

**Portfolio Optimisation   
using Modern Portfolio Theory & Python**

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**Acknowledgements**

**Abstract**

This report explains and details the project of developing a proprietary trading system that utilises core concepts of Harry Markowitz’s Modern Portfolio Theory. Both the visual representation and functionality are created using the programming language Python. The trading system created will contain tools for retrieving and visualising descriptive statistics pertaining to each stock available to help provide a basis for portfolio creation.

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# Introduction

## Background

When it comes to investing money, an investor’s main goal tends to be maximising the return on their investment in the safest way possible. The perfect investment would obviously be one that has a very high return with no risk at all. This however, is almost never the case as almost every investment that can be made will have some kind of risk attached to it. Having that extra risk on an investment is an unavoidable issue when trying to achieve a higher return.

In other words, making the most money possible. Finding and investing in stocks that have high returns often isn’t the issue. The issue is the risk involved with doing so. The perfect investment would be one that has a high return as well as having a very low risk. Investments like these are generally impossible to find, so strategists have worked relentlessly to come up with ways of maximising the return on investments for a tolerable amount of risk.