Abstract: We analyze the problem of optimally sharing risk using allocations that exhibit counter-monotonicity, the most extreme form of negative dependence. Counter-monotonic allocations take the form of either "winner-takes-all" lotteries or "loser-loses-all" lotteries, and we respectively refer to these (normalized) cases as jackpot or scapegoat allocations. Our main theorem, the counter-monotonic improvement theorem, states that for a given set of random variables that are either all bounded from below or all bounded from above, one can always find a set of counter-monotonic random variables such that each component is greater or equal than its counterpart in the convex order. We show that Pareto optimal allocations, if they exist, must be jackpot allocations when all agents are risk seeking. We essentially obtain the opposite when all agents have discontinuous Bernoulli utility functions, as scapegoat allocations maximize the probability of being above the discontinuity threshold. We also consider the case of rank-dependent expected utility (RDU) agents and find conditions which guarantee that RDU agents prefer jackpot allocations. We provide an application for the mining of cryptocurrencies and show that in contrast to risk-averse miners, RDU miners with small computing power never join a mining pool. Finally, we characterize the competitive equilibria with risk-seeking agents, providing a first and second fundamental theorem of welfare economics where all equilibrium allocations are jackpot allocations.