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Share liquidity, participation, and growth of the Boston market for industrial equities, 1854–1897 ☆

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ABSTRACT

Financial economists have long believed that the liquidity of shares affects the level of participation in equity markets and is thus central to their deepening. This study examines the growth in industrial share liquidity that occurred in Boston over the latter half of the 19th century. From primary sources hitherto unused for scholarly investigations, namely the running annual worksheets of securities price fluctuations that underlie broker Joseph Martin's volumes on the history of the Boston stock market, I construct broad-based indices of annual prices and returns for banking and industrial equities, as well as measures of real market capitalization. A series of vector autoregressive models then relate increases in liquidity, as measured by falling par values of industrial shares due to stock splits, write-downs and re-capitalizations, entries, and exits, to advances in prices and capitalizations among traded firms. The findings support the view that increases in participation were important for sustaining Boston as the nation's leading industrial market until finally overtaken by New York sometime around 1900.

1. Introduction

Evaluating the macroeconomic impact of equity markets and the complementarities that they may share with more traditional financial intermediaries such as banks has seen much interest among both scholars and policy makers over the past decade (e.g., Levine and Zervos, 1998; Rousseau and Wachtel, 2000). The task is formidable in the context of today's emerging markets, however, because the impact of an equity market appears to depend as much on the web of capital controls, exchange rate policies and banking practices that characterize individual economies as on the structural and regulatory features of the exchange itself.[1] At the same time, there remains a strong belief among many macro economists that liquidity, defined here as the ability to purchase or sell shares at a price that reflects the "intrinsic" value of the underlying enterprise, can lead to financial deepening by mobilizing savings and ultimately improve the efficiency with which resources are delivered to productive uses.

Given the insights that the past can sometimes provide for current policy discussions, it is perhaps surprising that the 19th-century United States has only recently been rediscovered as a case of growth sparked by emerging financial markets

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[1] For example, the liquidity provided by equity markets could in the presence of exchange rate pegs and freely-moving capital actually exacerbate the instability of international flows (Radelet and Sachs, 1998).

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(e.g., Sylla, 1998; Atack and Rousseau, 1999; Rousseau and Sylla, 2005). Continuing this line of inquiry, I explore the impact of rising liquidity on the growth of Boston's market for industrial securities using information that I have uncovered on share prices, dividends, par values, and authorized capitalizations between 1854 and 1897 (see also Rousseau, 2000). The historical lens offers an advantage because capital flows across regional and national boundaries were considerably less volatile in New England during the 19th century than those that we associate with emerging markets today. This allows attention to focus on liquidity and its role in promoting the development of a specialized yet well-integrated capital market.

Even though a national market for government securities and several local markets for the equity shares of banks and insurance companies emerged very early in the nation's history, New England was the only region in which a market for industrial equities arose to complement bank financing prior to 1850. These stocks traded in Boston at public auctions as early as 1817 and on a formal stock exchange after 1834, but their market (as well as that for bank equities) thickened considerably in the 1850s. This places Boston's market more than fifty years ahead of the industrial market in New York that Navin and Sears (1955) describe.

One problem commented upon by dealers and brokers in the early days of the Boston market and described by Martin (1856) was that high par values of industrial equities (usually $1000) limited demand for these securities by placing some potentially interested and willing savers outside of their budget constraints at a time when annual per capita incomes ranged from $100 to $300. This study suggests that falling par values of traded industrial shares between 1854 and 1897, with the declines attributable to stock splits, write-downs and re-capitalizations, and the entry of new firms and the exit of others, increased market liquidity by easing participation constraints, thereby advancing securities prices and allowing the market to grow.

The paper is organized as follows. Section 2 describes Boston's equity market between 1854 and 1897, presents new indices of price and total return performance for banking and industrial shares, and documents the growth in market size and a proxy for share liquidity. Section 3 outlines the testable hypotheses that emerge from the analysis, outlines a methodology for their formal investigation, and presents the empirical findings. Section 4 concludes.

2. The performance of the Boston market in banking and industrial equities, 1854–1897

2.1. Data

Until recently, little was known about the nation's first market for industrial securities. The most comprehensive record of trading covering Boston's formal exchange from its inception appears in a series of volumes by Martin (1856, 1871, 1898). Martin was a Boston broker who also organized information on equity market activity for sale in various forms to local newspapers, other brokers, and potential investors starting in the early 1850s. These volumes contain par values, dividends, authorized capital, and annual high and low stock prices in each calendar year from 1835 to 1898 for banks, insurance companies, railroads and industrials.[2] These data, though limited by the imprecise timing of price observations, when combined with the descriptions of trading practices in Barron and Martin (1893) and newspapers of the period reveal several characteristics of the equity market that are particularly important for this study.[3] First, price movements were an important source of fluctuations in returns. This contrasts with the traditional view that steady prices and dividends led 19th-century equities to function essentially like bonds in a regime of stable interest rates.

Second, the market for banking and industrial shares in Boston was a decentralized one. Even though the formal exchange (called the "Broker's Board") was established in 1834 to provide a single location for twice-daily calls, shares in most industrial firms were also traded at auctions conducted by local securities dealers on Wednesdays and Saturdays.[4] The twice-weekly auction calls were an efficient mechanism for focusing liquidity in the industrial market.[5] Indeed, by the time that the exchange adopted continuous trading in 1885 (Boston Stock Exchange, 1930, p. 15), nearly all trades in banks and indus-

[2] Martin obtained price and dividend quotes for the 1835–1850 period from records of the exchange's founding member P.P.F. DeGrand and auctioneer Stephen J. Brown.

[3] Atack and Rousseau (1999) use annual high and low prices from Martin's volumes to construct price and return indices for 1835–1869, and it is the imprecise timing of these annual prices that renders their indices not directly comparable to those presented here for the period of their overlap (1854–1869).

[4] Several members of the Board officiated as auctioneers in the early days of the exchange. As this was judged to interfere with the business of the Board, however, it was ruled in March 1848 that with the exceptions of estate transactions and cases of special permission "any member of the Board who shall attend a public sale of stocks, or who shall, directly or indirectly, buy or sell at such sale, shall vacate his seat at the Board" (Martin, 1856). The rule seems to have had little effect on the extent of auction trading in industrials. In 1854, for example, Martin (whose year-end summary of equity trades in the Boston market was reported in the January 10, 1855 edition of the *Boston Daily Advertiser*) reports that 41 industrials were quoted at the Board and 2237 shares traded in that market during the year. My own analysis of all issues of the *Boston Daily Advertiser* (1854) uncovered off-exchange trades of 702 additional industrial shares, including several issues that were inactive at the Board.

[5] The gradual movement of trades in industrial shares to the auction market by no means implies that these markets became less active. Though consistent records of trading volumes that include activity both on and off the exchange are unavailable, some information about share turnover can be gained from the surviving transfer books of several of the larger manufacturing firms. My examination of these records, which are on deposit in the Historical Collections of the Baker Library at the Harvard Business School (Mss: 442), indicate that on average 11.5 percent (172 shares of par $1000) of the outstanding stock in the Lawrence Manufacturing Company officially changed hands annually between 1854 and 1897. These figures were 15.3 percent (245 shares with par $1000 before 1870 and 330 shares with par $500 between 1870 and 1891) for the Dwight Manufacturing Company and 20.6 percent (428 shares with par $500 between 1854 and 1880) for the Pepperell Manufacturing Company. A transfer was usually recorded when the new shareholder first appeared at the Boston office to claim a dividend. Since some transfers represented shares which may have traded several times between semiannual dividends (Lowell and Lowell, 1884), these figures are only suggestive of actual activity in the organized equity market.