Essays on Tolerant Economic Systems

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ABSTRACT

Chapter 1 investigates how market makers should set prices in order to prevent speculative price bubbles in sequential trading stock markets, i.e., market making systems. I analyze a situation in which a rational speculator can gain from a price bubble caused by his speculative strategy which exploits irrational *feedback traders*. Under the assumption that market makers set prices by a *linear pricing rule*, I characterize a class of "speculation-proof" linear pricing rules. The speculation-proof rule is the arbitrage-free pricing rule in the model. In an application to a simple three periods trading model, I show that competitive market makers can set prices in equilibrium which follow a speculation-proof linear pricing rule.

Chapter 2 expands the setting in Chapter 1 and argues *market control* in an infinite period market making systems. The market control means a market intervention for stabilization. I analyze a situation in which two-periods-lived rational speculators gains by speculations which exploit irrational *feedback traders* and cause price bubbles. Under the assumption that market prices follow a *linear pricing rule*, I characterize the rules which do not lead price bubbles. If there is no control, then we have to considerably restrict the pricing rules for no price bubbles. On the other hand, if there is a control, we can achieve

no price bubbles in equilibrium without any substantial restriction on the pricing.

Chapter 3 takes up the *full* implementation problem under conditions of incomplete information. The solution concept I use is *ex post equilibrium*. I provide a necessary and an almost sufficient condition for ex post implementation. I show that the *ex post selective elimination* condition and ex post incentive compatibility are necessary conditions for which social choice set X is ex post implementable. Moreover, social choice set X is ex post implementable if both the conditions are satisfied in an economic environment.

Chapter 4 also investigates *full* implementation problem under conditions of incomplete information. This chapter, in particular, focuses on a robustness of mechanisms. I introduce a new concept to implementation problem — *belief-free implementation*. Social choice function x is said to be *quasi belief-free implementable* if there exists a mechanism which implements x for any full-support belief system of agents. The main solution concept is iterative deletion of ex post *weakly* dominated strategies. If social choice function x is implementable in iterative deletion of ex post weakly dominated strategies, then it implies that x is quasi belief-free implementable. I provide a sufficient condition, the *uniformly effective elimination condition*, for quasi belief-free implementation in an economic environment.