

Almir Alihodžić

Ekonomski fakultet
Univerziteta u Zenici
almir.dr2@gmail.com

DETERMINANTE TRŽIŠNIH CENA AKCIJA NA TRŽIŠTU KAPITALA BOSNE I HERCEGOVINE

Prevod
obezbedio
autor

Rezime

Tržišta akcija su efikasna ako cene u bilo kojem momentu reflektuju sve javno dostupne informacije. Cene akcija bi trebalo da se prilagode u momentima kada investitori pokušavaju da iskoriste nove informacije koje nisu bile predmetom računovodstvenog evidentiranja. Osnovni cilj ovog rada je da se utvrdi da li zaista finansijski izveštaji odabrane skupine preduzeća koja kotiraju na Sarajevskoj i Banjalučkoj berzi predstavljaju dobru baznu osnovu i odraz tržišnih cena ili naprosto služe kao zakonska obaveza i zahtev regulatornih agencija. U radu će biti sprovedena regresiona analiza zavisne i nezavisnih varijabli za period od 2011. do 2015. godine. Kao zavisna varijabla će biti tretirana zatvarajuća cena trgovanja na berzama, dok će se kao nezavisne varijable koristiti sledeće: odnos tržišne cene i zarade (PE racio), zarada po akciji (EPS), neto dobit nakon oporezivanja (ND), ostvareni profit na akcijski kapital (ROE), odnos tržišne i knjigovodstvene vrednosti (PB), i ukupan promet na berzama (PR).

Ključne reči: volatilnost tržišta, rubno tržište, zatvarajuća cena, promet

JEL: G10, G12, G14

DETERMINANTS OF MARKET PRICES OF SHARES ON THE CAPITAL MARKET OF BOSNIA AND HERZEGOVINA

Almir Alihodžić

Faculty of Economics
University of Zenica
almir.dr2@gmail.com

Translation
provided by
the author

Summary

Stock markets are efficient if the prices at any time reflect all publicly available information. Share prices should be adjusted at those points when investors try to take advantage of the new information that was not subject to accounting recognition. The main goal of this paper will be to determine whether the financial statements of a selected group of companies listed on the Sarajevo and Banja Luka Stock Exchange represent a good basis and reflect the market price or simply follow the legal obligations and requirements by regulatory agencies. The paper is based on the regression analysis of dependent and independent variables in the period from 2011 to 2015. The dependent variable will be the closing trading price on the stock exchanges, whereas the independent variables will be: the market price and earnings (PE) ratio, earnings per share (EPS), net profit after tax (NP), return on equity (ROE), the market and book value (PB) ratio, and the total turnover on the stock exchanges (TR).

Keywords: market volatility, frontier market, closing price, turnover

JEL: G10, G12, G14

Uvodna razmatranja

Za razliku od monetarnih ekonomista, finansijski ekonomisti su razvijali teoriju o očekivanjima na finansijskim tržištima. Teorija ih je vodila do istih zaključaka kao i teorija teoretičara racionalnih očekivanja, tj. do sledećih zaključaka: očekivanja na finansijskim tržištima jednaka su optimalnim prognozama uz upotrebu svih raspoloživih informacija. S obzirom na to da su finansijski ekonomisti svojoj teoriji dali drugačije ime, odnosno nazvali su je hipoteza o efikasnosti tržišta, može se reći da je to primena racionalnih očekivanja u određivanju cena akcija i drugih hartija od vrednosti. Hipoteza o efikasnosti tržišta se bazira na pretpostavci da cene hartija od vrednosti na finansijskim tržištima u potpunosti odražavaju sve dostupne informacije.

Između stanja u privredi i kretanja tržišnih cena akcija postoji izvesna kauzalnost, u smislu da kada su privredni i tržišni uslovi povoljni može se očekivati i rast cena akcija i obrnuto. Bitno je napomenuti da na tržišno kretanje cena akcija nema samo značajan uticaj stanje u privredi već i performanse posmatranog preduzeća koje je preduzeće ostvarilo u posmatranom vremenskom periodu. Prema klasičnoj teoriji na kretanje cena akcija imaju dominantan uticaj zarade preduzeća, gde klasičari smatraju da vrednost akcija predstavlja sadašnju vrednost budućih dividendi, te da isplata dividendi u prvom redu zavisi od zarada preduzeća tako da zarade vrše indirektni uticaj na cene akcija. Za razliku od klasičara, bihevorističari smatraju da na cene akcija značajan uticaj ima ponašanje investitora, tj. stepen poverenja investitora u kretanje cena akcija i samo poslovanje preduzeća.

Prema klasifikaciji FTSE *Global Equity Index Series*, tržište kapitala u Bosni i Hercegovini nije klasifikovano, te pripada grupi rubnih tržišta (engl. *frontier markets*). Rubna tržišta su pre svega tržišta zemalja u razvoju koja se odlikuju niskom tržišnom kapitalizacijom i slabom likvidnošću. Pozitivna strana ovih tržišta ogleđa se u tome da su otvorena i dostupna za strane investitore, ali je sa druge strane prisutna veća opasnost od ekonomske i političke nestabilnosti, te slabe korelacije sa

razvijenijim tržištima kapitala.

Dugoročne perspektive preduzeća kao i stanje njihove imovine na tržišta akcija u regionu skoro da nemaju nikakav uticaj u pogledu odluka potencijalnih kupaca na to koju su cenu spremni da plate, što nije slučaj na razvijenim tržištima kapitala. Za sam ulazak domaćih i stranih investitora od kapitalnog značaja je sama procena političkog rizika i određenih makroekonomskih indikatora na duži period.

Poslovni svet nije imun na predstavljanje lažnih informacija u kontekstu finansijskih izveštaja, koji se nazivaju *kreativnim izveštajima*. Isti izveštaji su sačinjeni sa ciljem obmanjivanja ili neistinitog prikazivanja stanja i rezultata u krajnjoj istanci zbog ostvarivanja nekog cilja na štetu načela bilansiranja i računovodstvenih standarda. Mnogi potencijalni i stvarni investitori svoje investicione odluke baziraju na osnovu tržišnih cena kotirajućih preduzeća na berzama. Prema profesoru Asvatu Damodaranu sam proces sprovođenja analize finansijskih izveštaja i organizacione dijagnostike donosi sa sobom niz potencijalnih problema posebno u fazi prikupljanja podataka, gde je od kapitalnog značaja mogućnost procene pouzdanosti finansijskih izveštaja. Ovu stranu analize profesor Damodaran naziva: „*mračnom stranom određivanja vrednosti*“. Dakle, zaposleni analitičari u odeljenjima za planiranje i analize u preduzećima vrše razna istraživanja i procene na bazi dostupnih podataka i informacija. Često se dešava da su inputi loše greške, posebno u zemljama Zapadnog Balkana što sa sobom donosi pogrešne odluke menadžmenta. Jako je bitno imati određenu dozu rezervi u kontekstu predviđanja samih menadžera, koji ponekad stvari gledaju i previše optimistično.

Ovo istraživanje je strukturirano iz četiri dela. Prvi deo se odnosi na uvodna razmatranja te pregled relevantne literature. Drugi deo tretira analizu berzanskih indeksa te volatilnost tržišta pojedinih razvijenih zemalja, zemalja članica EU te zemalja Zapadnog Balkana. Treći deo odnosi se na korišćene podatke i metodologiju samog istraživanja. Poslednji, četvrti deo se odnosi na dobijene rezultate istraživanja, zaključna razmatranja i dalje preporuke.

Introduction

Unlike monetary economists, financial economists have developed a theory of expectations in the financial markets. The theory led them to the same conclusions as the theory of rational expectations, i.e. the following conclusions: the expectations on financial markets are the same as optimal forecasts using all available information. Since financial economists have given their theory a different name, that is, they called it a hypothesis on market efficiency, it can be said that it is the application of rational expectations in determining the prices of stocks and other securities. The market efficiency hypothesis is based on the assumption that the prices of securities in the financial markets fully reflect all available information.

There is a certain causality between the state of the economy and market price movements, in the sense that when economic and market conditions are favorable, one can expect a rise in the stock prices and vice versa. It is important to note that the market price movement of shares has a significant influence not only on the state of the economy but also on the performance of the observed company that the company realized in the observed period. According to the classic theory, the movements of stock prices are dominantly influenced by the company's profits, and the classic theoreticians believe that the value of shares represents the present value of future dividends and that the payment of dividends depends in the first place on the earnings of enterprises, which means that the earnings indirectly affect the prices of shares. Unlike the classic theoreticians, the behaviorists believe the behavior of investors to be significant for stock prices, i.e. the degree of investors' confidence in the movement of stock prices and the mere operations of the company.

