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An Overview Of The Inefficiency Of Financial Markets: A Close Look At The Ghanaian Economy

Dr. Akwasi Adjei-Kuffour

Department of Accountancy, Koforidua Polytechnic,
Koforidua, Ghana

Abstract: ***In current years, there has been an increasingly concern on the outlook of the inefficiency of financial markets in Ghana in stimulating economic growth. The argument pointed out is that the Ghanaian economies may be constrained and that financial markets are unlikely to be offering the required stimulus for financial markets development. This study assesses inefficiency of financial markets in Ghanaian economy. The methodology were mainly secondary sources of data and the findings using descriptive statistics such descriptive statistics of daily returns, variance ratio test and runs tests of daily market returns. The conclusions brought about some implication such as lack of managerial competencies, uncertainties in the markets, lack of confidence, fragility in institutional infrastructural among others. The challenges highlighted government policies, level of interventions, problems of regulatory authorities and the absence of responsibilities are some of the underlying challenges of the study.***

Keywords: Inefficiency, Financial Markets, Share Price

I. INTRODUCTION

As pointed out by Breavely et al (2004), a financial market is one in which financial assets such as shares, bonds can be bought or sold.

A growing proportion of financial markets are efficient because they not only demonstrate entire available information, but also strengthen the price of assets to their basic value, that is, their correct value. Most non-economists who observe the huge scale in terms of financial markets find this perception very surprising as they normally see the financial markets as one enormous activity.

In case financial markets are not efficient, then prices shift for reasons that they are unrelated to what their determinants should be. For instance, the share price within a company may tumble through the company's capacity to produce profits is fixed. If prices advanced towards extraneous factors, we might observe them to be highly volatile than would be determinant justification.

An example of the damage which such inefficiency can cause is given by the behaviour underlying food markets in periods of famines. In principle, prices bought to rely on current as well as future demand and supply. But if say, there are some people within the market who become irrationally on the dark side concerning future supplies, prices will jump far more than is normally warranted by the supply-demand balance. The aftermath is that there will be greater deaths than it should be.

Huge swings in exchange rates as well as share prices can also have damaging consequences. Some economists are of the view that some of the increases, for instance, the major currencies such as pound, dollar and euro in period of 1971-81 and 2008 financial crisis were insurmountable.

Some analysts are of the view that an overview of the market takes a short-term a view in terms of investment, particularly in the research and development expenditure. Such a pricing inefficiency will act to minimize the level of growth of our standards of living. Some economists also perceive that share prices reduce by an unwarranted amount during times of inflation. Since the fall in share prices hits investment as well as employment, the stock market acts to reduce the damaging repercussion of inflation.

II. LITERATURE REVIEW

THE CASE FOR PERCEIVING THAT FINANCIAL MARKETS ARE EFFICIENT

The perception that financial markets are efficient is broadly held within circles of financial economists. For instance, Jensen (1986) states that there is no better documented proposition in any of the social sciences. One definition of the efficient Markets Hypothesis (EME hereafter) is that entire prevailing published information had been taken into account in determining the prevailing share price.

It is a common practice by financial economists to state evidence supporting this nature of efficiency, and then to conclude that the valuation of the security is seen as rational in that it is equal to its basic value, that is, the expectation of the current value of the future cash flows available for distribution to that security. For instance, in the broadly utilized textbooks of Copeland and Watson (1983), they are of the view that the efficient capital prices fully and instantaneously demonstrate all available significant information. This implies that when assets are traded, prices are perfect symbols for capital distribution. This is a greater and stronger assertion that does not relevantly follow from the theoretical as well as empirical arguments for the reason inefficiency.

THE THEORETICAL CASE

This, widely stated, rests on the observation that any investor is in completion with, perhaps, millions of other clever, self-aptitude and well-informed investors. Therefore, if prices do not demonstrate publicly available information yet, then presumably, there are many investors who will try to profit from this inefficiency and, hence, push the price to a level where it correctly reflects the available information.

THE EMPIRICAL EVIDENCE

A growing proportion by a member of the School, Maurice Kendal (1953), was the progenitor of much of the post-war work on efficient markets. His argument was that share prices followed a random walk, or more concisely, that successive prices variations were independent of one another. He was by no means the first to point this out. For instance, Frenchman Bachelier, made this observation in 1990. However, unlike that of his predecessors, Kendal's study was not looked down upon, and a large number of studies showed to replicate his results showed in the continuous years.

