

Welfare Economics of IPO's: The Deal that Never was, in Kenya

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Abstract

This study sought to determine the economic factors predicting IPO share price volatility at the Nairobi Securities Exchange under the mediating role of regulatory authorities such as the Central Bank of Kenya, Capital Markets Authority, Nairobi Securities Exchange and National Treasury, and the intervening function of Investment banks, commercial banks, brokerage houses, media and politics. Through a correlational research design employing simple regression, the results are contradictory on the economic indicators and their effect on different sectors of the economy. With the exception of Equity bank which showed a positive relationship with interest rates, Foreign exchange, Nairobi Securities All Share Index and Lagged Share Price, KenGen and Safaricom showed no significant relationship with their economic predictors. A reworked model comprising inflation rate, interest rate, foreign exchange rate and money supply captured the overall market prediction with the initial three having negative significance whereas money supply had positive significance as a predictor of share price volatility.

Keywords: Welfare economics; Co-operative games; Monetary policy; Fiscal policy; Dark pools; Stock returns

Introduction

Background of the study

Economic states have various implications on the lives of its participants. Business organizations both private and public react differently to increased (decreased) economic activities prevailing domestically, regionally as well as globally. The reaction of such market participants as the government goes a long way in setting the tone of the market. At its disposal are two key policies: fiscal policy and monetary policy, which fundamentally dictate the direction of economic health of a nation. How the government synchronizes these two policies goes a long way in impacting the lives of its citizenry.

Welfare economics: Welfare economics is a branch of economic theory that deals with the social desirability of alternative economic states; booms and recessions. It synthesizes implications of both private and public decisions on society's wellbeing. Public policies are benchmarked against social ramifications with a view to an all-inclusive decision making process. Scarce economic resources should be optimally utilized such that the ultimate consumer makes their choices axiomatically based on informational content of prices in an objective manner. Mongin [1,2] posits that consumer's reason with preferences and not choices and their behavior patterns could be ascertained through behavioral interpretation of preferences.

The magnitude of trading activity within the capital markets is depicted by vibrancy of stock exchanges. In Kenya, the Nairobi stock exchange fulfills this function under guidelines of the Capital Markets Authority. With adequate regulation, investors are assured of the safety of their investment from rogue traders. Top management could also be required to authenticate the validity of their financial statements issued to stakeholders. Such actions would ensure that capital market participants receive value for their money and that the government protects the social welfare of its citizens as an impartial player in the market.

IPO process: IPOs are sensational globally partly because of investor optimism created by media houses and partly due to short term instinct of social acceptance by first time players. Modigliani [3] concurs that IPOs are common stock offerings by companies that had not previously traded their common stock to the public. The complexity of analyzing market perception regarding a company forces potential issuers of securities to enlist services of investment bank(s) or a consortium of the same in gauging public demand for their securities.

IPO book building process allows the underwriters to have more information than potential investors. Regulatory guidelines by the government require that material information is released through company prospectus so that investors place their money after considering the tradeoff between risks and returns. Whenever there is a breach of duty to disclose such material information then the Nairobi Securities Exchange is mandated to halt proceedings of the intended IPO launch. The lead underwriter comes up with a preliminary prospectus informative enough in terms of fundamental analysis to be presented to both capital markets authority and the Nairobi Securities exchange for admission purposes. That prospectus is then piloted to institutional investors for pricing purposes to determine offer price band within which the offer price is set followed by book-building process for price review [4,5].

Research question

The overriding research question for this study was: which economic factors determine IPO share prices of firms listed at the Nairobi Securities Exchange (NSE)? The study was premised on the objective of determining the economic factors influencing movement of share prices of IPOs at the Nairobi Securities Exchange (NSE).

Organization of the study

The rest of the paper is organized as follows; the next section reviews theoretical basis of the research and empirical literature followed by a look at the methodology applied in research design, sampling and data collection. An analysis of research findings and a discussion of the same take the next stage. The last section summarizes the study and concludes the findings with suggestions for further research.

Literature Review

Introduction

This chapter examines both conceptual and empirical literature

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on welfare economics and IPO pricing as well as their performance in the long run. It covers theoretical foundation focusing on theory of revealed preferences, social choice theory and co-operative game theory. A review of empirical literature, summary of previous studies and research gaps together with conceptual framework is also undertaken.

