Problem Set 5: 2017 Final Exam

- This is a 24-hour exam from 6pm June 15th, 2017, to 6pm June 16th, 2017.

- Late submission rules: The deadline is 6pm June 16th, 2017. No points will be subtracted from the final grade if you submit your exam until 6:14:59pm, i.e., 6:14pm and 59 seconds. However, your grade will be reduced by 30% if you submit after 6:14:59pm.

- No submission will be accepted after 6:29:59pm.

- Please write your full name.

By submitting your final 24-hour take-home exam, you agree to the following:

As a member of the UCLA Anderson community, I am guided in my daily actions and decisions by the principles of Honesty, Integrity, Mutual Respect, Personal Responsibility, and Professionalism.

I recognize that the integrity of the entire Anderson community—and the dignity afforded to me by my association therewith—rests with the honorable actions of every individual, both on-campus and in the community. To this end, I pledge to affirmatively uphold, in both word and deed, these principles in my dealings with all members of the UCLA Anderson community students, faculty, administration, staff, and alumni.

I acknowledge my obligations under the UCLA Anderson Honor Code and pledge to follow the ethical standards for exam taking it implies. Specifically, I pledge that I shall use only the allowed resources in taking this exam and shall neither give nor receive any type of forbidden aid.

2017 Final Exam

This is an **individual assignment**, and you **cannot** discuss it with your classmates. We will check similarities between submissions, and, if any two submissions are too similar, then both submissions will not be considered for grading.

Please submit R code as well as a separate write-up. Explain the procedure clearly in the write-up (such that someone unfamiliar with the problem could solve it). Use CCLE to submit your answers.

You should submit two files:

- .R **FinalExam_YourStudentID** (for example, FinalExam_012345678.R), with **all** code used in answering the question written below.

- .pdf **FinalExam_YourStudentID** (for example, FinalExam_012345678.pdf), with discussion on how you answered the questions written below, as well as responses to any particular questions asked

1. Replicate Table 1 (provided below). Table 1 is a modified version of Table 6 from Ang, Hodrick, Xing, and Zhang (2006)[1], designed to be easier to replicate.

- The goal is to replicate Table 1 below. If there is something that is unclear in this assignment or in the paper, you are expected to clearly state and justify any assumptions you may make in the write-up. This is a 24-hour exam, and no changes will be made. Do not contact either the professor or the TA.

- The key difference between Table 1 and the original table is the time sample used. Table 1 is based on portfolio returns from January 2013 to December 2015. In addition, we have removed the long-short portfolio and the B/M summary statistic to reduce workload.

- The structure of the write-up and code should follow the general guidelines used in the four problem sets this quarter.

- We suggest that you to create the portfolios in two steps:
    1. Calculate the volatility measures using daily data
    2. Calculate portfolio statistics using monthly data

- Daily and monthly CRSP data are available from WRDS. You will have to go to CRSP > Annual Update > Stock / Security Files.

- Daily and monthly Fama and French three factors are available from Ken French's website.

- Here is link with some guidance on running regressions:

    https://stackoverflow.com/questions/19523720/regression-and-summary-statistics-by-group-within-a-data-table

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[1] Ang, A., Hodrick, R.J., Xing, Y. and Zhang, X., 2006. The crosssection of volatility and expected returns. The Journal of Finance, 61(1), pp.259-299.

Link: http://onlinelibrary.wiley.com/doi/10.1111/j.1540-6261.2006.00836.x/full

Table 1: Table to Replicate

This table follows the methodology used to create Table 6 in Ang, Hodrick, Xing, and Zhang (2006). Note that they are not identical. The portfolio returns are from January 2013 to December 2015.

Rank	Mean	Std. Dev.	%Mkt Share	Size	CAPM Alpha	FF-3 Alpha
Panel A: Portfolios Sorted by Total Volatility						
1	1.10	2.68	30.8%	6.52	0.18	0.85
					[0.13]	[0.66]
2	1.16	3.10	35.8%	7.28	-0.01	-0.09
					[-0.02]	[-0.21]
3	1.04	3.62	20.4%	6.80	-0.30	-1.86
					[-0.27]	[-1.68]
4	0.47	4.12	9.6%	6.04	-0.88	-2.26
					[-0.76]	[-2.10]
5	0.25	4.85	3.4%	4.97	-1.10	-1.84
					[-1.01]	[-1.89]
Panel B: Portfolios Sorted by Idiosyncratic Volatility Relative to FF-3						
1	1.14	3.04	38.4%	6.82	0.17	0.09
					[0.83]	[0.49]
2	1.14	3.03	31.7%	7.22	0.03	-0.04
					[0.16]	[-0.19]
3	0.81	3.41	17.9%	6.72	-0.47	-0.45
					[-2.27]	[-2.15]
4	0.65	4.12	8.7%	5.97	-0.72	-0.58
					[-1.72]	[-1.53]
5	0.26	4.61	3.3%	4.88	-1.08	-0.99
					[-1.80]	[-1.84]