The reason why the random walk behaviour in terms of stock prices might accord with the idea of efficient markets is that if prices fully demonstrate entire available information, they will only vary when information arrives. By definition, new information is unpredictable and hence share price must also be unpredictable. In other words, one should not be in a position to foretell variations in share prices by applying past changes in share prices. If future price changes rely on past price variation, then rational investors will rush to trade on the premise of this statistical correlation, and by so doing, will ensure that the price changes, thereby damaging the supposed statistical links.

The semi-strong kind of market efficiency has been tested by considering whether future share price changes can be forecasted by current, publicly available information. The research by Fama (1976) has, with a few exceptions, been unable to abandon the hypothesis of market efficiency for common stocks.

THE COUNTERATTACK

Keynes's (1963) view that in financial markets all kinds of considerations penetrate into the market valuation that are in no way relevant to the prospective yield has been resurrected in recent years. Believers in the EMH normally argue that much of this is unnecessary for, at the end of the day, share prices will rely on the basics. Rational arbitrageurs would take advantage of the price anomaly and purchase sufficient price stimulated by correct level.

Another remedy is offered by Shiller (1984) who, for the sake of the argument, demands to imagine as to whether there are two sorts of investors: ordinary investors whose demand for share relies on entire kinds of considerations, only some of which are related to the underlying fundamentals and the known 'clever investors.'

One would argue out that there will constantly be people who invest in the stock market, having the perception that they know something that the rest of us do not.

In his study, Stewart (1949) points out that the future market, where he found that the non- professional speculators systematically lost money.

An alternative argument advanced by some scholars as to why ordinary investors survive is that valuation mistakes are very difficult to detect. Thus, either speculators do not become aware of valuation flaws, or these investors, like many economists, are convinced by the myth that the EMH is valid.

There is another, though rather less damaging, motive to accept the EMH. It significantly rests on the paradox that if information is costly to acquire, however prices fully demonstrate all available information, then how do those who expend resources on information acquisition survive? Grossman and Stiglitz (1980) argue that one plausible outcome is say, a situation in which there are both informed and uninformed agents, however, contrary to the strict version of the EMH,the price does not fully show all available information.

THE FOREIGN EXCHANGE MARKET

The historical experience which has probably done most to soften assertion of the EMH is our current experience with floating exchange rates.

The move to a system of floating exchange rates in 1973 was, at the time, accepted by a growing proportion of economists. But few of them imagined that the huge volatility of exchange rates, coupled with accompanying variations in the huge volatility of exchange rates, with the concomitant changes in the competitiveness of a country's goods and dislocative repercussion that flow aftermath.

It is plausible that much of the volatility of the foreign exchange markets can be accounted for because there is no basic model which everyone sticks to. Rather, we have seen a succession of economic-based models with varying levels of success co-existing with other, non-economics-based models. With perceptions of the suitability of these models varying entirely with time, one can produce greater changes within the exchange rate through such swings in sentiment.

There is a great deal of evidence [for instance, Fama (1984) or Goldhart (1987)] that suggests that the forward exchange rate market is not efficient. The evidence suggests that if you were attempting to forecast the normal exchange rate six months, therefore, then rather of instituting the forward rate, you would on average, do better to use the current exchange rate.

A RE-EVALUATION OF THE EVIDENCE THAT SHARE PRICES FOLLOW A RANDOM WALK

The evidence that successive share price changes are independent is frequently employed to justify the assertion that prices are rationally related to economic realities. It, therefore, follows that successive price changes in share price will be correlated. Therefore, the perception that price dwarf economic realities is buttressed.

Summers (1986) demonstrates that if share prices are partly determined by fads following a specific statistical mechanism, then the chances that conventional statistical tests will discriminate between the EMH and this optional hypothesis seems not to be very high.

There are current studies that found evidence pointing out that successive variation in prices is negatively correlated. But the authors of these studies, who assert that this evidence is consistent with the EMH, offer that we are flexible in the assumption that investors have a constant required rate of return. Porteba and Summers (1987) corroborate the plausibility of this view by arguing that in order to be consistent with other observed characteristics of share prices, the investors required rate will have to vary by an implausibly huge amount.

There are least two key problems for the EMH.First, smart investors who have made up their mind to buy stock on the basis of the underlying fundamentals would not be smart if they do not take Granville's sell order into account when deciding on his of the purchase. Hence, the 'smart' person's prediction of the future share price will rely not only on his prediction of the basics but also on his forecasts of Granville's predictions. Second, offered that the 'smart' investor takes account of entire factors which influence the share price.

