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Title of the Master's Thesis:

**Low EV/EBITDA multiple: market
inefficiency or a hidden potential for
Fortuna Entertainment Group?**

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D e c l a r a t i o n o f A u t h e n t i c i t y

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Prague, August 29, 2016

Signature

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Low EV/EBITDA multiple: market inefficiency or a hidden potential for Fortuna Entertainment group?

Abstract:

This thesis was initiated with Penta Investment as a reaction on the significant difference in EV/EBITDA multiple of Fortuna and its peers – European listed betting and gaming companies. It seeks to find the reason for more than twice higher multiple and a possibility to increase it by applying best international practices in case there is a feasible way to do it for Fortuna. Three hypotheses address the possible reasons for the difference: peers' incomparability, market inefficiency and opportunity for Fortuna to increase the multiple by bringing the most influential KPIs the average level of its peers. The analysis is done with a help of comparative analysis, benchmarking, regression analysis and interviews of equity analysts. As a result, action plan for increasing EV/EBITDA multiple for Fortuna is developed.

Key words:

EV/EBITDA multiple, Key Performance Indicators, benchmarking

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Introduction

Every company trades within a certain multiple range usually connected to its business model characteristics and expectations for profit growth. Usually faster-growth industries such as technology and health care tend to trade at higher multiples than slower-growth industries such as industrial manufacturing. It is important to understand what if the fair multiple of a company and whether there is a space for improvement if multiple doesn't reach the level of its peers and is traded with discount.

The topic of this master's thesis was initiated by Penta Investment as a reaction on the significant difference in EV/EBITDA multiple of Fortuna and its peers – European listed betting and gaming companies. It seeks to find the reason for more than twice higher multiple and a possibility to increase it by applying best international practices in case there is a feasible way to do it for Fortuna.

Therefore, I have stated the main question of the paper as: *What causes EV/EBITDA multiple of Fortuna to be constantly on average lower than its peers'?*

To answer the question, I have formulated 3 hypotheses:

Hypothesis 1: *Different multiples are caused by incomparability of the peers and the environment of their operations*

Hypothesis 2: *Czech stock market is not efficient, therefore Fortuna stock undervalued and EV/EBITDA is low*

Hypothesis 3: *Fortuna Key Performance Indicators (KPIs) are worse compared to the peers and there is an opportunity for their improvement, which can lead to increased EV/EBITDA multiple for Fortuna*

In order to test the hypotheses, the following methodology will be used. For the first hypothesis, stating that the difference in EV-EBITDA is caused by incomparability of the markets I will be doing a comparative analysis of the regulatory environment, demand for gaming and betting products dependent on GDP per capita and disposable income of the population. For this purpose, I will be using the data from governmental statistical

organizations in public access. In order to test the second hypothesis, I will be gathering data in a form of structured face-to-face interview. Benchmarking approach will be applied for testing the Hypothesis 3. To examine the hypothesis, first, I will identify which KPIs are driving the multiple within gaming and betting industry. To do so, I will run a regression analysis on the dataset of pre-determined KPIs for nine peer companies gathered for the period of five years: 2011-2015. Therefore, we will be able to identify which KPIs correlate with EV/EBITDA multiple the most out of the set of pre-selected indicators. The process of choosing initial KPIs will be described in the chapter Data. To determine if selected KPIs make a significant difference in EV/EBITDA, we would like to see whether the variable can be explained by the selected KPIs. As a result, this is a dependency relationship and therefore multiple regression model can be used.

1 CORPORATE FINANCE BACKGROUND

1.1. EV/EBITDA multiple

Like all multiples EV/EBITDA is just a measure of the value placed on a company by the market. EV/EBITDA is affected by the capital intensity of a business — investors should not be willing to pay much for EBITDA where most is used to replace fixed assets.

Every company trades within a certain multiple range usually connected to its business model characteristics and expectations for profit growth. Usually faster-growth industries such as technology and health care tend to trade at higher multiples than slower-growth industries such as industrial manufacturing.

Enterprise value (EV) which is a part of the multiple, also known as firm value, reflects the market value of an entire business. It represents the sum of investor claims on the firm's cash flows from all stocks, common shareholders and minority shareholders. It is calculated as the market value of the firm's common equity plus long-term debt, preferred stock, and minority interest and subtracting cash and cash equivalents. The minority interest and preferred equity are often effectively zero, although this does not need to be the case (Investopedia.com, 2015), (see the equation). Thus measured, the EV represents what an acquirer would have to pay for the target's common and preferred equity as well as the cost of assuming the responsibility to repay the target's debt while retaining its cash (DePamphilis, 2014, p. 232).

Enterprise Value – Market Value of Equity + Market Value of Preferred equity + Minority interests + Market Value of Debt – Cash & Cash Equivalents

1.2 EV/EBITDA application in relative valuation

In relative valuation, we focus on valuing of asset by examining at how the market prices similar assets. According to A. Schreiner (2007), the multiples valuation method consists of four steps:

1) *Selection of value relevant measures:*

Market price variable and value driver such as P/E ratio, EV/EBITDA multiple or others. For the purpose of the paper in the practical part we will be using EV/EBITDA multiple as a value driver in order to value Fortuna Entertainment Group.

2) *Identification of comparable firms:*

According to the shareholder value concept of Rappaport, the peer group should represent a basket of firms or corporate transactions, whose profile of expected future free cash flows is comparable to the target firm's profile (Rappaport, 1981). Moreover, Palepu, Healy & Bernard require comparable to have similar operating and financial characteristics as the firm being valued (Palepu, Healy & Bernard 2000). Peer group of companies should emanate a certain degree of similarity to the target company, in terms of key factors such as size, growth prospects and profitability (Ernst and Häcker, 2012). The higher the degree of similarity between the peer group and the target company, the more accurate the valuation can be done. Thus, the following criteria for choosing ideal peers can be identified:

- Industry
- Location / Macroeconomic environment
- Product mix
- Size
- Performance criteria (growth, profitability etc.)

3) *Estimation of synthetic peer group multiples:*

In this step peers' multiples values have to be aggregated into the synthetic peer group multiple, $\hat{\lambda}_{c, \text{mean}}$ using the arithmetic mean (i.e., the average) of the multiples $\lambda_1, \lambda_2, \dots, \lambda_n$ of all firms $j = 1, 2, \dots, n$ of the peer group c:

$$\hat{\lambda}_{c, \text{mean}} = \frac{1}{n} \cdot \sum_{j=1}^n \lambda_j$$

Importantly, arithmetic mean should not be used as it is an inaccurate choice for the estimation of synthetic peer group multiples because it is heavily affected by outliers (Pratt,

Reilly & Schweihs 2000). Therefore, we have to examine alternative statistical measures for the aggregation of peer group firms' multiples, such as the median or the harmonic mean.

4) *Application of peer group multiple to the corresponding value driver of the target firm:*

In order to complete the valuation itself, the product of the synthetic peer group multiple, $\hat{\lambda}_{c,t}^{entity}$ and the value driver $x_{i,t}$ must be reduced by the value of net debt, net debt $\hat{p}_{i,t}^{net\ debt}$ of firm i to get, $\hat{p}_{i,t}^{equity}$

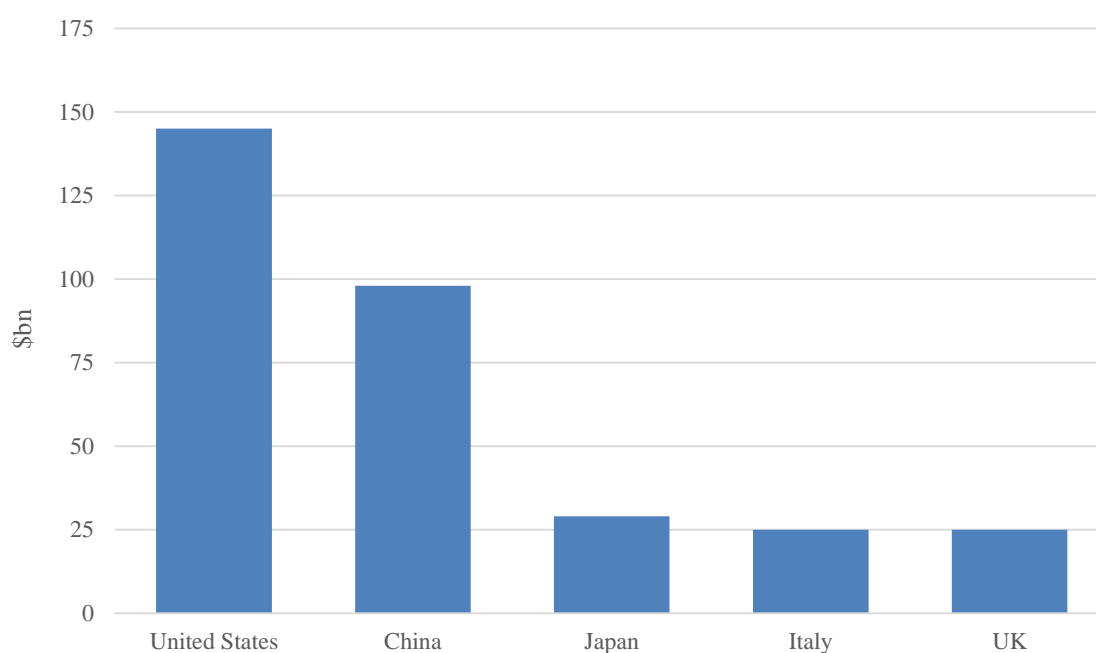
$$\hat{p}_{i,t}^{equity} = \hat{\lambda}_{c,t}^{entity} \cdot x_{i,t} - \hat{p}_{i,t}^{net\ debt}$$

In both equations, t denotes time. This denomination requires that both the synthetic peer group multiple and the value driver refer to the same point in time or time horizon (Löhnert & Böckmann 2005, p. 416).

2 BETTING / GAMING INDUSTRY

Gaming and betting is a rapidly growing industry, which is expected to further grow mainly due to the increasing demand for online services leading to cooperation between landline operators and online service providers. Global gaming revenue in 2015 was at \$423 billion and only 35% of it was from land based casinos. Lotteries accounted for 29% at \$121 billion, with what the report terms “other gambling” such as sports betting and racing as the next biggest chunk at \$118 billion or 28% and online gambling at \$37 billion or 9%. (Morgan Stanley’s report). The overall market is expected to grow CAGR of 3.2% to 2018 while online gaming is believed to grow at a CAGR of 8.7% (H2 Gambling Capital). In 2014 world’s biggest betting market was United States reaching 140bn. USD followed by China (90bn. USD), Japan, Italy and UK, each reaching near 25 bn. USD.

Graph 1: World's five biggest betting markets (Money lost on gambling in 2014)



Source: H2 Gambling Capital, Thomson Reuters (2014)

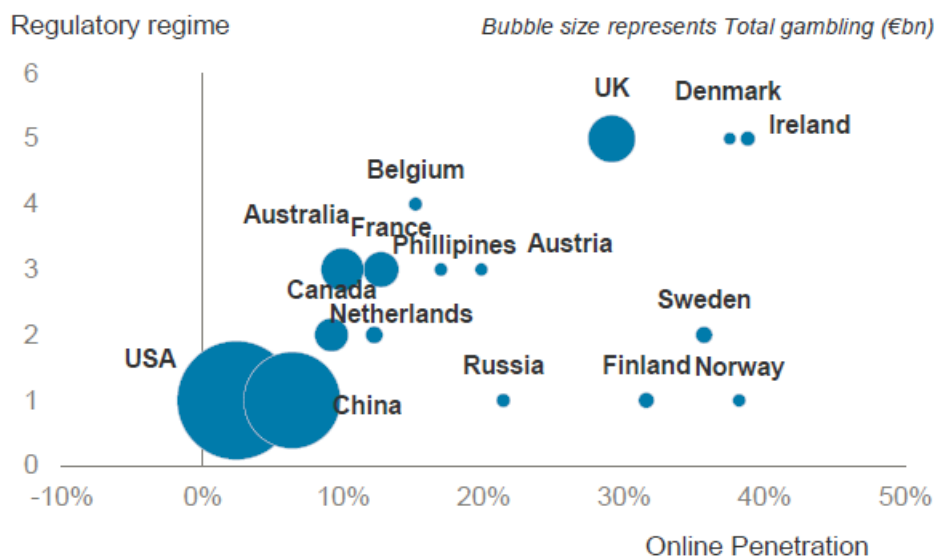
In Europe, the fragmentation of the region into separately licensed jurisdictions has made the scale of e-gaming businesses important as they try to cope with the increased regulatory, tax, and operational costs of holding multiple licenses across the continent (GBGC, 2013). Continuing this trend, 2015 was a year of the increasing industry consolidation driven by a regulatory change in the UK and other countries. Among the big deals are £2.3bn tie-up between Ladbrokes and Gala Coral in July, a £6bn merger of Betfair

and Paddy Power in August, and GVC's £1.1bn (\$1.5bn) acquisition of Bwin.party in September (bbc.com). The size of the online gambling market is different among the Europe. In Austria, Denmark, Finland, Ireland, Sweden and the UK online gambling already constitutes 20% or more of the overall gambling market.” (H2 Gambling Capital)

2.1. Online gaming

Online gaming is currently reaching 35 billion EUR out of which only 46% (19bn EUR) is a regulated market (betting and gaming is allowed by government for service operators holding a license and paying gaming tax). Over one-third of gambling is online in more mature markets. The highest share of online gaming is found in Ireland and is reaching 40% out of the total gaming in the country. EBITDA margin in the sector is high and currently reaching on average 20%, moreover it can be noticed, that the higher is the scale of the company, the higher is EBITDA margin (Morgan Stanley report). Marketing spend is also quite high, reaching on average 24% for the main European players.

Graph 2: Online gambling - Significant upside as regulations evolve



Source: Morgan Stanley report (2016)

2.2. Characteristics of the betting / gaming market:

Retail

Due to the increasing trend of digitalization many land-based businesses are moving online and gaming and betting industry is not an exception. However, retail still holds a very significant portion of global revenues from both gaming and betting. It includes sports-betting provided via land-based shops and brick-and-mortar casinos. For some operators, which were founded long before the era of digitalization, Retail remains a substantial part of the business due to historical reasons and still proves to be a significant source of revenues. Moreover, physical presence on the street can be proved to be a good strategy for Segmentation by channels securing a significant market share and building brand awareness through physical contact with a customer.

Online (desktop and mobile)

For other operators – entering the market solely via online channel ensured faster growth supported by the absence of costs connected with tangible assets (mainly rent) and therefore an opportunity to invest into expanding its operations and reaching for a broader audience online.

Within online channel we can also define Mobile sub-channel, which is increasingly growing with the trend of multi-screen. According to a research 87% of consumers use more than one device at a time. Globally, the smartphone is the most frequent companion device scoring 57% overall (Accenture). Biggest gaming companies have picked-up the trend and are offering betting and gaming products via mobile, which share in some cases reaches up to 60% (annual reports of Ladbrokes, Ladbrokes, William Hill) of all Online revenues of a company.

