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CURRENT APPROACHES CONCERNING THE RISK MANAGEMENT IN FINANCIAL INVESTMENTS IN TIMES OF CRISIS

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Abstract: *This paper addresses a topical issue for this extremely complex period, with major changes and threats for the society, especially because of the very high degree of uncertainty, as well as the very high volatility of capital markets. The authors focused on an issue deeply rooted in the multilateralism and dynamism of the events: how to manage the risks in order to make good investments? The aim of this paper is to identify the potential risks that may arise in the portfolio of an individual investor, especially during a large-scale crisis, such as the pandemic generated by the coronavirus. This paper focuses on risk management in order to maximize gains, following several opportunities opened by the current crisis.*

Keywords: crisis, investments, risk management, opportunities

1. Introduction

The current situation we are all going through is in the form of a huge opportunity for any investor or even an individual with some financial knowledge. The idea that only people with money can make money is no longer relevant, or is found only in the mentality of those who rely on it as a refuge of their own helplessness. The modern investor sees in any crisis a real possibility of gains, but, at the same time, he understands that if he does not assume correctly the notions and terms of the game, the losses can also be substantial [1].

The opportunities that the capital market offers can only be speculated by the investor's concern, investor's interest and his need to know more. Unfortunately, ignoring or underestimating the risks can generate huge losses in the portfolio of any investor, but the risk management is precisely the key that can open the horizon towards reducing losses and maximizing profits [2].

2. Theoretical background

For a better understanding of how risk management works in investments, we need to start with the definition of risk. Probably there is nothing easier and at the same time nothing more complex to identify and especially to control. Risks have always been one of the most interesting and fascinating challenges for people. According to the most specialists, risk-taking and risk management have been the engine of human progress [3]. Risk is encountered in any field, being a loyal and inseparable partner of each activity, and the results of that activity are directly influenced by the imminent risks. It is known that denying or avoiding risks is a sure way to failure. Any activity involves a high degree of risk. Managing a higher risk

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can bring a greater gain, but at the same time a substantial loss.

Risk is defined as "an uncertain but possible element that always appears in the process of technical, human, social, political events, reflecting the variations of the distribution of possible results, the probability of appearance with subjective and objective values, coming with possible damaging and irreversible effects" [5]. As we said before, understanding and accepting a higher risk can bring a greater gain. Highly profitable investments are based mainly on the correct and increasingly sophisticated assessment of the risk-return binomial, using the relatively limitless possibilities given by information technology. The risk can be quantified by the type of vulnerability generated by the chosen type of investment and automatically by the threat it can generate on the cash flow. The risk profile is also influenced by the impact it can bring to the investor's portfolio, the magnitude of losses or gains.

The risk management is defined as the management of uncertain events in order to achieve success. The main feature of risk management is given by the methods and means by which risk is managed, having uncertainty as the major basis of risk factors, all of this in order to maximize the gain [6].

3. The current context

The current economic crisis generated by the coronavirus has been called, in line with all the great economic crises that have shaken the foundations of the world's economies, the "Great Isolation", obviously referring to previous crises: the "Great Depression" of the 1930s. and the "Great Recession" of 2009. The name given to the crisis comes as a direct consequence of the isolation measures imposed to defeat the new coronavirus, in which the watchword is: "stay home."

Not coincidentally, the association of this crisis is closely linked to the great economic crises, especially in the 1930s, starting precisely from the IMF's (International Monetary Fund) grim predictions, which predict the possibility of the world economy shrinking by more than 3% this year, influenced by the declines of 5,9% from the USA, 5.2% from Japan and over 7.5% from the euro area. The only possibilities for positive economic growth come from the two major Asian economic powers: China and India, with 1.2% and 1.9% respectively, but both coming with significant revisions down. Otherwise, unfortunately, all forecasts are related to an economic collapse that will paralyze the entire planet (massive declines of 6.5% in the UK, 5.5% in Russia, 5.3% in Brazil, 5.8% in South Africa, 5% in Romania, with an unemployment rate over 10%) [7].

