

CAPSTONE PROJECT FOR THE

ANALYSE FINANCIAL DATA

WITH PYTHON SKILL PATH

HOW AND WHY?

- ▶ Analysis is performed on two time periods, last 5 years and only this year (2023) because I preferred stocks that lost value over past year.
- ▶ If you're interested in looking at the code please check out my GitHub repository: <https://github.com/ssloniou/Analyse-Financial-Data-with-Python/blob/main/financial.py>
- ▶ Financial data is imported from Yahoo Finance using yfinance module

CHOOSE OF STOCKS

- ▶ Project description says, that I should play the role of a wealth manager but I've decided to switch positions to be a client.
- ▶ In that case, I'll be analysing stock that are currently in my portfolio.
- ▶ Most of my stock were bought on „red“ market, when they were underpriced with expected growth
- ▶ While I was searching which stock should I buy, I had not much experience and that project surely help me with next steps on market

PAYPAL (PYPL)



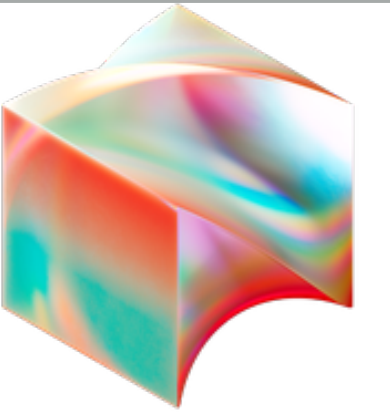
PayPal Holdings, Inc. operates a technology platform that enables digital payments on behalf of merchants and consumers worldwide. The company provides payment solutions under the PayPal, PayPal Credit, Braintree, Venmo, Xoom, PayPal Zettle, Hyperwallet, PayPal Honey, and Paidy names. Its payments platform allows consumers to send and receive payments in approximately 200 markets and in approximately 150 currencies, withdraw funds to their bank accounts in 56 currencies, and hold balances in their PayPal accounts in 25 currencies. The company was founded in 1998 and is headquartered in San Jose, California.

VODAFONE (VOD)



Vodafone Group Public Limited Company provides telecommunication services in Europe and internationally. It offers mobile connectivity services comprising end-to-end services for mobile voice and data, messaging, device management, BYOx, and telecoms management, as well as professional and consulting services; and fixed line connectivity, such as fixed voice and data, broadband, software-defined networks, managed WAN, LAN, ethernet, and satellite; and financial services, as well as business and merchant services. The company also provides consumer Internet of Things (IoT) propositions, as well as security and insurance products; mobile services; logistics, fleet management, and smart metering services; WiFi; digital services comprising mobile application development, multi-access edge computing, worker insights, AI assistant, drone detection, visual inspection, and mixed reality, as well as Vodafone Analytics platform; and traditional IT hosting services, including colocation, managed hosting, security, hosting infrastructure, and flexible computing for government. In addition, it offers integrated business communication services, as well as fixed mobile convergence services; and carrier services, as well as IoT devices comprising managed tablets and integrated terminals. Further, it offers M-Pesa, an African mobile money platform to make payments and provide financial services; Vodafone Business multi-cloud platform; and productivity solutions, as well as operates digital cloud-based television platforms. It serves private and public sector customers in the manufacturing, retail, automotive, banking finance, healthcare, smart cities and public, agriculture, transport and logistics, and energy and utilities management industries. It offers its products and services through digital and physical channels. Vodafone Group Public Limited Company has a strategic partnership with Open Fiber. The company was incorporated in 1984 and is based in Newbury, the United Kingdom.