According to the FTSE Global Equity Index Series, the capital market in Bosnia and Herzegovina is not classified and belongs to the group of frontier markets. Frontier markets are primarily the markets of developing countries that are characterized by low market capitalization and poor liquidity. The positive side of these markets is that they are open and accessible to foreign investors, but on the other

hand, there is a greater danger of economic and political instability and poor correlation with the more developed capital markets.

Long-term prospects of companies as well as the state of their assets in the stock markets in the region have almost no impact on the decisions of potential buyers in terms of the price they are willing to pay, which is not the case on the developed capital markets. Of capital importance for the entry of domestic and foreign investors is the assessment of political risk and certain macroeconomic indicators for a long period.

The business world is not immune to the presentation of false information regarding financial statements, the so-called creative reporting. Such reports are designed to mislead or misrepresent the status and outcome of an endpoint with a view to achieving a goal at the expense of the balancing principle and accounting standards. Many potential and actual investors base their investment decisions on the market prices of listed companies on stock exchanges. According to Professor Asvat Damodaran, the process of analyzing financial reports and organizational diagnostics brings with it some potential problems, especially in the data collection phase, where it is of great importance the ability to assess the reliability of financial statements. Professor Damodaran refers to this side of analysis as: "the dark side of determining values". Therefore, the analysts employed in the planning and analyses department of companies perform various research and assessments based on the available data and information. It often happens that the inputs are serious mistakes, especially in the countries of the Western Balkans, which leads to the wrong decisions of the management. It is very important to have a certain amount of reserve when it comes to the managers' forecasts, because sometimes they look at things too optimistically.

This research is structured in four parts. The first part refers to the introductory considerations and a review of the relevant literature. The second part deals with the analysis of stock exchange indices and volatility of the markets of some developed countries, EU member states and Western Balkan countries. The third part focuses on

Pregled relevantne literature

Testiranje slabe forme efikasnosti tržišta usmereno je na proveru odabranog uzorka akcija u kontekstu kretanja njihovih cena. Tako, ako su buduće promene u cenama hartija od vrednosti slične promenama cena hartija od vrednosti koje su se dešavale u prošlosti onda se istorijsko kretanje cena može koristiti kao aproksimacija za abnormalne zarade. Određeni broj istraživanja je pokazao da su promene istorijskih cena tokom vremena nezavisne. Čak i kada se desi da su neke zavisnosti detektovane, transakcioni troškovi deluju u smeru izjednačavanja viškom zarađenog profita. Takođe, postoje određeni dokazi da se performanse akcija ponašaju bolje u određenim periodima tokom godine. Na primer, u periodu od decembra do januara dolazi do regularnog pomeranja cena akcija. Ovaj fenomen nosi naziv januarski efekat (engl. *January effect*). Dakle, kod januarskog efekta cena akcija rastu petkom i pred praznike, a padaju ponedeljkom. Ovaj fenomen je u suprotnosti sa teorijom o efikasnosti tržišta.

Baks i Kramer (1999) su na osnovu tromesečnih podataka za period između 1971. i 1998. godine, došli do tri glavna zaključka koja se tiču odnosa između stope rasta likvidnosti i povrata na akcije. Prvi zaključak do kojeg su došli na osnovu empirijskog istraživanja jeste da više stope rasta likvidnosti vode do većih stopa povrata. Drugi zaključak do kojeg su došli odnosi se na to da sa rastom stope likvidnosti dolazi do smanjenja realnih kamatnih stopa. I kao poslednji zaključak navode da efekat prelevanja likvidnosti važi, tj., da je povećana stopa likvidnosti u jednoj zemlji refleksija prva dva rezultata, odnosno zaključka

Na panel uzorku od 33 zemlje koje obuhvataju Evropu, Aziju, Australiju, SAD i Afriku za period od 1978. do 1999. godine, došlo se do zaključka da tržišna kapitalizacija, ukupna vrednost trgovanja u odnosu na BDP i ukupan promet mogu uticati na razvoj finansijskog posredovanja i otvorenosti. Poslednje dve mere se međusobno nadopunjuju, prva se odnosi na veličinu privredne aktivnosti, a druga na veličinu tržišta. Metodologija je obuhvatila stohastički model, te vremenske varijacije u veličini i trgovanju (Kai Li, 2007).

Belke i ostali (2008) koristili su analizu koja se zasniva na VAR metodologiji procene na globalnom nivou. Za analizu su koristili skupinu agregiranih podataka na širokom rasponu zemalja, koje skupa čine oko 72,2% globalnog BDP-a. U kontekstu impulsnih reakcija koje se baziraju na tromesečnim zapažanjima od 1984. do 2006. godine, došli su do zaključka da pozitivni šokovi dovode do povećanja globalnih cena nekretnina, ali ne i do većih cena akcija. Isti rezultati su potvrđeni od strane Belke i Reesa (2009) gde su analizirali globalne šokove, odnosno njihov uticaj na nacionalne varijable. Takođe, njihovi rezultati su pokazali da globalni šokovi likvidnosti nemaju pozitivne učinke na globalne cene akcija.

Promet ne odražava likvidnost tržišta već naprosto interakciju sa veličinom tržišta. Prema Choong i ostalima (2010), vrednost trgovanja se smatra boljim indikatorom rasta tržišnih cena akcija od racija tržišne kapitalizacije. Takođe, akcije kojima se trguje mogu zavisiti od visine tržišne kapitalizacije, jer veća tržišta mogu imati manji obim trgovine. Dakle, odnos između tržišne kapitalizacije i prometa pruža informaciju o stanju na berzama, kao i povratne efekte. Vo i Batten (2011) su došli do zaključka da veličina tržišta na Vijetnamskoj berzi nema signifikantan uticaj u kontekstu oblikovanja cena akcija. U većem delu regresione analize pokušali su da utvrde odnos između likvidnosti tržišta (merene prometom) i povrata na akcije.

Analiza kretanja berzanskih indeksa pojedinih razvijenih zemalja sa osvrtom na zemlje Zapadnog Balkana

Nacionalno udruženje dilera hartija od vrednosti - NASDAQ i OMX kao švedska kompanija koja ima dominantan položaj u skandinavskim okvirima predstavljaju dve najznačajnije institucije u svetskim okvirima. Ponuda od strane OMX za preuzimanje Londonske berze u 2001. godini u cilju sticanja veće konkurentne moći nije uspela. Pokušaji NASDAQ-a da stekne OMX u 2007. godini, sa oko 3.7 milijardi USD bio je složen usled uključivanja berze u Dubaiju. U februaru 2008. godine izvršeno je spajanje tako da sada imamo NASDAQ OMX. Takođe, u novembru 2013. godine, izvršeno je

the used data and research methodology. The final, fourth part presents the obtained research results, concluding observations and further recommendations.

Review of Relevant Literature

Testing a weak form of market efficiency is focused on checking the selected sample of shares in terms of the movement of their prices. Therefore, if the future changes in securities prices are similar to the changes in securities prices occurring in the past, then the historical price movement can be used as an approximation for abnormal earnings. A lot of studies have shown that the changes in historical prices over time are independent. Even when some dependencies are detected, the transaction costs work in the direction of equalizing the surplus profit. Also, there is some evidence that the shares perform better over certain periods of time during the year. For example, in the period from December to January, there is a regular shift in stock prices. This phenomenon is called the January effect. It implies that the prices of shares rise on Fridays and before the holidays, and fall on Mondays. This phenomenon is in contradiction with the theory of market efficiency.

Based on the quarterly data for the period between 1971 and 1998, Baks and Kramer (1999) reached the three main conclusions regarding the relationship between the liquidity growth rate and returns on shares. Their first conclusion based on empirical research was that higher liquidity growth rates lead to higher rates of return. The second conclusion they reached is that the growth of liquidity rate entails a decrease in real interest rates. Their third conclusion was that the liquidity spillover effect is valid, that is, that the increased liquidity rate in one country is a reflection of the first two results or conclusions.

On a panel of 33 countries covering Europe, Asia, Australia, the United States and Africa for the period from 1978 to 1999, it was concluded that market capitalization, the total value of trade in relation to GDP and total turnover could affect the development of financial intermediation and openness. The last two measures are complementary to each another, the first one referring to the size of the economic activity

and the second one to the size of the market. The methodology included a stochastic model, and time variations in size and trading (Kai Li, 2007).

