce, online financial, and internet content services through its subsidiaries. Alibaba Group Holding offers its products and services worldwide. It was founded in 1999 and, in 20 years, is now the eighth biggest retailer in the world by revenue [1], ahead of Best Buy, for instance. In 2018, its revenue growth was over 48% and its Market Cap in 2018 is more than twice the Market Cap of the Home Depot, one of the biggest US retailers.

In 2018, Alibaba.com is Asia's leading B2B (business-to-business) online marketplace which facilitates wholesale selling of products at a global scale, whereas AliExpress is a B2C (business-to-consumers) online marketplace where users can purchase products directly from manufacturers and distributors who are mainly based

[2] Source: Fortune 500

[3] Source: Bloomberg

in China. It is by far the largest and fastest growing marketplace in all of Asia, offering all types of products and owning nearly 60% of all retail e-commerce transactions in China[4]. The marketplace has in 2018 666 million active users and operates in over 200+ countries and territories.

JD.COM

JD.com, Inc. is an online direct sales company in China. The Company offers a wide selection of products through its website and mobile applications. JD.com sells appliances, computers, digital products, communication products, garments, books, and household items to consumers and vendors. In 2018, was the biggest retailer in China and the seventh biggest retailer in the world by revenue, with a revenue growth of over 29%[5]. It is a major competitor of Alibaba, with higher revenue. However, the company struggles to present positive Operating Profit, and its Market Cap is worth only 6% of Alibaba's Market Cap in 2018[6].

The company was founded by Liu Qiangdong on June 18, 1998, and its retail platform went online in 2004. It started as an online magneto-optical store, but soon diversified, selling electronics, mobile phones, computers and similar items. The company combines its business model of direct sales, where it controls the entire supply chain, with a marketplace that limits the number of sellers, to ensure that it can maintain strict quality oversight. The company the online marketplace in October 2010 and have been adding new products and services since then. As of December 31, 2018, there were more than 210,000 third-party sellers on their online marketplace[7].

EBAY

eBay Inc. is a global commerce company. The Company's platforms are designed to enable sellers worldwide to organize and offer their inventory for sale and buyers to find and buy it. eBay's items can be new or used, plain or luxurious, commonplace or rare, trendy or one-of-a-kind. The website is free to use for buyers,

[4] Source: China Internet Watch

[5] Source: Fortune 500

[6] Source: Bloomberg

[7] Source: 2018 annual report

but sellers are charged fees for listing items after a limited number of free listings, and again when those items are sold. In 2018, had over 179 million active buyers.

MERCADO LIVRE

MercadoLibre Inc. operates an online trading site for the Latin American markets. The Company's website allows businesses and individuals to list items and conduct sales and purchases online in a marketplace platform in either a fixed-price or auction format. MercadoLibre offers classified advertisements for motor vehicles, vessels, aircraft, real estate and services, and offers online payment services. In 2018, had over 334 million items sold[8].

ZALANDO

Zalando SE provides online sale of fashion accessories. The Company offers clothing, sports products, shoes, bags, and other accessories for men, women, and children. Zalando markets its products in Europe. In 2018, had over 23,000,000 site visits and over 26 million active users. Merchants and brands selling on the Zalando marketplace are growing fast, with 250 now signed up to the Zalando Partner Program and accounting for about 10% of Zalando's €6.6 billion GMV.

WAYFAIR

Wayfair, Inc. is an American e-commerce company that sells furniture and household goods. The Company offers bedroom, living room, kitchen and dining, home entertainment, home office, game room and bar, patio, hallway and entryway, and bathroom furniture. Wayfair offers products and services in the United States. Their digital platform offers 14 million items from more than 11,000 global suppliers (marketplace) [9].

ETSY

Etsy, Inc. provides e-commerce services. The Company offers handmade and vintage items, art, and supplies, as well as regular items such as clothing, housewares, paper goods, candles, bags and purses, music, and wood working items. Etsy serves

[8] Source: Company's fourth quarter 2018 results presentation

[9] Source: Company's fourth quarter 2018 results presentation

customers throughout the United States in its marketplace platform. In 2018, had over 30 million active buyers and 2 million active sellers[8].

VIPSHOP

Vipshop Holdings Ltd. Is a Chinese retail company that retails branded products at discount over the Internet. The Company retails through flash sales, in which limited quantities of an item are sold at deep discount for a specified period. In 2018, had over 60,5 million active users and more than 140 million orders in its e-commerce and marketplace platform[8].

B2W

B2W Companhia Digital is an e-commerce retailer. The Company offers technology, logistics, distribution, customer service, and consumer financing services. Founded from e-commerce pioneer stores, B2W's history reflects the merger of Submarino and Americanas.com, which in the previous year had already acquired control of Shoptime. Both Americanas.com and Submarino were founded in 1999 and merged in 2006, founding B2W. In 2009, it began its international expansion of some segments of the business to Mexico, Argentina and Chile. In October 2013, its marketplace was inaugurated. In subsequent years, the company obtained several capital contributions and, in 2018, incorporated its shares in the Ibovespa.

In 2018, its marketplace platform accounted for 51,6% of its gross merchandise volume (GMV, a term used in online retailing to indicate a total sales dollar value for merchandise sold through a marketplace over a certain time frame) and 22 thousand connected sellers[10].

BOOHOO

Boohoo Group PLC operates as an online fashion retailer. The Company offers clothing and apparel such as dresses, tops, swim wear, body suits, shirts, blouses, lingerie, boots, heels, flats, sneakers, jewelry, bags, scarves, hats, gloves, tights, socks, sunglasses, denim, and cosmetics. The group sells products to customers in

[10] Source: Company's fourth quarter 2018 results presentation

almost every country in the world, with a strong presence in the UK, US, Europe and Australia. In 2018, had over 8,3 million active customers[11].

ASOS PLC

ASOS PLC is a global, internet, fashion, retail business aimed at a client base aged between 20-30 years founded in 2000 in London. The Company offers branded and own label products across womenswear and menswear and a marketplace platform too. ASOS operates and distributes their product globally. In 2018, had over 18 million active customers[12].

CNOVA NV

Cnova N.V. is a French e-Commerce company serving customers via its online platform in two key markets: France and Brazil. The Company offers a variety of goods, several delivery options and consumer credit payment solutions. Its branded sites include Cdiscount, Extra, Casas Bahia and Ponto Frio. Each include a marketplace, providing its customers access to a range of products. In 2018, it achieved a total GMV of 3.6 billion euros, of each 34% from its marketplace platform[11].

LIQUIDITY SERVICES

Liquidity Services, Inc. operates an online auction marketplace for wholesale, surplus, and salvage assets. The Company offers products by industry such as consumer electronics, general merchandise, apparels, scientific equipment, and aerospace parts and equipment. Liquidity Services markets its products mostly in the United States. In 2018, had over 3 million registered buyers from almost 200 countries and territories[11].

MAGAZINE LUIZA

Magazine Luiza S/A operates a multichannel retail platform of mobile, website, and physical stores. The Company offers e-commerce services and retails a wide range of electronics, toys, power tools, and houseware products. The company claims that, in 1992, they developed the first e-commerce model in the world: Electronic Stores (now called Virtual Stores). Resulting from an innovative design, these stores

[11] Source: Company's website

[12] Source: Company's fourth quarter 2018 results presentation

sell products through multimedia terminals, with vendors guiding customers, without needing products on display or in stock. The clients could choose the products in the stores and it was delivered 48 hours after purchase.

In 1999, the experience gained in virtual sales was taken to the internet, with the creation of the site magazineluiza.com, one of the giants of Brazilian e-commerce. Two years later, Frederico Trajano, son of Luiza Helena Trajano, entered the company with the objective of making the digital operation of Magazine more relevant, as manager of electronic commerce. To that end, it proposed the total integration of physical and digital operations, that is, distribution centers supply both e-commerce and physical points of sale.

In mid-2016, the company launched its marketplace operation, selling on the site and in the application, products from about 200 other companies. With this, the number of items offered in these two online channels exceeded 500,000. In 2018, the company has over 3,300 registered sellers and 17 million active customers on its marketplace.[13]

3.2 TRADITIONAL RETAILERS

The first step to select the traditional retailers was to extract all companies classified as retail businesses in the Bloomberg Panel sorted by their Market Cap, removing companies also classified as e-commerce. One last filter regarded the available data. To perform the adjustment for traditional retailers, it is needed the data availability of specific financial data, such as the SG&A expenses, of more than 5 years. Finally, all filtered companies were analyzed one by one to decide whether they should compose or not the final peer set. All companies are only briefly detailed below, as their description is not a key aspect of this study.

[13] Source: Company's fourth quarter 2018 results presentation

WALMART

Walmart Inc. operates discount stores, supercenters, and neighborhood markets. The Company offers merchandise such as apparel, house wares, small appliances, electronics, musical instruments, books, home improvement, shoes, jewelry, toddler, games, household essentials, pets, pharmaceutical products, party supplies, and automotive tools. Walmart serves customers worldwide.

HOME DEPOT

The Home Depot, Inc. is a home improvement retailer that sells building materials and home improvement products. The Company sells a wide assortment of building materials, home improvement and lawn and garden products, and provide several services. Home Depot operates throughout the United States, Canada, China, and Mexico.

COSTCO

Costco Wholesale Corporation operates wholesale membership warehouses in multiple countries. The Company sells all kinds of food, automotive supplies, toys, hardware, sporting goods, jewelry, electronics, apparel, health, and beauty aids, as well as other goods.

INDITEX

Industria de Diseno Textil, S.A. designs, manufactures, and distributes apparel. The Company operates retail chains in Europe, the Americas, Asia, and Africa.

LOWE'S

Lowe's Companies, Inc. is a home improvement retailer that distributes building materials and supplies through stores in the United States. The Company offers a complete line of products and services for home decorating, maintenance, repair, remodeling, and property maintenance.

TJX

The TJX Companies, Inc. is an off-price apparel and home fashion retailer in the United States and worldwide. The Company operates off-price retail concepts in the US, Canada, and Europe that offer a wide range of brand name and designer merchandise.

FAST RETAILING

Fast Retailing Co., Ltd. designs, manufactures, and retails its own line of clothing. The Company offers casual clothing such as men's, women's, children's, and babies' clothing, as well as other goods in domestic market and overseas markets. Fast Retailing also provides leasing of real estate.

TARGET

Target Corporation operates general merchandise discount stores. The Company focuses on merchandising operations which includes general merchandise and food discount stores and a fully integrated online business. Target also offers credit to qualified applicants through its branded proprietary credit cards.

WALMART MEXICO

Wal-Mart de Mexico S.A.B. de C.V. retails food, clothing, and other merchandise under a variety of store formats. The Company operates Wal-Mart Supercenters, Sam's Club wholesale outlets, Bodega discount stores and Superama supermarkets.

WALGREENS

Walgreens Boots Alliance, Inc., operates retail drugstores that offer a wide variety of prescription and non-prescription drugs as well as general goods. The Company also offers health services, including primary and acute care, wellness, pharmacy and disease management services, and health and fitness.

DOLLAR GENERAL CORPORATION

Dollar General Corporation operates a chain of discount retail stores located primarily in the southern, southwestern, midwestern, and eastern United States. The Company offer a broad selection of merchandise, including consumable products such as food, paper and cleaning products, health, beauty, pet supplies, and non-consumables such as seasonal merchandise.

ROSS STORES

Ross Stores, Inc. operates two brands of off-price retail apparel and home accessories stores. Ross Stores offers name brand and designer apparel, accessories, footwear, and home fashions at discount prices.

SEVEN & I

Seven & i Holdings Co., Ltd. is a holding company which was established through the merger of Ito-Yokado Co., Seven Eleven Japan Co., and Denny's Japan. The Company plans, manages, and operates mainly convenience stores, supermarkets, and department stores.

HENNES & MAURITZ (H&M)

Hennes & Mauritz AB (H&M) designs and retails fashions for women, men, teens, and children. The Company sells a variety trendy, sporty, and classic garments in addition to accessories such as jewelry, bags, scarves, and cosmetics. H&M owns and operates stores in European countries and the United States.

ALIMENTATION COUCHE-TARD

Alimentation Couche-Tard Inc. operates a network of 24-hour convenience stores. The Company offers food products, fast-food services, lottery tickets, fuel stations, chemicals, lubricant, automated banking machines, and a variety of other products. Couche-Tard provides its services to customers in North America, Norway, Sweden, Denmark, Poland, Estonia, Latvia, Russia and Lithuania.

4. THE VALUATION PROBLEM FOR ONLINE RETAILERS

The main objective of this section is to introduce the valuation problem for online retailers. As it is a completely new industry, investors still do not seem to have found efficient ways to value the companies within the sector.

To illustrate that, the Relative Valuation results for digital retail will be presented. The industry multiples (e.g. EV/EBITDA, EV/Revenue) are abnormally high. There are two main hypotheses that can explain this phenomenon:

c) The companies are in their early stage of development, and the investors believe they will generate large value in the future. Therefore, the Revenue and EBITDA for the companies are still very low, while the expectation of value creation in the future raises the Enterprise Value;
d) The accounting methods were developed for companies with large investments in fixed assets. The investments for digital retailers are different. The inadequacy of traditional accounting metrics creates a great distortion in the valuation of companies.

Both the hypothesis will be supported in this chapter. To do so, first the relatives valuation method will be presented based on the book *"Tools and Techniques for Determining the Value of Any Asset"* by Aswath Damodaran.

4.1 RELATIVES VALUATION METHOD

In relative valuation, the objective is to value assets based on how similar assets are currently priced in the market. Relative valuation models are an alternative to absolute value models, which try to determine a company's intrinsic worth based on its estimated future free cash flows discounted to their present value, without any reference to another company or industry average.

Like absolute value models, investors may use relative valuation models when determining whether a company's stock is a good buy. The use of relative valuation is

widespread. Most equity research reports and many acquisition valuations are based on a comparison of a company to comparable firms.

There are several reasons why relative valuation is so widely used. First, a valuation based on a multiple and comparable firm can be completed with far fewer explicit assumptions and far more quickly than a discounted cash flow valuation. Second, a relative valuation is simpler to understand and easier to present to clients and customers than a discounted cash flow valuation.

In the other hand, the fact that multiples reflect the market mood also implies that using relative valuation to estimate the value of an asset can result in values that are too high when the market is overvaluing comparable firms, or too low when it is undervaluing these firms.

Valuing companies with the relative valuation method is not the main purpose of this study. Instead, the multiples of digital retailers will be compared to the multiples of traditional retailers to investigate and compare their current valuations before and after the proposed adjustment. Thus, it is important to understand them.

There are many different types of relative valuation ratios, such as Price to Earnings, Enterprise Value to EBITDA or Revenue and other specifics for each sector. The most important thing to know is that every multiple, whether it is of earnings, revenues, or book value, is a function of the same three variables - risk, growth, and cash flow generating potential. Intuitively, then, firms with higher growth rates, less risk, and greater cash flow generating potential should trade at higher multiples than firms with lower growth, higher risk, and less cash flow potential. (DAMODARAN, 2012)

One simple case of valuation using EV / EBITDA follows.

The objective is to estimate the enterprise value of Arezzo, a retailer in Brazil, using the multiple EV / EBITDA. The first task is to find comparable companies. This can be a very difficult task, as each company has its own singularities. The Enterprise

Value must be calculated, and the EBITDA obtained, for each of the comparable. The multiple is simply the ratio of the two measures, as shown in table 1.

Table 1 - EV/EBITDA multiples of Brazilian retail companies (2018)

Company	EV/EBITDA
HERING	16.5x
MARISA	7.1x
RENNER	22.7x
VIA VAREJO	16.3x
LE LIS BLANC	9.2x
CENTAURO	16.3x
Median	**16.3x**

Source: Capital IQ, author elaboration

Arezzo's' EBITDA for the last 12 months is R$ 219,328 thousand. Thus, projecting the median value of the multiple for Arezzo, its estimated Enterprise Value is R$ 3.57 billion. According to Capital IQ, its Enterprise Value in 2018 was R$ 3,67 billion. Thus, the estimate was not bad at all.

4.2 DIGITAL RETAILERS MULTIPLES

The multiples are used not only to value a company. They can be used to value the overall market as well. For instance, if the multiples of the companies of a specific country are above average of other countries, it indicates that the economic activity of this country is strong. It is also possible to value industries with multiples. If the multiples of the companies in an industry is higher than the overall, it indicates that investors are giving a value premium for companies in this industry.

