

## ИСПОЛЬЗОВАНИЕ ФУНДАМЕНТАЛЬНОГО АНАЛИЗА В РАБОТЕ С ФЬЮЧЕРСНЫМИ СПРЕДАМИ

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### USE OF FUNDAMENTAL ANALYSIS IN WORKING WITH FUTURES SPREADS

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#### Annotation

The futures spreads market can barely be called efficient. Thus, futures spreads trading requires the constant and active use of different types of analysis to make trading decisions. Despite the importance of this subject, research on it is very limited.

There are five basic types of analysis that can be used when working with spreads: fundamental, seasonal, technical, comparative historical, and regression–correlation.

This series of articles aims to extend the currently limited literature on the analysis of futures spreads. Its objectives are to consider in detail the possible practical application of all types of analyses to spreads, to assess the supplementary function of comparative–historical analysis, and to demonstrate the inefficiency of application of the regression–correlation analysis for practicing investors.

The series consists of four papers: the first article discusses fundamental analysis, the second paper deals with technical analysis, the third one covers seasonal analysis, explores comparative–historical analysis, critically examines regression–correlation analysis in relation to spreads, and the final paper of the series proposes a framework of co–integration of the four types of spreads analysis for the purposes of creating trading strategies and decision–making.

This paper is structured as follows: section one contains a short discussion about the Efficient Markets Hypothesis (EMH) and the usefulness of performing analysis, section two deals with fundamental analysis.

**Keywords:** futures spreads, fundamental analysis, Efficient Markets Hypothesis.

#### Аннотация

Фьючерсный рынок спредов едва ли можно называть эффективным. Таким образом, торговля фьючерсными спредами требует постоянно–го и активного использования различных видов анализа для принятия торговых решений. Несмотря на важность этого вопроса, исследования этой темы очень ограничены. Есть пять основных видов анализа, которые можно использовать при работе с фьючерсными спредами: фундаментальный, сезонный, технический, сравнительно–исторический и регрессионно–корреляционный. Нашей серией статей мы стремились расширить в настоящее время ограниченное количество литературы по анализу фьючерсных спредов. Цель статей – подробно рассмотреть возможности практического применения всех видов анализа в работе с фьючерсными спредами, оценка дополнительной функции сравнительно–исторического анализа, и демонстрация неэффективности применения регрессионно–корреляционного анализа для практикующих инвесторов. Серия состоит из четырех статей. В первой статье рассматривается фундаментальный анализ, вторая статья посвящена техническому анализу, третья охватывает сезонный и сравнительно–исторический анализ, кроме этого, в ней критически рассматривается регрессионно–корреляционный анализ, и в четвертой статье предлагается алгоритм совместной интеграции четырех видов анализа с целью создания торговых стратегий и принятия решений. Эта статья построена следующим образом: первая часть содержит краткое обсуждение гипотезы эффективных рынков и полезность проведения анализа, вторая часть посвящена фундаментальному анализу.

#### Ключевые слова:

Фьючерсные спреды, фундаментальный анализ, гипотеза эффективных рынков.

Short discussion about the Efficient Markets Hypothesis (EMH) and the usefulness of analysis performing

Before we move on to different types of analysis, it is necessary to mention the Efficient Market Hypothesis (EMH).

The EMH is the cornerstone of modern financial economics. The paradigm was coined in the 1960–70s by Roberts [1967] and formalized by Fama [1970]. They identified three forms of market efficiency distinguished by the

type of information that prices of securities should correctly incorporate. For a long time the EMH has been the dominant paradigm in finance.

The weak form (or random walk) of the EMH assumes that prices fully reflect the information contained in the historical sequence of prices. Thus, in a competitive market, it should not be profitable to base investment decisions on information obtained from past prices or returns of publicly traded securities. According to Malkiel [1999; 2003; 2011], the stock price changes should be random and unpredictable–i.e., stock price movement follows a random

walk (see Roberts [1959]). This version implies that technical analysis is fruitless.

The semi-strong form of the EMH assumes that current stock prices reflect not only historical price information, but also all publicly available information relevant for company securities. If markets are efficient in this sense, then an analysis of balance sheets, income statements, announcements of dividend changes or stock splits, or any other public information about a company will not yield abnormal economic profits. Investors cannot trade profitably on the basis of announcements since the relevant information had already been reflected in the stock prices by the time of an announcement (see Williams [1977]; Fama [1991]). This version implies that insider trading may be profitable.

The strong form of the EMH ensures that all information that is known to any market participant about a company is fully reflected in the market prices. Hence, not even those with privileged information can make use of it to secure superior investment results. There is a perfect revelation of all private information in the market prices (see Malkiel [1992]). This version implies that fundamental analysis is also useless, prices are always fair, and no investor would be able to make consistently superior forecasts of prices. This form justifies the creation of index funds' passive strategies.