Belke et al. (2008) used an analysis based on the VAR assessment methodology at the global level. The analysis used a group of aggregated data across a wide range of countries, which together accounted for around 72.2% of the global GDP. In the context of impulsive reactions based on quarterly observations since 1984, until 2006, they concluded that positive shocks lead to an increase in global real estate prices, but not to higher stock prices. The same results were confirmed by Belka and Rees (2009), who analyzed the global shocks or their impact on national variables. Also, their results have shown that global liquidity shocks have no positive effects on global stock prices.

The turnover does not reflect the liquidity of the market, but simply the interaction with the size of the market. According to Choong et al. (2010), the value of trading is considered a better indicator of growth of market shares prices than the market capitalization ratio. Also, the traded shares may depend on the level of market capitalization, since larger markets may have a smaller trade volume. Therefore, the relationship between market capitalization and turnover provides the information on stock market conditions and returns. Vo and Batten (2011) concluded that the size of the Vietnamese stock market does not have a significant impact in the context of the formation of stock prices. In the larger part of their regression analysis, they tried to determine the relationship between market liquidity (measured by turnover) and return on shares.

Analysis of the Movements of Stock Exchange Indices of Some Developing Countries with a Focus on the Countries of the Western Balkans

The National Association of Securities Dealers - NASDAQ and OMX as a Swedish company with the dominant position in the Scandinavian framework are the two most important institutions on the global scale. The OMX offer to take over the London Stock Exchange in 2001 in order to gain greater competitive power failed. NASDAQ attempts to

spajanje NASDAQ-a i Interkontinentalne berze (ICE). Tabela u nastavku teksta pokušava da putem analize tržišnih indikatora poslovanja identifikuje šta znači najveća berza, odnosno: *Koje su najveće svetske berze?* Kao tržišni indikatori mogli bi biti reprezentativni: tržišna vrednost akcija, ukupna vrednost trgovanja, ukupan promet (ukupna vrednost trgovanja/broj akcija), akcijski promet ili jednostavno broj kompanija koje kotiraju na berzama.

Tržišna vrednost akcija, odnosno tržišna kapitalizacija je ukupan broj akcija u posedu akcionara pomnožen sa cenom akcija (što nema veze sa kapitalom u bilansu). Sa druge strane cene akcija imaju i trend rasta i trend pada, dok se tržišna kapitalizacija javlja samo kada se obračun obavlja. To predstavlja i deo problema. Na primer, da je tokijsko tržište uzeto krajem 1989. godine, pre samog tržišnog pada, onda bi se berza u Tokiju pojavila kao najveća svetska berza. Tabela u nastavku teksta ilustruje komparativnu analizu najjačih svetskih berzi u pogledu prometa, tržišne kapitalizacije, te broja listiranih kompanija zaključno sa 31.01.2014. godine.

Vrednost akcija kojima se trguje na tržištu kapitala Londonske berze na kraju januara 2014. godine, iznosila je oko 822 milijarde USD, od čega je strukturalno učešće inostranih akcija iznosilo oko 25%. Takođe, učešće inostranog prometa na Njujorškoj berzi - NYSE je bilo oko 9%, a na NASDAQ OMX oko 1%.

Za razliku od svetskog, evropsko tržište deonica koje prati berzanski indeks Euro Stoxx 50 u prvom polugodištu 2016. godine doživelo je pad već dva kvartala kontinuirano kao posledica referendumске odluke građana Velike Britanije. Dakle, vrednost berzanskog indeksa Euro Stoxx 50 je u drugom kvartalu 2016. godine zabeležila relativni pad od oko 4,67%, što je indirektno uticalo na bosansko-hercegovačko finansijsko tržište u kontekstu povećanja prinosa javnog duga u odnosu na zonu eura. Grafikon u nastavku teksta prikazuje analizu kretanja berzanskih indeksa razvijenih zemalja sa osvrtom na zemlje u razvoju za period od 2010. do 2015. godine.

Tabela 1. Internacionalna komparacija tržišta akcija u kontekstu prometa, tržišne kapitalizacije i broja listiranih kompanija zaključno sa 31.01.2014. godine (u mil. USD)

Tržišta/Berze	Vrednost trgovanja akcijama	Tržišna kapitalizacija na domaćim tržištima	Broj listiranih kompanija	
			Domaće kompanije	Inostrane kompanije
NASDAQ OMX	1.059	5.998	2.343	306
NYSE (US)	1.302	17.006	1.855	521
London	822	4.429	1.643	832
Tokio	543	4.421	3.407	11
Nemačka	147	1.852	638	79
Evropa (Euronext)	176	3.443	933	127
Šangaj	225	2.414	957	na
Shenzhen	362	1.510	1.575	na
Španija	96	1.068	3.221	32
Kanada (TMX Grupa)	116	2.034	3.794	79
Hong Kong	134	2.958	1.566	91

Izvor: Valdez, S., Molyneux, Ph. (2016). An Introduction to Global Financial Markets, 8th edition, Macmillan Publishers Limited, UK, London, str. 197.

acquire OMX in 2007, with around \$3.7 billion, were too complex due to the involvement of the Dubai Stock Exchange. In February 2008, a merger was made resulting in NASDAQ OMX. Also, in November 2013, the mergers of NASDAQ and the Intercontinental Stock Exchange (ICE) occurred. The table below attempts to identify, through the analysis of market performance indicators, what it means to be the biggest stock exchange, i.e.: What are the world's largest stock exchanges? The representative market indicators could be the following: market value of shares, total trading value, total turnover (total trading value/ number of shares), stock exchange turnover, or simply the number of listed companies.

The market value of shares, i.e. market capitalization, is the total number of shares held by shareholders multiplied by the price of shares (which has nothing to do with capital in the balance sheet). On the other hand, stock prices have both upward and downward trends, whereas market capitalization only occurs when the calculation is performed. This is also part of the problem. For example, had the Tokyo market been observed at the end of 1989, before the market crash, the Tokyo stock exchange would have appeared as the world's largest stock market. The table below illustrates the comparative analysis of the world's strongest stock exchanges in terms of turnover, market capitalization and the number of listed companies as of 31.01.2014.

The value of shares traded in the capital market of the London Stock Exchange at the end of January 2014 amounted to about USD 822 billion, with the structural share of foreign shares amounting to around 25%. Also, the share of foreign trade on the New York Stock Exchange - (NYSE) was about 9% and on NASDAQ OMX about 1%.

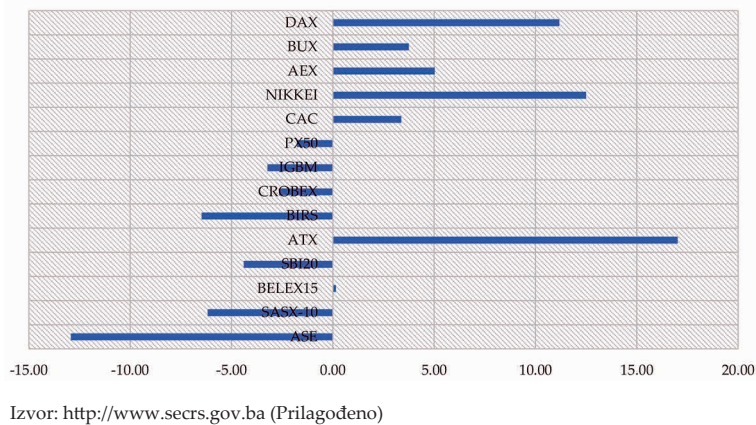
Unlike the global stock market, the European stock market, according to the stock exchange index Euro Stoxx 50, in the first half of 2016 recorded a decline for two subsequent quarters as a consequence of the referendum decision of the citizens of Great Britain. Thus, the value of the stock exchange index Euro Stoxx 50 in the second quarter of 2016 registered a relative decline by about 4.67%, which indirectly influenced the financial market of Bosnia and Herzegovina in the context of increasing the public debt relative to the euro zone. The chart below shows the analysis of the movements of the stock exchange indices of developed countries with a reference to developing countries in the period from 2010 to 2015.

