



Stock Market Prices and the Market for Corporate Control

Law Working Paper N° 298/2015

July 2015

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Abstract

The manner in which hostile takeovers have historically been executed has just begun to receive serious academic attention. Similarly, while the literature on the accuracy and determinants of share prices is voluminous, there has been little systematic historical analysis of when and how modern standards of share price efficiency took shape. This article addresses both subjects in depth to ascertain the extent to which developments in the market for corporate control may have been associated with, or facilitated by, developments in stock market efficiency. We identify potential linkages between hostile control transactions and stock market pricing and explore these linkages empirically with a new hand-collected dataset of control contests occurring between 1900 and 1965. We show that while the evolution of acquiror tactics in control contests was plausibly linked in some circumstances to changes affecting the manner in which shares were priced other factors have to be taken into account to explain how the market for corporate control developed over this period.

Keywords: tender offer; market for corporate control; proxy contest; stock market efficiency; control contests

JEL Classifications: G14, G34, K22, N21, N22

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I. INTRODUCTION

Stock market prices should play an important role in the market for corporate control. In considering a potential takeover, a would-be acquiror will compare the current stock price, which provides a market generated estimate of the firm's value under its incumbent management team, with what could be achieved under new ownership. This estimate is particularly important for hostile acquirors, who are unlikely to be given access to private information by the target company's board. Acquirors also anticipate that the target's share price (and their own in the case of companies) will move in a reasonably predictable way once news of the prospective bid becomes public, with the market's assessment of the price offered and the likelihood of success dictating the size of the change.

Such links between share prices and the market for corporate control presuppose that the stock market is (more or less) "efficient" in at least two senses. First, in the sense of being "informationally efficient", such that share prices promptly impound available information.¹ And second, in the sense that stock prices are "fundamentally efficient", meaning they reflect accurately what companies are actually worth.

Conventional wisdom has it that the market for corporate control in U.S. public companies only took its modern form in the 1950s and 1960s, though its origins can be traced back decades earlier.² It also seems likely that stock market pricing evolved substantially throughout the course of the 20th century, given regulatory changes, technological advances and growing academic interest in the topic. In this article, we explore whether these timelines are related and consider in particular whether there was a move to more "efficient" share prices that affected the way takeovers were done. In so doing, we focus specifically on

¹ As will be seen *infra* (see note 9 and accompanying text), prices can in fact be informationally efficient in a number of ways.

² John Armour and Brian Cheffins, *The Origins of the Market for Corporate Control*, [2015] U. ILL. L. REV. 1835, 1836-38.

hostile transactions because, as explained, market pricing is particularly important for such deals.

Given the importance of share prices for the market for corporate control, one might think that the inter-relationship would be well understood. This is not the case, at least from a historical perspective. While the literature on the accuracy and determinants of share prices is voluminous, there has been relatively little analysis of how and when modern standards of stock market efficiency took shape. Similarly, the manner in which hostile takeovers have historically been executed has just begun to receive serious academic attention.³ In this article, we offer what is to our knowledge the first unified account of the development of these two phenomena. We take an empirically-oriented approach to ascertain the extent to which developments in stock market efficiency impacted upon the market for corporate control. In particular, we derive insights from a new hand-collected dataset of control contests in US companies covering from the beginning of the 20th century until the mid-1960s,⁴ by which time the market for corporate control had evolved into a form readily recognizable to modern readers.

Our enquiry yields novel insights into both control contests and the pricing of shares. With share prices, one might presume that in the absence of modern information technology, market pricing would have been a primitive affair. The scale and depth of information impounded into share prices indeed was less substantial than it subsequently became. On the other hand, during the opening decades of the 20th century share prices reacted sharply to market news in a way that would be familiar to modern observers.

³ A recent article of ours is the first concerted attempt to analyze the functioning of the market for corporate control during the opening half of the 20th century. See Armour and Cheffins, *ibid.*

⁴ This dataset draws on, but significantly expands, data presented in earlier work. See Armour and Cheffins, *ibid.* (presenting data on US market for corporate control from 1900-1949).

The trends concerning share prices likely had significant implications for control contests. Our data reveal that the annual number of control contests grew between 1900 and the 1960s. The fact that mid-20th century bidders could assume share prices were more accurate than would have been the case earlier in the century due to impounding a wider range of salient information and could also investigate potential targets more thoroughly due to more extensive disclosure may well have contributed to the growth of the market for corporate control. These trends also help to explain a finding of ours that it became more common over time for parties lacking a pre-existing connection with targets, such as operating in the same industry, to launch takeover bids.

Our most striking empirical finding concerns a change of takeover technique adopted by bidders endeavoring to buy a controlling stake in a public company target, and our analysis of share prices helps to explain why this occurred. In the opening decades of the 20th century, a raider seeking to obtain control of a target by purchasing a majority of the shares would almost always launch what we refer to as an “open market bid” (or “OMB”),⁵ which involves an acquiror acting on its own initiative rather than on the invitation of management to buy sufficient shares on the stock market to acquire control.⁶ After a hiatus in attempts by raiders to secure voting control of targets during the 1930s and 1940s we find that cash tender offers became the tactic of choice in the 1950s and the 1960s.

An OMB can be a ruinously expensive way to acquire control because the target’s share price may rise dramatically as a result of the acquiror’s buying activities. The tender offer is a pragmatic response through which the acquiror seeks to cap the price at which the

⁵ We initially deployed this term in John H. Armour & Brian R. Cheffins, *Origins of “Offensive” Shareholder Activism in the United States*, in *ORIGINS OF SHAREHOLDER ADVOCACY* 253, 270 (Jonathan G.S. Koppell ed., 2011) (hereinafter Armour & Cheffins, *Origins* (2011)).

⁶ Such a bid could be accompanied by off-market purchases from significant shareholders. If, however, a party obtains majority control by purchasing shares off-market from a tight coalition of investors we assume this is a friendly takeover rather than an OMB. See *infra* notes 44-45 and related discussion.

shares will be acquired with the price being fixed for those who tender their shares.⁷ Why then, were OMBs used instead of tender offers during the opening decades of the 20th century? Our analysis of the historical development of share prices offers important clues, emphasizing in particular that as the 20th century got underway an OMB was less likely to drive up share prices of targets dramatically as compared with later decades. Part of the reason likely was that bidders had scope unavailable today to rely on market manipulation techniques to disguise the buying that was occurring. It also is likely that even savvy investors struggled to deduce from share price fluctuations that an OMB was underway, in large part because companies at the beginning of the 20th century were disclosing much less financial information than their counterparts later in the century.

The rest of the article is structured as follows. Parts II and III set the scene. Part II focuses on share prices, explaining in so doing the various ways in which they can be thought of as “efficient”. Part III describes the range of different techniques a would-be bidder might deploy in order to gain control of a target company against the wishes of its management and identifies the conditions under which each would be most attractive to the insurgent.

In Part IV, we present our hand-collected dataset of control contests, including OMBs, contested tender offers (both cash and share-for-share exchange offers) and proxy contests where board control was at stake. After providing a concise summary of key time trends the data reveals, we offer a series of conjectures on the extent to which share price trends might explain our findings. Part V describes how the pricing of shares developed from 1900 through to the 1960s in the U.S. and spells out the implications for contested control transactions, based on the analysis in Parts II to IV have provided. Part VI concludes, emphasizing in so doing that while share prices do not explain all facets of the market for corporate control, changes to the pricing of shares do account at least partly for certain key

⁷ A bidder who relies on a tender offer can, however, subsequently raise the tender offer price.

developments with takeovers as the market for corporate control began taking on the form familiar to most readers.

II. SHARE PRICES AND EFFICIENCY – A PRÉCIS

Before considering our empirical evidence concerning the operation of market for corporate control between 1900 and 1965 and embarking on our historical analysis of share prices it is necessary to put matters into context. In Part III we will do this by providing a succinct overview of takeover techniques we consider throughout the remainder of the article. At this point, we will explain the nature of share prices, and most particularly their “efficiency”. We pay particular regard to “efficiency” because we rely on this term extensively as we explore the interaction between share prices and takeovers and want to clarify its meaning because the ways in which it is used can be confusing.

Discussions concerning share prices and efficiency typically center on the efficient capital markets hypothesis, or “ECMH”.⁸ The ECMH focuses on “informational efficiency”, which is assessed by how quickly and how fully share prices adjust to reflect the revelation of new information relevant to the pricing of these securities. There are three versions of the hypothesis: the “weak” form, the “semi-strong” form and the “strong” form.⁹

A stock market is said to be informationally efficient in the *weak* sense if current share prices fully reflect all information contained in past share prices. Under such circumstances, the future movement of share prices will constitute a “random walk” unrelated to past trends and the study of prior price fluctuations will be fruitless as an investment

⁸ The literature on the ECMH is voluminous. Oft-cited treatments of the ECMH include Eugene F. Fama, *Efficient Capital Markets: A Review of Theory and Empirical Work*, 25 J. FIN. 383 (1970); Eugene F. Fama, *Efficient Capital Markets: II*, 46 J. FIN. 1575 (1991); BURTON G. MALKIEL, A RANDOM WALK DOWN WALL STREET 137-41, 157-63, 182-84 (2015). The account provided here is drawn largely from BRIAN R. CHEFFINS, COMPANY LAW: THEORY, STRUCTURE AND OPERATION 55-58 (1997).

⁹ JAMES H. LORIE & MARY T. HAMILTON, THE STOCK MARKET: THEORIES AND EVIDENCE 71 (1973).

strategy. A market is said to be efficient in the *semi-strong* sense if current prices reflect all relevant information that is publicly available. The difference between this and the weak form of informational efficiency turns on the fact that a wider range of relevant information – all of that which is publicly available rather than merely past trading trends—is assumed to be reflected in stock prices. Finally, the *strong* form of the ECMH is satisfied if share prices fully reflect all knowable information, including that which is not publicly available. The difference between strong and semi-strong form informational efficiency consequently relates to the extent to which non-public information is reflected in stock prices.

It is important to bear in mind that merely because a stock market is informationally efficient in any one of the three senses just summarized does necessarily not mean that share prices are “correct” in the sense that they are perfect, or even highly reliable, indicators of future net cash flows and hence the underlying value of shares.¹⁰ A corporation’s share price will approach this standard of efficiency and be “accurate” if the price is relatively close to the intrinsic value of the shares. A 1938 study of the impact of speculation on stock prices noted that “In an ideal world ... from a security investor’s point of view, the future would be an open book.”¹¹ This has never been the case, meaning that, with share prices depending on expectations about future performance, even the best informed investors can only estimate the “true” or “fundamental” value of a company’s shares (the present value of future returns shareholders will receive).¹² Consequently, stock prices that are “informationally” efficient

¹⁰ MERRITT B. FOX, FINANCE AND INDUSTRIAL PERFORMANCE IN A DYNAMIC ECONOMY: THEORY, PRACTICE, AND POLICY 57-59 (1987); Ian Ayres, *Back to Basics: Regulating How Corporations Speak to the Market*, 77 VA. L. REV. 945, 968-75 (1991). Economist James Tobin has been credited with identifying initially the distinction between informational and fundamental efficiency. See Lawrence A. Cunningham, *From Random Walks to Chaotic Crashes: The Linear Geology of the Efficient Capital Market Hypothesis*, 62 GEO. WASH. L. REV. 546, 563 (1993) (citing James Tobin, *On the Efficiency of the Financial System*, LLOYDS BANK REV., July 1984, 1).

¹¹ JAMES A. ROSS, SPECULATION, STOCK PRICES & INDUSTRIAL FLUCTUATIONS 69 (1938).

¹² Cunningham, *supra* note 10, 563; Fox, Morck, Yeung and Durnev, *supra* note 11, 345.

need not be “fundamentally” efficient, in the sense that a company’s share price reflects with substantial accuracy the actual value of that company.

While informational efficiency cannot necessarily be equated with fundamental efficiency, if stock prices do reflect all available information then a corporation’s share price will plausibly be the best available estimate of the value of the business as it is being run. This is because the price at which shares trade will be largely dictated by the actions of numerous unbiased individuals who have strong financial incentives to evaluate anticipated corporate performance as best they can.¹³ The extent to which informational efficiency and share price “accuracy” can be equated in practice will depend on two factors. These are the nature and extent of the information available and the means by which this information becomes available to investors.

The significance of the nature and the extent of the information available can be illustrated by considering the semi-strong form of the ECMH. Semi-strong form informational efficiency (or lack thereof) is measured by how quickly and thoroughly fresh public information is impounded into share prices. This is conceptually distinct from the amount and quality of information that is made public. Consider a situation where only scant information is publicly available concerning a particular company’s shares. So long as the share price impounds quickly that information which becomes public the share price will be efficient in the semi-strong sense.¹⁴

¹³ CHEFFINS, COMPANY, *supra* note 8, 57.

¹⁴ It is also entirely possible that share prices will be informationally efficiency in the weak sense without offering reliable guidance on the underlying value of companies. Share prices can be said to engage in a “random walk” if they are “unbiased”, meaning that on average they do not diverge from the actual value of shares either upwards or downwards. This test can be satisfied regardless of the amount of information available concerning companies. *See* Fox, Morck, Yeung and Durnev, *supra* note 11, 335; Merritt B. Fox, *Required Disclosure and Corporate Governance*, 62 LAW & CONTEMP. PROBLEMS 113, 115-16 (1999).