By 1975, the preponderance of evidence indicated that markets were efficient. Statistical studies showed that technical analysis did not add value (consistent with the weak form of market efficiency). Event studies found that the market quickly reacts to new information (consistent with the semi-strong form of market efficiency). And studies of professional investors' performance made a strong case for the strong form of market efficiency.

As more researchers tested the efficient market hypothesis, some rather controversial evidence began to appear. Rozeff and Kinney [1976] published their article on stock market seasonality, finding that January stock returns were higher than in any other month. Gibbons and Hess [1981] reported "the Monday effect": stock prices tended to go down on Mondays. Both of these findings were clearly inconsistent with the weak form of market efficiency. An unexpected criticism of the efficient market hypothesis came from academic economists. Grossman and Stiglitz [1980] argued that if all relevant information were reflected in market prices, market agents would have no incentive to acquire the information on which prices are based.

Moreover, there were studies suggesting that the stock market actually overreacts to certain announcements. In 1981, Shiller published the article "Do Stock Prices Move Too Much to Be Justified by Subsequent Changes in Dividends?" and concluded that they do. This phenomenon came to be known as "excess volatility." In their article, De Bondt and Thaler [1985] concluded that the stock market tends to overreact to long series of bad news. So, by 1985, there were enough anomalies discovered for one to seriously doubt the validity of the efficient market hypothesis.

From the above it can be concluded that there are both

supporters and opponents of the EMH. We do not set a goal in this paper to join the discussion. However, below are a few main reasons why the futures spreads markets, in our opinion, can barely be called efficient, and why it is meaningful to use different types of analysis:

1. Increased volatility. This can be demonstrated by the spread Brent oil/ WTI Crude oil, which is described in more detail in Perchanok [2012]. This spread widened during a period of less than one year from 1.5 dollars to 26 dollars, which corresponds to 1500%. Such volatility inherently conflicts with the EMH.

2. The presence in the market of a huge number of players who operate very large amounts of capital and use in their work algorithmic trading programs focused on technical analysis. When the majority of market participants follow the same technical patterns in making their trading decisions, they "make" these methods work in practice.

3. Market manipulation with the use of excessive speculative capital. Some players make the market move in the direction of their interest to cause involuntary activation of Stop/Loss of other market participants (Harrington et al. [2012]).

4. The existence of very strong seasonal patterns in some types of spreads. The possibility of capitalizing on these seasonal trends and receiving abnormal returns contradicts EMH in not only its weak form, but its strong one as well, because implies the necessity to actively manage its position. Of course, active management relies on the use of seasonal analysis.

Thus, we believe that, with respect to spreads, various types of analysis are useful.

#### Fundamental analysis

Fundamental analysis of commodity markets is based on the following principle: any economic factor that reduces the supply or increases the demand will increase the price (see Schwager and Turner [1995]). Conversely, we see that any factor which increases the supply or reduces the demand usually leads to stock accumulation and a fall in prices (see Schwager and Turner [1995]; Thomsett [2006]; Errera and Brown [1999]). Fundamental factors play an important role not only in the case of spreads, but also in the case of outright futures positions, currencies, and shares. Whatever segment of the market that we may mention, in the long run, these fundamental factors will play a determining role. However, there is a certain difference between spreads and other investment instruments. In fact, fundamental factors impact spreads much more strongly than other instruments (see Smith [2000]). Furthermore, fundamental factors also affect spreads much more quickly. In terms of spreads, this type of analysis has been studied by Smith [2000], Murray [2004], and Perchanok [2011a].