BLOCK (SQ)



BLOCK

Block, Inc., together with its subsidiaries, creates tools that enables sellers to accept card payments and provides reporting and analytics, and next-day settlement. The company provides hardware products, including Square Register that combines its hardware, point-of-sale software, and payments technology; Square Terminal, a payments device and receipt printer to replace traditional keypad terminals, which accepts tap, dip, and swipe payments; Square Stand, which enables an iPad to be used as a payment terminal or full point of sale solution; Square Reader for contactless and chip that accepts EMV chip cards and NFC payments, enabling acceptance through Apple Pay, Google Pay, and other mobile wallets; and Square Reader for magstripe, which enables swiped transactions of magnetic-stripe cards by connecting with an iOS or Android smartphone or tablet through the headphone jack or Lightning connector. It also offers various commerce products, including Square for Restaurants; Square Appointments; Square for Retail; Square Point of Sale; Square Online; Square Online Checkout; Square Invoices; Square Virtual Terminal; Risk Manager; Order Manager; Payment application programming interfaces (APIs); and Commerce APIs. In addition, the company provides Cash App, an ecosystem of financial products and services that enables customers to store, send, receive, spend, or invest their money. It serves in the United States, Canada, Japan, Australia, New Zealand, the United Kingdom, Ireland, France, and Spain. The company was formerly known as Square, Inc. and changed its name to Block, Inc. in December 2021. Block, Inc. was incorporated in 2009 and is based in San Francisco, California.

DELIVERY HERO (DHER.DE)



Delivery Hero

Delivery Hero SE offers online food ordering and delivery services. It operates approximately in 50 countries in Europe, the Middle East, North Africa, Asia, and the Americas. The company was founded in 2011 and is headquartered in Berlin, Germany.

VIRGIN GALACTIC (SPCE)



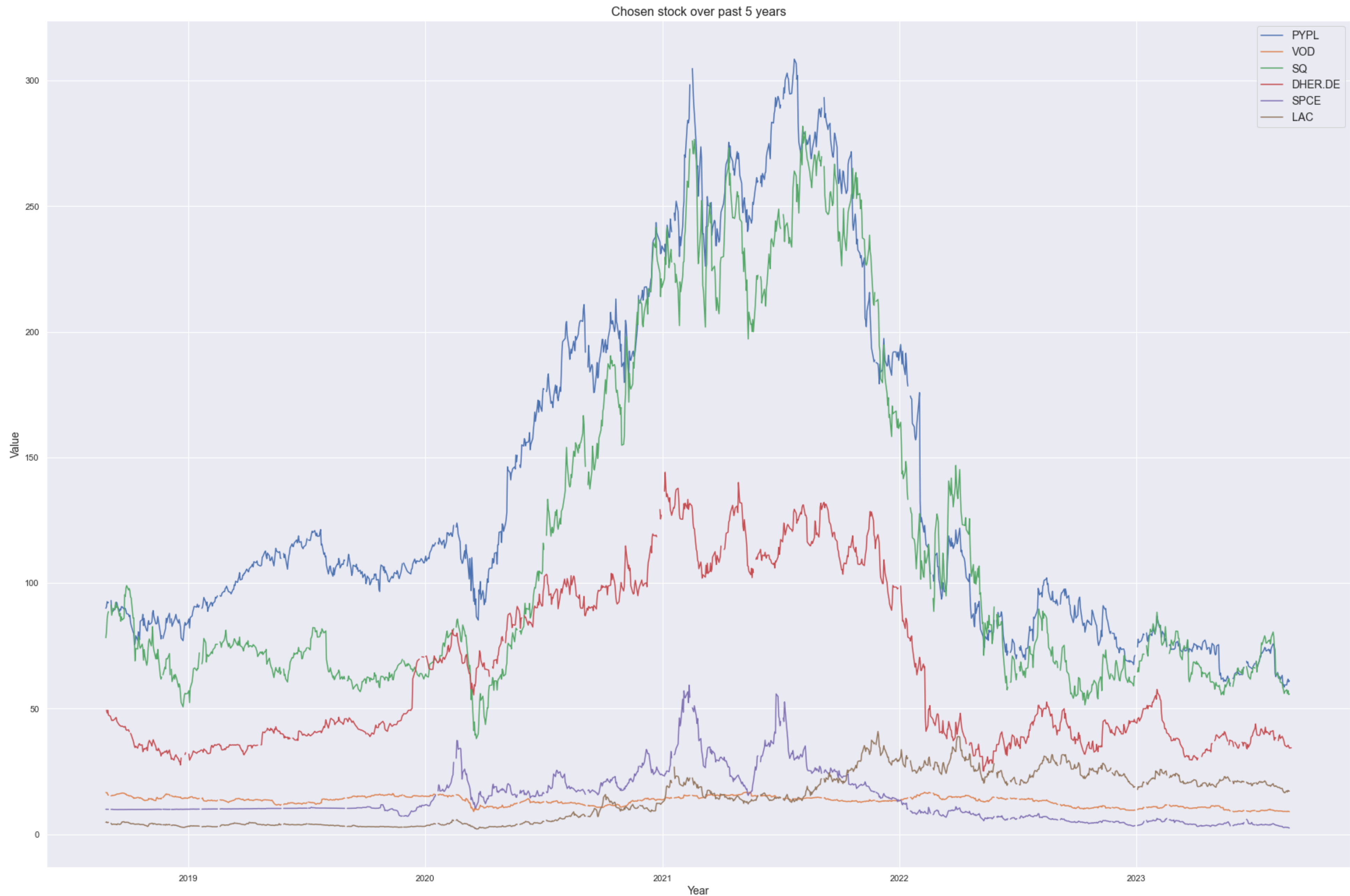
Virgin Galactic Holdings, Inc. focuses on the development, manufacture, and operation of spaceships and related technologies for conducting commercial human spaceflight and flying commercial research and development payloads into space. It is also involved in the ground and flight testing, and post-flight maintenance of its spaceflight system vehicles. The company serves private individuals, researchers, and government agencies. Virgin Galactic Holdings, Inc. was founded in 2017 and is headquartered in Las Cruces, New Mexico.

