This study compares the effect of diversification between the Syariah compliant and non-Syariah compliant stocks listed on Bursa Malaysia during the period from January 2002 to January 2012. The standard deviation of stocks portfolio were calculated for the entire and two sub-periods, bull and bear. Independent samples T-test was used to test on the significant difference of the standard deviation between Syariah and non-Syariah which had revealed to be significantly different. On the other hand, during the period of first bull and bear period, standard deviation of both stocks had also resulted differences. However, there is no significant difference in the standard deviation after the bear in 2009. Therefore, it can be concluded that portfolio diversification applies in both Syariah and non-Syariah compliant stocks of the Malaysian stock market. In addition, Syariah compliant stocks were proven to be less risky and require a smaller number of stocks in a portfolio to reduce specific amount of risk over the different market phase periods.