While the nature and extent of information available concerning shares need not affect the informational efficiency of share prices in the semi-strong form, the situation likely is different with fundamental efficiency. If firm-specific information “in the market” is scant then even if this information is correct and has been impounded rapidly and fully in share prices, the price quite likely will be at best a crude indicator of a the firm’s true value. On the other hand, if share prices impound a substantial range of financially salient information it will be much more likely that those prices accurately reflect the prospects of the corporations in question.¹⁵

While the nature and extent of the information that is publicly available will likely affect the accuracy of stock prices but can vary without compromising the possibility of informational efficiency,¹⁶ the manner in which information is impounded in share prices can influence both.¹⁷ Given that shares should be valued by reference to future expected cash flows,¹⁸ the release of new information about a firm’s prospects can cause investors to reassess their expectations and update their valuations. The promptness with which this occurs, and the extent to which the new information influences share price movements, will dictate the extent to which those prices are efficient in both the informational and fundamental sense.

Variation in the extent to which new and relevant information influences share prices occurs because investors do not all buy or sell promptly on the basis of fresh information that

¹⁵ Merritt B. Fox, *Retaining Mandatory Securities Disclosure: Why Issuer Choice is not Investor Empowerment*, 85 VA. L. REV. 1335, 1359, 1369-70 (1999); see also Donald Langevoort, *Information Technology and the Structure of Securities Regulation*, 98 HARV. L. REV. 747, 759 (1985) (“As more investment information becomes widely accessible, the marketplace becomes even more efficient and the opportunity to identify undervalued securities...will diminish”).

¹⁶ The proposition advanced here is irrelevant to strong form efficiency because share prices meet this standard when all information, public or private, is impounded in the price.

¹⁷ This discussion draws on John Armour and Luca Enriques, *Financing Disruption*, Working Paper, University of Oxford, 13-14 (2015).

¹⁸ *Supra* note 10 and related discussion.

becomes available. Tracking down and analyzing such information can be inconvenient and time-consuming. Correspondingly, there are many “uninformed” investors who make decisions about whether to buy, sell or merely continue to hold shares in companies without reference to relevant information that has recently become publicly available. Some investors of this type are “liquidity” or “time function” traders who buy or sell because of personal financial circumstances (e.g. selling shares to carry out major expenditures or to pay taxes) or are trading to rebalance the risk profile of their investment portfolio.¹⁹ Others, commonly referred to as “noise” traders, erroneously believe they have insights or a trading strategy that will deliver superior risk-adjusted returns and correspondingly may fail to take into account properly truly salient disclosures a corporation makes.²⁰

On the opposite end of the spectrum from “uninformed” investors are “informed” investors. There will, for instance, be investors who are “insiders”, these being individuals who have access to price-sensitive confidential information due to their proximity to a particular firm and have the knowledge and ability to evaluate this information when deciding whether to buy or sell shares.²¹ There will also be investors who engage in “professionally informed” trading. These investors, who have carefully honed evaluative skills and will include market professionals such as portfolio managers, brokers, and securities analysts, track closely data relevant to the future prospects of firms and buy or sell

¹⁹ On the term “liquidity” trader, see, for example, Thomas E. Copeland and Dan Galai, *Information Effects and the Bid-Ask Spread*, 38 J. FIN. 1457, 1458 (1983); Bruno Biais and Pierre Hillion, *Insider and Liquidity Trading in Stock and Options Markets*, 7 REV. FIN. STUD. 743, 744 (1994); Zohar Goshen and Gideon Parchomovsky, *The Essential Role of Securities Regulation*, 55 DUKE L.J. 711, 724 (2006); Avner Kalay and Avi Wohl, *Detecting Liquidity Traders*, 44 J. FIN. & QUANT. ANAL. 29, 29-30 (2009) (“While there is no generally accepted definition for ‘liquidity traders’ in many cases this term refers to investors that trade for reasons other than private information”). On the term “time-function” trader see Lloyd R. Cohen, *Why Tender Offers? The Efficient Market Hypothesis, the Supply of Stock, and Signaling*, 19 J. LEG. STUD. 113, 127 (1990).

²⁰ See, for example, Goshen and Parchomovsky, *supra* note 20, 724-25; Andrei Shleifer and Lawrence H. Summers, *The Noise Trader Approach to Finance*, 4 J. ECON. PERSP. 19, 20 (1990); Ronald J. Gilson and Reinier H. Kraakman, *The Mechanisms of Market Efficiency Twenty Years Later: The Hindsight Bias*, 28 J. CORP. L. 715, 724 (2003).

²¹ Goshen and Parchomovsky, *supra* note 20, 722.

shares accordingly, or at least make recommendations to that effect.²² The information these professionally informed investors analyze will usually be publicly available, though there may be circumstances where they will get access to relevant information that is not widely available. The balance will be dictated to a substantial degree by the amount of information a company has divulged to the market, either voluntarily or by virtue of legislation compelling disclosure.

Falling between these “uninformed” traders and “informed” traders are investors who, when deciding whether to buy or sell shares, focus on general market trends or patterns of trading of particular companies. Such investors might engage in “price decoding”, which involves traders who might otherwise be informed or uninformed interpreting data on price and trading volume concerning shares of a particular corporation to deduce relevant private information possessed by informed investors trading the shares of that corporation.²³ A related possibility is share trading based on technical analysis, which involves forecasting the direction of prices through the study of past market data, often distilled in the form of charts. Those engaging in technical analysis typically hope that careful scrutiny of what investors have been doing will reveal what “the crowd” is likely to do in the future.²⁴ If share prices accord with any form of the ECMH this style of trading will, by definition, fail to succeed in delivering superior risk-adjusted investor returns because share prices reflect all past trading behavior.²⁵

²² Ronald J. Gilson and Reinier H. Kraakman, *The Mechanisms of Market Efficiency*, 70 VA. L. REV 549, 571 (1984). Goshen and Parchomovsky refer to these as “information traders”: *supra* note 20, 723.

²³ Gilson and Kraakman, *Mechanisms*, *supra* note 23, 575.

²⁴ MALKIEL, RANDOM, *supra* note 8, 110-11.

²⁵ *Ibid.*, 140 (quoting a financial economist to the effect that if the weak form of the ECMH is valid, “Technical analysis is akin to astrology and every bit as scientific”).

The balance between “uninformed”, “informed” and “price decoding” investors will likely influence the efficiency of share prices, both in the informational and fundamental sense.²⁶ The interactions may be quite subtle. If informed investors dominate share trading, this may be expected to improve the speed with which markets adjust to fresh news and mean that the information is impounded with greater accuracy, thereby promoting both informational and fundamental efficiency.²⁷ Conversely, if uninformed investors dominate, this will likely slow the processes by which relevant new information changes share prices and may compromise the accuracy of share prices as a barometer of the intrinsic worth of companies. In particular, if uninformed traders have correlated reasons for trading, such as a shared erroneous bias in their evaluation of stocks, then their trades may drive market prices some distance away from what the fundamentals would otherwise dictate.

III. TAKEOVER TECHNIQUES OVER TIME

To set the scene further for historical analysis of the inter-relationship between share prices and the market for corporate control, we now provide a thumbnail sketch of takeover techniques open to would-be acquirors of public companies.²⁸ An initial distinction is between an acquisition of control by purchasing a majority of the voting stock, termed by

²⁶ Gilson and Kraakman, *Mechanisms*, *supra* note 23, 570 (“The rapidity of such price adjustments depends on the volume of informed trading”).

²⁷ This is true only up to a point. If the market contains no uninformed investors at all, it will be difficult for informed investors to earn superior risk-adjusted returns based on their efforts, meaning there will be little incentive to engage in information discovery and analysis. See Sanford J. Grossman and Joseph E. Stiglitz, *On the Impossibility of Informationally Efficient Markets* 70 AMER. ECON. REV. 393 (1980).

²⁸ As Henry Manne noted in his famous 1965 article identifying the “market for corporate control”: “There are several mechanisms for taking control of corporations”: Henry G. Manne, *Mergers and the Market for Corporate Control*, 73 J. POL. ECON. 110, 114 (1965).

Ronald Gilson and Alan Schwartz as a “transfer by sale,”²⁹ and obtaining control through a proxy fight, which the same authors refer to as a “transfer by vote.”³⁰

A. Transfer by Vote vs. Transfer by Sale

A “transfer by vote” occurs when a party opposed by the incumbent directors achieves boardroom dominance by securing through the solicitation of proxies the backing of unaffiliated shareholders. For an insurgent, a key advantage with a proxy contest as compared to a transfer by sale is that the financial outlay will probably be less because it will not be necessary to buy the shares constituting a controlling stake.³¹ On the other hand, with a successful transfer by vote the acquiror has to share with other shareholders any benefits generated by improved performance due to the change of control whereas with a transfer by sale the acquiror will benefit exclusively, assuming the acquiror ultimately buys all of the target’s shares. Also, transfers by vote lack the finality of a transfer by sale. While the winner of a proxy contest will only retain control for as long as the shareholders continue to provide their backing, an acquiror who buys a majority voting stake should be able to control the company until they decide to sell out.

B. Exchange vs. Cash Tender Offers

As the conventional wisdom concerning takeover history spelled out in the Introduction implies, for contemporary readers a transfer by sale connotes a tender offer. With a tender offer, target shareholders are invited to offer (“tender”) their shares to the

²⁹ Ronald Gilson and Alan Schwartz, *Sales and Elections as a Method of Transferring Corporate Control*, 2 THEO. INQUIRIES L. 783, 790 (2001).

³⁰ *Id.*

³¹ For a more detailed analysis of the trade-offs involved, see Armour & Cheffins, *Origins* (2011), *supra* note 5, 267-69.

acquiror.³² The acquiror undertakes to pay tendering shareholders either in cash or with shares in itself, or some combination of the two. This undertaking will typically be conditional, with the acquiror reserving the right not to purchase any of the shares tendered if the number actually tendered does not equal the number the acquiror is seeking to purchase.³³

As between a cash and an exchange tender offer the big advantage with the latter is that the bidder does not have to raise the funds required to buy the shares of those who tender.³⁴ Cash tender offers, on the other hand, tend to be less complicated affairs than exchange tender offers. With an exchange tender offer, target company shareholders must assess not only the price but also the bidder's prospects when deciding whether to accept. Consequently the simplicity of cash can provide a compelling reason for a corporation attempting a hostile takeover to eschew an exchange offer.³⁵

Cash tender offers were also traditionally more straightforward to execute than exchange offers because of corporate and securities law. By virtue of state corporate law, shareholder approval was quite often required for the issuance of shares underpinning an exchange tender offer.³⁶ Moreover, between the mid-1930s and the enactment of the Williams Act in 1968,³⁷ whereas a cash tender offer could be carried out without triggering disclosure obligations under federal securities law, the distribution of shares associated with a share-for-share exchange obliged the acquiring corporation to prepare, file and distribute a

³² A tender offer can also be made by a company to acquire its own shares, but this scenario is irrelevant to the market for corporate control. On types of tender offers, see DOUGLAS AUSTIN AND JAY FISHMAN, *CORPORATIONS IN CONFLICT – THE TENDER OFFER* 3-4 (1970).

³³ EDWARD R. ARANOW AND HERBERT A. EINHORN, *TENDER OFFERS FOR CORPORATE CONTROL* 49 (1973); Daniel R. Fischel, *Efficient Capital Market Theory the Market for Corporate Control, and the Regulation of Cash Tender Offers*, 57 *TEX. L. REV.* 1, 6 (1978).

³⁴ Armour and Cheffins, *Origins* (2015), *supra* note 2, 1858 (indicating with a cash tender offer the cash has to be available).

³⁵ See *ibid.*, 1856.

³⁶ Arthur Fleischer and Robert H. Mundheim, *Corporate Acquisitions by Tender Offer*, 115 *U. PA. L. REV.* 317, 348, n. 119 (1967).

³⁷ Pub. L. No. 90-439, 82 Stat. 454.

prospectus divulging business and financial data concerning both the acquiror and the target.³⁸

C. Block Purchases vs Open Market Bids

The tender offer is not the only transfer by sale method available. For example, Henry Manne, in a famous 1965 article that introduced the concept of “the market for corporate control”, observed that of the techniques for securing control, “The most obvious is outright purchase on the open market of the requisite percentage of shares.”³⁹ This is what we characterize as an “open market bid”.⁴⁰ Unlike a tender offer, where a corporate acquiror can offer its shares as consideration, sellers of shares in an OMB necessarily receive cash.

Where a corporation has a small number of shareholders who own collectively a majority stake, a bidder need not rely on the stock market to gain control. The objective can instead be achieved by arranging off-market purchases from those dominant shareholders (“block purchases”).⁴¹ With block purchases being individually negotiated and with voting control potentially at stake, such deals are unlikely to be concluded at market prices. Absent some form of distress sale by the blockholders the purchase price(s) will not be set below the prevailing share price. Instead the price will usually be tailored to provide the vendors with a premium reflecting the fact they are transferring control of the company (Table 1).

