Quantum dynamics of elliptic curves. We calculate the $K$-theory of a crossed product $C^*$-algebra $\mathcal{A}_{RM} \rtimes \mathcal{E}(K)$, where $\mathcal{A}_{RM}$ is the noncommutative torus with real multiplication and $\mathcal{E}(K)$ is an elliptic curve over the number field $K$. We use this result to evaluate the rank and the Shafarevich-Tate group of $\mathcal{E}(K)$. Reference: arXiv:1808.03493 (Received September 06, 2018)