Theoretical foundation

Several theories could explain the relationship between Public policy issues and returns from capital markets including theory of revealed preferences on which this study is premised on, social choice theory covering cost benefit aspects of decision making and co-operative game theory which looks at how individuals relate in society in terms of joint decision making processes. These theories are discussed below.

Theory of revealed preferences: This theory is based on a behavioral interpretation of preferences. The observation of environmental conditions or stimuli in terms of choice conditions and corresponding answers *vis a vis* individual choices is sufficient to infer function of individual preferences and demand function. The theory is able to retrieve the properties of consumer theory such as the existence of demand function, the Slutsky conditions and individual rationality. Samuelson [6] concludes that “the whole theory of consumer’s behavior can thus be based upon operationally meaningful foundations in terms of revealed preferences. Just like the chicken and egg problem, revealed preferences theory does not aim to decide which of utility or choices precedes the other.

Firstly such utilities are not interpersonally comparable. Tradeoffs between agents, which are often necessary when designing a policy, become an impossible task. Secondly, the use of these behavioral utilities in welfare economics amounts to considerations that individual behaviors systematically serve individual welfares. But individuals are likely to make mistakes, have false beliefs and bad information [7]. Herd mentality witnessed during Safaricom IPO was unfortunately skewed by noise trading. It was a mistake propagated by the media, over optimism and generally favorable market sentiments from previous successful IPOs such as KenGen.

Investors, like all animals, are subject to a learning process in their investment activities. They tend to repeat actions which produce positive returns while desisting from activities with downside risks. This is in accordance with Thorndike’s law of effect. Learning process is multidimensional and the law of effect stresses reinforcement learning as captured by Cross where outcome from an activity determines its repetition or ultimate omission. Capital markets, with volatile security prices require constant portfolio rebalancing depending on an investor’s risk profile and investment horizon. It is this volatility and short termism that erodes investor’s capital preservation prospects [8].

The statement of equivalence amounts to a confusion between the, is and the, ought, as if observed behaviors (positive interpretation of preferences) are the good and fair norms of behaviors (the normative interpretation of preferences). This leads to the conclusion that normative issues are not taken seriously. Samuelson does not commit such confusion as he says

“I should like to state my personal opinion that nothing said (here) in the field of consumer’s behavior affects in any way or touches upon at any point the problem of welfare economics, except in the sense of revealing the confusion in the traditional theory of distinct subjects” [9].

Social choice theory: The challenges of social decisions involving divergent interests and concerns have been explored for a very long time. As a systematic discipline, this theory was pioneered by French mathematicians Borda and Marquis de Condorcet concurs influenced by European enlightenment, with its interest in reasoned construction of social order, addressing questions such as; when would majority rule yield unambiguous and consistent decisions? How can we judge how well a society as a whole is doing in light of the desperate interests of its different members? How do we measure aggregate poverty in view of the varying predicaments and miseries of the diverse people that make up society? When the subject of social choice was revived in the twentieth century by Arrow, he too was very concerned with the difficulties of group decisions and the inconsistencies to which they may lead.

Arrow’s [10,11] impossibility theorem is a result of breathtaking elegance and power, which showed that even some very mild conditions of reasonableness could not be simultaneously satisfied by any social choice procedure, within a very wide family. Only a dictatorship would avoid inconsistencies, but that of course would involve: (1) in politics, an extreme sacrifice of participatory decisions; and (2) in welfare economics, a gross inability to be sensitive to the heterogeneous interests of a diverse population. Arrow’s powerful impossibility theorem invites engagement, rather than resignation.

To the extent that this is a feature of the real world, its existence and reach are matters for objective recognition. In fact, Sen, [12] observes that inconsistencies arise more readily in some situations than in others, and it is possible to identify the situational differences and to characterize the process through consensual and compatible decisions. The possibility of constructive welfare economics and social choice, and their use in making social welfare judgments, turns on the need for broadening the informational basis of such choice.