Omni-channel

It is also important to mention, that Retail and Online channels are becoming highly interconnected. Land based gaming companies use their online presence for improving brand recognition, player loyalty and use cross-selling strategy between the channels. As a result, gaming companies operating through the both channels create so called “Omni-channel” – a solution enabling a customer to play offline and online using a single account.

According to the research of Ficom Leisure Advisory & Investments using Omni-channel increases customer value (income per player) 1.7–2 times, increases customer life time value, retention and loyalty by 30% and reduces customer acquisition costs by 50% (C. Tirabassi and E. M. Hermo, 2013).

Telephone

Besides the stated categories of retail and online there is a smaller segment of Telephone channel, which is used mainly for providing sports-betting products. For instance, this channel accounts for 0,5% of Revenues for a global betting and gaming operator Ladbrokes, which uses this channel for so-called “high-rollers” - gamblers who wager large amounts of money.

2.1.1 Segmentation by products

On the first glance terms “gaming” and “gambling” might seem to be interchangeable, what is not exactly the truth. To avoid confusion of the terms let me define them more precisely.

According to King D.L. and Gainsbury S.M. (Distinguishing between gaming and gambling activities in addiction research) gaming is principally defined by its interactivity, skill-based play, and contextual indicators of progression and success. In contrast, gambling is defined by betting and wagering mechanics, predominantly chance-determined outcomes, and monetization features that involve risk and payout to the player (King D.L., Gainsbury S.M., 2015). In other words, game or enterprise is legally considered to be gambling if luck and chance predominate over skill.

To better understand gambling and betting industry let me outline the product segments and their main specifics. Each product has its own business models and technology and can be offered through retail, online or both.

Sports Betting

Sports betting is a form of gambling including betting on sporting events such as games, horse races, dog races, etc. It entails placing a wager, so called bet (or amount staked), on the result of a sporting event. Bet has to be placed before the start of the event. The primary reason of a player to participate sports betting is to win money. In case that a player guesses the outcome of the sporting event correctly – it wins amount of money calculated by multiplying the initial bet by a coefficient stated by a betting company for each sporting

event. Sports betting can be offered through all channels: retail (so called OTC – Over-the-counter), online (incl. mobile apps) and telephone channels. Some operators offer Live sports betting, which provides an opportunity for players to bet during a game. Sports betting is a product with the smallest profit margin among the products. On average, it reaches 15% of a bet placed by a customer (expert opinion).

Lottery / bingo

I placed those products under the same category as they are similar in their nature and represent purely a game of chance. Bingo can be offered online by providing a possibility for players to participate by guessing “lucky numbers” prior to the stated date. In retail lottery tickets are provided in a form of Instant Games, so-called scratch-off tickets, while on-line lottery games consist of computer-generated tickets. Some of gaming operators define lottery as a separate segment while others refer to it as to a part of gaming.

Online Gaming (poker and casino)

The online gaming includes online poker and online casino games such as online slots, blackjack, table games, roulette and many others that cannot be found in a usual casino. Online poker works in a way it does in the land-based version, provider takes a commission from wagers. It may be less risky than other casino games.

Land-based casino and slot machines

I have separated this category of products from Poker and Casino products offered online as those type of products are usually offered and operated separately by different companies, which are out of the scope of this paper. However, some of the major gaming and betting companies to be studied in this paper have slot machines among offered products.

2.1.2 Important accounting definitions

For the purpose of the future research it is necessary to specify the terms used for the assessment of the financial situation of gaming and betting companies:

Amounts staked – is amounts received from customers in respect of bets placed on sporting or other events. This term is mainly applicable to sports betting.

Handling fee – a fee usually calculated as a percentage of amount staked and paid by customer for the transaction fulfillment in the retail shop or less frequently online. Handling fee collection can be either required by a regulator or introduced by company voluntarily. In some countries, for example Slovakia, handling fee is not collected by operator from the final customers but must be paid to a regulator in a form of 6% tax from Amounts Staked base.

Gross win – amounts staked less customer winnings plus commission - the amount of money lost by a customer.

Gaming tax – gambling tax is a tax specific for betting and gaming industry. It is calculated as a percentage from Revenues and is stated by each country regulator. Gaming tax can vary for different segments of products.

Bonus costs – usually represent a part of Marketing spend on customer retention by providing a bonuses or free games for new or existing players.

Revenues (net revenues) - represents Gross Win less Bonus Costs (promotional bonuses), Gaming tax for sports betting and net winnings for online casino gaming activities.

Active players – customers who have deposited real money and have bet at least once in the measured period (usually a year). Compared to registered players, who have just completed a registration in a system, active players represent an important indicator of a company performance. Even though it is not a financial metric, it is one of the key metrics in gaming worth our attention.

2.1.3 Regulations and taxes

Governmental regulation and legislations are the factors, which have a big influence on betting and gaming industry. The “four phases” development theory of internet regulation was developed by John Palfrey. They are the "open internet" period, from the network's birth through about 2000; "access denied", which can be interpreted as a ban of any gaming and betting in a country, "access controlled," through the present day and "access contested," the phase into which we are entering (Palfrey, 2010). Every country is going through those phases individually and while some have already reached the “access controlled” or “access contested” phases, in others online gaming and betting is still banned – “access denied”.

For a gaming industry to remain healthy regulatory sector has to be well-settled and technologically savvy. According to The entertainment industry sphere that includes betting, games of chance and gaming machines has not been subject to harmonization at the European Union level and competency remains with EU Member States when it comes to defining the conditions for the pursuit of activities in the sector. Currently Europe is creating an increasing number of new regimes that permit licensed and regulated betting, notably through interactive platforms (EGBA, 2013). Some governments are considering the liberalization of the betting and gaming market due to the inefficiency of applied limitations and bans. In most of the cases government decides to regulate gaming and betting industry in the country in order to achieve specific goals. One of the primary reasons for government to introduce stricter regulation on remote gambling is to minimize problem gambling that might appear because of the possibility for high-stakes gambling is constantly available via online. Moreover, social goals like protecting the public against dishonest games or creating the conditions for players to always get paid if they win are some of them also play a role. However, very often the goals are financially driven. By regulating the industry, the government is often looking to gather additional taxes or to capture the fair part of the gaming market by itself by creating monopoly conditions.

Even though regulating the industry may seem prospective for both government and local companies seeking for an opportunity to provide the services legally many countries including some of the biggest potential markets—such as the China, U.S., South Korea or Japan still prohibit most of the forms of online gaming. Therefore, unregulated global betting sector, especially in Asia, is understood to be many times larger than the regulated sector.

2.1.4 Online gaming regulation models

According to The Interactive Gaming Council (IGC, 2012) there are three ways for a government to switch from prohibitive state of gaming in the country and to enter into online gaming: monopoly, hybrid and regulated models.

Monopoly:

In case betting and gaming corporation is the only provider of product in its country or jurisdiction, monopoly model is taking place. Under this model, government agency has to be able to build software and games to capture an appropriate percentage of the market

from the bigger and more established operators. The IGC submits that careful attention should be paid to the reversals of several European countries that have abandoned the monopoly model because it failed to capture a significant percentage of the global gaming revenue or provide adequate player protections, due to the ongoing existence and popularity of more established non-local operators (IGC, 2012). In case of monopoly, in order to maximize revenue, government has to put competition out of market and therefore is forced to apply strict regulation. However, such enforcement can be extremely costly and does not ensure success.

Hybryd:

Hybryd model represents a way of entering online gaming environment where online gamblers have a possibility to choose gaming operators and products. However, lottery corporation still maintains control and providers must be screened and accepted. Lottery corporation could also offer its own products together with games of non-local operators. Hybryd model, for example, exists in Canada where only a small number of lottery corporations managed to launch their own online games while operating on the open market. The main reason for that is inability of smaller provincial operators to compete due to losing out on the potential tax revenue and not generating sufficient level of interest or remuneration.

Regulated:

This model is applied by governments who are willing to regulate online gaming to protect customers and to generate financial income through taxes. It allows government regulator to collect gaming tax from nearly 100% of the operators. Among the advantages of this model is that it protects customers and offers to economic benefits such as jobs and investments from global technology companies, taxes, licensing fees, and potential revenue sharing. Moreover, it offers a high degree of transparency by providing access to higher amount of information through digital domains what makes it easier to audit and control it (IGC, 2012). Regulated model is currently present in the United Kingdom, Italy, France, Denmark, Spain, Estonia, Belgium and the list of counters willing to move from prohibitive to a regulated model supporting online gaming responsibility is constantly growing.

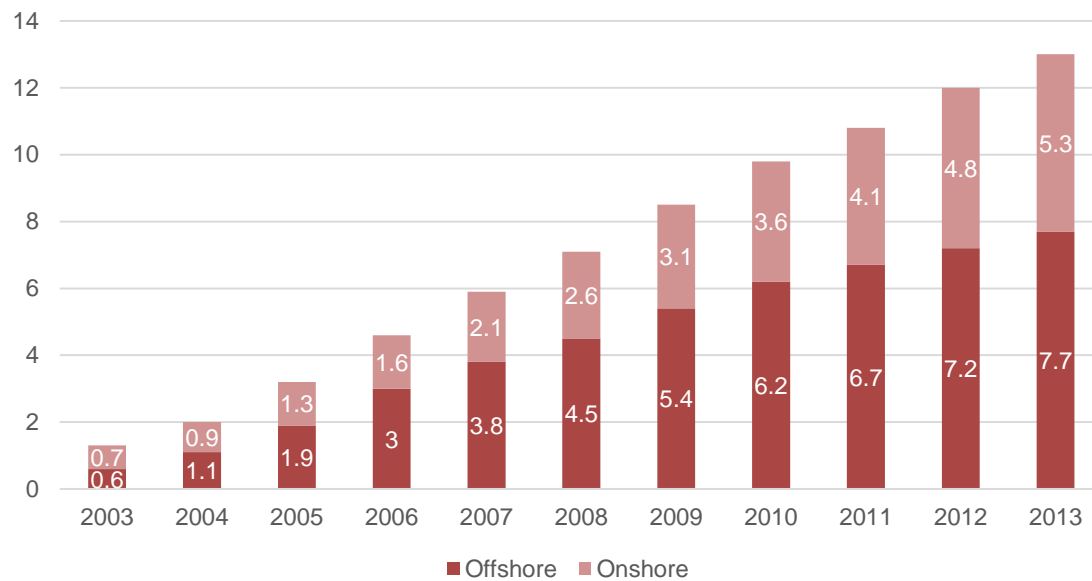
a) Offshore Online Market

Regardless some governments are liberalizing gaming environment and allowing gaming and betting companies holding a local gaming license to operate on the market, offshore market exists on most of the markets. Since the inception of online betting and gaming 15 years ago, it became easier for the companies to access broader customer audience by crossing international borders via internet. Companies, which grew faster found their local markets saturated and started targeting markets where gaming was either considered a grey area or prohibited. They were not applying for the local licenses due to the lack of this option or in order to save on local gaming taxes and therefore were operating illegally. Even though the number of regulated markets is increasing and governments come up with sophisticated methods of fighting with offshore gaming and betting players.

In most of the cases offshore companies are registered in gaming tax heavens such as Malta or Gibraltar, where gaming tax duty is only 0.5% or 1% respectively and are avoiding paying local taxes in EU member states. Such operators deny illegality of their actions referring to the free movement of goods and service which according to the Treaty on the Functioning of the European Union (TFEU) states that the free movement of goods, the first of the four fundamental freedoms of the internal market, is secured through the elimination of customs duties and quantitative restrictions, and the prohibition of measures having an equivalent effect (TFEU, 2008). They defend themselves by possessing a license granted by a European Union member state, stating that they pay taxes within the EU and proclaiming that legal standards of the EU are stronger than national legislation, and therefore no local license or registration is needed for them. As a result, offshore companies are saving big amounts on taxes and are able to provide better conditions and prices for players and invest into the future development.

On one hand, when the gaming and betting sector has matured and went through listings on stock exchanges, operational risk stopped being so appealing and the listed operators increasing amount of cases started to avoid entering markets with prohibitive legislation via offshore. On the other hand, some previously offshore operators are applying for licenses where they can obtain it, in case tax level is reasonable compared to their expected financial outcome on the market. Therefore, the market share of onshore online betting and gaming has grown in the last several years.

Graph 3: Europe interactive gambling gross win (bn. EUR)



Source: H2GC

In order to fight with offshore gaming and betting operators UK, for example, have approved a regulation (2014) according to which all operators willing to provide services to either UK citizens or people situated in the UK have to apply and obtain a special license and pay Point of Consumption 15% tax. It proved to be a better tactic compared to the previous law enforcing only companies “having offices” in the UK to pay taxes. At the same time the government holds the right to ban all operators not holding the license.

In order to ban offshore operators, a regulator can apply the following measures:

- Access to websites of offshore operators directly and indirectly limited
- Financial flows between operators offering illegal sports betting and consumers are blocked through the cooperation with banks
- Banning the advertising of offshore operators through cooperation with marketing services providers
- Raising the awareness of consumers of the risk associated with illegal sports betting.

3 CEE gaming and betting market

3.1 Overview of local betting and gaming environment

In this chapter I would like to discuss how local environment in every country where Fortuna operates (Czech Republic, Slovakia, Poland and since recently under brand license in Romania) is different from the global one and to outline the specifics of the market in terms of competition, regulations and products provided.

After gaming and lotteries, betting is the biggest subsector in the European Union betting and gaming market (Fortuna, 2014). Rapid growth of betting market in EU has been driven mainly by regulatory change and the increasing share of online betting.

