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The most fundamental operation performed on frames is the frame expansion by the frame coefficients. Yet, little is known about the distribution of the frame coefficients of vectors in a Hilbert space. Here we make a deep and detailed study of the distribution of frame coefficients and show that in the case of equiangular tight frames we can get fairly exact representations for this. We also give the best possible distributions for all frames (and unit norm tight frames) in terms of majorization. There are many more fundamental results here. We also give examples to show that all our results are best possible. (Received August 22, 2014)