The information on which our informal judgments on these matters rely is precisely the kind of information that has to be and can be incorporated in the formal analysis of systematic social choice. How then could we differentiate retail investors from institutional investors given their choice of investment horizon in IPOs? Social acceptance requires that we belong to a team, a club, and work group and that we comply by a denominator such as owning shares in similar companies. Whether the investment is made through a mutual fund or individually, group dynamics plays a role and this perpetuates noise in the capital markets.

Co-operative game theory: Game theory may be used to explain the emergence of institutions, including economic institutions that Acemoglu, Johnson and Robinson mention are crucial to economic growth. Repeated games among citizens of a country would lead to the creation of strong institutions, which would foster growth and development in the country. Singapore has developed significantly with almost no natural resource. With a population that is racially diverse, it has been able to build a very prosperous country with an extremely high standard of living.

Signaling games in IPOs occur when the managers know the true value of the firm while potential investors do not. Allen and Faulhaber [13], Grinblatt and Hwang [14] and Welch argue that a firm possesses the most valuable information about the prospects of a new project, and that the issuers explicitly consider the possibilities of future equity issues when deciding IPO prices. By signaling, high quality firms attract a true value of their shares by offering them at a discount, and then retain some of the shares of the new issues in their personal

portfolio. Underpricing creates a good impression in investors' minds, which helps the firm to sell the subsequent seasoned equity offerings (SEOs) at attractive prices. Whereas Su and Fleisher found their data on Chinese IPOs to be consistent with the signaling model, Jegadeesh et al. found a weak association between IPO underpricing and seasoned equity offerings for the US.

On the other hand, Elston and Yang [15] found no evidence of signaling using German data, although, they did find that insiders are still the majority shareholders after an IPO. Some countries governments regulate the offering prices of shares. This is sometimes viewed as the reason why some countries see abnormally large returns on their IPOs. The Securities and Exchange Commission in the US is more concerned about companies' full disclosure than their fairness, so they do not set a regulatory price. Before reform in 1989, Japanese firms were required to have offer prices based upon the multiples of three comparable companies. In practice this does not work as it does not account for a company's potential growth, and companies with low multiples may have been chosen as the comparison [16].

Botswana is an example of a resource rich country that has recorded impressive growth. Built on diamond mining, the country has grown at high rates for several decades. Again, repeated co-operative games played by the various stakeholders like government, mining industry, workers, and businesses have led to political stability, financial stability and less corruption resulting in impressive growth of the country's economy.

Countries that have been embroiled in civil wars are examples where citizens played repeated non co-operative games [17-19]. Sachs [20] singles out the Democratic Republic of Congo as an example of a country very rich in natural resources but has been unable to develop due to a long running civil. Sri Lanka is a country with high literacy rate. Such a literacy rate would indicate a high level of human capital. Even though it had such high literacy rate, Sri Lanka did not experience significant economic growth due to the existence of prolonged civil war in the country. Repeated non co-operative games between the two ethnic groups resulted in the country experiencing low economic growth although it had a highly literate population.

It is important to realize that citizens would play co-operative games when the benefits of economic growth and better governance are shared and enjoyed by all, or at least, the majority of the citizens. The benefits do not necessarily have to be enjoyed and shared equally but, has to positively affect the mass of the population. Hanushek [21] suggests that when the benefits are widely enjoyed, it does not guarantee that the citizens would necessarily play co-operative games but, it is fair to say that it certainly helps in encouraging the citizens to play co-operative games.

Yamamoto [22] concedes that when people feel that they are not enjoying the success of the country whether it is economic or social, they may play non co-operative games. This may be especially true when the successful are perceived by the mass of the population to have gained their financial or social standing through unscrupulous means. Therefore, limited sharing of economic and social success in a society may lead to the appearance of non-co-operative games among its population.

In general, Kenya is a deeply inequitable society [23]. The socio-economic status, regional differences and ethnicity are all interrelated. General social inequalities in Kenya take diverse forms: huge disparities in the distribution of national income, security, employment,

investment, health care and public services are evident across counties and in particular sections of the population, ethnic communities and genders. The Society for International Development [24] observed that 10% of Kenya's population controls about 42% of overall national income while the extreme 10% contends with significantly less than 1%.