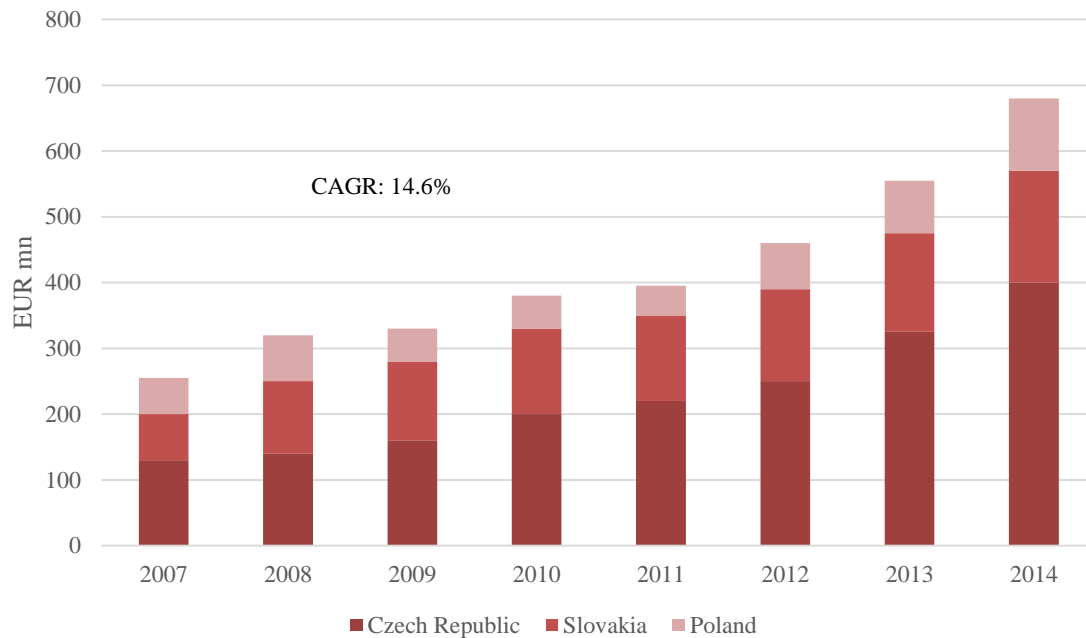
Compared with the markets of Western countries, the Central and Eastern Europe betting markets are still relatively underdeveloped and offer opportunities for future growth. Apart from in the Czech Republic, the competitive landscape largely consists of a small number of single-country operators. However, due to the growth in the online betting industry, country operators have started to compete not only at a local level, but also against offshore online operators. In terms of retail operations, potential new market entrants encounter significant barriers to entry, including requirements in place that demand that local licenses are obtained, the high marketing spend necessary to build brand recognition, and high retail establishment costs.

Fortuna Entertainment Group

Fortuna Entertainment Group (FEG) is the biggest Central European betting company and is operating in this sector since mid-2011. It was established in 1990 in Prague, and became one of the first-ever joint-stock companies in the former Czechoslovakia after the Velvet Revolution (Fortuna, 2016). By now it is present in the Czech Republic, Poland, Slovakia and is licensing its brand in Romania. It is mainly focused on providing betting services with orientation on sporting events through its chain of betting shops and a platform ifortuna.cz. Currently Fortuna has 377 000 registered users in the Czech Republic, 215 000 in Poland and 194 000 in Slovakia. On the Graph we can see that Czech Republic is the

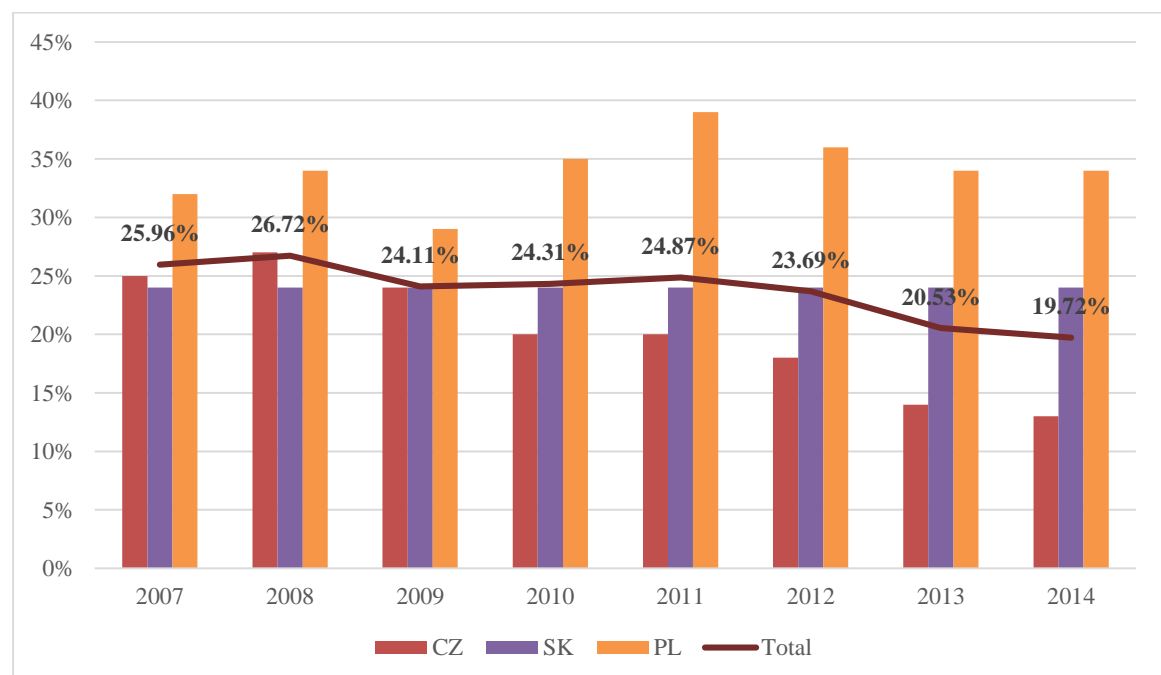
biggest Fortuna branch in terms of amount stakes reaching 60% of total amount for three countries.

Graph 4: Fortuna, total amts. staked breakdown by country



Source: Fortuna, Erste Group research

Graph 5: Fortuna Gross Win margin development, sports betting

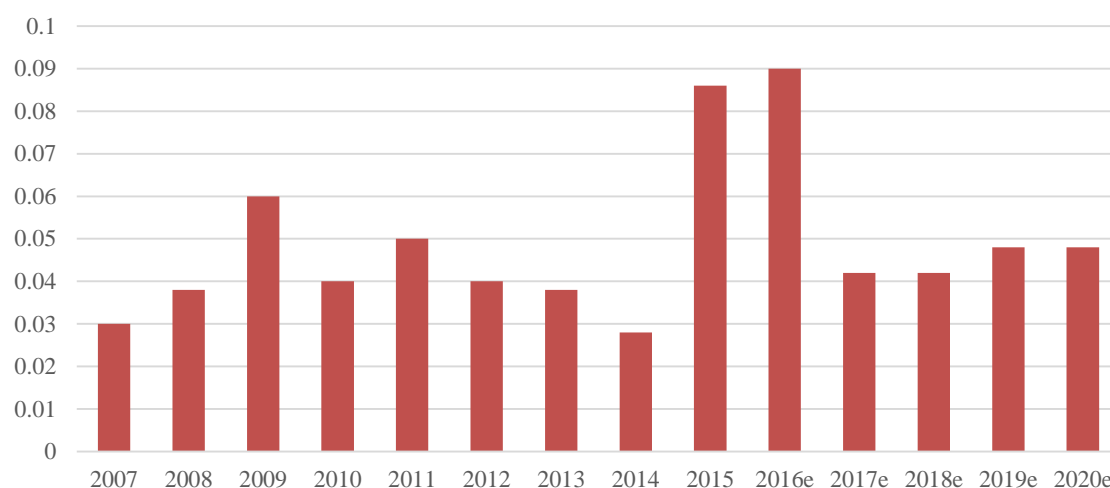


Source: Fortuna, Erste Group research

Also, Fortuna is licensing its brand in Romania by to the sports betting & gaming companies Bet active concept s.r.l. and Bet zone s.r.l. Besides betting its products in Romania include online casino games such as poker, black jack, roulette and skill games. Moreover, since mid-2013 Fortuna has entered lotto business in the Czech Republic.

Fortuna is a currently listed on Czech Stock market, which it entered in 2010 with initial price 105 CZK per stock. By the end of July 2016 its stock price dropped to 88 CZK. Free float stock is currently 52 mil. shares outstanding with 68,25% owned by Fortbet Holdings Limited – daughter company of Penta Investment, 10% by Templeton Asset Management Ltd. and 21,75% are in free float. Sports betting brings Fortuna 93% of its revenues, whereas lotto currently represents only 5% of the company revenues. Fortuna has announced that dividends for 2016 and 2017 years will not be paid due to the investment into new IT platform by the developer PlayTech, well-known and well-used on the gaming market. On the graph we can see the projected increase in CAPEX/revenue in 2015 and 2016 years

Graph 6: CAPEX / Revenue



Source: Fortuna annual report, Erste Group research

The table below presents the main economic indicators in the countries where the Group operates.

Table 1: The main economic indicators in the countries of Fortuna Group operations

	Czech Republic	Poland	Slovakia
Population (million, 2013)	10.5	38	5.4
GDP (EUR billion, 2014)	155	413	75
GDP per capita (EUR, 2014)	14,700	10,700	13,900
HICP (all items, annual average inflation rate, 2015)	0.3%	-0.7%	-0.3%

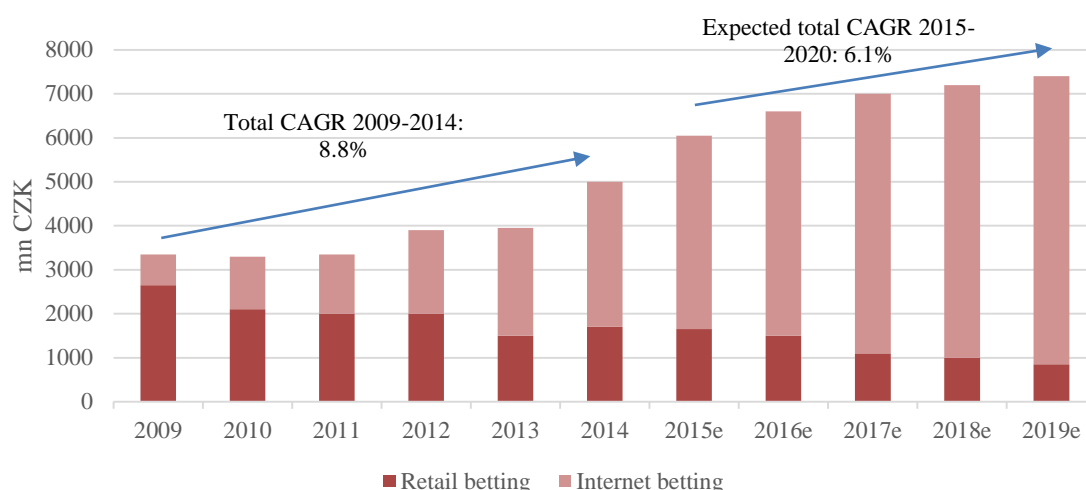
Source: Eurostat, Ministry of Finance ČR

3.1.1 Czech Republic

In 2014, the Czech betting market reached CZK 36.6bn. growing at CAGR of 19.4% (Fortuna company report). Out of this 82.6% were dedicated to online betting, which compound annual growth rate reached 38.2% in 2009-2014. The Czech Republic is the most important market for Fortuna as it contributes to 60% of total amount staked for the company. The competitive landscape in the country includes five companies: Tipsport, Chance (acquired by Tipsport, in 2013), Sazka and SynotTip and Fortuna. The leading position in terms of the number of betting shops is held by Tipsport, operating a big number of “partner” outlets in bars. Fortuna is currently having 31% of the market share in sports booking (Fortuna, 2015). SynotTip and Sazka are smaller players on betting market as their core businesses are slot machines and lotteries respectively. Fortuna started providing betting services through its online platform since 2009, 2 years after the Slovakian Fortuna branch. In 2015 for Fortuna saw an increase of 26% in amounts staked reaching 847 695 th. EUR. and increase in Gross Win reaching 147 428 th. EUR.

As we can see on the Graph 6, the gross win share of betting through retail shops has been steadily declining since 2009 and is expected to be near 10% by 2019 (MF CR, Erste Group research). Fortuna is also following the trend of increasing share of online market together with the overall trend of Gross Win increase as it can be seen from the Figure 6.

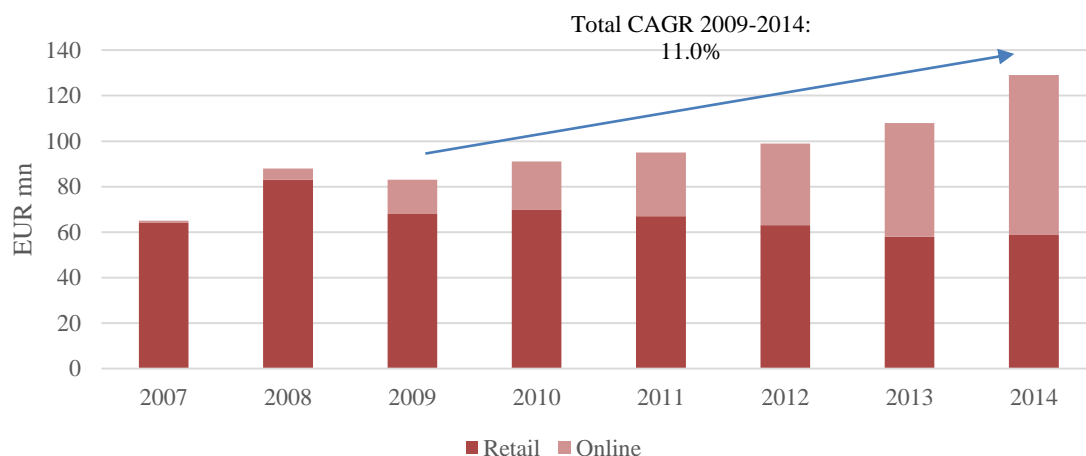
Graph 5: Gross win, Czech betting market



Source: Fortuna, Erste Group research

In comparison, we can see that Fortuna's Gross Win Compound Annual Growth Rate (CAGR) of Gross Win was 11% for Fortuna comparing with 8.8% for the Czech Republic (Figures 6,7).

Graph 6: Gross win, Fortuna



Source: Fortuna, Erste Group research

In 2013 Fortuna has entered lottery segment where Sazka, largest and oldest lottery company in the Czech Republic, is holding a leading position with more than 90% share of the market in lotteries and other similar games (Sazka, company report, 2014). In 2015 Fortuna CZ had a share of approximately 5% in lottery and numerical games. Tipsport as a third player accounted for less than a 1% market share.

Regulatory environment in the Czech Republic

The Ministry of Finance is the primary institution responsible for granting licenses to operators who want to provide betting services in the Czech Republic. At the moment all five mentioned above operators hold a license. Interestingly, until now the regulator was paying considerable attention to the licensed operators while offshore betting and gaming companies such as 888 casino, Bwin, 365Bet and others not having license in Czech Republic were left by gaming authorities to freely to provide their services. Moreover, some of such operators even have .cz domains in Czech language and deny illegality of their actions referring to their license in another European country and free movement of goods and services.

Such inactivity of the regulator resulted in the disagreement with the licensed operators which proclaimed that their businesses are being harmed as offshore competitors offer a wide variety of gaming and betting services and are able to offer better rates due to avoiding taxes, which local operators are obliged to pay. European Commission was also questioned whether gambling laws in the Czech Republic are compatible with the requirements of EU and demanded Czech regulator to review the law.

As a result, gambling authorities reconsidered the existing legislation and in May 2016 introduced new legislation which includes three separate laws: Gaming Act, Gaming Tax Act and Amendment Act, which promotes the newly adopted regulation into other related laws.