Table 1. International comparison of stock markets in the context of turnover, market capitalization and the number of listed companies as of 31.01.2014 (In USD million)

Markets / Stock Exchanges	Stock trading value	Market capitalization on domestic markets	Number of listed companies	
			Domestic companies	Foreign companies
NASDAQ OMX	1.059	5.998	2.343	306
NYSE (US)	1.302	17.006	1.855	521
London	822	4.429	1.643	832
Tokyo	543	4.421	3.407	11
Germany	147	1.852	638	79
Europe (Euronext)	176	3.443	933	127
Shanghai	225	2.414	957	na
Shenzhen	362	1.510	1.575	na
Spain	96	1.068	3.221	32
Canada (TMX Group)	116	2.034	3.794	79
Hong Kong	134	2.958	1.566	91

Source: Valdez, S., Molyneux, Ph. (2016). An Introduction to Global Financial Markets, 8th edition, Macmillan Publishers Limited, UK, London, p. 197

Grafikon 1. Promene prosečnih vrednosti berzanskih indeksa razvijenih zemalja i zemalja u razvoju za period: 2010 - 2015 (u %)



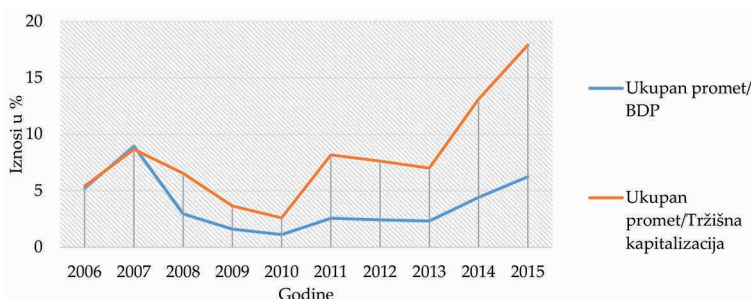
Tržišta u razvoju od 2010. do 2015. godine izgubila su oko 4,7% svoje vrednosti u pogledu kretanja berzanskih indeksa. Od svih posmatranih 14 berzi kako razvijenih zemalja tako i zemalja u razvoju najveći prosečan pad u vrednosti berzanskih indeksa je ostvario indeks Atinske berze sa padom od oko 12,9%. Posmatrano sa druge strane, najveći prosečni rast vrednosti za posmatrani period je ostvario berzanski indeks Austrijske berze - ATX od oko 17%. Za razliku od tržišta kapitala zemalja članica EU, tržišta u okruženju su imala negativan trend u kontekstu kretanja berzanskih indeksa, gde je berzanski indeks Republike Srpske u posmatranom periodu zabeležio prosečni relativni pad od oko 6,48%. Takođe, ništa manji prosečni relativni pad indeksa nije bio ni u Federaciji BiH gde je za posmatrani period indeks SASX-10 dosegao pad u vrednosti od oko 6,18%. Indeks Beogradske berze - BELEX15 za posmatrani period je imao skromni prosečni rast od oko 0,15%. Grafikon u nastavku teksta prikazuje analizu likvidnosti tržišta kapitala u BiH za period: 2006 -2015. godine.

Najveće učešće prometa u bruto domaćem proizvodu za posmatrani period je zabeleženo u 2007. godini (8,95%) i 2015. godini od oko 6,24%. Prosečna vrednost učešća prometa u BDP-u je iznosila oko 3,78%. Posmatrano u kontekstu najnižih vrednosti učešća prometa u BDP-a, može se primetiti da su najniže vrednosti ostvarene u 2009. i 2010. godini, 1,61% i 1,12% respektivno. Osnovni razlog povećanja prometa u poslednjoj posmatranoj godini je pre svega

povećanje zaduženosti entitetskih vlada po osnovu emisije trezorskih zapisa i obveznica koje su otkupile domaće poslovne banke i gde je došlo do redukcije finansiranja od strane inostranih finansijskih institucija. Tržište kapitala u BiH u pogledu investicione aktivnosti i potencijala nije u mogućnosti da obezbedi brži razvoj ekonomske aktivnosti, jer su poslovne banke više usmerene prema vladinom dugu zbog sigurnih i visokih kamatnih margina.

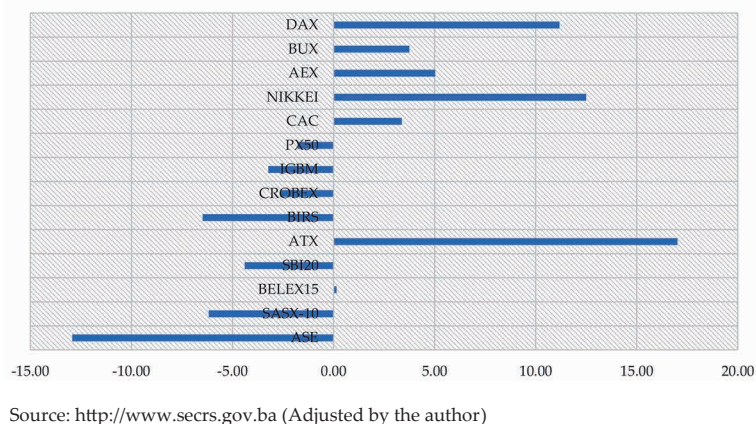
Volatilitnost (engl. *volatility*) predstavlja jednu od najvažnijih kategorija berzanskog tržišta i označava stepen odstupanja tj. varijacije u posmatranom vremenskom periodu. Dakle, meri se standardnom devijacijom koja prati pojedinačne akcije i fondove, i objavljuje se da bi investitori znali koliko je rizična investicija. Tabela u nastavku teksta ilustruje volatilitnost izabrane skupine akcija sa Sarajevske i Banjalučke berze u 2015. godini, kretanje prometa, te cena akcija.

Grafikon 2. Tendencija kretanja pokazatelja sekundarnog razvoja tržišta kapitala u BiH za period: 2006-2015.



Izvor: Sarajevska berza vrednosnih papira (SASE), Banjalučka berza hartija od vrednosti (BLSE), Agencija za statistiku BiH

Figure 1. Changes in the average values of stock exchange indices of developed and frontier markets in the period 2010 - 2015 (In %)

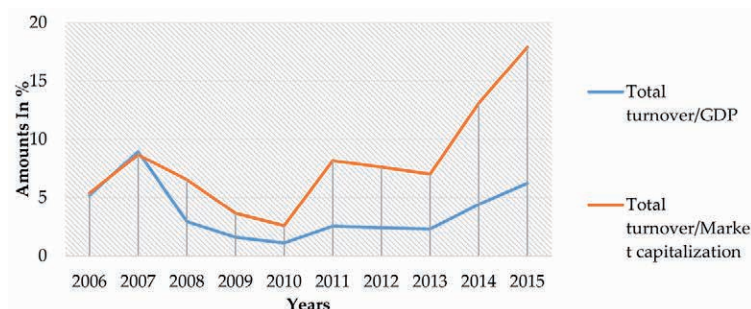


From 2010 to 2015 the frontier markets lost about 4.7% of their value according to the stock index movements. Among the 14 observed stock exchanges of both developed and frontier markets, the biggest drop in the value of stock exchange indices was recorded by the Athens stock index with a decrease by around 12.9%. Observed from the other side, the highest average value growth in the observed period was recorded by the Austrian Stock Exchange index - (ATX) by around 17%. Unlike the capital markets of the EU member states, the markets in the region had a negative trend regarding the stock exchange indices, with the stock exchange index of the Republic of Srpska having recorded the average relative drop by about 6.48% in the observed period. Furthermore, the average relative decline of the index of the Federation of B&H was not that much lower, the index SASX-10 having recorded a decline by around 6.18% in the observed period. The Belgrade Stock Exchange Index - BELEX15 in the observed period had a modest average growth by about 0.15%. The chart below shows the analysis of the liquidity of the capital market in B&H in the period: 2006 -2015.

The highest share of turnover in gross domestic product in the observed period was recorded in 2007 (8.95%) and in 2015 of about 6.24%. The average share of turnover in GDP amounted to around 3.78%. In terms of the lowest values of turnover in GDP, it can be noted that the lowest values were achieved in 2009, and 2010, i.e. 1.61% and 1.12% respectively. The main reason for the increase in turnover in the last observed year was primarily the increase in the

indebtedness of entity governments based on the issuance of treasury bills and bonds that were purchased by domestic commercial banks and in respect of which there was a reduction in financing by foreign financial institutions. When it comes to investment activities and potential, the capital market in B&H is not able to provide faster development of economic activity, as commercial banks are more focused on government debt due to safe and high interest margins. Volatility is one of the most important categories concerning the stock market which indicates the degree of deviation, i.e. the variations in the observed period. Thus, it is measured by the standard deviation that monitors the individual stocks and funds, and it is announced so that the investors would know how risky the concerned investment is. The table below shows the volatility of the selected group of stocks from the Sarajevo and Banja Luka Stock Exchanges in 2015, movements of turnover, and the prices of shares.

