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FACULTY OF BUSINESS AND MANAGEMENT
BACHELOR OF BUSINESS ADMINISTRATION (HONS) FINANCE

INVESTMENT AND PORTFOLIO ANALYSIS (FIN552)

GROUP ASSIGNMENT:

PORTFOLIO CONSTRUCTION USING
SIMPLE SHARPE OPTIMIZATION METHOD

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1.0 INTRODUCTION TO THE INVESTING PORTFOLIO

Portfolio investment is the process of allocating funds to a diverse collection of financial assets such as stocks, bonds, mutual funds, ETFs, and other securities, with the goal of producing returns and capital appreciation. Portfolio investment, as opposed to direct investment, in which an investor has control over a specific company or project, involves making investments in a diverse range of assets across industries, sectors, or countries. Individuals, institutional investors, and even governments can spread their investment risk by diversifying their holdings through portfolio investing. Investors hope to limit the impact of a poor performance in one investment on the total portfolio by investing in a variety of assets, potentially increasing returns and minimizing losses.

The purpose of investing in a portfolio is to spread the risk by diversifying investments across different asset classes, sectors, industries, and geographical regions. This diversification helps to mitigate the impact of any single investment's performance on the overall portfolio, reducing potential losses and enhancing potential returns. Investing in a portfolio involves careful planning and strategic decision-making. Investors consider factors such as their financial goals, risk tolerance, time horizon, and investment preferences when constructing and managing their portfolios. They analyze the historical performance, prospects, and risk characteristics of individual assets to determine their allocation within the portfolio.

Portfolio investing also involves monitoring and rebalancing the portfolio periodically to maintain the desired asset allocation. This may involve buying or selling investments to realign the portfolio with the investor's target allocation. Regular monitoring of the portfolio's performance and adjusting based on market conditions and changing goals are essential aspects of portfolio investing.

Overall, investing in a portfolio aims to generate long-term capital appreciation, income, or a combination of both, while managing risk through diversification and strategic asset allocation. It provides investors with the opportunity to participate in the potential growth of different asset classes and optimize their investment returns.

2.0 PROBLEM STATEMENT

The problem at hand is the creation of a framework for portfolio construction that makes use of the Simple Sharpe Optimization (SSO) technique. The goal is to tackle the problem of building an ideal portfolio that maximizes risk-adjusted returns using historical data and the SSO approach's guiding principles.

Besides, creating an optimized portfolio allocation requires building an algorithm or computational model that takes historical return data, asset attributes, and risk preferences into account. The Sharpe ratio based SSO technique strives to balance risk and return by considering the past performance, volatility, and correlation of multiple assets.

Furthermore, finding trustworthy and current historical data for a wide range of assets, creating effective optimization algorithms, and comparing the performance of the SSO method to other portfolio development techniques are some of the major obstacles this project must overcome. Furthermore, it may be required to incorporate real-world factors like transaction fees, liquidity restrictions, and short-selling restrictions throughout the optimization process.

Last but not least, the successful conclusion of this project will provide insights into the real-world use of the SSO technique for building portfolios and advance knowledge on how to maximize risk-adjusted returns. Investors, financial analysts, and portfolio managers looking to improve their portfolio design methods based on the SSO methodology will find the results acquired beneficial.

3.0 OBJECTIVE

The objective of this assignment is to use the Simple Sharpe Optimization (SSO) method to develop and assess a framework for building portfolios. The objective is to develop an optimized portfolio allocation based on historical data and the SSO approach's guiding principles that maximize risk-adjusted returns. Creating an optimized portfolio requires creating a computational model or algorithm that takes historical return data, asset attributes, and risk preferences into account.

The task will require gathering trustworthy and current data on a variety of assets in order to meet this goal. The basis for building the portfolio will be provided by this data. A well-diversified portfolio that strikes a balance between risk and return will be created by taking historical returns, volatility, and correlation among various assets into account.

The best portfolio weight distribution for each asset will be determined by employing effective optimization techniques. The allocation choices will be made using the SSO technique, which is based on the Sharpe ratio and considers the investor's desired risk-adjusted performance. This method enables the discovery of assets that provide enticing risk-adjusted returns, resulting in a portfolio that is more effective.

By contrasting it with benchmark indices or other existing portfolio creation techniques, the performance of the SSO-based portfolio construction method will be assessed. We'll use risk and return metrics to gauge how well the SSO technique produces greater risk-adjusted returns. This analysis will provide light on the relative benefits and drawbacks of the SSO strategy in comparison to other portfolio creation strategies.

The SSO model's sensitivity and robustness will also be covered in the assignment. Sensitivity analyses will be performed to determine the effects of important variables on the portfolio optimization procedure, such as risk aversion, correlation assumptions, and limitations. To assure the viability and application of the portfolio construction framework in real-world circumstances, additional practical considerations such transaction fees, liquidity restrictions, and short-selling restrictions will be made.

4.0 METHODOLOGY

- Find 20 company at MalaysiaStock.biz and KLCI market.
- Collect and download data of closing price for each month from January 2013- January 2023 at Yahoo Finance
- List of portfolio

NO	PORTFOLIO
1.	FGV HOLDING BERHAD
2.	DRB-HICOM BERHAD
3.	YTL CORPORATION BERHAD
4.	XOX BHD
5.	ASTRO MALAYSIA HOLDING BERHAD
6.	IMPIANA HOTELS BERHAD
7.	CIMB GROUP HOLDING BERHAD
8.	PETRONAS CHEMICALS GROUP BERHAD
9.	KIM LOONG RESOURCES BERHAD
10.	KPJ HEALTHCARE BERHAD
11.	NESTLE (MALAYSIA) BERHAD
12.	DAYANG ENTERPRISE HOLDING BERHAD
13.	MENANG CORPORATION (M) BERHAD
14.	ACME HOLDINGS BERHAD
15.	TELEKOM MALAYSIA BERHAD
16.	FAVELLE FAVCO BERHAD
17.	KUALA LUMPUR KEPONG BERHAD
18.	KLCC PROPERTY HOLDING BERHAD
19.	BAHVEST RESOURCES BERHAD
20.	FITTERS DIVERSIFIED BERHAD

	CLOSING PRICE																				KLCI
DATE	FGV	DRB-HICOM	YTL CORP	XOX	ASTRO	IMPIANA	CIMB	PETRONAS	KIM LOONG	KPJ	NESTLE	DAYANG	MENANG	ACME	TM	FAVCO	KLK	KLCC	BAHVEST	FITTERS	RM
01-01-13	4.5800	2.5700	1.5655	0.2700	2.7900	1.3000	7.2100	18.5600	0.7367	0.9197	58.4000	0.7002	0.1972	0.2650	5.5500	1.6200	21.7000	6.2900	0.4600	0.5353	1627.55
01-02-13	4.4900	2.5700	1.5655	0.2900	2.7100	1.1000	7.2000	18.3200	0.7300	0.9390	59.8800	0.7057	0.1944	0.2450	5.3200	1.5700	20.7400	6.5400	0.4000	0.5171	1637.63
01-03-13	4.6000	2.5300	1.5465	0.2900	2.8200	1.1000	7.6300	19.0000	0.7467	0.9568	60.6800	0.7749	0.2000	0.2400	5.3900	1.7500	20.9200	6.5800	0.4250	0.5262	1671.63
01-04-13	4.6200	2.5100	1.5560	0.2700	2.9500	1.1000	7.7400	19.7200	0.7500	0.9777	61.8000	0.9742	0.1694	0.2250	5.5200	2.0800	21.5600	7.2500	0.4125	0.5307	1717.65
01-05-13	4.4100	2.8900	1.6034	0.3100	3.2300	1.3000	8.2800	21.2400	0.7667	1.0470	65.5000	1.4197	0.1889	0.3300	5.4900	2.5000	21.1800	6.8000	0.4975	0.7530	1769.22
01-06-13	4.5200	2.6900	1.5750	0.2800	3.0300	1.0500	8.2800	20.9000	0.8000	1.1033	67.0000	1.3561	0.1944	0.2600	5.4000	2.8500	21.7200	6.8000	0.6400	0.6891	1773.54
01-07-13	4.4000	2.5400	1.5844	0.2700	3.0000	1.1500	7.8700	20.8400	0.8067	1.0631	67.6600	1.3229	0.1972	0.2500	5.2700	3.3000	21.2000	6.5600	0.6300	0.6703	1772.62
01-08-13	4.3700	2.5900	1.4706	0.2200	2.9600	1.1000	7.2800	20.1400	0.7700	1.0357	67.5400	1.2343	0.2000	0.2500	5.4100	2.8800	21.5200	6.5600	0.6600	0.6422	1727.58
01-09-13	4.2000	2.6600	1.4611	0.2400	2.9200	1.1000	7.5200	22.0000	0.7833	0.9906	68.0000	1.3146	0.2667	0.3000	5.2400	2.6800	22.6000	6.4300	0.7300	0.6562	1768.62
01-10-13	4.4900	2.5400	1.5655	0.2600	2.9000	1.1500	7.4700	24.5200	0.8067	0.9825	68.0000	1.5166	0.3750	0.2700	5.2400	2.9700	23.1000	6.4500	0.6600	0.6937	1806.85
01-11-13	4.4600	2.5900	1.5370	0.3400	2.9200	1.6000	7.5800	23.8600	0.8633	0.9825	68.5000	1.4862	0.3639	0.4300	5.1400	3.0500	24.6000	5.9000	0.5950	0.7031	1812.72
01-12-13	4.4900	2.8200	1.5465	0.2400	3.0200	1.8500	7.6200	24.1800	0.8467	0.9700	68.0000	1.6024	0.3556	0.5750	5.5500	3.1500	24.9000	5.8500	0.6350	0.7219	1866.96
01-01-14	4.3600	2.7000	1.4421	0.2500	2.9400	1.4500	6.9200	23.3800	0.8600	0.8400	67.5600	1.5484	0.3500	0.6200	5.5100	3.2200	23.4200	5.8000	0.6300	0.7406	1804.03
01-02-14	4.6000	2.5500	1.4991	0.2900	3.1600	1.5000	7.1600	23.6000	0.8867	0.8425	66.8000	1.4696	0.4917	0.7750	5.6700	3.4700	23.9800	6.1500	0.5800	0.8109	1835.66
01-03-14	4.6500	2.4700	1.4516	0.2400	3.2000	1.5500	7.1500	23.8000	0.9333	0.7475	66.6800	1.5567	0.4778	0.7850	5.9200	3.8100	24.2000	6.3500	0.5500	0.9000	1849.21
01-04-14	4.5200	2.5000	1.5275	0.2400	3.3300	1.5500	7.5100	23.5000	0.9367	0.8100	68.5000	1.5401	0.5333	0.7500	6.2000	3.4200	24.2000	6.6600	0.5500	0.9562	1871.52
01-05-14	4.2400	2.4600	1.5465	0.2200	3.4000	1.6000	7.3400	24.5000	1.0300	0.8250	67.2600	1.5443	0.5833	0.7150	6.1800	3.4800	23.9200	6.2700	0.4975	0.9328	1873.38
01-06-14	4.1600	2.2100	1.5370	0.2100	3.5100	1.3000	7.3200	24.5000	0.9933	0.8450	67.0000	1.4945	0.7111	0.6850	6.3500	3.6000	24.2000	6.5300	0.4675	0.9281	1882.71
01-07-14	4.0200	2.2400	1.4896	0.2000	3.3600	1.5000	7.0000	23.4800	0.9933	0.8825	67.1000	1.5775	0.6667	0.6400	6.2400	3.6300	23.7000	6.4100	0.4500	1.0969	1871.36
01-08-14	3.8200	2.2100	1.5370	0.2100	3.2800	1.5500	7.3800	22.8000	0.8967	0.9575	67.3200	1.5235	0.5833	0.6350	6.3600	3.3600	22.0400	6.6200	0.4375	1.2281	1866.11
01-09-14	3.5300	2.2800	1.5939	0.2100	3.3500	1.3500	7.0300	22.9200	0.9367	0.9700	66.4000	1.4114	0.5167	0.6500	6.6000	3.3500	21.0800	6.6400	0.5100	1.2562	1846.31
01-10-14	3.6600	2.1300	1.5750	0.1400	3.3000	1.3500	6.4900	22.4800	0.9400	0.9775	68.5000	1.2205	0.5056	0.5400	7.2000	3.2600	23.0000	6.8800	0.4650	0.7922	1855.15
01-11-14	3.3000	1.8100	1.4991	0.1400	3.3700	1.1500	5.8300	22.7200	0.9033	0.9500	68.6000	1.1707	0.4444	0.2600	7.0800	3.0500	22.5000	6.8000	0.4650	0.6891	1820.89
01-12-14	2.1800	1.7500	1.5085	0.1000	3.0300	0.8000	5.5600	22.1600	0.8933	0.9250	68.5000	1.2039	0.3611	0.2750	6.8800	2.7500	22.8000	6.7100	0.4450	0.5812	1761.25
01-01-15	2.4400	1.7900	1.6698	0.1200	2.9200	0.8500	5.5000	22.2000	0.9200	0.9825	71.5000	1.1291	0.4028	0.2650	6.9900	2.9500	22.6600	6.9000	0.4925	0.6422	1781.26
01-02-15	2.3200	1.9500	1.5655	0.1400	3.2700	0.8000	5.9500	23.0600	0.8733	1.0000	73.5000	1.1831	0.4861	0.3500	7.1200	3.1400	22.7000	6.9300	0.4700	0.6141	1821.21
01-03-15	2.1700	1.9700	1.5844	0.1800	3.2000	0.9000	6.2200	23.0200	0.9433	1.0650	73.7000	0.9672	0.4583	0.2500	7.2700	2.7900	22.7800	6.9900	0.4450	0.5953	1830.78
01-04-15	2.0700	1.8800	1.5844	0.1500	3.1400	0.9000	5.9000	22.7200	0.9333	1.0650	74.1000	1.0918	0.4722	0.2900	7.4100	2.8000	22.1400	7.0600	0.4425	0.6094	1818.27
01-05-15	1.9700	1.6500	1.5085	0.1400	3.1200	0.7500	5.6700	21.9000	0.9400	1.0575	71.0000	1.0129	0.4500	0.3000	7.2800	2.8500	20.7000	7.0500	0.4175	0.5391	1747.52
01-06-15	1.6300	1.5900	1.4706	0.1400	3.0800	0.7500	5.4700	21.2600	0.9233	1.0550	71.5000	0.9340	0.4417	0.3000	6.5400	2.8300	21.4000	6.9600	0.4300	0.5203	1706.64
01-07-15	1.6800	1.4200	1.4991	0.1500	3.0700	0.7500	5.3800	22.0800	0.9833	1.0750	72.0000	0.8884	0.4389	0.3100	6.5500	2.7500	22.0000	7.0900	0.4700	0.5344	1723.14
01-08-15	1.2200	1.3000	1.4801	0.1300	2.9000	0.5500	5.0000	21.3200	0.7700	1.0500	72.1600	0.6518	0.3333	0.3050	6.4900	2.4800	20.8200	7.0000	0.4400	0.4406	1612.74
01-09-15	1.5000	1.3300	1.5180	0.1600	2.8200	0.5500	4.4600	21.9600	0.8967	1.0500	72.1000	0.6974	0.3333	0.3200	6.6800	2.4400	21.7000	7.0000	0.4350	0.4734	1621.04
01-10-15	1.7800	1.3400	1.4326	0.6200	2.8600	0.5500	4.6100	22.9800	0.9333	1.0675	72.3200	0.7057	0.3583	0.3050	6.6600	2.5500	22.7800	7.0200	0.4800	0.4781	1665.71
01-11-15	1.7700	1.2600	1.4991	0.3100	2.8500	0.5000	4.5000	22.9200	0.9433	1.0650	73.5000	0.5895	0.4333	0.3100	6.5100	2.5400	22.9400	7.0000	0.6200	0.4500	1672.16
01-12-15	1.7100	1.2400	1.4896	0.2050	2.7600	0.5500	4.5400	22.7000	1.0100	1.0550	73.4000	0.5812	0.4167	0.3000	6.7800	2.7400	22.8800	7.0600	0.5750	0.4547	1692.51