A new gambling law is scheduled to come into effect in January 2017 and will bring the following changes. Online casino, bingo and poker will become legalized in the Czech Republic. Gross win tax rate will increase from 20% in 2015 and 23% in 2016 to 25% on sports betting and 30% on lotteries, bingo and live games from 2017. Such increase of taxation may decrease the amount of money customers are willing to spend on the Fortuna's products. It may also lead to increased competition from offshore online betting and gaming companies that do not comply with local regulations unless they will be effectively blocked by the regulator. Moreover, the proposal includes "measures for responsible gaming" such as individual setting of limits for potential losses and exclusion of recipients of social benefits. However, the impact on Fortuna's core operations will be limited. (Ministry of Finance, 2016)

Also, new regulation prohibits advertising on gaming and is addressing the issue of offshore online operators by enforced blocking of the illegal online gaming websites and providing an opportunity for offshore players to apply for license in the country.

3.1.2 Fortuna Slovakia

The Slovak betting market is structured as a duopoly. The leader on the market is Niké, and the following position is held by Fortuna SK. Besides main two players, Tipos and Tipsport companies are present on the market (Fortuna, 2015). Slovakia was the first country where the Group started offering online betting to its customers in 2007. The deregulation of internet betting has allowed the further growth of the market through providing Online services.

Regulatory environment in Slovakia

The operator of a betting game is furthermore under the obligation to pay licence fees to the state and/or municipal budget. In the case of fixed-odds betting, the fee is 6% of the sum of bets/stakes and in the case of horse racing betting it is 1% of the sum of bets/stakes. In 2015 Fortuna decided to follow Tipsport, Synot Tip and Startip and canceled handling fee for online betting, what further boosted its online operations.

3.1.3 Fortuna Poland

There are three main players on the Polish betting market: Fortuna PL, Totolotek (partially owned by the state and partially by Intralot) and STS. Fortuna PL is holding the first place on the market market share, with a market share of approximately 36% on the domestic regulated market. The offshore market in Poland is around 85% (1.1 bn EUR vs. 200 mil. EUR). Other market players present in Poland are the smaller ones: Betako and Millenium. Fortuna PL was the first operator to receive an online betting licence from the Polish Ministry of Finance in January 2012 (Fortuna, 2015).

Regulatory environment in Poland

In Poland, only licenced online sports betting is allowed in the country, other online games are prohibited. A tax is imposed on the total amount of money paid by customers for bets

(amounts staked) is subject to taxation. A 2.5% tax is applied on sums paid for animal competition bets and a 12% tax is imposed on sports betting activities. It is important to mention, that 12% are paid by customers in a form of handling fee, significantly increasing the price of sports betting for final customers. Therefore, there is a big offshore market which creates 85% of the total market, which is in relative terms 4 times bigger than in the Czech Republic, where offshore market is around 20% (GBGC, 2013). However, currently no measures taken against off-shore operators by Polish government.

On July 20, 2016 the Polish Council of Ministers approved a draft amendment to the Polish Gambling Act (publicgaming.com). The expected regulatory changes include: permission to provide online bets on virtual sports and other online games and blacklisting illegal service provider by the regulator and blocking such websites and payments.

4 STATING THE HYPOTHESIS

4.1. Goal of the diploma thesis

As it was mentioned before, this thesis was initiated with Penta Investment as a reaction on the significant difference in EV/EBITDA multiple of Fortuna and its peers – European listed betting and gaming companies. It seeks to find the reason for more than twice higher multiple and a possibility to increase it by applying best international practices in case there is a feasible way to do it for Fortuna. To better understand the mentioned difference, let's take a look at the latest market data of Fortuna peers. These companies are listed gaming and betting companies and were chosen based on the recommendation of Penta Investment, which considers them to be the comparable peers for Fortuna.

Table 2: EV/EBITDA multiples: Fortuna vs. peer companies

Company	2013 EoP ¹	2014 EoP ¹	2015 EoP ¹
FORTUNA	9.52	8.84	6.36
LADBROKES	8.09	8.26	9.85
BWIN.PARTY	9.27	14.05	18.32
888 HOLDINGS PLC	13.13	10.05	11.98
BET-AT-HOME	7.21	9.54	8.94
BETSSON AB	12.57	16.51	22.31
UNIBET GROUP PLC	10.54	12.27	20.49
PADDY POWER PLC	14.55	18.10	25.91
WILLIAM HILL PLC	11.37	10.60	10.16
Average	10.84	12.42	15.99
Median	10.96	11.43	15.15

Source: Capital IQ (December, 2015)

It can be clearly seen that EV/EBITDA multiple of Fortuna is at 6.36, which is more than twice lower than a median of its peers' multiple equal to 15.15 for 2015. In previous period the difference was not so high (especially in 2013), but it was still significant. Moreover, while most of the peers' multiples have grown during the followed period, Fortuna's has

¹ EoP – End of period

declined by 13% from 8.45 to 6.36, making the gap between the multiples bigger. Therefore, the main question we are facing is:

What causes EV/EBITDA multiple of Fortuna to be constantly on average lower than its peers'?

Majority of the practical part of the thesis will be devoted to uncovering the reasons of this difference. In order to answer this question in a structured and complete way, I have developed three hypotheses. Each hypothesis is breaking down the problem even further and addresses it with sub-hypotheses.

Hypothesis 1: Different multiples are caused by incomparability of the peers and the environment of their operations

As the hypothesis includes two levels of comparability: on company level and on the level of environment let me divide them in two separate sub-hypotheses:

I. Different multiples are caused by incomparability of the peers

In the first Chapter we have stated the criteria, which peers have to fulfill in order to be comparable with a company. Same or very similar have to be:

- Industry
- Location
- Size
- Macroeconomic environment
- Product mix
- Organizational structure

On the first glance all peers are global listed betting and gaming companies, same as Fortuna, however it is important to confirm that the peers selected by Penta Investments fulfill the most of the criteria to be comparable with Fortuna. Moreover, to the selected criteria I will add a Sales channel, as providing services Online or through Retail can influence financial situation of a company.

II. Different multiples are caused by incomparability of the peers and the environment of their operations

It is important to take into account different conditions in which companies are operating. As we previously discussed, regulatory systems differ significantly between the countries and bottom line of service operators is highly influenced by the rate of gaming tax they are obliged to pay. Moreover, some of the peers might provide services on unregulated markets and therefore access wider customer group without paying local taxes.

Additionally, the incomparability might be caused by the different demand for gaming and betting services. Therefore, I would like to examine what influenced demand for those services and how is it different between the companies or countries where they operate.

Hypothesis 2: Czech stock market is not efficient, therefore Fortuna stock undervalued and EV/EBITDA is low

If we break down Enterprise value component of EV/EBITDA multiple formula:

$$EV = \text{Share price} * \text{Number of shares outstanding} + \text{Net Debt} \quad (1)$$

Considering relatively stable nature of both Number of shares outstanding and Net Debt, Share Price is a variable, which is the main driver of Enterprise value and therefore significant driver of EV/EBITDA multiple. In order to understand whether stock price of Fortuna on Prague Stock Exchange reflects the reality we have to investigate the following three questions:

- I. Can the Prague Stock Market be described as efficient based on efficient market hypothesis?
- II. Can stock be undervalued/overvalued due to the wrong recommendation of equity analysts? Do they have such influence? Is it the case on the Prague Stock Market?
- III. Can low turnover cause non-fair pricing?

I will support examination of the II. sub-hypothesis with interviews with equity investors.

Hypothesis 3: Fortuna Key Performance Indicators (KPIs) are worse compared to the peers and there is an opportunity for their improvement, which can lead to increased EV/EBITDA multiple for Fortuna

While the previous two hypotheses were examining the factors, which Fortuna cannot influence as they are predetermined by the external environment, this hypothesis is stating that there are reasons for low EV/EBITDA multiple, which can be found by examining the performance of the company reflected into financial and non-financial indicators.

To prove this hypothesis to be right we will have to identify KPIs, which are having real impact on EV/EBITDA (based on the peers' data analysis) and prove that they are lower for Fortuna compared to average of its peers. So we will be able to identify KPIs, which improvement will potentially lead to the comparable level of EV/EBITDA multiple for Fortuna.

5 METHODOLOGY

In the previous chapter I have stated three hypotheses which have to be tested in order to answer the main question stated in the thesis: *What causes EV/EBITDA multiple of Fortuna to be constantly on average lower than its peers’?* This chapter will be covering methodology, which I will be using for testing them.

5.1. Comparative analysis

For the first hypothesis, stating that the difference in EV-EBITDA is caused by incomparability of the markets I will be doing a comparative analysis of the regulatory environment, demand for gaming and betting products dependent on GDP per capita and disposable income of the population. For this purpose, I will be using the data from governmental statistical organizations in public access. Additionally, I will be analyzing whether all chosen/available peers reflect the choice criteria discussed in the Chapter 1.

5.2. Interview

In order to test the second hypothesis, I will be gathering data in a form of structured face-to-face interview. I have chosen this method because it has the following advantages:

- Possibility to get deeper insight
- Structured approach ensuring that all discussion points will be covered
- Personal presence allowing to better follow reactions of the respondent
- Possibility to ask additional questions for better understanding if needed

Based on the results of the interviews with Equity Analysts of Erste Group (V. Kminek), KB (J. Nemy) and J&T (M. Lavicka) key conclusions will be formulated, which would either support or reject the hypothesis.

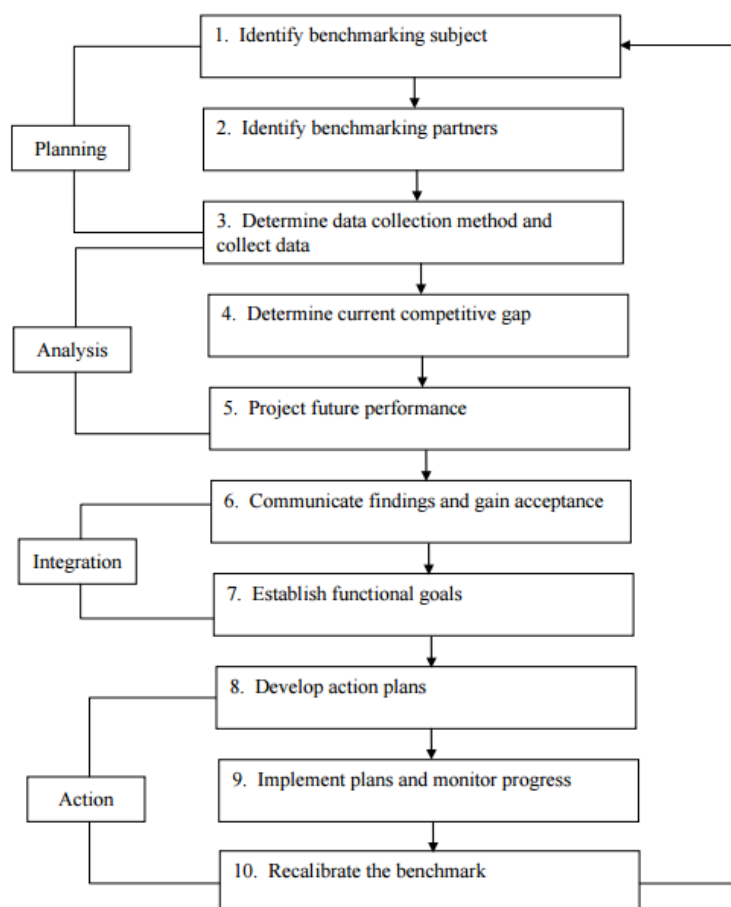
5.3. Benchmarking

Among the approaches for the improvement of an organization performance benchmarking has proved to be one of the most efficient ones. It can be a useful tool for not only discovering weak points in an organization but also for understanding where company should aim to achieve the best-in-industry result. Camp refers to benchmarking as “the search for the best industry practices which will lead to exceptional performance through the implementation of these best practices” (Camp, 1989). Its main goal is to understand

how well benchmarked company is performing by comparing selected Key Performance Indicators (KPIs) across the entities. It is possible to use benchmarking in all possible areas of services, products, and related processes between the units within one company or across company and country boundaries.

One of the most commonly used benchmarking models by the practitioners is a Xerox model introduced by Camp in 1989 (G. Anand). It includes 4 phases: Planning, Analysis, Integration and Action. Planning phase includes identifying benchmarking subject and benchmarking partners as well as determining data collection method and collecting the data. The second phase called Analysis is focused on determining current competitive gap and projecting performance. Integration stage includes communication findings and establishing functional goals and the last one, Action, focuses on developing action plan, implements it and recalibrate the benchmark.

Taking into account the scope of the paper I will apply the model partially – not including the last Action part, which should be done by the company management.



Picture 1: Xerox benchmarking model

Benchmarking approach will be applied for testing the Hypothesis 3 (phases 1, 2, 3, 4) and developing recommendations for Fortuna Group (phases 5, 7, 8):

- 1. Identifying Benchmarking subject** – Fortuna Entertainment Group is chosen as a benchmarking subject
- 2. Identifying benchmarking partners** – European listed gaming and betting companies considered by Penta Investment to be comparable peers (majority shareholder of Fortuna Group) were chosen for benchmarking
- 3. Determining data collection method, collecting the data, selecting the data**– data collection and selection will be done in 3 steps, which will be described in the Chapter Data:
 - a) Choosing initial set of KPIs – specifying KPIs relevant for betting and gaming industry
 - b) Data collection (search for available data) - data will be collected from various sources such as databases Capital IQ, Guru Focus, Global Betting & Gaming Consultants (GBGC), annual reports etc.
 - c) Selecting KPIs for regression analysis - *correlation analysis will be used to create particular liner regression specifications*
- 4. Determine current competitive gap** – the competitive gap identification will take place during the testing of Hypothesis 3 and will be done in 2 steps:
 - a) *Regression analysis will be performed in order to identify KPIs having the highest impact on EV/EBITDA multiple*
 - b) Comparative analysis will be performed in order to determine the gaps between performance of Fortuna Group and its peers
- 5. Project future performance** – impact of KPIs on potential EV/EBITDA if raised to the average level of peers (measured by regression analysis)
- 6. Communicate findings and gain acceptance** – not relevant for the time of the research, findings will be communicated to Penta Investments together with the developed Action plan

7. **Establish functional goals** – discussion of what KPI improvements are realistic and achievable for Fortuna and what impact will such changes bring
8. **Develop action plan** – the plan will be developed in the form of recommendations to Fortuna Group for the future development
9. **Implement plans and monitor progress** - *not relevant in the scope of this paper*
10. **Recalibrate the benchmark** – *not relevant in the scope of this paper*

5.4. Statistical analysis – linear regression

In the Chapter 1 I outline multiple factors, which can influence how big is EV/EBITDA multiple for every specific company and what drives its growth and decline. To examine this hypothesis, first, I will identify which KPIs are driving the multiple within gaming and betting industry. To do so, I will run a regression analysis on the dataset of pre-determined KPIs for nine peer companies gathered for the period of five years: 2011-2015. Therefore, we will be able to identify which KPIs correlate with EV/EBITDA multiple the most out of the set of pre-selected indicators. The process of choosing initial KPIs will be described in the following chapter Data.