Figure 2. Movements of secondary development indicators of the capital market in B&H in the period: 2006 - 2015



Source: The Sarajevo Stock Exchange (SASE), Banja Luka Stock Exchange (BLSE), Agency for Statistics of B&H

Tabela 2. Analiza odabranog uzorka akcija u pogledu volatilnosti prinosa i promena cena na dan 31.12.2015. godini (u BAM)

Simbol	Naziv emitenta	Promet (31.12.2015)	Volatilnost	Cena (31.12.2015)	Cena (31.12.2014)	Promena cene
BSNLR	Bosnalijek d.d. Sarajevo	1.686	30,06%	10.41	10.10	-3,06%
CTRTR	Centrotrans-Tranzit d.d. Sarajevo	1.088	9,50%	48.46	40.0	21,15%
JPESR	JP Elektroprivreda BiH d.d. Sarajevo	20.248	32,30%	17.61	19.94	-11,68%
JPEMR	JP Elektroprivreda HZHB Mostar	1.800	84,28%	36.00	32.80	9,76%
SOLTRK3	Solana d.d. Tuzla	57.219	29,62%	28.34	22.50	25,95%
SOSOR	Sarajevo osiguranje d.d. Sarajevo	5.185	19,68%	6.3	5.5	14,54%
PBJTRK1	Pobjeda d.d. Tešanj	714.0	51,99%	11.50	9.0	27,77%
TCMKR	Tvornica cementa d.d. Kakanj	2.201	39,39%	22.01	23.0	-4,30%
FDSSR	Fabrika duvana d.d. Sarajevo	19.426	37,70%	48.0	42.50	12,94%
TLKM-R-A	Telekom Srpske a.d. Banja Luka	22.282	0,71%	1.61	1.59	1,26%
KRJN-R-A	Krajina GP a.d. Banja Luka	0.00	-	1.60	1.56	2,56%
TRMN-R-A	Termomontaža a.d. Banja Luka	0.00	-	0.389	0.389	100,0%
ALPR-R-A	Alpro a.d. Vlasenica	0.00	-	0.56	0.56	100,0%
BVRU-R-A	ZTC Banja Vrućica a.d. Teslić	0.00	-	0.624	0.65	-4,0%
NOVB-R-E	Nova banka a.d. Banja Luka	34.498	12,14%	0.499	0.576	-15,43%

Izvor: www.sase.ba i www.blberza.com (Proračun autora)

Prethodna tabela ilustruje kretanje prometa, volatilnosti tržišta kao standardne devijacije prometa te kretanje tržišnih cena 15 najlikvidnijih akcija na tržištu kapitala Bosne i Hercegovine (tržište kapitala Federacije Bosne i Hercegovine i tržište kapitala Republike Srpske). Ono što se može uočiti je da volatilnost tržišta za veći broj akcija ne odražava direktnu refleksiju u kontekstu povećanja/smanjenja cena trgovanja za odabrani uzorak akcija. Dakle, promet akcijama tj. volatilnost prometa ne utiče u prvom redu na formiranje cena pojedinih akcija, upravo zbog prisutne nelikvidnosti i neučestalosti u sekundarnom trgovanju s jedne strane te sa

druge strane uticaja i drugih nefinansijskih faktora na formiranje zaključnih cena.

Metodologija istraživanja

Prema Bryman & Bell (2007) postoje dva oblika istraživačke metodologije, i to: kvantitativna i kvalitativna. Kvantitativna metoda se bazira na prikupljanju i analizi podataka i povlači sa sobom deduktivni pristup gde se akcenat stavlja na teoriju testiranja. Za razliku od kvantitativne metode, kvalitativna metoda uglavnom koristi induktivni pristup.

Table 2. Analysis of the selected sample of shares in terms of yield volatility and price changes of 31.12.2015 (in BAM)

Symbol	Name of issuer	Turnover (31.12.2015)	Volatility	Price (31.12.2015)	Price (31.12.2014)	Price change
BSNLR	Bosnalijek d.d. Sarajevo	1.686	30.06%	10.41	10.10	-3.06%
CTRTR	Centrotrans-Tranzit d.d. Sarajevo	1.088	9.50%	48.46	40.0	21.15%
JPESR	JP Elektroprivreda BiH d.d. Sarajevo	20.248	32.30%	17.61	19.94	-11.68%
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NOVB-R-E	Nova banka a.d. Banja Luka	34.498	12.14%	0.499	0.576	-15.43%

Source: www.sase.ba and www.blberza.com (Calculation made by the author)

The previous table illustrates the movements of turnover, volatility of the market as a standard deviation of turnover and the movements of market prices of the 15 most liquid shares in the capital market of Bosnia and Herzegovina (the capital market of the Federation of Bosnia and Herzegovina and the capital market of the Republic of Srpska). What can be observed is that the market volatility for a large number of stocks does not directly reflect the increase/decrease in trading prices for the selected stocks. Therefore, the turnover of shares, i.e. the volatility of the turnover does not primarily affect the formation of the prices of particular stocks, precisely due to the present insolvency

and infrequency in secondary trading on the one hand, and the influence of other non-financial factors on the formation of closing prices, on the other hand.

Research Methodology

According to Bryman & Bell (2007), there are two forms of research methodology: quantitative and qualitative. The quantitative method is based on the collection and analysis of data and entails a deductive approach with the emphasis on the theory of testing. In contrast to the quantitative method, the qualitative method mainly uses an inductive approach.

Tabela 3. Osnovne razlike između kvantitativnih i kvalitativnih metoda istraživanja

Opis	Kvantitativna metodologija	Kvalitativna metodologija
Orijentacija na ulogu u kontekstu istraživačke teorije	Deduktivni metod, teorija testiranja	Induktivni metod
Epistemološka orijentacija - posebno pozitivizam	Prirodni naučni model	Interpretivizam
Ontološka orijentacija	Objektivizam	Konstruktivizam

Izvor: Bryman, A., Bell, E.(2007). Business Research Methods., drugo izdanje, Oxford: Oxford University Press. str. 28

Cilj učesnika na tržištu je da otkriju koji faktori mogu da utiču na kretanje cena akcija u cilju što preciznije procene vrednosti akcija i njihovog budućeg trenda. Dakle, postoji više kvalifikacija faktora koji utiču na buduće kretanje cena akcija, u zavisnosti da li se uzima u razmatranje kratki ili dugi horizont. Najznačajniji interni faktori koji bi mogli da utiču na buduće kretanje cena akcija su sledeći:

- profit;
- odnos tržišne cene i zarade po akciji - P/E;
- zarada po akciji - EPS;
- odnos tržišne i knjigovodstvene cene - P/B;
- dividenda.

Za razliku od internih faktora, eksterni faktori koji su značajni u kontekstu budućeg kretanja cena su sledeći:

- makroekonomski faktori;
- kretanje bruto društvenog proizvoda;
- inflacija;
- kamatne stope.

U nastavku je tabela koja prikazuje interne varijable koje će biti predmet uticaja na kretanje cena akcija na tržištu kapitala Bosne i Hercegovine.

Tabela 4. Skraćenice i opis varijabli

Skraćenice indikatora	Opis indikatora
P/E	Predstavlja odnos cena-zarada, tj. jednak je odnosu između tržišne cene jedne akcije i zarade po akciji, te je najčešće korišćen pokazatelj odnosa između tržišne cene akcije i profita kompanije.
EPS	Zarada po akciji predstavlja profit kompanije koji je alokiran prema svakom držaocu običnih akcija. Takođe, služi kao indikator profitabilnosti kompanije.
ND	Neto dobitak nakon oporezivanja.
ROE	Predstavlja odnos između neto profita i ostvarenog sopstvenog kapitala.
P/B	Odnos tržišne i knjigovodstvene vrednosti se dobija komparacijom tržišne vrednosti akcija sa njihovom knjigovodstvenom vrednošću. Dobija se deljenjem tekuće zatvarajuće cene akcija u poslednjem kvartalu sa knjigovodstvenom vrednošću po akciji.
PR	Promet akcija je mera likvidnosti, koji označava brzinu prodaje tj. konverzije hartije od vrednosti u gotovinu.