The digital retail companies, for instance, are being valued with very high multiples. Table 2 presents the values of Enterprise Value, Revenue, EBITDA and the multiples EV / Revenue and EV / EBITDA for the digital retailers analyzed in this study:

Table 2 - Multiples of digital retailers (2018), USD MM

Company	EV	Revenue	EBITDA	EV / Revenue	EV / EBITDA
Amazon	745,506	232,887	27,762	3.2	26.9
Alibaba	453,932	56,177	8,896	8.1	51.0
JD.com	29,139	69,900	435	0.4	67.0
eBay	26,355	10,746	3,005	2.5	8.8
Mercado Livre	13,071	1,440	-24	9.1	-551.8
Zalando	5,370	6,365	243	0.8	22.1
Wayfair	8,133	6,779	-350	1.2	-23.3
Etsy	5,356	604	101	8.9	52.8
VipShop	2,721	12,788	501	0.2	5.4
B2W	5,428	1,788	114	3.0	47.8
Boohoo	2,476	1,131	105	2.2	23.7
Asos	6,571	3,257	220	2.0	29.8
Cnova	1,654	2,568	30	0.6	55.4
Liquidity	130	225	-14	0.6	-9.3
Magazine Luiza	8,692	4,295	331	2.0	26.3
Median				**2.0**	**26.3**

Source: Bloomberg

Mercado Livre's EV / EBITDA are very negative, since its EBITDA is negative by only a very small amount (USD 24 million). For most cases, however, the multiples are considerably high. 10 out of the 17 peers present multiples of over 20x. For comparison purposes, multiples of the traditional retail companies analyzed are shown in table 3:

Table 3 - Multiples of traditional retailers (2018), USD MM

Company	EV	Revenue	EBITDA	EV / Revenue	EV / EBITDA
Walmart	329,385	514,405	38,376	0,6	8,6
Home Depot	231,153	108,203	17,929	2,1	12,9
Costco	101,694	141,576	5,917	0,7	17,2
Inditex	79,168	30,702	6,467	2,6	12,2
Lowe's	93,279	71,309	8,342	1,3	11,2
TJX	58,967	38,973	5,038	1,5	11,7
Fast Retailing	43,548	19,307	2,680	2,3	16,2
Target	48,738	75,356	6,835	0,6	7,1
Walmart Mexico	43,180	32,112	3,231	1,3	13,4
Walgreens	79,572	131,537	8,754	0,6	9,1
Dollar General	32,483	25,625	2,575	1,3	12,6
Ross Stores	32,678	14,984	2,371	2,2	13,8
Seven & Holding	38,691	49,887	5,940	0,8	6,5
Hennes	31,366	24,385	2,916	1,3	10,8
Alimentation Couche Tard	39,640	59,118	3,576	0,7	11,1
Median				**1,3**	**11,7**

Source: Bloomberg

Both EV / Revenue and EV / EBITDA multiple are shown to be considerably higher for digital retail than the multiples of traditional retail. It is also notable the outstanding value of Amazon, now one of the 3 most valued companies in the world. In fact, Amazon is worth more than the 6 biggest offline retailers in the USA combined,

while its revenue is four times lower than the revenue of the offline retailers combined, as shown in tables 4 and 5:

Table 4 – Market Cap and Revenue – Amazon (TTM, 10/2019, USD MM)

Company	Mkt Cap	Revenue
Amazon	935,453	252,056

Source – Bloomberg

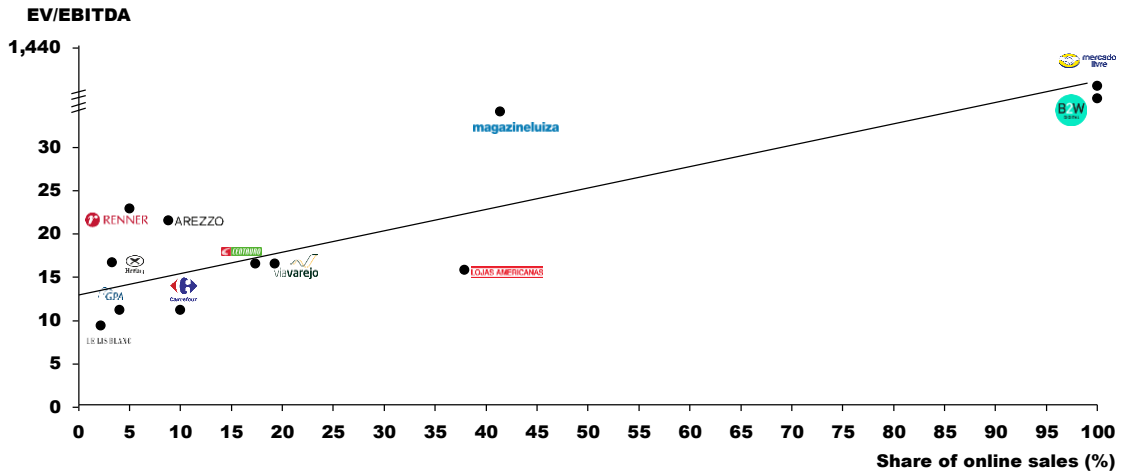
Table 5 - Market Cap and Revenue - Biggest US retailers (TTM, 10/2019, USD MM)

Company	Mkt Cap	Revenue
Walmart	339,664	517,989
Home Depot	258,347	110,013
Costco	131,361	152,703
Lowe's	86,696	71,795
Target	57,321	76,847
Walgreens	49,366	136,354
Total	**922,755**	**1,065,701**

Source - Bloomberg

Those numbers cause serious concerns for the traditional retailers. Now, more than ever they have the challenge to reinvent the business. Thus, almost all of them have as one of the top priorities investing in online sales channels. This strategy seems to be very well accepted by the investors. It is very interesting to note the high correlation between the valuation multiple and the share of online sales of the companies. The chart 4 illustrates the correlation for Brazilian retailers:

Chart 4 - Correlation of EV / EBITDA and share of online sales for Brazilian retailers



Source: Author elaboration

The finding of this chart is very important for two main reasons: first, it confirms that the digital retailers are highly valued because of the nature of the business. Second, it indicates that it is possible for the traditional retailers to reinvent the business and increase value creation expectations by increasing the share of online sales.

One of the best cases of transformation was already briefly presented. It is Magazine Luiza, one Brazilian retailer. Magazine Luiza has been successfully implementing its e-commerce and marketplace strategy and consequently part of its business is being valued as a digital company. Morgan Stanley's valuation shown in table 6 for Magazine Luiza illustrates the difference between online and offline multiples:

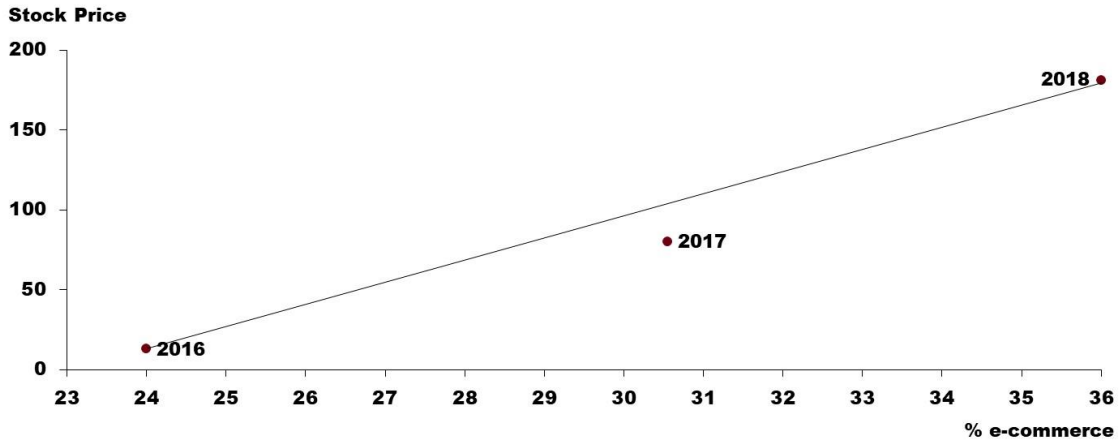
Table 6 - Morgan Stanley's valuation for Magazine Luiza[i], 2018

	MAGAZINE LUIZA	**OFFLINE**	**ONLINE**
EBITDA	R$ 1,5 Bn	R$ 1,2 Bn	R$ 0,3 Bn
EV/EBITDA	18,2x	9,9x	51,1x
EV	R$ 26,3 Bn	R$ 11,4 Bn	R$ 14,9 Bn

Source: Morgan Stanley

Although the online sales represent only 20% of total sales, it is responsible for 56% of the Enterprise Value, showing the importance of the investments in online channels. Morgan Stanley is not the only entity to support Magazine Luiza's strategy. As the chart 5 suggests, the company's share value multiplied by a factor of more than 10x as the share of online sales raised 50%. Thus, many investors believe in a great future for Magazine Luiza:

Chart 5 - Correlation - % online sales vs stock price - Magazine Luiza - 2016-2018



Source: Author elaboration

So, why are the digital retailers being valued with such high multiples? The two hypotheses will be discussed in the next sub-chapters.

4.3 HIGH MULTIPLES EXPLAINED BY FUTURE VALUE

The most obvious argument to explain the high multiples is the fact that the investors are assigning a great value for those companies. As stated earlier in this section, every multiple is a function of the same three variables—risk, growth, and cash flow generating potential (DAMODARAN, 2012).

Mind that all those three variables require assumptions about the future about the companies. So, although most of the online retail companies still don't even generate positive cashflows, the belief that those companies will generate value in the future can explain the high valuations. But does it?

To answer that question, first it is necessary to define value creation and to present some important financial metrics that can help calculating it. That is, Economic Value Added (EVA ®), Market Value Added (MVA) and Future Value (FV).

Imagine that a company is generating 1% profit per year. It is common sense that it is not a very high profit, but most of the people will believe the company generates value. However, the company's management always have the option of, instead of investing in the company, investing all the capital in a treasury bond with returns over 2% per year in a risk-free investment. In this case, it is said that the company does not generate economic profit, as there are other investments with similar or lower risk that generates higher returns.

When an investor makes an application, he expects to receive a certain return, depending on the risk of that investment. If the risk is high, the expected return will also be high. EVA ® is a measure of economic profit, that is, it is a profit that considers not only the costs and operating expenses of the business, but also the cost of employing the capital of its investors. It is defined as the operating profit after taxes minus the cost of capital (WACC).

The weighted average cost of capital (WACC) is a calculation of a firm's cost of capital in which each category of capital (cost of equity and cost of debt) is proportionately weighted. In simple lines, WACC represents the amount paid by the company to use the capital employed on its business. For more information on how to calculate it, see Damodaran 2012.

EVA ® can be written as follows:

$$EVA = (ROIC - WACC)\ x\ Invested\ Capital \quad (4.3.1)$$

or

$$EVA = NOPAT - Capital\ Charge \quad (4.3.2)$$

Where,

ROIC = Return on Invested Capital;

WACC = Weighted Average Cost of Capital;

NOPAT = Net Operating Profit After Tax

Capital Charge = WACC x Invested Capital

EVA ® will increase if operating profits can be made to grow without tying up any more capital, if new capital can be invested in projects that will earn more than the full cost of the capital and if capital can be diverted or liquidated from business activities that do not provide adequate returns. It will be reduced if management fritters away funds on projects that earn less than the cost of capital or passes over projects likely to earn more than the cost of capital. “As it happens, EVA ® is the only performance measure that is entirely consistent with the standard capital budgeting rule: Accept all positive and reject all negative net present value investments.” (BENNETT, 1990)

To illustrate the calculation, we will perform the calculation for Amazon using formula 4.3.1. First, we need to calculate its ROIC, that is, the Return on Invested Capital. It measures how much profit the company generates with the capital employed. The formula follows:

$$ROIC = \frac{NOPAT}{Invested\ Capital} (4.3.3)$$

Where:

$$NOPAT = EBIT\ x\ (1 - Tax)\ (4.3.4)$$

Amazon’s operating profit (EBIT) in 2018 was USD 12.4 MM. As the company is issued in the United States, the taxes are 40%. Thus, the NOPAT can be calculated as follows:

$$NOPAT = 12.4\ x\ (1 - 0{,}4)$$

$$NOPAT = USD\ 7.4\ MM$$

Now, we need to calculate the Invested Capital. There are two ways to calculate it. The first one is the Operating Capital:

$$Operating\ Capital = Operating\ Working\ Capital +$$

$$Long - Term\ Operating\ Capital\ (4.3.5)$$

Where:

Operating Working Capital is the sum of Operating Cash, Accounts Receivable, Inventory, Other Current Assets minus Accounts Payable and Other Current Liabilities.

Long-Term Operating Capital is the sum of Plant, Property and Equipment, Long-Term Receivables, Other Long-Term Assets minus Other Noncurrent Liabilities and Deferred Assets.

The second way to calculate it is the Financial Capital, calculated as the sum of the book value of debt and equity, net of excess cash. Both calculations should deliver the same result. In summary, the Invested Capital if nothing more than the total capital invested in the company.

The calculated Invested Capital of Amazon is USD 83.3 MM. Thus, using formula 4.3.3, it is possible to calculate Amazon's ROIC:

$$ROIC = \frac{7.4}{83.3} = 8.9\%$$

Now, to calculate the EVA ® using the formula 4.3.1 the only missing piece of the puzzle is the cost of capital. The WACC calculated for Amazon in 2018 is 11.0%. Thus:

$$EVA\ ® = (8.9\% - 11.0\%)\ x\ 83.3$$

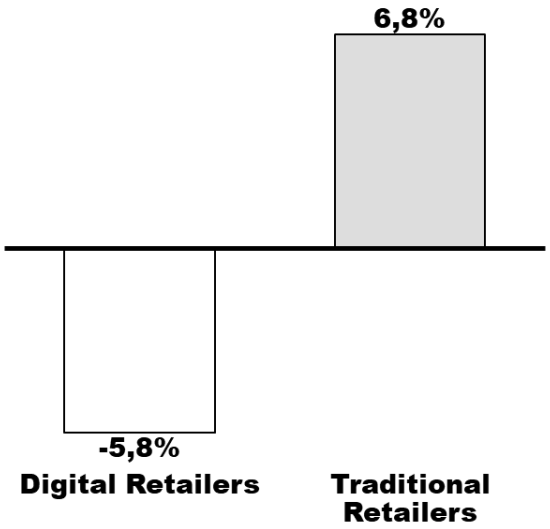
$$EVA\ ® = -1.7\ MM\ dollars$$

As stated before, the EVA ® is very useful to measure the value created or destroyed by the company on the current year. However, to compare the value created between different companies it is often more useful to use the EVA Spread, simply the subtraction of the ROIC – WACC. It is also the EVA ® divided by the Invested Capital of the company. Thus, it measures the return (economic profit) of each dollar invested in the company.

The calculation of the EVA Spread was performed for each of the digital retailers and traditional retailers in scope of this study to compare the value creation of both

types of companies. The median value of the two peer sets are shown on chart 6. The values of each company are shown in chapter 6[14]:

Chart 6 - EVA Spread - Digital vs Traditional Retailers



Source: Bloomberg, author calculations

So, Digital Retailers are destroying value, while traditional retailers are generating economic profit. If the value of the company should be linked with the economic value it generates, why are the multiples of digital retailers so much higher than the multiples of traditional retailers?

One of the answers to this question is: the digital retailers are not generating economic profit now, but the market expects them to generate it in the future. Thankfully, the expected value a company will generate in the future can also be estimated.

> In fact, “projecting and discounting EVA ® for an entire company automatically sums the net present value of all the firm’s past and projected capital investment projects. This sum accounts for the company’s market value premium to capital employed (which is simply the total of all investments the company has made to date).” (BENNETT, 1990, p. 3).

This market value premium has one other name: it is the Marker Value Added, or simply MVA:

[14] Page 90, charts 22 and 23

$$MVA = Enterprise\ Value - Invested\ Capital \quad (4.3.6)$$

Or

$$MVA = \sum_{t}^{\infty} \frac{EVA_t}{(1+WACC)^t} \quad (4.3.7)$$

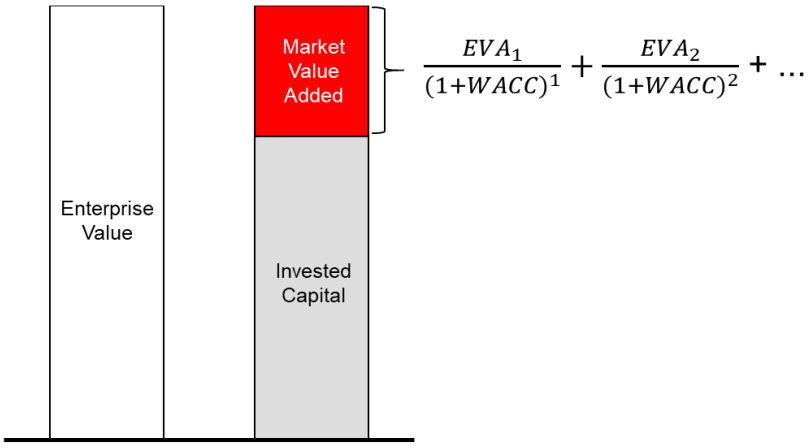


Figure 2 - MVA calculation

Source: Author elaboration

Unlike a rate of return which reflects the outcome of one period, MVA is a cumulative measure of corporate performance. It represents the stock market's assessment of the net present value of all a company's past and projected capital projects. It reflects how successfully a company has invested capital in the past and how successful it is likely to be at investing new capital in the future. Maximizing MVA should be the primary objective for any company that is concerned about its shareholders' welfare (BENNETT, 1990).