³⁸ Armour and Cheffins, *Origins* (2015), *supra* note 2, 1857.

³⁹ Manne, *supra* note 29, 116.

⁴⁰ An alternative formulation is “open market purchase of control”: Yedida Z. Stern, *Acquisition of Corporate Control by Numerous Privately Negotiated Transactions: A Proposal for the Resolution of Street Sweeps*, 58 BROOKLYN L. REV. 1195, 1195 (1993).

⁴¹ Manne, *supra* note 29, 116 (noting that an acquiror can “try to buy the shares from large individual owners, thus preserving secrecy and allowing negotiation on price”).

Table 1: Varieties of transfer by sale

	Tender offer	Open Market Bid	Block purchases
Where occurs	Off-market	On-market	Off-market
Negotiated with those selling shares?	No	No, for shares purchased on the stock market	Yes
Hostile acquisition of control possible?	Yes	Yes	No
Consideration	Cash, shares or a combination of the two	Cash	Usually cash
Relevance of market price	Benchmark for setting premium	Sets price for sale	Provides a “floor”; the actual sale price will reflect a control premium

If a publicly traded company lacks a tight coalition of shareholders owning a dominant collective stake, then seeking to obtain voting control entirely by way of off-market block purchases will not be feasible. A general tender offer can make sense in such circumstances. Tender offers are, of course, also off-market purchases. A key distinction between a tender offer and the acquisition of control by deals struck with dominant shareholders is that there is no negotiation over price. Instead, the same offer is typically made simultaneously to all target shareholders on a “take-it-or-leave-it” basis.⁴²

Where an acquiror is in a position to obtain voting control by purchasing shares off-market from a tight coalition of investors, this can be thought of as a “friendly” acquisition. This is because that dominant coalition should have the voting power necessary to persuade

⁴² We have already encountered one exception, this being where a bidder opts to increase the price on offer so as to improve the response from the shareholders (*supra* note 7). Another will be where a corporation has more than one class of shares. The invitation may then contain multiple offering prices: ARANOW AND EINHORN, *supra* note 34, 47.

the board of directors to cooperate.⁴³ We correspondingly exclude from our hostile acquisition dataset instances where a bidder sought to obtain control by way of off-market purchases from a coalition of shareholders with a controlling stake.⁴⁴

D. Cash Tender Offers vs. OMBs

A putative acquiror who decides to try to obtain control of a public company by paying cash to buy shares and cannot rely on block purchases will then need to choose between an OMB and a cash tender offer. The relative attractiveness of an OMB versus a cash tender offer is barely explored in prior literature,⁴⁵ so we will canvass the issue here. In distinguishing between OMBs and tender offers, our primary emphasis will be on the manner in which shares are priced. Other factors can, however, come into play we will consider briefly before turning the interrelationship between OMBs, tender offers and share prices.

For an acquiror an attractive feature of an OMB is that the purchasing of shares can be spread out over time so as to permit the acquiror to use funds periodically accumulated (e.g. realized corporate profits), thereby precluding any need to engage in external borrowing.⁴⁶ In contrast, with a cash tender offer the bidder has to be able to pay the entire purchase price all

⁴³ Stern, *supra* note 41, 1196 (making the point in a situation where there is a single majority shareholder but the same logic should apply if voting control is held collectively by a coalition of investors with whom the acquiror can negotiate).

⁴⁴ Because off- and on-market purchases can be combined in the acquisition of a controlling stake this could make it difficult for us to categorize an acquisition transaction for the purposes of our dataset. We aimed to include only instances where a bidder could not obtain a majority stake by way of private negotiation and correspondingly needed to buy shares on the stock market to secure voting control.

⁴⁵ The sole paper to consider the question directly of which we are aware is a 1990 article by Lloyd Cohen, who in turn notes that in prior literature there was “virtually no discussion in the literature of why raiders employ tender offers rather than open market purchases”: Cohen, *Why*, *supra* note 20, 116-17.

⁴⁶ Financial constraints would be more potent if an OMB was executed rapidly. For instance, in the opening decade of the 20th century, when OMBs involving railways were prevalent (Armour and Cheffins, *Origins* (2015), *supra* note 2, 1840-41), railway companies would go heavily into debt to raise money to buy stock in other railways: ALEXANDER D. NOYES, *THE MARKET PLACE: REMINISCENCES OF A FINANCIAL EDITOR* 218 (1938).

at once. Also, with an OMB the acquiror can use margin borrowing, relying on credit from a broker or bank secured by reference to the purchased shares. Indeed, in the early decades of the 20th century, when the margin required of clients fell as low as 10%,⁴⁷ a large block of stock could be bought with relatively little capital.⁴⁸ The Securities Exchange Act of 1934⁴⁹ mandated federal regulation of margin lending for securities and initial margin requirements clients had to meet subsequently rose to 50% or higher.⁵⁰

Conversely, a potentially significant disadvantage with an OMB is the outcome if the campaign does not succeed. Under such circumstances the acquiror might well end up with a substantial minority stake which could be difficult to unwind without putting substantial downward pressure on the share price. In contrast, because a tender offer can be made conditional on a specified percentage of shares being tendered,⁵¹ the bidder has the option to walk away completely if the tender offer does not generate the hoped-for response.⁵²

Potentially the most important distinction between a tender offer and an OMB likely to influence the choice between the two is the price that will have to be paid for the shares. With a tender offer target company shareholders are extremely unlikely to agree to sell if the price offered is the same as the prevailing market price, which means that for a tender offer to

⁴⁷ The ‘margin’ denotes the proportion of the price paid upfront by the purchaser, the rest being funded by a loan secured on the stocks purchased.

⁴⁸ H.S. MARTIN, *THE NEW YORK STOCK EXCHANGE* 130-31, 137 (1919); Franklin Allen, Lubomir Lutov and Jianping Mei, *Large Investors, Price Manipulation, and Limits to Arbitrage: An Anatomy of Market Corners* 10 REV. FIN. 645, 661 (2006).

⁴⁹ 48 Stat. 881.

⁵⁰ Simon Kwan, *Margin Requirements as a Policy Tool*, FRBSF ECON. LETTER, March 24, 2000, available at <http://www.frbsf.org/economic-research/publications/economic-letter/2000/march/margin-requirements-as-a-policy-tool/> (accessed April 14, 2015); *Figure 1: Initial Margin Requirements*, available at <http://www.frbsf.org/economic-research/publications/economic-letter/images/pdfcharts/el2000-09a.pdf> (accessed April 14, 2015).

⁵¹ *Supra* note 34 and related discussion.

⁵² See, however, Cohen, *Why*, *supra* note 20, 118-19 (arguing that if acquirors were alarmed by the possibility of ending up a substantial minority shareholder they would have launched “naked” tender offers without first acquiring a sizeable stake in the target when in fact raiders typically bought up on average more than 20% of a target’s shares before launching a bid).

succeed it will have to incorporate a control premium.⁵³ Estimates of the average bid premium for tender offers occurring between the 1960s and 1980s ranged between around 15% and 50%.⁵⁴

With an OMB, if the acquiror is able to secure control without the share price rising significantly an OMB should work out cheaper than a tender offer. There is a big “if” involved, however, because the bidder’s share purchases may be expected to drive the share price up. For instance, Samuel Hayes and Russell Taussig, who argued in a 1967 *Harvard Business Review* article that the cash tender offer was “the only quick, reasonably priced approach when resistance is expected”, said that successfully executing an OMB “may take years if a prohibitive run-up in the market price is to be avoided.”⁵⁵

The likelihood of an OMB prompting a substantial increase in the target company’s shares will depend on the willingness of existing shareholders to sell their shares at, or near, the current market price. If many will do so, then it could well be possible for the bidder to acquire a sizeable and perhaps even controlling stake without driving up the share price materially. Under such circumstances, the supply curve of the target company’s stock would be flat, or perfectly “elastic,” illustrated by line S in Figure 1. When a supply curve is highly elastic an increase in the quantity bought has little or no effect on the price the buyer – in our case the acquiror -- must pay. For instance, with the perfectly elastic supply curve illustrated

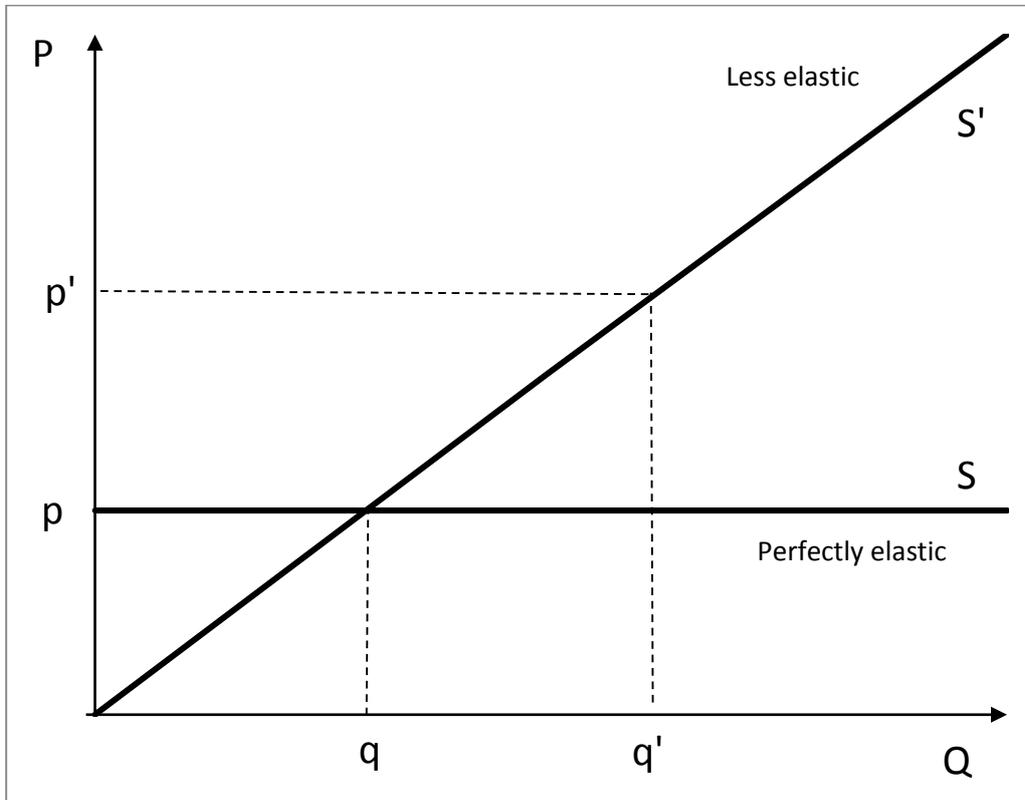
⁵³ As Myles Mace and George Montgomery observed in 1962 in a book on corporate acquisitions: “When the stock of a company to be valued for an acquisition is listed, widely held and traded actively on an exchange or over-the-counter, the minimum total price for such an enterprise is generally greater than the total value determined in the market place....To stockholders the quoted price on the market constitutes value and any offer less than what is believed to be value will be rejected.” MYLES L. MACE AND GEORGE G. MONTGOMERY, *MANAGEMENT PROBLEMS OF CORPORATE ACQUISITIONS* 204 (1962).

⁵⁴ Cohen, “Why”, *supra* note 20, 115; Lynn A. Stout, *The Unimportance of Being Efficient: An Economic Analysis of Stock Market Pricing and Securities Regulation*, 88 MICH. L. REV. 613, 690 (1988).

⁵⁵ Samuel L. Hayes and Russell A. Taussig, *Tactics of Cash Takeover Bids*, HARV. BUS. REV., March-April 1967, 135, 136-37.

by line S an increase in the quantity demanded from q to q' results in no increase in the market price from p .

Figure 1: Supply curves for shares in target companies



As the elasticity of a supply curve decreases – see line S' in Figure 1 -- an increase in the quantity demanded in the market results in higher prices. Hence, an increase in demand from q to q' results in an increase in price from p to p' . Translating this insight to the market for corporate control, an investor seeking to use the stock market to buy voting control of a public company which has an inelastic supply curve for its shares will quickly find that it is necessary to pay more, and maybe much more, than what had been the prevailing market price to succeed.

In theory, the supply curve for shares of companies could look like S.⁵⁶ Assume, for instance, that investors do not buy a stock for its unique qualities. Instead, they buy shares and own them because the equity offers at the market price a fair return, adjusting for risk.⁵⁷ With a stock market as well developed as that in the United States there should be numerous close substitutes for a particular stock. A corporate finance maxim which follows from this is, “Seen One Stock, Seen Them All.”⁵⁸ To the extent this maxim is true, companies will have shares with highly elastic supply curves, which will benefit bidders undertaking an OMB.⁵⁹ To be sure, even if the supply curve for a company’s shares is highly elastic, stock market buying might prompt a short-term share price bump because of liquidity constraints, such as when dealers temporarily struggle to find willing sellers because a stock is thinly traded.⁶⁰ With this being a short-term effect, an acquiror may nevertheless ultimately be able to accumulate enough stock to gain control without a marked run up in price.