U ovom istraživanju je korišćena panel serija vremenskih podataka navedenih internih finansijskih indikatora odabrane skupine akcija berzanskih indeksa Sarajevske berze (SASX-30) i Banjalučke berze (BIRS, GIRS, MIRS). Preduzeća koja se nalaze u sastavu pomenutih berzanskih indeksa su široko disperzirana u kontekstu grane

delatnosti, tako da su uglavnom prisutne sledeće delatnosti: proizvodna delatnost, građevinska delatnost, hemijska industrija i finansijski sektor. Vremenska serija podataka se odnosi na period: 2011 - 2015.

Osnovna jednačina regresionog modela koja će biti prilagođena datim varijablama može se predstaviti na sledeći način:

$$Y_{i,t} = X_{i,t}\beta + a_i + U_{i,t} \quad (1)$$

za $t = 1, \dots, T, i$

$i = 1, \dots, N$

gde je:

$Y_{i,t}$ - zavisna varijabla za individualnu skupinu i u vremenu t ;

$X_{i,t}$ - nezavisna varijabla koja je vremenski promenljiva;

a_i - nezapažen vremensko nepromenljiv individualni učinak; i

$U_{i,t}$ - greška u modelu.

Prethodna regresiona jednačina prilagođena je na sledeći način:

$$ZC = PE * (\beta_1) + EPS * (\beta_2) + ND * (\beta_3) + ROE * (\beta_4) + PB * (\beta_5) + PR * (\beta_6) + a_i + U_{i,t} \quad (2)$$

Signifikantnost modela će biti testirana proračunom koeficijenta korelacije (r), koeficijenta determinacije (R^2) i korigovanog koeficijenta determinacije (\bar{R}^2). Isto tako, biće provedena i analiza varijanse (ANOVA), gde će se testirati

Table 3. Basic differences between quantitative and qualitative research methods

Description	Quantitative Methodology	Qualitative Methodology
Role-orientation in terms of research methodology	Deductive method, theory of testing	Inductive method
Epistemological orientation - especially positivism	Natural science method	Interpretivism
Ontological orientation	Objectivism	Constructive

Source: Bryman, A., Bell, E.(2007). Business Research Methods., second edition, Oxford: Oxford University Press. p. 28

The objective of the market participants is to find out which factors can influence the movements in stock prices to accurately assess the value of the shares and their future trends. Therefore, there are several qualifications of factors that influence the future movements of stock prices, depending on whether a short or long horizon is being considered. The most important internal factors that could affect the future movement of stock prices are as follows:

- Profit.
- Price-earnings ratio-P/E.
- Earnings per share-EPS.
- Price-to-book ratio-P/B.
- Dividend.

Unlike internal factors, external factors that are significant in terms of the future price movements include:

- Macroeconomics factors.
- The movement of gross domestic product;
- Inflation;
- Interest rates.

Below is a table showing the internal variables that will be impacting the movements of the prices of shares in the capital market of Bosnia and Herzegovina.

Table 4. Abbreviations and description of variables

Abbreviations of indicators	Description of indicators
P/E	It represents the ratio of price and earnings, i.e. it equals the ratio between the market price of one share and earnings per share, and it is the most commonly used indicator of the relationship between the market price of the share and the company's profit.
EPS	Earnings per share represents the profit of a company that is allocated to each owner of ordinary shares. It also serves as an indicator of a company's profitability.
NP	Net profit after tax.
ROE	It represents the relationship between net profit and realized own capital.
P/B	The ratio of market and book value is obtained by comparing the market value of shares with their book value. It is obtained by dividing the current closing price of shares in the last quarter with the book value per share.
TR	The turnover of a share is a measure of liquidity, which indicates the rate of sale, i.e. conversion of securities into cash.

This research used a series of time data about the stated internal financial indicators of the selected group of shares from the Stock Exchange Index of the Sarajevo Stock Exchange (SASX-30) and the Banja Luka Stock Exchange (BIRS, GIRS, MIRS). The enterprises within the mentioned stock exchange

indices are widely dispersed in terms of their branches of activity and the following activities are predominant: manufacturing activity, construction, chemical industry and financial sector. The time series of data refers to the period 2011 - 2015.

The basic equation of the regression model that will be adapted to the given variables can be presented as follows:

$$Y_{i,t} = X_{i,t}\beta + a_i + U_{i,t} \quad (1)$$

for $t = 1, \dots, T, i$

$i = 1, \dots, N$

Where is:

$Y_{i,t}$ - dependent variable for an individual group i in time t

$X_{i,t}$ - an independent variable that is time varying;

a_i - unremarkable time-immutable individual effect; and

$U_{i,t}$ - an error in the model.

The previous regression equation is adapted as follows:

$$CP = PE * (\beta_1) + EPS * (\beta_2) + NP * (\beta_3) + ROE * (\beta_4) + PB * (\beta_5) + TR * (\beta_4) + a_i + U_{i,t} \quad (2)$$

The significance of the model will be tested by calculating the coefficient of correlation, the coefficient of determination and the adjusted coefficient of determination. An analysis of the variance (ANOVA) will

značajnost posmatranih varijabli u modelu, gde nulta hipoteza predstavlja činjenicu da nezavisne varijable značajno ne utiču na zavisnu. I alternativna hipoteza isto tako predstavlja činjenicu da nezavisne varijable imaju značajan uticaj na odabranu zavisnu varijablu. Tabela u nastavku teksta prikazuje dobijene rezultate deskriptivne statistike odabranih nezavisnih varijabli i zavisne varijable u modelu.

Tabela 5. Deskriptivna statistika između sledećih parametara: ZC, PE, EPS, ND, ROE, PB odabrane skupine akcija na tržišta kapitala BiH za period: 2011 - 2015.

Variable	Obs	Mean	Std. Dev.	Min	Max
ZC	50	14.62236	17.96909	0	69.75
PE	50	64.87272	170.2478	-23.8	903.56
EPS	50	0.42766	2.531993	-12.16	9.28
ND	50	1.14e+07	3.53e+07	-8.96e+07	1.10e+08
ROE	50	1.8132	4.002144	-2.23	15.32
PB	50	1.9359	10.73198	0	76.27
PR	50	20291.63	34024.55	0	161822.4

Izvor: Proračun autora na osnovu podataka sa Sarajevske i Banjalučke berze (STATA 13.0)

Prethodna tabela prikazuje volatilitnost izabranih indikatora u modelu u pogledu varijacije standardne devijacije. Najjači intenzitet volatilitnosti za posmatrani period su ostvarili sledeći indikatori: neto dobit, zatim promet (34.024,5%), te odnos tržišne cene i zarade (170,25%). Učešće prometa u BDP u 2011. godini je iznosilo svega oko 2,56% pa bi u 2015. godini došlo do naglog rasta na oko 6,24%. Dakle, ovo nije rezultat aktivnog trgovanja već prosto preokreta sa vlasničkih na dužničke hartije od vrednosti emitovane od strane Vlada usled nedostatka potrebnih finansijskih sredstava za finansiranje budžeta. Takođe, i odnos tržišne cene i zarade ima volatilan trend jer naprosto visoke vrednosti P/E racija se ne duguju dobrim performansama preduzeća u pogledu budućih očekivanja jer je tržište kapitala u BiH rubno tržište koje karakteriše veći broj dana bez trgovanja, tako da se visoke vrednosti mogu shvatiti kao neka vrsta kompenzacije za rizike u poslovanju.

Tabela 6. Pirsonov koeficijent korelacije između zavisne i nezavisnih varijabli u modelu za period: 2011-2015.

ZC	PE	EPS	ND	ROE	PB	PR	
ZC	1.0000						
PE	-0.1664	1.0000					
EPS	0.2204	-0.0439	1.0000				
ND	-0.2263	-0.1011	0.4243	1.0000			
ROE	0.3108	-0.1460	0.0201	0.8138	1.0000		
PB	0.0378	-0.0496	-0.0228	-0.0339	-0.0522	1.0000	
PR	0.1411	0.0857	-0.3098	0.0339	0.1553	-0.0326	1.0000

Izvor: Proračun autora na osnovu podataka sa Sarajevske i Banjalučke berze (STATA 13.0)

also be carried out, testing the significance of the observed variables in the model, where the zero hypothesis being that the independent variables do not significantly affect the dependent variable. An alternative hypothesis is that independent variables have a significant effect on the selected dependent variable. The table below shows the obtained results of descriptive statistics of the selected independent variables and the dependent variable in the model.