LITHIUM AMERICAS CORP. (LAC)



Lithium Americas Corp. operates as a resource company in the United States and Argentina. The company explores for lithium deposits. It owns interests in the Cauchari-Olaroz project located in Jujuy province of Argentina; Thacker Pass project located in north-western Nevada; and Pastos Grandes project located in the Salta province of Argentina. The company was formerly known as Western Lithium USA Corporation and changed its name to Lithium Americas Corp. in March 2016. Lithium Americas Corp. is headquartered in Vancouver, Canada.

FINANCIAL ANALYSIS



FINANCIAL ANALYSIS



FINANCIAL ANALYSIS - YTD

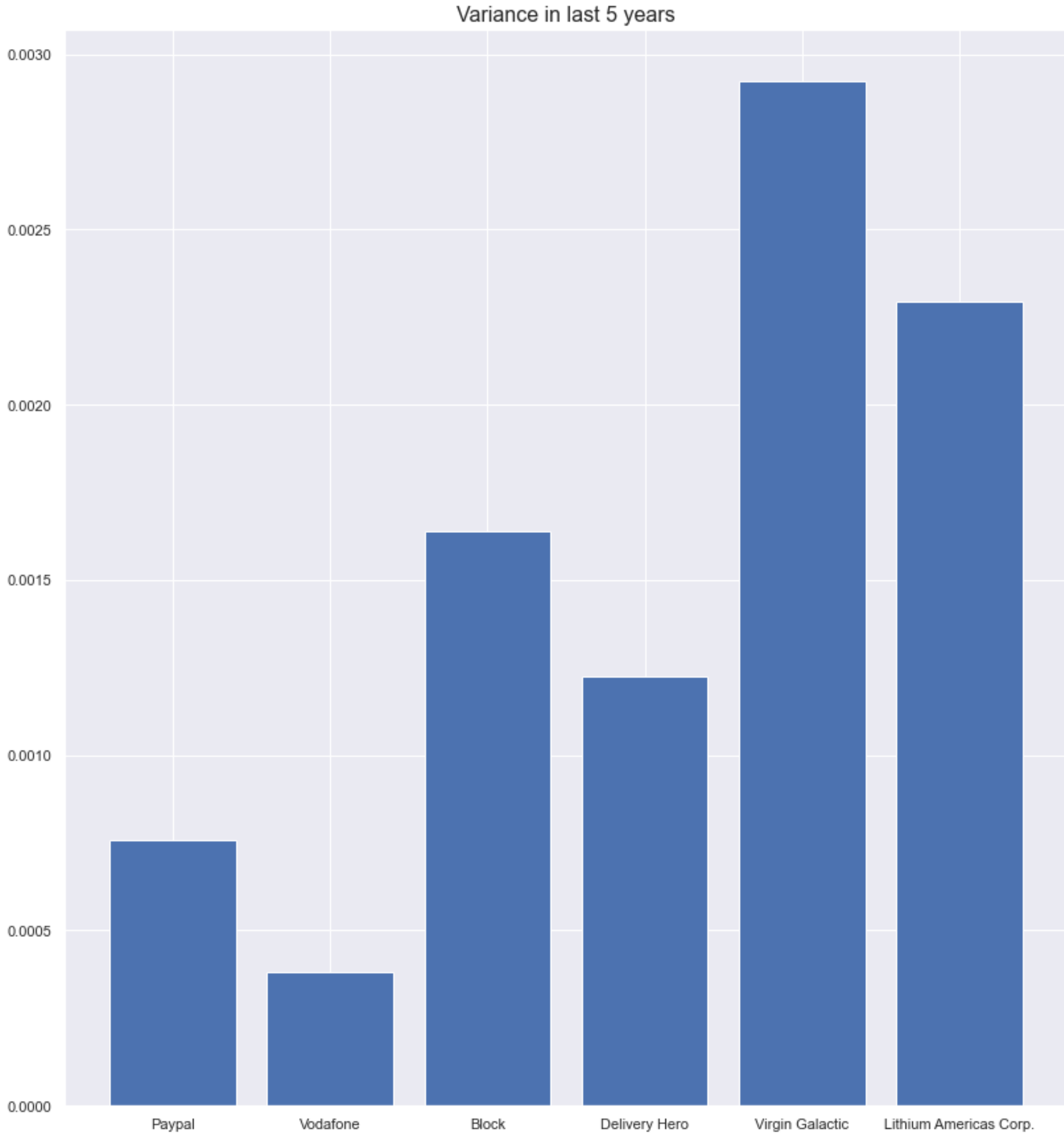
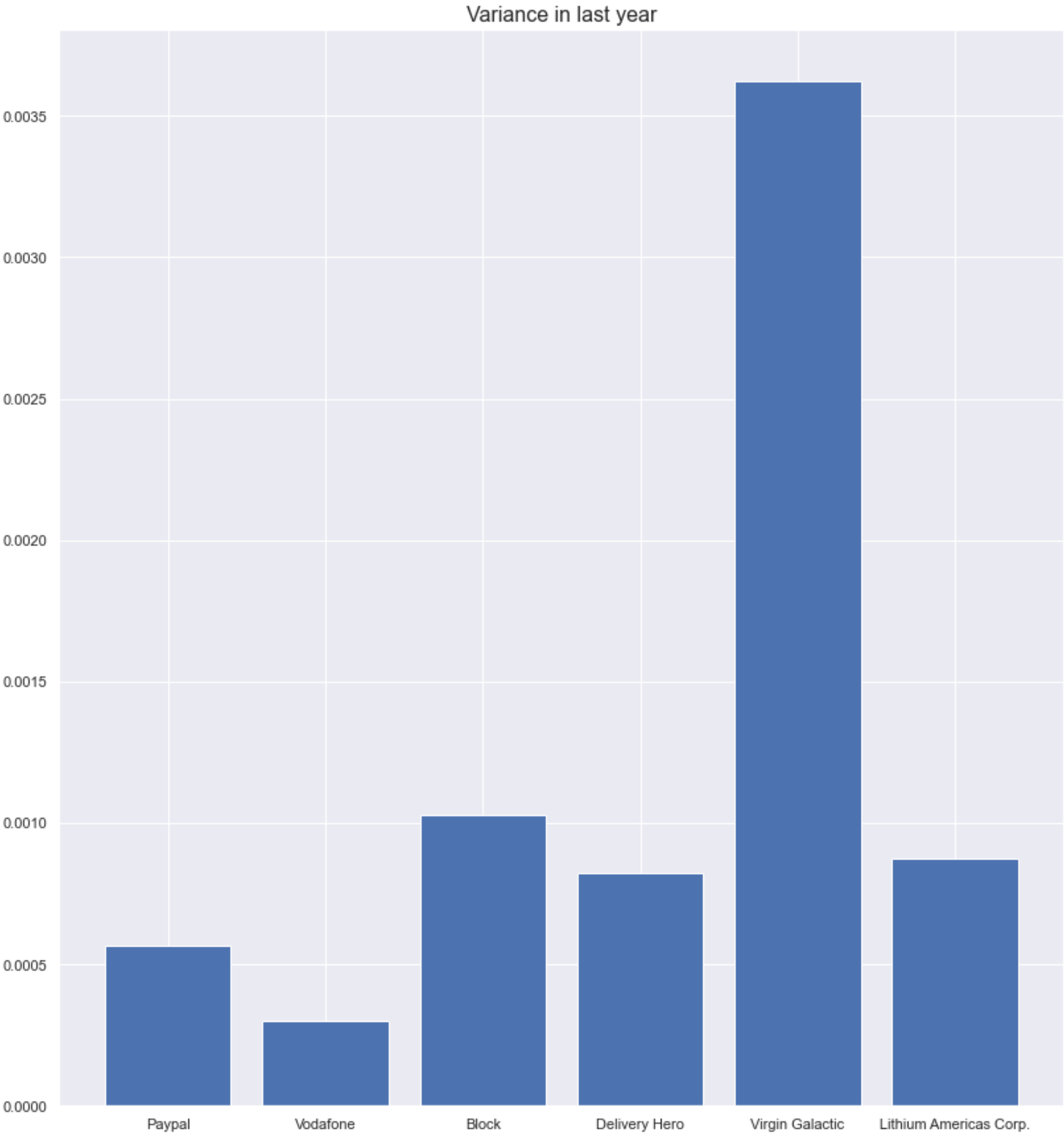