01-01-16	1.7200	1.0400	1.4801	0.2000	2.7900	0.4500	4.1500	22.8800	1.0133	1.0825	74.0000	0.4691	0.3889	0.3000	6.5000	2.8500	23.9000	7.0100	0.4700	0.4266	1667.80
01-02-16	1.5300	0.9950	1.4896	0.1500	2.7300	0.4500	4.5200	22.0400	1.0233	1.0900	74.2000	0.5355	0.3806	0.3050	6.6000	2.8500	23.8000	7.0000	0.4450	0.4078	1654.75
01-03-16	1.5100	1.0200	1.5560	0.1300	2.9900	0.5500	4.8500	22.0000	1.1967	1.0675	76.9000	0.5231	0.3722	0.3000	6.6000	2.7900	24.0000	7.1600	0.4250	0.4406	1717.58
01-04-16	1.4500	0.9700	1.4801	0.1250	2.7700	0.4500	4.6700	21.9800	1.1300	1.0575	74.9800	0.5438	0.5111	0.2700	6.6500	2.7300	23.9200	7.2100	0.4250	0.4266	1672.72
01-05-16	1.3700	0.8000	1.5465	0.1500	2.7600	0.5000	4.3900	21.6400	1.1067	1.0700	76.0000	0.4234	0.4389	0.2800	6.7300	2.5500	23.0400	7.3500	0.3975	0.4125	1626.00
01-06-16	1.5100	0.9100	1.5844	0.1400	2.9300	0.4500	4.3600	22.0000	1.0933	1.0575	76.5200	0.4483	0.5000	0.2600	6.7700	2.6400	23.2600	7.4800	0.3700	0.3937	1654.08
01-07-16	1.8500	0.9050	1.5844	0.1400	2.9200	0.4500	4.3900	22.1800	1.1000	1.0700	79.0000	0.4110	0.4556	0.2650	6.8300	2.3800	23.1200	7.5000	0.5500	0.4125	1653.26
01-08-16	2.2700	1.3100	1.5939	0.1450	2.9500	0.3500	4.7700	22.2000	1.0700	1.0625	79.0000	0.4193	0.4778	0.2800	7.5000	2.3700	23.5800	7.6700	0.5000	0.3937	1678.06
01-09-16	2.3400	1.4500	1.6983	0.1350	2.7300	0.4000	4.7100	21.8400	1.0933	1.0575	78.8600	0.4131	0.4972	0.2300	6.7800	2.3300	23.9800	7.7200	0.5000	0.3937	1652.55
01-10-16	2.0100	1.2700	1.5085	0.1300	2.8500	0.6500	5.0300	22.0000	1.1000	1.0500	78.3800	0.3570	0.4722	0.2300	6.5400	2.3800	23.9600	8.0000	0.5000	0.3844	1672.46
01-11-16	1.5400	0.9650	1.3662	0.1000	2.6100	0.5000	4.5700	20.9800	1.1267	1.0500	75.9800	0.3196	0.4222	0.2150	6.1700	2.3000	23.8800	7.6200	0.4925	0.3750	1619.12
01-12-16	1.5500	1.1500	1.4706	0.1000	2.6000	0.4500	4.5100	21.3000	1.1500	1.0450	78.2000	0.4068	0.4444	0.2000	5.9500	2.3800	24.0000	8.3000	0.4775	0.3797	1641.73
01-01-17	1.8500	1.1700	1.4421	0.1000	2.7200	0.6500	4.9700	20.8800	1.1433	1.0500	76.0000	0.4442	0.4250	0.2050	5.9500	2.6700	24.1000	7.9900	0.4650	0.3937	1671.54
01-02-17	1.8800	1.4200	1.4706	0.1050	2.8500	0.6000	4.9700	20.0200	1.2200	1.0250	75.7000	0.4193	0.4361	0.2250	6.1600	2.6400	24.1400	7.8000	0.4425	0.3656	1693.77
01-03-17	2.0900	1.4000	1.4137	0.1000	2.7400	0.8000	5.5700	19.7600	1.2467	1.0125	79.3800	0.4131	0.4472	0.2500	6.4200	2.7200	24.6800	7.9300	0.4100	0.3984	1740.09
01-04-17	2.1300	1.4400	1.3947	0.1250	2.7000	1.1000	5.7400	18.4800	1.2333	1.0500	82.0000	0.5106	0.4917	0.2750	6.4600	2.6900	24.5200	7.8300	0.4325	0.3891	1768.06
01-05-17	1.7500	1.5700	1.4232	0.1250	2.5400	0.9500	6.4000	18.5600	1.2733	1.0425	82.0000	0.4566	0.5361	0.3400	6.4800	2.8200	24.7600	7.8100	0.3850	0.3797	1765.87
01-06-17	1.7100	1.7800	1.3852	0.1050	2.5300	1.0000	6.5800	18.5400	1.2967	1.0550	85.0000	0.4276	0.5167	0.3600	6.6500	2.8400	24.8800	7.9900	0.3775	0.3797	1763.67
01-07-17	1.6300	1.6900	1.3283	0.1100	2.5800	0.8000	6.5500	18.7400	1.3333	1.0400	83.9200	0.4234	0.4778	0.3550	6.3600	2.9300	24.8000	7.8100	0.3950	0.3797	1760.03
01-08-17	1.5500	1.5800	1.3567	0.1050	2.6800	0.7500	7.0800	18.4000	1.3033	1.0400	84.0000	0.3819	0.4806	0.3200	6.4300	2.8600	24.5400	7.8000	0.3150	0.3609	1773.16
01-09-17	1.6900	1.6300	1.2903	0.1050	2.8200	0.6000	6.3000	17.9000	1.3633	1.0400	84.8000	0.4110	0.5056	0.3900	6.5000	2.6100	24.5600	8.0000	0.3225	0.3609	1755.58
01-10-17	1.9100	1.7000	1.2290	0.1100	2.8100	0.7500	6.1400	18.0400	1.5433	1.0200	88.5000	0.3591	0.5028	0.3950	6.3500	2.8100	24.6000	8.0000	0.3150	0.3797	1747.92
01-11-17	1.8200	1.7100	1.1323	0.1050	2.8400	0.6000	6.0500	15.8800	1.3967	0.9700	97.3000	0.5852	0.4806	0.3250	6.0300	2.7500	24.3800	8.0000	0.3000	0.3750	1717.86
01-12-17	1.6900	1.8300	1.3258	0.1000	2.6500	0.5000	6.5400	17.4800	1.4200	0.9700	103.2000	0.6471	0.4861	0.3200	6.3000	2.7300	25.0000	8.6400	0.3250	0.3797	1796.81
01-01-18	2.0100	2.6000	1.4806	0.1100	2.6000	0.5500	7.2500	17.9000	1.3933	0.9700	113.3000	0.7708	0.4700	0.3200	6.1500	2.7200	25.2200	7.7500	0.3875	0.4078	1868.58
01-02-18	1.9400	2.6200	1.3839	0.1050	2.4200	0.5000	7.1900	17.6200	1.3933	0.9850	128.1000	0.7470	0.4700	0.3000	5.9000	2.6000	25.0400	7.7800	0.4875	0.3891	1856.20
01-03-18	1.7000	2.4400	1.3065	0.0850	2.0000	0.5000	7.1900	17.8400	1.4400	0.8900	154.5000	0.7708	0.4450	0.3250	5.2200	2.5600	25.5800	7.1700	0.5100	0.3703	1863.46
01-04-18	1.7100	2.1700	1.4032	0.0750	1.9100	0.5000	7.2000	17.8200	1.3000	0.9250	138.0000	0.7422	0.4350	0.3500	5.3000	2.4000	25.4800	7.7800	0.5850	0.3656	1870.37
01-05-18	1.5700	1.7400	0.9000	0.0700	1.3600	0.4500	5.9000	17.1200	1.3000	0.9400	146.8000	0.5947	0.4100	0.3250	3.6300	2.4000	24.9200	7.8000	0.5750	0.3656	1740.62
01-06-18	1.5100	1.9600	1.0935	0.0700	1.5900	0.4000	5.4500	17.3000	1.3100	1.0200	147.5000	0.6185	0.4400	0.3050	3.1100	2.5000	24.1600	8.0000	0.5800	0.3703	1691.50
01-07-18	1.7300	2.2200	1.3065	0.0750	1.8300	0.4000	5.8400	18.7400	1.3900	1.0500	147.6000	0.6756	0.4600	0.3050	3.9700	2.5600	24.7600	7.7000	0.6500	0.3656	1784.25
01-08-18	1.5100	2.2700	1.2871	0.0700	1.7400	0.4000	6.0900	18.7000	1.3500	1.1000	147.0000	0.7137	0.4250	0.3000	3.3100	2.5800	24.6600	7.7200	0.5850	0.3750	1819.66
01-09-18	1.5500	2.1700	1.2097	0.0650	1.4700	0.5000	6.0100	18.9000	1.3200	1.0800	146.4000	0.7232	0.4050	0.3000	3.2200	2.4200	24.9600	7.6000	0.5750	0.3703	1793.15
01-10-18	1.4000	1.8800	1.0258	0.0600	1.3500	0.4000	5.7200	18.2800	1.2300	1.0400	143.8000	0.5091	0.4100	0.2400	2.3800	2.2800	24.9200	7.6500	0.5050	0.3656	1709.27
01-11-18	0.8850	1.8500	1.0839	0.0550	1.2000	0.3500	5.7600	18.9400	1.1800	1.0500	149.4000	0.5186	0.4000	0.2400	2.3300	2.3100	24.5000	7.6800	0.4850	0.3750	1679.86
01-12-18	0.7150	1.7000	0.9774	0.0550	1.3000	0.3500	5.7100	19.2000	1.1800	1.0400	147.4000	0.5138	0.3700	0.2400	2.6600	2.3000	24.7200	7.6600	0.4000	0.3750	1690.58

