THE US ELECTION AND THE KELLY CRITERION

Dear shareholders,

In the fourth quarter of 2016, the Fund's NAV grew by 8.4 %.

The biggest event of late last year was the US presidential election. As the election date approached, we were flooded from all sides with advice and tips on how to make the best investment bet on the result. The majority of investment recommendations appeared very confident even though, as is usually the case, hindsight has shown them to be erroneous. It would be a mistake, however, to evaluate individual investment decisions according to their outcomes. A correct investment decision is not one which brought a positive outcome but one which was made according to a proper method at the given point in time and with the information then available. We believe it would be an error to make investment bets on the outcome of the elections in the first place. We therefore executed no transactions in our portfolio prior to the elections which would have speculated on their outcome. We have both theoretical and practical justifications for this approach, and I would like to explain them in this letter. I will nevertheless come to that explanation by a somewhat circuitous route.

Edward Thorp

I recently had the opportunity to read the manuscript of a book entitled *A Man for All Markets: From Las Vegas to Wall Street, How I Beat the Dealer and the Market*. This book will be published early this year and it is Edward Thorp's autobiography. (If you want to read it, you may prefer to skip the rest of this section.)

Edward Thorp is one of the greatest investors in history as well as an extraordinarily interesting character. Judge for yourselves: Thorp was a student of mathematics who demonstrated how to apply mathematics in many areas of everyday life. He invented card counting and discovered the apparently impossible – how to beat the dealer in blackjack – and he practiced this very successfully. He played in casinos, oftentimes visiting them in disguise. After having been discovered and banned from casinos, he described it all in his first best-seller *Beat the Dealer.*

He then redirected his attention from cards to roulette and figured out how significantly to beat the casino also in roulette. This sounds incredible, because everyone knows that the winning odds in roulette are theoretically in the casino's favour. Not necessarily so in practice, however. Thorp realised this and put his findings into practice using the first wearable computer. Casino owners were livid, and Thorp began to fear for his life. He therefore left casinos to their fate and thought about which field would provide him with plentiful room for his further intellectual enjoyment. He chose the capital markets and stock exchange. Thorp was a forerunner of quantitative investment methods, a pioneer of convertible arbitrage, and the actual first author of the option pricing method for which Merton and Scholes were later awarded a Nobel Prize. He described his investment practices in his next best-seller, *Beat the Market*. Above all else, he was not solely a theorist but also a practicing investor. His hedge fund Princeton/Newport Partners achieved an average annual return of 19.8% in the 19-year period between 1969 and 1988.

Thorp also was an early investor in Warren Buffett's Berkshire Hathaway, and 17 years before the cover was blown off fraudster Bernie Madoff's scheme Thorp already had demonstrated by way of fictitious results and trades that Madoff was a crook.

Kelly Criterion

Whether it was about cards, roulette, or stocks, all of Thorp's activities had one common denominator. He was always working in an environment where he endeavoured to find an optimal size for repeated investments (or bets) for a given set of investment opportunities with various expected returns and various probabilities for their occurrence. He often utilised the Kelly Criterion, named after its author, the physicist John Kelly:

$$f = \frac{p\,(b + 1) - 1}{b}$$

where:

f is the part of portfolio which should be placed into the investment,

b is the ratio of the return on investment, and

p is the probability of winning.

For example, if there is a 60% chance of winning (p = 0.60) and the investor makes 10% (b = 1.1), he or she should invest 24% of his or her portfolio in this manner. If the probability of winning increases to 70%, he or she should invest 42% of his or her portfolio, and if the expected return increases to 20% with a 60% probability of winning, he or she should invest 27% of the portfolio.

