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Journal of Banking & Finance 25 (2001) 479–503

Journal of BANKING & FINANCE

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Price volatility, welfare, and trading hours in asset markets

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Received 12 April 1999; accepted 11 November 1999

Abstract

This paper studies the consequences of opening asset markets more often for the properties of asset prices and social welfare. For all reasonable parameter values, increasing trading hours lowers average asset prices, increases unconditional asset price volatility at a given point in time, and decreases unconditional asset price volatility when averaged over the period of time that includes the additional hours that markets are open. Unconditional social welfare is increased by opening markets more often, although the welfare gains are small – well below 1% of lifetime consumption. In contrast, because expanding hours of trading affects agents' information sets, the welfare effect of more trading hours conditional on information available to agents can be large and the effect can be negative.

JEL classification: G10; G28; D60

Keywords: Securities markets; Trading hours; Asset prices; Welfare

1. Introduction

This paper studies the consequences for asset prices and social welfare of increasing the amount of time that asset markets are open for trading.

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Currently the New York Stock Exchange is open for trading five days a week for less than 7 hours a day. Many other asset markets are open much less often. For example, the Bulgarian Stock Exchange is open just on Tuesdays and only for 2 hours, and the market for pollution permits in California opens one day every three months. [1] Recently there has been a push to open asset markets more often, as reflected for example by the introduction of after-hours trading on stock exchanges and international agreements between exchanges that allow some assets to be traded virtually round-the-clock. There is a presumption underlying this move toward opening asset markets more often that it is beneficial to investors. This paper seeks to understand whether this is likely to be the case, and in any case, what the mechanism is linking the amount of time asset markets are open to social welfare.

The direct monetary cost of opening asset markets more often has in some cases become small where electronic trading systems have displaced traditional, labor-intensive trading systems. But even in these circumstances a formal analysis of the consequences of opening markets more often is interesting for two reasons. First, Hart's (1975) point that the introduction of more markets (when markets are incomplete) can lower welfare makes one wonder whether opening existing markets more often could similarly lower welfare. This possibility may have some merit in light of a number of authors' suggestions (e.g. Economides and Schwartz, 1995; Kregel, 1995) that the indirect, non-monetary costs of opening markets more often may be large because of less informative prices and higher price volatility. Second, even if one believes that most reasonable models ought to have the prediction that opening markets more often raises welfare, it is of interest to understand this link and assess its magnitude.

This paper makes contributions along two lines. First, the paper develops a dynamic general equilibrium model in which investors can choose how often, when, and how much to trade in the asset market. This provides a rich environment to compare the consequences of opening markets more often. Second, because all agents in the model are rational it is possible to obtain explicit welfare measures of the benefits and costs of opening markets more often. The availability of explicit welfare measures means that one does not have to rely just on comparing features of asset prices that may be related to welfare (e.g. volatility, informativeness of prices). When there are countervailing benefits and costs of opening markets more often, only direct welfare measures allow for a concrete determination of the desirability of increasing the number of hours a market is open.

A key finding of the paper is that opening asset markets more often increases unconditional welfare for all reasonable parameter values. One reason for this welfare benefit is that asset price volatility is lower when measured over the

[1] I thank Preston McAfee for the pollution permit example.