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ПРО ЭФЕКТИВНОСТЬ НА ФОНДОВОМУ РИНКУ

У статті здійснюється аналіз різних підходів до розкриття поняття термінів «переоцінка» і «недооцінка» фінансових показників, що часто використовуються в відношенні фондових ринків. Проте, дати правильне визначення цих термінів далеко не просто. Вчені- економісти часто відступають від Гіпотези «Ефективні ринки» (ГЕР), яка стверджує, що ефективність фондового ринку завжди повинна бути оцінена. Тому головна мета цього дослідження - дати чітке уявлення про концепцію ринкової вартості фінансових інструментів. Аналіз повинен бути обґрунтований як за економічними показниками, так і за фінансовими даними. Ряд альтернативних критеріїв фінансової оцінки, такі як: дивіденди, коефіцієнти Р/Е, коефіцієнт Тобіна і коефіцієнт прибутковості, були досліджені в цій статті.

Ключові слова: фінансовий ринок, економічна цінність, «переоцінка» і «недооцінка» фінансових показників, фондові ринки, корпоративні акції, Гіпотеза «Ефективні ринки» (ГЕР), фінансові інструменти.

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ОБ ЭФФЕКТИВНОСТИ НА ФОНДОВОМ РЫНКЕ

В статье осуществляется анализ разных подходов к раскрытию понятия терминов «переоценка» и «недооценка» финансовых показателей, что часто используются в отношении фондовых рынков. Тем не менее, дать правильное определение этих терминов далеко не просто. Ученные- экономисты часто отступают от Гипотезы «Эффективные рынки»(ГЭР), которая утверждает, что эффективность фондового рынка всегда должны быть оценена. Поэтому главная цель этого исследования - дать четкое представление о концепции рыночной стоимости финансовых инструментов. Анализ должен быть обоснован как по экономическим показателям, так и по финансовым данным.

Ряд альтернативных критериев финансовой оценки, такие как: дивиденды, коэффициенты P/E, коэффициент Тобина и коэффициент доходности, были исследованы в этой статье.

Ключевые слова: финансовый рынок, экономическая ценность, «переоценка» и «недооценка», фондовые рынки, корпоративные акции, Гипотеза «Эффективные рынки» (ГЭР), финансовые инструменты.

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ABOUT THE STOCK MARKET VALUE

There are to analyze the terms ‘overvaluation’ and ‘undervaluation’ are frequently used in relation to stock markets. Nonetheless, defining these terms properly is far from straightforward. Academic economists frequently fall back on the Efficient Markets Hypothesis (EMH), which contends that markets must always be fairly valued. As we point out, the EMH is open to strong objections, but we acknowledge that those, like us, who dispute its validity rarely have a clear idea of what to put in its place. It is therefore the central aim of this module to provide a clear understanding of the concept of financial instruments market value. The analysis must be grounded both in sound economics, and in the data. We examine a range of alternative valuation criteria: dividend, P/E multiples, Tobin's q, and yield ratios.

Keywords: financial market, economic value, ‘overvaluation’ and ‘undervaluation’, stock markets, corporate equities, the Efficient Markets Hypothesis (EMH), financial instruments.

The terms overvaluation and undervaluation are frequently used in relation to stock markets. Nonetheless, defining what these terms mean is far from straightforward. In this course we consider whether, and if so how, stock markets may be valued in aggregate. We do not examine, except where it is relevant to that question, the issues that apply to the value of individual shares. We introduce, from time to time, technical terms and phrases that will be familiar to some but not to

others. We append a glossary of these terms at the end of the text so that students can check the meaning of those with which they are unfamiliar. The course is designed to be readily understood by students who lack advanced mathematical skills or prior training in economics. For the benefit of those who are not too frightened by some basic use of formulae, we include a number of boxes that go into some of the underlying issues in rather more depth. We would strongly encourage you to attempt to get to grips with the content of the boxes, since otherwise you will lose out on understanding some of the key concepts. For those with a stronger mathematical background we shall at times also refer to further reading at a more advanced level.