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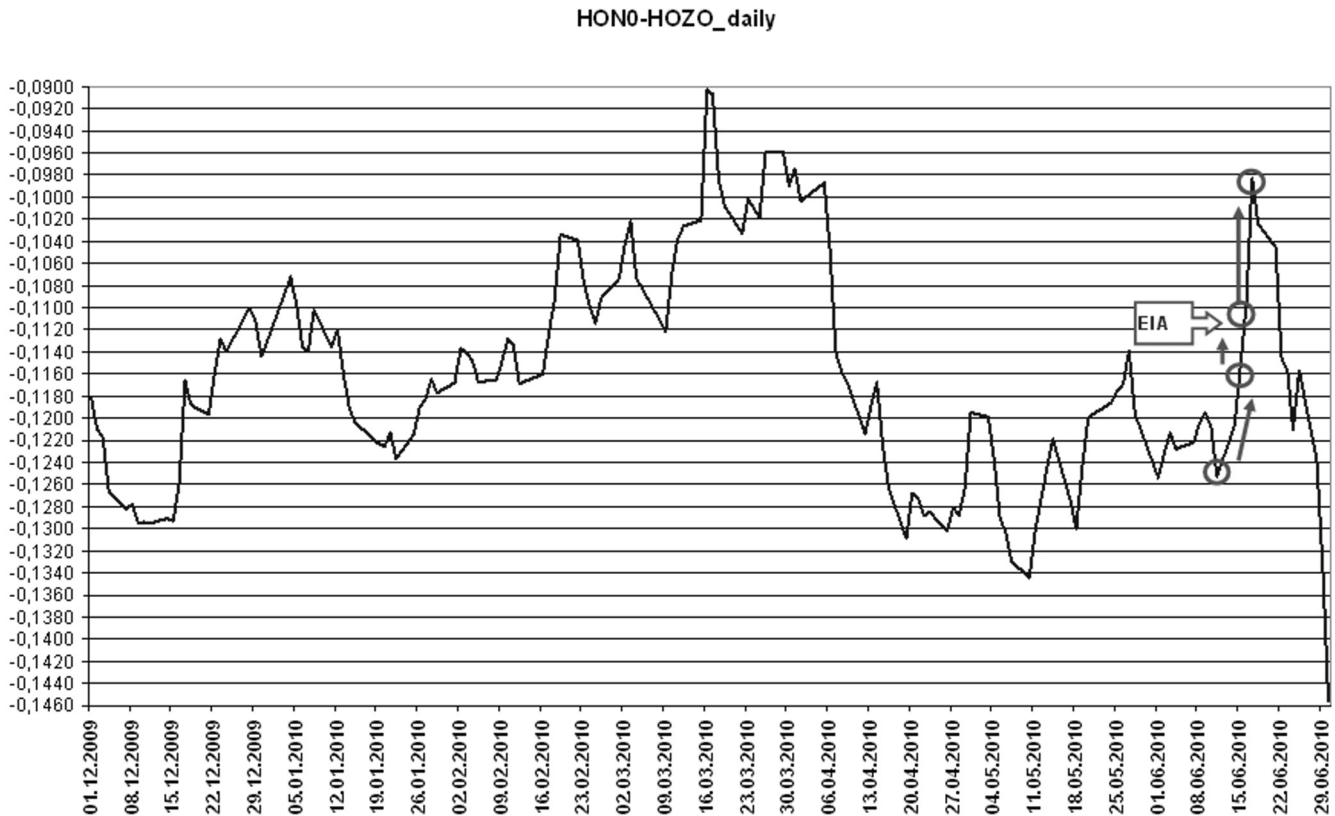


Figure 1. HON0/HOZO Spread Chart

much more quickly. For example, if we look at the FOREX currency market, it may take fundamental factors from 3 to 5 months to break a strong trend. At the same time, movement of spreads in the same direction as the trend may stop immediately if important fundamental factors affecting these spreads appear along the way. This means that they are much more sensitive to fundamental factors and more logical in their movements than outright positions. Even though spreads may be considered as highly speculative investment tools, a speculative impact unsupported by a fundamental situation tends to be weaker in the case of spreads.

Let's consider an example described in the work of Perchanok [2011a] of how fundamental factors impacted heating oil calendar spreads. **Figure 1** shows a spread chart between June (HON0) and December (HOZO) heating oil futures contracts.

On 11.06.2010, this spread, like other heating oil calendar spreads, began to narrow gradually, but the size of this narrowing was insignificant. On 15.06, the narrowing of the spread became more aggressive. On 16.06, the EIA issued an oil market report showing a considerable growth in heating oil inventories during the previous week. This marked an extremely important fundamental factor that should have forced the spreads to widen. However, the opposite took place: the spreads continued to narrow aggressively, reaching a local minimum on 17.06.2010 (we should not forget that the market was in contango and that the graph

was in negative territory). This situation is also curious in that heating oil spreads tend to exhibit a seasonal pattern, somewhat expanding toward the end of June. It is important to note that the spread ignored two significant factors as seasonality and changes in inventories. What happened next? The chart shows that the spread movement swung in the opposite direction, widening sharply and reaching its absolute maximum for that year within a very short period of time. This means that the fundamental factors affected the spreads so strongly that they were forced to "turn around" and "depart" quickly in the opposite direction. Moreover, all these movements occurred within an approximate period of two weeks.

If we think about the range of movement of the spread and apply it to the movement in heating oil prices, then a trend of extreme force and duration would be required to make heating oil futures travel a path of this size (naturally, if the movement size is scaled as a respective percentage ratio). This example clearly shows how sensitive spreads may be to the impact of fundamental factors.