The calculation of Amazon's MVA follows. First, the Enterprise Value must be calculated using formula 4.3.8:

$$EV \ = Mkt\ Cap - Cash + Preferred\ Equity + Short\ and\ LT\ Debt \quad (4.3.8)$$

Where:

EV = Enterprise Value

Mkt Cap = Market Cap = Price of the share x Number of shares

Preferred Equity = Shares with preferred status

Short and LT Debs = Short and Long-Term Debt

Substituting the values in the same order of the formula, we have:

$$EV = 737.5 - 41.3 + 0 + 49.3$$

$$EV = USD\ 745.5\ MM$$

Now, all the information necessary to calculate the MVA is available, since the Invested Capital was already calculated

$$MVA = 745.5 - 83.3$$

$$MVA = USD\ 662.2\ MM$$

As stated before, MVA is a very important tool to evaluate the expectations of value creation of one company. However, just like the EVA ®, it has one shortcoming when comparing different firms: as it is one absolute value, the size of the company will affect the result. As the objective of this section is to compare the expectation of future value creation of digital and traditional retailers, the metric must facilitate the comparison between not only companies, but a group of companies.

Just like the EVA ® can be translated into the EVA Spread, MVA can be standardized. There is more than one way to do it. The one selected in this study is to represent the MVA as one percentage of the Enterprise Value.

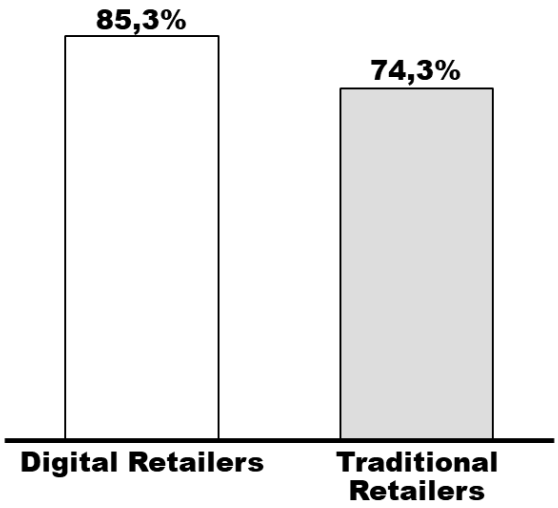
$$\%\ MVA = \frac{MVA}{Enterprise\ Value} \quad (4.3.9)$$

So, if one company has one high percentage of MVA of its Enterprise Value, most of its value is due to the expectation of future value creation. If one company has one low percentage of MVA of its Enterprise Value, most of its value is due to the capital that was employed in the history of the company.

Back to the main problem, its known that most of the digital retailers are destroying value (EVA Spread of -5.8%), while traditional retailers are generating value (EVA Spread of 6.8%). Even though, the EV / EBITDA multiples of digital retailers are much higher. One of the explanations is that the market expects them to generate

value in the future. The high percentage of MVA relative to the EV of digital retailers comparing to traditional retailers supports this thesis. Both values were calculated as the median of the % MVA of all peers, as shown in chart 8:

Chart 7 - % MVA relative to the EV: Digital vs Traditional Retailers



Source: Bloomberg, author calculations

The chart shows that the % MVA of digital retailers is higher. That means that, even though the companies are destroying value, investors seem expect that they generate high EVA ® in the future. This is a major, but expected, finding, because it can explain the high EV / EBITDA multiples. The values of % MVA for all companies are shown in chapter 6[15].

One other and complementary way to estimate the expectation of future value creation is the use of the concept of Future Value. To describe it, it is necessary to describe first the concept of Current Value. The goal is to measure only the value contribution of the current business activities. That is, to calculate how much of the Enterprise Value is due to its current operations. The following excerpt was taken from (BENNETT, 1990, p. 254).

> "To measure the value contributed by just the current business activities, new investment will temporarily be limited to an amount that just replaces the depreciation incurred on existing assets. Anu value to be derived by investing more than depreciation, that is, to grow, will appear in the third component: the

[15] Page 85, chart 17

> value of the forward plan. Turning off the spigot on investment beyond depreciation makes two convenient things happen:
>
> First, the company's NOPAT will cease to grow; without any "net" new investment, it will be frozen at its current level
>
> Second, the current NOPAT becomes the free cash flow available for distribution to the firm's debt and equity investors in each and every future year."

Thus, the value of a company's current operations can be obtained by perpetuating the current year's NOPAT, because it is essentially the free cash flow in the hypothetical scenario where the NOPAT will not go up or down to the end of times.

$$Current\ Value\ (CV) = \frac{NOPAT}{WACC} (4.3.10)$$

The value of the company's future developments (e.g. operational efficiency gains, or revenue growth) can be obtained by subtracting the Current Value of the Enterprise Value. In other words:

$$Future\ Value\ (FV) = Enterprise\ Value - Current\ Value\ (4.3.11)$$

Figure 2 represents the MVA as part of the Enterprise Value. The same can be made with Current Value and Future Value (figure 3):

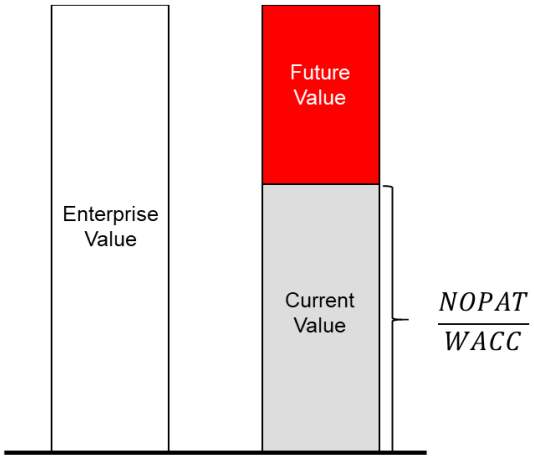


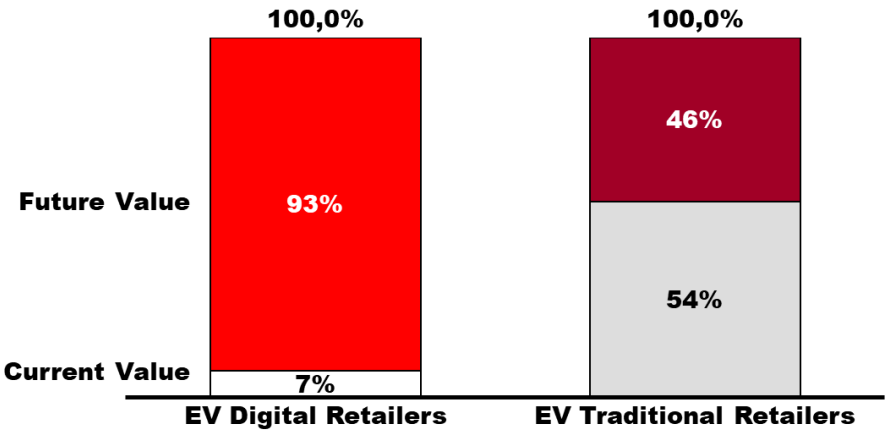
Figure 3 - Enterprise Value, Current Value and Future Value

Source: Author elaboration

Like the EVA ® and the MVA, the Future Value is one absolute value. Thus, it is difficult to use it to compare the expectation of value creation in the future. However, it can be calculated as one percentage of the Enterprise Value. This way, if one company presents one high percentage of Future Value, its valuation is mostly

explained by the expectation of value creation in the future, and not due to its current operations. This seems to be the case of digital retailers. Chart 8 shows the median of the percentage of the Current Value and Future Value relative to the Enterprise Value for both digital and traditional retailers. The values of each company are displayed in chapter 6[16]:

Chart 8 - Current and Future Value relative to the Enterprise Value - Retailers



Source: Bloomberg, author calculations

Chart 8 shows that most of the value of digital retailers is due to the expectation of growth and future cash flow generation, while most of the value of traditional retailers is due to the current operations (54%).

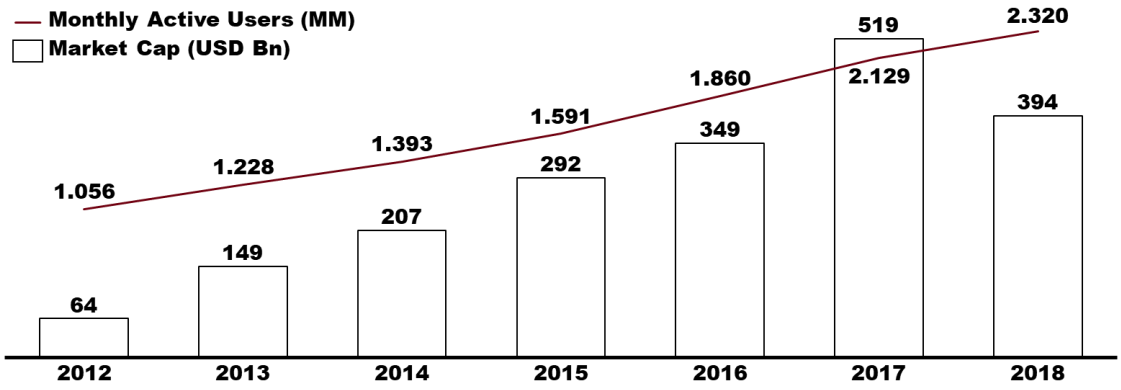
In summary, it can be said that the high multiple values cannot be explained by the current results of the digital retailers. Instead, the expectation of future value creation is a much better explanation. The next relevant question is: why the investors have such expectation? There are at least two very strong reasons: network effects and optionality.

Digital retailers, in special marketplaces, are one kind of platform. Digital platforms are basically online businesses that facilitate commercial interactions between at least two different groups—with one typically being suppliers and the other consumers. Facebook, iFood and ride-hailing services, such as Uber, are other types of platforms. All digital platforms benefit from network effects, leading to (or almost to) a winner takes all outcome.

[16] Page 88, chart 20

The network effect is a phenomenon whereby increased numbers of people or participants improve the value of a good or service. Amazon becomes more valuable every time a new seller lists its goods and a new buyer enrolls in the platform. iFood enhances its value to the user as more restaurants join the platform and vice versa. Instagram becomes more valuable to users as more friends, acquaintances and digital influencers join the network. As more users post content on Facebook such as links and media, the more useful the platform becomes to the public, and that attracts more users. That is why the number of active users is so important for those platforms and investments should be made to acquire new ones. Chart 9 correlates Facebook's Market Cap to the number of active users from 2012 and 2018:

Chart 9 - Facebook's correlation between its Market Cap and Active Users



Source: author calculations

The correlation is very clear, and the same exercise could be made for most digital platforms with similar results. Amazon, for example, has built multiple types of network effects into its business model over the years. First, Amazon's review systems generated same-side effects: As the number of product reviews on the site increased, users became more likely to visit Amazon to read the reviews before buying a product, as well as to write them. Later, Amazon's marketplace generated cross-side network effects, in which buyers and third-party sellers attracted each other. This network effect can generate one enormous barrier to entry. Meanwhile, Amazon's recommendation system is always evolving. The more consumers used the site, the more accurate the recommendations Amazon can provide them. While not usually recognized as a network effect per se, learning effects operate a lot like same-side effects and can also increase barriers to entry. (ZHU; IANSITI, 2019)

First, as detailed in chapter 2, the e-commerce market is expected to grow double digits in the next years. That is a simple and strong reason to believe that those companies will benefit in the future.

Also, all digital retailers in this study have very strong marketplaces and are dominant in one or more region. Thus, it is possible to assume that most of those companies will benefit from the network effect. The strength of this network effect can explain partially why most of those companies have such big expectations of future value creation.

The other argument is optionality. Optionality is the idea that increasing the core user base unleashes the option to further growth into new businesses. It can happen in three complementary ways: (V) Vertical Integration, (M) Market Growth and (A) Adjacent Business.

Vertical Integration is the Exploration of businesses in other parts of the value chain that are capturing a significant share of the value pool. In the upstream side, it means entering in the business of current suppliers. In the downstream side, it means integrating some productive processes of current clients. Amazon Logistics is a great example of vertical integration. Since the company sells millions of products each year, why not join the delivery business and make profit from it?

Market Growth is simply the expansion of current services and products to new geographies and clients. Amazon, for instance, started its operations in the United States, but one major effort has been made especially in the last years to boost international sales. As a result, in 2018, excluding AWS sales, international sales accounted for 32% of total sales. It is relatively easy for Amazon and other major marketplaces, to thrive internationally, since its major asset is already built: the platform. The cost to attend new customers is marginal.

Adjacent business is the last optionality effect. The name says it all about the concept: the company has the option to expand its portfolio of services and products. For instance, Alexa is an intelligent virtual assistant developed by Amazon. Amazon Echo and Echo Bot devices connect to the service, which can interact by voice, play music, make to-do lists, set alarms, provide traffic, temperature, and other information, as well as control intelligent systems and devices. and connected. If the user asks

Alexa to play a song, “she” will probably offer to do so through the Amazon Music app. If the user wants to watch a movie, Alexa will offer to do so through Amazon Prime Video. This feature is a great example of cross sell, which is facilitated by a wide range of users inside the company’s ecosystem.

Figure 4 shows each of Amazon’s features and new products, and presents a great example of optionality:

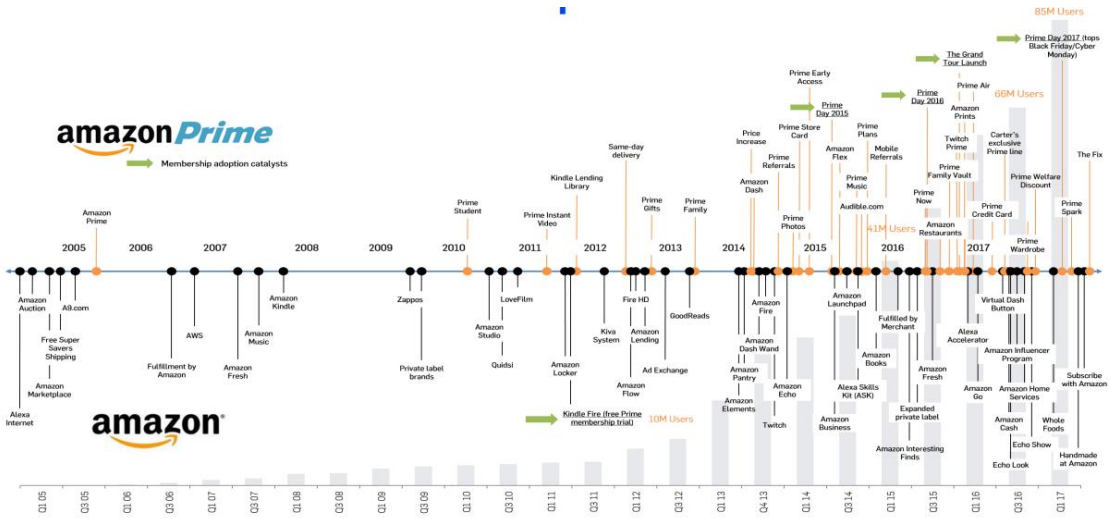


Figure 4 - Amazon's optionality

Source: Investor briefing: May 2018

The combination of network effects and optionality makes market analysts believe that the financial results of marketplaces are part of a J-curve. A J-curve is a trendline that shows an initial loss immediately followed by a dramatic gain. The J-curve is useful to demonstrate the effects of an event or action over a set period. Put bluntly, it shows that things are going to get worse before they get better.

