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INVESTİNG WITH LOW BUDGET AND LİTTLE TİME

Summary

Nowadays, investment is becoming more frequent topic around the globe and it attracts people with the incredible examples of stock market booms. However, investments are usually considered for longer period and huge amount of financial resources, whereas it is frequently asked whether an investor with relatively low budget and little can profit from investing. This paper demonstrates the results of analysis conducted on cryptocurrencies and ETFs of both emerging and developed economies, where short-term of timeframe was considered.

Keywords: *Finance, ınvestment, data analysis, ETF, cryptocurrency, rolling window regression*

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Introduction

The economy of almost all countries are designed based on capitalistic structure, where the international trade is considered one of the crucial drivers of the economy. Nevertheless, this capitalistic system has a drawback pronounced in the light of inflation, depreciation and inequality in financial resources distribution which make a person to look for opportunities of expansion its financial resources to survive in our realities (Sinclair & Cheung, 2016).

In the world of growing uncertainties and inflations, people are more concerned about proper allocation of their funds and savings to better off in the future. Financially successful people suggest to invest in stocks and cryptocurrencies. In the case of low or risk-free investments, returns are usually yield smallest fraction and, in some countries, do not even cover unofficial inflation rate. To better off in the future with such type of investment, one needs a huge amount of capital to feel the sense of the investment considering low-risk to satisfy its needs or expectations in the long-term observation (Kim et al., 2017). It can be opposed that it is better to proceed with cryptocurrencies that are of high-risk exposure, because in short period an investor might increase its value by N-folds. However, the majority has limited budget and expecting high returns in short time (Cremers et al., 2017).

Therefore, this study addresses the question whether low budget and little time are worth of investing via financial analysis. The paper covers the methodology of analysis, the results of empirical analyses and the conclusions.

Methodology of Analysis

The remarkable annual growth rate of ETFs in the first decade of 21st century made this pooled security even more attractive when it comes to investment decisions. First of all, ETFs are considered as affordable and well diversified with stocks or different type of securities, which reduces the risks of holding such investment. Another benefit of ETFs is that they can be traded at the same principal as the conventional stocks (Cheng et al., 2013).

The other market for investing, cryptocurrencies market, introduce a person the high-volatile assets that has become renowned over the last decade. The example of Bitcoin and other successful cryptocurrencies that has raised over thousand folds over a decade switched a huge number of investors towards cryptocurrencies. Since it is relatively new market that fluctuates from rises and falls, many methods to forecast and examine were proposed.

Conover (2011) discusses the issue of whether to invest in emerging countries or better to switch the focus towards investing in developed countries. Author outlines the fact of low correlation with developed economies provides a satisfactory level of diversification. At the same time, emerging economies have their own drawback of higher risk-exposure.

The empirical analysis on data of assets consists of the individual analysis of assets data for the fitting into the models, implementation of rolling windows regression analysis, inclusion of generated window-rolled set of subsamples into the portfolio according to window sizes and significance checking.

The exchange-traded funds (ETFs) were chosen for the analysis because of utilization ease and their affordability. Since it is also possible to invest into fractions of cryptocurrencies, even low budget-oriented investors can afford the crypto investments, so they were also chosen to be reviewed in this analysis, even though of their high-risk level.

The next point is to define appropriate tools, sources and methods that will be used in the data collection process. To ease the whole process of empirical analysis conduction, all tools and data are freely available online. For analyzing and processing data, programing language "R" for statistical analyses will be utilized. The data source provider during in the data collection process was selected to be "Yahoo! Finance", online financial media platform. As we decided to proceed with ETFs of developed and emerging countries, the single ETF fund should be used to avoid biasness. The perfect match is iShares ETFs that share the same benefits as other ETFs, are in Yahoo! Finance, and data for all iShares ETFs are valued in USD.

On the subject of countries selection, it was decided to choose Argentina, Brazil, China, Colombia, India, Indonesia, South Korea, Malaysia, Mexico, Philippines, South Africa, Thailand, Turkey, Taiwan, Hong Kong and Peru for emerging; and Australia, Austria, Belgium, Canada, France, Germany, Ireland, Italy, Japan, Netherlands, New Zealand, Singapore, Spain, Sweden, Switzerland, United Kingdom and the USA for developed economies.

Criteria for cryptocurrency selection was through filtration of cryptocurrencies through market capitalization and exclusion of irrelevant ones based on available time-span in the source provider. Thus the following 10 cryptocurrencies were selected: Bitcoin, Ethereum, Tether, BNB, XRP, Cardano, Dogecoin, TRON, Ethereum Classic and Litecoin.

