

In this work we describe heavy tailed distributions. We show conditions necessary and sufficient for their existence. First we study the product of random number of random variables and their convergence to the Pareto distribution. We also show graphs that concur this theorem. Next we define stable distributions and we study their usefulness for approximating of sum of random number of random variables. We also define Gauss and infinitely divisible random variables and we show conditions for their existence. We also show that the only geometric stable distribution following the stable law are strictly geometric stable or improper geometric stable distributions. In the end we study applications of stable distributions in finance and we show example for their usage in computing VaR.