Linear regression model:

To determine if selected KPIs make a significant difference in EV/EBITDA, we would like to see whether the variable can be explained by the selected KPIs. As a result this is a dependency relationship and therefore multiple regression model can be used. The idea of multiple regression is that we would like to explain a dependent variable y by taking a linear combination of the independent variables x :

$$y_i = \beta_0 + \beta_1 x_{i,1} + \beta_2 x_{i,2} + \dots + \beta_k x_{i,k} + \varepsilon_i$$

for each observation $i = 1, 2, \dots, n$. In matrix notation, this can be written as:

$$y = \beta X + \varepsilon$$

where y and ε are vectors of order n times 1 ($n \times 1$), β is a vector of order k times 1 ($k \times 1$), and X is a matrix of order n times k ($n \times k$). The matrix looks as follows:

$$\mathbf{X} = \begin{bmatrix} 1 & x_{1,1} & x_{1,2} & \cdots & x_{1,k} \\ 1 & x_{2,1} & x_{2,2} & \cdots & x_{2,k} \\ \vdots & & \ddots & & \\ 1 & x_{n,1} & x_{n,2} & \cdots & x_{n,k} \end{bmatrix}$$

The estimate of the regression parameters in above mentioned equation is denoted as $\hat{\beta}$. There are five assumptions necessary to produce unbiased estimators using ordinary least square method. Additional assumptions must be satisfied in order for the estimate to have other favorable qualities.

- The model must be liner in the parameters
- Mean of disturbances are zero ($E[\varepsilon_i] = 0$)
- Constant variance of disturbances ($E[\varepsilon_i^2] = \sigma^2$)
- Residuals have no serial correlation ($\text{Cov}(\varepsilon_i, \varepsilon_j) = E[\varepsilon_i \varepsilon_j] = 0 \forall i \neq j$)
- Variables in \mathbf{X} are not strongly collinear
- Variables in \mathbf{X} are measured without error, which could be considered negligible
- Normally distributed disturbances

Resulting regression estimator looks like following:

$$\mathbf{b} = (\mathbf{X}'\mathbf{X})^{-1}\mathbf{X}'\mathbf{y}$$

If all assumptions are met, \mathbf{b} the Best Linear Unbiased Estimator (BLUE) which means that this estimator is unbiased and has the smallest variance in the class of linear estimators.

6 DATA

In this chapter I will describe data collection and selection process needed for testing the hypothesis 3 stated earlier: *Fortuna Key Performance Indicators (KPIs) are worse compared to the peers and there is an opportunity for their improvement, which can lead to increased EV/EBITDA multiple for Fortuna.*

The goal of data collection process is to choose the most relevant KPIs for betting and gaming industry and to narrow them down to reasonable number of variables, which will be used in the regression analysis.

Data collection and selection will be performed in two steps:

- 1) Choosing initial set of KPIs and data collection
- 2) Selecting KPIs for regression analysis specification by correlation analysis

Let me describe in more detail each of the defined step.

6.1. Choosing initial set of KPIs to be analyzed

KPIs exist in every industry and online gaming and betting is not an exception. Using KPIs, an online and land-based service provider is able to measure the performance of its business, the way it is perceived by investors and how it reaches its target audience.

To define KPIs for benchmarking I assessed the specifics of betting and gaming industry and examined to what KPIs peer companies pay the most of attention to in their annual reports. Then outcome was discussed with experienced analytics of Penta Investments who has deep knowledge of the industry.

As a source for the initial KPIs I was using annual reports from 2011 to 2015 years of the selected nine peers as a primary source and two databases, namely Capital IQ and Guru Focus, to gather the remaining data. Data not found in any of those sources were either calculated based on the annual report information or the KPIs were excluded from the dataset, as no other reliable inputs were available.

For this reason, Gross Win initially considered to be a significant KPI for comparing gaming companies and showing the amount lost by players as a result of bets (and therefore earned by a company) was excluded and replaced by Revenues. Additionally, Product mix and channel mix data were available only as a percentage of Revenues and can potentially bring insightful information in the further analysis.

As a result, I have created an initial dataset covering five years for nine peer companies and 20 pre-selected KPIs for each of them, which will be described below.

EV/EBITDA multiple: the multiple will be used as a dependable variable while we will be examining how is it impacted by other variables.

EV/EBITDA = Enterprise Value / Earnings Before Interest, Tax, Depreciation and Amortization

Net Revenues online (%): KPI showing what is the main source of revenues – online platform or a land-based operation. It includes revenues from both gaming and betting products and can help us to examine whether Online or Retail has higher influence on EV/EBITDA.

Net Revenues Online = Revenues Online / Total Revenues

Sports Betting Revenues² (%), Gaming Revenues³ (%), Gaming machines Revenues (%): product mix is a good source of information on where main revenues are coming from. By following the shares of products on revenues, we can examine which products drive the growth of EV/EBITDA the most.

Sports betting Revenues (%) = Sports betting Revenues / Total Revenues

² Revenues from horseracing were considered a part of sports betting revenues.

³ Revenues from any online products including online lotteries besides online sports betting were considered online gaming.

Active players' growth, Net active players - customers who have deposited real money and have bet at least once in the measured period (usually a year). This KPIs are indicators of how quickly real client base grows for a company.

Net Active players = Acquired active players for a period – Lost active players for a period

Active players growth (%) = (Net Active Players_{year t} / Net Active Players_{year t-1}) – 100%

Revenues per Active Client: is a measure of the revenue generated by one player, per unit time, typically per year or month. This indicator reflects willingness of customers to pay (which can be affected by personal characteristics as well as average disposable income in a country of company operations)

Revenues per Active Client = Total Revenues / Number of Active clients

Acquisition cost: an indicator showing how efficient marketing activities of a company are, in other words, how much does company spend to acquire one additional active player.

Acquisition cost = Total Marketing Expense / New Net Active Players

Net Active players = Acquired active players for a period – Lost active players for a period

Marketing to Revenue ratio: how much company invests into marketing activities such as advertising, sponsorships, digital marketing etc. for the purpose of acquiring new customers (this indicator does not include bonus costs and free games costs used as a customer retention tool).

Marketing to Revenue ratio = Marketing Expense / Total Revenues

CAPEX to Depreciation ratio: the capital expenditures to depreciation ratio is a KPI showing the growth phase of the company. A high ratio indicated that that the business makes bigger investments in its long-term assets, predicting future growth or expansion. The revenues of a company with high ratio grow faster than businesses with low capital expenditures to depreciation ratio.

CAPEX to Depreciation ratio = Capital Expenditures / Depreciation

EBITDA margin: an indicator which shows a company's operating profitability as a percentage of its total revenue. Calculating the EBITDA margin allows to compare businesses of different sizes.

$$EBITDA \text{ margin} = EBITDA / Total \text{ Revenues}$$

EBITDA growth (1 year), EBITDA CAGR (3 years): by following these indicators we will be able to examine how EV/EBITDA is influenced by the growth of Earnings Before Interest, Tax, Depreciation and Amortization through Share Price growth/decline caused announcement of by favorable/unfavorable earnings at the end of a period. By comparing the indicators we will be able to deduct whether historical financial results for longer or shorter period play more significant role.

$$EBITDA \text{ growth} = (EBITDA_{year\ t} / EBITDA_{year\ t-1(3)}) - 100\%$$

Net Income growth (1 year), Net Income CAGR (3 years): by following this indicators we will be able to examine how EV/EBITDA is influenced by the growth of Net Income through Share Price growth/decline caused announcement of by favorable/unfavorable income at the end of a period. By comparing the indicators we will be able to deduct whether historical financial results for longer or shorter period play more significant role. Moreover, comparison with EBITDA growth influence can show which of the financial indicators is more important for an investor in gaming and betting industry.

$$Net \text{ Income growth} = (Net \text{ Income}_{year\ t} / Net \text{ Income}_{year\ t-1(3)}) - 100\%$$

Dividends per share / Earnings per share: what the percentage of earnings is paid back to shareholders in a form of dividend. As investors usually prefer to invest into companies paying dividends (source), this indicator can show us how much it affects EV/EBITDA multiple.

$$DPS / EPS = (Dividends \text{ paid} / Shares \text{ Outstanding}) / (Net \text{ Income} / Shares \text{ Outstanding})$$

Free Cash Flow Yield (%): is an overall return evaluation ratio of a stock. It standardizes the free cash flow per share a company is expected to earn compared to market price per share. The lower the ratio, the less attractive an investment is for an investor, the higher – the more attractive. In other words, investors are willing to pay as little price as possible

for as many earnings as possible.

Free Cash Flow Yield = Free cash Flow per Share / Current market price per share

6.2. Selecting KPIs for regression analysis

As I mentioned above, the initial dataset contains 20 variables (KPIs) which I will be analyzing in the following research. However, not all KPIs can be simultaneously used for the regression analysis due to high potential; collinearity and lack of degrees of freedom, so I will perform multiple specification of regression analysis, keeping in mind correlation matrix.

For creating specifications, I will be using two methods. Firstly, I need to employ critical reasoning for providing detailed discussion about, which KPIs are really needed and which are truly relevant. Secondly, I will create correlation matrix of KPIs and based on that I will be able to further narrow the dataset. The reasoning for this methodology is simple, for example, I would expect that EBITDA and Net Income (or FCF) would highly correlate – if that would be the case, from statistical perspective, adding both to regression analysis will do more harm than good (lower number of degrees of freedom and bigger collinearity). Those two approaches will be used simultaneously.

To conclude this chapter, I identify a set of KPIs, which will be used as variables for testing the Hypothesis 3. The following steps will include: performing Regression analysis in order to identify KPIs having the highest impact on EV/EBITDA multiple in specifications and comparative analysis in order to determine the gaps between performance of Fortuna Group and its peers.

7 TESTING THE HYPOTHESIS

The purpose of this chapter is to test 3 hypotheses, which will help me to answer the main question of the paper: *What causes EV/EBITDA multiple of Fortuna to be constantly on average lower than its peers'?*

The earlier stated hypotheses to be analyzed are:

Hypothesis 1: *Different multiples are caused by incomparability of the peers and the environment of their operations*

Hypothesis 2: *Czech shock market is not efficient, therefore Fortuna shock undervalued and EV/EBITDA is low*

Hypothesis 3: *Fortuna Key Performance Indicators (KPIs) are worse compared to the peers and there is an opportunity for their improvement, which can lead to increased EV/EBITDA multiple for Fortuna*

In case the third hypothesis will be supported by the results of the analysis e.g. impactful KPIs will be identified, in the second part of the chapter I will proceed with the following steps 5,7 and 8 of Benchmarking model, described in the Chapter 5:

5. *Project future performance* – impact of KPIs on potential EV/EBITDA if raised to the average level of peers (measured by regression analysis)

7. *Establish functional goals* – discussion of what KPI improvements are realistic and achievable for Fortuna and what impact will such changes bring

8. *Develop action plan* – the plan will be developed in the form of recommendations to Fortuna Group for the future development

7.1. Hypothesis 1

According to T. Ryan and C. Jahobs, a company identified with a wrong peer group may be trading at a lower multiple that actually discounts their true value. This situation happened for two reasons, either the company have been positioned incorrectly, or the company is relatively unique and the peer group needs to be established (T. Ryan and C. Jahobs, 2005).

Therefore, first hypothesis to be tested states that *the difference in multiples is caused by incomparability of the peers and the environment of their operations* and includes two sub-hypotheses to be analyzed:

- I. Different multiples are caused by incomparability of the peers
- II. Different multiples are caused by incomparability of the peers and the environment of their operations

7.1.1 Different multiples are caused by incomparability of the peers

In the Chapter 1.1. I have summarized the criteria of similarity, which have to be fulfilled by peers to be comparable with a company:

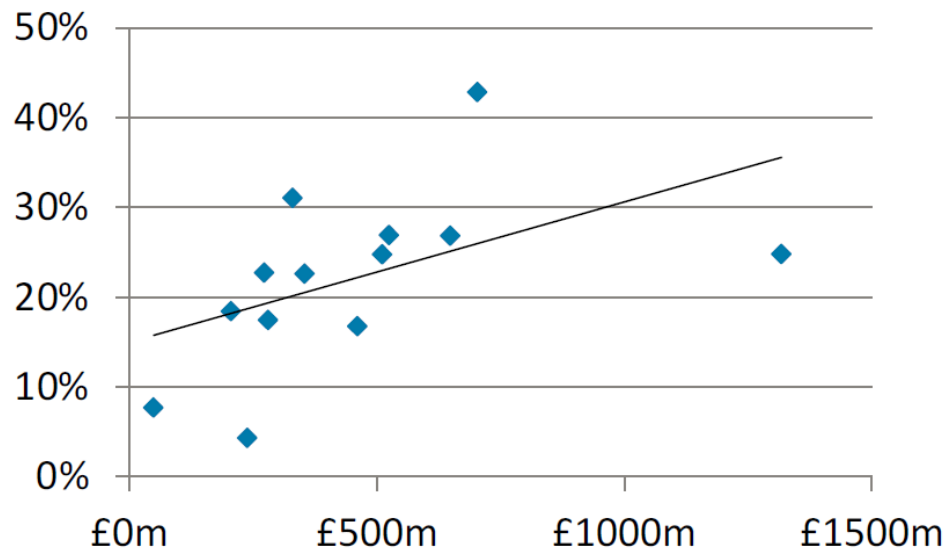
- Industry
- Size
- Location / Macroeconomic environment
- Product offering and sales channels
- Performance criteria (growth, profitability etc.)

Peer companies selected by Penta Investments are all from the industry of betting and gaming so we can consider the first criteria to be fulfilled. By performing a comparative analysis, I will consider the remaining criteria separately and examine whether Fortuna can be a part of the earlier stated peer group. The companies will be compared based on the data of the year 2015.

Location and size

A certain correlation can be noticed between scale of a company and its EBITDA margin in betting and gaming industry. As it can be seen on the Graph 7, bigger scale companies in betting and gaming industry are reaching higher EBITDA margins. This and many other advantages such as economies of scale and negotiation power can take place for big scale companies.

Graph 7: Strong relationship between scale and EBITDA margins



Source: Morgan Stanley, 2016

As we can in the Table 3, Fortuna is near five times smaller considering the size in Total Revenues and more than seven times smaller in terms of Active players. Thus, Fortuna is the second smallest player regarding Revenues and the smallest regarding number of active clients. Moreover, the companies are global players covering a lot of European countries and in some cases other continents.