Generally speaking, the Kelly Criterion offers a good indication for how to calibrate individual investments. If we find an investment which we believe promises a solid expected return and above-average probability of its being achieved, then we must not hesitate and must invest a goodly amount. When you tinker a little with the parameters in the formula, you will find that the size of the investment is influenced more by the probability of success than by the expected returns. Investors frequently make the mistake of being attracted by high potential returns while underappreciating their relatively low probability. We should avoid such investments and instead seek investments where the expected return may not be staggering but has a high probability of occurring. This is what the Kelly Criterion teaches us.

Application to the election

In our investments, we also take into consideration the Kelly Criterion. We are aware that investing is not a natural science and therefore we do not know the precise probabilities of phenomena or precise expected returns. We know that the estimates with which we work will always be imprecise and subjective. These are limitations integral to investing and which cannot be eliminated. More important is to be aware of their existence.

So how does this theory apply in practice, in the specific example of the US election? Although polling just prior to the election favoured Hillary Clinton, the polls were so close that considering statistical margins of error or even the possibility that the polls might not be objective, the probabilities for the voting outcome were essentially 50:50. In the case of such probability, the Kelly Criterion advises that it is better to do nothing at all.

But that’s not the end of it just yet. We still have to estimate the expected return, which in this case consists of the market move based upon the election results. Estimating this is essentially impossible. It is one thing to estimate the expected yield of an investment as its future cash flow, but reliably estimating investors’ response to a certain event is something else altogether and is wholly impossible. The most frequent prognoses before the elections said that the market would respond positively to a Hillary Clinton victory and negatively to a Donald Trump victory. We know how this actually turned out. When it appeared right before the election that Clinton’s chances were improving, the market was rising. Then, when perhaps unexpectedly Trump won, the market rose even faster.

So what cards did we have in our hand ahead of the elections? Even odds of the candidates’ winning and zero ability to foresee the market response. Only one thing can be done in such situation – nothing. And that is precisely what we did.

This situation has an additional, perhaps paradoxical point. Prior to the elections, we had believed that Trump would win and that the markets would respond positively to this. Some pre-election proclamations from Hillary Clinton and Senator Elisabeth Warren were so anti-business in their orientation that we thought to ourselves the market would breathe a sigh of relief when it avoids the worst by a Trump victory. Today, knowing how things ended up, we paradoxically would have made more if we had reflected our pre-election expectations into our portfolio. That, however, would have been a mistake. We do not want to expose our portfolio to random phenomena for which we have no basis in our own analyses or try to make money due to sheer luck. We realise very well that this all could have turned out entirely differently.

We cannot say for certain why the market went up so much just after the election. There is an apparent connection to the election result, but this could just as well have been a random development. We will never know what the market would have done in the case of a Trump defeat. Perhaps it would have behaved in the same manner, perhaps it would have gone down, but it could also have jumped up even much more markedly. People often try to find causative links in the way things turn out, but there may not be any significant relationship at all or those that do exist may be entirely different. We realised this even before the election, and therefore we held back. We had behaved similarly ahead of the UK referendum about staying in the EU, and we intend to maintain the same stance also in cases of similar events in future. We invest only when we believe the probability of success is markedly skewed in our favour.

Changes in the portfolio

Although we were rather in hibernation prior to the elections, we were much more active afterwards. This was not because we had changed our opinions about the future or about the companies we own. After all, we like the same companies after the elections as we did before. It is more about pronounced movements in share prices in the post-election weeks and how they changed the ratios between the prices and values of the individual stocks.

We sold shares of Servis1stBank. Their price went up so much after the election that in our opinion it exceeded the company's value. Such a company will not hold its own either in absolute terms or in relative terms compared to other investment opportunities. After holding the stock for 14 months, our return was approximately 67% and we are very satisfied with this.

We have one addition to the portfolio. It is a US company in the health care segment. Health care did not fare well in the after-election price tumult, and therefore the share price of this industry leader reached a very attractive level. In our opinion, it is an above-average company with a solid competitive advantage and is available at a below-average price. It is possible that it will remain in our portfolio for a very long time.

Wishing you all the best for the New Year

Daniel Gladiš, January 2017

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