01-01-19	1.0000	1.6200	1.0645	0.0550	1.6800	0.5000	5.6200	18.0800	1.2500	1.0800	148.5000	0.5662	0.3550	0.2400	2.9100	2.4300	24.6800	7.8000	0.4800	0.4125	1683.53
01-02-19	1.1200	1.8500	1.0258	0.0550	1.6400	0.5500	5.8500	18.0800	1.2700	1.0100	148.0000	0.9515	0.3900	0.2400	3.0500	2.7700	24.7400	7.8400	0.5300	0.4641	1707.73
01-03-19	1.1800	1.9000	1.0258	0.0500	1.5300	0.6000	5.1500	17.6200	1.1800	0.9800	146.8000	1.3226	0.3900	0.2400	3.2000	2.6700	24.8000	7.7600	0.6900	0.4547	1643.63
01-04-19	1.2500	2.1800	1.0935	0.0500	1.4500	0.4500	5.2700	17.6800	1.2100	0.9800	146.1000	1.3417	0.3750	0.3000	2.9100	2.7000	24.7400	7.6900	0.6550	0.4312	1642.29
01-05-19	1.1400	2.0800	1.1032	0.0500	1.3900	0.4000	5.2700	17.6600	1.1700	0.9300	147.0000	0.9278	0.3250	0.2300	3.6100	2.7200	24.8000	7.7100	0.6200	0.3937	1650.76
01-06-19	1.1200	2.2000	1.0839	0.0400	1.4500	0.4000	5.3800	17.3600	1.1400	0.9350	149.1000	1.1228	0.3300	0.2500	4.0000	2.8000	24.5600	7.7700	0.6600	0.3937	1672.13
01-07-19	1.1300	2.6500	0.9968	0.0500	1.4500	0.3000	5.0800	16.0800	1.1700	0.9350	148.6000	1.3702	0.3300	0.2500	4.0900	2.5600	23.6200	7.8400	0.5900	0.3844	1634.87
01-08-19	0.9550	2.5200	0.9677	0.0500	1.3200	0.2500	5.0600	16.0800	1.1200	0.9100	147.5000	1.3226	0.3350	0.2600	3.7500	2.7500	23.9800	8.1600	0.5800	0.3750	1612.14
01-09-19	0.8900	2.3700	0.8903	0.0500	1.4600	0.3000	5.0300	16.3800	1.1800	0.8850	145.7000	1.5986	0.3300	0.2400	3.6000	2.6600	23.0800	8.0700	0.5100	0.3562	1583.91
01-10-19	1.1000	2.5300	0.8419	0.0500	1.3500	0.2500	5.2500	16.6400	1.1600	0.9200	144.7000	1.8555	0.3100	0.2700	3.7600	2.7000	21.6600	7.9900	0.5200	0.3562	1597.98
01-11-19	1.3300	2.3100	0.8081	0.0400	1.4000	0.2500	5.1800	15.5000	1.3100	0.9050	143.3000	2.0400	0.3450	0.2600	3.7600	2.7700	23.3400	8.0000	0.4850	0.3422	1561.74
01-12-19	1.5200	2.3800	0.9484	0.0400	1.2700	0.2000	5.1500	16.6200	1.6000	0.9450	147.0000	2.5100	0.3200	0.2900	3.8200	2.7300	24.8000	7.9000	0.5000	0.3469	1588.76
01-01-20	1.2100	2.2700	0.8661	0.0350	1.2000	0.2500	4.9300	16.0000	1.2600	0.9800	144.3000	2.7700	0.3300	0.2750	3.8600	2.7500	22.8000	7.8300	0.5550	0.3328	1531.06
01-02-20	1.1400	2.2200	0.8177	0.0450	1.1900	0.1000	4.8200	16.6200	1.2000	0.9700	143.0000	2.3300	0.3100	0.2350	3.7000	2.7000	21.8400	8.1400	0.4550	0.3047	1482.64
01-03-20	0.8550	1.3200	0.7016	0.0200	0.8500	0.0700	3.6000	15.4000	0.9500	0.9300	136.7000	1.1500	0.2400	0.1800	3.7500	1.8600	20.7600	7.7900	0.2850	0.2250	1350.89
01-04-20	0.8500	1.4100	0.7403	0.0300	0.9450	0.0700	3.4500	15.4000	1.0800	0.8950	140.1000	1.2600	0.2450	0.2050	4.0300	2.2200	21.0000	7.8400	0.3950	0.2300	1407.78
01-05-20	1.0200	1.6500	1.0065	0.0800	0.9900	0.0750	3.7700	19.0000	1.1600	0.8950	139.0000	1.2800	0.2700	0.2250	4.2300	2.2700	22.0400	7.7100	0.4000	0.2250	1473.25
01-06-20	0.9950	1.7100	0.8032	0.0600	0.8300	0.1000	3.5600	16.8800	1.1300	0.8400	139.9000	1.2600	0.3550	0.1700	4.1500	2.2000	22.2000	7.9600	0.3850	0.2250	1500.97
01-07-20	1.2000	1.9000	0.7548	0.2600	0.7950	0.0850	3.5900	16.8000	1.3900	0.7850	142.0000	1.1500	0.4550	0.2000	4.0000	2.1600	23.4000	7.8000	0.4850	0.2200	1603.75
01-08-20	1.2300	2.0400	0.6484	0.2600	0.7700	0.0950	3.3000	16.5000	1.3800	0.8250	139.2000	1.1800	0.4950	0.3100	4.1500	2.0900	22.6600	7.8000	0.5250	0.2600	1525.21
01-09-20	1.1500	2.0900	0.6532	0.1300	0.7700	0.0800	3.0800	16.4200	1.3800	0.8500	141.4000	0.9800	0.5250	0.3150	4.1300	2.3500	22.8000	7.7200	0.5000	0.2250	1504.82
01-10-20	1.0600	1.9000	0.7250	0.1000	0.7300	0.0700	2.9500	15.7400	1.3400	0.8500	139.4000	0.7500	0.6050	0.5050	4.1900	2.3000	21.2200	7.6000	0.4700	0.2150	1466.89
01-11-20	1.2100	1.9900	0.6450	0.1050	0.7750	0.0800	3.6300	18.1600	1.5900	0.9550	134.0000	1.1600	0.6000	0.4750	5.0400	2.1500	23.5000	7.6800	0.4700	0.2250	1562.71
01-12-20	1.2800	2.0800	0.7650	0.1100	0.9050	0.0800	4.3000	17.1800	1.6000	1.0000	138.9000	1.1800	0.5550	0.4650	5.4100	2.1900	23.6800	7.0800	0.5300	0.2550	1627.21
01-01-21	1.3100	1.7700	0.6450	0.0850	0.8500	0.0750	3.8400	16.0400	1.3600	0.9200	137.0000	1.0400	0.5350	0.2500	6.3500	2.0900	23.2400	7.0500	0.5500	0.2200	1566.40
01-02-21	1.3300	1.8200	0.6600	0.0900	0.9500	0.0650	4.3300	16.4000	1.4500	1.0000	137.9000	1.5100	0.5000	0.2400	6.1400	2.1600	23.5000	6.8800	0.4700	0.2200	1577.75
01-03-21	1.3500	1.9200	0.6750	0.0650	0.9600	0.0800	4.3400	16.0000	1.4400	1.0300	135.0000	1.4600	0.4800	0.2350	6.1300	2.2900	22.9400	6.9800	0.4900	0.2300	1573.51
01-04-21	1.3800	1.9100	0.7150	0.0600	0.9900	0.0700	4.1400	15.7400	1.4500	1.0200	135.7000	1.4100	0.4900	0.3150	5.7100	2.2600	22.0000	6.9400	0.4950	0.2350	1601.65
01-05-21	1.3400	1.8100	0.6700	0.0450	1.0600	0.0600	4.2800	16.2000	1.4600	1.0000	136.5000	1.3200	0.4800	0.2750	6.1500	2.1400	22.2000	6.7800	0.4600	0.3150	1583.55
01-06-21	1.3100	1.6300	0.6550	0.0400	1.1500	0.0600	4.6100	15.5000	1.4000	1.0100	133.3000	1.3100	0.4200	0.2600	6.0700	2.1800	20.3600	6.6700	0.4000	0.2950	1532.63
01-07-21	1.3200	1.6700	0.6250	0.0400	1.0500	0.0450	4.4500	15.2400	1.4700	1.0800	133.0000	1.0700	0.4600	0.2700	5.9400	2.2400	18.5200	6.6800	0.4200	0.3450	1494.60
01-08-21	1.4900	1.6700	0.6750	0.0400	1.0800	0.0750	4.9100	16.8000	1.5100	1.0000	134.7000	1.1100	0.4500	0.2600	6.1100	2.2300	21.3600	6.8500	0.4900	0.3300	1601.38
01-09-21	1.3600	1.6400	0.6100	0.0350	1.0300	0.0900	4.7800	16.8200	1.5600	1.1600	133.1000	0.9600	0.5300	0.2250	5.7000	2.3200	20.1200	6.4900	0.5100	0.3900	1537.80
01-10-21	1.5000	1.6500	0.6300	0.0400	0.9950	0.0750	5.2200	16.7400	1.6100	1.1400	134.5000	0.9850	0.6300	0.2250	5.7900	2.3600	21.6200	6.8100	0.5200	0.4200	1562.31
01-11-21	1.4800	1.5400	0.5900	0.0300	0.9600	0.0800	5.1800	16.8200	1.5400	1.0300	133.6000	0.7900	0.6200	0.1750	5.5600	2.3700	21.0400	6.4900	0.4550	0.3750	1513.98
01-12-21	1.4800	1.4300	0.5800	0.0300	0.9500	0.0750	5.4500	18.0000	1.6600	1.1100	134.2000	0.8050	0.5400	0.1800	5.5000	2.4100	21.7800	6.5500	0.4400	0.3150	1567.53