There are considerable disparities in life expectancy between regions. For instance, there are 16 years of life expectancy difference between the Central and Nyanza provinces and the doctor-patient ratio is about 1:20,700 in Central province as compared with 1:120,000 in North Eastern province. The Development Policy Management Forum [25] argued that poverty in Kenya has progressively deepened and that the socio-economic gap between the rich and poor is widening by the day. Education always tends to favor the rich and powerful [26], hence exacerbating social inequality [27]. Odhiambo [28] indicates that Kenya has a socially polarized higher education system with relatively few students from disadvantaged backgrounds likely to attend higher education. Often, inequalities in higher education participation and access reflect endemic society and educational disadvantages that may begin in the earlier years of schooling. Participation in capital markets is therefore skewed as most brokerage houses and financial institutions reflect such deplorable skewness.

Review of empirical literature

This section looks at various studies so far undertaken on the determinants of share prices in different stock exchanges across the world.

Kipngetch et al. [29] examined the determinants of IPO pricing in Kenya. They investigated such variables as investor sentiments, post IPO ownership retention, firm size, board prestige and firm's age constitute determinants of IPO pricing for companies listed at the Nairobi securities exchange. Using secondary data from 1994 to 2008 and by employing multiple regressions at 5% level of significance, they observed a 49.44% under pricing. Investor sentiment and board prestige was negatively related to IPO offer price.

Waweru [30] sought to establish if there exists a relationship between stock prices and IPO news. Using secondary data from 2004-2009 and employing comparison period return approach to calculate mean portfolio daily return within a window period, the study revealed IPOs had both positive and negative impacts on daily returns.

Labidi and Triki [31] sought to find out if there were anomalous patterns in pricing and long run under performance in stock behavior of IPOs in the Middle East and North Africa region using panel data from 159 companies in 10 different countries from 2000 to 2010. By employing Ordinary Least Squares method, it was revealed that IPO returns were correlated to oversubscription and listing lags. Short run return volatility depicts low long run return performance. IPO underpricing denies firms seed capital but has informational effect as it improves investors' optimism thereby leading to oversubscription.

Olowoniyi and Ojenike [32] on their part sought to examine determinants of stock returns for 70 firms listed in Nigeria Stock exchange. By using panel data from 2000 to 2009, it was revealed that growth; leverage and firm size were significantly related to stock returns whereas firm profitability (earnings before tax and depreciation) and tangibility (net profit as a function of total fixed assets) were negatively related to stock returns.

Owuigbe, Olusegun and Godswill [33] examined the determinants of share price in the Nigerian stock exchange. By employing judgmental

sampling, they selected 30 firms from 2006 to 2010. Regressing independent variables such as financial performance, dividend payout and financial leverage, it was revealed that both financial performance and dividend payout had significant positive influence on share prices whereas financial leverage had a negative influence on share price.

In South Africa, Barlow and Sparks [34] study of 105 unseasoned equity issues on the JSE from 1972 to 1986 indicated a simple weighted mean initial return of 32.1%. Bradfield and Hampton [35] found average opening premia of 48% in hot issue markets and 25% in cold issue periods from May 1975 to August 1986. Agathee et al. studied 44 IPOs listed on the Mauritanian stock exchange between 1989 and 2005. They found the initial first day return to be 14.29% on average. The average returns are highest if the investors buy and hold every IPO until the end of their first month. Two recent studies found significant underpricing in Nigeria and Egypt. Adjasi et al. [36] examined the first day returns of 125 IPOs in Nigeria between 1990 and 2006. They found very high initial returns of 43.1%, on average during that period. Relating underpricing to the quality of audit report the authors found firm size and audit quality to be important factors in IPO underpricing in Nigeria. Omran [37] researched 53 IPOs listed in Egypt between 1994 and 1998. He found the average raw return on these IPOs to be 8%. This is lower than the raw returns found in Mauritius and Nigeria. However, this time period for the Egyptian study was considerably small.

Research hypothesis

This study sought to determine the economic factors influencing movement of share prices of IPOs at the Nairobi Securities Exchange under the mediating role of regulatory authorities such as the Central Bank of Kenya, Capital Markets Authority, Nairobi Securities Exchange and National Treasury, and the intervening function of Investment banks, commercial banks, brokerage houses, media and politics. Six hypotheses emanate from the six specific objectives as are listed here below:

Specific objective 1: To determine the effect of Forex on IPO share prices at the NSE.