The analysis is conducted with Rolling-Window regression method where the assets in portfolio are weighted in a such way to maximize profits. The paper of Martellini suggests that consistent results for expected returns are achieved when the portfolio was built on the maximum Sharpe ratio approach, which means by using Tangency portfolio (Martellini, 2008). The existence of package "tsDyn" with "predict_rolling" function in R software is useful for the analysis. Starting the analysis, data of assets is converted to log returns to be valid. Then, data is fitted into one of the models. After conducting Information Criteria checking, it was concluded to continue with VAR(1) model. Worth to mention, in window-rolling regression only illustrates monthly parameters, so if we would like to take values for several months, then the mean would be multiplied for n and variance for $\sqrt{n}$, where n is the number of months (Fama, 1990).

Empirical results

Tables 1 – 3 display mean and variance of returns as well as weights of assets included in portfolio on the forecasted data according to months of holding.

As it is seen from these tables, for emerging countries, Colombia and Philippines are in the majority of portfolios generated by tangency portfolio specification. For the developed economies considered in this analysis, markets of US, Singapore and New Zealand are included into the tangency portfolio for different months of holding. On the side of cryptocurrencies, generated sample of tangency portfolios recommend to actively employ Tether, Binance coin, Ethereum and Tron. Huge proportion for Tether and Binance coins is related to the fact that they are so-called stable coins, i.e., their value on the market is connected to the value of another asset, including also currencies.

The highest returns were observed in portfolios of cryptocurrencies varying between 1.02% and 6.19%. However, the highest risks are also associated with them (values between 3.28% – 10.7%). The next position in terms of returns is followed by assets from emerging countries, which is also combined with the lowest risks among these three types. The returns from generated portfolios are in the range of 0.1% – 0.23% for month. The risk parameters for emerging countries are in diapason of 0.71% – 2.08%. The worst returns were earned by the market of developed countries in this analysis. These returns were between 0.01% and 0.1% for month in addition, risks for developed countries market is in average slightly higher than for emerging economies.

Table 1.

Investment outcomes for portfolios on emerging markets

Months	Returns for n months	Variance for n months	Sharpe Ratio	Weights
24	0.0360	0.0441	0.82	Colombia: 67.89% Philippines: 25.28% Peru: 6.84%
25	0.0375	0.0460	0.82	Colombia: 76% Philippines: 24%
26	0.0416	0.0469	0.89	Colombia: 76.73% Philippines: 23.27%
27	0.0459	0.0488	0.94	Colombia: 72.76% Philippines: 27.24%
28	0.0476	0.0497	0.96	Colombia: 72.44% Philippines: 27.23% Thailand: 0.33%
29	0.0522	0.0490	1.07	Colombia: 66.89% Philippines: 26.73% Thailand: 6.38%
30	0.0540	0.0531	1.02	Colombia: 64.49% Philippines: 23.42% Thailand: 12.09%
31	0.0589	0.0501	1.18	Colombia: 63.35% Philippines: 24.91% Thailand: 11.74%
32	0.0608	0.0509	1.19	Colombia: 88.11% Turkey: 6.59% Thailand: 4% Peru: 1.29%
33	0.0561	0.0488	1.15	Colombia: 78.32% Peru: 9.97% Thailand: 8.97% Philippines : 2.74%
34	0.0646	0.0449	1.44	Colombia: 74.25% Philippines : 20.78% Peru: 4.97%
35	0.0735	0.0432	1.70	Colombia: 63.22% Philippines : 23.42% Thailand: 8.25% Peru: 5.11%
36	0.0828	0.0426	1.94	Colombia: 70.42% Philippines : 23.36% Peru: 4.25% Thailand: 1.97%

Conclusion

The objective of this study was to recommend where to invest among different types of assets with low budget and relatively short time for investing. Low budget constraint directed the analysis towards ETFs market of emerging and developed economies. To diversify investment decisions, cryptocurrencies were also regarded in the analysis. Then rolling windows regression is performed on the data which is already fit into the model. As a result, samples of data generated on rolling window regression for different rolling window size were collected and used in tangency portfolio specification:

- Results for emerging countries: the optimal suggestion would be to invest for as the longer period as possible. Major investments should be to the markets of Columbia and the Philippines
- Results for developed countries: portfolios showed poorer performance comparing to emerging markets. The provided returns are not significant due to the low value of returns given their risk measures.
- Results for cryptocurrencies: Despite of the high risks, the highest returns were gained on cryptocurrencies. Tether, Binance coin, Ethereum and Tron are the only ones that were actively used in the created portfolios.

According to the results derived from the analysis, it can be concluded that a potential investor with low budget that is willing to enter into investment activity should closely consider the investments into specific emerging economies for the maximum of available time in case if the investor is of high risk-aversion. However, for a person with low risk-aversion, the analysis suggests to invest into cryptocurrencies for the period of 2-3 years as this time interval shows positive Sharpe ratio values.

Table 2.