THE EFFECTS OF INFLATION ON SHARE PRICE

The conventional assertion in terms of share price was that they were assertion on real assets; they could be projected to indicate signs of stable inflation hedge. But the experience of the 1970s was quite different. For instance, during 1968-79, the yearly return on common stocks within the US was 3.1 % annually, while inflation averaged 6.5%. The failure of equities to cope with inflation cannot just be attributed to weaker economic growth in the 70s.

Rather, share prices tumbled relative to earnings.

The Conventional Economic Theory states that earnings yield should rely on the real interest rates of a safe asset, the projected growth in earnings and some suitable risk factor. What this means is that inflation should not exert extra influence. But Modigliani and Cohen (1979) report evidence in the US that suggests that increase in inflation tends to result in cuts in share price. This perhaps can be attributed to the imperfections of the tax system.

Modigliani and Cohn (1979) are also of the view that investors commit valuation flaws during periods of inflation. Some scholars do not understand economic theory and so they incorrectly compare earnings yield with the nominal return in terms of gilts, instead of real return.

It is worth stressing that mistakes in inflation seem not to be limited to the stock market alone. They are undoubtedly found in other sectors as well. For example, in the banking industry, there is evidence that the rule of the thumb instituted making lending decisions become growing restrictive in times of inflation. Hence it could be said that corporate liquidations takes place in times of inflation.

Financial economists are of the view that EMH provide an option interpretation for the relationship between inflation and earnings yields. Their argument is that risk and inflation overlap. One main motive is that a rise and higher variable inflation affects higher uncertainty. The problem with this interpretation is that it is far from apparent why the rise in inflation results in higher uncertainty and for that matter lower share prices.

IS THE STOCK MARKET MYOPIC?

It is a widely held opinion among members of the general public that the stock market gives room within the short-term in respect of investment decisions.. A poll conducted by British financial weekly found that 85% of managers echoed that acquisition boom brought about much focus to short-term performance is short-sighted.

There is much informal evidence that backs the perception that the market is short-sighted. For instance, Carlsberg and Day (1984), in trying a gradual process analysis of the investment decision in respect of intervening assessments, conclude that investment analysts show to emphasized primarily on the forecast of historical cost profits in or two years advancement.

Research conducted in experimental psychology show that when forming cognitive judgments, individuals apply various heuristic tools which can bring about biases in judgments. The interpretation is that an individual judges the tendency of a future event by stressing too much on current information. Arrow (1982) has argued out with a point that the behaviour in terms of financial markets should be consistent with the operation of those psychologists.

The normal or conventional reaction of those who perceive within the EMH is the argument that entirety this evidence from psychological experiments is hugely unnecessary for the reason that it has not been secure in conditions where the individual is permitted to response within the group, that is highly suitable to stock market decisions.

As Merton (1986) concurs when he adds that profit–seeking arbitrageurs would buy or sell until the price was clarify or clear of any cognitive mis-opinions.

III. DATA, METHODOLOGY AND RESULTS

DATA SOURCES

Secondary data are information collected by others for purposes which can different from others. The study collected information from internet sites and web page, reports, daily newspapers, textbooks etc.

The justification for using secondary data includes the following:

- ✓ First, using secondary data certainly saves a lot of time and capital. The researcher needs only an advanced library for his sources. This not only assists the researcher to better formulate and understand the research problem, but also widens the base from which scientific conclusions can be drawn. Thus, the verification process is highly swift and the reliability on the information as well as its conclusions is greatly enhanced.
- ✓ Second, using secondary data can suggest appropriate processes or data to cope with a specific research problem. Moreover, it offers a comparison tool with which one can pinpoint easily and explain as well as understand primary data.

One of the key disadvantages of secondary data is that the research process may have different objectives and therefore not fit our problem.

It should be noted that it is difficult to classify these pieces of information in ways which are consistent with the study. The variables might have been defined differently or the measurement unit could have been totally different and would, therefore, make the comparison completely unsustainable.

The paper puts daily market returns in terms two indices such as All Share Price Index (ASP1) and Sensitive Index (SI) 2 of GSE from January 2010 to February 2015. The studies instituted the above said periods in order to attract the under mentioned political as well as non-political events.

The research applied stock market returns as an individual time series variable. Market returns are computed from the daily price indices as shown below:

Pt = Ln (P1t/P1t) ----------(1)

Here, Pt means to market returns during period t; Plt1, the price index at period t-l and Ln refers to natural log. The motives underlying logarithm returns are justified both theoretically and empirically. Theoretically, logarithmic returns are analytically highly tractable when connecting returns over longer intervals. Empirically, logarithmic returns are highly to be normally distributed, that is prior circumstance concerning standard statistical technique (Strong1992).