Obviously, these predictions are related to several scenarios, of which the one in question is most likely to be discussed and which assumes that the pandemic will fade in the second half of this year. In this case it seems that gradually isolation efforts will no longer be necessary, generating a growth of the planet's economy by 5.8% in 2021, as economic activity returns to normal, supported by political factors, and the unemployment rate will decreased [7].

It seems that this is the time when investment opportunities are huge, when the possibilities of gains can be measured in hundreds of percent. Unfortunately, the losses can be commensurate. Investors' attention is focused on an issue deeply rooted in the complexity and dynamism of events, which is on the lips of many citizens around the world: how to manage risk to make good investments? Or how can you take advantage of this state in which almost every individual, every family, every team has something to lose?

4. Risk management for investment in Petrom shares

The higher the risks, the greater the chances of earning, approaching values unimaginable a few months ago. Who else thought in January 2020, when the world stock market indices were testing highs after highs, after a 2019 that brought massive increases, that you can buy assets in March at prices lower than half. Is now a good time to buy? Or are we still on the downward trajectory of the trajectory? Here comes the science of each investor and how he knows how to identify and manage the risks associated with each investment, to maximize profit. Identifying the risk related to the time of investment, the main categories of risks and their characteristics, but also the earning possibilities for the types of investment are elements that any investor must consider and all these are related to one aspect - risk management.

There is a differentiated approach to the steps of identifying, managing and implementing solutions to reduce the probability and the impact of an uncertain event in the literature dealing with risk management. In the investment world, however, only the name of the stages is different, because both the identification of risks and the management of the probability of their appearance and their impact on the portfolio are often treated together, to reduce potential losses and maximize profits.

Regardless of the approach, the type of analysis chosen or the name and order of the management steps, all risk tracking and risk management models ultimately aim for the same thing: reducing losses and maximizing gains [4].

The impact of the COVID 19 pandemic has been seen very well in the steady decline in oil prices. The peak was recorded on April 20, 2020 when the futures price of the WTI (West Texas Intermediate) oil contract in May fell for the first time in history in negative territory, and the WTI index closed at a value of -37.63 per barrel. What did this mean? That the sellers ended up paying the buyers to give them oil. In theory, this means that there has been a major surplus of oil in the market, that land storage facilities are at full capacity, amid the falling demand due to the coronavirus crisis. This decline also suggests that producers prefer to store oil and sell it later at much higher prices. The existing quantity is no longer needed, due to the extreme limitation of transport caused by traffic restrictions imposed by governments around the world. It should be noted that WTI futures contracts that serve as a benchmark are deliverable and were due on April 21, which means that if the position is closed, the seller will not have to personally deliver the oil.

What happened to the main company with activity in the oil area on the local market and we refer to the shares of OMV Petrom (SNP stock symbol - figure 1)?

Figure 1: – The chart of the evolution of SNP shares during 15.02-15.05.2020 [8]

Phase 1

The evolution of SNP shares was a lateral one in the first part of the year, when the coronavirus was discussed only in China, from a value of 0.4470 lei per share on the first trading day of the year, a maximum value of 0.4550 lei, up to the price of 0.4275 on February 19th. It should be mentioned here that the company came after an exceptional year 2019, with earnings per share of 51.44% (we have included here the value of the dividend of 0.0270 lei / share), opening the first trading day of 2019 at a value of 0.3130 lei per share and closing with 0.4470 lei.

Phase 2

It can be seen on the previous chart (figure 1) that starting with February 20, for 7 consecutive trading days, the SNP shares enter a downward slope up to the value of 0.3550 lei. This is the period in which the virus made its aggressive entry into the world, in Europe and especially in Italy in particular, and which led to the collapse of the price of the SNP action by almost 17% [9].Was it a good time to buy? Assuming by absurdity that you would have bought on that minimum in the market, of 0.355 lei / share, was it a favorable moment? Or maybe it was still the time to sell for those who still owned SNP shares?

