Institutional traders will be faced with expensive execution costs in portfolio transaction. The existence of these costs influences their profits severely. Almgren and Chriss (1999, 2000, AC hereafter) have defined optimal execution as the strategy that minimizes the execution cost under the constraint of volatility risk over a fixed period of time. Our paper follows AC's framework. We consider the problem in continuous time, while their work is in discrete time. The asset prices are assumed to follow the r-dimension Brownian motions. As AC's paper, we distinguish the price impacts between temporary impacts and permanent impacts, which the functions are both linear. If the price impacts of different securities do not interact each other, the coefficient matrix of temporary impacts and permanent impacts are diagonal. Applying the calculus of variation, we get the analytical solution of the optimal strategy. The optimal strategy is the linear combination of the time's sinhypersola formation and assets' properties have effects on it. The simulation shows that different assets have dissimilar optimal strategy. The result suggests that a trader should construct the portfolio with securities having little covariance and choose to execute a block of an illiquid security less rapidly than a liquid security in the liquidation.