FINANCIAL ANALYSIS - YTD



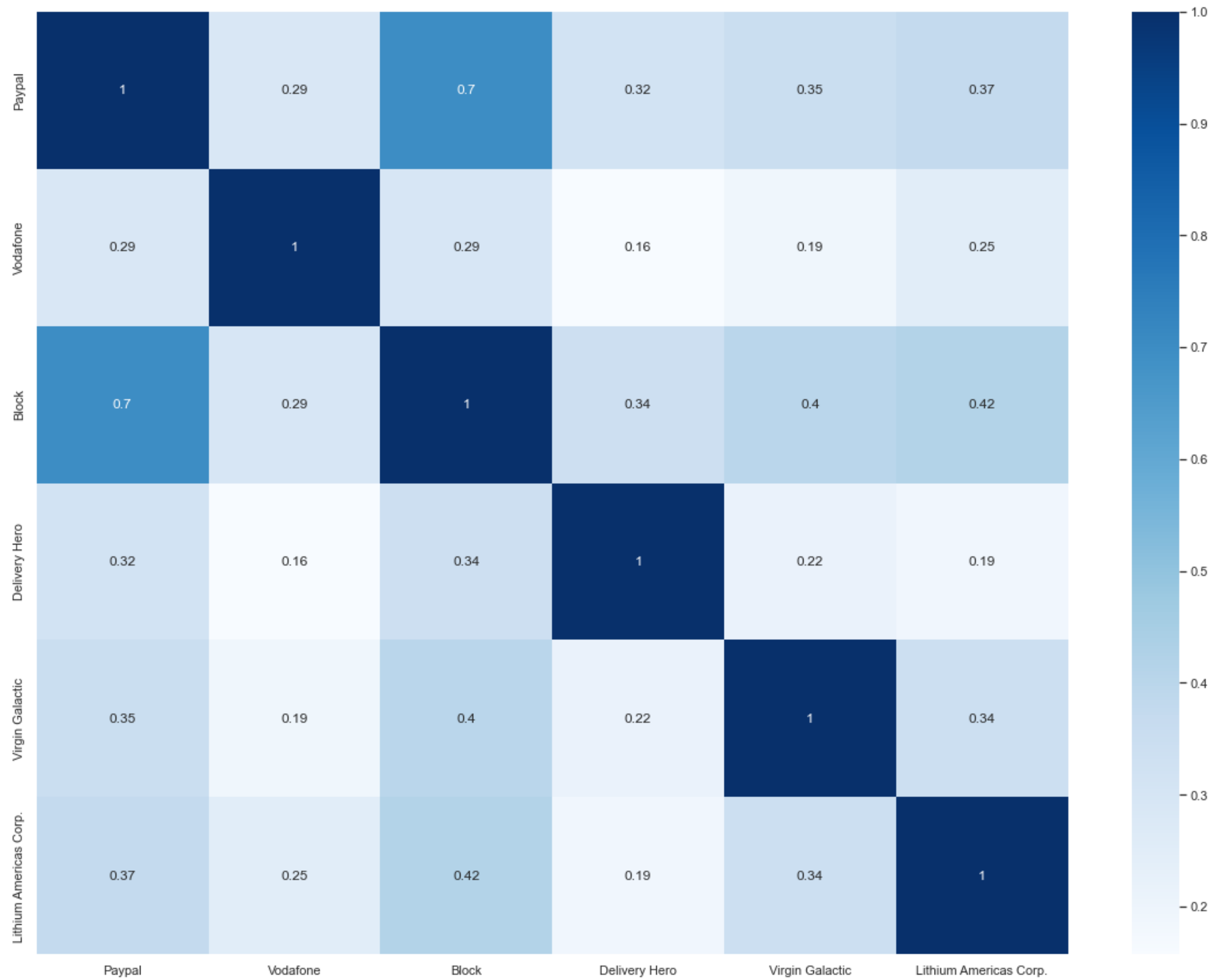
FINANCIAL ANALYSIS

In both time frames Virgin Galactic is a stock of a high risk. Wouldn't buy for long term investment, rather short time gamble.