01-01-22	1.5300	1.4600	0.5550	0.0300	0.9600	0.0450	5.2000	16.9800	1.7000	1.0400	132.0000	0.9100	0.4700	0.1700	5.0600	2.3800	21.6000	6.4000	0.4000	0.3050	1512.27
01-02-22	2.0400	1.4800	0.5550	0.0200	0.9900	0.0450	5.7100	17.4000	2.1000	1.0400	134.0000	0.8600	0.6100	0.2600	5.0600	2.6100	26.0000	6.5500	0.3950	0.2550	1608.28
01-03-22	1.9800	1.4700	0.5900	0.0200	1.1000	0.0400	5.3300	16.6600	1.9300	1.0100	133.6000	0.9000	0.6500	0.2150	4.8900	2.7400	25.2000	6.5600	0.4150	0.1400	1587.36
01-04-22	2.0300	1.3900	0.6350	0.0150	1.0000	0.0350	5.2000	16.9800	2.0900	0.9500	133.2000	0.8700	0.5850	0.2400	4.9900	2.5800	29.4600	6.6500	0.4400	0.1400	1600.43
01-05-22	1.7100	1.2200	0.6400	0.0150	0.9800	0.0350	5.1500	17.2800	1.9100	0.8700	134.8000	0.9800	0.5100	0.2250	5.3600	1.8000	25.5600	6.8500	0.3650	0.0750	1570.10
01-06-22	1.4600	1.2000	0.5850	0.0150	0.9050	0.0200	4.9600	16.4400	1.6600	0.8350	132.6000	0.9700	0.5450	0.2000	5.2500	1.7100	21.9400	6.8000	0.3150	0.0650	1444.22
01-07-22	1.5000	1.2600	0.5700	0.0200	0.8950	0.0200	5.2100	17.1400	1.6700	0.8700	134.7000	0.9950	0.5600	0.2000	5.6800	1.7000	21.9200	7.0300	0.3400	0.0750	1492.23
01-08-22	1.5200	1.4400	0.5900	0.0200	0.8350	0.0200	5.3700	17.3400	1.6900	0.8750	133.0000	1.0900	0.5700	0.1800	5.9700	1.7800	23.1400	6.9300	0.3400	0.0650	1512.05
01-09-22	1.4100	1.3100	0.5800	0.0200	0.7650	0.0200	5.1300	16.5000	1.6800	0.7900	130.5000	1.1100	0.5200	0.1950	5.4700	1.5500	20.7000	6.5900	0.3050	0.0750	1394.63
01-10-22	1.3200	1.3400	0.5650	0.0200	0.6750	0.0250	5.5200	17.1000	1.6800	0.8200	133.0000	1.2400	0.4800	0.1850	5.5600	1.6300	21.6800	6.6300	0.3000	0.0750	1460.38
01-11-22	1.3500	1.5000	0.5750	0.0200	0.7350	0.0200	5.8000	16.8000	1.7700	0.9400	138.9000	1.4000	0.4600	0.2100	5.6000	1.6800	20.9000	6.6400	0.3000	0.0850	1488.80
01-12-22	1.3200	1.6000	0.5800	0.0150	0.6500	0.0900	5.8000	17.1200	1.8600	1.0100	140.0000	1.3100	0.4750	0.1850	5.4000	1.7200	22.3600	6.7100	0.3050	0.0850	1495.49
01-01-23	1.3400	1.7600	0.5650	0.0250	0.6150	0.1150	5.7500	16.8200	1.7900	1.0300	135.2000	1.4700	0.5000	0.1950	5.2200	1.8500	21.4200	7.0500	0.3100	0.1000	1485.50
01-02-23	1.4700	1.4200	0.5650	0.0150	0.6000	0.0950	5.6100	16.6600	1.8200	1.0500	135.1000	1.4100	0.4600	0.1750	5.0300	1.8000	20.8000	6.7200	0.2850	0.1100	1454.19
01-03-23	1.4800	1.3800	0.6150	0.0200	0.6950	0.0950	5.3100	16.4800	1.8400	1.1300	137.1000	1.3400	0.6050	0.1650	4.9000	1.8900	20.7800	6.8500	0.3050	0.0800	1422.59
01-04-23	1.5000	1.4100	0.6600	0.0200	0.6950	0.1000	5.0600	16.9000	1.8400	1.1200	135.5000	1.3200	0.9900	0.1750	4.9600	1.8200	21.5000	7.0300	0.4000	0.0450	1415.95
01-05-23	1.4400	1.4200	0.6550	0.0200	0.6750	0.1000	5.1300	16.9000	1.8400	1.1100	134.6000	1.2600	0.9750	0.1700	4.9400	1.7700	21.5000	6.9300	0.2350	0.0500	1432.63

- Calculate the monthly return for all portfolio and KLCI market.

	MONTHLY RETURN																				KLCI
DATE	FGV	DRB-HICOM	YTL CORP	XOX	ASTRO	IMPIANA	CIMB	PETRONAS	KIM LOONG	KPJ	NESTLE	DAYANG	MENANG	ACME	TM	FAVCO	KLK	KLCC	BAHVEST	FITTERS	RM
01-01-13	-0.0197	0.0000	0.0000	0.0741	-0.0287	-0.1538	-0.0014	-0.0129	-0.0091	0.0210	0.0253	0.0079	-0.0142	-0.0755	-0.0414	-0.0309	-0.0442	0.0397	-0.1304	-0.0340	0.00619
01-02-13	0.0245	-0.0156	-0.0121	0.0000	0.0406	0.0000	0.0597	0.0371	0.0229	0.0190	0.0134	0.0981	0.0288	-0.0204	0.0132	0.1146	0.0087	0.0061	0.0625	0.0176	0.02076
01-03-13	0.0043	-0.0079	0.0061	-0.0690	0.0461	0.0000	0.0144	0.0379	0.0044	0.0218	0.0185	0.2572	-0.1530	-0.0625	0.0241	0.1886	0.0306	0.1018	-0.0294	0.0086	0.02753
01-04-13	-0.0455	0.1514	0.0305	0.1481	0.0949	0.1818	0.0698	0.0771	0.0223	0.0709	0.0599	0.4573	0.1151	0.4667	-0.0054	0.2019	-0.0176	-0.0621	0.2061	0.4189	0.03002
01-05-13	0.0249	-0.0692	-0.0177	-0.0968	-0.0619	-0.1923	0.0000	-0.0160	0.0434	0.0538	0.0229	-0.0448	0.0293	-0.2121	-0.0164	0.1400	0.0255	0.0000	0.2864	-0.0849	0.00244
01-06-13	-0.0265	-0.0558	0.0060	-0.0357	-0.0099	0.0952	-0.0495	-0.0029	0.0083	-0.0365	0.0099	-0.0245	0.0143	-0.0385	-0.0241	0.1579	-0.0239	-0.0353	-0.0156	-0.0272	-0.00052
01-07-13	-0.0068	0.0197	-0.0719	-0.1852	-0.0133	-0.0435	-0.0750	-0.0336	-0.0455	-0.0258	-0.0018	-0.0669	0.0141	0.0000	0.0266	-0.1273	0.0151	0.0000	0.0476	-0.0420	-0.02541
01-08-13	-0.0389	0.0270	-0.0065	0.0909	-0.0135	0.0000	0.0330	0.0924	0.0173	-0.0435	0.0068	0.0650	0.3333	0.2000	-0.0314	-0.0694	0.0502	-0.0198	0.1061	0.0219	0.02376
01-09-13	0.0690	-0.0451	0.0714	0.0833	-0.0068	0.0455	-0.0066	0.1145	0.0298	-0.0081	0.0000	0.1537	0.4063	-0.1000	0.0000	0.1082	0.0221	0.0031	-0.0959	0.0571	0.02162
01-10-13	-0.0067	0.0197	-0.0182	0.3077	0.0069	0.3913	0.0147	-0.0269	0.0702	0.0000	0.0074	-0.0201	-0.0296	0.5926	-0.0191	0.0269	0.0649	-0.0853	-0.0985	0.0135	0.00325
01-11-13	0.0067	0.0888	0.0062	-0.2941	0.0342	0.1563	0.0053	0.0134	-0.0193	-0.0128	-0.0073	0.0782	-0.0229	0.3372	0.0798	0.0328	0.0122	-0.0085	0.0672	0.0267	0.02992
01-12-13	-0.0290	-0.0426	-0.0675	0.0417	-0.0265	-0.2162	-0.0919	-0.0331	0.0157	-0.1340	-0.0065	-0.0337	-0.0156	0.0783	-0.0072	0.0222	-0.0594	-0.0085	-0.0079	0.0260	-0.03371
01-01-14	0.0550	-0.0556	0.0395	0.1600	0.0748	0.0345	0.0347	0.0094	0.0310	0.0030	-0.0112	-0.0509	0.4048	0.2500	0.0290	0.0776	0.0239	0.0603	-0.0794	0.0949	0.01753
01-02-14	0.0109	-0.0314	-0.0316	-0.1724	0.0127	0.0333	-0.0014	0.0085	0.0526	-0.1128	-0.0018	0.0593	-0.0282	0.0129	0.0441	0.0980	0.0092	0.0325	-0.0517	0.1098	0.00738
01-03-14	-0.0280	0.0121	0.0523	0.0000	0.0406	0.0000	0.0503	-0.0126	0.0036	0.0836	0.0273	-0.0107	0.1163	-0.0446	0.0473	-0.1024	0.0000	0.0488	0.0000	0.0625	0.01206
01-04-14	-0.0619	-0.0160	0.0124	-0.0833	0.0210	0.0323	-0.0226	0.0426	0.0996	0.0185	-0.0181	0.0027	0.0938	-0.0467	-0.0032	0.0175	-0.0116	-0.0586	-0.0955	-0.0245	0.00099
01-05-14	-0.0189	-0.1016	-0.0061	-0.0455	0.0324	-0.1875	-0.0027	0.0000	-0.0356	0.0242	-0.0039	-0.0323	0.2190	-0.0420	0.0275	0.0345	0.0117	0.0415	-0.0603	-0.0050	0.00498
01-06-14	-0.0337	0.0136	-0.0309	-0.0476	-0.0427	0.1538	-0.0437	-0.0416	0.0000	0.0444	0.0015	0.0556	-0.0625	-0.0657	-0.0173	0.0083	-0.0207	-0.0184	-0.0374	0.1818	-0.00603
01-07-14	-0.0498	-0.0134	0.0318	0.0500	-0.0238	0.0333	0.0543	-0.0290	-0.0973	0.0850	0.0033	-0.0342	-0.1250	-0.0078	0.0192	-0.0744	-0.0700	0.0328	-0.0278	0.1197	-0.00281
01-08-14	-0.0759	0.0317	0.0370	0.0000	0.0213	-0.1290	-0.0474	0.0053	0.0446	0.0131	-0.0137	-0.0736	-0.1143	0.0236	0.0377	-0.0030	-0.0436	0.0030	0.1657	0.0229	-0.01061
01-09-14	0.0368	-0.0658	-0.0119	-0.3333	-0.0149	0.0000	-0.0768	-0.0192	0.0036	0.0077	0.0316	-0.1353	-0.0215	-0.1692	0.0909	-0.0269	0.0911	0.0361	-0.0882	-0.3694	0.00479
01-10-14	-0.0984	-0.1502	-0.0482	0.0000	0.0212	-0.1481	-0.1017	0.0107	-0.0390	-0.0281	0.0015	-0.0408	-0.1209	-0.5185	-0.0167	-0.0644	-0.0217	-0.0116	0.0000	-0.1302	-0.01847
01-11-14	-0.3394	-0.0331	0.0063	-0.2857	-0.1009	-0.3043	-0.0463	-0.0246	-0.0111	-0.0263	-0.0015	0.0284	-0.1875	0.0577	-0.0282	-0.0984	0.0133	-0.0132	-0.0430	-0.1565	-0.03275
01-12-14	0.1193	0.0229	0.1069	0.2000	-0.0363	0.0625	-0.0108	0.0018	0.0299	0.0622	0.0438	-0.0621	0.1154	-0.0364	0.0160	0.0727	-0.0061	0.0283	0.1067	0.1048	0.01136
01-01-15	-0.0492	0.0894	-0.0625	0.1667	0.1199	-0.0588	0.0818	0.0387	-0.0507	0.0178	0.0280	0.0478	0.2069	0.3208	0.0186	0.0644	0.0018	0.0043	-0.0457	-0.0438	0.02243
01-02-15	-0.0647	0.0103	0.0121	0.2857	-0.0214	0.1250	0.0454	-0.0017	0.0802	0.0650	0.0027	-0.1825	-0.0571	-0.2857	0.0211	-0.1115	0.0035	0.0087	-0.0532	-0.0305	0.00525
01-03-15	-0.0461	-0.0457	0.0000	-0.1667	-0.0188	0.0000	-0.0514	-0.0130	-0.0106	0.0000	0.0054	0.1288	0.0303	0.1600	0.0193	0.0036	-0.0281	0.0100	-0.0056	0.0236	-0.00683
01-04-15	-0.0483	-0.1223	-0.0479	-0.0667	-0.0064	-0.1667	-0.0390	-0.0361	0.0071	-0.0070	-0.0418	-0.0722	-0.0471	0.0345	-0.0175	0.0179	-0.0650	-0.0014	-0.0565	-0.1154	-0.03891
01-05-15	-0.1726	-0.0364	-0.0252	0.0000	-0.0128	0.0000	-0.0353	-0.0292	-0.0177	-0.0024	0.0070	-0.0779	-0.0185	0.0000	-0.1016	-0.0070	0.0338	-0.0128	0.0299	-0.0348	-0.02339
01-06-15	0.0307	-0.1069	0.0194	0.0714	-0.0032	0.0000	-0.0165	0.0386	0.0650	0.0190	0.0070	-0.0489	-0.0063	0.0333	0.0015	-0.0283	0.0280	0.0187	0.0930	0.0270	0.00967
01-07-15	-0.2738	-0.0845	-0.0127	-0.1333	-0.0554	-0.2667	-0.0706	-0.0344	-0.2169	-0.0233	0.0022	-0.2664	-0.2405	-0.0161	-0.0092	-0.0982	-0.0536	-0.0127	-0.0638	-0.1754	-0.06407
01-08-15	0.2295	0.0231	0.0256	0.2308	-0.0276	0.0000	-0.1080	0.0300	0.1645	0.0000	-0.0008	0.0701	0.0000	0.0492	0.0293	-0.0161	0.0423	0.0000	-0.0114	0.0745	0.00515
01-09-15	0.1867	0.0075	-0.0562	2.8750	0.0142	0.0000	0.0336	0.0464	0.0409	0.0167	0.0031	0.0119	0.0750	-0.0469	-0.0030	0.0451	0.0498	0.0029	0.1034	0.0099	0.02756
01-10-15	-0.0056	-0.0597	0.0464	-0.5000	-0.0035	-0.0909	-0.0239	-0.0026	0.0107	-0.0023	0.0163	-0.1647	0.2093	0.0164	-0.0225	-0.0039	0.0070	-0.0028	0.2917	-0.0588	0.00387
01-11-15	-0.0339	-0.0159	-0.0063	-0.3387	-0.0316	0.1000	0.0089	-0.0096	0.0707	-0.0094	-0.0014	-0.0141	-0.0385	-0.0323	0.0415	0.0787	-0.0026	0.0086	-0.0726	0.0104	0.01217
01-12-15	0.0058	-0.1613	-0.0064	-0.0244	0.0109	-0.1818	-0.0859	0.0079	0.0033	0.0261	0.0082	-0.1929	-0.0667	0.0000	-0.0413	0.0401	0.0446	-0.0071	-0.1826	-0.0619	-0.01460