Table 5. Descriptive statistics of the following parameters: CP, PE, EPS, NP, ROE, PB of the selected group of shares on the capital market of B&H in the period: 2011 - 2015

Variable	Obs	Mean	Std. Dev.	Min	Max
CP	50	14.62236	17.96909	0	69.75
PE	50	64.87272	170.2478	-23.8	903.56
EPS	50	0.42766	2.531993	-12.16	9.28
NP	50	1.14e+07	3.53e+07	-8.96e+07	1.10e+08
ROE	50	1.8132	4.002144	-2.23	15.32
PB	50	1.9359	10.73198	0	76.27
TR	50	20291.63	34024.55	0	161822.4

Source: Calculation by the author based on the data from Sarajevo and Banja Luka Stock Exchanges (STATA 13.0)

The table above shows the volatility of the selected indicators in the model concerning the variation of the standard deviation. The strongest intensity of volatility in the observed period was achieved by the following indicators: net profit, followed by turnover (34,024.5%), and market price and earnings ratio (170.25%). The share of turnover in GDP in 2011 was only about 2.56%, and in 2015 there was a sudden increase by around 6.24%.

Therefore, this is not the result of active trading, but simply a reversal from equity to debt securities issued by the Government due to the lack of necessary financial resources to finance the budget. Also, the relationship between the market prices and wages had a volatile trend given that the high values of P/E ratio are not due to the good performance of the company in terms of future expectations as the capital market in B&H is a frontier market, characterized by many days without trading, hence the

high values can be understood as some sort of compensation for business risks.

Table 6. Pearson coefficient of correlation between dependent and independent variables in the model in the period: 2011-2015

CP	PE	EPS	NP	ROE	PB	TR	
CP	1.0000						
PE	-0.1664	1.0000					
EPS	0.2204	-0.0439	1.0000				
NP	-0.2263	-0.1011	0.4243	1.0000			
ROE	0.3108	-0.1460	0.0201	0.8138	1.0000		
PB	0.0378	-0.0496	-0.0228	-0.0339	-0.0522	1.0000	
TR	0.1411	0.0857	-0.3098	0.0339	0.1553	-0.0326	1.0000

Source: Calculation by the author based on the data from Sarajevo and Banja Luka Stock Exchanges (STATA 13.0)

Na visoko razvijenim tržištima kapitala tržišna cena je pre svega odraz raspoloživih finansijskih informacija u prvom redu neto dobiti ili pozitivnog novčanog toka, što svakako utiče na formiranje ravnotežne cene i realnog odnosa cene i zarade. Na neefikasnim tržištima kapitala susrećemo visoke i apsurdne vrednosti P/E koeficijenta, gde obično preduzeća sa lošim poslovnim rezultatom imaju visoke vrednosti P/E koeficijenta. Iz prethodne matrice korelacije zabeležena je obrnuta proporcionalnost između zaključne cene odabranog uzorka akcija preduzeća iz sastava berzanskih indeksa Sarajevske berze i Banjalučke berze (SASX-30, BIRS, GIRS, MIRS) i P/E koeficijenta (-0.166). Veći P/E koeficijent nalazi se u granama sa visokom tehnologijom, što direktno ne mora značiti da se radi o kvalitetnim preduzećima.

Naime, za razmatranje profitabilnosti poslovanja preduzeća, potrebna je šira analiza koja svakako uključuje i druge faktore razvojnih mogućnosti, kao što su analiza konkurencije, finansijska analiza, analiza prinostnog i imovinskog položaja.

S obzirom da promet predstavlja meru likvidnosti tržišta, tj. lakoću prodaje i kupovine akcija, u ovom istraživanju je zabeležena pozitivna korelacija između prometa odabranog uzorka akcija i zaključne cene (0.141). Dakle, sa povećanjem trgovanja akcijama preduzeća dolazi do povećane likvidnosti što ohrabruje investitore da je tržište aktivno, te time deluje i na povećanje tržišnih cena. Osim P/E koeficijenta negativna korelacija je zabeležena i između zaključne cene i neto dobitka (-0.23).

Tabela 7. Osnovni regresioni model između zavisne i nezavisnih varijabli odabranog uzorka akcija berzanskih indeksa na Sarajevskoj i Banjalučkoj berzi hartija od vrednosti za period: 2011-2015

Source	SS	df	MS	Number of obs =	50		
				F(8, 42) =	3.20		
Model	4886.0985	8	814.34975	Prob > F =	0.0109		
Residual	10935.4187	42	254.312064	R-squared =	0.3088		
						Adj R-squared =	0.2124
Total	15821.5172	50	322.888107	Root MSE =	15.947		
ZC	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]		
PE	-.0228801	.013695	-1.67	0.102	-.0504986 .0047385		
EPS	3.819131	1.452168	2.63	0.012	.8905564 6.747706		
ND	-2.65e-07	1.73e-07	-1.53	0.133	-6.13e-07 8.35e-08		
ROE	.1836385	1.382874	0.13	0.895	-2.605193 2.97247		
PB	.0584478	.2134792	0.27	0.786	-.3720741 .4889697		
PR	.0001789	.0000722	2.48	0.017	.0000334 .0003245		
_cons	13.40381	3.252191	4.12	0.000	6.845142 19.96248		

Izvor: Proračun autora na osnovu podataka sa Sarajevske i Banjalučke berze (STATA 13.0)

In highly developed capital markets, the market price is primarily a reflection of available financial information, in the first place of net profit or positive cash flow, which certainly affects the formation of the equilibrium price and the real relationship between price and earnings. In inefficient capital markets, we encounter high and absurd P/E coefficients, when companies with poor business results usually have high P/E coefficient values. The previous correlation matrix suggests the inverse proportionality between the closing price of the selected sample of shares of the companies from the stock exchange indices of the Sarajevo Stock Exchange and Banja Luka Stock Exchange (SASX-30, BIRS, GIRS, MIRS) and the P/E coefficient (-0.166). A higher P/E coefficient is found in branches with high technology, which does not necessarily imply that these are

quality companies. Namely, the examination of profitability of a company's business requires a broader analysis, which certainly includes other factors of development possibilities, such as competitive analysis, financial analysis, yield and asset analysis.

Given that turnover represents a measure of market liquidity, i.e. the ease of selling and buying shares, this study recorded a positive correlation between the turnover of the selected sample of shares and the closing price (0.141). Therefore, with the increase of trading in company shares, there is increased liquidity, which encourages investors by suggesting that the market is active, and therefore also affects the increase in market prices. In addition to the P/E coefficient, the negative correlation was also recorded between the closing price and net profit (-0.23).

Table 7. Basic regression model between dependent and independent variables of the selected sample of stock exchange indices on the Sarajevo and Banja Luka Stock Exchanges in the period: 2011-2015

Source	SS	df	MS	Number of obs =	50		
				F(8, 42) =	3.20		
Model	4886.0985	8	814.34975	Prob > F =	0.0109		
Residual	10935.4187	42	254.312064	R-squared =	0.3088		
						Adj R-squared =	0.2124
Total	15821.5172	50	322.888107	Root MSE =	15.947		
CP	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]		
PE	-.0228801	.013695	-1.67	0.102	-.0504986	.0047385	
EPS	3.819131	1.452168	2.63	0.012	.8905564	6.747706	
NP	-2.65e-07	1.73e-07	-1.53	0.133	-6.13e-07	8.35e-08	
ROE	.1836385	1.382874	0.13	0.895	-2.605193	2.97247	
PB	.0584478	.2134792	0.27	0.786	-.3720741	.4889697	
TR	.0001789	.0000722	2.48	0.017	.0000334	.0003245	
_cons	13.40381	3.252191	4.12	0.000	6.845142	19.96248	

Source: Calculation by the author based on the data from Sarajevo and Banja Luka Stock Exchanges (STATA 13.0)

Testiranjem nulte hipoteze o značajnosti dobijeni su statistički značajni pokazatelji koji ukazuju da postoji značajan uticaj određenih nezavisnih varijabli pri nivou signifikantnosti od $\alpha = 5\%$, odnosno da empirijski F - odnos iznosi 3.20. Kako je u ovom istraživanju vrednost empirijskog F - odnosa (3.20) veća od vrednosti teorijskog F - odnosa (2.97), za 8 - stepena slobode u brojiocu i 42 u imeniocu, onda dolazimo do zaključka za odbacivanjem nulte hipoteze da nezavisne varijable nemaju značajan uticaj na zavisnu varijablu, odnosno da vredi alternativna hipoteza da ipak određeni broj nezavisnih varijabli ima uticaja na zavisnu varijablu u modelu.