The efficiency of the stock market could affect the willingness of shareholders to exit in a company undergoing an OMB and thereby influence the likelihood of success. We identify here three possible links. Each of these begins from the observation that a would-be acquiror who buys a large number of shares rapidly in the market could trigger at least a short-term increase in price owing to liquidity constraints, even if the supply curve is otherwise flat. While the effect could be temporary, the manner in which other investors

⁵⁶ Daniel R. Fischel and David J. Ross, *Should the Law Prohibit “Manipulation” in Financial Markets?*, 105 HARV. L. REV. 503, 513-15 (1991). On other observers who have reputedly taken the point for granted, see Lynn A. Stout, *Are Takeover Premiums Really Premiums? Market Price, Fair Value, and Corporate Law* 99 YALE L.J. 1235, 1242, n. 40 (1990).

⁵⁷ RICHARD A. BREALEY, STEWART C. MYERS AND FRANKLIN ALLEN, *PRINCIPLES OF CORPORATE FINANCE: GLOBAL EDITION* 361 (2011).

⁵⁸ *Ibid.*, 360.

⁵⁹ Stout, *Are Takeover*, *supra* note 57, 1242.

⁶⁰ Fischel and Ross, *supra* note 56, 515-16.

react could mean that the price increase is sustained in a way that makes an OMB considerably more costly and perhaps untenable.

The first link relates to how informed investors revise their estimates of a stock's value in response to an increase in price. Such investors will use what they already know about the company to "decode" the information that the price increase signals. We may expect the response to be a function of what is already known about the target company. The less information that is public about the company, the wider the range of potential private information a price increase might signal, and the harder it will be for informed investors to deduce whether an increase in the share price has arisen from trading by those with private information indicating that the firm's prospects have improved or whether there is a buyer seeking to acquire a large and even controlling stake. Conversely, if a large volume of information has already been made public about a company, then identifying a bidder by way of price decoding should be easier for informed investors because they will have a reasonably reliable benchmark for evaluating whether the share price should be increasing.

Regardless of how the price decoding has occurred, as and when informed investors deduce there is a potential acquiror, and an acquiror who may be willing to pay considerably more than the current market price to buy the shares needed to obtain control, they will then be reluctant to sell out at or near the prevailing market price. This will create a steeper supply curve and a much more costly OMB. Extrapolating from this logic, we would predict that OMBs would become more costly as the amount of information made public about companies increases and is impounded in share prices. This in turn would be linked to a more fundamentally efficient market.⁶¹

⁶¹ See *supra* note 16 and accompanying text.

A second link between stock market efficiency and investors' willingness to sell in the event of an OMB turns on the behaviour of *uninformed* investors.⁶² Such investors are unlikely to have faith in the veracity of share prices if the stock market does not adjust rapidly to changing information. As the stock market becomes increasingly informationally efficient, however, confidence investors have in share prices should grow. As and when matters reach the point where all publicly available information is promptly impounded in shares uninformed investors may reason that because of the reliability of share prices that there is no reason to sell stock they own at the market price absent a pressing financial need or a plan to restructure their investment portfolio.⁶³ This would result in companies having supply curves for shares that would be almost vertical (highly inelastic). In the particular circumstances of an OMB, the increase in price triggered by a would-be acquiror's buying of shares would generate a feedback loop whereby price increases arising from the buying would cause investors to ascribe a higher valuation to the shares, which in turn would prompt the price to rise further and so on. An OMB would then become too expensive to execute. It follows that OMBs are likely to be prohibitively costly when the stock market impounds potentially salient information promptly, or at least as so long as uninformed investors *believe* the stock market to be efficient.⁶⁴

Each of the two links we have considered by which an OMB might drive share prices upward depends on there being a noticeable price reaction to which investors respond. If it is possible for an acquiror somehow to acquire a sizeable percentage of a target's shares without any price increase, then no such reactions should be triggered. This paves the way for the

⁶² Cohen, "Why", *supra* note 20, 129.

⁶³ *Ibid.*; see also *supra* note 20 and related discussion.

⁶⁴ This is because the mechanism turns on investors beliefs about the accuracy of the stock price.

third potential link between stock market efficiency and investors' willingness to sell in the event of an OMB.

A way in which an acquiror could preclude the share price of a target from rising significantly would be to engage in market manipulation so as to stop any upward movement. If OMBs were causing sharp increases in the share price of targets because of decoding by informed investors, market manipulation could short circuit the upward price swing by preventing those investors from deducing that an OMB was occurring. If, on the other hand, OMBs were causing share prices to increase dramatically because of faith uninformed investors had in the veracity of shares prices, market manipulation could preclude the share price increases that would lead shareholders to believe their companies had increased in value. More generally, if market manipulation was widespread this could undermine faith investors would otherwise have in share prices and flatten the supply curves of shares for all companies. Under all of these circumstances OMBs could succeed with the bidder paying little more than the pre-OMB price for the shares. Conversely, if market manipulation was difficult to achieve OMBs could readily become too costly to be viable.

If OMBs drive share prices upwards because of price decoding by informed investors or because uninformed investors have faith in share prices as a measure of fundamental value and market manipulation cannot be used effectively to preclude a price increase, a tender offer may be an attractive alternative to an OMB. As regards uninformed investors who assume share prices reflect all relevant information, a tender offer would operate as a way of communicating to them that they had an opportunity to secure an "extraordinary" payout which could only be achieved by tendering their shares.⁶⁵ A tender offer would signal to uninformed investors to disregard what they would otherwise assume to be the most trustworthy signal of intrinsic value, namely the price at which the shares were trading. The

⁶⁵ Cohen, "Why", *supra*, note 20, 129-30.

point that the bidder would be seeking to drive home is that the price the bidder was offering did not reflect the underlying value of the corporation in current hands – the pre-tender offer share price would be the appropriate metric if this state of affairs continued – but rather the value of the company if and when control changed hands.⁶⁶

In a scenario where the buying of shares associated with an OMB would tend to drive up share prices sharply due to decoding by informed investors, a tender offer could again be helpful tactically. What a tender offer could do would be to help to cap the size of the control premium that the acquiror had to hand over. This could be done most effectively through an element of coercion. If the acquiror only made an offer for a subset of the target's shares that remained large enough to deliver control, investors would infer that delaying the decision to tender might have serious adverse consequences.⁶⁷ They would know that they could lose the opportunity to exit with a control premium and that, if the bid succeeded without them having tendered, they would be minority shareholders in a public company which the acquiror dominated. Those investors could then be vulnerable to exploitation by the acquiror.⁶⁸

IV. EMPIRICAL ANALYSIS OF HOSTILE TAKEOVERS

A. Methodology

Having canvassed the various types of takeover and identified ways that share price efficiency could be relevant to their deployment, we now turn to the evidence from our dataset on the evolution of different modes of control contest over the period 1900 to 1965. We compiled our time series by using the *ProQuest Historical Newspapers* database, which permits full-text searches of stories in major U.S. newspapers. We focused on those papers

⁶⁶ *Ibid.*, 131.

⁶⁷ John C. Coffee, Jr., *Regulating the Market for Corporate Control: A Critical Appraisal of the Tender Offer's Role in Corporate Governance*, 84 COLUM. L. REV. 1145, 1205 (1984).

⁶⁸ *Ibid.*

most salient for announcements about corporate control contests, namely the *Wall Street Journal*, the *New York Times* and (to a lesser extent) the *Washington Post*.

In earlier work, we used the *ProQuest Historical Newspapers* database to compile time series of proxy contests, OMBs and tender offers affecting U.S. public companies for the period 1900-1949.⁶⁹ For this study, being aware of the conventional wisdom that the market for corporate control took on its modern form in the 1950s and 1960s, we extended these datasets to 1965.⁷⁰ We compiled data on hostile takeovers encompassing four different techniques for obtaining control: OMBs, cash tender offers, exchange tender offers and proxy contests. In each case, we sought to identify relevant transactions by entering a combination of search terms and then read the articles which were identified. The articles were then assessed individually to determine relevance to our enquiries.

In reading through the newspaper articles we identified we discounted reports that were described as “rumours” unless a control contest was confirmed by a subsequent story. We also excluded transactions in which the acquiror was seeking to acquire less than control, whether because they were only seeking to buy a sizeable minority of the voting shares or obtain minority representation on the board.⁷¹ Finally, only transactions that we could confirm were hostile, typically determined by whether the transaction was opposed at least initially by the target’s directors, were included in our dataset. Regardless of the stance the board took we treated transactions as friendly where the bidder sought or obtained voting control by negotiating off-market private purchases of shares with a dominant shareholder

⁶⁹ Armour and Cheffins, *Origins* (2011), *supra* note 5; Armour and Cheffins, *Origins* (2015), *supra* note 2.

⁷⁰ Setting the end-point of the data collection to 1965 was based on pragmatic considerations, namely a substantial increase in the number of “hits” using our search strategies in the years immediately following.

⁷¹ In the case of an OMB or a tender offer, we typically equated “control” with a majority of voting rights but treated newspaper reports indicating that “working” or “effective” control was at stake as being equivalent. In the case of a proxy fight, we took “control” to mean a majority of the board of directors.

coalition.⁷² For those transactions that qualified for our dataset, we identified the insurgent's relationship (if any) with the target and ascertained whether control was successfully acquired.

Due to a paucity of empirical work on hostile takeovers occurring prior to the 1960s our dataset provides a fruitful and indeed unique departure point for understanding the historical development of the market for corporate control. Nevertheless, there are clear limitations on the inferences that can be drawn from our data. One is that we could only uncover details of control transactions which received newspaper coverage. This likely biased the results towards larger companies, the activities of which would be the most newsworthy. We have no way of knowing the extent of this bias, or how it evolved over time.

Another limitation is that our searches would only identify attempted takeovers that generated stories that contained the search terms we relied upon. Designing suitable search criteria for our purposes was challenging given the evolution in takeover tactics and language used to describe them over two-thirds of a century. Consequently, for each technique for obtaining control we developed and deployed search protocols that encompassed numerous ways of referring to the same underlying transaction.⁷³

⁷² For more details on the logic, see *supra* notes 44-45 and related discussion.

⁷³ For *OMBs*, we searched for “acquire* w/20 control OR secure* w/20 control OR gain* w/20 control OR obtain* w/20 control OR attempt* w/20 control AND “open market” AND stock OR shares.” For *cash tender offers*, we searched for “tender AND offer AND (control OR merger) AND (share OR stock).” For *exchange tender offers*, we searched for “tender AND offer AND (control OR merger) AND (share OR stock) AND exchange.” For *proxy contests*, we searched for ““proxy fight” OR “proxy battle” OR “proxy contest” OR “proxy solicitation” OR “consent solicitation” OR “solicit proxies” OR “soliciting proxies” OR “solicitation of proxies””.

B. Data

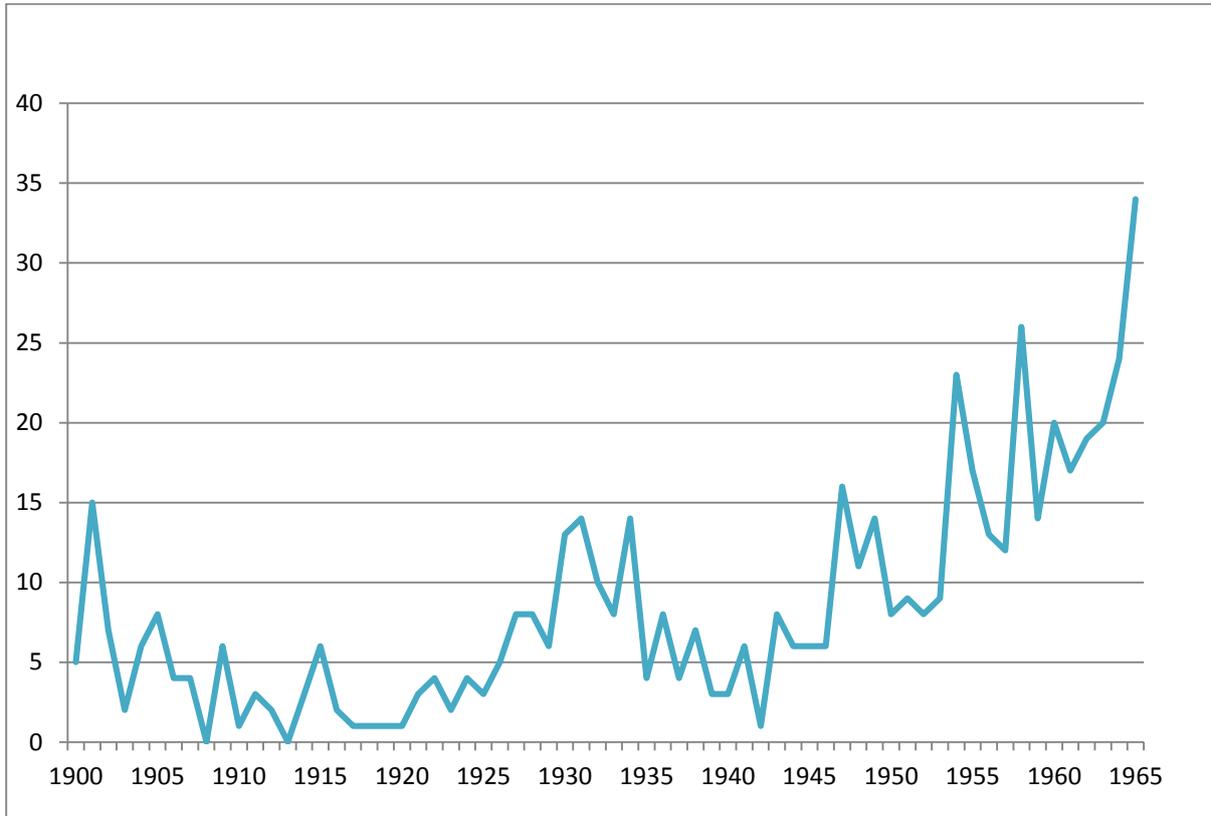
1. *Overall Frequency of Control Contests*

For 1900-65, we identified a total of 346 instances where an acquiror sought to obtain a controlling stake in a public company by a transfer by sale. Of these 346, 92 were OMBs, 152 were cash tender offers and 102 were exchange tender offers. Given that we defined OMBs as involving attempts by bidders acting on their own initiative to commence a campaign to buy sufficient shares on the stock market to acquire control,⁷⁴ all 92 were “hostile”. Of the 152 cash tender offers, we uncovered evidence of board opposition on 55 occasions. Hostility was rarer with exchange tender offers, with only 11 instances where there was managerial opposition. Overall, then, we identified 158 occasions between 1900 and 1965 where there was an attempted transfer by sale that was hostile in nature.

