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Positive Weights on the Efficient Frontier

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One of the fundamental insights of the CAPM is that the market portfolio is mean variance efficient. Since the market portfolio has positive weights on all assets the conditions under which frontier portfolios have this property are of interest. This paper derives a simple explicit solution for an efficient portfolio with positive weights. Assuming the covariance matrix is given we obtain an expected return vector such that there is a compatible frontier portfolio. This portfolio is derived from the dominant eigenvector of the correlation matrix and provides a proxy for the market portfolio. Examples are provided to illustrate the basic idea.