Table 3: Countries of operations and size of the company

Company	Countries	Size (Revenues⁴, mil. EUR)	Size (Active Players)
FORTUNA	Czech Republic, Slovakia, Poland	109.6	154.000
LADBROKES	Belgium, Spain, UK, Ireland, Australia	1 626.5	1 104 000
BWIN.PARTY	Italy, Spain, UK	576.4	892 000
888 HOLDINGS PLC	World	424.0	715 290
BET-AT-HOME	Germany, world	100.3	256 140
BETSSON AB	Sweden, Norway, Malta, Netherlands	369.0	526 300
UNIBET GROUP PLC	Denmark, France, Italy, World, Australia	487.0	921 150
PADDY POWER PLC	UK, Ireland, Australia, world	1094.0	2 535 270
WILLIAM HILL PLC	Italy, Spain, UK, Australia, USA, Bulharia, Israel, Phillipines	2 186.3	1 700 000
Average		508.5	1 081 269

Source: Own research

We can assume, that growth potential of the bigger players is higher. It can be proved to be true, first, because of the higher players' acquisition potential through entering new markets as an offshore player and second, due to the economies of scales (for example, IT platform, which requires a high initial investment can be used in all countries of operations). Therefore, the fact that Fortuna is much smaller can put its multiple on the lower than its peers' level.

Product offerings

By comparing the product offering of Fortuna and the peer companies' presented as a percentage of Revenues clear differences can be seen (Table 4). Industry leaders offer full scope of products: Sports Betting (incl. Horse and Dogs races bets), Gaming (including Poker, Casino and other online games), online Lotteries, Bingo and other. Currently Fortuna Group offers only Sports Betting being a source of 93% of its Revenues and Lottery

⁴ End on period currency rate is used

products, which accounts for 6% (1% of revenues come from other sources). At the moment legislation in the countries of Fortuna's operation have not been harmonized with European Union regulations yet. However, since a new gaming law has recently been introduced in the Czech Republic, Fortuna Group and other local players will be able to offer gaming products since the beginning of 2017.

Table 4: Product offerings

Company	Sports Betting⁵	Gaming⁶	Slot Machines	Other⁷
FORTUNA	93%	-	-	7%
LADBROKES	52%	8%	39%	1%
BWIN.PARTY	46%	54%	-	-
888 HOLDINGS PLC	0%	69%	-	31%
BET-AT-HOME	50%	50%	-	-
BETSSON AB	27%	72%	-	1%
UNIBET GROUP PLC	46%	51%	-	3%
PADDY POWER PLC	74%	15%	11%	-
WILLIAM HILL PLC	46%	23%	29%	-
Average⁸	43%	43%	10%	8%

Source: Own research

By comparing the sales channels of the companies, one can notice, that most of them are purely online service operators not having land-based retail shops. Only Ladbrokes, Unbet and Paddy Power have betting shops. EBITDA margin for those two channels doesn't differ significantly (on average 22% for Online and 21% for Retail according to the collected data). Surprisingly, comparing the channels shares with EV/EBITDA multiple for 2015 one can notice, that two highest multiples belong to

⁵ Sports betting includes Horse and Dogs races betting

⁶ Gaming includes online Poker, online Casino and other online games

⁷ Bingo, Emerging offerings, B2B (use of technology, software, operations, e-payments, advanced marketing services)

⁸ Excluding Fortuna Entertainment Group

operators still having retail operations. This matter will be further analysed in the Hypothesis 3, where more specific influence of KPIs on EV/EBITDA will be examined.

Table 4: Product offerings

Company	Online	Retail	EV/EBITDA 2015
FORTUNA	50%	50%	6.36
LADBROKES	20%	80%	9.85
BWIN.PARTY	100%	-	18.32
888 HOLDINGS	100%	-	11.98
BET-AT-HOME	100%	-	8.94
BETSSON AB	100%	-	22.31
UNIBET GROUP	66%	34%	20.49
PADDY POWER	44%	56%	25.91
WILLIAM HILL	100%	-	10.16
Average⁶	81%	19%	

Source: Own research

Performance criteria (growth, profitability etc.)

Another important indicator of companies' comparability is their performance in terms of growth and margins. EBITDA and Net Income growth for 1 year period and Compound Annual Growth Rate (CAGR) for 3 years' period are presented in the Table 5. For EBITDA growth rates Fortuna is below the market average, however for Net Income growth indicators Fortuna is outperforming the market or is on market average for 3 years' period. However, here we cannot notice a clear trend among the companies, the deviation of the values is too high. Moreover, we have to take into account, that small number of observations in this case can distort the reality.

Table 5: Growth

Company	EBITDA growth 1 year	EBITDA CAGR 3 years	Net Income growth 1 year	Net Income CAGR 3 years
FORTUNA	(2%)	7%	23%	17%
LADBROKES	(12.4%)	(23%)	(87%)	(70%)
BWIN.PARTY	7%	(23%)	(53%)	21%
888 HOLDINGS	(21%)	9%	(48%)	(6%)
BET-AT-HOME	260%	167%	20%	149%
BETSSON AB	20%	14%	9%	15%
UNIBET GROUP	(28%)	17%	(35%)	21%
PADDY POWER	10%	11%	(7%)	7%
WILLIAM HILL	(9%)	(3%)	79%	(3%)
Average⁶	28%	21%	(15%)	17%

Source: own research

EBITDA margin and Net Profit margin are both good indicators of company's profitability. The market average in a year 2015 was at 22% and Fortuna has overcome the market average. Similarly, its Net Profit margin has shown to be higher than average on the market, which is also a good sign of operational performance.

Table 4: EBITDA margin and Net Income margin

Company	EBITDA margin	Net Profit margin
FORTUNA	26%	19%
LADBROKES	11%	0%
BWIN.PARTY	19%	0%
888 HOLDINGS	16%	6%
BET-AT-HOME	32%	31%
BETSSON AB	28%	24%
UNIBET GROUP	22%	16%

PADDY POWER	21%	14%
WILLIAM HILL	23%	13%
Average⁶	22%	13%

Source: own research

7.1.2 Different multiples are caused by incomparability of the peers and the environment of their operations

The second level of comparability I would like to examine is the environment of companies' operations. First of all, as it was previously discussed, every country has its own regulatory environment for betting and gaming industry. Therefore, bottom line of service operators is highly influenced by the rate of gaming tax they are obliged to pay. Additionally, the incomparability might be caused by the different demand for gaming and betting services caused by the willingness to pay for such services.

Regulatory environment

Regulatory environment in the countries of Fortuna operations was closely discussed in the Chapter 3.2. Table X, outlines the regulations differences between the key markets where peer group companies are located. We can see that in some countries regulatory changes have already happened (France, Italy, Ireland, UK), while in others they are just being expected (Hungary, Poland, Slovakia). At the same time, in such markets as Sweden and Greece regulator holds a monopoly for betting and gaming. Additionally, while in some countries Gross Win is taken as a tax base, in such jurisdictions as

Table X: Current markets in transitions

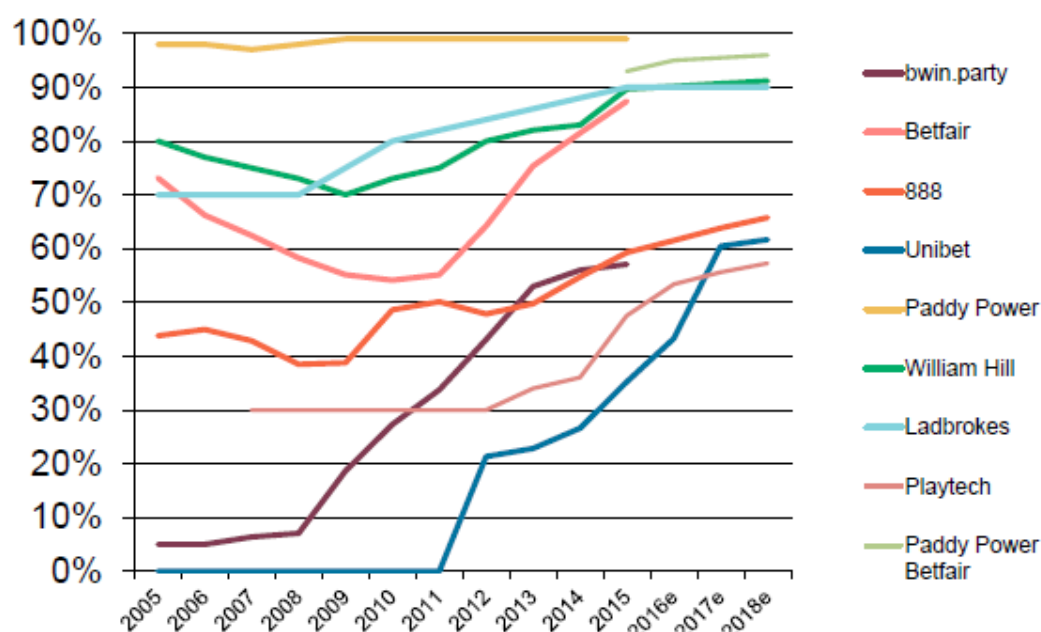
Market	Product Verticals to Be Permitted	Taxation Rate	Expected Start Date	Market Potential (GW ⁹ /AS ¹⁰ €m)
Czech Republic	All Products	20% GW	January 2016	€200m GW
Slovakia	Sports Betting	6% AS	Q1 2018	€139m (amount staked)
Poland	Sports Betting	12% AS	January 2017	€66m (amount staked)
Germany	Sports Betting Limited 20 Licenses	5% AS	Not Before 2016	€500-550m
Greece	OPAP Monopoly Ex Live Dealer / Poker	30% GW	Not finalized	€80-120m
Hungary	All Products	15% Net Win	Not finalized	€100m
Ireland	All Products	1% AS (Betting)	Regulated 2015	€275m-350m (incl. offshore)
Netherlands	All Products	20% GW + c2% Reg / Problem)	2015-2016	€200-250m
Portugal	Sports Betting, state owned	8-16% AS	2016	€65-75m
Sweden	Sports Betting Monopoly	36% GW	No Timeframe	Up to €350m
United Kingdom	All Products	15% GW (Point of Consumption)	01 December 2014	€3.5bn (incl. offshore)
Belgium	All Products	11% GW	Regulated, offshore operators are being actively blocked	€100m (amount staked)
Spain	Sports Betting	25% GW	Regulated	€416m (amount staked)
Italy	Sports Betting	2-5% AS	Regulated, offshore operators blocking is not effective	€989m (amount staked)

Source: H2GC, PwC

On the first glance the regulatory environments for peer companies seem comparable based on the countries of their legal operations. However, it has to be taken into consideration, that some peers might provide services on unregulated markets and therefore access wider customer group without paying local taxes, what drastically improve their bottom line compared with the local operators on regulated markets. Graph 9 outlines the share of revenues from offshore markets Fortuna's peer companies. In the case of Paddy Power, offshore revenues reach almost 100% and the lowest share in 2015 belongs to Unibet, which has “only” 35% of revenues coming from unregulated markets.

⁹ GW – Gross Win¹⁰ AS – Amounts Staked

Graph 8: Regulation: mix of regulated revenues



Source: Morgan Stanley Research estimates

Taking into account that Fortuna operates only as a local service provider in the Czech Republic, Slovakia and Poland, it can be concluded that it is not comparable with the selected peers in terms of regulatory environment. It is obliged to pay Gaming Tax in the full extend, while the peer companies avoid a fair amount of taxes by establishing headquarters in Malta, Gibraltar or other gaming tax “heavens” and operation on unregulated markets.

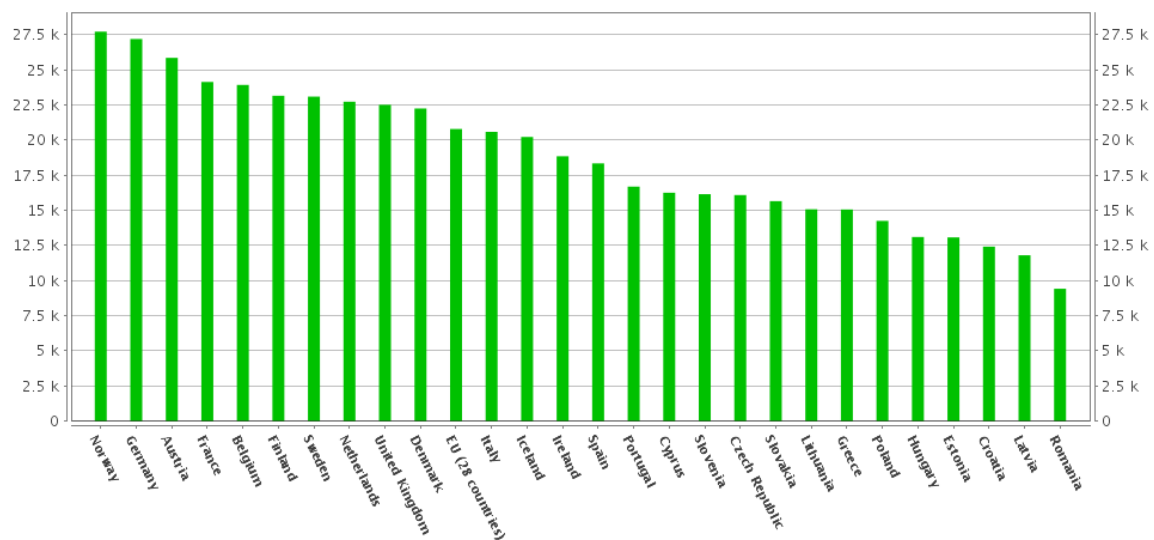
Market demand

Due to the unavailability of detailed data regarding the market demand for gaming and betting products, two variables will be compared. First, Revenue per active player will be analyzed and then overall disposable income level for a country.

First, Revenue per active player for the selected peers reaches 673 EUR per year on average while for Fortuna this KPI is on the level of 667 EUR yearly in 2015. Therefore, active clients spend approximately the same amount of money on betting and gaming services. Second, by comparing disposable income in the countries of Fortuna operations and other European countries where peer companies are present we can see that the values for Czech Republic and Poland are below EU (28 countries) level and can potentially influence the demand for gaming and betting services.

Moreover, the previously discussed presence of offshore operators on the market can also be a significant factor influencing the demand for local service provider products. As it was discussed in the Chapter 3.2 offshore players market share reaches 85% in Poland and 20% in the Czech Republic, decreasing the potential customers for local players by offering better betting conditions (rates) and services without handling fee.

Graph: Disposable income in EU



Source: Eurostat

To sum up, after analyzing the peers' comparability, I can conclude that there is a lack of similarity in the following criteria:

- Size
- Location (countries coverage)
- Regulatory environment
- Demand (driven by the disposable income)

On the other hand, from the operational perspective, the companies have shown similarities, mainly the EBITDA margin and Profit margin has proved to be on the same level as well as and long-term (3 years) growth of Net Income.

7.2. Hypothesis 2

For the inquiry of second hypothesis, I will investigate following two questions:

- I. Can the Prague Stock Market be described as efficient based on efficient market hypothesis?
- II. Can stock be undervalued/overvalued due to the wrong recommendation of equity analysts? Can they have such an influence? Is it the case of the Prague Stock Market?
- III. Can low turnover cause non-fair pricing?