Instances where an insurgent merely sought to obtain board control were more common overall than attempts to carry out a transfer by sale. Between 1900 and 1965 we identified 398 proxy contests where the protagonists were seeking to obtain control of the board. Transfers by vote correspondingly modestly outnumbered attempts to secure transfers by sale by 398 to 346 but did so by more than a two-to-one ratio (398 to 158) once the focus is restricted to hostile takeovers.

Hostile control transactions were not distributed equally across the decades we focus on. Instead, while there was substantial year-to-year variation, they generally became more common as time went along. Figure 2, which charts the total number of hostile control transactions year-by-year by aggregating all four time series, illustrates the point.

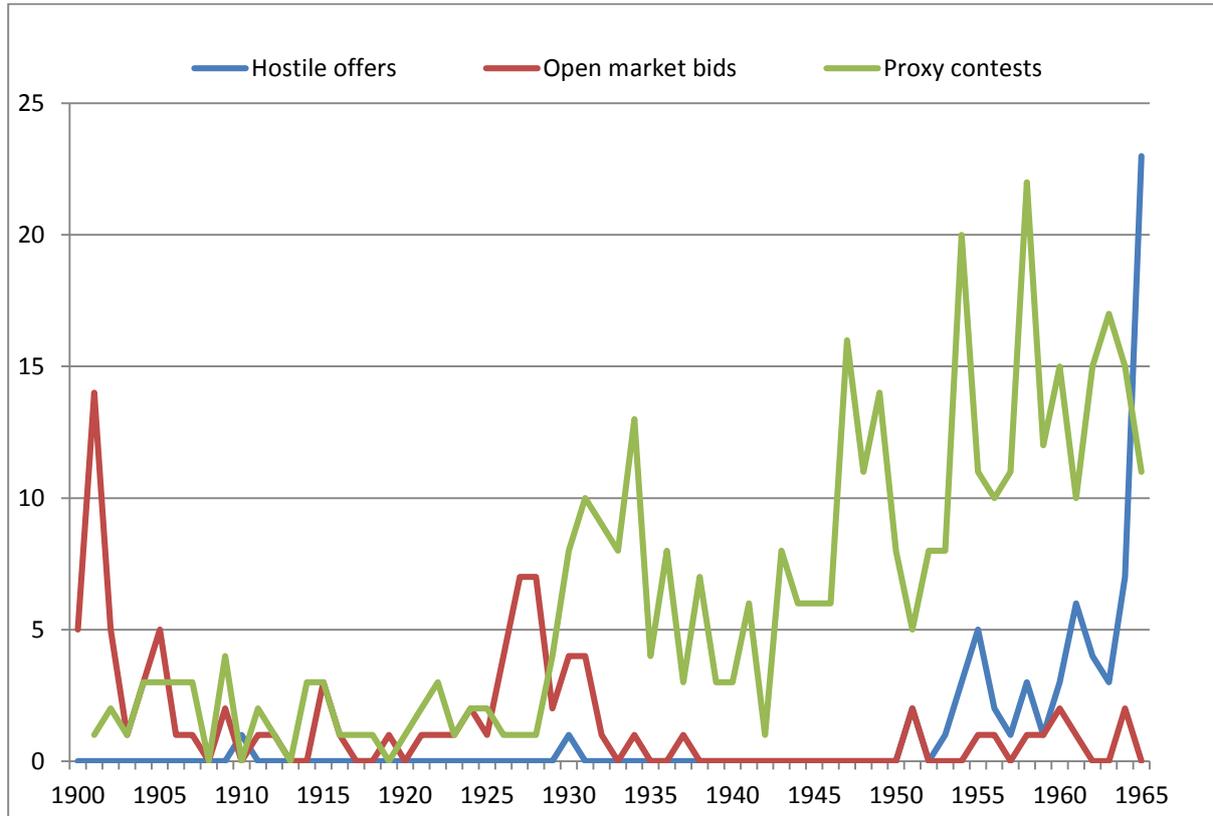
⁷⁴ *Supra* note 6 and accompanying text.

Figure 2: All Control Contests, 1900-1965

Notes. “Control contests” includes sum of hostile tender offers (whether exchange or cash), open market bids for control, and proxy fights launched for board control of US publicly-traded companies identified through searches of *ProQuest Historical Newspapers*. Data for proxy fights for board control from 1956-65 are from *SEC Annual Reports*.

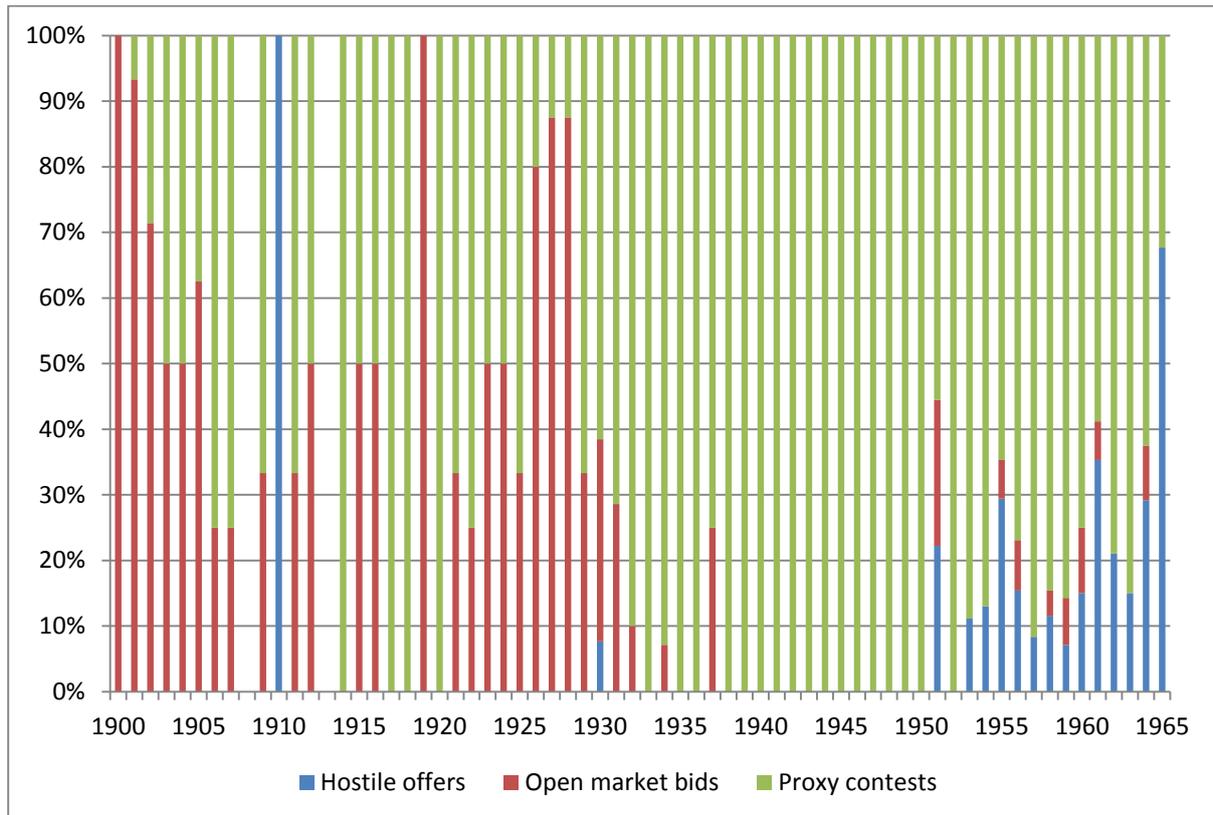
2. *Transfers by Sale vs. Transfers by Vote*

Having identified aggregate hostile takeover trends, we consider now how matters evolved with each of the takeover techniques we focus on. Figure 3 plots the annual data on tender offers without discriminating on the basis of the form of consideration offered. It also plots data on OMBs and proxy contests for control.

Figure 3: Control contests, 1900-65 (raw numbers)

Notes. “Hostile offers” comprises the sum of hostile cash tender offers and hostile exchange tender offers. “Proxy contests” comprises proxy contests for board control. “Open market bids” comprise transactions in which acquiror seeks to obtain control of target company by purchasing controlling stake in the market. All identified through searches of *ProQuest Historical Newspapers*.

With the number of control contests growing generally over time, it is hard to draw conclusions from Figure 3 about the relative incidence of different types of control contest. To correct for this, Figure 4 presents the same data expressed as proportions of the total annual tally of control contests. A striking point which emerges from this is the relative ubiquity of proxy fights for control. Not only did instances where prospective acquirors sought to execute a transfer by vote substantially outnumber transfers by sale between 1900 and 1965, other than years clustered at the very beginning of the 20th century and the late 1920s, only very rarely did proxy battles constitute a minority of all control contests.

Figure 4: Control Contests, 1900-65 (proportions by type)

Notes. “Hostile offers” comprises the sum of hostile cash tender offers and hostile exchange tender offers. “Proxy contests” comprises proxy contests for board control. “Open market bids” comprise transactions in which acquiror seeks to obtain control of target company by purchasing controlling stake in the market. All identified through searches of *ProQuest Historical Newspapers*.

Figure 4 also reveals that transfers by sale were restricted pretty much exclusively to the 1900s, 1920s, 1950s and 1960s. This broadly corresponds with the periods in which there was substantial merger activity.⁷⁵ Conversely, the periods in which transfers by sale were a rarity—the 1930s and 1940s—were decades in which mergers were much less frequent. The pattern is a logical one because hostile takeovers executed by a transfer by sale are a species