To test the weak –form of market efficiency, the paper initially assessed the normal distribution in terms of stock returns. Incase stock returns series follow a normal distribution, it is classified in the wake of assumption of random walk model; hence the market is allowed as having the weak-form of efficiency. The research tested normality by applying the skewness, kurtosis as well as Jarque-Berta statistic.

Descriptive statistics can be explained to rest the informational efficiency underlying stock market. Overall, values for zero skewness and kurtosis at three represent stand that the observed distribution is normally distributed.

Table 1 demonstrates the descriptive statistics of daily returns of All Share Price Index (ASPI) and Sensitive Index (SI).Hence, skewed and leptokurtic frequency distribution of daily market returns series demonstrate that the distributions are not normal. Jarque-Beta test also ignore the null hypothesis regarding normal distribution for both indices: ASPI and SI. It offers evidence that the frequency distribution is not normal. However, the positive mean returns as well as low variance demonstrate that the Ghana Stock Market includes low risk.

	ASPI	**SI**
Observation	838	838
Mean	0.00021	0.0017
Median	-0.00033	-0.00018
Maximum	-0.04894	-0.05707
Minimum	-0.02778	-0.07129
Standard Deviation	-0.01402	-0.25450
Skewness	-0.13769	-25450
Kurtois	4.91434	5.21239
Jarque	130.60640	170.95110
Probability	0.00000	0.00000

Table1: Descriptive statistics of daily returns

IV. VARIANCE-RATIO TESTS OF RANDOM-WALK

The paper uses the variance-ratio approach in terms of Lo and MacKinlay (1988) to test for random-walk in respect of the Ghana Stock Exchange. The idea surrounding the variance-ratio test is that if the natural logarithm of a time series Yt, is a pure random-walk, the variance of its q-variations rise proportionally with difference q. Thus, if the variance of the rise in a random-walk is linear in the sampling interval. Hence, if a time series follows a random-walk process, the variance of its q-difference should by q times the variance of its first difference. The variance ratio, VR (q), is defined as:

VR (q)=a2 (q)/a1(l)

Wherea2 (q) is l/q the variance of the q-differences and a2 (l) is the variance of the first differences. According to Lo and MacKinlay, formulas for the computation of a2 (q) and a2 (l)

Under a single variance-ratio test, the null hypothesis is that VR (q)= l or that the chosen index follows a random-walk. If the null hypothesis is dismisses and VR(q) < l, then the calculated Z(q) and Z*(q) are seen to be negative and returns are negatively correlated. That is mean reverting.

Table 2 reports the variance-ratio tests that are calculated for intervals q= 2,4, 8,16 daily observation interval. The dismissal as regards the random walk hypothesis under homoskedasticity is not adequate on its own, as it could be for the reason of autocorrelation in the assessment series. Therefore, it is significant to emphasize primarily the heteroskedasticity consistent Z-statistics.

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It can be seen from Table, 2 that variance test-statistics are negative with statistics useful for both homoskedasticity in ASPI and Sl. Therefore, the random-walk hypothesis is strongly rejected for both indices. In another development, the hypothesis of random-walk for both chosen indices cannot be allowed for entire levels of intervals q at the one percent level of significance.

Both sample indices, ASPl and Sl, variance below one and they drop while the interval q rises. It shows negative serial correlation in returns and potential mean reversion.

Indices	Q	VR(q)	Z(q)	Z*(q)
ASPl	2	0.7408	-7.4996*	-4.4722*
	4	0.3685	-9.7664*	-6.5124
	8	0.1869	-7.9520*	-6.1421
	16	0.0935	-5.9583	-5.1226
SI	2	0.7227	-80226*	-4.7936
	4	0.3686	-9.7644*	-6.5957*
	8	0.1842	-7.9793	-6.3354*
	16	0.0942	-5.9533*	-5.2533*

Table 2: Variance-Ratio Test

It should be pointed out that the number of observation; 838 for each index. The asterisk denotes statistical significance at the 0.01 level with a critical value equal to 2.57. Similarly, the observations are split into two equal sub-samples and the results of variance-ratio tests are reported not different with general sample observations.