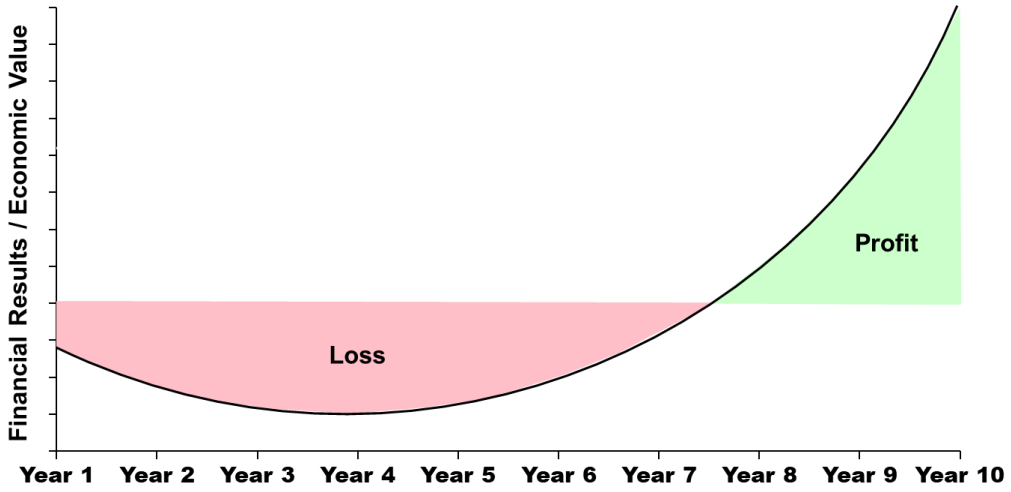


Figure 5 - J-curve for marketplaces

Source: Author elaboration

In summary, most of the digital retailers are not creating economic value now. However, mostly because of market growth, network effects and optionality, investors believe that those companies will generate value in the future. Does this fully explain the skyrocketing multiples? In the next subchapter one other hypothesis will be developed.

4.4 HIGH MULTIPLES EXPLAINED BY A METRIC PROBLEM

The origin of accounting is linked to the need for trade records. The Greeks, based on Egyptian models, 2,000 years before Christ, already wrote Costs and Revenue Accounts, making a confrontation between them each year to calculate the balance.

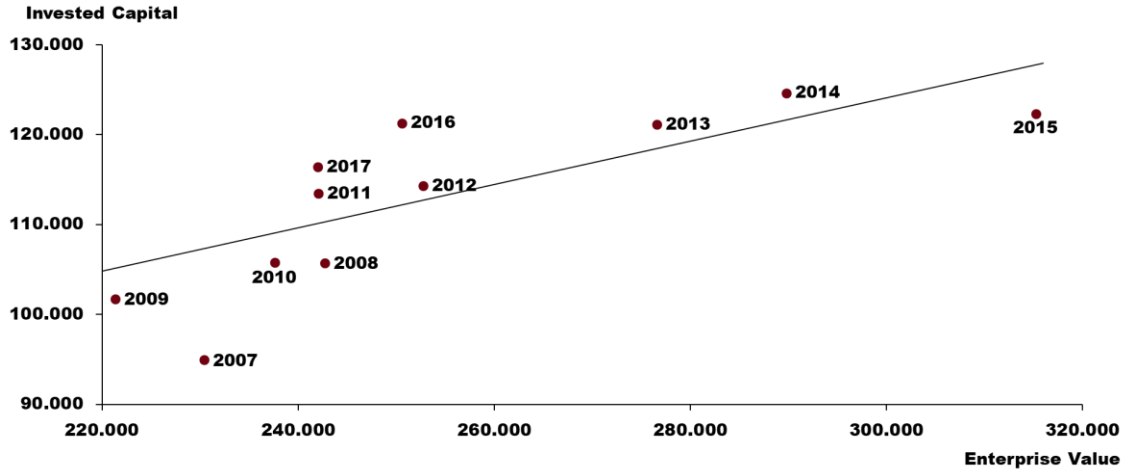
The main accounting rules that are followed today, however, were notably developed in the United States at a time when the main economic activity was manufacturing. The creation of large corporations, such as multinational or transnational corporations, that require large capital from many shareholders, was the primary cause of the establishment of accounting theories and practices that would allow the correct interpretation of the information by any shareholder or other interested

party, anywhere in the world. Using accounting as a tool, investors could compare companies' performance to decide on their investment decisions.

One of the key aspects to increase the value of the business is growth, that can be either organic or by acquisition. To grow organically, the company must perform investments, or, in accounting language, capital expenditures. Capital expenditures are the amounts that companies use to purchase major physical goods or services that will be used for more than one year.

In the past, companies created value by allocating capital into physical assets. The correlation of the Enterprise Value and Invested Capital for Walmart shown in chart 10 illustrates how well those two financial indicators were correlated for traditional companies:

Chart 10 - Correlation: Enterprise Value vs Invested Capital for Walmart



Source: Bloomberg, author calculations

In the last 30 years, however, we have seen a shift from manufacturing firms to service and technology firms in the global economy. As more pharmaceutical, technology, and service companies are valued, two facts rise: The first is that the assets of these firms are often intangible and invisible - patents, know-how, and human capital. The second is that the way in which accounting has dealt with investments in these assets is inconsistent with its treatment of investments in tangible assets at manufacturing firms. “As a result, many of the basic inputs that we use in valuation - earnings, cash flows, and return on capital are contaminated” (DAMODARAN, 2001).

The accounting first principle defines that any expense that creates benefits over many years is a capital expense (CapEx), whereas expenses that generate benefits only in the current year are operating expenses (OpEx). The understanding of the difference of those two metrics is essential to this study. Capital expenditures are added to the company's assets and are depreciated over the life of the asset. Its concept will be detailed on chapter 5[17]. In the other hand, Operational Expenses are shorter-term expenses required to meet the ongoing operational costs of running a business and are fully deducted in the year of the expense. The rationale is clear: the cost of the investment should be accounted and divided in the years the asset will generate returns. If the investment generates return only in the same year, it is an Operating Expense.

> "Accountants hew to this distinction with manufacturing firms, putting investments in plant, equipment, and buildings in the capital expense column and labor and raw-materials expenses in the operating expenses column. However, they seem to ignore these first principles when it comes to firms with intangible assets. Using the argument that the benefits are too uncertain, accountants have treated these expenses as operating expenses. As a consequence, firms with intangible assets reports mall capital expenditures, relative to both their size and growth potential." (DAMODARAN, 2001, p. 477)

The most significant capital expenditures made by pharmaceutical firms, for instance, is in R&D. A company like Merck invests more than 10% of its revenues in research and development of new products. The development of the medicines takes usually longer than 5 years not only because of the difficulty to discover new medical treatments, but also because of all the regulations and tests the product must pass. So, the return is certainly not obtainable in the year of the investment. However, the investment most certainly will bear fruits. Even though, accountants treat the investments as Operating Expenses.

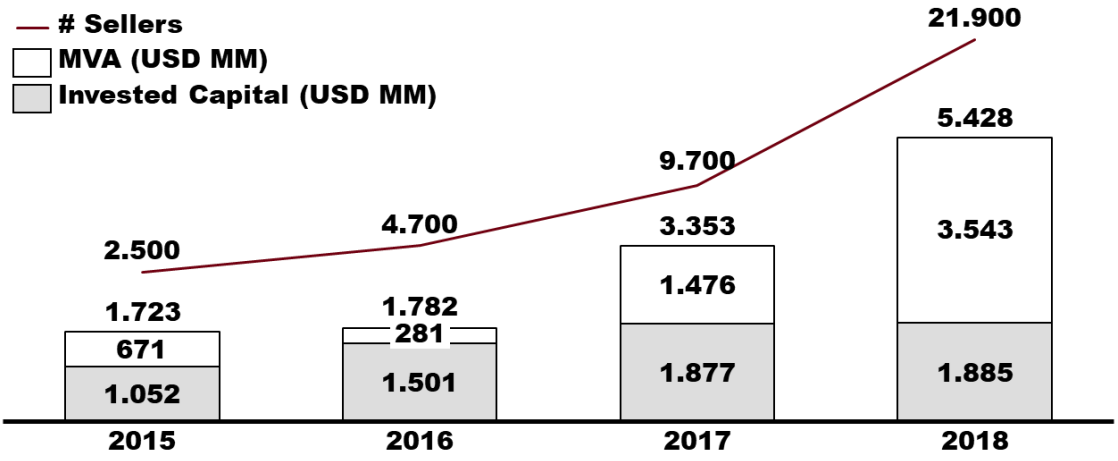
Although R&D expenses are the most prominent example of capital expenditures being treated as operating expenses, there are other operating expenses that arguably should be treated as capital expenditures. Consumer products companies such as Gillette and Coca-Cola could make a case that a portion of advertising expenses should be treated as capital expenditures, since they are designed to augment brand-name value. For a consulting firm like Accenture, the cost

[17] Page 69

of recruiting and training its employees could be considered a capital expense, since the consultants who emerge are likely to be the heart of the firm's assets and provide benefits over many years. For many new technology firms, including online retailers such as Amazon.com, the biggest operating expense item is selling, general, and administrative (S, G, and A) expenses. These firms could argue that a portion of these expenses should be treated as capital expenditures since they are designed to increase brand-name awareness and bring in new (and presumably long-term) customers (DAMODARAN, 2001).

The chart 11 shows the correlation of the Enterprise Value to the Invested Capital and the number of sellers for B2W, a Brazilian digital retailer in scope of this study.

Chart 11 - Correlation between number of sellers, Invested Capital, MVA and Enterprise Value[18]



Source: Annual reports, Bloomberg, author calculations

While the Invested Capital raises only by 80% in the four years, the Enterprise Value triples its value. That happens because B2W invests its resources mainly not in physical assets, but in intangible assets. The revenue of the business depends directly on the number of sellers of the platform. Thus, the main investment being made is to acquire new customers and sellers. However, as Selling expenses are not considered capital investments by the accounting rules, this investment will not be capitalized as an asset of the company.

[18] Enterprise Value = MVA + Invested Capital

This categorization problem creates huge distortions for valuing firms with intangible investments both in discounted cash flow and relative valuation methods:

> "We generally draw on a firm's current earnings and current book value to derive a value for existing assets. The flawed accounting treatment of intangible assets renders both numbers unreliable. The reported earnings for a technology firm represent the earnings after reinvestment in R&D, rather than true operating earnings. The book value of assets (and equity) is understated because the biggest assts for these firms are off the books. If you expense an item, you cannot show it as an asset. This has consequences for discounted cash flow valuation, where these numbers become the base from which we forecast. It also has consequences for relative valuation, where we compare multiples of accounting earnings and book values across companies. Also, the failure to record the book values of intangible assets makes measures like return on equity and capital, widely used to determine the quality of a firm's investments, unreliable." (DAMODARAN, 2001, p. 478).

G. Bennett Stewart, in his book "The Quest for Value" also addresses this accounting problem. And he adds one curious fact:

> "Following the acquisitions of R&D-intensive companies, the accountants will agree to record as goodwill for the buyer the R&D they had previously expensed for the seller. Thus, according to the accountants, R&D can be as asset if acquired but not if it is home-grown. What possible justification could there be for writing off R&D as an immediate expense when it is so obviously capitalized in stock market values? My answer is that the accountants are in bed with the bankers." (BENNETT, 1990, p. 29).

Analysts who stick with relative valuation often argue that they are unaffected by accounting inconsistencies, since all firms in their sector are affected by these inconsistencies. Thus, they argue that while comparing the PE ratio of a software firm to the PE ratio of a steel company may be difficult, comparing PE ratios across software companies is fine. After all, if every software company has R&D expenses and these expenses are all treated (incorrectly) as operating expenses, all the companies should have earnings and returns that are skewed by the treatment. The problem with this argument is that the effect of the accounting wrongful categorization of investments at firms can vary widely across firms within the same sector. As a general rule, the effect is much greater at younger firms, with growing investments, than at mature firms (DAMODARAN, 2001).

In summary, accounting metrics fail to deliver economical metrics for companies with intangible investments. In the next chapter, one adjustment of these accounting methods will be proposed to reflect the economic reality of digital retailers.

5. DIGITAL ACCOUNTING

The main objective of this section is to present an accounting adjustment for valuing digital retailers. The goal of the adjustment is to bring a more adequate economic sense for the financial evaluation of those companies.

As detailed on chapter 4, one of the biggest investments of the digital retailer business is the acquisition of new customers to the platform. In the case of marketplaces, the customers are both the final customer and the sellers. The accounting rules, however, consider this investment one expense. The goal of the adjustment is simply the correction of this distortion.

This chapter begins with the presentation of the accounting rules for common investment. After that, the investments of digital retailers to be adjusted will be detailed. Finally, the adjustment will be proposed.

5.1 CAPEX TREATMENT FOR COMMON INVESTMENTS

Capital expenditures, commonly known as CapEx, are funds used by a company to acquire, upgrade, and maintain physical assets such as property, buildings, an industrial plant, technology, or equipment. Making capital expenditures on fixed assets can include everything from repairing a roof to building, to purchasing a piece of equipment, to building new factory.

In terms of accounting, a spend is considered a capital expenditure when the asset is a newly purchased capital asset or an investment that has a life of more than one year, or which improves the useful life of an existing capital asset. Expenses for items such as equipment that have a useful life of less than one year, according to IRS guidelines, must be expensed on the income statement.

Thus, if a spend is a capital expenditure, it needs to be capitalized in the company's balance sheet. This requires the company to spread the cost of the expenditure (the fixed cost) over the useful life of the asset. If, however, the expense

is one that maintains the asset at its current condition, the cost is typically deducted fully in the year the expense is incurred.

Capital Expenditures are added to the company's assets and are depreciated over the life of the asset. So, if one company performs an investment in the beginning of its financial year, the investment will be capitalized over the balance sheet. In the end of the first financial year, the only impact on the Income Statement will be the depreciation of the asset over this first year. That differs from operating expenses, where all the spend is fully deducted in the current year. To illustrate the difference between capital expenditures and operating expenses, the following example was developed.

Suppose company A wants to invest in a new equipment with one lifetime of three years. The cost of the machinery is USD 120 thousand. The revenue of the company is USD 100 thousand before the investment and will raise to USD 150 thousand after the implementation. The costs will have a raise of USD 5 thousand. In this case, as the machinery is considered one capital expenditure, the investment will be capitalized and depreciated over the years of the lifetime of the equipment. The simplified Income Statement and the Balance Sheet are detailed below.

Table 7 - Simplified Income Statement - Company A

	Y0	**Y1**	**Y2**	**Y3**
REVENUE	100	150	150	150
COGS	50	55	55	55
SG&A	20	20	20	20
DEPRECIATION	0	40	40	40
EBIT	30	35	35	35

Source: Author elaboration

Table 8 - Simplified Balance Sheet - Company A

	Y0	Y1	Y2	Y3
ASSETS (EXCLUDING NEW EQUIPMENT)	200	200	200	200
NEW EQUIPMENT	120	80	40	0
TOTAL ASSETS	320	280	240	200
ROA	9%	13%	15%	18%

Source: Author elaboration

The numbers make sense. Since the machinery will generate extra revenue for three years, its cost must be “divided” in all three years. This is the common treatment for capital investments.

Now, one other very similar scenario. Suppose company B, a pharmaceutical company, wants to invest in a new medicine with one lifetime of three years. The cost of the research and development is USD 120 thousand. The revenue of the company is USD 100 thousand before the investment and will raise to USD 150 thousand after the implementation. The costs will have a raise of USD 5 thousand. In this case, as the research and development are not considered to be one capital expenditure, since it’s an intangible asset, the investment will be totally expensed in the first year, even though the return of the investment will be delivered in the subsequent years. Thus, the intangible asset is not valued in the balance sheet of the firm. The simplified Income Statement and the Balance Sheet are detailed below.

Table 9 - Simplified Income Statement - Company B

	Y0	Y1	Y2	Y3
REVENUE	100	150	150	150
COGS	50	55	55	55
SG&A	20	20	20	20
R&D	120	0	0	0
EBIT	-90	75	75	75

Source: Author elaboration

Table 10 - Simplified Balance Sheet - Company B

	Y0	Y1	Y2	Y3
ASSETS	200	200	200	200
INTANGIBLES	0	0	0	0
TOTAL ASSETS	200	200	200	200
ROA	-45%	38%	38%	38%

Source: Author elaboration

The numbers and the nature of the spend is the same, but the accounting treatment is very different. Because of that, financial measures, such as the ROA, are significantly distorted. The adjustment proposed in this study is to reconsider the investment categorized as operating expenses as capital expenditures to give a more reasonable view of the companies' results. The idea of the capitalization and posterior depreciation is the same as traditional investments. Thus, the traditional depreciation types and methods should be briefly detailed.

There are three main types of depreciation methods: Straight-Line, Declining Balance and Units of Production.

Depreciating assets using the straight-line method is typically the most basic way to record depreciation. It reports equal depreciation expense each year throughout

the entire useful life until the entire asset is depreciated to its salvage value. The example above used straight-line depreciation.

The declining balance method is an accelerated depreciation method. This method depreciates the machine at its straight-line depreciation percentage times its remaining depreciable amount each year. Because an asset's carrying value is higher in earlier years, the same percentage causes a larger depreciation expense amount in earlier years, declining each year.

The Units of Production method requires an estimate for the total units an asset will produce over its useful life. Depreciation expense is then calculated per year based on the number of units produced. This method also calculates depreciation expenses based on the depreciable amount.

So, in this chapter, the CapEx treatment for common investments was detailed. Also, its difference to OpEx has been discussed using an example from the pharmaceutical sector. A very similar case is the case of new customer acquisition expenses for the digital retail case. The nature of these expenses will be detailed in the next subchapter.

