

## Quantum Mechanism Approach for Non-Ruin Probability and Comparison of Path Integral Method and Stochastic Simulations

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**Abstract :** Quantum mechanism is one of the most important approaches to calculating non-ruin probability. We apply standard Dirac notation to model given Hamiltonians. By using the traditional method and eigenvector basis, non-ruin probability is found for several examples. Also, non-ruin probability is calculated for two different Hamiltonian by using the tensor product. Finally, the path integral method is applied to the examples and comparison is made for stochastic simulations and path integral calculation.

**Keywords :** quantum physics, Hamiltonian system, path integral, tensor product, ruin probability

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