There are two fundamental points about the economic value of corporate equities. • Equities are financial assets. Their value must therefore represent the present, i.e. discounted, value of all future economic benefits that their owners will receive. • Equities represent a title to the ownership of real assets. As long as the economy is reasonably competitive the value of these assets cannot for long deviate from the cost of their production. An adequate theory for valuing stock markets must satisfactorily address both these points. Typically, finance courses and textbooks have concentrated almost exclusively on the first point. The second point has been largely considered as a macroeconomic issue. As they are both essential to the issue of value, this course will seek to cover the key issues in both macroeconomics and finance terms.

A standard assumption in finance textbooks is that financial assets will generally be priced efficiently through arbitrage. This idea is encapsulated in the Efficient Markets Hypothesis (EMH). We shall be looking in more detail at both the concept of arbitrage, and its application to the EMH, in later sections, but for now a simple sketch will suffice. The EMH states that, in effect, price always equals value.

Markets give you the best estimate of what any asset, or broad class of assets, such as the stock market, is worth.

At the same time, a standard assumption in economics textbooks is that, at

least in the long run, market economies behave as if they were reasonably competitive, and so prices must adjust to the cost of production.

There is mounting evidence that the observed volatility of stock markets makes these two assumptions mutually incompatible. There must be severe limits either to arbitrage, or to competition. If there were not, stock markets would show very limited fluctuations around the real cost of creating the corporate sector. The historical response of financial economists has for the most part been to ignore the second issue, and to assume that the stock market is efficiently priced through arbitrage. This assumption has, however, usually been made implicitly rather than explicitly, and seems increasingly incompatible with the evidence.

While a significant number of economists have remained sceptical, the EMH provided at least the broad conceptual framework, or paradigm, within which the finance branch of economics has developed.

Problems have, however, increasingly arisen that threaten the paradigm. They are primarily of four kinds. The first is that both stock market volatility and returns appeared excessive. The second is that market returns are not, as had been long assumed, random. The third is that competitive conditions do not appear to have fluctuated sufficiently. The fourth is that the modifications to the EMH that have been needed to make it compatible with the evidence are generally thought to make it untestable. If this is correct, the EMH can no longer be considered as a properly specified hypothesis, a group to which only those that are testable can qualify.

The subject of stock market value is thus in flux. This has advantages and disadvantages for the researchers. It has the added interest that it is the subject of considerable dispute, but the increased difficulty of being one that is in an unsettled state. This is particularly troublesome for examinees. As the 'right' answer is uncertain, it is necessary to be aware of the different views and their strengths and weaknesses. This is simply a version of the old joke about setting exams in economics: 'They never change the questions, but the answers alter every year.'

All of these issues came to the fore in the boom of the 1990s, and its

subsequent collapse at the turn of the new millennium. Uncertainty still surrounds the issue of just how far the downward adjustment will go, and how long the adjustment process will take. As a result of these events, the economics profession is still attempting to get to grips with the implications of what was almost certainly the most extreme and prolonged stock market boom in history.

As the historically accepted paradigm is under attack, there is no agreed new one that we can present to researchers. As a result the views that we express in this module are to a considerable extent our personal views. We cannot make any claim to be presenting a consensus view, but in the absence of any clear consensus nor, unfortunately, can anyone else. We shall, however, attempt at every stage to support what we say with evidence – both directly, and by referring to other research. We shall also briefly indicate the lines along which we think a new paradigm will develop. Parallel to the debate about value among academic economists, there have been a number of claims to value markets made by stockbrokers. These are almost invariably without any justification. The claims of ‘stockbroker economics’ have been driven by a search for commission rather than for truth, and they have served to muddy the water, rather than advance the discussion. They have been marked by the misuse of data (data mining) and an absence of any theoretical foundation. In the hope of clarifying issues we consider their most egregious faults.

