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QF600 – Asset Pricing
Homework 2

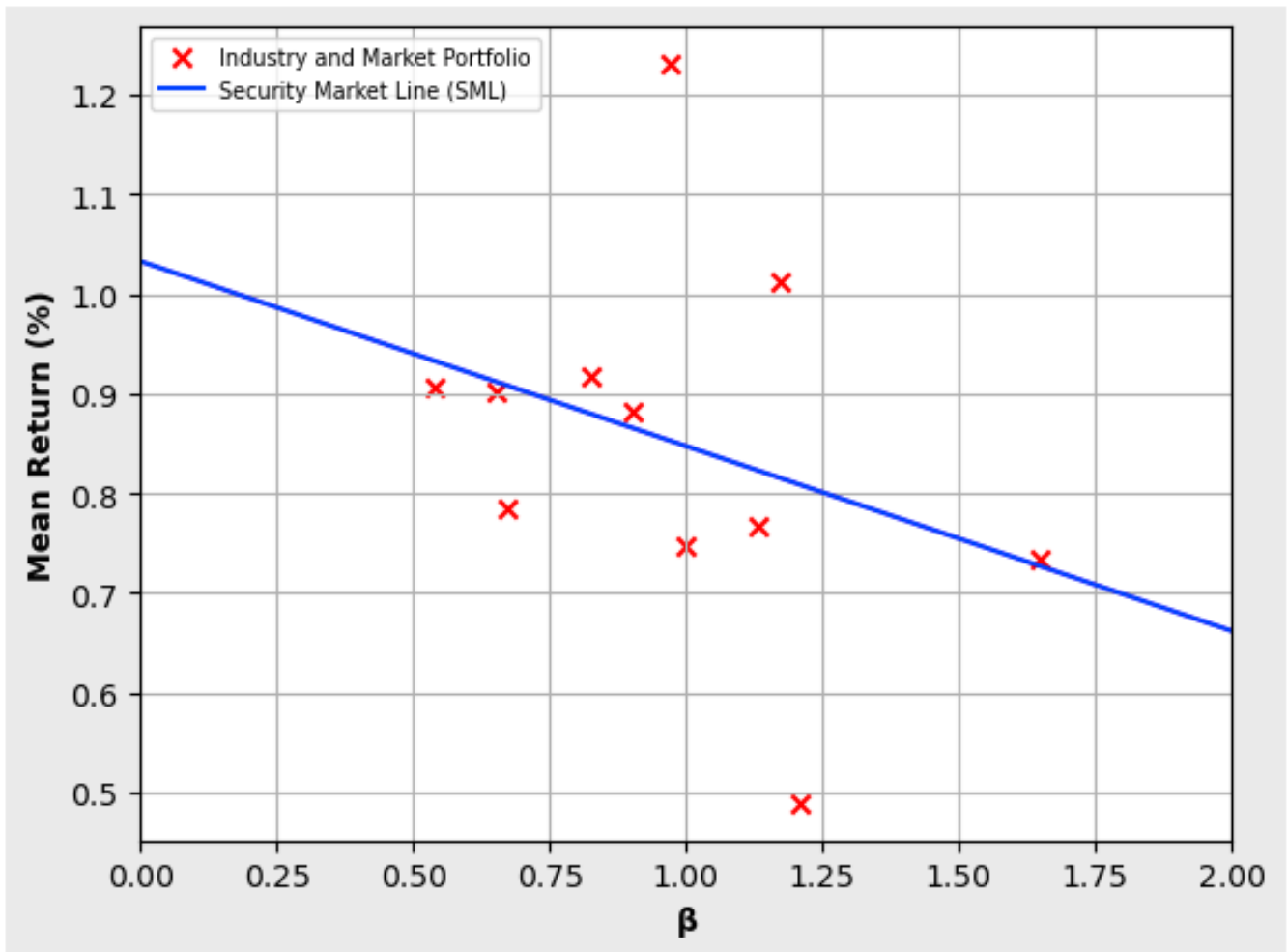
Create a table showing the intercept and slope coefficients for the ten industry portfolios.

Industry	Intercept coefficients (α)	Slope coefficients (β)
NoDur	0.369443	0.652647
Durbl	-0.415599	1.648536
Manuf	0.159771	1.169846
Enrgy	0.501719	0.969850
HiTec	-0.064020	1.132969
Telcm	0.194691	0.900729
Shops	0.275492	0.826492
Hlth	0.237841	0.673036
Utils	0.444585	0.538086
Other	-0.387135	1.207309

Briefly explain the economic significance of the intercept and slope coefficients.

Beta (slope coefficients) measures the amount of exposure to systematic “market” risk when investing in an individual risky asset. It is a measure of the volatility of an investment, or the expected move in a stock relative to movements in the overall market. A beta value that is greater than 1 suggests that the stock is more volatile than the overall market, and a beta value of less than 1 suggests that the stock is less volatile than the broader market. Alpha (intercept coefficients) measures that expected excess return, after subtracting the reward associated with the systematic component. Alpha often being used as a measure of a overall pricing error (relative to CAPM) for either individual assets or a passive portfolio. However, for actively managed portfolio, Alpha reflects how an investment performed relative to the market. If alpha is non-zero, expected return is higher or lower than CAPM predict. Positive alpha means the portfolio is undervalue and negative alpha means the portfolio is overvalue. Alpha is also usually being used to identify fund manager performance. Positive alpha means fund manager being able to identify overprice and underprice stock, and vice versa.

Use the estimated intercept and slope coefficients for the SML to plot the SML in the range of β from zero to two on the horizontal axis. Also plot the positions of the ten industry portfolios and the market portfolio. (You are NOT required to label the individual portfolios.)



Briefly explain the economic significance of the SML.

The SML is a graphical representation of the Capital Asset Pricing Model. It shows different levels of systematic risks of various risky assets plotted against the expected return of the entire market at any given time. All the portfolios on the SML have the same Treynor Ratio as the market portfolio. Slope of SML (Treynor Ratio) represent ratio of risk premium to beta (often called reward of risk premium). The SML is used to determine if an asset is either overpriced or underpriced compared to the market, given its level of systematic risk. Fairly priced portfolios lie on the SML. Portfolio/asset lie above of SML suggest it is underprice (attractive) and portfolio/asset that lies below SML suggest it is overprice (unattractive). In summary, the SML is useful in determining whether the asset offers a favorable expected return compared to its level of risk. It provides a framework for understanding how expected returns relate to systematic risk.