Iz prethodne tabele jasno se vidi da zaključna cena (ZC) ima najveću pozitivnu vrednost koeficijenta sa indikatorom zarada po akciji (3.81), zatim sa povratom na akcijski kapital (0.18), odnosom između tržišne cene i knjigovodstvene vrednosti (0.058) te prometom (0.0001). Generalno, indikator koji je najviše povezan sa povratom na kapital jeste odnos cene prema knjigovodstvenom kapitalu. S obzirom da je razlika između povrata na kapital i troška kapitala mera dodatnih povrata investitorima kapitala, zato postoji veza između zarađenih dodatnih povrata te da li se trguje akcijama preduzeća po knjigovodstvenoj vrednosti ili ispod nje. U slučajevima kada su dodatni povрати negativni, akcijama se trguje ispod knjigovodstvenog kapitala. Suprotno, kada se očekuje da će povrat na kapital biti jednak trošku kapitala u beskonačnosti, akcijama se trguje po knjigovodstvenoj vrednosti. Posmatrano sa druge strane, najjača negativna veza prisutna je između zaključne cene i odnosa cene i zarade (-0.02) i neto dobitka. Odnos između neto dobiti i cene akcija preduzeća može biti otežavajući u kontekstu objašnjenja. Svakako bez dobiti preduzeća ne mogu dugoročno da opstanu. Visoka neto dobit ne znači nužno i visoku cenu akcija, kao što ni veliki gubici ne moraju uvek biti faktor niskih cena akcija. Dakle, ovo se posebno odnosi na rubna tržišta kapitala, gde je likvidnost na izuzetno niskom nivou. Stoga se može reći da na cenu akcija ne igra značajnu ulogu samo trenutna zarada već i projekcija tj. očekivanja budućih zarada. Također, bitno je napomenuti da kod procene vrednosti akcija veliku ulogu imaju odnosi ponude i tražnje

za istim, što znači da se na tržištu akcija cene ne određuju matematičkim formulama već da cene gravitiraju oko istih. Dakle, cena akcije ima trend rasta ukoliko je veća tražnja od ponude i obrnuto.

Zaključak

U ovom radu je istražen značaj finansijskih i tržišnih pokazatelja tj. finansijskog izveštavanja na formiranje zaključne (zatvarajuće) cene trgovanja na berzama, te da li se potencijalni i stvarni investitori mogu osloniti na istu u kontekstu donošenja poslovnih, finansijskih, strateških i drugih odluka, ili prosto finansijski izveštaji predstavljaju samo zakonski okvir izveštavanja i potrebe predaje seta finansijskih izveštaja koje propisuje regulator tržišta kapitala. U regresionoj analizi kao zavisna varijabla je uzeta zaključna cena, dok su reprezentanti nezavisnih varijabli bili sledeći: odnos tržišne cene i zarade, zarada po akciji, neto dobitak nakon oporezivanja, povrat na akcijski kapital, odnos tržišne i knjigovodstvene vrednosti i ukupan promet na berzama. Nulta hipoteza u radu je odbačena jer analizom F-testa nije dokazano da sve nezavisne varijable ne utiču na zavisnu. U pogledu korelativnosti najjača korelativna veza je prisutna između zaključne cene i zarade po akciji, zatim profitabilnosti po akcijskom kapitalu, odnosa tržišne i knjigovodstvene vrednosti te ukupnog prometa trgovanja na berzama. S druge strane, najslabija korelativna kauzalnost je zapažena između odnosa tržišne cene i zarade kao i neto dobiti posmatranog uzorka preduzeća.

Dobijene rezultate treba uzeti sa određenom dozom rezerve jer na nerazvijenim i neefikasnim tržištima kapitala kakvo je tržište kapitala u Bosni i Hercegovini javljaju se apsurdne vrednosti pojedinih finansijskih koeficijenata usled neučestalog sekundarnog trgovanja akcijama. Stoga se neuravnotežena ponuda i tražnja i nelikvidnost tržišta akcija odražavaju na nemogućnost formiranja realne cene akcija. Dakle, potencijalni i stvarni investitori ne mogu se oslanjati na to da pozitivni rezultati u poslednjih nekoliko godina kod određenih preduzeća predstavljaju odraz povećanja tržišnih cena, i obrnuto da se tržišne cene formiraju na osnovu zdravog finansijskog

By testing the zero significance hypothesis, statistically significant indicators have been obtained indicating that there is a significant influence of certain independent variables at the significance level of $\alpha = 5\%$, i.e. the empirical F-ratio is 3.20. As in this study the value of the empirical F-ratio (3.20) is greater than the value of the theoretical F-ratio (2.97), by 8 degrees of freedom in the numerator and 42 in the denominator, we came to the conclusion to reject the zero hypothesis that independent variables do not have any significant influence on the dependent variable, thus accepting the alternative hypothesis that a certain number of independent variables does affect the dependent variable in the model.

The previous table shows that the closing price (CP) has the highest positive value of the coefficient with the indicator of earnings per share (3.81), then with the return on equity (0.18), the relationship between market price and book value (0.058) and turnover (0.0001). In general, the indicator most related to return on equity is the ratio between price and equity. Given that the difference between return on equity and cost of capital is a measure of added returns to capital investors, there is a link between earned additional returns and whether the company's shares are traded at or below the accounting value. In cases where additional returns are negative, the shares are traded below the book value. On the contrary, when the return on equity is expected to be equal to the cost of capital in infinity, the shares are traded at book value. On the other hand, the strongest negative correlation is present between the closing price and the price-earnings ratio (-0.02) and the net profit. The relationship between the net profit and the price of company shares may be aggravating in the context of an explanation. Certainly, without profit, companies cannot survive in the long run. High net profit does not necessarily mean high prices of shares, just like huge losses do not always have to be a factor in low stock prices. This is particularly true for the frontier capital markets, where liquidity is at a very low level. Therefore, it can be said that the price of shares does not play a significant role only in respect of the current salary, but also in respect of its projection, that is, the expectations of future earnings. Furthermore, it is important

to note that when assessing the value of the shares, the supply and demand relationships are of great importance, which means that the prices of shares are not determined by mathematical formulas, but that the prices are gravitating around them. Therefore, the price of a share has a growth trend if the demand is higher than the supply, and vice versa.

Conclusion

In this paper we investigated the significance of financial and market indicators, i.e. financial reporting, in the formation of closing prices in stock exchange trading, focusing on whether the potential and actual investors can rely on them when making their business, financial, strategic and other decisions, or whether financial reports only reflect the legal framework and the need to submit the set the financial statements prescribed by the capital market regulator. In the regression analysis, the closing price was taken to be the dependent variable, while the independent variables were as follows: market price and earnings ratio, earnings per share, net profit after taxation, return on equity, the ratio of market and book value, and the total turnover on stock exchanges. The zero hypothesis in the paper was rejected because the F-test analysis did not show that none of the independent variables influence the dependent variable. In terms of correlation, the strongest correlation was present between the closing price and earnings per share, then return on equity, the ratio of market and book value, and the total trading volume on the stock exchanges. On the other hand, the weakest correlation was observed between the ratio of the market price and profit, as well as the net profit of the observed sample of companies.

The results obtained should be taken with a certain reserve margin, because in the underdeveloped and inefficient capital markets such as the capital market in Bosnia and Herzegovina, the absurd values of certain financial coefficients occur due to the infrequent secondary trading in shares. Therefore, the unbalanced supply and demand and the illiquidity of the stock market reflect in the impossibility to form the real price of shares. Consequently, potential and actual investors

položaja i kontinuirane profitabilnosti.

Za dalji razvoj tržišta kapitala u Bosni i Hercegovini potrebno je usaglasiti neusaglašenu zakonsku regulativu na nivou entiteta, smanjiti fragmentiranost tržišta, pojačati publicitet informacija o svim pravnim subjektima koji

se kotiraju na tržištu kapitala, te time pojačati kvalitet i informacionu bazu podataka. Takođe, potrebno je usmeriti snage na integraciju regionalnih berzi u cilju povećanja likvidnosti i prepoznatljivosti uspešnih preduzeća kako domaćim tako i inostranim investitorima.

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cannot rely on the fact that positive results over the last few years in certain companies are a reflection of an increase in market prices, and vice versa, that the market prices are formed based on the sound financial position and continuous profitability.

To further develop the capital market in Bosnia and Herzegovina it is necessary to harmonize non-compliant legislation at the

entity level, reduce market fragmentation, increase the transparency of information on all legal entities listed on the capital market, and thus strengthen the quality and information database. Also, it is necessary to focus on the integration of regional stock exchanges to increase the liquidity and recognizability of successful companies by both domestic and foreign investors.

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