5.2 INVESTMENTS FOR E-COMMERCE AND MARKETPLACES

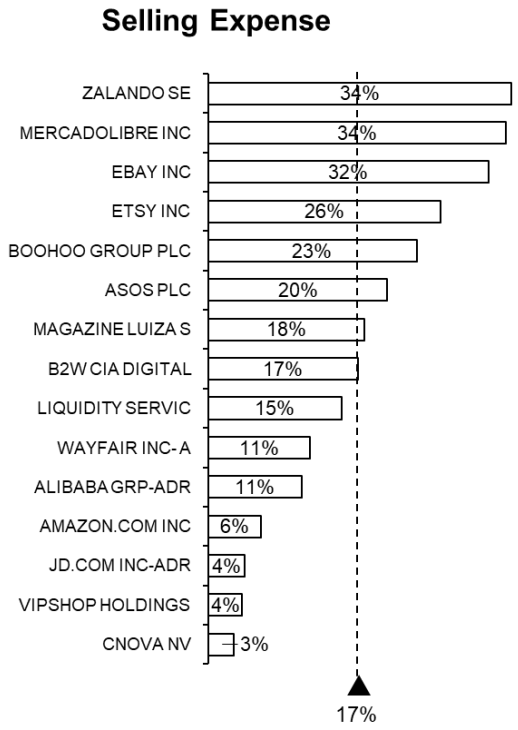
In chapter 4, the problem of high multiples for digital retailers was detailed. One of the hypotheses to explain is the metric. Some investments performed by digital retailers, such as customer acquisition costs, should be considered a CapEx instead of OpEx, since the payout of the investment will be delivered in subsequent years. The investment in customer acquisition is very broad. It is not only advertisements, but also the investment in free and fast shipping, in added services, such as the Amazon Prime Video for prime members. It is even more relevant when expanding to new markets.

The details of each of these investments are not usually detailed in the disclosed financial reports. The advertisement, the main investment of customer acquisition, is reported as part of the selling expenses, while the investment in fast shipping is reported as part of the cost of goods sold. It is not possible to isolate all the customer

acquisition costs for all the peer set of this study. Damodaran suggests the selling, general and administrative expenses could be used as a proxy (DAMODARAN, 2001). General and administrative expenses are, however, mainly administrative expenses, including rent of the corporate office, utilities, insurance, legal fees, and certain salaries. Thus, it is not directly tied to the customer acquisition investment. In this study only the selling expense, a part of the SG&A, will be capitalized. To do that, only companies with the selling expense disclosed were selected.

The selling expense as a percentage of the revenue of each peer in the year of 2018 is detailed in chart 12:

Chart 12 - Selling expense of digital retailers as a percentage of the revenue



Source: Bloomberg, author calculations

The numbers show how relevant this investment is. Just for reference, the median of the gross margin of those peers is 42% of revenue.

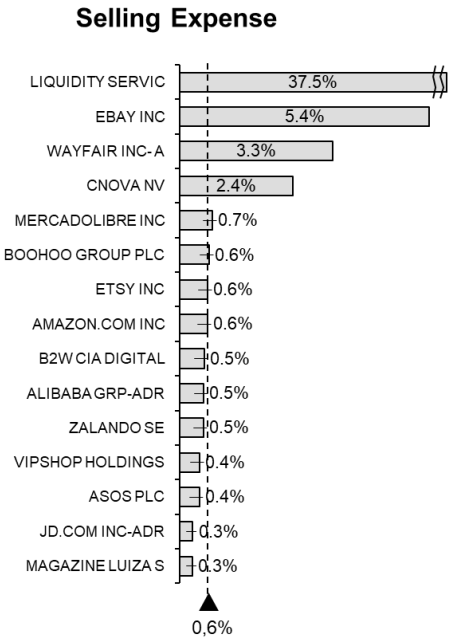
It is interesting to note that companies with a higher percentage of marketplace-related revenue and companies in earlier stages tend to invest more in customer acquisition. Consolidated companies, such as Amazon, JD.com and Alibaba invests a less significant amount. For those, the main goal is different: customer retention.

Different strategies are performed to achieve this goal. The most obvious is the investment in loyalty programs, such as the Amazon Prime. Customers in the United States can enjoy unlimited deliveries varying from 2 hours to two days with the Amazon Prime subscription that costs approximately USD 120 a year. For sure, the program does not pay itself, so it is an investment. In the words of Jeff Bezos, Amazon's CEO: "Customers love the transition of Prime from two days to one day — they've already ordered billions of items with free one-day delivery this year. It's a big investment, and it's the right long-term decision for customers. ". Other indirect initiatives also count. Each time a customer buys a product, the Amazon algorithm leans and can deliver more adequate offers. Continuously adding services, such as content in Amazon Prime Video and Amazon Music motivates customers to keep the Amazon Prime subscription and thus encouraging loyalty

So, customer retention, just like customer acquisition costs, are investments with benefits that will not be fully returned in the year of the investment. Thus, it should be considered a capital expenditure. Those costs, however, are even more difficult to estimate, since the companies don't usually disclose the costs of loyalty programs. So, in this study, most customer retention costs will not be adjusted, but only the expenses booked as selling expenses, as a proxy of the customer acquisition costs.

The selling expense of digital retailers can also be compared to the traditional retailers as a reference. The nature of the expense is, however, very different. While digital retailers tend to invest in customer acquisition, traditional retailers tend to invest in mass marketing targeted in promotions of specific products. Also, unfortunately, most traditional retailers don't disclose the selling expense, as it is not a very significant amount. However, the SG&A expenses are typically shown. So, in the cases the selling expense is not disclosed, the values were estimated using the percentage of the selling expense relative to the SG&A expense from Walmart. In 2018, the selling expense was USD 3,1 MM, while the SG&A were USD 107 MM. So, it is assumed that 2,9% of the SG&A expense of traditional retailers are selling expense. The selling expense relative to their revenues are shown in chart 13:

Chart 13 - Selling expense of traditional retailers as a percentage of the revenue



Source: Bloomberg, author calculations

In conclusion, the customer acquisition and retention costs are very significant for digital retailers compared to traditional retailers. Part of those investments, categorized as OpEx by accounting rules, will be transformed into CapEx. The proxy used for those investments will be the selling expense.

5.3 THE ACCOUNTING NEW METHOD FOR E-COMMERCES AND MARKETPLACES

In section 5.1, one case comparing company A to company B was developed. Company B has a very similar problem than digital retailers when investing in customer acquisition. The proposed adjustment of this study basically transforms the selling expense (equivalent to the R&D expense for company B) into capital expenditures (equivalent to the investment in the new equipment of company A). To detail the method, one new real example will be developed. The full adjustment will be performed for Magazine Luiza.

The method and calculations will be based on chapter 15, page 476, of the book The Dark Side of Valuation, by Aswath Damodaran.

To capitalize and value customer acquisition costs, it is necessary first to make one assumption about how long one acquired customer one average will continue to make purchases in the platform. That is a fairly difficult task, since the number is not disclosed by the digital retailers. It is known, however, that Amazon, for instance, retains over 90% of their customers over the year. Amazon Prime memberships have a 93% retention rate after the first year and 98% after two years. Not only that, but Amazon's loyal prime members spend annually an average of $1,400: more than twice as much as the average casual buyer ($600) (COON, 2018). Not all digital retailers have the same competence as Amazon, however. So, in this study the customer average lifetime will be conservative: 3 years. This is called the amortizable life if the asset. In this case, an intangible asset, the customers.

After the amortizable life of the asset has been estimated, the next step is to collect data on selling expenses over past years, ranging back to the amortizable life of the asset. Thus, data from the last 3 years should be collected and is shown in table 11:

Table 11 - Magazine Luiza's selling expense, USD MM

	2015	**2016**	**2017**	**2018**
SELLING EXPENSE	525	512	664	757

Source: Bloomberg

Each expense must be amortized over its amortizable live. In section 5.1, there were presented three types of depreciation and amortization methods. For simplicity matters, it can be assumed that the amortization is uniform over time. Thus, with a three-year life, one third of the expense will be written off each year, as shown in table 12:

Table 12 – Capitalization of selling expenses – Magazine Luiza

	2015	2016	2017	2018
SELLING EXPENSE	525	512	664	757
UNAMORTIZED PORTION ($ MM)	0	171	443	757
UNAMORTIZED PORTION (%)	0%	33%	66%	100%
AMORTIZATION THIS YEAR	175	171	221	0

Source: Bloomberg, author calculations

The total amount of the unamortized portion is USD 1,371 MM, while the total amortization this year is USD 567 MM.

In the case of the customer acquired asset with a three-year life, the unamortized portion will be one third of the selling expense from 2 years, two thirds of the selling expense from 1 year and the full expense of the current year to arrive at the value of the customer acquisition asset. The unamortized portion augments the value of the firm's assets and the book value of equity of the current year.

$$Adjusted\ Total\ Assets\ = Total\ Assets + Unamortized\ Portion \quad (5.3.1)$$

Thus, for Magazine Luiza:

$$Adjusted\ Total\ Assets\ = 2{,}271 + 1{,}371 = 3{,}642$$

In the other hand, operating income is adjusted to reflect the capitalization of selling expenses. First, the selling expense that was subtracted to arrive at the operating income is added back. Next, the cumulated amortization of the research asset is treated the same way as depreciation and is netter out to arrive at the adjusted operating income:

$$Adjusted\ EBIT\ =\ EBIT +\ Current\ Year's\ Selling\ Expense$$

$$-\ Amortization\ of\ Research\ Asset \quad (5.3.2)$$

Thus, for Magazine Luiza:

$$Adjusted\ EBIT\ =\ 286 +\ 757 - 567 = USD\ 475\ MM$$

In order to evaluate the impact of the adjustment, the return on assets (ROA), a return metric detailed in chapter 6[19], of both companies can be compared in 2018. It is assumed the income tax is 34% in Brazil.

Table 13 - Before and after the adjustment comparison - Magazine Luiza (USD MM)

	BEFORE THE ADJUSTMENT	AFTER THE ADJUSTMENT
EBIT	286	475
INCOME TAX	34%	34%
NOPAT	189	314
ASSETS	2,271	3,642
ROA	8,3%	8,6%

Source: Bloomberg, author calculations

So, while the assets had a great increase, the increase in the NOPAT was even higher. Thus, the ROA had a small raise after the adjustment.

In the next chapter, the adjustment will be performed for all the peer set and different financial indicators will be compared before and after the adjustment. Also, the results will be compared to traditional retailers.

[19] Page 94

6. COMPARATIVE FINANCIAL ANALYSIS POST ADJUSTMENT

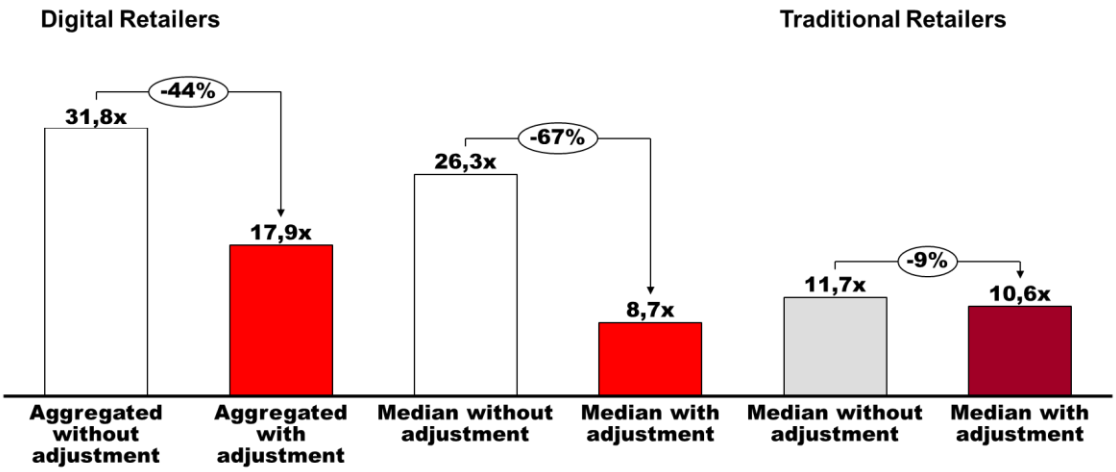
In chapter 4, a comparison of many financial measures, such as the multiple EV / EBITDA, Spread EVA, % MVA and % Future Value were presented for both digital and traditional retailers. Two hypotheses were presented to explain the big differences: the expectation of future value creation and one accounting consideration problem. The question to be answered in this chapter is: how much of the difference is explained by the expectation of future value creation, and how much by one metric problem?

To answer this question, the financial metrics will be presented in two ways: aggregated and median. The aggregated values simulate the market formed by the selected peers as if it was only one company. For instance, to calculate the EV / EBITDA, the Enterprise Values of all peers were added and divided by the sum of all EBITDAs. The median value, in other way, is simply the median of the EV / EBITDA multiples of all peers. Both ways of displaying the results have their value: the aggregated values weight the market by the companies' sizes, so it approximates the marketplaces' market. However, one could argue that the results are too biased by the biggest players, Amazon and Alibaba. The median values treat all peers with the same weight.

All the financial results of digital retailers will be displayed side by side with traditional retailers for comparison. One could argue that the adjusted values are not comparable with the traditional retailers after the adjustment, because the selling expense in the first case was capitalized. That is not true, because the nature of the expense is very different. For digital retailers, the selling expense is considered to have the main objective of acquiring new users to the platform. For traditional retailers, the selling expenses are mostly mass marketing used to boost sales of specific products. Thus, it doesn't make sense to perform the adjustment for traditional retailers, and the adjusted results of digital retailers are comparable with the non-adjusted values of traditional retailers. Even so, the adjustment was performed as a tool to prove the argument that the financial metrics should not change much for traditional retailers, because the selling expenses are not so expressive for this case. Both values will be shown.

The first result to be discussed is the multiple EV / EBITDA[20].

Chart 14 - EV / EBITDA before and after adjustment (2018)

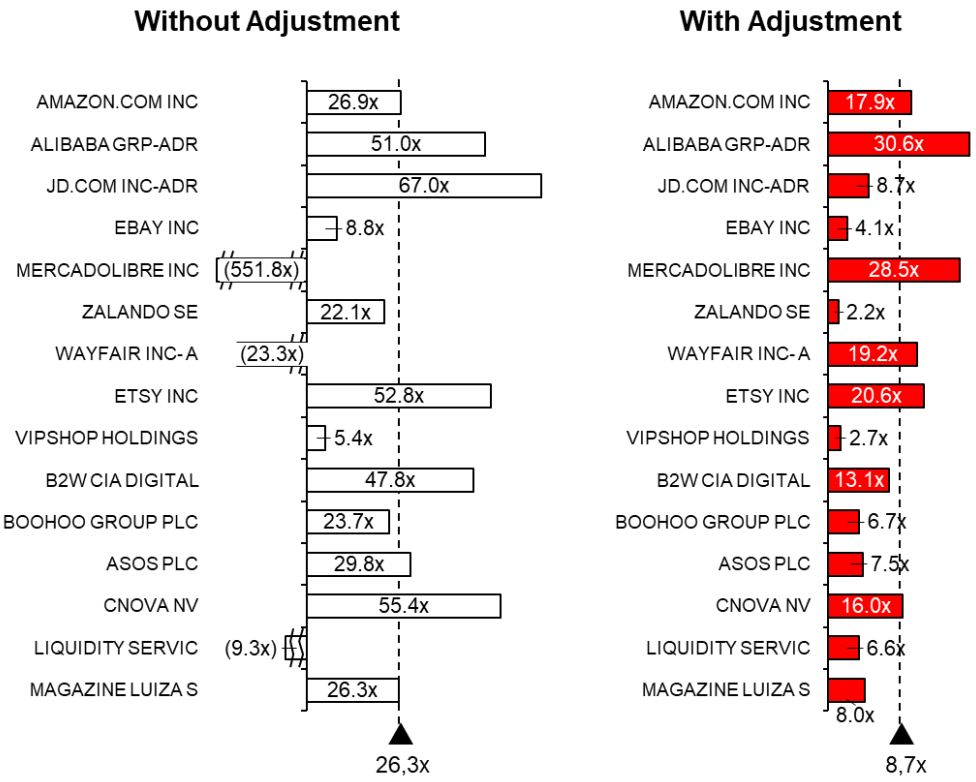


Source: Bloomberg, author calculations

One reduction of the multiple was already expected. The Enterprise Value of the companies are not changed, while the EBITDA value always increases, as customer acquisition expenses are added back to the result and the depreciation and amortization of previous years are not subtracted, since the EBITDA is calculated before that. However, the magnitude of the change is higher than previous expectations. Both results (aggregated and median) had enormous reductions even reaching multiples below the ones of traditional retailers in the second case, showing that the hypothesis that the multiples are high due to one metric problem is valid. To understand better this result, the results of each company should be analyzed:

[20] The multiple is detailed in chapter 4, page 43

Chart 15 - EV / EBITDA by company before and after adjustment (2018)



Source: Bloomberg, author calculations

The impact of the adjustment is clearly higher for some companies than others. Amazon's EV / EBITDA multiple, for instance, was reduced 33%, while JD.com's multiple was reduced almost 8x and Zalando's almost 10x. There are two main reasons for that.