The idea of value, as distinct from price, implies a distinction between what things are and what they should be. For value to have a practical meaning in relation to the stock market it thus requires that price and value are different and that the stock market is sometimes inefficiently priced, in that investors could predictably benefit from reducing their exposure to stocks when price is above value and from increasing their exposure when it is below. Such predictable benefits would not be available if they were fully exploited. We shall argue, therefore, that the very concept of value implies some practical limitation to the application of arbitrage, and hence of the Efficient Markets Hypothesis, to stock markets. In order to pursue this subject carefully, we need first to look more

carefully at what we mean by the word ‘value’. We start by looking at the concept in its everyday sense, and then, by linking everyday value to the notion of arbitrage, we move towards a concept of stock market value, which we pursue in the next section. Value as it relates to the stock market is actually very closely related to its everyday meaning. We can get some useful insights into the notion of value by thinking about it first of all in this way.

The simplest version is the value that we get when we buy a ‘bargain’. If we are very lucky, we know at the moment when we buy something that it is good value. If a store has gone bankrupt and is selling off stock at low prices, and if, which is quite a big if, we can be certain that the goods in question are not of inferior quality, then we have got something that is indeed good value. We also know, or think we know, when we are being ripped off – if for example we pay £5 for a cup of coffee. But such simple cases, when we can assess good or bad value at the moment we make the purchase, are actually quite rare. Most of the time, the concept of value is forward-looking and hence uncertain. Thus if we buy a used car, we may hope that we are getting good value, but we can only assess this in relation to the car's subsequent performance, not only for us but for future owners. Future owners matter, because we shall probably need to sell the car at some stage.

Hence you can only assess value in relation to two things: first, the services the car will provide while you own it and, second, the price you expect to sell it for. ‘Good value’ implies that the price you pay is low, in terms of the total returns you are going to get in the future. This includes the services the car provides while you own it and the capital gain or loss you make when you come to sell it. Since the quality of the service you will get from the car and the price you will receive when you sell it are both uncertain, so is value.

However, we can assess value once we have the benefit of hindsight. When we sell the car, we can figure out whether the original price was ‘good’ or ‘bad’ value, by comparing the sale price with the original price, and by taking into account the benefit we have derived from the car in the meantime. This is what we call hindsight value. If you own the car for the rest of its working life, you can still

assess hindsight value. Indeed it is actually in principle a more exact calculation. If you had sold the car on, then there would still have been uncertainty about whether the price you received from the next owner had been fair value. This uncertainty disappears only on the day the car is scrapped. At this point you could, if you wanted, sit down and calculate hindsight value, by comparing the price you paid with the services the car has given you over its working life. If you wanted to do a really thorough job, you could compare this with what other car owners paid for similar cars and with the services they received. With all this information, you could in principle calculate hindsight value fairly precisely. Value is something you can never know for sure until you have the benefit of hindsight. If you buy a cheap car, it may turn out to have been good value; but it may just have been cheap.

The ambiguity of the term ‘cheap’ points to another key issue relating to value. In everyday speech, it is often said that ‘you get what you pay for’. In essence, this is just another way of expressing the Efficient Markets Hypothesis (EMH). The language and context may be different, but the key concepts are identical. What does the EMH say about our everyday examples?

If you can buy goods at lower prices in one shop than another, can you really be certain that the two goods are comparable? Very often you cannot, since the low price may reflect the dubious origin of the cheaper goods. But if you can be certain that there is no difference in quality, then the EMH would suggest that, while you may sometimes really get ‘good value’, this is likely to be a rare event and the extent of the good value will be limited.

This brings us to the concept of arbitrage, which can be summarised by the expression ‘buying cheap and selling dear’. If identical goods are selling at one store at sufficiently lower prices, compared with another store, then this opens up an opportunity for arbitrage. Someone who is interested in making a quick profit, at little or no risk, has a clear incentive to buy up the cheap goods and sell them on at a profit. The most obvious candidates to do this are in fact the owners of the two shops. If neither of them do in fact carry out the arbitrage, then there are two likely

possibilities. Either the goods are not in fact identical, or the arbitrage is simply not worth the trouble. Only if the latter is the case can you really be sure that you have got good value. In these circumstances, you and all the other customers who buy up the discounted goods do the arbitrage. Economists use the term ‘arbitrage’ in different ways. Financial economists tend to confine its use to situations where profits are riskless, and involve no net investment. We use it here, in its broader sense, to include activities that may entail some risk. Financial economists would call this risky, or approximate, arbitrage.