H_{01} : Forex does not have a significant effect on IPO share prices at the NSE

H_{11} : Forex has a significant effect on IPO share prices at the NSE

Specific Objective 2: To investigate the effect of NSE 20 share index on IPO share prices at the NSE.

H_{02} : NSE 20 share index does not have a significant effect on IPO share prices at the NSE.

H_{12} : NSE 20 share index has a significant effect on IPO share prices at the NSE

Specific Objective 3: To investigate the effect of NASI on IPO share prices at the NSE.

H_{03} : NASI does not have a significant effect on IPO share prices at the NSE.

H_{13} : NASI has a significant effect on IPO share prices at the NSE

Specific Objective 4: To determine the effect of Interest rates on IPO share prices at the NSE.

H_{04} : Interest rates do not have a significant effect on IPO share prices at the NSE

H_{14} : Interest rates have a significant effect on IPO share prices at the NSE.

Specific Objective 5: To determine the effect of Equity turnover on IPO share prices at the NSE.

H_{05} : Equity turnover does not have a significant effect on IPO share prices at the NSE.

H_{15} : Equity turnover has a significant effect on IPO share prices at the NSE.

Specific Objective 6: To determine the effect of lagged share price on IPO share prices at the NSE

H_{06} : Lagged share price does not have a significant effect on IPO share prices at the NSE

H_{16} : Lagged share price has a significant effect on IPO share prices at the NSE.

Research Methodology

Introduction

The chapter discusses the methods and approaches applied in carrying out the research. These included; research philosophy, research design, study population, data collection methods, reliability and validity of the research instrument for data collection, models and techniques of data analysis.

Research philosophy

A research philosophy is a belief about the way in which data about a phenomenon should be gathered, analyzed and used. It is the foundation of knowledge and nature of that knowledge. Two major research philosophies have been identified in the Western tradition of science, namely positivist (sometimes called scientific) and phenomenology (also known as anti-positivist). In developing these knowledge researchers need to make quite a number of assumption concerning the two sources of knowledge. The assumptions are based on sociological dimension and scientific dimension [38].

Positivism presumes that the social world exists objectively and externally, that knowledge is valid only if it is based on observations of external reality and that the universal and general laws exist or that theoretical models can be developed to generalize and explain cause and effect relationships which lend themselves to predicting outcomes. The phenomenology approach to knowledge development holds that social world, individuals and groups make sense of situations based upon their individual experience, memories and expectations. Thus, meanings are constructed and reconstructed through experience, resulting in many differing interpretations. Since all knowledge is relative to the knower, phenomenology works a long others as they make sense of, draw meaning from and create their realities in order to understand their points of view; and to interpret these experiences in the context of the researchers academic experiences. Interpretivists contend that only through the subjective interpretation of and intervention in reality can that reality be fully understood.

Research design

The study adopted a correlational research design since it attempts to establish the existence of relationships among variables. It is used to describe the statistical association between two or more variables and ensures that all cross sectional variations are included in the model. The

design helps in determining the extent to which the variables of the study are related. However, it does not prove a relationship; it only indicates an association between the variables. The design adopted was consistent with an explanatory and exploratory purpose taking cognizance of the synchronization between deductive and inductive approaches. Other designs were excluded, for instance, experimental design requires acquisition of primary data through observation for approval of a hypothesis. Researcher participation through introduction of variables into the research environment and the assessment of consequential impact is very necessary [39]. The researcher had no attachment materially with the three firms apart from being a Safaricom subscriber and a consumer of electricity generated by KenGen.

Population and sample

With a population of all listed companies at the Nairobi Securities Exchange between 2002 and 2013, when Kenya's economic growth was at its peak, a judgmental sampling was taken from a sample frame of 12 organizations which listed their IPOs within the time frame out of which 3 firms were selected due to their strategic importance in the Kenyan Economy. Equity bank has seen tremendous growth in terms of customer base and is therefore representative of the banking sector, KenGen being a near monopoly in the generation of power in the country and a successful IPO was a suitable target for study and Safaricom, a very significant player in the telecommunication sector also worth the study.

