We show that Nash equilibrium in Kyleí85 and, more generally, in Kyle (1984) type models is Pareto efficient if and only if the Nash equilibrium is also a Stackelberg type equilibrium. This matching of two kinds of equilibria depends on the primitives of the model, which are the distributions of the fundamental value v and random aggregate noise traderís demand u, characterized by p.d.f.s fv ( ) and fu ( ), respectively.

Boulatov and Livdan (2022) prove existense and uniqueness of Nash equilibrium in the single-period trading model examined in Kyle (1985) and Kyle (1984). The original Kyle (1985) model examines a Nash equilibrium of a single-period trading model in which a monopolistic informed trader chooses a possibly non-linear trading strategy to maximize profits and competitive market makers simultaneously choose a possibly non-linear pricing rule which makes markets e¢ cient in the sense of always generating zero expected profits for the market makers. Kyle (1985) shows that there is only one equilibrium in which the trading strategy and pricing rule are both happen to be linear functions. Boulatov and Livdan prove uniqueness and existense (under mild technical conditions) without linearity assumptions and for a broad class of distributions with p.d.f.s fv ( ) and fu ( ).

In this paper, we show that this equilibrium, even unique, is generally not Pareto efficient in the sense that the informed trader's profits may increase if she deviates from her equilibrium trading strategy in a certain way, which will lead to deviation of pricing rule. As a result of such deviations, the informed trader's profits increase while the market makers' profits remain zero, i.e. pricing rule remains informationally efficient. Hence we obtain Pareto improvement over the equilibrium allocation.

We obtain that the Nash equilibrium can not be Pareto improved if and only if this Nash equilibrium is also a Stackelberg type of equilibrium described below. Hence, the Nash equilibrium is Pareto efficient if and only if the Nash and Stackelberg equilibria coincide. We derive close form analytic criteria for this matching of two kinds of equilibria resulting in conditions imposed on the distributions with p.d.f.s fv ( ) and fu ( ).