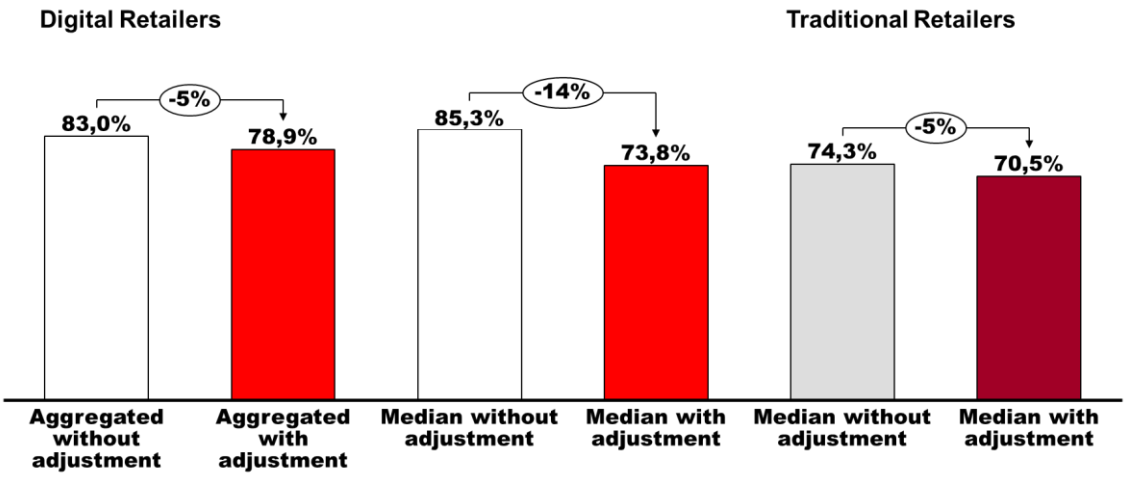
The first reason is the value invested in user acquisition. If a company invests more, naturally one higher value will be capitalized, and one higher value will be added back to calculate the adjusted EBITDA. The biggest players, such as Amazon, Alibaba, does not invest much in customer acquisition. The challenge for them is to retain its current customers. That is the reason why Amazon is investing so much on its subscription service, Amazon Prime, providing the service for values as low as USD 2 in Brazil, for instance.

The second explanation is the low EBITDA before the adjustment. The selling expenses represents 87% of the value of the adjusted EBITDA of JD.com, and 90% in the case of Zalando. Naturally, the multiple of those companies will be more affected.

So, the adjustment brings the digital retailers EV / EBITDA multiples to a much closer value than traditional retailer. But what justify those values? Does that mean that the hypothesis about the future value generation is not valid? To answer that question the MVA and the Future Value (FV) of the peer set should be analyzed.

As detailed in chapter 4[21], the MVA is the difference between the Enterprise Value and the Invested Capital, as well as the sum of the EVAs ® the investors expect the company to generate in the future. So, it is a measure of how much value the market expects a company to generate in all its life. As chart 16 shows, the % MVA[22] had a significant reduction after the adjustment, and the median values are even in line with the traditional retailers.

Chart 16 - % MVA before and after adjustment (2018)



Source: Bloomberg, author calculations

Again, the % MVA reduction was expected, since EV = MVA + Invested Capital, the capital raises after the adjustment and the EV is assumed to be constant.

The small reduction does not mean that the investors are wrong, and the companies should be valued less. As the investors have access to all information used in this study, and it is assumed that the market is efficient, it only means that investors never expected a % MVA higher than 80% for digital retailers, that is, the investors never expected digital retailers to generate that much value in the future. It is also

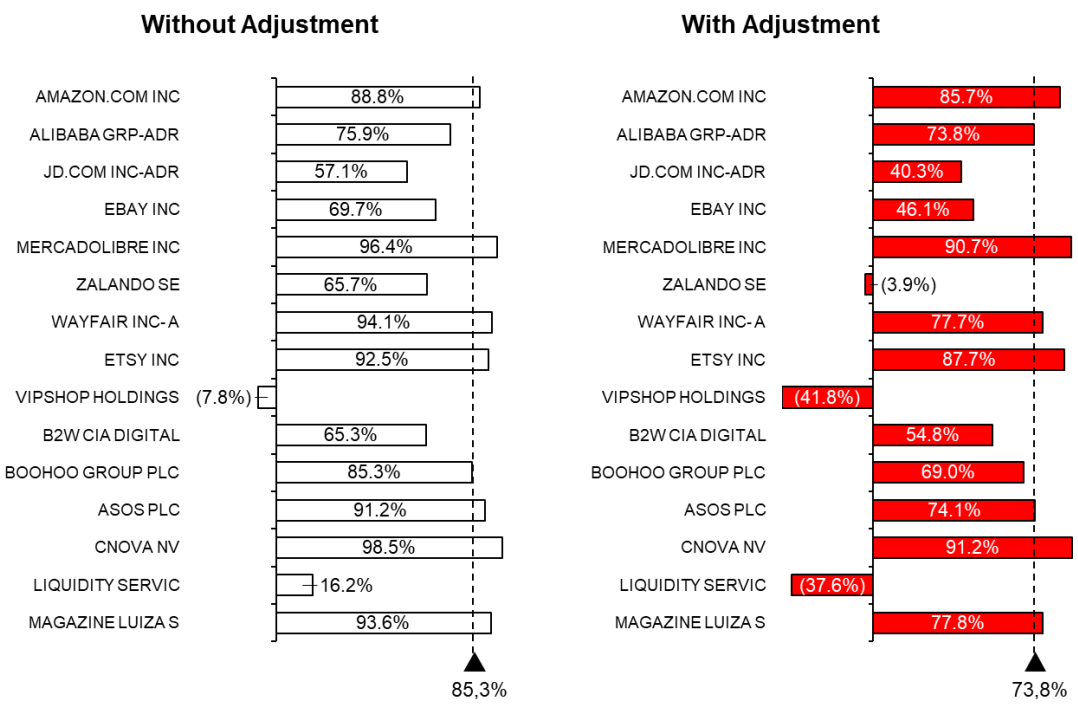
[21] The MVA concept is detailed on page 55

[22] % MVA is calculated as the MVA / Enterprise Value, as detailed in chapter 4.

interesting to note that the percentage, after the adjustment, is in line with the numbers of traditional retailers. So, both segments are expected to generate equivalent value in their lives.

The calculation for each peer is shown in chart 17:

Chart 17 - % MVA by company before and after adjustment (2018)

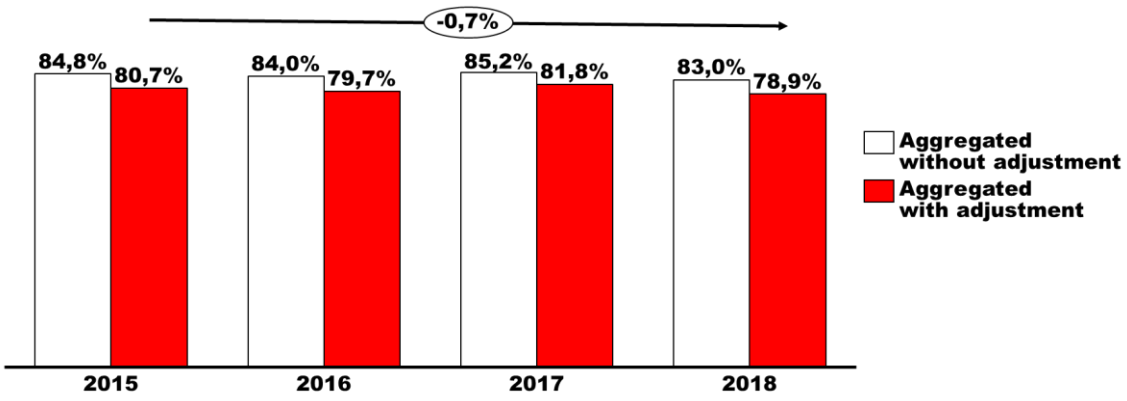


Source: Bloomberg, author calculations

The reduction of each peer is proportional to the amount invested to acquire new users. For some companies, the % MVA is negative. That means that the value of the Invested Capital is higher than the Enterprise Value. Thus, the market analysts do not expect them to generate economic value in its life.

It is also interesting to evaluate the evolution of the aggregated % MVA over the last four years, before and after the adjustment, shown in chart 18:

Chart 18 – Aggregated % MVA evolution (2015 - 2018)

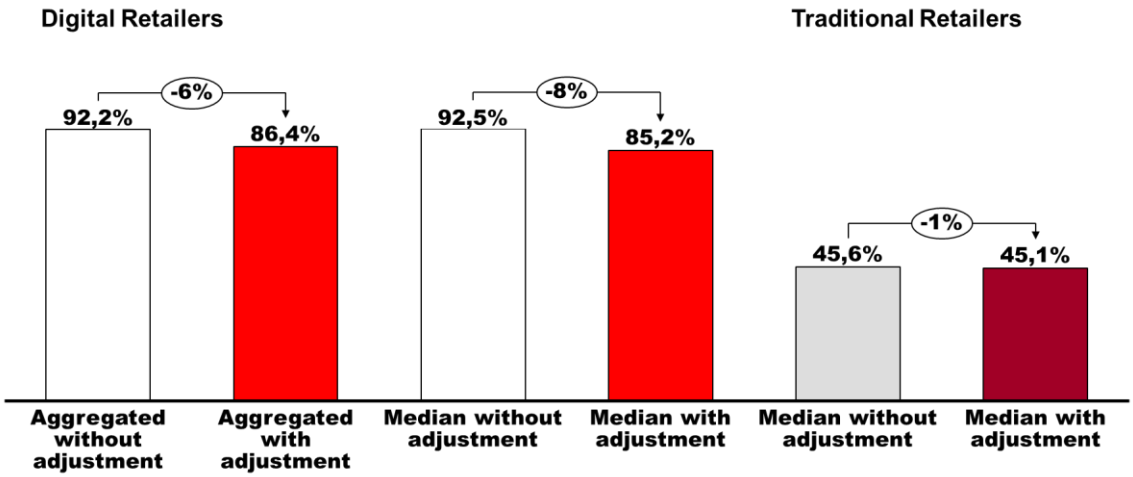


Source: Bloomberg, author calculations

Even though the reduction is not so significative, it shows that market analysts are lowering the value creation expectation of digital retailers over time.

The other important metric to analyze is the % Future Value. As detailed in chapter 4[23], it is the percentage of the Enterprise Value due to future improvement of results, such as revenue growth or operational efficiency gains. Chart 19 present the results.

Chart 19 - % FV before and after adjustment (2018)



Source: Bloomberg, author calculations

This result can be seen in two valid perspectives: the first one is that investors expect digital retailers to generate less economic value in the future. The second one

[23] Page 59

is that digital retailers are currently destroying less value than what was previously thought, as will be detailed in the Spread EVA analysis.

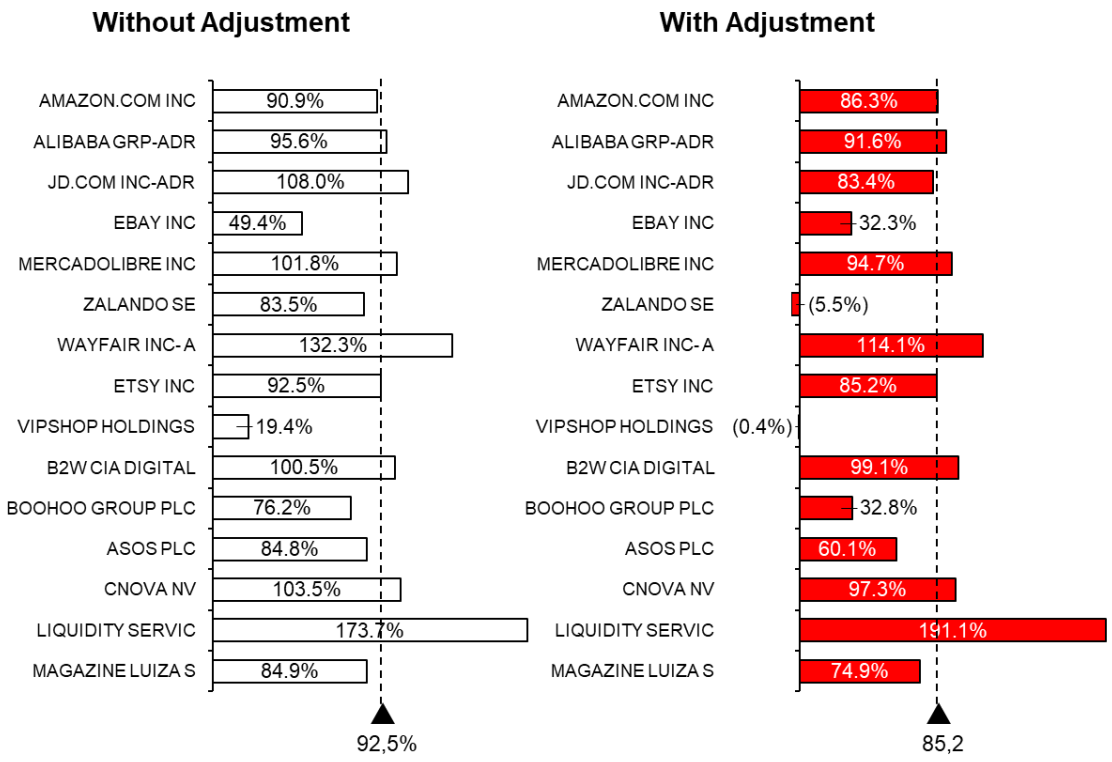
The Future Value of digital retailers after adjustment are still not even close to the Future Value of traditional retailers. While only 45% of the Enterprise Value of traditional retailers are explained by the expectation of future growth and operational gains, around 85% of the value of digital retailers are still based in it.

Associating the MVA results with those, one of the possible conclusions is that investors believe traditional and digital retailers will generate equivalent economic value in the future relative to their Invested Capital. However, digital retailers are expected to do it in a more distant future.

The adjustment had not a major impact in the values of % FVs, but that was expected in a math perspective. Current Value is calculated from NOPAT (formula 4.3.10), so it is affected by both the addition of P&L customer acquisition expenses of the current year and by the depreciation / amortization of investments made in previous years, unlike the EV / EBITDA multiples that are not influenced only by the depreciation / amortization.

The results of each company are detailed below on chart 20:

Chart 20 - % FV by company before and after adjustment (2018)



Source: Bloomberg, author calculations

14 of the 15 companies had a reduction of the Future Value after the adjustment. A quick recap of the formulas clarifies the reason for that.

$$Future\ Value\ (FV) = Enterprise\ Value - Current\ Value \quad (4.3.11)$$

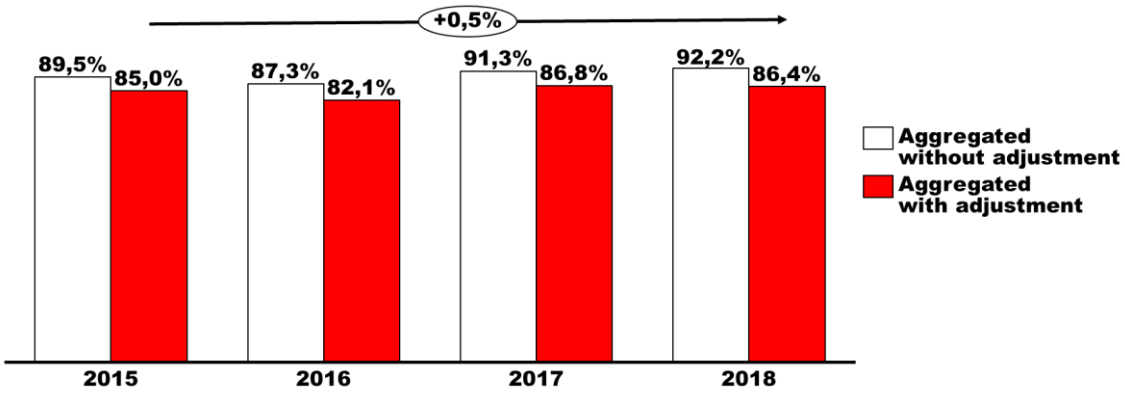
As we assume the Enterprise Value do not change after the adjustment, a reduction in the Future Value can only be explained by a raise on Current Value.

$$Current\ Value\ (CV) = \frac{NOPAT}{WACC} \quad (4.3.10)$$

The Current Value can only raise with a raise in NOPAT, as we assume the cost of capital will not change before and after the adjustment. As detailed in chapter 5, the adjustment has two effects on NOPAT: the addition of the selling expenses, and the subtraction of the depreciation and amortization of previous years. So, if the NOPAT is higher, the selling expenses of the current year must be higher than the depreciation and amortization of the investment made in previous years. That is what happens when the selling expenses raises over the years, a natural fact for growing companies.