01-01-16	-0.1105	-0.0433	0.0064	-0.2500	-0.0215	0.0000	0.0892	-0.0367	0.0099	0.0069	0.0027	0.1416	-0.0214	0.0167	0.0154	0.0000	-0.0042	-0.0014	-0.0532	-0.0440	-0.00782
01-02-16	-0.0131	0.0251	0.0446	-0.1333	0.0952	0.2222	0.0730	-0.0018	0.1694	-0.0206	0.0364	-0.0233	-0.0219	-0.0164	0.0000	-0.0211	0.0084	0.0229	-0.0449	0.0805	0.03797
01-03-16	-0.0397	-0.0490	-0.0488	-0.0385	-0.0736	-0.1818	-0.0371	-0.0009	-0.0557	-0.0094	-0.0250	0.0397	0.3731	-0.1000	0.0076	-0.0215	-0.0033	0.0070	0.0000	-0.0319	-0.02612
01-04-16	-0.0552	-0.1753	0.0449	0.2000	-0.0036	0.1111	-0.0600	-0.0155	-0.0206	0.0118	0.0136	-0.2214	-0.1413	0.0370	0.0120	-0.0659	-0.0368	0.0194	-0.0647	-0.0330	-0.02793
01-05-16	0.1022	0.1375	0.0245	-0.0667	0.0616	-0.1000	-0.0068	0.0166	-0.0120	-0.0117	0.0068	0.0588	0.1392	-0.0714	0.0059	0.0353	0.0095	0.0177	-0.0692	-0.0455	0.01727
01-06-16	0.2252	-0.0055	0.0000	0.0000	-0.0034	0.0000	0.0069	0.0082	0.0061	0.0118	0.0324	-0.0833	-0.0889	0.0192	0.0089	-0.0985	-0.0060	0.0027	0.4865	0.0476	-0.00050
01-07-16	0.2270	0.4475	0.0060	0.0357	0.0103	-0.2222	0.0866	0.0009	-0.0273	-0.0070	0.0000	0.0202	0.0488	0.0566	0.0981	-0.0042	0.0199	0.0227	-0.0909	-0.0455	0.01500
01-08-16	0.0308	0.1069	0.0655	-0.0690	-0.0746	0.1429	-0.0126	-0.0162	0.0218	-0.0047	-0.0018	-0.0149	0.0407	-0.1786	-0.0960	-0.0169	0.0170	0.0065	0.0000	0.0000	-0.01520
01-09-16	-0.1410	-0.1241	-0.1117	-0.0370	0.0440	0.6250	0.0679	0.0073	0.0061	-0.0071	-0.0061	-0.1357	-0.0503	0.0000	-0.0354	0.0215	-0.0008	0.0363	0.0000	-0.0238	0.01205
01-10-16	-0.2338	-0.2402	-0.0943	-0.2308	-0.0842	-0.2308	-0.0915	-0.0464	0.0242	0.0000	-0.0306	-0.1047	-0.1059	-0.0652	-0.0566	-0.0336	-0.0033	-0.0475	-0.0150	-0.0244	-0.03189
01-11-16	0.0065	0.1917	0.0764	0.0000	-0.0038	-0.1000	-0.0131	0.0153	0.0207	-0.0048	0.0292	0.2727	0.0526	-0.0698	-0.0357	0.0348	0.0050	0.0892	-0.0305	0.0125	0.01396
01-12-16	0.1935	0.0174	-0.0194	0.0000	0.0462	0.4444	0.1020	-0.0197	-0.0058	0.0048	-0.0281	0.0918	-0.0437	0.0250	0.0000	0.1218	0.0042	-0.0373	-0.0262	0.0370	0.01816
01-01-17	0.0162	0.2137	0.0197	0.0500	0.0478	-0.0769	0.0000	-0.0412	0.0671	-0.0238	-0.0039	-0.0561	0.0261	0.0976	0.0353	-0.0112	0.0017	-0.0238	-0.0484	-0.0714	0.01330
01-02-17	0.1117	-0.0141	-0.0387	-0.0476	-0.0386	0.3333	0.1207	-0.0130	0.0219	-0.0122	0.0486	-0.0149	0.0255	0.1111	0.0422	0.0303	0.0224	0.0167	-0.0734	0.0897	0.02735
01-03-17	0.0191	0.0286	-0.0134	0.2500	-0.0146	0.3750	0.0305	-0.0648	-0.0107	0.0370	0.0330	0.2362	0.0994	0.1000	0.0062	-0.0110	-0.0065	-0.0126	0.0549	-0.0235	0.01607
01-04-17	-0.1784	0.0903	0.0204	0.0000	-0.0593	-0.1364	0.1150	0.0043	0.0324	-0.0071	0.0000	-0.1057	0.0904	0.2364	0.0031	0.0483	0.0098	-0.0026	-0.1098	-0.0241	-0.00124
01-05-17	-0.0229	0.1338	-0.0267	-0.1600	-0.0039	0.0526	0.0281	-0.0011	0.0183	0.0120	0.0366	-0.0636	-0.0363	0.0588	0.0262	0.0071	0.0048	0.0230	-0.0195	0.0000	-0.00125
01-06-17	-0.0468	-0.0506	-0.0411	0.0476	0.0198	-0.2000	-0.0046	0.0108	0.0283	-0.0142	-0.0127	-0.0097	-0.0753	-0.0139	-0.0436	0.0317	-0.0032	-0.0225	0.0464	0.0000	-0.00206
01-07-17	-0.0491	-0.0651	0.0214	-0.0455	0.0388	-0.0625	0.0809	-0.0181	-0.0225	0.0000	0.0010	-0.0980	0.0058	-0.0986	0.0110	-0.0239	-0.0105	-0.0013	-0.2025	-0.0494	0.00746
01-08-17	0.0903	0.0316	-0.0490	0.0000	0.0522	-0.2000	-0.1102	-0.0272	0.0460	0.0000	0.0095	0.0761	0.0520	0.2188	0.0109	-0.0874	0.0008	0.0256	0.0238	0.0000	-0.00991
01-09-17	0.1302	0.0429	-0.0475	0.0476	-0.0035	0.2500	-0.0254	0.0078	0.1320	-0.0192	0.0436	-0.1263	-0.0055	0.0128	-0.0231	0.0766	0.0016	0.0000	-0.0233	0.0519	-0.00436
01-10-17	-0.0471	0.0059	-0.0787	-0.0455	0.0107	-0.2000	-0.0147	-0.1197	-0.0950	-0.0490	0.0994	0.6297	-0.0442	-0.1772	-0.0504	-0.0214	-0.0089	0.0000	-0.0476	-0.0123	-0.01720
01-11-17	-0.0714	0.0702	0.1709	-0.0476	-0.0669	-0.1667	0.0810	0.1008	0.0167	0.0000	0.0606	0.1057	0.0116	-0.0154	0.0448	-0.0073	0.0254	0.0800	0.0833	0.0125	0.04596
01-12-17	0.1893	0.4208	0.1168	0.1000	-0.0189	0.1000	0.1086	0.0240	-0.0188	0.0000	0.0979	0.1912	-0.0331	0.0000	-0.0238	-0.0037	0.0088	-0.1030	0.1923	0.0741	0.03994
01-01-18	-0.0348	0.0077	-0.0654	-0.0455	-0.0692	-0.0909	-0.0083	-0.0156	0.0000	0.0155	0.1306	-0.0309	0.0000	-0.0625	-0.0407	-0.0441	-0.0071	0.0039	0.2581	-0.0460	-0.00663
01-02-18	-0.1237	-0.0687	-0.0559	-0.1905	-0.1736	0.0000	0.0000	0.0125	0.0335	-0.0964	0.2061	0.0318	-0.0532	0.0833	-0.1153	-0.0154	0.0216	-0.0784	0.0462	-0.0482	0.00391
01-03-18	0.0059	-0.1107	0.0741	-0.1176	-0.0450	0.0000	0.0014	-0.0011	-0.0972	0.0393	-0.1068	-0.0370	-0.0225	0.0769	0.0153	-0.0625	-0.0039	0.0851	0.1471	-0.0127	0.00371
01-04-18	-0.0819	-0.1982	-0.3586	-0.0667	-0.2880	-0.1000	-0.1806	-0.0393	0.0000	0.0162	0.0638	-0.1987	-0.0575	-0.0714	-0.3151	0.0000	-0.0220	0.0026	-0.0171	0.0000	-0.06937
01-05-18	-0.0382	0.1264	0.2151	0.0000	0.1691	-0.1111	-0.0763	0.0105	0.0077	0.0851	0.0048	0.0400	0.0732	-0.0615	-0.1433	0.0417	-0.0305	0.0256	0.0087	0.0128	-0.02822
01-06-18	0.1457	0.1327	0.1947	0.0714	0.1509	0.0000	0.0716	0.0832	0.0611	0.0294	0.0007	0.0923	0.0455	0.0000	0.2765	0.0240	0.0248	-0.0375	0.1207	-0.0127	0.05483
01-07-18	-0.1272	0.0225	-0.0148	-0.0667	-0.0492	0.0000	0.0428	-0.0021	-0.0288	0.0476	-0.0041	0.0563	-0.0761	-0.0164	-0.1662	0.0078	-0.0040	0.0026	-0.1000	0.0256	0.01985
01-08-18	0.0265	-0.0441	-0.0602	-0.0714	-0.1552	0.2500	-0.0131	0.0107	-0.0222	-0.0182	-0.0041	0.0133	-0.0471	0.0000	-0.0272	-0.0620	0.0122	-0.0155	-0.0171	-0.0125	-0.01457
01-09-18	-0.0968	-0.1336	-0.1520	-0.0769	-0.0816	-0.2000	-0.0483	-0.0328	-0.0682	-0.0370	-0.0178	-0.2961	0.0123	-0.2000	-0.2609	-0.0579	-0.0016	0.0066	-0.1217	-0.0127	-0.04678
01-10-18	-0.3679	-0.0160	0.0566	-0.0833	-0.1111	-0.1250	0.0070	0.0361	-0.0407	0.0096	0.0389	0.0187	-0.0244	0.0000	-0.0210	0.0132	-0.0169	0.0039	-0.0396	0.0256	-0.01721
01-11-18	-0.1921	-0.0811	-0.0982	0.0000	0.0833	0.0000	-0.0087	0.0137	0.0000	-0.0095	-0.0134	-0.0092	-0.0750	0.0000	0.1416	-0.0043	0.0090	-0.0026	-0.1753	0.0000	0.00638
01-12-18	0.3986	-0.0471	0.0891	0.0000	0.2923	0.4286	-0.0158	-0.0583	0.0593	0.0385	0.0075	0.1019	-0.0405	0.0000	0.0940	0.0565	-0.0016	0.0183	0.2000	0.1000	-0.00417