If the investor plans to work with spreads, he should first make an in-depth analysis of each individual spread. The issue is complex, as each type of spread is impacted by its individual and inherent fundamental factors. Moreover, each spread can be impacted by a considerable number of fundamental factors, so it is essential to pick out those whose impact has a determining character.



Source: Quote Center

Figure 2. Platinum/Gold Spread Chart for 2000-2011.

The following algorithm is suggested:

1. Choose a spread that should be analyzed.
2. Determine which group this spread belongs to: calendar, intercommodity, intermarket, or processing.
3. Collect information on factors which will affect the price of each position in the spread.
4. Define the interoperability of these factors.
5. Trace the reaction of the spread to these factors.

Determining which group the spread belongs to is crucial, as in the case of calendar spreads. We are only interested in factors related to one and the same contract. In the case of intercommodity spreads, for example, both parts of the spread—i.e., different contracts—should be analyzed. The same can be said for intermarket spreads, but the analysis should include not only the futures contracts composing the spread, but also the situation on territorial markets where the contractual goods are to be delivered. The situation becomes even more complicated in the case of complex or industrial spreads, as the number of elements integrated into the spread increases.

The "search for information" step is of key importance in spread management. Data for an effective fundamental analysis is not always easy to find. At the very least, the needed information is not always available in one place. For example, a great source of information is reports presented by various U.S. government agencies and departments. The information in these reports is fundamentally important and helps to define factors affecting corresponding futures contracts and spreads. The Energy Information Administration

of the U.S. Department of Energy (EIA [2012]) publishes information on the state of affairs in the energy sector on its website every week. The United States Department of Agriculture (USDA [2012]) publishes reports concerning agricultural goods and provides access to archives containing historical information on agricultural goods. The United States Geological Survey (USGS [2012]) presents reports containing information that may be useful for defining the objectives of an analysis on the metals market. If the question concerns currencies or bonds, the information available on the websites of central banks in different countries becomes indispensable. Finally, analytical notes published by news channels, such as Bloomberg or Reuters, can be of great practical use.

In a number of works (see Smith [2000]; Perchanok [2011a], Schap [2005]), fundamental analysis of spreads is indicated as the main tool of analysis. Long time spreads were very sensitive to changes in the fundamental situation, and this type of analysis successfully performed its function. However, since 2008, the situation in the financial markets has begun to change, and the fact that market participants ignore some fundamental factors in making their trading decisions has become more noticeable. It is becoming increasingly apparent that fundamental analysis and a focus on fundamentals have ceased to play any significant role in trading decisions.

This can be explained by an increase in liquidity, the activity of speculators, and the fact that most of these decisions are being made not by people, but by algorithmic trading programs.

Such changes have led to some spreads reaching values

that cannot be explained by fundamental analysis, as they are illogical according to it. This situation is described in more detail in Perchanok [2011a, 2011c, 2012].

Consider the spread platinum/gold. Fundamental factors that will influence the spread platinum/gold movement include: economic situation, inflation rate, platinum supply/demand balance, seasonality, and general sentiment among market participants (see Perchanok [2011d]).

Platinum is a precious metal much more rare than gold, with a production volume approximately 30 times less than that of gold. Platinum is widely used in jewelry and for industrial purposes. The main demand for it comes from the automotive industry, where it is used for the manufacture of catalytic converters. Industrial demand for platinum is inelastic, since there are practically no alternatives to it, except for palladium, which belongs to the same group of metals. Platinum supply, unlike gold, is also inelastic, since there are no large reserves of platinum in warehouses [Lee [2011]]. In addition, 80% of the world's production of platinum is concentrated in South Africa—a country that is not a model of stability. The production cost of platinum is significantly higher than that of gold. Taking into account all of

these factors, we can say that the price of platinum should significantly exceed the price of gold, as was observed for many years when platinum was worth an average of 20–30% more than gold (see **Figure 2**).

If we look at the history of the past 10 years, it is only during the crisis of 2008 that the price of platinum was at the same level as the price of gold, and for a short time it was even \$20 cheaper than gold. However, this situation did not last long, and the spread began rapidly widening, which led to the restoration of the traditional differences in prices.

Beginning in September 2011, the price of gold became steadily higher than the price of platinum—that is, the value of the spread was less than 0. On some days, the size of the spread reached –225 dollars. These values cannot be explained from a fundamental point of view (Perchanok [2012]). The platinum/gold spread is not the only spread that achieved abnormal values. Further examples of different anomalies in spreads could easily be found.

This allows us to state that there is a clear tendency of weakening fundamentals and fundamental analysis in general.

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