Data collection

Quantitative data was captured from the Nairobi Securities Exchange, Central bank of Kenya and the Kenya National Bureau of Statistics in line with Creswell's recommendation.

Results Analysis

Introduction

This section presents descriptive statistics outcome of data collected on the variables of the study among the three firms listed at the Nairobi Securities Exchange.

Equity bank

The predicted model was $SP = -305.244 + 3.295IR + 2.297FR + 0.00000001895ET - 0.00007261NSI + 1.627NASI + 0.167SP_{t-1}$.

From the Table 1, R Square for Equity bank is 5.6%, implying that overall, all the economic indicators included in the model, only account for 5.6% of share price movement at the NSE. Other factors not included in the model account for 94.4% of share price movement. This is a weak link though a significant one.

From the ANOVA Table 2, all the independent variables jointly, have a significant influence on share price movement of Equity bank since the overall p value is 0.000 which is less than the 0.05 confidence level. This means that statistically, the model could predict share prices of Equity bank.

From the Table 3, the constant was statistically significant with a p value less than 0.05. Interest rate had a positive and significant coefficient of 3.295 implying that interest rates and share prices of

Model	R	R ²	Adjusted R ²	Standard Error of the Estimate
1	0.237	0.056	0.051	156.41969

Table 1: Model summary. Table adopted from Gatua [40].

Model	Sum of Squares	df	Mean Square	F	Sign.
Regression	1655670.682	6	275945	11.28	0.000 ^a
Residual	27794648.56	1136			
Total	29450319.25	1142			

Table 2: Analysis of Variance. Table adopted from Gatua [40].

Model	Unstandardized Coefficient		Standardized Coefficients			
	B	Std Error	Beta	t-value	Sig.	
1						
	Constant	-305.244	91.655		-3.33	0.001
	IR	3.295	1.293	0.085	2.548	0.011
	FOREX	2.297	0.813	0.094	2.824	0.005
	ET	0.00000001895	0	0.03	0.903	0.367
	NSI	-0.00007261	0	-0.006	-0.019	0.849
	NASI	1.627	0.432	0.14	3.762	0
	LAGGED SP	0.167	0.029	0.167	5.717	0

Table 3: Model Coefficients. Table adopted from Gatua [40].

Equity bank move in the same direction. Every 1% increase in interest rates leads to a share price increase of Ksh 3.295 ceteris paribus.

FOREX had a positive and significant coefficient of 2.297 implying that forex and share prices of Equity bank move in the same direction. Every 1% increase in forex leads to a share price increase of Ksh 2.297 ceteris paribus.

Equity turnover and NSE 20 Share Index both had no statistical significance for predicting share prices of Equity bank as their p values of 0.367 and 0.849 respectively were greater than 0.05 confidence level.

NASI and Lagged share prices both had positive and significant influence as predictors of share price movement of Equity bank with a p value of 0.000 and coefficients of 1.627 and 0.167 respectively. Every unit increase in NASI leads to a Ksh 1.627 rise in share prices while every unit increase in Lagged Share price leads to a Ksh 0.167 rise in Equity bank share prices. From the foregoing the new Equity bank predictor model becomes;

$SP = -305.244 + 3.295IR + 2.297FOREX + 1.627NASI + 0.167SP_{t-1}$. Economic variables that significantly predict Equity bank share price movement are; Interest rates, Foreign exchange; Nairobi Securities exchange All Share Index and Lagged share price.

Hypothesis testing for Equity bank: From the model coefficients table, interest rates, forex, NASI, and Lagged share prices all have p values less than 0.05 confidence level. This means that the null hypothesis H_{01} stating that forex does not have a significant effect on IPO share prices at the NSE is rejected and the alternative hypothesis H_{11} that forex has a significant effect on IPO share prices at the NSE is upheld.