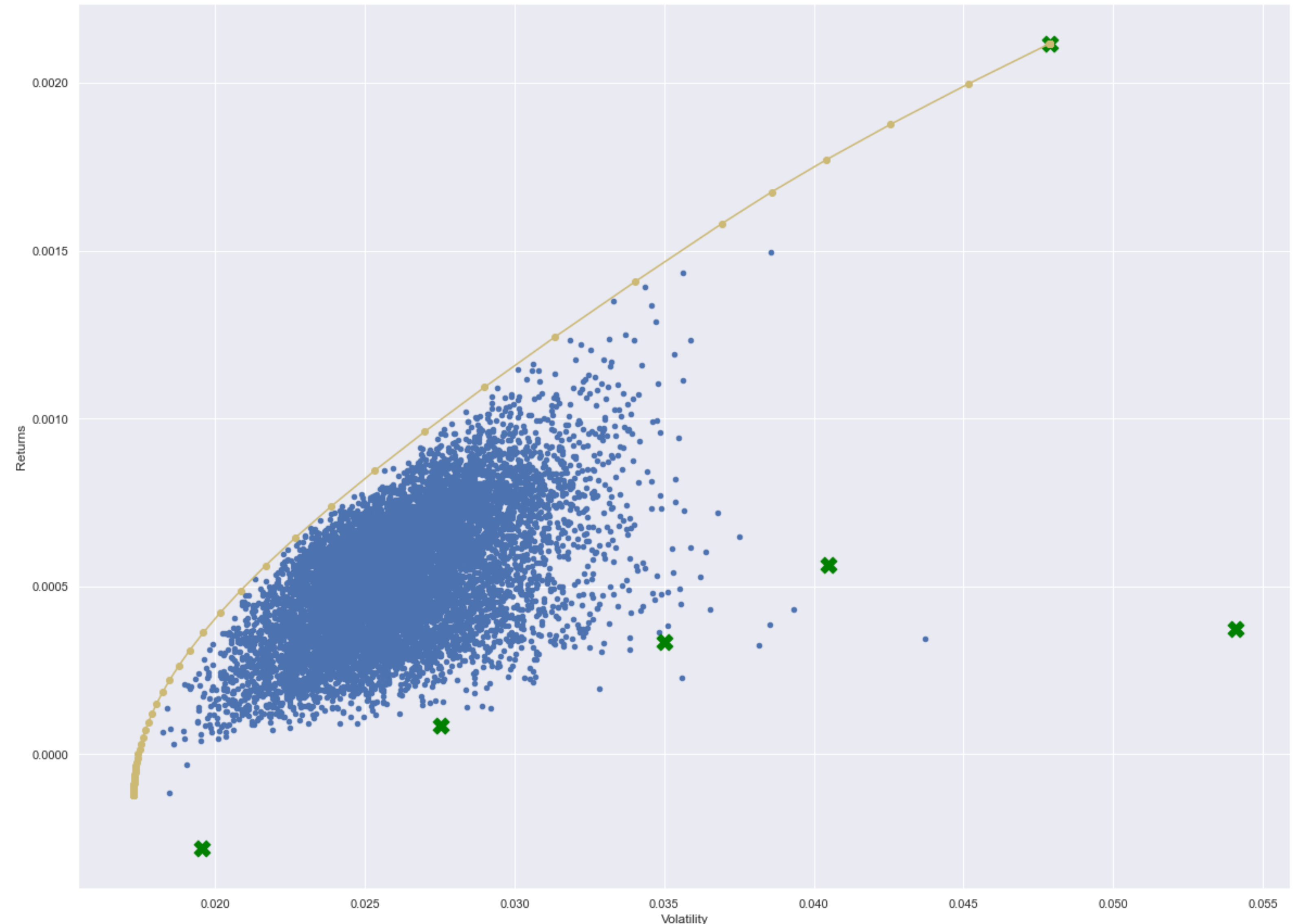
CORRELATION BETWEEN STOCKS

According to this heat map, Delivery Hero and Vodafone stocks are rather uncorrelated with others. On the other hand you can tell immediately that Block and Paypal are highly correlated which means that keeping them together in portfolio is highly risky.



EFFICIENT FRONTIER

- ▶ Scatter plot represents 10000 random generated portfolios.
- ▶ Yellow line is an efficient frontier, stocks on that line are the most optimal.
- ▶ Green points are the stocks of my choice



PORTFOLIO WITH HIGHEST RATE OF RETURN

- ▶ Paypal - 2,6%
- ▶ Vodafone - 7,5%
- ▶ Block - 22,9%
- ▶ Delivery Hero - 2,6%
- ▶ Virgin Galactic - 3,9%
- ▶ Lithium Americas - 60,4%

CONSIDERING THE RISKS

- ▶ Most risky stock (SPCE) will be the first to sell.
- ▶ Stock with biggest rate of return (LAC) is going to increase its wage in my portfolio.
- ▶ Two financial stocks (PYPL) and (SQ) are highly correlated, it is better to stay only with one of them.
- ▶ Delivery Hero because of marginal correlation with other stocks stays in portfolio.
- ▶ Vodafone is the only stock which had negative average rate of return in past 5 years.