01-01-19	0.1200	0.1420	-0.0364	0.0000	-0.0238	0.1000	0.0409	0.0000	0.0160	-0.0648	-0.0034	0.6807	0.0986	0.0000	0.0481	0.1399	0.0024	0.0051	0.1042	0.1250	0.01437
01-02-19	0.0536	0.0270	0.0000	-0.0909	-0.0671	0.0909	-0.1197	-0.0254	-0.0709	-0.0297	-0.0081	0.3900	0.0000	0.0000	0.0492	-0.0361	0.0024	-0.0102	0.3019	-0.0202	-0.03754
01-03-19	0.0593	0.1474	0.0660	0.0000	-0.0523	-0.2500	0.0233	0.0034	0.0254	0.0000	-0.0048	0.0144	-0.0385	0.2500	-0.0906	0.0112	-0.0024	-0.0090	-0.0507	-0.0515	-0.00082
01-04-19	-0.0880	-0.0459	0.0089	0.0000	-0.0414	-0.1111	0.0000	-0.0011	-0.0331	-0.0510	0.0062	-0.3085	-0.1333	-0.2333	0.2405	0.0074	0.0024	0.0026	-0.0534	-0.0870	0.00516
01-05-19	-0.0175	0.0577	-0.0175	-0.2000	0.0432	0.0000	0.0209	-0.0170	-0.0256	0.0054	0.0143	0.2103	0.0154	0.0870	0.1080	0.0294	-0.0097	0.0078	0.0645	0.0000	0.01295
01-06-19	0.0089	0.2045	-0.0804	0.2500	0.0000	-0.2500	-0.0558	-0.0737	0.0263	0.0000	-0.0034	0.2203	0.0000	0.0000	0.0225	-0.0857	-0.0383	0.0090	-0.1061	-0.0238	-0.02228
01-07-19	-0.1549	-0.0491	-0.0291	0.0000	-0.0897	-0.1667	-0.0039	0.0000	-0.0427	-0.0267	-0.0074	-0.0347	0.0152	0.0400	-0.0831	0.0742	0.0152	0.0408	-0.0169	-0.0244	-0.01390
01-08-19	-0.0681	-0.0595	-0.0800	0.0000	0.1061	0.2000	-0.0059	0.0187	0.0536	-0.0275	-0.0122	0.2086	-0.0149	-0.0769	-0.0400	-0.0327	-0.0375	-0.0110	-0.1207	-0.0500	-0.01751
01-09-19	0.2360	0.0675	-0.0543	0.0000	-0.0753	-0.1667	0.0437	0.0159	-0.0169	0.0395	-0.0069	0.1607	-0.0606	0.1250	0.0444	0.0150	-0.0615	-0.0099	0.0196	0.0000	0.00888
01-10-19	0.2091	-0.0870	-0.0402	-0.2000	0.0370	0.0000	-0.0133	-0.0685	0.1293	-0.0163	-0.0097	0.0994	0.1129	-0.0370	0.0000	0.0259	0.0776	0.0013	-0.0673	-0.0395	-0.02268
01-11-19	0.1429	0.0303	0.1737	0.0000	-0.0929	-0.2000	-0.0058	0.0723	0.2214	0.0442	0.0258	0.2304	-0.0725	0.1154	0.0160	-0.0144	0.0626	-0.0125	0.0309	0.0137	0.01730
01-12-19	-0.2039	-0.0462	-0.0867	-0.1250	-0.0551	0.2500	-0.0427	-0.0373	-0.2125	0.0370	-0.0184	0.1036	0.0313	-0.0517	0.0105	0.0073	-0.0806	-0.0089	0.1100	-0.0405	-0.03632
01-01-20	-0.0579	-0.0220	-0.0559	0.2857	-0.0083	-0.6000	-0.0223	0.0388	-0.0476	-0.0102	-0.0090	-0.1588	-0.0606	-0.1455	-0.0415	-0.0182	-0.0421	0.0396	-0.1802	-0.0845	-0.03163
01-02-20	-0.2500	-0.4054	-0.1420	-0.5556	-0.2857	-0.3000	-0.2531	-0.0734	-0.2083	-0.0412	-0.0441	-0.5064	-0.2258	-0.2340	0.0135	-0.3111	-0.0495	-0.0430	-0.3736	-0.2615	-0.08886
01-03-20	-0.0058	0.0682	0.0552	0.5000	0.1118	0.0000	-0.0417	0.0000	0.1368	-0.0376	0.0249	0.0957	0.0208	0.1389	0.0747	0.1935	0.0116	0.0064	0.3860	0.0222	0.04211
01-04-20	0.2000	0.1702	0.3595	1.6667	0.0476	0.0714	0.0928	0.2338	0.0741	0.0000	-0.0079	0.0159	0.1020	0.0976	0.0496	0.0225	0.0495	-0.0166	0.0127	-0.0217	0.04651
01-05-20	-0.0245	0.0364	-0.2019	-0.2500	-0.1616	0.3333	-0.0557	-0.1116	-0.0259	-0.0615	0.0065	-0.0156	0.3148	-0.2444	-0.0189	-0.0308	0.0073	0.0324	-0.0375	0.0000	0.01882
01-06-20	0.2060	0.1111	-0.0602	3.3333	-0.0422	-0.1500	0.0084	-0.0047	0.2301	-0.0655	0.0150	-0.0873	0.2817	0.1765	-0.0361	-0.0182	0.0541	-0.0201	0.2597	-0.0222	0.06848
01-07-20	0.0250	0.0737	-0.1410	0.0000	-0.0314	0.1176	-0.0808	-0.0179	-0.0072	0.0510	-0.0197	0.0261	0.0879	0.5500	0.0375	-0.0324	-0.0316	0.0000	0.0825	0.1818	-0.04897
01-08-20	-0.0650	0.0245	0.0075	-0.5000	0.0000	-0.1579	-0.0667	-0.0048	0.0000	0.0303	0.0158	-0.1695	0.0606	0.0161	-0.0048	0.1244	0.0062	-0.0103	-0.0476	-0.1346	-0.01337
01-09-20	-0.0783	-0.0909	0.1099	-0.2308	-0.0519	-0.1250	-0.0422	-0.0414	-0.0290	0.0000	-0.0141	-0.2347	0.1524	0.6032	0.0145	-0.0213	-0.0693	-0.0155	-0.0600	-0.0444	-0.02521
01-10-20	0.1415	0.0474	-0.1103	0.0500	0.0616	0.1429	0.2305	0.1537	0.1866	0.1235	-0.0387	0.5467	-0.0083	-0.0594	0.2029	-0.0652	0.1074	0.0105	0.0000	0.0465	0.06532
01-11-20	0.0579	0.0452	0.1860	0.0476	0.1677	0.0000	0.1846	-0.0540	0.0063	0.0471	0.0366	0.0172	-0.0750	-0.0211	0.0734	0.0186	0.0077	-0.0781	0.1277	0.1333	0.04127
01-12-20	0.0234	-0.1490	-0.1569	-0.2273	-0.0608	-0.0625	-0.1070	-0.0664	-0.1500	-0.0800	-0.0137	-0.1186	-0.0360	-0.4624	0.1738	-0.0457	-0.0186	-0.0042	0.0377	-0.1373	-0.03737
01-01-21	0.0153	0.0282	0.0233	0.0588	0.1176	-0.1333	0.1276	0.0224	0.0662	0.0870	0.0066	0.4519	-0.0654	-0.0400	-0.0331	0.0335	0.0112	-0.0241	-0.1455	0.0000	0.00725
01-02-21	0.0150	0.0549	0.0227	-0.2778	0.0105	0.2308	0.0023	-0.0244	-0.0069	0.0300	-0.0210	-0.0331	-0.0400	-0.0208	-0.0016	0.0602	-0.0238	0.0145	0.0426	0.0455	-0.00269
01-03-21	0.0222	-0.0052	0.0593	-0.0769	0.0313	-0.1250	-0.0461	-0.0163	0.0069	-0.0097	0.0052	-0.0342	0.0208	0.3404	-0.0685	-0.0131	-0.0410	-0.0057	0.0102	0.0217	0.01788
01-04-21	-0.0290	-0.0524	-0.0629	-0.2500	0.0707	-0.1429	0.0338	0.0292	0.0069	-0.0196	0.0059	-0.0638	-0.0204	-0.1270	0.0771	-0.0531	0.0091	-0.0231	-0.0707	0.3404	-0.01130
01-05-21	-0.0224	-0.0994	-0.0224	-0.1111	0.0849	0.0000	0.0771	-0.0432	-0.0411	0.0100	-0.0234	-0.0076	-0.1250	-0.0545	-0.0130	0.0187	-0.0829	-0.0162	-0.1304	-0.0635	-0.03216
01-06-21	0.0076	0.0245	-0.0458	0.0000	-0.0870	-0.2500	-0.0347	-0.0168	0.0500	0.0693	-0.0023	-0.1832	0.0952	0.0385	-0.0214	0.0275	-0.0904	0.0015	0.0500	0.1695	-0.02481
01-07-21	0.1288	0.0000	0.0800	0.0000	0.0286	0.6667	0.1034	0.1024	0.0272	-0.0741	0.0128	0.0374	-0.0217	-0.0370	0.0286	-0.0045	0.1533	0.0254	0.1667	-0.0435	0.07144
01-08-21	-0.0872	-0.0180	-0.0963	-0.1250	-0.0463	0.2000	-0.0265	0.0012	0.0331	0.1600	-0.0119	-0.1351	0.1778	-0.1346	-0.0671	0.0404	-0.0581	-0.0526	0.0408	0.1818	-0.03970
01-09-21	0.1029	0.0061	0.0328	0.1429	-0.0340	-0.1667	0.0921	-0.0048	0.0321	-0.0172	0.0105	0.0260	0.1887	0.0000	0.0158	0.0172	0.0746	0.0493	0.0196	0.0769	0.01594
01-10-21	-0.0133	-0.0667	-0.0635	-0.2500	-0.0352	0.0667	-0.0077	0.0048	-0.0435	-0.0965	-0.0067	-0.1980	-0.0159	-0.2222	-0.0397	0.0042	-0.0268	-0.0470	-0.1250	-0.1071	-0.03094
01-11-21	0.0000	-0.0714	-0.0169	0.0000	-0.0104	-0.0625	0.0521	0.0702	0.0779	0.0777	0.0045	0.0190	-0.1290	0.0286	-0.0108	0.0169	0.0352	0.0092	-0.0330	-0.1600	0.03537
01-12-21	0.0338	0.0210	-0.0431	0.0000	0.0105	-0.4000	-0.0459	-0.0567	0.0241	-0.0631	-0.0164	0.1304	-0.1296	-0.0556	-0.0800	-0.0124	-0.0083	-0.0229	-0.0909	-0.0317	-0.03525