Phase 3

A rapid recovery has followed for 3 days, with increases of 4-5% to a value of 0.4040 lei on March 4. During this period, the positive sentiment of investors was fuelled by measures taken by governments around the world. The fact that central banks were pumping money into the economy, all the measures and restrictions taken to prevent the spread of the new coronavirus.

The increase was almost 14%. Did he have to go shopping? Was all the commotion just a drop in the ocean and will everyone's life return to normal, as it was before? Or was it time for those who didn't get a chance to sell?

Phase 4

Then followed an extremely turbulent period, with a sharp drop in share prices to a minimum of 0.2670 lei (ie 34% lost in only 8 trading sessions), reached on March 16, 5 days after The World Health Organization has officially stated that the situation generated by the new coronavirus is a pandemic, in the context in which there have been cases of infections in almost all countries of the world. The decrease compared to the value at the beginning of the year was over 40%. Was this a good time to buy? Or should a new round of declines be expected to maximize potential gains? Cash is trash or cash is king? This dilemma remained on the lips of all investors since the previous crisis, that of 2009. Few probably forgot that then SNP shares fell by almost 80% in less than a year of crisis (from over 0.5500 lei / share in May 2008 at 0.1200 lei in February 2009) [9].

Phase 5

Is the scenario repeated? The provisional answer is NO. It was later proved that, despite the fall in the futures price of the WTI contract in negative territory (for the first time in history, as mentioned earlier), the share price had an upward trend to 0.3315 lei at the close of the market on of May 15. It should be mentioned that this value also includes a dividend of 0.0310 lei / share - ex-date dividend being on May 13th. Basically the return from the last 2 months exceeds 35% [9]. Where are we now? Is this a good time to buy or sell?

What we can say with certainty is that a major acquisition in phase 1, the one with the lateral evolution, could not enter the views of any investor with some experience on the capital market. After the spectacular increase of the previous year, a correction was normal, so the risk of a decrease was close to certainty. We are not talking here about the appearance of a “black swan” type event, such as the coronavirus pandemic, but about a simple correction,

brought by the marking of the significant profits of the investors from the previous year. Obviously, in this case the risk assumed was too high in relation to the possibility of a much too small gain.
Was the share price close to 0.3550 lei / share, from the end of **phase 2** an attractive value for investors? Let's not forget the tension of those times, when any safe news about the virus, the way of transmission, the protection in front of him became a fakenews on the second day. The sure feeling that prevailed in the market was the uncertainty, and the risk of the situation degenerating was very high. It was also the period when the watchword was "stay home", which led to an extreme limitation of movement and automatic fuel consumption. This led to a logical prediction of investors related to the decrease in the company's revenues and automatically its profit. Why stop the decline here? What exactly would make investors buy and automatically increase the share price? There are questions that you did not answer at that time, and the risk of further decline was still quite high.
An essential component of risk management in financial investments is given by the control of emotions. We are talking about a huge difference between a cold analysis of events and the real-time situation in which the investor is caught, buying, selling or staying on cash waiting for another opportunity that may not come. Investor psychology plays an extremely important role, because emotions are inherent feelings when it comes to real money, even a lot of money, when we talk about investments. A logical conclusion is that entering the purchase at that time was not a very good decision, or at least not with a very large amount. It is important to note that it is almost impossible to buy on the low and sell on the high. The risk of hoping for such transactions is very high and often leads to missed opportunities in the market.
Another important component to consider in a complex risk management is the establishment of an efficient trading system. Establishing a plan and especially adhering to it is up to everyone's investment strategy and can reduce losses. Each investor can make their own strategy, based on charts, news, market information, intuition, tips. The most important aspect is to follow this strategy, because when unforeseen events occur, with a great impact on the portfolio, the emotion given by the increase or decrease can make you sell or buy when you should not, and this inevitably leads to loss.
The increase in **phase 3** could give rise to a feeling of enthusiasm that everything is over, that life will return to normal, that the share price will return to the area of values from the beginning of the year. Was it now time to take part in their return to 0.4500 lei / share? Obviously, the risks of an increase or a decrease were very high, precisely due to the uncertainty that hovered over the entire planet.
Medical, financial, economic uncertainty that reduced stage 3 to only 3 days of growth, followed by **phase 4** with a significant decrease of almost 35 percent. Certainly this period was a good opportunity to buy shares from the market, but at what time and with what amount of money? The fall of the share price below the threshold of 0.4000 lei was an obvious sign of decrease, but, unfortunately, the technical analysis had no impact on investors who threw impressive packages of shares for sale because of the fear of a collapse similar to that from 2009, or even bigger. Let's not forget that the decrease was almost 80%. There was a risk of an even greater decline and beside that, the possibility of buying one day and marking a substantial loss the next day was still very high. The share price resisted around the threshold of 0.2700 lei, and then entered **phase 5** on an upward trajectory to the value of 0.3650 lei around May the 13th: ex-dividend given. The announcements