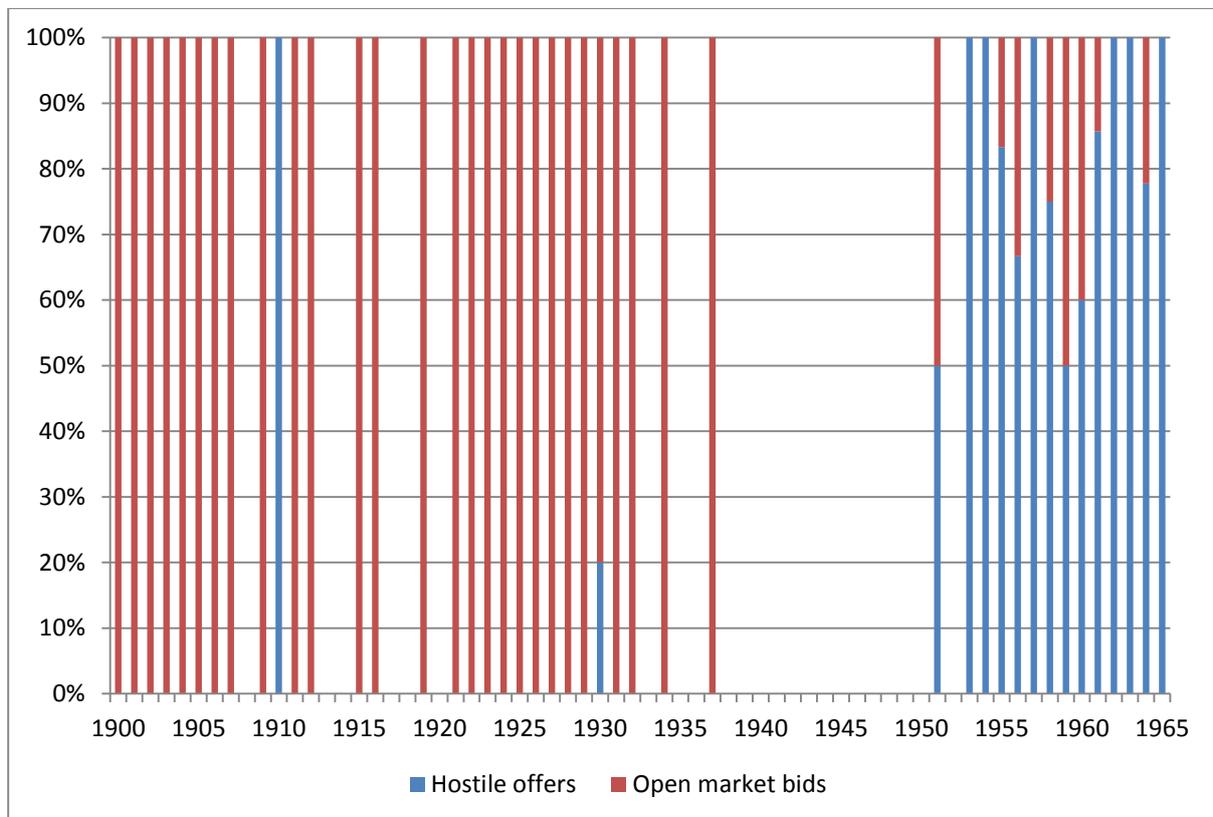
⁷⁵ We have made this point previously, focusing on OMBs and mergers occurring between 1900 and 1950: Armour and Cheffins, *Origins* (2011), *supra* note 2, 1840. The data we relied on then and now to ascertain the number of mergers was drawn from Klaus Gugler, Dennis C. Mueller and B. Burcin Yurtoglu, *The Determinants of Merger Waves*, Working Paper, University of Vienna Department of Economics, available at ssrn.com/abstract=507282, 41 (2006) (accessed May 28, 2015). This paper provides annual merger data covering from 1895 to 2002.

of merger and it is hardly surprising that the relative importance of this method of acquiring companies declined markedly when merger activity was in the doldrums generally.

3. *OMBs versus Tender Offers*

Having drawn attention to trends concerning transfers by sale and transfers by vote, we now consider transfers by sale in more detail. We begin by comparing OMBs and tender offers, whether cash or share exchange based. Figure 5 provides evidence on the annual incidence of OMBs and tender offers and reveals a strong time trend. In the opening decades of the 20th century the OMB was the technique of choice of acquirors seeking to execute a transfer of control by sale. This was no longer the case, however, by the 1950s. By this point in time the tender offer was clearly eclipsing the OMB.

Figure 5: Transfers by Sale: OMBs vs Hostile Tender Offers

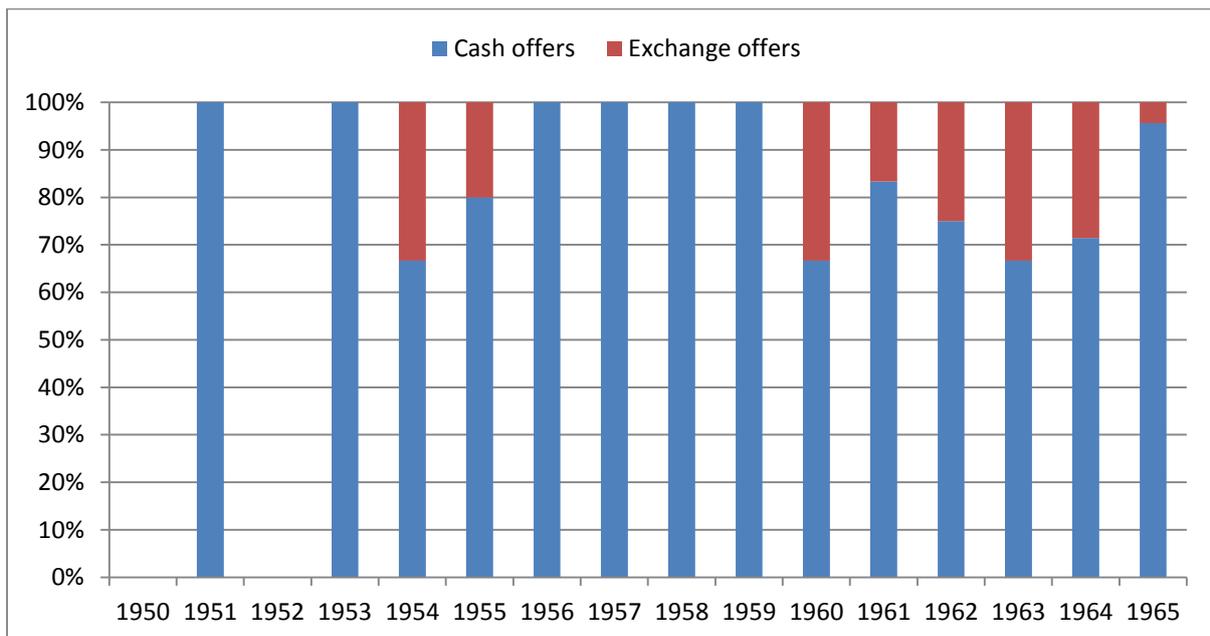


Notes. “Hostile offers” comprises the sum of hostile cash tender offers and hostile exchange tender offers. “Open market bids” comprise transactions in which acquiror seeks to obtain control of target company by purchasing controlling stake in the market. All identified through searches of *ProQuest Historical Newspapers*.

4. *Hostile Tender Offers: Cash Bids vs Exchange Offers*

Figure 6 illustrates the relative frequency of hostile cash versus exchange tender offers between 1900 and 1965. In our dataset, hostile tender offers do not become a meaningful part of control contests until the 1950s (Fig. 4). We found only a tiny number of pre-1940 hostile tender offers, each of which was an exchange offer.⁷⁶ We omit these from Figure 6 in order to focus on the 1950s and the first half of the 1960s. Figure 6 indicates that exchange offers were used less frequently than cash offers between 1950 and 1965 to carry out hostile bids. There was no strong time trend; cash offers substantially outnumbered exchange offers in each and every year.

Figure 6: Hostile Tender Offers: Cash vs. Exchange Offers, 1950-65



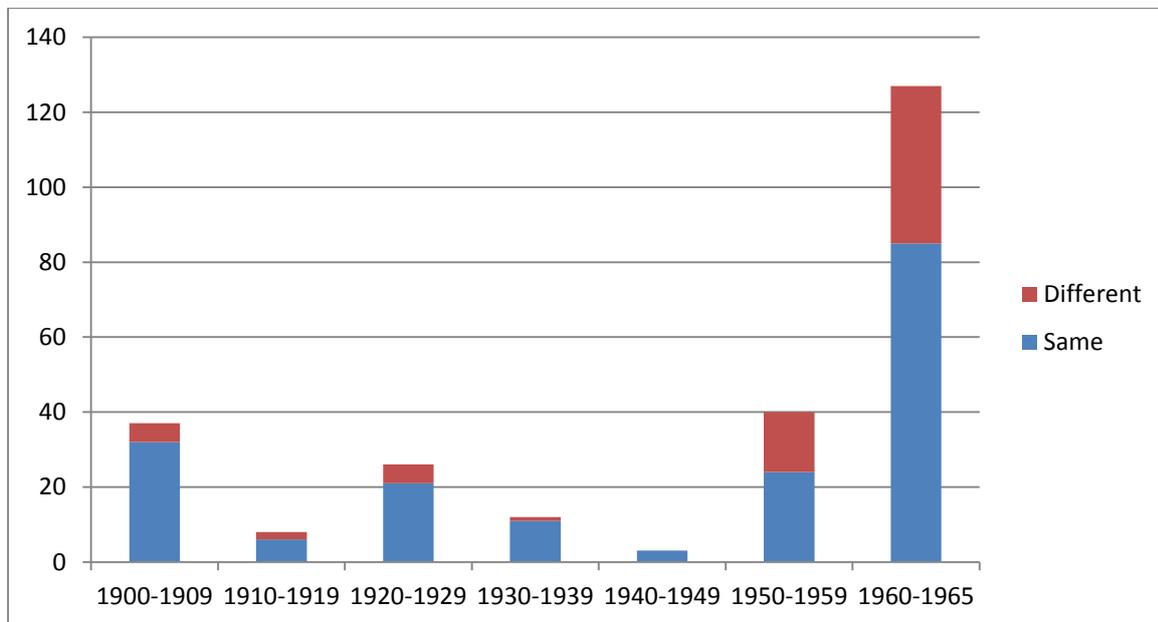
Notes. “Cash offers” comprises hostile cash tender offers and “Exchange offers” comprises hostile exchange tender offers. All identified through searches of *ProQuest Historical Newspapers*.

⁷⁶ The pre-1940 exchange tender offers we found by way of our searching had Nevada Consolidated Copper Co. (1910) and All America General Corporation (1930) as targets. There may also have been an exchange tender offer launched in 1901 to obtain control of American Bridge Co. See Armour and Cheffins, *Origins* (2015), *supra* note 2, 1850-51.

5. *Relationship of the Acquiror to the Target Company*

A final issue upon which our data sheds light is the identity of the acquiror seeking to carry out a transfer by sale. A hallmark of the 1980s, when hostile takeovers reached their zenith, was the prominence of the financial buyer who was in the business of acquiring and selling companies and therefore not strongly wedded to a particular industry.⁷⁷ This was presaged by post-World War II trends. Figure 7 reveals a clear increase in the 1950s and 1960s of the proportion and number of hostile transfers by sale outsiders launched.

Figure 7: Relationship of Acquirer and Target Industry: Contested Transfers by Sale, 1900-65



Notes. “Contested transfers by sale” comprises sum of hostile OMBs, hostile cash tender offers and hostile exchange tender offers. All identified through searches of *ProQuest Historical Newspapers*.

C. Using Share Price Trends to Explain Our Data – Theoretical Conjectures and Preliminary Observations

The manner in which shares are priced and securities markets function can plausibly impact upon the market for corporate control in various ways. We offer a series of

⁷⁷ BRUCE WASSERSTEIN, *BIG DEAL: 2000 AND BEYOND* 95 (2000).

conjectures of this nature here, identifying in so doing those which are substantiated in a preliminary way by our historical data. This will set the stage for us to consider the development of share prices from 1900 through to the 1960s and permit us ultimately to draw conclusions about linkages between share price trends and the development of the market for corporate control.

1. Overall Frequency of Control Contests

Between 1900 and 1965 there was a general trend towards more hostile takeovers being launched over time (Fig. 2). The manner in which shares were priced potentially could explain this pattern because perceptions of stock prices may affect the willingness of potential acquirors to launch a control contest. Takeovers—especially hostile ones—are always a risky proposition. However, where share prices are thought of as providing few clues on where a company stands a hostile takeover will be very much a leap in the dark. In contrast, if share prices are regarded as informationally efficient (they incorporate rapidly pertinent information) and fundamentally efficient (they are a reliable barometer of firm value under current management), acquirors should have faith in a potential target's share price as a benchmark for making a bid. Correspondingly, if between 1900 and 1965 share prices became more efficient in these senses over time this should have encouraged control contests.⁷⁸

Part V's analysis of the historical development of share prices will consider the extent to which the efficiency of share prices – informational and fundamental -- increased as the 20th century progressed. To anticipate, the evidence is mixed but due to changes such as the enactment of federal securities regulation in the mid-1930s the efficiency of the stock market might well have increased over time. To the extent this occurred, the process logically

⁷⁸ See Fox, Morck, Yeung and Durnev, *supra* note 11, 340, n. 24 (arguing that enhanced disclosure and a resulting increase in price accuracy makes the market for corporate control more robust).

should have fostered hostile takeover activity. This would explain the time trend we see with the number of takeover contests.

Two caveats are required. First, the upward trend with control contests could be a product of an increase in the total number of listed companies over time. After all, more companies mean more potential targets. The number of stock issues listed on the New York Stock Exchange did increase from 377 in 1900 to 1,308 in 1931 and 1,472 in 1951.⁷⁹ On the other hand, data compiled by the S.E.C. indicate that the number of companies listed on national stock exchanges actually declined between the mid-1930s and 1950 before increasing in the 1950s and 1960s.⁸⁰

A second caveat relates to ownership patterns. A hostile takeover is only possible in the absence of a dominant shareholder who can exercise a *de facto* veto over a takeover, whether structured as a transfer by sale or transfer by vote.⁸¹ There was a general trend in favor of ownership dispersion in U.S. public companies from 1900 through to the 1960s,⁸² which should have set the scene for additional control contests. Correspondingly, the growth in the number of hostile control contests reflected in Figure 2 could be as much a result of a growing separation of ownership and control as much as changes to the pricing of shares.

2. *Transfers by Sale vs. Transfers by Vote*

For those control contests that go ahead regardless of the efficiency of share prices, the manner in which shares are priced might still be expected to affect a putative acquiror's choice between trying to win a proxy contest and seeking to acquire a majority of the shares.