The null hypothesis H_{02} that NSE 20 share index does not have a significant effect on IPO share prices at the NSE is upheld and the alternative hypothesis H_{12} that NSE 20 share index has a significant effect on IPO share prices at the NSE is rejected. The null hypothesis H_{03} that NASI does not have a significant effect on IPO share prices at the NSE is rejected and the alternative hypothesis H_{13} that NASI has a significant effect on IPO share prices at the NSE is upheld. The null hypothesis H_{04} that interest rates do not have a significant effect on IPO share prices at the NSE is rejected and the alternative hypothesis H_{14} that interest rates have a significant effect on IPO share prices at the NSE is upheld. The null hypothesis H_{05} that Equity turnover does not have a significant effect on IPO share prices at the NSE is accepted and

the alternative hypothesis that equity turnover has a significant effect on IPO share prices at the NSE is rejected. The null hypothesis H_{06} that lagged share prices do not have a significant effect on IPO share prices at the NSE is rejected and the alternative hypothesis H_{16} that lagged share prices have a significant effect on IPO share prices at the NSE IS accepted.

KenGen

It was listed in 2006.

The predicted model comes to $SP=0.545 - 0.412 IR+0.101 FOREX+0.00000000486 ET - 0.00000598 NSI+0.11 NASI - 0.004 SP_{t-1}$

From the Table 4, R Square is only 0.8%, implying that, overall, the economic indicators included in the model, account for only 0.8% of the variation in share prices of KenGen at the Nairobi Securities Exchange. Exogenous indicators not included in the model account for 99.2% of KenGen share price movement.

From the Table 5, all the independent variables jointly, do not have a significant influence on share price movement of KenGen since the overall p value is 0.191 which is greater than the 0.05 confidence level. This means that statistically, the model could not predict share prices of KenGen.

From the Table 6, all the independent variables do not have any significant influence on share price movement of KenGen predicted as their individual p values are greater than 0.05 confidence level.

Hypothesis Testing for KenGen: From the coefficients table, all the economic indicators presented in the model have p values greater than 0.05 confidence level. It therefore means that all the null hypotheses $H_{01}, H_{02}, H_{03}, H_{04}, H_{05},$ and H_{06} are accepted while all the alternative hypotheses $H_{11}, H_{12}, H_{13}, H_{14}, H_{15}$ and H_{16} are rejected. The model is therefore rejected as a predictor of KenGen share prices at the NSE.

Safaricom

The predicted model was $SP=-50.229-1.031 IR+0.452 FOREX+0.000000125 ET - 0.000008738 NSI+0.394 NASI - 0.003 SP_{t-1}$

Model	R	R Square	Adjusted R Square	Std Error of the Estimate
1	0.87	0.008	0.002	31.47988

Table 4: Model Summary. Table adopted from Gatua [40].

Model	Sum of Squares	df	Mean Square	F	Sig
Regression	8648.522	6	1441.42	1.46	0.191
Residual	1127738.4	1138	990.983		
Total	1136386.9	1144			

Table 5: Analysis of Variance. Table adopted from Gatua [40].

Model		Unstandardized coefficients		Standardized coefficients		
		B	Std Error	Beta	t-value	Sig
1	Constant	0.545	18.326		0.03	0.976
	IR	-0.412	0.259	-0.054	-1.592	0.112
	FOREX	0.101	0.163	0.021	0.618	0.537
	ET	0.00000000486	0	0.004	0.115	0.908
	NSI	-0.00000598	0	-0.002	-0.078	0.938
	NASI	0.115	0.086	0.051	1.333	0.183
	LAGGED SP	-0.004	0.03	-0.004	-0.143	0.886

Table 6: Model coefficients. Table adopted from Gatua [40].

From the Table 7, R Square is only 0.2%, implying that overall, all the economic indicators included in the model account for only 0.2% share price movement of Safaricom shares at the Nairobi Securities Exchange. Exogenous indicators could account for 99.8% of share price movement.

From the Table 8, all the independent variables jointly, do not have a significant influence on share price movement of Safaricom since the overall p value is 0.856 which is greater than the 0.05 confidence level. This means that statistically, the model could not predict share prices of Safaricom.

From this Table 9, all the variables do not have any significant influence on Safaricom share prices as their individual p values are greater than 0.05 confidence level. The model could therefore not predict share price movement of Safaricom limited.