The concept of arbitrage can also illuminate our other everyday examples. It can help to explain, for example, why you might manage to buy a car that, with the benefit of hindsight, turns out to have been ‘good value’. If it was obvious that the car was good value, then a specialist used car dealer would have a clear incentive to buy it at the low price, and sell it on a profit.

But, the first, the price difference may not be sufficiently large to be worth exploiting. The second, and more crucially, the price at which the car could be sold in the future is far from certain. Seeking to profit from arbitrage is therefore a risky activity. It is also relevant to the question of whether a £5 cup of coffee is really bad value. It is certainly expensive, but the night-club owner would no doubt say that this is because you are in a fancy night-club and you are paying for the music and the décor at the same time.

However, if you find it difficult to believe that anyone ever received a fairly priced cup of coffee in a night-club, your instincts are probably correct. Someone with a couple of vacuum flasks and a trolley would, no doubt, be very pleased to come into the night-club and sell you a cup of coffee for a pound or so. This would effectively be another form of arbitrage. The fact that the owner of the night-club is most unlikely to allow this to happen illustrates the important point that, for arbitrage to work properly, there has to be competition. By impeding competition on a permanent basis, the night-club owner can get away with prices that may well represent permanently bad value. Fortunately for the consumer, competition cannot normally be suppressed anywhere near so effectively as in our night-club example.

The idea that departures from ‘fair’ value can arise only if arbitrage does not take place, or if it is restricted in some way, is also a crucial element in understanding how stock markets work. A final feature to note about value, which is so fundamental that it is easy to forget, is that it must clearly be a relative concept. The cheap goods in the store are cheap compared with the goods in the other store. The cup of coffee in the nightclub is expensive relative to a ‘normal’ cup of coffee. The car that we manage to drive for 20 years before scrapping was cheap compared with the average car. When we are comparing like with like, things are relatively straightforward. But can we make sense of any claim such as ‘coffee in general is expensive’, or ‘used cars in general are cheap’? The answer is, yes, of course we can, but it does make things more complicated. Coffee in general can be expensive relative to common alternatives to coffee, such as tea, or soft drinks. Used cars could in principle be better value, allowing for the obvious differences, than new cars.

But evaluating how much better value is more complicated than if we were comparing like with like. It's also worth bearing in mind that, even when we are comparing the relative value of what economists call imperfect substitutes, we cannot ignore the idea that ‘you get what you pay for’. If we assert that used cars are better value than new cars, would we not expect people to respond to this differential by buying up used cars and thereby eliminate the differential? This process would be just another form of arbitrage, but one where the need for full and accurate information is considerably more demanding, since we are not comparing like with like. We might therefore expect that this form of arbitrage would be considerably less reliable than that between similar goods. What have we gathered from this brief look at the concept of ‘value’ in everyday terms?

The key concepts are these:

- Value is normally forward-looking. ‘Good’ value implies that you are paying a low price for the benefits you expect from your purchase, including any cash you may receive from subsequently selling it.
- Since value is normally forward-looking, at the time of purchase, value is

almost invariably uncertain.

- Value can, however, be calculated, with some precision, with the benefit of hindsight.

- Departures from ‘fair’ value are likely to occur only if someone does not have sufficient incentive to exploit them. In the economist's terminology, the limits of arbitrage represent the limits of market efficiency.

- Value is always a relative concept. It is easier to assess and hence easier to exploit via arbitrage, when comparing like with like.

The key ideas outlined in the previous section all have clear parallels when we deal with stock market value. We start, however, by considering what you are buying when you buy stocks and shares.

There are two distinct ways of answering this question. Both are true, and they must therefore be mutually consistent, but they can appear to be very different.

- The ‘official’ story is that buying shares in a given company means that you become a part-owner of the company, and hence of everything it owns. The idea underlying this interpretation is the corporate veil, whereby companies, as such, do not exist; there are simply people who own the firm. We shall argue later that seeing through the corporate veil is absolutely key to understanding stock market value, because it forces us to look at the value of the underlying assets that firms own. This is the basis for our preferred measure of value, the q ratio. In immediate practical terms, however, it does not of course mean very much to the individual shareholder. As a shareholder, you have a vote at the annual general meeting. In principle this means that, if you buy enough shares, you can actually control what the company does. You can hire or fire chief executives or set the dividend. There are indeed individuals who do this, but they are rare and they are highly untypical, both in character and in wealth. For the average investor, the right to vote in the annual general meeting is, for most of the time, nothing more than a notional right, which is probably barely ever exploited. Thus typical shareholders do not actually feel like part-owners, even though this is their legal status.