01-01-22	0.3333	0.0137	0.0000	-0.3333	0.0313	0.0000	0.0981	0.0247	0.2353	0.0000	0.0152	-0.0549	0.2979	0.5294	0.0000	0.0966	0.2037	0.0234	-0.0125	-0.1639	0.06349
01-02-22	-0.0294	-0.0068	0.0631	0.0000	0.1111	-0.1111	-0.0665	-0.0425	-0.0810	-0.0288	-0.0030	0.0465	0.0656	-0.1731	-0.0336	0.0498	-0.0308	0.0015	0.0506	-0.4510	-0.01301
01-03-22	0.0253	-0.0544	0.0763	-0.2500	-0.0909	-0.1250	-0.0244	0.0192	0.0829	-0.0594	-0.0030	-0.0333	-0.1000	0.1163	0.0204	-0.0584	0.1690	0.0137	0.0602	0.0000	0.00823
01-04-22	-0.1576	-0.1223	0.0079	0.0000	-0.0200	0.0000	-0.0096	0.0177	-0.0861	-0.0842	0.0120	0.1264	-0.1282	-0.0625	0.0741	-0.3023	-0.1324	0.0301	-0.1705	-0.4643	-0.01895
01-05-22	-0.1462	-0.0164	-0.0859	0.0000	-0.0765	-0.4286	-0.0369	-0.0486	-0.1309	-0.0402	-0.0163	-0.0102	0.0686	-0.1111	-0.0205	-0.0500	-0.1416	-0.0073	-0.1370	-0.1333	-0.08017
01-06-22	0.0274	0.0500	-0.0256	0.3333	-0.0110	0.0000	0.0504	0.0426	0.0060	0.0419	0.0158	0.0258	0.0275	0.0000	0.0819	-0.0058	-0.0009	0.0338	0.0794	0.1538	0.03324
01-07-22	0.0133	0.1429	0.0351	0.0000	-0.0670	0.0000	0.0307	0.0117	0.0120	0.0057	-0.0126	0.0955	0.0179	-0.1000	0.0511	0.0471	0.0557	-0.0142	0.0000	-0.1333	0.01328
01-08-22	-0.0724	-0.0903	-0.0169	0.0000	-0.0838	0.0000	-0.0447	-0.0484	-0.0059	-0.0971	-0.0188	0.0183	-0.0877	0.0833	-0.0838	-0.1292	-0.1054	-0.0491	-0.1029	0.1538	-0.07766
01-09-22	-0.0638	0.0229	-0.0259	0.0000	-0.1176	0.2500	0.0760	0.0364	0.0000	0.0380	0.0192	0.1171	-0.0769	-0.0513	0.0165	0.0516	0.0473	0.0061	-0.0164	0.0000	0.04715
01-10-22	0.0227	0.1194	0.0177	0.0000	0.0889	-0.2000	0.0507	-0.0175	0.0536	0.1463	0.0444	0.1290	-0.0417	0.1351	0.0072	0.0307	-0.0360	0.0015	0.0000	0.1333	0.01946
01-11-22	-0.0222	0.0667	0.0087	-0.2500	-0.1156	3.5000	0.0000	0.0190	0.0508	0.0745	0.0079	-0.0643	0.0326	-0.1190	-0.0357	0.0238	0.0699	0.0105	0.0167	0.0000	0.00449
01-12-22	0.0152	0.1000	-0.0259	0.6667	-0.0538	0.2778	-0.0086	-0.0175	-0.0376	0.0198	-0.0343	0.1221	0.0526	0.0541	-0.0333	0.0756	-0.0420	0.0507	0.0164	0.1765	-0.00668
01-01-23	0.0970	-0.1932	0.0000	-0.4000	-0.0244	-0.1739	-0.0243	-0.0095	0.0168	0.0194	-0.0007	-0.0408	-0.0800	-0.1026	-0.0364	-0.0270	-0.0289	-0.0468	-0.0806	0.1000	-0.02108
01-02-23	0.0068	-0.0282	0.0885	0.3333	0.1583	0.0000	-0.0535	-0.0108	0.0110	0.0762	0.0148	-0.0496	0.3152	-0.0571	-0.0258	0.0500	-0.0010	0.0193	0.0702	-0.2727	-0.02173
01-03-23	0.0135	0.0217	0.0732	0.0000	0.0000	0.0526	-0.0471	0.0255	0.0000	-0.0088	-0.0117	-0.0149	0.6364	0.0606	0.0122	-0.0370	0.0346	0.0263	0.3115	-0.4375	-0.00467
01-04-23	-0.0400	0.0071	-0.0076	0.0000	-0.0288	0.0000	0.0138	0.0000	0.0000	-0.0089	-0.0066	-0.0455	-0.0152	-0.0286	-0.0040	-0.0275	0.0000	-0.0142	-0.4125	0.1111	0.01178
01-05-23	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.00000

• Calculate Ri, Variance, Standard Deviation, Coefficient Variation and Slope

	FGV	DRB-HICOM	YTL CORP	XOX	ASTRO	IMPIANA	CIMB	PETRONAS KIM LOONG	KPJ	NESTLE	DAYANG	MENANG	ACME	TM	FAVCO	KLK	KLCC	BAHVEST	FITTERS	KLCI	
Ri	-0.01004	-0.00704	-0.01147	0.02227	-0.01610	0.00662	-0.00845	-0.00773	0.00193	-0.00538	-0.00078	0.00979	0.01250	0.00214	-0.00622	-0.00442	-0.00692	-0.00671	-0.00542	-0.01827	-0.00859
Variance	0.02217	0.01957	0.01485	0.21927	0.01412	0.14436	0.01253	0.01013	0.01338	0.01031	0.00921	0.03642	0.02572	0.03683	0.01333	0.01357	0.01039	0.00906	0.02431	0.02286	0.00885
Standard Deviation	0.14891	0.13990	0.12187	0.46826	0.11883	0.37994	0.11194	0.10063	0.11567	0.10153	0.09596	0.19085	0.16038	0.19192	0.11548	0.11647	0.10192	0.09517	0.15592	0.15120	0.09408
Coefficient Variation	-14.82950	-19.88558	-10.62461	21.02372	-7.38043	57.36979	-13.25119	-13.01389	59.83118	-18.88119	-122.60520	19.49217	12.83146	89.78362	-18.56365	-26.36080	-14.72949	-14.18531	-28.75062	-8.27595	-10.95288
Slope	-0.73995	-0.39642	0.03989	-0.02202	0.71709	-0.09755	-0.85760	-0.04408	-0.62514	-0.20012	-41.92264	-0.43106	-0.27995	-0.07576	-0.80029	-0.13183	-1.32041	-0.21607	-0.04717	0.14601	1.00000

5.0 SIMPLE SHARPE OPTIMIZATION METHOD

Step 1: Calculate Excess Return to Beta Ratio (ERTB)

$$\frac{R_i - R_f}{\beta}$$

Step 2: Rank the portfolio, from highest to lowest.

