Problem Set 5

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|  | Time series average return | t-statistic | Annualized Sharpe Ratio | Standard deviation |
| 1- month, 1- month momentum portfolio | 0.6936 | 4.1919 | 0.2642 | 5.4477 |

1. The first component: 0.0122

The second component: 0.1337

The third component: 0.6351

The third component is the greatest contributor to momentum profits, which indicates that CAPM can explain little variation in the momentum portfolio.

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|  | Time series average return | t-statistic | Annualized Sharpe Ratio | Standard deviation |
| 12- month, 1- month momentum portfolio | 0.8583 | 4.5857 | 0.3278 | 6.1310 |

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|  | Time series average return | t-statistic | Annualized Sharpe Ratio | Standard deviation |
| 12- month, 1- month momentum portfolio (skip a month) | 0.9284 | 4.9765 | 0.3687 | 6.1110 |

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|  |  | t-statistic |
| 1- month, 1- month momentum portfolio | 0.6924 | 4.1527 |
| 12- month, 1- month momentum portfolio | 1.0449 | 5.6479 |
| 12- month, 1- month momentum portfolio (skip a month) | 1.1076 | 6.0057 |

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|  |  | t-statistic |
| 1- month, 1- month momentum portfolio | 0.5631 | 3.2937 |
| 12- month, 1- month momentum portfolio | 0.0785 | 0.5606 |
| 12- month, 1- month momentum portfolio (skip a month) | 0.1428 | 1.0248 |

1. (i) Comment on whether or not you think the matters

(ii)

FF 3-factor models results:

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|  |  | t-statistic |
| 1- month, 1- month momentum portfolio | 0.0175 | 4.2796 |
| 12- month, 1- month momentum portfolio | 0.0109 | 2.7143 |
| 12- month, 1- month momentum portfolio (skip a month) | 0.0101 | 2.5801 |

FF 4-factor models results:

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|  |  | t-statistic |
| 1- month, 1- month momentum portfolio | 0.0158 | 3.7748 |
| 12- month, 1- month momentum portfolio | 0.0065 | 1.6213 |
| 12- month, 1- month momentum portfolio (skip a month) | 0.0066 | 1.6801 |

(iii)

Correlation between each momentum returns:

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| --- | --- | --- |
| 1,1 IND MOM  & 1,1 COM MOM | 12,1 IND MOM  & 12,1 COM MOM | 12,1 IND MOM & 12,1 COM MOM (skip a month) |
| 0.1341 | 0.1836 | 0.1434 |

(iv)

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|  | t-statistic |
| 0.9271 | 3.4047 |

(v)

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|  | t-statistic |
| 0.0080 | 2.0085 |

(vi)

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|  | GRS F-statistic | GRS p-value |
| Short-term 1-month past return sorted portfolios | 9.4033 | 0 |
| Intermediate-term 12-month past return sorted portfolios | 2.1449 | 2.93e-04 |
| Long-term 60-month past return sorted portfolios | 2.2416 | 4.70e-04 |