**Abstract**

Rohit Garg ([f2005636@gmail.com](mailto:f2005636@gmail.com))

**Cryptocurrency**

Cryptocurrency is a type of digital currency that uses cryptography for security and anti-counterfeiting measures. Public and private keys are often used to transfer cryptocurrency between individuals. Cryptocurrency must be cryptographically signed each time they are transferred, each user has both public and individual private keys.

In this paper we show you how to solve real-world quantitative finance for cryptocurrency problems using the statistical computing languages R. We will cover diverse topics ranging from cross hedging of cryptocurrency, cryptocurrency portfolio optimization and asset pricing models for cryptocurrency.

For demonstration purposes, we have fetched the following cryptocurrencies from Kaggle dataset (https://www.kaggle.com/sudalairajkumar/cryptocurrencypricehistory/data):

* Bitcoin (BTC)
* Ethereum (ETH)
* Ripple (XRP)
* Litecoin (LTC)
* Monero (XMR)
* DASH (DASH)
* NEM (XEM)