- For typical shareholders, therefore, buying stocks is like buying any other financial asset; the only difference is the nature of the financial asset that is bought. If the right to vote in AGMs has no practical importance, then when you buy stocks, you simply buy the right to receive dividends and the right to be paid the same price as other investors in the case of liquidation or takeover. You have, of course, no guarantee that you will ever actually receive any dividends.

There are plenty of examples of corporations that start up, trade and close, without ever paying a dividend. You do, however, have a very reasonable expectation that the average firm will pay out dividends in the future. The value of stocks depends on this expectation. Value in the stock market is thus, like everyday value, forward-looking, but more so than is the case for almost anything else you can buy, since, barring liquidation, the benefits that investors derive from corporate stocks are effectively expected to last for ever. Even when a firm ceases to exist because it is taken over by another firm, existing shareholders frequently have the opportunity to hold shares of the new firm instead, so in effect the old firm lives on under another name. The only exception is when the firm taking over pays for its acquisition out of its cash reserves, or by issuing debt. In this case existing shareholders receive, when they are bought out, what is in effect a terminal dividend.

The dividends you receive on a share are like the services you receive from a car while you own it. The stock's value is similarly dependent on these dividends and on the price at which the stock is sold. The key difference, as we have noted, is that in effect most stocks last for ever, whereas cars last only a decade or so. While those who own a car for a decade are interested mainly in the benefits they get from using the car, and are relatively unconcerned with the resale price, the reverse is true for stocks. If you buy stocks the resale price is typically far more important than the income you expect to receive while you own it. Nonetheless, in the end stocks have value to an individual investor only because of the dividends they will pay. This key fact has actually been quite hard to bear in mind in recent years, when dividends have been so low in comparison with prices. Even after the recent

falls in stock prices, the average share on the US stock market (as captured by, for example, a reasonably broad index such as the Standard & Poors 500) at the end of 2016 paid a dividend that was less than 2% of its share price. This low level of the dividend yield meant that investors had received less than 2 dollars in dividends in 2016 for every \$100 worth of stocks they were holding at the end of the year. They would have received a fairly similar amount in interest if they had invested in a money market fund, without any of the risk, so it is obvious that, unless investors were completely irrational, they must have been holding stocks mainly for some other reason. The 'other reason', of course, was the expectation of a capital gain (an expectation that, alas, proved ill-founded in 2016!). It is the total return, dividend plus capital gain, that makes an investment worthwhile.

Stocks, it might seem, cannot possibly be worthwhile investments just for the dividends alone. In a fundamental sense, however, investors do own stocks just for the dividends. Each investor plans in due course to sell to another investor, who must in turn have a reason to buy. If everyone is rational, each investor's motivation must be the same. Everyone will hold the stock for the dividend they receive, plus the capital gain they expect. This process has to go on for ever. But how can everyone involved in this process expect the price to rise indefinitely? The only possible explanation is that, even if dividends are low in relation to the value of the stock, they are expected to grow. In order to see why, we assume the contrary, which is a standard technique used by mathematicians. Suppose that dividends did not grow.

Then, if prices continued to rise, dividends would gradually get to be a smaller and smaller percentage of the price of the stock, until, in the end, they would effectively vanish and the only reason to hold the stock would be the expectation of capital gain. But in this case, the stock price would be simply pulling itself up by its own bootstraps, which no one could be rationally expecting to go on indefinitely. On the other hand, growing dividends solve this apparent puzzle. The simplest case is when both the share price and the dividends grow at the same percentage rate. In this case the dividend yield would remain constant. As

long as everyone involved in the process believes that this growth will go on indefinitely, then everyone's motivation is the same and the process is sustainable. Each person in the chain of owners of the stock pays more than the last, but, since dividends will have grown in line with prices, the rise in dividends in the meantime will be just enough to make them as happy to buy the stock as was the person before.