7.1.3 Can the Prague Stock Market be described as efficient based on efficient market hypothesis?

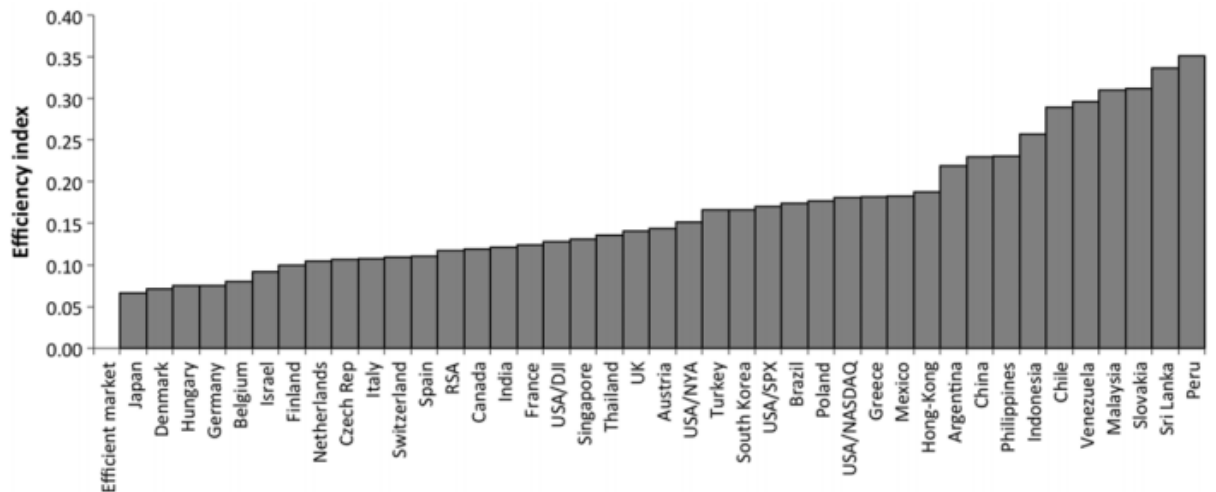
In connection to first point, I would like to discuss the efficient market hypothesis and its applicability on Prague's stock exchange. Some time ago, the efficient market hypothesis was widely accepted by academic economists; see Fama (1970) survey article "Efficient Capital Markets". The theory states that markets are efficient in reflecting information about particular stocks and about stock market exchanges as a whole. When new information arise the news are spread very quickly and so are incorporated into particular stock prices almost instantly.

The efficient market hypothesis is connected with idea of "random walk". This term can be described as series of prices, where all subsequent price changes represent random departures from previous prices. The idea is that information are unimpeded and immediately reflected into the stock prices. In such a case, tomorrow's price change will be reactions only on tomorrow's news and so will be independent of the price changes today. In case this idea is valid then the prices must be unpredictable and random as news are by definition unpredictable. In conclusion, this hypothesis poses that as prices reflect all known information, even in case when investors is uninformed, under the assumption that he buys diversified portfolio, he will obtain the same rate of return as is achieved by the experts (Malkiel, 2003). In 1996, Malkiel even stated that: *"Random Walk that the market prices stocks so efficiently that a blindfolded chimpanzee throwing darts at the Wall*

Street Journal can select a portfolio that performs as well as those managed by the experts.” (p. 15).

When discussing the market efficiency hypothesis, we need to clarify, what is meant by the word “efficient”. Does it mean that all the prices of all securities are correctly stated? As Malkiel states, efficient markets are such markets that do not allow investors to earn above-average returns without accepting above-average risks. This does not imply that securities are always priced correctly, however, for our purposes it is enough to provide evidence, that this theory is valid in long-term perspective, as Fortuna {Dopsat, ze Fortuna dlouhodobě trpi mensim ratio EV/EBITDA}. Such a claim is supported by the literature practice, as any of the “predictable patterns” that have been found and subsequently published were ever robust enough to enable to create a profitable investment plan or to allow investors to earn excess returns. In other words, our purpose is to show that the true value will win in the end.

One of the recent papers (Krystoufek and Vosvrda, 2013), which included Prague Stock Exchange in its dataset, introduced and tested a measure for the capital market efficiency. Their measure takes into account two aspects - correlation structure of the returns (long-term and short-term memory) and local herding behavior. Correlation structure of returns I already covered above herd behavior can be described as a tendency of individuals to mimic the actions (rational and even irrational) of a crowd of people. Their efficiency measure is taken as a distance from an ideal efficient market situation and is calculated on 41 stock indices. Their main result is depicted in Figure XX, where we can see that Prague Stock Exchange is among top efficient ones.



Picture 2: Efficiency index for world stock indices

Source: Krystoufek and Vosvrda (2013)

It is worth to note that Krystoufek and Vosvrda (2013) are working with Stock indexes, while I am interested in efficiency of market in case of particular stocks. The assumption here would be that, when whole market as such is found out to be efficient, this means that particular titles on this market are efficient as well. However, based on the current literature, there are multiple effect (anomalies) affecting single titles on stock markets, which could be considered as inefficient from the efficient market hypothesis perspective. In following paragraphs, I would like to mention the most important ones.

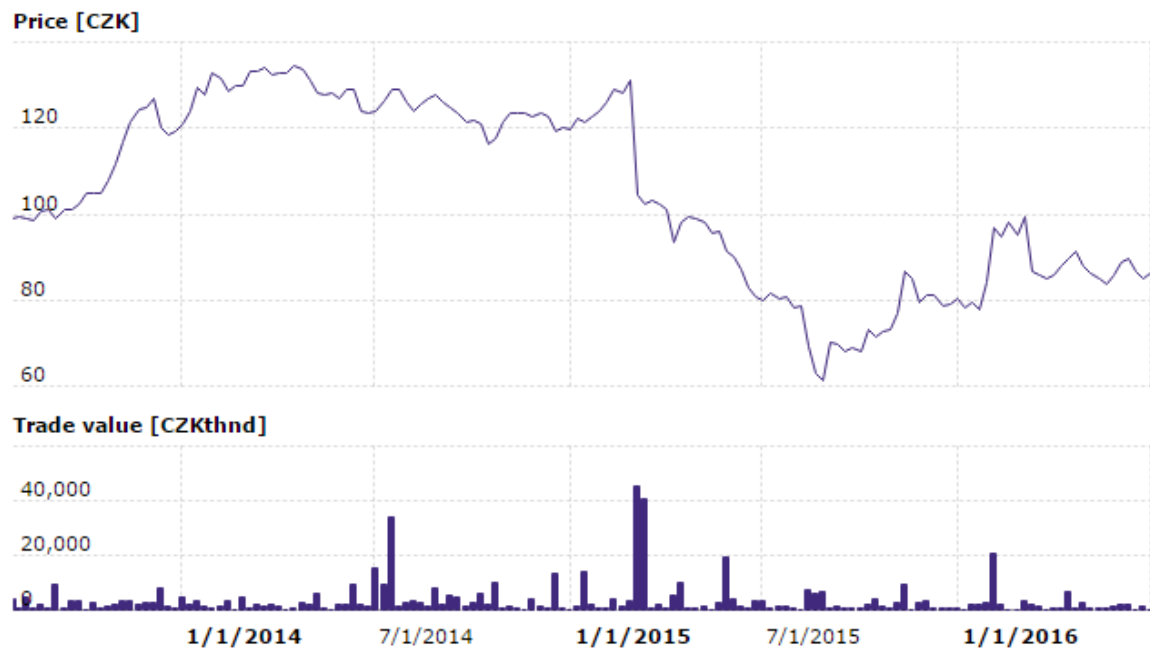
Based on work of Latif et al. (2011) let me categorize the anomalies on calendar, fundamental and technical anomalies. In my case I am not interested in calendar (e.g. Weekend Effect – stock prices are likely to fall on Monday) or technical (includes number of analyzing techniques use to forecast future prices of stocks on the basis of past prices and relevant past information, e.g. moving averages) anomalies, as our hypothesis is that for tuna is undervalued based on EV/EBITDA multiple. Most relevant Fundamental anomalies for the case of Fortuna are:

- **Value anomaly:** One of the most basic and intuitive anomalies occurs, when investors predicts poorly future earnings and return of company. For growth companies, they overestimate future earnings, while for stagnating or declining companies they underestimate the future earnings. This anomaly was firstly mentioned by Graham & Dodd (1962).

- **High dividend yield:** Based on Fama & French (1988) titles with high dividend yield outperform the market and generate more return.
- **Low P/E:** The titles with low P/E are more likely to generate bigger returns and so outperformed the market. Consistently with that, titles with high P/E ratio are more likely to generate lower returns and so underperform the market. For example, Goodman & Peavy (1983) investigated this anomaly.
- **The size effect:** The size effect is described as tendency over long periods of time for smaller-companies to have bigger returns than those of large-companies stock. Keim (1983) or Fama and French (1993) documented this anomaly.

In addition to above-mentioned fundamental anomalies, I would like to add to the discussion the work of DeBondt and Thaler (1985). When we again look at the Figure XX, where I depict the price evolution of Fortuna stock on Prague Stock Exchange, we can see that large return reversal beginning in March 2015 and ending in August 2015. For example, Fama and French (1988) on 1926-85 period found that 25 to 40 percent of the variation in return horizons beyond year could be predicted in terms of a negative autocorrelation with past returns. Similarly, Poterba and Summers (1988) found significant evidence for mean reversion. Those evidences are important for proposition of DeBondt and Thaler (1985), as they are claiming that this forecastability can be assigned to the tendency of stock market to “overreact”. They further argue that investors experience waves of optimism and pessimism, which can cause prices to deviate systematically from their fundamental values and later to exhibit mean reversion. Such overreactions to past events are in line with behavioral decision theory of Kahneman and Tversky (1979), which states that investors will be systematically overconfident in the ability of future stock price forecasting or future earnings of companies.

One could argue that the price reversal of Fortuna in Figure XX can be qualified as above described overreaction. This proposition is feasible, but it is not possible to prove it, moreover, it should be mentioned that, even though, there is large support for long-run negative serial correlation in stock returns, the findings of mean reversion are hardly uniform across studies covering different time periods and different datasets. The strongest empirical results are coming from periods like the Great Depression (Malkiel, 2003).



Picture 3: Xxx

Source: Prague stock exchange

To discover the situation in more detail let me examine what were the causes of the rapid decline of Fortuna price from 131 CZK to 97 CZK during only 7 days in one particular period from 3.3.2015 to 10.3.2015. By examining the events related to Fortuna at the period by media monitoring we can capture the following events:

- a) Fortuna as announced that it will stop paying out dividends due to its plans to invest into a new IT platform
- b) New Legislation change was introduced in Slovakia: a license fee of 6% of bets/stakes and 1% in the case of horse racing betting; at the same time Fortuna decided to cancel handling fee following XXX in order to keep up with the competition
- c) Change in Fortuna management was announced

From the analysis of the price drop causes we can conclude, that investors have very promptly reacted on the new market information what confirms the efficiency of Prague Stock Market.

Considering the stated above I would expect the market to react with a price growth to the market information carrying positive news for Fortuna such as current development

of the new IT platform which is expected to increase average customer spend and opportunity of Fortuna to enter gaming market due to the approval of a new Gaming Law on 7th of June (will be put in force from the 1st of January, 2017).

7.1.4 Can stock be undervalued/overvalued due to the wrong recommendation of equity analysts? Do they have such influence? Is it the case on the Prague Stock Market?

In respect to the stated above, I would like to examine the value anomaly phenomenon more in detail. Can value anomaly on the market occur or get bigger in case Equity analysts poorly predict future earnings and return of company. In other words, how big is the influence of the Equity analysts have on actual market price?

For such an inquiry, I will use two methods. Firstly, as described in methodological section 5, I performed three face-to-face interviews and secondly based on my inputs from the Penta Investments, interviews and market knowledge, I have created simple theoretical model of information equilibrium obstructing fair pricing.

All analysts answer that they are not able to affect the stock price. They claim that they do not have such an influence compared to big banks (e.g. Goldman Sachs or J.P. Morgan) or credit rating agency like Bloomberg. For the sake of clarity, I would like to first define what does it mean that somebody affect the price. Let's start with simple example with following assumptions:

- Ten analysts are analyzing stocks. They all have similar skills and track record
- Market is comprised of people, which has imperfect information and will not invest in getting perfect one¹¹
- Analysts reports include three key summary measures: earnings forecasts, a stock recommendation - such as buy, sell, or hold - and a price target
- Analysts have bigger market overview and knowledge about the market than people

In such setup, I would assume that analyst will be competitive – they would like to be better than their colleagues/competitor and they will try to predict the future state as best as possible. People would rely on analyst's reports, as they would know that analysts are

¹¹ Described, for example, in Stigler (1961).

competitive and similar in their skills. Moreover, they will have their own expectations based on their limited knowledge. Those expectations will be more likely in line with those nine analyst (even in case that the one would be correct) as in opposite case whole market would know some key information, which significantly affect price, while 90% of analytics would not be aware. As a result, it is quite possible that in such case, tenth analytic would be more in line with other, because he would know that market would not follow his recommendation.

On the other hand, let us imagine a situation, when all the analytics will publish recommendation, which is far from market expectations. In this case, people will know, that analytics are competitive and have in general bigger overview about the market, as a result, people would follow analytics and so analytics would affect stock price. In conclusion, it is unlikely that one analytic will severely affect stock price, but it is possible that “cartel” of analytics could.

If we want to proceed in analysis, we should improve the model above by one key thing – reputation. During the interviews, unanimous opinion of analysts was that although they are not individually able to move with the price, some more reputable banks/rating agencies are. Keeping in mind this improvement let me define more complex and more reality-reflecting model. In this model, I will be working with four stakeholders:

- **Market** (people trading stocks): comprised of selling and buying parties, which has imperfect information and will not invest in getting perfect one. Relies on reputable institutions/analysts.
- **Reputable rating company** (or bank): International institution with worldwide reach relying on selection of reports of local analysts, as it would be too complex for the firm to have experts on every country/firm. Their methodology of price recommendation is based on aggregation of selected local analysts. This institution is highly respected and its report/recommendation are influential.¹²
- **Local analysts**: Analysts employed by local institutions or by local daughter companies of large international banks. They differ in their reputation and skills,

¹² This idea is supported by many works, e.g. Cristi A. Gleason et al. (2003), which tests if the analyst’s ability and reputation (i.e., whether he or she is a superior forecaster, and whether his/her abilities are likely to be well known to the market) affect the speed of price adjustment and find out that that forecasts made by celebrity analysts elicit a stronger immediate price response and less pronounced subsequent price drift.

they are considered as experts for the market as it is their job to analyze local companies (e.g. Fortuna) performance. There are in general rather conservative

- **Fortuna:** The stock of our interest. It is perceived as a firm with weak track record (e.g. introduction of lotteries as described in section), bad communication (especially after new management introduction).

