Abstract: We let "Algorithmic Market-Makers" (AMs), using Q-learning algorithms, choose prices for a risky asset when their clients are privately informed about the asset payoff. We find that AMs learn to cope with adverse selection and to update their prices after observing trades, as predicted by economic theory. However, in contrast to theory, AMs charge a mark-up over the competitive price, which declines with the number of AMs. Interestingly, markups tend to decrease with AMs' exposure to adverse selection. Accordingly, the sensitivity of quotes to trades is stronger than that predicted by theory and AMs' quotes become less competitive over time as asymmetric information declines.