⁷⁹ ROSS, SPECULATION, *supra* note 12, 158 1(1901, 1931); CHARLES AMOS DICE, THE STOCK MARKET 336 (1952).

⁸⁰ Brian R. Cheffins, Steven A. Bank, and Harwell Wells, *Questioning "Law and Finance": US Stock Market Development, 1930-70*, 55 BUS. HIST. 598, 602-3 (2013).

⁸¹ Armour and Cheffins, *Origins* (2015), *supra* note 2, 1842.

⁸² Brian Cheffins and Steven Bank, "Is Berle and Means Really a Myth?" 83 BUS. HIST. REV. 443, 449-58 (2009).

In an environment where a potential bidder has surmised that a public company is a promising takeover target but lacks faith in the share price as a measure of the company's value the bidder might well prefer to proceed without making the substantial financial outlay associated with buying enough shares to obtain a controlling interest. Their fall-back position would be to seek to gain control of the corporation by securing dominance of the board via a proxy contest. It follows that during the period we focus on that so long as potential bidders lacked faith in the veracity of share prices of potential targets transfers by vote would have dominated transfers by sale. The outcome should have begun to reverse itself as confidence in share prices grew.

Let us assume – quite plausibly as our historical investigation will indicate -- that early 20th century share prices were a less informative and reliable barometer of firm value than they would be in later decades. Given the foregoing logic, any bias in favor of acquiring control by a transfer by vote should have diminished over time. Our data do not support this conjecture. As we have seen (Fig. 4), attempts to secure control by way of proxy contests outnumbered control contests oriented around the acquisition of shares throughout the entire period we focus on. Further research is required to explain the sustained popularity of proxy contests as a means of acquiring control of companies.

3. *OMBs versus Tender Offers*

A switch in takeover tactics from OMBs to hostile tender offers (Fig. 5) is the most striking time trend revealed by our data. Changes in the manner shares were priced plausibly help to explain the pattern. Assume, for instance, that the supply curve for a company's shares is highly elastic, which would normally mean a bidder could quietly buy up shares on the market without driving up the share price.⁸³ Due, however, to thin trading, the bidder's

⁸³ *Supra* note 56 and related discussion.

activities in fact cause the company's share price to begin to climb. The efficiency of the stock market could strongly influence what happens next. To draw out specific conjectures we refer to the three links section III.D identified between the operation of the stock market and investors' willingness to sell their shares in a company undergoing an OMB.

Consider initially the role of disclosure. If a target company engages only in rudimentary disclosure, investors will assume that there is a substantial range of private price-sensitive information concerning the company's prospects. Investors who notice the company's share price climbing abruptly correspondingly might conclude that "insiders" with access to the private information have re-evaluated the company's situation and bought shares accordingly. This inaccurate price decoding would mean the OMB would remain confidential, increasing the likelihood of success.

Now assume a target company engages in extensive disclosure of information salient to investors. Under such circumstances, the share price plausibly would reflect with reasonable accuracy the firm's prospects and private price-sensitive information should be relatively uncommon. Assuming the target company had not divulged publicly information that would justify a reappraisal of its future prospects, informed investors following the company's share price could then quite reasonably attribute a sharp increase in price to an OMB rather than the buying up of shares by insiders or professional investors with access to inside information. The informed investors then might well purchase shares anticipating to profit from selling out to the bidder and reluctance on their part to sell their shares unless the price offered was substantially above the pre-OMB share price would create for the acquiror a steeply upward-sloping supply curve that could preclude an OMB. Bidders, being aware of this possibility, might well forego an OMB in favor of a tender offer. As our historical analysis will demonstrate, the amount of company-specific information impounded in share prices increased substantially as the 20th century progressed, which, under the foregoing

logic, should have discouraged OMBs over time. This in turn could help to explain the OMB/tender offer time trend we have identified.

Consider now the role of uninformed investors' perceptions of the informational efficiency of the stock market. Assume uninformed investors believe that share prices are "accurate" and correspondingly have, absent personal financial circumstances, no investment-related reason to exit by selling on the market.⁸⁴ OMBs would be very challenging to execute because a paucity of investors willing to sell at the market price would mean the bidder would have to address an upward-sloping and perhaps even near-vertical supply curve.

If investors lack faith in the efficiency of share prices, everything changes. With investors not being wedded to share price as a measure of what companies are worth they should be on the lookout for opportunities to sell shares at an advantageous price. The supply curve for shares would correspondingly be reasonably flat, meaning an OMB could well be feasible. It follows that if investors developed greater faith in the efficiency of share prices from the opening of the 20th century through to the 1960s, this might have helped to close the door on the OMB in a way that was consistent with our data. As we shall see, our historical analysis provides little support for this conjecture.

There is another way in which the pricing of shares could help to explain the marked shift from OMBs to tender offers we have documented. Regardless of the shape the supply curve for shares of targets would otherwise have, a bidder carrying out an OMB who can engage in market manipulation to disguise successfully what is occurring will have a greater chance of success.⁸⁵ To the extent that market manipulation is discouraged, bidders should begin forsaking OMBs, presumably in favor of tender offers. Hence, if market manipulation

⁸⁴ *Supra* note 64 and related discussion.

⁸⁵ See *supra* note 65 and text following.

was more difficult to engage in during the 1950s and 1960s than it was as the 20th century opened, this too could account at least partly for the dramatic shift from OMBs to tender offers our data reveal. Our historical analysis, as we will see, supports this conjecture.

4. *Hostile Tender Offers: Cash Bids vs Exchange Offers*

A corporate bidder who is going to seek to secure control of a company by purchasing a majority of the shares and has opted to carry out a tender offer still has a choice whether to offer investors cash or its shares as consideration. Growing faith in the veracity of share prices theoretically should encourage the use of exchange tender offers. With an exchange tender offer, a stockholder in the target company evaluating the offer has to take into account not only how any premium on offer relates to the pricing of the target company's shares but also the reliability of the bidder's share price as a measure of the intrinsic value of the bidder. All else being equal, stockholders in a target company should be more willing to tender their shares in an exchange offer as their confidence increases in the veracity of the bidder's share price. Improvements in stock price efficiency over time should in turn be associated with an upward trend in exchange offers as compared to cash offers. However, given that our data on cash bids vs. exchange offers betray no obvious time trend (Fig. 6) it does not appear that changes in the efficiency of share prices determined choices bidders made along this particular dimension.

5. *Relationship of the Acquiror to the Target Company*

The manner in which shares are priced might be expected to affect the types of people who are willing to seek control of target companies. Takeovers are always a risky proposition, but the uncertainties involved will be much greater if potential acquirors have little faith in the veracity of share prices of potential targets and lack basic financial data for the companies in question. Under such circumstances potential acquirors will likely be

insiders or at least parties with private information regarding the prospects of potential targets.

An obvious example of a bidder likely to have access to salient private information concerning a potential target would be a firm in the same industry. A firm operating in the same line of business as a prospective target should have a nearly unique opportunity to observe at close range how the target has been performing and would be better able to make sense of the position of their competitor than entirely unrelated bidders. Consequently we might expect more efficient stock prices, supported by more extensive public disclosure by companies, to trigger a greater willingness on the part of “outsiders”—non-industry participants—to launch acquisitions. Our data indicate that it was considerably more common for outsiders to seek to buy voting control in the 1950s and 1960s than was the case as the 20th century opened (Fig. 7). To the extent that our analysis of the historical development of share prices indicates that from 1900 through to the 1950s a more substantial range of information concerning prospective targets was being impounded in share prices and would have become available to bidders, this provides a highly plausible explanation of the time trend we have found. We turn to this historical analysis now.

V. SHARE PRICES AND TAKEOVERS – HISTORICAL TRENDS

We have now generated a series of conjectures concerning the relationship between share prices and the market for corporate control and have assessed the extent to which they are confirmed by our hand-collected data on takeovers covering 1900 to 1965. The hypothesized links between share prices and the market for corporate control have not been verified in all cases but the manner in which shares have been priced do provide potentially plausible explanations for an increase in the number of control contests occurring over time, for the growing involvement of “outsiders” in the market for corporate control, and for our most pronounced empirical result, the dramatic shift from OMBs to tender offers. To explore

matters further, and in particular to seek to distinguish better which possible links between the efficiency of share prices and the market for corporate control may have been in play, we will now consider the development of share prices during the period our dataset covers.

Given the ECMH's centrality to understanding the manner in which shares are priced our historical analysis focuses initially on the emergence of the intellectual framework for the ECMH in the 1950s and 1960s. We then explore the evolution over the period 1900 to 1965 of various preconditions for, and indicia of, stock market efficiency that may be relevant in the ways we have conjectured to the market for corporate control. In particular, we consider the amount of information being impounded into share prices, empirical evidence on stock market efficiency, investors' perceptions of stock prices, market reactions to OMBs, and finally market manipulation and its regulation.

A. The Emergence of the ECMH

Precepts underpinning the ECMH first gained intellectual currency as the 1950s drew to a close, just as the most striking time trend revealed by our data, the displacement of the OMB by the tender offer, occurred. This may not have been a coincidence. If investors believe the stock market is efficient this can result in a steep supply curve for shares that will make it more difficult for a bidder to execute an OMB successfully.⁸⁶ Was articulation of the ECMH associated with a change in the way in which shares were priced or a change in the perception of veracity of share prices that impacted upon takeover techniques? To put our assessment of this issue in context we provide now a thumbnail sketch of the early development of the ECMH and its potential impact on investors.

⁸⁶ *Supra* note 64 and related discussion.

A 1959 article by University of Chicago academic Harry Roberts became the catalyst for the “random walk” hypothesis that underpins the weak form of the ECMH.⁸⁷ Roberts, who demonstrated that weekly changes in the Dow Jones Industrial Average for the year 1956 strongly resembled weekly levels of random numbers, knew he was challenging received wisdom. As he observed in his 1959 article, many financial analysts engaged in technical analysis of stock prices and believed “that the history of the market itself contains ‘patterns’ that give clues to the future, if only these patterns could be properly understood.”⁸⁸

In 1964 Lawrence Fisher and James Lorie published empirical findings generated from a new historical database of share prices compiled by the Chicago-based Center for Research in Security Prices (‘CRSP’) that indicated not only that stocks outperformed bonds but that the same stock market returns would have been generated by an investor who simply chose shares at random rather than by reference to past share price fluctuations or financial data companies had disclosed.⁸⁹ Fisher and Lorie’s findings concerning stock selection strategy anticipated the semi-strong form of the ECMH, in that investors apparently could skip detailed analysis of fundamentals and rely on share prices to reflect all relevant available information. As Lorie said to the *Wall Street Journal*, their study “seem(ed) to suggest” that “the routine type of financial information isn’t likely to prove profitable.”⁹⁰ Fisher and Lorie’s 1964 article was “a bombshell” that captured the attention of the media as well as

⁸⁷ Harry V. Roberts, *Stock-Market “Patterns” and Financial Analysis: Methodological Suggestions*, 14 J. FIN. 1 (1959). On the significance of Roberts’ work, see Meir Statman, *Normal Investors, Then and Now*, FIN. ANALYSTS J., March/April 2005, 31, 32. Work done by Louis Bachelier, a French mathematician, in the early 20th century anticipated key aspects of the ECMH but was ignored until well into the 1950s. See PETER L. BERNSTEIN, *CAPITAL IDEAS: THE IMPROBABLE ORIGINS OF MODERN WALL STREET* 18-23 (2005).

⁸⁸ Roberts, *supra* note 88, 1.

⁸⁹ Lawrence Fisher and James H. Lorie, *Rates of Return on Investments in Common Stocks*, 37 J. BUS. 1 (1964).

⁹⁰ *Study Shows ‘Random’ Stock Investment From ‘26 to ‘60 Had 3-to-1 Chance of Profit*, WALL ST. J., May 25, 1965, 10.

numerous academics and market professionals.⁹¹ One critic even claimed that their research and the resulting press coverage had spread a “cult of ignorance” oriented around the idea that “knowledge of securities, financial fundamentals, and investing techniques makes little if any difference to the results achieved.”⁹²

Eugene Fama, also working under the auspices of the CRSP, published research soon after that followed up on Fisher and Lorie’s work in two significant ways. First, in a 1965 article he pioneered use of the term “efficient” to characterize a stock market where a series of stock price changes had no memory and where new information was reflected “instantaneously” in actual prices.⁹³ A few years later he developed the terms “weak”, “semi-strong” and “strong” efficiency to describe these properties of securities markets with greater precision.⁹⁴

Second, Fama implicitly equated “informational” efficiency with “fundamental” efficiency. He said in an

“efficient market...where there are large numbers of rational profit-maximizers actively competing, with each trying to predict market values of individual securities, and where important current information is almost freely available to all

⁹¹ BERNSTEIN, *supra* note 88, 130 (“bombshell”); Leo Barnes, *What Difference Does Knowledge Make to Investors?*, FIN. ANALYSTS J., Sept.-Oct. 1965, 60, 61 (quoting press reports). For examples of initial press reports of the findings ultimately published, see Austin Wehrwein, *Study by Chicago U., Finds Market Bullish*, N.Y. TIMES, Dec. 2, 1963, 73; William Clark, *U. of C. Study Puts Common Stocks in Illustrious Class*, CHI. TRIB., Dec. 2, 1963, E5; J.A. Livingston, *Hard to Go Wrong with Common Stocks?*, WASH. POST, Dec. 15, 1963, B15.