I argue that in this set-up it is possible that information equilibrium about price will emerge and as a result, the stock can be over/under-valued for some time. Such an equilibrium could emerge in following steps:

1. Fortuna lose part of its credibility, while doing suboptimal decisions (e.g. new management, no dividends, non-successful launch of lottery business)
2. Based on the Fortuna's moves market will adjust expectations and Fortuna's market cap. will decrease
3. Analytics knowledgeable about Fortuna's perception on the market will rather under forecast Fortuna's future earnings, as they are risk averse and they evaluate risk more significantly than opportunities (e.g. not taking into account opportunity of entering into gaming in CZ or impact of new IT platform on future earnings)
4. Resulting analytics' reports are aggregated by respectable international rating agency and its final recommendation will support market view on Fortuna
5. Fortuna stock will keep to being undervalued until they will get back their reputation lost during step one (for example, by increased earnings due to IT system or by successful market entry into the gaming)

In conclusion, it is feasible that Fortuna stock price sufferer by some of the anomalies mentioned in this chapter. I will return to this discussion after I will explore other stated hypotheses.

7.1.5 Can low turnover causes non-fair pricing?

The discussion about second point is connected with the discussion about point one – if we believe that market are efficient (e.g. Prague Stock Exchange), then liquidity should not affect the efficiency that much. The only case, where liquidity affects efficiency is the fact that higher liquidity facilitates arbitrage trading which enhances market efficiency. For Fortuna case, this should not be a problem from two reasons.

Firstly, I would expect that there is certain threshold, where low liquidity is truly issue from information transferring perspective – in other words, the liquidity is so low that information are not reflected in price for a long time. Average trading volume of Fortuna stocks are around 26000 per day, which I would expect is sufficient for reflecting all the information about company into stock prices.

Secondly, even in case, when we will admit that the Fortuna stocks turnover is too low for sufficiently quick price adjustments, there is no mechanism how this illiquidity could cause non-fair pricing. In the case of Fortuna we are not concerned by temporary mispricing, but about long-term comparison of Fortuna EV/EBITDA with its competitors.

7.3. Hypothesis 3

In this section, I will present my result of from the linear regression model described in Methodology Chapter. I run the regression in order to test the Hypothesis 3: *Fortuna KPIs are worse comparable to the international peers and there is an opportunity for their improvement, which can lead to increased EV/EBITDA multiple for Fortuna.*

The dependent variable is EV/EBITDA and the goal is to find out the KPIs, which affects the multiple the most. As I do not possess large number of observation, I will not be able to put all the KPIs into one regression specification.¹³ From this reason, I present data in seven specification in order to map possible significant KPIs. It should be noted that one should be careful, when employing such approach as the type one error can be easily reached.¹⁴ As a result, significant results in one specification should be interpreted with caution and the truly significant variable should appear statistically significant in multiple specifications.¹⁵

¹³ Although, even in case I would have more observations, I would argue that it is not advisable to work with too many variable, as the goal should be to create parsimonious model.

¹⁴ In statistical hypothesis testing, a type one error is the incorrect rejection of a true null hypothesis (a "false positive"), while a type two error is incorrectly retaining a false null hypothesis (a "false negative"). In other words, type one error is, when null hypothesis is rejected (relationship is statistically significant), although, no relationship exists.

¹⁵ I would like to note a possibility to use dimension reduction approach into my work (e.g. PCA or factor analysis. Although, such approach can be view as beneficial in my case, I decided to not employ it as it, in general, has problems in economic interpretability. While running this analysis I ran across the same issue and decided not to continue with this method.

TABLE 1 – Linear regression analysis

MARGINAL	Specifikation 1	Specifikation 2	Specifikation 3	Specifikation 4	Specifikation 5	Specifikation 6	Specifikation 7
R square	0.48	0.27	0.3	0.37	0.46	0.48	0.18
Adjusted R Square	(0.38)	(0.13)	(0.19)	0.25	(0.36)	(0.39)	(0.03)
EV-to-EBITDA	dependent	dependent	dependent	dependent	dependent	dependent	dependent
Constant	-19.14 (9.71)*	6.77 (3.98)*	-3.42 (4.24)	20.06 (3.48)***	-9.95 (5.35)	-15.69 (5.24)***	10.23 (3.64)***
Revenue Growth 1 year		6.66 (4.89)	5.69 (4.66)				
Revenue online			8.7 (3.15)***		15.86 (4.46)***		
Revenue Sports Betting	26.34 (7.58)***		13.12 (4.34)***			22.24 (5.38)***	8.72 (4.59)*
Revenue Gaming	25.25 (8.65)***	-0.34 (4.99)		-16.5 (5.15)***		22.53 (5.71)***	
Gaming machines				-30.35 (9.6)***			-13.71 (11.66)
Active players growth			0.02 (0.04)	0.04 (0.04)	0.07 (0.03)*	0.06 (0.03)*	
Revenue / active client	0.00 (0.00)						-0.001 (0.01)
Active players	0.00 (0.00)***	0.00 (0.00)***			0.00 (0.00)***	0.00 (0.00)***	
Marketing / Revenue	3.22 (8.81)				-4.83 (9.06)	1.33 (8.46)	
Capex / Revenue			-3.9 (16.54)				-9.19 (17.54)
Capex / Depreciation				-2.79 (1.60)*			
EBITDA margin							
EBITDA growth 1 year		-0.02 (0.02)		-0.01 (0.01)	0.03 (0.02)		
EBITDA CAGR 3 years		-0.16 (2.93)		-5.22 (2.84)*		-0.85 (2.39)	
Profit margin							1.03 (5.66)
Net income 1 year growth		-0.12 (0.27)					-0.14 (0.29)
Net income 3 years CAGR							-0.82 (2.01)
FCF Yield (%)	36.56 (23.14)		49.97 (26.39)*		2.01 (22.22)		
DPS / EPS	6.06 (2.49)**	5.8 (2.79)**			6.16 (2.44)	6.77 (2.36)***	
(EBITDA - CAPEX) margin				26.89 (11.50)**			

Notes: Dependent variable is EV/EBITDA; standard errors in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01.

Source: Authors' calculation

In Table we can see the resulted specifications. Many KPIs do not show statistically significant results, but in some case, we can see consistent statistical significance for a few KPIs. Let me discuss KPIs one by one. Firstly, let me start with consistently non-significant, which I will not consider any more: Revenue Growth 1 year, Marketing / Revenue, Capex / Revenue, Capex / Depreciation, EBITDA margin, EBITDA growth 1 year, EBITDA CAGR 3 years, Profit margin, Net income 1 year growth, Net income 3 years CAGR. All those variables are consistently insignificant with large standard deviations. Continuing our interpretation, I would like to focus on Revenue / active client

and FCF Yield (%). Those two are statistically significant, but only in some of the specification, so in order to remain conservative, I will exclude them from the subsequent analysis as well.

Remaining variables are Revenue online, Revenue Sports Betting, Revenue Gaming, Active players growth, Active player and DPS / EPS. Revenue online is perfectly collinear with variable Revenue retail, which is not included from technical limitation of OLS. The positive sign suggests that having online business is better in terms of EV/EBITDA. Revenue Sports Betting and Revenue Gaming are perfectly collinear with Gaming machines and so are compared to that variable in specifications. Gaming machines usually have high EBITDA margin, so it can look surprisingly, that in terms of EV/EBITDA it is the least favorite channel, but this can be explained by the fact that Gaming machines are extremely negatively correlated with Revenues online (-0.79), so positively correlated with retail business, which is less favorable in terms of EV/EBITDA than online.

Active players growth and Active players are both significant across specification. Active players growth is significant on lower levels and in one case insignificant, but there is prevailing tendency for significant results. Active player seems to be consistent driver as it is significant with p-value lower than 1% in every specification. Last significant variable is DPS / EPS, which is three times significant and one time insignificant, so I will keep it in the analysis.

In Table XX we can see the list of KPIs. To every KPI I assigned assumed marginal change, which is realistic from companies perspectives. As I have more specifications I need to average the marginal effect, my methodology for that is as following: for every variable of interest I take all the coefficients and I average them (without consideration, if the coefficients are significant or not, as I would not like to affect the average by this constrain) – this number is reported in last column. For better overview, I also report lowest and highest marginal effect based on coefficients in particular specification.

Table - Relevant KPIs marginal effects

KPI	Assumed marginal change	Lowest marginal effect	Highest marginal effect	Average from all specifications
Revenue online	+10%	0.87	1.59	1.23
Revenue Sports Betting	+10%	0.87	2.63	1.76
Revenue Gaming	+10%	-0.03	2.53	1.58
Active players' growth	+10%	0.002	0.007	0.005
Active players	+100 000	0.19	0.52	0.36
DPS / EPS	+10%	0.58	0.67	0.62

Source: own research

For considering those numbers further, we will need to exclude Revenue Sports Betting and Revenue Gaming as a percentage to Total Revenues as in the statistical sense those variables do not create of additional opportunity for Fortuna. Currently, Fortuna has 93% of revenues in Sports Betting, if they would like to increase Gaming revenues, they would most likely decrease Sports Betting revenues and resulting outcome on EV/EBITDA would be close to zero. Of course, if entry to Gaming will increase online revenues, active players or enable to pay dividends, than the resulting EV/EBITDA would be higher. However further research is needed in order to assess the potential impact of Fortuna entering gaming segment.

Table 4 - Relevant KPIs and potential for Fortuna

KPI	Peers average	Fortuna	Assumed potential improvement	Potential
Revenue online	77%	50%	27%	3.32
Active players growth	14%	6%	9%	0.0045
Active players ¹⁶	1,035,380	154 000	100 000	0.36
DPS / EPS	54%	0%	54%	3.35

Source: own research

¹⁶ As Fortuna peers operate all over the world, this number is not comparable in terms of absolute amount. Therefore, an assumption of client growth for Fortuna will be made

In Table XX we can see potential for Fortuna, which mainly lies in online channel and in payments of dividends. By increasing the share of Revenue coming from online segment to peers average of 77%, in the ideal case Fortuna can potentially gain 3.32 points to its EV/EBITDA multiple. Approximately the same increase the company can gain by increasing DPS / EPS ratio, or in other words paying dividends to its shareholders. Dividends payment on the industry level of 54% of Earnings could potentially bring Fortuna additional 3.35 points to the multiple. Two other KPIs connected with the increase of the active clients could bring a less significant potential improvement.

Even though the results look promising and seem to guide a way of the further development, we have to be careful in assuming, that such results will necessarily be achieved in the real market conditions. First of all, we have to take into account that there are other factors, which can influence the potential EV/EBITDA change or stagnation such as considered in the first and the second hypotheses comparability of peers and market efficiency / inefficiency. We should also take into account that the KPIs will be highly interconnected – e.g. improving online channel will most likely bring more players and so the EV/EBITDA will increase from this reason as well.

Discussion and Conclusion

In this chapter I will discuss the results of the hypothesis testing and try to find interconnections between them. In order to answer the main question of the paper: “*What causes EV/EBITDA multiple of Fortuna to be constantly on average lower than its peers’?*”

I analyze three hypotheses and test the comparability of peers, efficiency of the market and assessing the possibility for Fortuna to reach higher EV/EBITDA multiple by improving its KPIs to the average level of its peers.

I have received the most straightforward results from testing the Hypothesis 3 as I was able to identify KPIs which would help Fortuna to potentially increase its EV/EBITDA multiple from 6.36 to 13.39 points by reaching market average in the most impactful KPIs: Revenue Online, Active players’ growth (%), Active players and DPS/EPS. Those KPIs can be improved by Fortuna by *entering Online Gaming market* in the Czech Republic and *starting paying dividends to its shareholders*. However, we have to take into account, that potential improvements might not reach the level claimed by the results of the regression from two reasons. Firstly, it does not take into consideration the factors relevant to Czech market and specifically Fortuna, and therefore the results would be hard to fully achieve in the real environment. Secondly, the testing sample is small and so the statistical results are not robust enough.

First of all, the factor of Fortuna comparability with the selected peer groups which was analyzed in the first Hypotheses has to be taken into consideration. The comparative analysis has shown, that Fortuna is not comparable with the selected peers in terms of size, countries coverage, and regulatory environment. Due to this, Fortuna will not be able to achieve comparable economies of scale, to grow with the same pace due to the easiness of expansion and can potentially suffer from offshore players taking away potential customers if government will not be able to enforce the new Gaming law in the Czech Republic and successfully ban them.

Second, the desired increase of EV/EBITDA can be lowered by the potential market inefficiency discussed in the Hypothesis 2. The discussed information equilibrium causing Value anomaly - one of the most basic and intuitive anomalies occurs, when investors predicts poorly future earnings and return of company. If it takes place in case of Fortuna,

the market can be undervalued in the long-run, this is most likely influenced by the reputation of equity analysts. However, I believe, that market cannot be inefficient in the long-run, in other words, the information equilibrium as defined is relatively fragile. If Fortuna shows the first good results connects with the anticipated entering of Gaming market and having the first positive improvements caused by using new IT platform, it is very likely that Fortuna's current bad reputation increases and whole market will reach new equilibrium (more favorable for Fortuna).

Lastly, during the analysis I have reached to the conclusion, that EV/EBITDA multiple is not only lower than it peers', but if it is showing a decreasing trend in the last three years. The possible reasons for this can be found in looking at the Fortuna and its market itself, disregarding the comparison with peers. After the rapid decline in the beginning of 2015, when Fortuna stock have plunged almost 30%, several major events have happened and entailed the decline of the multiple from 9-10 to 6-7. The events I am referring are:

- a) Announcement that Fortuna will stop paying out dividends due to its plans to invest into a new IT platform
- b) New Legislation change was introduced in Slovakia: a license fee of 6% of bets/stakes and 1% in the case of horse racing betting; at the same time Fortuna decided to cancel handling fee in order to keep up with the competition
- c) Change in Fortuna management announcement.

Based on the interviews with equity analytics, I have concluded, that those events together with not very successful launch of lottery products and Fortuna's poor communication and major changes in the legislation of all countries, where the company operates has lead to the lost of trust to Fortuna from investors and has lead to Fortuna shock shares decline.

To conclude, I believe, that it is possible for Fortuna to reach multiples comparable with its peers, however, it should undertake certain steps to get closer to this goal Fortuna should:

1. Reconsider its dividends policy and starts paying out the dividends. This step has been proven efficient both from the results of the Hypothesis 3 testing and can attract investors and it would also help with reaching new equilibrium or put it differently, getting rid of the value anomaly as described in Hypotheses 2
2. Return trust to Fortuna's management by communicating more openly

3. Enter Online Gaming segment, what can lead to both active clients increase and increase EBITDA if cross-selling on the new platform is done efficiently

To conclude, I believe, that higher multiple for Fortuna is achievable if the right steps are taken and investor relationships are properly managed.

In last paragraph of this paper, I would like to discuss ideas for future research / topics for additional analysis. Biggest potential added value to my work would be to redefine the peer group. The peer group was defined with Penta Investment and so I consider it relevant, however, from statistical perspective nine companies is not enough to obtain truly robust statistical results. Secondly, in further analysis it would be interesting to model potential impact of my recommendation to EBITDA and EV, in order to calculate a new EV/EBITDA multiple. I haven't performed those calculations, as I would strongly recommend to perform the first step first, so that the calculations can be performed on statistically robust estimates.

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