from authorities around the world to ease restrictive measures and restart global economies acted as a click in the investors' portfolio, and buyers were even more active, pushing stock prices up. Even now it is difficult to talk about a return to the values of the beginning of the year. It all depends on many things, including overcoming the current situation of relaxation. If the number of infected does not increase, if the medical system resists, we can hope for a gradual return to normality and obviously an increase in the share price. Otherwise we can expect a worsening of the situation and a return to restrictions during the state of emergency, which would automatically lead to an even greater decrease in the share price.

As we have shown before, when we are facing a “black swan” event, such as the coronavirus pandemic, it is very difficult to find the best time for buying and selling shares. When is it the perfect time for buying? This was the question I could not answer in any of the 5 phases listed above, due to market volatility. Any purchase brought with it the risk of an immediate decline, based on an unforeseen event from any corner of the world, with no connection to Petrom or the company's activity, but which could have generated a sense of panic in the market. Entering with all the money to buy in any of the 5 phases would have brought with it a great risk assumed by investors. The risk of losing money, and once you have made a loss it is difficult to make profit because you have to make up for the loss firstly and then start over.

Risk management analysis can bring us a buying solution, which we propose here. This variant presupposes a ruthless self-discipline of the investor and a balanced management of the risks. This eliminates the possibility of unlimited earnings, but greatly reduces the risk of losing money.

We start with the presented material in phase 3, in which there is a worldwide unanimity that, either by collective immunization, or by discovering an effective treatment of the disease or by successfully testing an effective vaccine, or by another event will overcome the current situation. We can speak with a very high probability that the company's revenues, its profit and automatically the share price will return to a value of 0.4500 lei / share, if not above. The question is when this will happen. In 6 months, in a year or even more?

The proposed solution is to have a strategy of buying with constant amounts of money at each phase of trading (for example weekly or monthly) and on each decrease of a few percent (for example we buy at each decrease by 4% compared to the last maximum from the market or from the last purchase value).Suppose we had 6,500 lei at the beginning of the crisis, money we should have invested in buying SNP shares.

The options to buy shares with all our money at once or even with a large part of it bring a very high risk. That's why we choose the option to constantly invest blocks of 100 lei each. The purchase will be made daily. In the following table we have presented the daily trading data from the Bucharest Stock Exchange (BVB) for the SNP issuer. It should be mentioned that we considered the daily purchase at the average value of the day (neither its minimum nor its maximum). In addition, we established that for each decrease of 4% compared to the maximum of each growth stage, we allocate another 100 lei for the purchase of shares. For example, in table 1 we can see that on 27.02.2020 the share price decreased over 4% compared to the price of 0.4030 lei from 24.02.2020 (maximums appear in green). On that day we will buy shares worth of 200 lei. On 09.03.2020, the share price decreased a lot, exceeding the thresholds of -8%, -12% and -16%, that's why on that day we will buy shares worth of 400 lei.