Hypothesis testing for Safaricom shares

From the coefficients table, all the economic indicators presented in the model have p values greater than 0.05 confidence level. It therefore means that all the null hypotheses $H_{01}, H_{02}, H_{03}, H_{04}, H_{05},$ and H_{06} are accepted while all the alternative hypotheses $H_{11}, H_{12}, H_{13}, H_{14}, H_{15}$ and H_{16} are rejected. The model is therefore rejected as a predictor of Safaricom share prices at the NSE.

The initial predicting model suited Equity bank only while both Safaricom and KenGen were not predicted at all. This therefore leads to a reformulation of an overall market model predictive enough for the other two firms also. Two key economic variables, money supply and inflation rate are added to the model while foreign exchange rate and interest rates are maintained. The new predictive model equation therefore becomes;

Model equation $SP=253.675 + 0.068 MS - 0.775 InR - 2,409 FOREX - 4.625 IR$ Where MS=Money supply

InR=Inflation rate

FOREX=Foreign exchange rate

Model	R	R Square	Adjusted R Square	Std Error of the Estimate
1	0.48	0.002	-0.003	197.60859

Table 7: Model summary. Table adopted from Gatua [40].

Model	Sum of Squares	df	Mean Square	F	Sig
Regression	101936.5	6	16989.417	0.435	0.856 ^a
Residual	4437937	1138	39049.154		
Total	44539873	1144			

Table 8: Analysis of Variance. Table adopted from Gatua [40].

Model		Unstandardized coefficients		Standardized coefficients		
		B	Std Error	Beta	t-value	Sig
1	Constant	-50.229	115.018		-0.437	0.662
	IR	-1.031	1.626	-0.022	-0.634	0.526
	FOREX	0.452	1.022	0.015	0.442	0.658
	ET	0.00000012	0	0.015	0.453	0.651
	NSI	-0.000008738	0	-0.001	-0.018	0.986
	NASI	0.394	0.542	0.028	0.726	0.468
	LAGGED SP	-0.003	0.03	-0.003	-0.113	0.91

Table 9: Model Coefficients. Table adopted from Gatua [40].

Model	Unstandardized coefficients		Standardized coefficients			
	B	Std Error	Beta	t-value	Sig	
1						
Constant	253.675	18.002		14.091	0	
IR	-2.409	0.231	-0.891	-10.408	0	
FOREX	-0.775	0.436	0.171	-1.78	0.03	
ET	-4.625	1.114	-0.504	-4.153	0	
NSI	0.068	0.002	1.47	9.198	0	
NASI	0.394	0.542	0.028	0.726	0.468	
LAGGED SP	-0.003	0.03	-0.003	-0.113	0.91	

Table 10: Model coefficients. Table adopted from Gatua [41].

IR=Interest rate (T-bill rate). From Table 10, the coefficients of foreign exchange rate, inflation rate and interest rates move in the opposite direction with share price of listed firms for they have negative values. Money supply has a positive coefficient of 0.068 implying movement in the same direction [42-46]. All the four economic variables have a significant influence on share price of listed stocks because their p-values are less than 0.05 significance level.

Summary, Conclusion and Recommendations

Introduction

This study sought to determine the economic factors predicting IPO share price volatility at the Nairobi Securities Exchange under the mediating role of regulatory authorities such as the Central Bank of Kenya, Capital Markets Authority, Nairobi Securities Exchange and National Treasury, and the intervening function of investment banks, commercial banks, brokerage houses, media and politics.

Summary

The results are contradictory on the economic indicators and their effect on different sectors of the economy. Overall, interest rates, foreign exchange rate and inflation rate had negative significance on share price volatility while money supply had a positive influence on share price volatility. Initial sectoral prediction model worked in favour of Equity bank but had no predictive indication on Safaricom and KenGen. This resulted in a new market model with four economic variables; inflation rate, foreign exchange rate, interest rate and money supply as significant predictors of share price volatility.

Conclusion

The study reveals that various indicators affect different sectors differently and that there is no standard model for predicting share price volatility at the Nairobi Securities Exchange. Investors therefore need to calibrate their risk profile taking cognizance of different sectors, economic states and market sentiments.

Recommendations

Other scholars could undertake a similar study but employ multiple regressions to bring on board other indicators apart from the economic indicators used in this study.

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