Step 3: Table

ERTB	A		B		C-Value
	$\frac{(R_i - R_f) * \beta}{\sigma^2}$	$\sum A$	$\frac{\beta^2}{\sigma^2}$	$\sum B$	

Step 4: Calculate the Cut off Value (C*)

$$C_i = \frac{\sigma^2 m \times \sum A}{1 + (\sigma^2 m \times \sum B)}$$

Step 5: Choose security that has **ERTB > C-Value**

Step 6: Calculate z-value.

$$Z_i = \frac{B}{\sigma^2} \times [(ERTB) - C *]$$

Step 7: Calculate Weight

$$W_i = Z_i / \sum z$$

6.0 RESULT

		FGV	DRB-HICOM	YTL CORP	XOX	ASTRO	IMPIANA	CIMB	PETRONAS	KIM LOONG	KPJ	NESTLE	DAYANG	MENANG	ACME	TM	FAVCO	KLK	KLCC	BAHVEST	FITTERS	KLCI
Total Risk	Ri	-0.0100	-0.0070	-0.0115	0.0223	-0.0161	0.0066	-0.0084	-0.0077	0.0019	-0.0054	-0.0008	0.0098	0.0125	0.0021	-0.0062	-0.0044	-0.0069	-0.0067	-0.0054	-0.0183	-0.0086
	Variance	0.0222	0.0196	0.0149	0.2193	0.0141	0.1444	0.0125	0.0101	0.0134	0.0103	0.0092	0.0364	0.0257	0.0368	0.0133	0.0136	0.0104	0.0091	0.0243	0.0229	0.0089
	Standard Deviation	0.1489	0.1399	0.1219	0.4683	0.1188	0.3799	0.1119	0.1006	0.1157	0.1015	0.0960	0.1909	0.1604	0.1919	0.1155	0.1165	0.1019	0.0952	0.1559	0.1512	0.0941
	Coefficient Variation	-14.8295	-19.8856	-10.6246	21.0237	-7.3804	57.3698	-13.2512	-13.0139	59.8312	-18.8812	-122.6052	19.4922	12.8315	89.7836	-18.5637	-26.3608	-14.7295	-14.1853	-28.7506	-8.2760	-10.9529
Beta	Slope	-0.7399	-0.3964	0.0399	-0.0220	0.7171	-0.0976	-0.8576	-0.0441	-0.6251	-0.2001	-41.9226	-0.4311	-0.2800	-0.0758	-0.8003	-0.1318	-1.3204	-0.2161	-0.0472	0.1460	1.0000
Systematic Risk	Beta^2*Market Variance	0.0048	0.0014	0.0000	0.0000	0.0046	0.0001	0.0065	0.0000	0.0035	0.0004	15.5571	0.0016	0.0007	0.0001	0.0057	0.0002	0.0154	0.0004	0.0000	0.0002	0.0089
Residual Variance	Total Risk - Sytematic Risk	0.0173	0.0182	0.0148	0.2193	0.0096	0.1443	0.0060	0.0101	0.0099	0.0100	-15.5479	0.0348	0.0250	0.0368	0.0077	0.0134	-0.0050	0.0086	0.0243	0.0227	0.0000

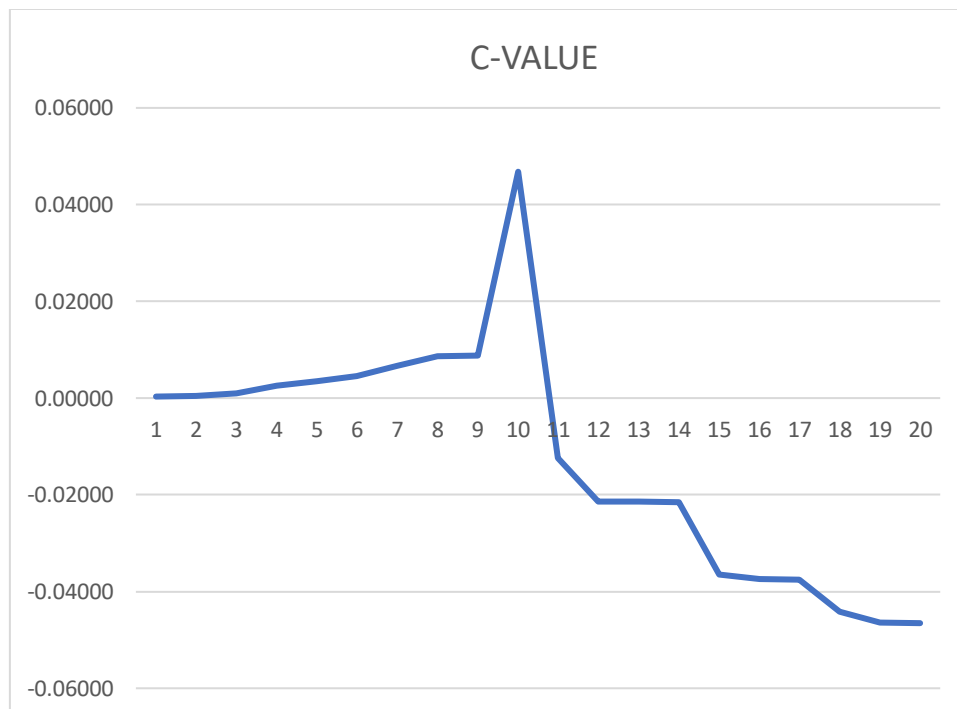
	Total Risk			Beta		Systematic Risk	Residual Variance	Risk Free	ERTB	A	Nominator		B	Denominator		Selection (Cvalue)	Zi	Allocation
	Ri	Variance	Standard Deviation	Coefficient Variation	Slope	Beta^2*Market Variance	Total Risk - Sytematic Risk	1.5% p.a	(Ri-Rf)/Beta	(Ri-Rf)*Beta/Res. Var	Sum A	Variance RM*Sum A	Beta^2/Res. Var	Sum B	1+Var(RM)*Sum B	Nominator/Deminator	Beta/Res. Var*(ERTB-C*)	Weightage
PETRONAS	-0.00773	0.01013	0.10063	-13.01389	-0.04408	0.00002	0.01011	0.00125	0.20379	0.03916	0.03916	0.00035	0.19219	0.19219	1.00170	0.00035	-0.85012	24%
BAHVEST	-0.00542	0.02431	0.15592	-28.75062	-0.04717	0.00002	0.02429	0.00125	0.14146	0.01296	0.05212	0.00046	0.09161	0.28379	1.00251	0.00046	-0.25763	7%
FAVCO	-0.00442	0.01357	0.11647	-26.36080	-0.13183	0.00015	0.01341	0.00125	0.04300	0.05572	0.10784	0.00095	1.29591	1.57970	1.01398	0.00094	-0.33611	9%
KLCC	-0.00671	0.00906	0.09517	-14.18531	-0.21607	0.00041	0.00864	0.00125	0.03684	0.19895	0.30679	0.00272	5.40098	6.98068	1.06179	0.00256	-0.70069	20%
KPJ	-0.00538	0.01031	0.10153	-18.88119	-0.20012	0.00035	0.00995	0.00125	0.03312	0.13325	0.44004	0.00390	4.02372	11.00440	1.09741	0.00355	-0.48883	14%
DRB-HICOM	-0.00704	0.01957	0.13990	-19.88558	-0.39642	0.00000	0.01957	0.00125	0.02090	0.16781	0.60785	0.00538	8.02919	19.03359	1.16848	0.00460	-0.24500	7%
FGV	-0.01004	0.02217	0.14891	-14.82950	-0.73995	0.00485	0.01733	0.00125	0.01526	0.48219	1.09004	0.00965	31.59842	50.63201	1.44818	0.00666	-0.27570	8%
CIMB	-0.00845	0.01253	0.11194	-13.25119	-0.85760	0.00651	0.00602	0.00125	0.01131	1.38129	2.47132	0.02188	122.15035	172.78236	2.52943	0.00865	-0.35670	10%
TM	-0.00622	0.01333	0.11548	-18.56365	-0.80029	0.00567	0.00767	0.00125	0.00933	0.77992	3.25125	0.02878	83.54974	256.33209	3.26900	0.00880	-0.05545	2%
KLK	-0.00692	0.01039	0.10192	-14.72949	-1.32041	0.01543	-0.00505	0.00125	0.00619	-2.13758	1.11366	0.00986	-345.50592	-89.17383	0.21065	0.04680		
NESTLE	-0.00078	0.00921	0.09596	-122.60520	-41.92264	15.55709	-15.54788	0.00125	0.00005	-0.00548	1.10818	0.00981	-113.03841	-202.21223	-0.78994	-0.01242		
KIM LOONG	0.00193	0.01338	0.11567	59.83118	-0.62514	0.00346	0.00992	0.00125	-0.00109	-0.04306	1.06513	0.00943	39.38882	-162.82342	-0.44128	-0.02137		
ACME	0.00214	0.03683	0.19192	89.78362	-0.07576	0.00005	0.03678	0.00125	-0.01172	-0.00183	1.06330	0.00941	0.15604	-162.66738	-0.43990	-0.02140		
DAYANG	0.00979	0.03642	0.19085	19.49217	-0.43106	0.00164	0.03478	0.00125	-0.01981	-0.10586	0.95744	0.00848	5.34269	-157.32468	-0.39261	-0.02159		
ASTRO	-0.01610	0.01412	0.11883	-7.38043	0.71709	0.00455	0.00957	0.00125	-0.02420	-1.30019	-0.34275	-0.00303	53.73413	-103.59055	0.08304	-0.03654		
MENANG	0.01250	0.02572	0.16038	12.83146	-0.27995	0.00069	0.02503	0.00125	-0.04018	-0.12583	-0.46858	-0.00415	3.13146	-100.45910	0.11076	-0.03745		
IMPIANA	0.00662	0.14436	0.37994	57.36979	-0.09755	0.00008	0.14427	0.00125	-0.05508	-0.00363	-0.47221	-0.00418	0.06596	-100.39314	0.11134	-0.03754		
FITTERS	-0.01827	0.02286	0.15120	-8.27595	0.14601	0.00019	0.02267	0.00125	-0.13368	-0.12571	-0.59792	-0.00529	0.94036	-99.45278	0.11966	-0.04423		
YTL CORP	-0.01147	0.01485	0.12187	-10.62461	0.03989	0.00001	0.01484	0.00125	-0.31891	-0.03420	-0.63211	-0.00560	0.10723	-99.34555	0.12061	-0.04639		
XOX	0.02227	0.21927	0.46826	21.02372	-0.02202	0.00000	0.21926	0.00125	-0.95482	-0.00211	-0.63423	-0.00561	0.00221	-99.34334	0.12063	-0.04654		
KLCI	-0.00859	0.00885	0.09408	-10.95288	1.00000	0.00885	0.00000	0.00125	-0.00984	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
																Total Zi	-3.56624	100%

LIST OF SELECTION

ERBT > C-VALUE

NO	PORTFOLIO
1.	PETRONAS CHEMICAL GROUP BERHAD
2	BAHVEST RESOURCES BERHAD
3.	FAVELLE FAVCO BERHAD
4.	KLCC PROPERTY HOLDING BERHAD
5.	KPJ HEALTHCARE BERHAD
6.	DRB-HICOM BERHAD
7.	FGV HOLDING BERHAD
8.	CIMB GROUP BERHAD
9.	TELEKOME MALAYSIA BERHAD

C-VALUE GRAPH



7.0 CONCLUSION

In a nutshell the portfolio planning utilizing the simple Sharpe optimization method provides investors with a useful and efficient method for allocating their assets based on the risk-return trade-off. Using historical return and volatility data, this approach, which maximizes the Sharpe ratio, offers a methodical and objective framework for decision-making. The simplicity and ease of implementation of the simple Sharpe optimization approach is one of its main features. Because it does not necessitate intricate financial modelling or sophisticated mathematical procedures, it is accessible to a wide range of investors, including those with a lack of funds or knowledge. This ease of use enables quick portfolio development and rebalancing, lowering the possibility of errors or misjudgments.

The Sharpe ratio describes the core of risk and reward balancing by including risk-adjusted returns into the optimization process. It gives a meaningful measure of a portfolio's performance in relation to volatility, allowing investors to discover the most efficient portfolios with the best risk-adjusted returns. This aids in the development of a well-balanced investment strategy that is compatible with an investor's risk tolerance and financial objectives. Additionally, the simple Sharpe optimization procedure provides for customization and adaptability. Investors can customize the portfolio-building process to their unique risk tolerance, financial goals, and time horizons. This customization guarantees that the resultant portfolio represents the investor's specific needs and limits, resulting in a more personalized and appropriate investment approach.

However, it is vital to recognize that the basic Sharpe optimization strategy has limits. It believes that previous data is a trustworthy predictor of future performance, which may not always be the case in volatile and unpredictable markets. Furthermore, this strategy ignores issues such as diversification, asset correlations, and market circumstances, all of which can have a major influence on portfolio results. As a result, it is critical to examine and alter the portfolio on a regular basis to respond to changing market dynamics and to include new aspects for a more complete investment plan.

In short, the Sharpe optimization technique is a basic and clear approach to portfolio creation that allows investors to balance risk and return in a systematic manner. It allows for customization and is available to a wide spectrum of investors. However, it is critical to supplement this process with other considerations and monitoring in order to improve the investment strategy's resilience and flexibility.

8.0 REFERENCES

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