Table 1 - Daily average acquisition values of SNP shares

Data	Multiple acquisition	Share price (RON)	Variation compared to the maximum value	Investment (RON)	Number of shares
24.02.2020		0,4030	0,0%	100,00	246,90
25.02.2020		0,3980	-1,2%	100,00	250,01
26.02.2020	2	0,3865	-4,1%	200,00	257,44
27.02.2020		0,3870	-4,0%	100,00	514,22
28.02.2020	2	0,3685	-8,6%	200,00	540,04
02.03.2020		0,3780	-6,2%	100,00	263,23
03.03.2020		0,3875	-3,8%	100,00	256,78
04.03.2020		0,3985	0,0%	100,00	249,69
05.03.2020		0,3915	-1,8%	100,00	254,16
06.03.2020	2	0,3775	-5,3%	200,00	527,17
09.03.2020	4	0,3195	-19,8%	400,00	1.245,73
10.03.2020		0,3380	-15,2%	100,00	294,39
11.03.2020	2	0,3090	-22,5%	200,00	644,03
12.03.2020	2	0,2905	-27,1%	200,00	685,04
……		……	……	……	……
11.05.2020		0,3590	8,6%	100,00	277,17
12.05.2020		0,3600	8,9%	100,00	276,40
TOTAL	from 25.02			6.500,00	20.242,07
TOTAL	from 05.03			5.600,00	17.910,64
TOTAL	from 09.03			5.300,00	17.129,32

We have to mention that in this table, we also took into account the trading commission which is 0.5% of the value / transaction. If we start buying on the first day when the SNP share price starts decreasing below the value of 0.4000 lei, which means from February the 25th and we respect the buying strategy, we will obtain an average purchase value of 0.3211 lei / share (we bought 20,242 shares of those 6,500 lei allocated). If we start buying shares only in stage 3 of those presented above (which is very normal in our point of view), we will reach an average buying value of 0.3127 lei / share. If the acquisition started on March the 9th, at the same time with the beginning of the major decreases in the market, the average purchase price will be 0.3094 lei / share. Compared to the closing value on May the 12th, of 0.3650 lei / share, it represents a gain of almost 18%. We could extend the strategy and establish the purchase of shares only on the days when the value is decreasing or only at the end of the trading session. This would lead to a decrease in the average purchase value of the shares and automatically to an increase of the earnings. Such an approach proves to be necessary in order to reduce the effects of the risks generated by the investor's psychology. If we had bought at the minimum market value of 0.2700 lei / share, with the entire amount of money allocated, the gain would have been 35%. However, this is almost impossible, an event with an almost certain probability of not happening, and those who think they can do so usually lose money. But we could have bought at values of 0.3600 lei or 0.3200 lei or even 0.2900 lei / share, but we would have been scared when the share price continued to fall and thus mark a considerable loss in the portfolio.

5. Conclusions

We presented a short history of events and stopped at every important moment to ask ourselves what needed to be done. Of course, now we have the chart in front so it is very simple to look for the minimum value and automatically the best time to buy. In the tension of events, however, it is very difficult to judge clearly, the possibility of losing or gaining money having a great impact on the decisions of the investor in the market.

Feelings such as fear, greed or enthusiasm are the biggest enemies of the investor and prevent him from thinking clearly and from following his plan. The result is often taken in the negative area, which means losses in the investor's portfolio. One of the general rules in financial risk management is to let profits grow and mark your losses early. Even if you are one of the most skilled investors in the market, even if you have a special talent for identifying investment opportunities, unfortunately, you can lose your money from your account very easily without a proper risk management. No matter how good or experienced you are, you can mark up losses. Even the best investors in the world suffer losses. This is part of the trading activity. That's why risk management is so important to your success. It is important to limit your losses to a level that is easier to control.

Another very important aspect of risk management is the risk profile of each investor. Before you start investing in the capital market, you need to know what kind of investor you are and what your risk appetite is. And last but not least, an investor must have an investment strategy, based on some calculations, some graphs and values and, the most important, to respect this strategy.

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