The concept that rational investors may hold stocks and shares that pay what might seem a rather low level of dividends, in anticipation of future sustained growth of those dividends, is encapsulated in an enormously influential way of looking at the value of a share, namely the Dividend Discount Model (also often referred to as the Gordon Growth Model, in honour of M J Gordon, who first wrote down the formula in 1962). While we have promised to avoid the use of complicated mathematics, the Dividend Discount Model can be understood with only the most basic use of formulae, and is so commonly used that it is worth trying to get to grips with. We shall see that we can use it to help understand both the strengths and the weaknesses of competing valuation indicators. As in all models, the Dividend Discount Model involves making simplifying assumptions about the world. First of all, let's assume that the typical investor hopes to earn a constant rate of return over the next year by investing in stocks, which we shall call R^e (the superscript e after anything will indicate that it is an expected value of something in the future). In the next section we shall see some evidence of what, historically, investors appear to have expected to earn from stocks and shares: we shall see that a number of 5%–6%, in real terms (i.e., stripping out the impact of inflation) seems a pretty good estimate. This return is usually higher than the return that investors expect from less risky assets, since it contains an element of 'risk premium'. Second, let's assume, as in the example we just looked at, that both dividends and share prices are expected to grow at a constant percentage rate, G. If both are growing at the same rate, it should hopefully be fairly obvious that the dividend yield (the ratio of dividends per share to the share price) will be expected to remain the same. Rational investors will hold stocks only if the total return they

expect – i.e., both from dividends and from capital appreciation – matches their desired return. Thus if they buy a share at current price P , and expect to receive a dividend of D in a year's time, we can express the equalisation of their desired and expected returns as:

$$R^e = D/P + G$$

where the two elements on the right-hand side are the components of the expected returns that arise from dividends, and from expected capital gain, respectively. By some basic algebraic manipulations we can re-express this formula in two ways, both of which provide some insight. First, subtract G from both sides of the formula, to give

$$R^e - G = D/P$$

Thus the expected contribution of the dividend to total return can be less than the desired return, to the extent that dividends and the share price are expected to grow. Note that this element is almost, but not quite, the current dividend yield. Here we are comparing the expected dividend in a year's time with the current share price. Since the dividend is expected to grow at rate G , this will be equal to $(1 + G)$ times the current dividend yield (the ratio of the dividend paid over the past year to today's share price), so we could also write the expression in terms of the current dividend yield (which we can observe) as

$$R^e = (1 + G) D/P$$

Now multiply both sides of the formula by P , and divide both by $(R^e - G)$ to give the standard version of the Dividend Discount Model:

$$P = D^e / (R^e - G)$$

The key point to bear in mind with this version of the formula is that the two elements on the bottom of the ratio are both in percentage terms, and hence are small fractions. Dividing by something small is the same as multiplying by something large, telling us that P will be a multiple (possibly quite a large one) of expected dividends.

We have seen that we can draw quite close analogies between the basis for measuring stock market value and measuring it in a more everyday way. Since shares effectively last for ever, stock market value is about as forward-looking as

anything can be. Because the fundamental basis for stock market value is the highly uncertain level of future dividends, stock market value must also be uncertain. But we have not yet addressed perhaps the most fundamental issue. We noted earlier that value must be a relative concept. We need a benchmark by which we can assess value. Here it is worth emphasizing the distinction between the value of an individual share and the value of the stock market as a whole. If we want to assess the value of an individual share, we do so in relation to other shares. But, as we noted earlier, when we look at the stock market as a whole, we cannot do this.

A second benchmark, to which we shall pay a lot more attention in the next couple of sections, is the history of the stock market itself. We can learn a lot from this, especially if, as seems to have been the case historically, the typical investor in the stock market expects a return that does not change significantly over time. But an important limitation in principle to this benchmark is that future investors may not demand the same returns as past investors. A third benchmark goes back to the issue of what you are buying when you buy shares: it is to look at the value of the underlying assets that lies behind the ‘corporate veil’.

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