The analysis of the evolution of the % FV of digital retailers over the years, shown in chart 21, is also interesting:

Chart 21 - Aggregated % FV evolution (2015 - 2018)



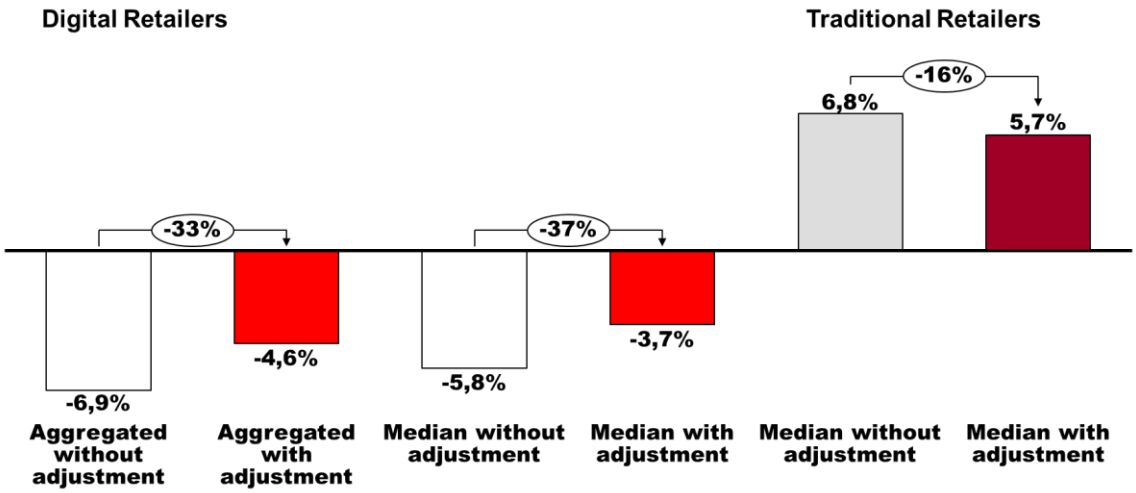
Source: Bloomberg, author calculations

The common sense says that over the years the digital retailers would improve their results. Thus, a higher percentage of their Enterprise Value would be explained by current results, and not expectation of future improvements. Chart 21 shows that it is not the case. One could argue that the raise is not significant enough. However, undoubtedly, the percentages are not going down. So, as shown in chart 18, as years go by, investors are expecting a lower percentage of value creation in the lifetime of the companies. In the other hand, an increasing percentage of the expected value creation is due to the expectation of future improvements.

What about current results? It is already known that the NOPAT of most of digital retailers is higher after the adjustment. But is it higher than the capital charge, so that the companies generate positive economic value? To answer that question the EVA Spread[24] should be analyzed. The results are shown on chart 22:

[24] Detailed on chapter 4, pages 53 and 54

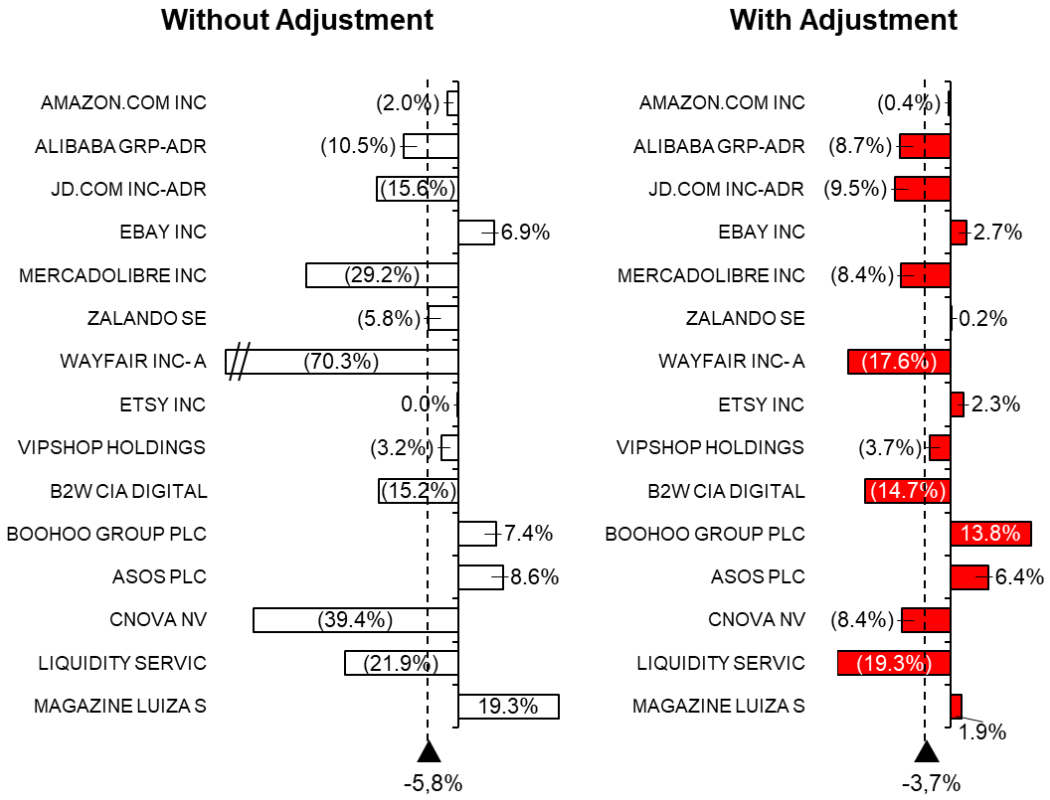
Chart 22 - Spread EVA before and after adjustment (2018)



Source: Bloomberg, author calculations

The economic profit of digital retailers is higher, as predicted. However, most of them are still currently destroying value, as shown in chart 23. That means that most of the digital retailers in this study still does not generate profits high enough to compensate the cost of employing investors' capital.

Chart 23 – Spread EVA by company before and after adjustment (2018)

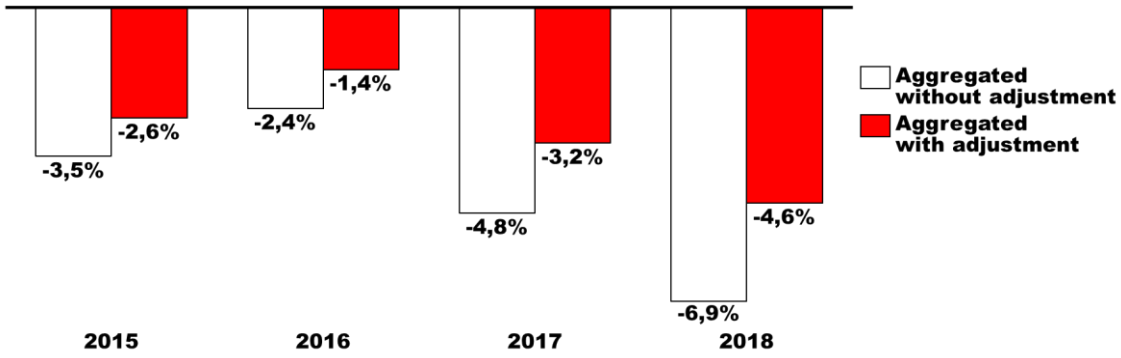


Source: Bloomberg, author calculations

11 out of the 15 companies had a significant raise on their EVA Spread. eBay, Vipshop, Asos and Magazine Luiza didn't have the same result. As the EVA Spread is simply the ROIC minus WACC, and the WACC is unchanged after the adjustment, the only explanation for that is that their ROIC had a reduction. The reasons for that will be detailed further.

Many analysts state that most digital retailers never generated positive economic profit. That affirmative is correct. But are the profits getting higher over the years? To answer that question the evolution of the aggregated EVA Spread from 2015 until 2018 is shown in chart 24:

Chart 24 - Aggregated EVA Spread evolution (2015 - 2018)



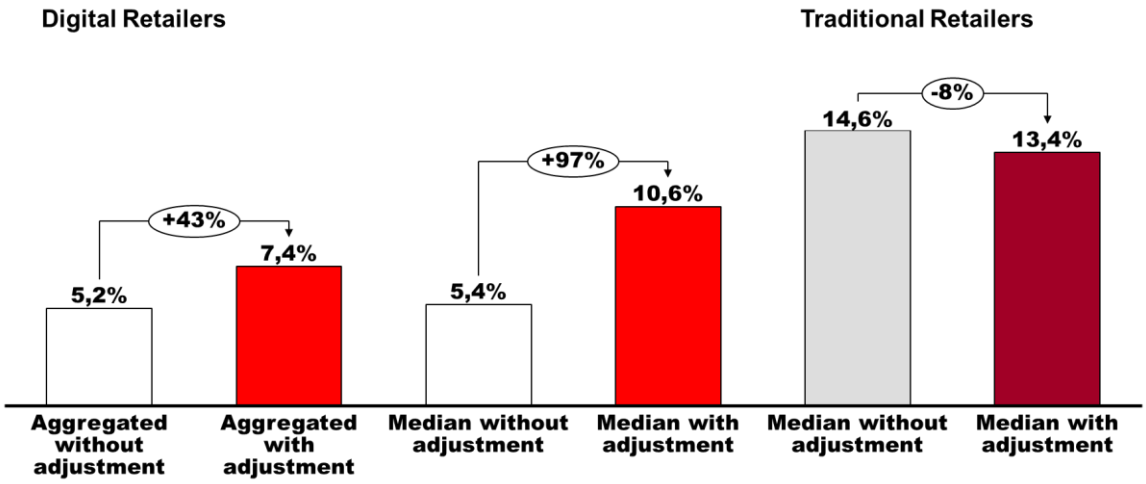
Source: Bloomberg, author calculations

Again, common sense tells that digital retailers should start producing better results over the years. That is not the message transmitted by chart 24. The result should not let investors happy. However, the good news is that, in all the years, the adjustment reduced the value destruction.

To understand the EVA Spread, the ROIC[25] must be analyzed. Chart 25 shows the ROIC of digital and traditional retailers before and after the adjustment:

[25] Detailed in chapter 4, page 52

Chart 25 – ROIC before and after adjustment (2018)



Source: Bloomberg, author calculations

The median ROIC almost doubled after the adjustment, proving that digital retailers have much higher returns over the capital investment than the returns typically calculated by research analysts.

In chapter 4[26], ROIC was defined as the NOPAT divided by the Invested Capital:

$$ROIC = \frac{NOPAT}{Invested\ Capital} (4.3.3)$$

However, it can also be written in a more convenient way for performance evaluation:

$$ROIC = NOPAT\ Margin\ x\ Capital\ Efficiency\ (6.1.1)$$

Where:

$$NOPAT\ Margin = \frac{NOPAT}{Revenue}\ (6.1.2)$$

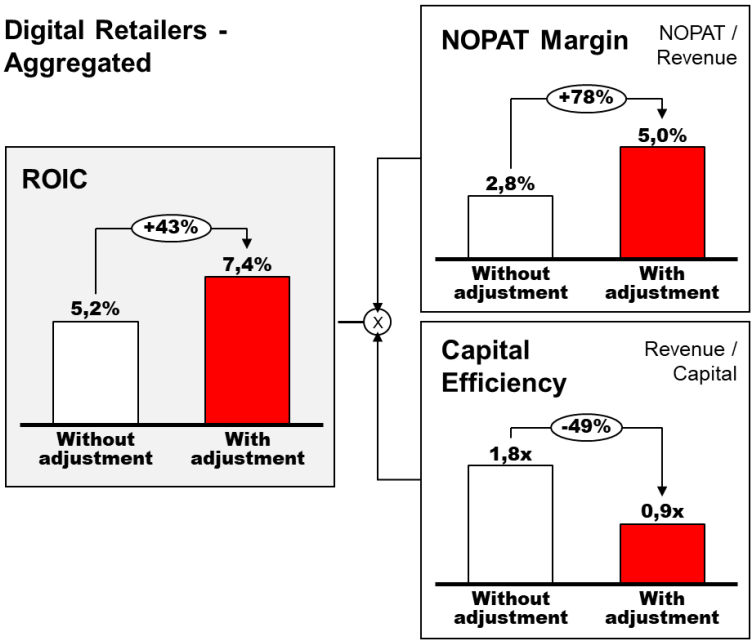
$$Capital\ Efficiency = \frac{Revenue}{Invested\ Capital}\ (6.1.3)$$

Note that the revenue cancels in the multiplication of formula 6.1.1, deriving the same components of formula 4.3.3. The idea of formula 6.1.1 can be used in a chart

[26] Page 52

format to evaluate the ROIC of digital retailers before and after the adjustment in detail. Chart 26 shows the ROIC tree for both cases:

Chart 26 - ROIC tree - digital retailers (2018)

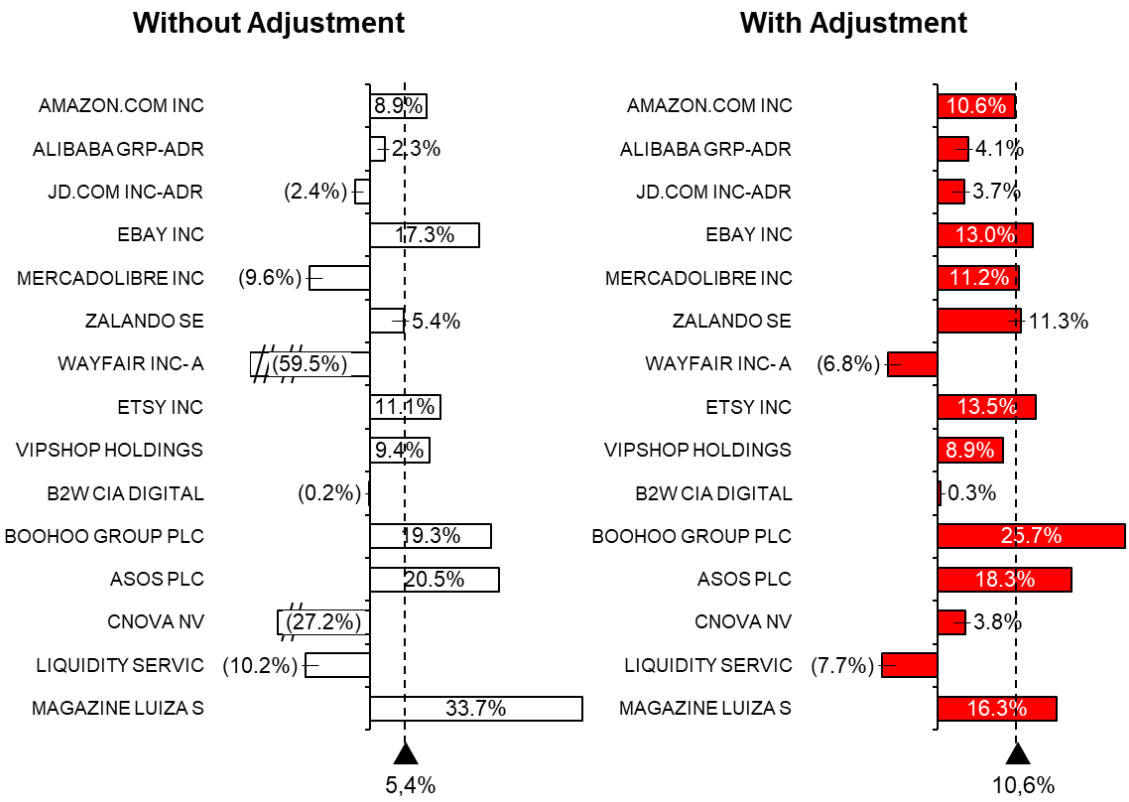


Source: Bloomberg, author calculations

The adjustment has two effects: the raise in NOPAT margin, and the loss of capital efficiency. The raise in NOPAT is explained when the spend in customer acquisition of the current year is higher than the depreciation / amortization of the spend in previous years, as detailed before in this chapter. The loss of capital efficiency is easier to justify: as the customer acquisition spend is being capitalized over the years, the invested capital tends to have higher values. Thus, as the revenue is constant, the capital efficiency becomes lower. Even though, the gain of NOPAT Margin exceeds the loss of capital efficiency, resulting in a significant ROIC raise.

The ROIC of each peer is detailed in chart 27:

Chart 27 – ROIC by company before and after adjustment (2018)



Source: Bloomberg, author calculations

Just like the EVA Spread, 11 of the 15 companies had a raise in their ROIC. In the case of eBay, Vipshop, Asos, and Magazine Luiza, the NOPAT Margin gain was not sufficient to compensate the loss in capital efficiency.