The study offers the evidence of variance-ratios lesser than one suggesting negative returns autocorrelation. The results stand in sharp contrast to those of Lo and MacKinlay (1988) who found that positive autocorrelation contradicted with Worthington and Hinggs (2009) in Australia who comes out with value variance-ratio are bigger than one indicating positive autocorrelation. However the meaning shifting process in terms of stock returns is documented by Fama and French, and Jegadeesh (1990).

The paper has further tested for weak-form market efficiency applying run test that is a non-parametric test used for revealing the frequency of the variations in the direction of a time series. The run test is accompanied by calculating the projected runs and actual runs for the sample returns. The expected number of runs is represented as follows:

E(R)= 2n,n2+n/n,

where n represents the aggregate number of observations, n1 and n2 represent observation which equals or above and below the sample mean(or median), and R represents the observed number of runs. The standard error can be written as under:

A(R)=2n1,n2(2n,n1-n).

The asymptotic (and approximately normal) Z-statistic can be written as follows:

Z(R)= r- E®/a(R)

The research under investigation in Table 1 demonstrates that both series are not normally distributed. Thus, non-parametric runs test that tests for independence between successive events in a series without requiring normality of distribution, is applied to test weak-form efficiency of the chosen indices ASPl and Sl.

Table 3 presents the tests of independence, that is, run test. The negative Z-values for both runs under the null hypothesis of returns independent at the 0.01 level. The negative z values for both indices show positive serial correlation. The run test shows a one percent significant level. There is no evidence for weak-form efficiency in either series.

Indices	Mean	n	N1	N2	E(R)	R	(Z) R	p-value
ASPI	0.0021	8.38	434	404	419.463	260	-11.038	0.000
SI	0.0017	838	435	403	419.389	292	-8.819	0.000

Table 3: Run Tests Of Daily Market Returns

It should be pointed out that the results of runs test are based on mean value. The runs tests were also performed with the median as base and it further reported similar results. Similarly, the observations are split into two equal sub-samples and the results of runs tests are reported not different with general sample observations.

V. CONCLUSION AND IMPLICATIONS

In conclusion, this paper has reviewed some of the current works undertaken by economists that offer some evidence for the assertion that financial markets are likely to be inefficient. If financial markets are inefficient, then this also has serious social as well political repercussions. For instance, the increasing linkage of global capital markets makes it even highly uncertain that the Ghanaian electorate could select a government whose mindset or ideology is inconsistent with prevailing traditional market, a situation which can trigger a completely unmanageable financial crisis.

Furthermore, Susan Strange (1986) echoed that if it is viewed that it is mere misfortune that matters, rather than factors such as skill, effort and determination, then the confidence in the prevailing system will be demoralized. Again, a growing proportion of people will viewed a small importance in attempting to make sound decision, however will just anticipate that the all will be well.

This paper also throws light on the random-walk hypothesis and weak-form of market efficiency in the Ghana Stock Exchange applying variance-ratio as well as runs tests. The rests used on two significant daily market indices such as ASPI and SI. This is because the variance ratio is less than unity. The random-walk hypothesis for both indices is strongly ignored. Also, the runs tests have ignored the independence of stock price movements which exposed the inefficiency in the Ghana stock market.

The GSE stock market is inefficient in daily returns series proposing that past movements in stock prices can be applied to forecast their future movements.

It offers market actors the certainty of earning greater returns than projected. The presence of a random-walk within the stock data has a significant implication for portfolio investors, the provision of capital across the economy and therefore general economic development. It is prudent and beneficial to point out that an effective regulatory framework should be implemented and a growing effective role generally of stakeholders should be of assistance in making the market a true reflection of the nature of the economy direction.

The main motives for the market inefficiency in under-developing countries such as Ghana may be the fragility in the institutional infrastructural, poor legal framework, sluggish development in terms of the imperfection on the market, weak corporate governance as well accountability, low level of capacity of key market actors and absence of transparency in terms of the market transaction.

The paper offers the time series behaviour in respect of less-developed markets such as Ghana. The mechanism of processing flesh information in GSE is seen to be fragile. It may be the result of consistent bulk of non-activity traded shares, limited role of mutual fund and lack of managed professional investment broker institutions. The lack of qualified analysts, institutional investors as well as investment-friendly arena is a classical evidence of under-developing limitation or obstacles such as Ghana.

The key challenges of GSE involve change in government policies, policy level interventions, problems of regulatory authorities, absence of responsibilities concerning economic agenda from political parties, and poor economic growth. Some of the other challenges encompass broader application of automation, building regulation as well as supervision, and education on what investors should and should not do.

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