Investment outcomes for portfolios on developed markets

Months	Returns for n months	Variance for n months	Sharpe Ratio	Weights
24	0.0168	0.0612	0.27	US: 61.92% New Zealand: 29.90% Singapore: 8.17%
25	0.0150	0.0605	0.25	US: 71.85% New Zealand: 28.15%
26	0.0130	0.0637	0.20	US: 75.82% New Zealand: 21.64% Singapore: 2.54%
27	0.0135	0.0520	0.26	US: 49.46% Singapore: 30.78% New Zealand: 19.76%
28	0.0168	0.0566	0.30	US: 74.09% Singapore: 25.91%
29	0.0145	0.0522	0.28	US: 56.98% Singapore: 24.84% New Zealand: 18.18%
30	0.0150	0.0630	0.24	US: 75.88% Singapore: 18.78% New Zealand: 5.34%
31	0.0155	0.0551	0.28	US: 53.48% Singapore: 29.28% New Zealand: 17.24%
32	0.0224	0.0600	0.37	US: 93.48% Singapore: 6.52%
33	0.0264	0.0551	0.48	US: 73.72% Singapore: 26.28%
34	0.0306	0.0560	0.55	US: 71.13% Singapore: 25.84% New Zealand: 3.03%
35	0.0350	0.0515	0.68	US: 71.51% Singapore: 26.39% New Zealand: 2.09%
36	0.0360	0.0534	0.67	US: 66.65% Singapore: 24.28% New Zealand: 9.07%

Table 3.

Investment outcomes for portfolios on cryptocurrencies

Months	Returns for n months	Variance for n months	Sharpe Ratio	Weights
12	0.1440	0.1303	1.11	Tether: 73.33% BNB: 13.24% TRON: 10.83% XRP: 1.56% Ethereum: 1.04%
13	0.1599	0.1565	1.02	Tether: 70.59% BNB: 11.80% TRON: 10.52% Ethereum: 6.44% XRP: 0.66%
14	0.2100	0.1815	1.16	Tether: 61.77% BNB: 13.42% TRON: 11.10% Ethereum: 10.69% XRP: 3.01%
15	0.3105	0.1878	1.65	Tether: 50.86% BNB: 20.46% TRON: 13.09% Ethereum: 11.37% XRP: 3.77% Cardano: 0.46%
16	0.4272	0.2300	1.86	Tether: 41.25% BNB: 24.74% TRON: 16.34% Ethereum: 10.04% XRP: 6.57% Cardano: 1.06%
17	0.4454	0.2424	1.84	Tether: 43.59% BNB: 23.01% TRON: 15.78% XRP: 7.96% Ethereum: 7.94% Cardano: 1.72%
18	0.5292	0.2711	1.95	Tether: 33.60% BNB: 24.96% TRON: 18.06% Ethereum: 15.61% XRP: 6.59% Cardano: 1.17%
19	0.4655	0.2179	2.14	Tether: 44.08% BNB: 23.23% TRON: 13.48% Ethereum: 12.01% XRP: 7.20%
20	0.9320	0.3318	2.81	BNB: 39.74% Ethereum: 29.51% TRON: 17.72% XRP: 13.03%
21	0.7560	0.2273	3.33	BNB: 26.61% Tether: 24.61% Ethereum: 19.90% XRP: 13.60% TRON: 10.04%
22	1.2232	0.4503	2.72	BNB: 41.85% TRON: 19.66% XRP: 18.65% Dogecoin: 13.76% Ethereum: 6.08%
23	1.4237	0.5088	2.80	BNB: 49.57% XRP: 20.03% TRON: 19.96% Dogecoin: 10.45%
24	1.4256	0.5242	2.72	BNB: 53.71% XRP: 23.92% TRON: 22.38%

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Резюме

В настоящее время инвестиции становятся все более распространенной темой во всем мире и привлекают людей невероятными примерами бума на фондовом рынке. Однако инвестиции обычно рассматриваются на более длительный период и огромные объемы финансовых ресурсов, тогда как часто задают вопрос, сможет ли инвестор с относительно небольшим бюджетом получить прибыль от инвестирования. В данной статье демонстрируются результаты анализа, проведенного по криптовалютам и ETF как развивающихся, так и развитых экономик, где рассматривались краткосрочные временные рамки.

Ключевые слова: *Финансы, инвестиции, анализ данных, ETF, криптовалюта, регрессия скользящего окна.*

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Xülasə

Hal-hazırda, investisiya bütün dünyada getdikcə ümumi mövzuya çevrilir və birja bumlarının inanılmaz nümunələri ilə insanları cəlb edir. Bununla belə, investisiyalar adətən daha uzun müddətə və böyük miqdarda maliyyə resurslarına hesablanır, halbuki nisbətən kiçik büdcəyə malik investorun investisiyadan qazanc əldə edə biləcəyi sualı tez-tez verilir. Bu məqalə həm inkişaf etməkdə olan, həm də inkişaf etməkdə olan iqtisadiyyatların kriptovalyutaları və ETF-ləri üzrə aparılan təhlilin nəticələrini nümayiş etdirir, burada qısamüddətli zaman çərçivələri nəzərdən keçirilir.

Açar sözlər: *Maliyyə, investisiya, məlumat təhlili, ETF, kriptovalyuta, sürüşmə pəncərə reqressiyası.*