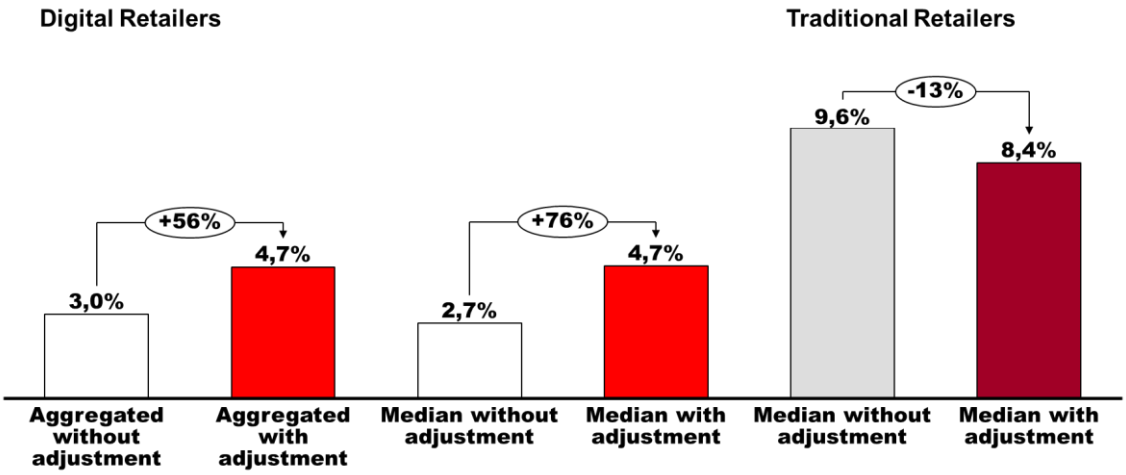
All the financial metrics calculated before, such as the EVA ®, MVA and Future Value, have at least an influence of the ROIC. Thus, other return measures should be calculated to evaluate the impact of the adjustment. Two of the return measures are the Return over Assets and Return on Equity. Both will be detailed.

The return on assets (ROA) of a firm measures its operating efficiency in generating profits from its assets, prior to the effects of financing.

$$ROA = \frac{NOPAT}{Total\ Assets} \quad (6.1.4)$$

Where Total Assets refers to the assets as measured using accounting rules - that is, using book value (BV). The ROA of both digital and traditional retailers are shown in chart 28:

Chart 28 - ROA before and after adjustment (2018)



Source: Bloomberg, author calculations

Not surprisingly, the ROA of digital retailers had a significant raise after the adjustment. Just like ROIC, ROA can be broken down into two components: NOPAT Margin and Asset Turnover:

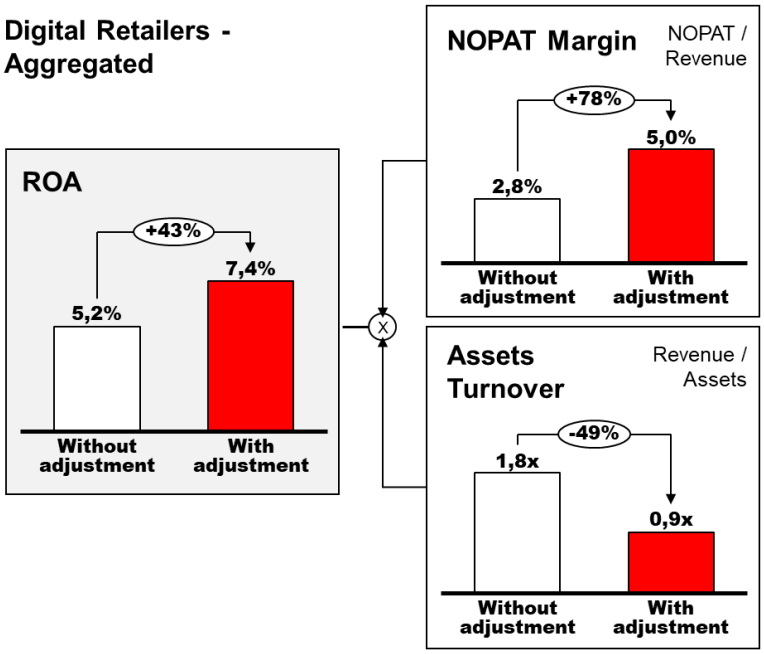
$$ROA = NOPAT\ Margin\ x\ Asset\ Turnover \quad (6.1.5)$$

Where:

$$Asset\ Turnover = \frac{Revenue}{Total\ Assets} \quad (6.1.6)$$

The ROA Tree is shown in chart 29:

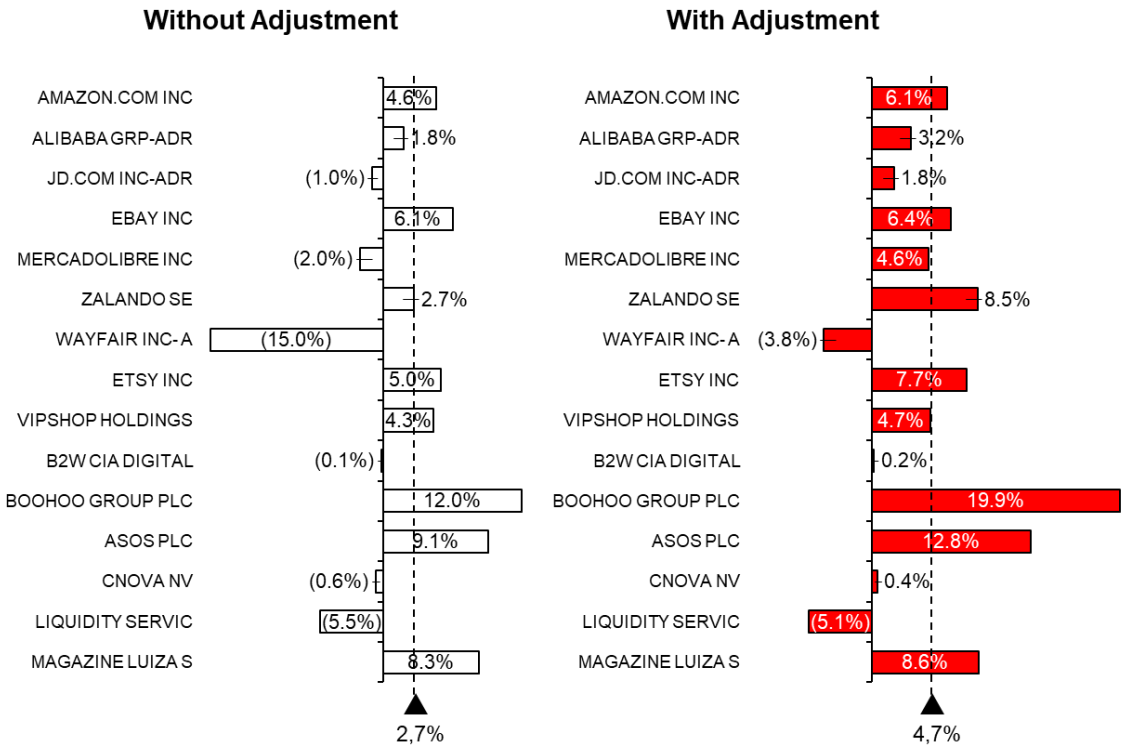
Chart 29 -ROA tree - digital retailers (2018)



Source: Bloomberg, author calculations

Similar to the Capital Efficiency, the Assets Turnover was lowered after the adjustment. However, that was compensated by one high raise of the NOPAT Margin. Chart 30 shows the ROA of each peer.

Chart 30 - ROA by company before and after adjustment (2018)



Source: Bloomberg, author calculations

As all companies had a raise in ROA, which means that the NOPAT Margin raise was higher than the reduction of Assets Turnover in all the cases.

The final return measure to be evaluated is the Return on Equity (ROE). While the return on capital measures the profitability of the overall firm, the return on equity (ROE) examines profitability from the perspective of the equity investor, by relating the equity investor's profits (net profit after taxes and interest expenses) to the book value of the equity investment. (DAMODARAN, 2012)

$$\text{Return on equity} = \frac{\text{Net income}}{\text{Book value of common equity}} \quad (6.1.7)$$

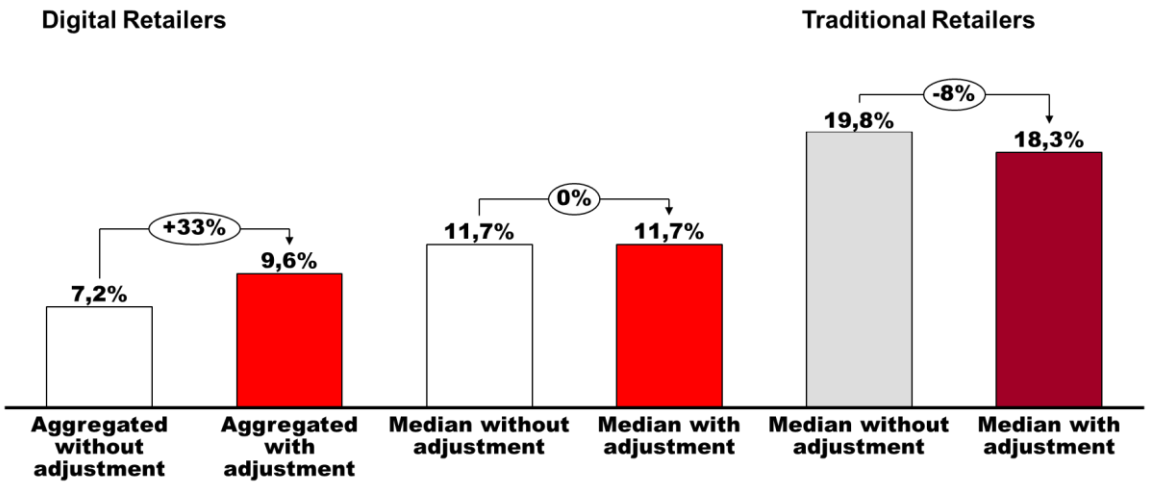
Note that, to calculate ROE, the Net Income is used. In the other hand, to calculate the ROIC and ROA, the NOPAT is used. That happens because both Invested Capital and Assets are financed by a combination of debt and equity. Thus, the profit of the calculation should remunerate both debt and equity investors and should be calculated before the payment of interest expenses, just like the NOPAT. In the other hand, ROE should be seen from the perspective of the equity investor. So,

interest expenses should be subtracted, and the Net Income, the “investors’ profit”, should be considered.

Also, since preferred stockholders have a different type of claim on the firm than do common stockholders, the net income should be estimated after preferred dividends, and the book value should be that of only common equity.

The ROE for both digital and traditional retailers was calculated in chart 31:

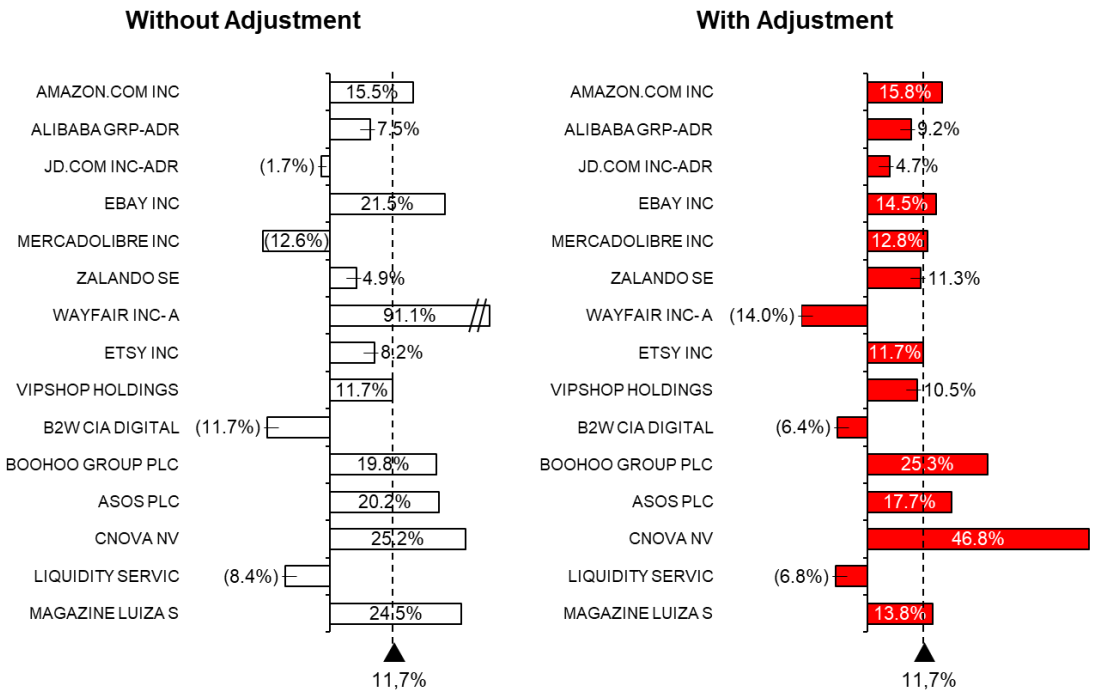
Chart 31 - ROE before and after adjustment (2018)



Source: Bloomberg, author calculations

The adjustment seams to not have affected the ROE from the median perspective. However, as chart 32 shows, 10 out of the 15 companies had a raise in their returns. The median is the same because companies like Wayfair and Vipshop, that had values above the median before the adjustment, coincidently suffered reductions on their returns. That shows the importance of showing the results with two different perspectives. Thus, overall, the adjustment also raised the ROE of digital retailers in most cases.

Chart 32 - ROE by company before and after adjustment (2018)



Source: Bloomberg, author calculations

So, in conclusion, the adjustment had a major impact on the multiples EV / EBITDA. That does not mean that digital retailers' value less, only that those companies never had such high EV / EBITDA multiples. As the % MVA had a reduction, it's also important to note that investors never expected digital retailers to generate that much value in the future. The % Future Value had a small reduction, and clearly investors expect digital retailers to generate value in a more distant future. And, over time, investors expect digital retailer to generate value in an even more distant future. The economic profit of digital retailers is higher after the adjustment, as predicted, as the return metrics had a significant raise. However, most of them are still currently destroying value.

7. CONCLUSION

In the first chapter, the 5 main objectives of this study were presented:

a) Analyze the current performance and financial metrics of digital retailers;
b) Discuss the problems of accounting rules for the segment;
c) Propose one adjustment to reflect their true performance;
d) Analyze how much of the high multiples are explained by value creation expectation, and how much is explained by one accounting problem;
e) Analyze financially digital retailers and compare the results before and after the adjustment with traditional retailers.

The current performance of digital retailers was first discussed in chapter 4. The EV / EBITDA multiples of digital retailers were compared to the much lower multiples of traditional retailers. One of the main conclusions is that most of the digital retailers are not creating economic value in 2018. However, mostly because of network effects and optionality, investors have good reasons to believe that those companies will generate value in the future.

Also, in chapter 4, the idea that accounting metrics fail to deliver economical metrics for companies with intangible investments was deeply discussed. The investment in acquiring new customers is considered an Operating Expense, while its nature is of a Capital Expenditure. This fact creates many distortions when evaluating financially e-commerce companies, and even more marketplaces.

In chapter 5, the adjustment to fix those distortions was proposed. Part of the investments in customer acquisition, categorized as OpEx by accounting rules, were transformed into CapEx.

In chapter 6, the financial results before and after the adjustment was presented. It had major impact on the multiples EV / EBITDA. Both results (aggregated and median) had enormous reductions even reaching multiples lower than the ones of traditional retailers in the second case, showing that the hypothesis that the multiples are high due to one metric problem is valid. That does not mean that digital retailers' value less, only that those companies never had such high EV / EBITDA multiples.

And it does not invalidate the hypothesis that investors expect digital retailers to generate more value in the future. To investigate the second hypothesis, other financial measures were analyzed, such as the MVA, FV, EVA ® and return measures.

The percentage of the MVA relative to the Enterprise Value had a small reduction after the adjustment, showing that investors in fact expect digital retailers to generate less value on their life. It is also interesting to note that the percentage, after the adjustment, is in line with the numbers of traditional retailers. So, both segments are expected to generate equivalent value in their lives. The difference is that the percentage of Future Value compared to the Enterprise Value had a small reduction but is still much higher for digital retailers. So, investors believe digital and traditional retailers will to generate equivalent value in their lives, but digital retailers will perform that in a more distant future. Thus, the hypothesis that investors expect e-commerce companies to generate value in the future is too valid.

Finally, the economic profit and return metrics of digital retailers were also compared. The economic profit is higher after the adjustment, as predicted, as the return metrics had a significant raise. However, most of the companies are still currently destroying value.

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