⁹² Barnes, *What, supra*, note 92, 60.

⁹³ On the provenance of the terminology, see JUSTIN FOX, *THE MYTH OF THE RATIONAL MARKET: A HISTORY OF RISK, REWARD, AND DELUSION ON WALL STREET* 97 (2011). Fama used the term “efficient” to describe securities markets on a couple of occasions in Eugene F. Fama, *The Behavior of Stock Prices*, 38 J. BUS. 34, 90, 94 (1964) but developed the idea at length in Eugene F. Fama, *Random Walks in Stock Market Prices*, FIN. ANALYSTS J., Sept.-Oct. 1965, 55.

⁹⁴ Eugene F. Fama, *Efficient Capital Markets: A Review of Theory and Empirical Work*, 25 J. FIN. 383 (1970).

participants...at any given time the actual price of a security will be a good estimate of its intrinsic value.”⁹⁵

Lorie echoed this view in a 1966 interview discussing Fama’s research, saying that given intense efforts made to study the stock market “the price is a reasonably fair representation of the price of the stock. It relieves you and me of the necessity of being intelligent.”⁹⁶

Fama’s 1965 article, like Fisher and Lorie’s research, attracted considerable attention. Fama was profiled in a series of business publications and appeared on television to discuss his work.⁹⁷ He subsequently acknowledged that “Insofar as you can become famous for writing an article in an academic journal, I became famous.”⁹⁸ Numerous securities analysts and fund managers were dismissive of the EMCH research,⁹⁹ but others were intrigued.¹⁰⁰ As Peter Bernstein said of the 1960s in a 2005 book on the impact financial economics had on the investment community, “Wall Street was still reluctant to listen, but by the end of the

⁹⁵ Fama, *Random*, *supra* note 93, 56; see also at 59 (saying with efficient markets “stock prices at any point in time will represent good estimates of intrinsic or fundamental values”). Peter Bernstein has primarily credited Paul Samuelson, a distinguished economist, with the idea that prices set in the marketplace were the best estimate of “shadow prices” i.e. intrinsic value. See BERNSTEIN, *CAPITAL*, *supra* note 88, 119. The paper, however, Bernstein credits for making this contribution was highly mathematical, lacking in rhetorical flourishes and published in a relatively obscure journal: Paul A. Samuelson, *Proof That Properly Anticipated Prices Fluctuate Randomly*, *INDUST. MGMT. REV.*, Spring 1965, 41. Correspondingly, Fama’s research was much more likely to have had an impact on the investing public.

⁹⁶ David R. Francis, *Big Investors Go to School*, *CHRISTIAN SCI. MONITOR*, Jan. 7, 1966, 13.

⁹⁷ B. MARK SMITH, *TOWARD RATIONAL EXUBERANCE: THE EVOLUTION OF THE MODERN STOCK MARKET* 201 (2001). On press coverage, see, for example, David R. Francis, “*Random Walk*” *Theory on Stock Prices*, *CHRISTIAN SCI. MONITOR*, Dec. 14, 1965, 14.

⁹⁸ SMITH, *supra* note 98, 201.

⁹⁹ Dana L. Thomas, *Calculating Risks: Computers are Winning Friends and Influencing Decisions on Wall Street*, *BARRON’S*, June 28, 1965, 3, 19; Peter B. Greenough, *Chicago Study Irks Mutuals*, *BOSTON GLOBE*, May 27, 1965, 52.

¹⁰⁰ David R. Francis, *Common Stock Return Measured*, *CHRISTIAN SCI. MONITOR*, Jan. 6, 1966, 14.

decade the sound of the distant drummers on the campuses had become so loud that investors could no longer ignore it.”¹⁰¹

With the publicity generated by research indicating that share prices constituted a “good estimate” of the intrinsic value of companies, it is conceivable that the work done by Fama *et al.* in the late 1950s and the first half of the 1960s may have coincided with stock prices becoming more efficient or bolstered faith in the efficiency of share prices, or both. This could have helped to change uninformed investors’ perceptions of share prices in a way that made OMBs difficult to execute. To explore this possibility and other potential links between shares prices and the market for corporate control we now turn to evidence regarding the development of share prices from 1900 to the mid-1960s. We begin with an assessment of the nature and scope of information that was being impounded in share prices over time. .

B. What Information was Being Impounded in Share Prices?

It has been said of the early 20th century that it is unclear “whether it is even proper to think in terms of our current understanding of market efficiency, or security pricing or transaction volume in such an environment.”¹⁰² A dearth of company-specific disclosures lends credence to this view. Due to a combination of federal and state laws at the beginning of the 20th century railroads were publicly divulging more information than modern firms sometimes disclose.¹⁰³ In contrast, operating in an environment generally bereft of disclosure regulation, publicly owned industrial companies of this era provided very limited financial information to investors.¹⁰⁴ A balance sheet and an income statement were usually included

¹⁰¹ BERNSTEIN, *CAPITAL*, *supra* note 88, 111.

¹⁰² See Gary J. Previts and Robert Bricker, *Fact and Theory in Accounting History: Presentmindedness and Capital Market Research*, 10 *CONTEMP. ACCTING. RES.* 625, 630 (1994).

¹⁰³ Armour and Cheffins, *Origins* (2015), *supra* note 2, 1845-46.

¹⁰⁴ Previts and Bricker, *supra* note 103, 633, 636; David F. Hawkins, *The Development of Modern Financial Reporting Practices Among American Manufacturing Corporations*, 37 *BUS. HIST. REV.* 135, 135 (1963).

in published financial reports but otherwise the quality and quantity of information supplied varied greatly.¹⁰⁵ According to a 1926 article on balance sheet construction, “So notorious are the omissions from the balance sheets of certain large industrial corporations that the outsider is led to wonder if it is really the desire of the management responsible for them to cover up facts, which, should they be disclosed, might give too much information to the stockholder or the general reader.”¹⁰⁶

The disclosure-related discrepancy between railroads and industrial companies plausibly affected the manner in which shares were priced. According to a 1903 report in the *New York Times* there was a general sense that major industrial companies were undervalued as compared with railways.¹⁰⁷ The failure of industrials “to stand up and be counted with the railroads” was said to have resulted partly from their not being “in the habit of making such reports as the railroads.”¹⁰⁸

Also instructive is the behavior of share prices of companies traded on the New York Stock Exchange (NYSE) in the midst of a 1907 financial crisis.¹⁰⁹ As the financial crisis unfolded, shares of railways and utilities traded with a substantially lower bid-ask spread than

¹⁰⁵ Richard P. Brief, *Corporate Financial Reporting at the Turn of the Century*, J. ACCOUNTANCY, May 1987, 142, 151; Jeffrey J. Archambault and Marie Archambault, *The Effect of Regulation on Statement Disclosures in the 1915 Moody's Manuals*, 32 ACCTING. HIST. J. 1, 10-15 (2005) (of a sample of companies listed in the 1915 Moody's Analyses of Investments 80% reported an income statement and 60% reported a balance sheet. Regulated companies – railroads and utilities – provided more complete information on company performance than industrials but the balance sheets of industrials were, on average, more detailed).

¹⁰⁶ E.L. Kohler, *Tendencies in Balance Sheet Construction*, ACCTING. REV., Dec. 1926, 1, 1.

¹⁰⁷ Milton J. Platt, *Considerations Regarding Industrial Stocks*, N.Y. TIMES, Feb. 22, 1903, 25.

¹⁰⁸ *Id.*

¹⁰⁹ The crisis was triggered by a failed attempt to “corner” the shares of the United Copper Company, which stoked concerns about the soundness of the banking system and prompted uncertainty in the markets. See ROBERT F. BRUNER & SEAN D. CARR, *THE PANIC OF 1907: LESSONS LEARNED FROM THE MARKET'S PERFECT STORM* 43-55 (2007).

shares of mining and manufacturing firms.¹¹⁰ This was due in large measure to the fact that in a panicky market strongly influenced by rumours, investors could assess railways and utilities objectively using accounting information these firms were compelled by regulation to publish in a way they could not with mining and manufacturing companies.¹¹¹

Disclosure engaged in by industrial companies gradually became more robust during the opening decades of the 20th century. For instance, the NYSE began in 1900 to require newly listed companies to provide an income statement and balance sheet annually and after 1910 expanded the requirements to oblige such firms to provide interim financial reports, to comply with audit requirements and to disclose on an ongoing basis fresh information potentially important to investors.¹¹² Still, the change was not an abrupt one. While by 1933 all companies listed on the NYSE were being audited by a chartered public accountant, all specified current liabilities and assets in the balance sheets they made available and nearly two out of three provided data on sales,¹¹³ during the 1920s the NYSE did not oblige listed companies to report their profits and a majority of companies listed on the “Big Board” failed to offer shareholders full financial statements with information on items such as sales, interest costs and dividends paid.¹¹⁴

¹¹⁰ J. EDWARD MEEKER, *THE WORK OF THE STOCK EXCHANGE* 157-58 (1930). The “bid-ask spread” for a security is the differential between the lowest prices quoted by those in a position to sell shares immediately and the highest prices buyers have indicated they are prepared to pay. It is a widely-used indicator of liquidity (trading activity) in a market.

¹¹¹ Caroline Fohlin, Thomas Gehrig and Marlene Haas, *Rumors and Runs in Opaque Markets*, working paper, available at <http://ssrn.com/abstract=2591343>, 3, 10, 18-19 (2015).

¹¹² Kumar N. Sivakumar and Gregory Waymire, *The Information Content of Earnings in a Discretionary Reporting Environment: Evidence from NYSE Industrials, 1905-10*, 31 *J. ACCOUNTING RES.* 62, 65 (1993).

¹¹³ George J. Benston, *Required Disclosure and the Stock Market: An Evaluation of the Securities Exchange Act of 1934*, 63 *AMER. ECON. REV.* 132, 133 (1973).

¹¹⁴ ALEX BERENSON, *THE NUMBER: HOW THE DRIVE FOR QUARTERLY EARNINGS CORRUPTED WALL STREET AND CORPORATE AMERICA* 8-9 (2003).

While the NYSE ultimately fostered improved corporate disclosure over time, its influence was restricted to companies that sought a full listing on the Exchange. Until 1910, companies could have their shares admitted to trading on the NYSE through its Unlisted Department without furnishing *any* financial information.¹¹⁵ Companies could also side-step the NYSE disclosure requirements by arranging to have their shares traded on regional stock exchanges such as those in Chicago, Boston and Pittsburgh, or by making provision for trading on “over-the-counter” markets.¹¹⁶ William Ripley, a Harvard economist whose writings on the stock market in the 1920s attracted widespread attention,¹¹⁷ said of public companies not listed on the NYSE that their shares “remain(ed) more completely under control of its management as respects market price.”¹¹⁸ A 1934 study of securities markets by the Twentieth Century Fund said similarly of such companies “corporation reporting (was) essentially inadequate to the proper functioning of the market.”¹¹⁹

By the 1920s there was growing awareness that the value of shares depended primarily on the future earnings potential of public companies and that analysis and interpretation of what companies reported provided a key means for ascertaining a company’s prospects.¹²⁰ Given, however, that during the opening decades of the 20th century many public companies were not providing investors with the financial data necessary for careful

¹¹⁵ Hawkins, *supra* note 105, 150; Mary O’Sullivan, *The Expansion of the U.S. Stock Market: Historical Facts and Theoretical Fashions*, 8 ENTERPRISE & SOCIETY 489, 500 (2007).

¹¹⁶ Hawkins, *supra* note 105, 150; William Z. Ripley, *Stop, Look, Listen! The Shareholder’s Right to Adequate Information*, ATLANTIC MONTHLY, Sept. 1926, 380, 396. By the early 1930s, companies listed on regional exchanges had to submit balance sheets and income statements to the relevant exchange: Benston, *supra* note 114, 133.

¹¹⁷ *When Ripley Speaks Market Listens*, NEW YORK TIMES, Sept. 26, 1926, SM7; *Personalities*, BARRON’S, Aug. 30, 1926, 6 (characterizing Ripley as “Wall Street’s Latest Sensation”).

¹¹⁸ Ripley, *Stop*, *supra* note 117, 396.

¹¹⁹ SECURITY MARKETS STAFF OF THE TWENTIETH CENTURY FUND, STOCK MARKET CONTROL: A SUMMARY OF THE RESEARCH FINDINGS AND RECOMMENDATIONS 137 (1934).

¹²⁰ CHARLES AMOS DICE, THE STOCK MARKET 610-11, 614 (1928); Jeffrey Fear and Christopher Kobrak, *Diverging Paths: Accounting for Corporate Governance in America and Germany*, 80 BUS. HIST. REV. 1, 24 (2006).

analysis of share prices,¹²¹ what sources of information did investors rely upon to determine earning power? Dividends were treated as very important, with investors assuming that dividend track records provided objective guidance on future pay-outs to shareholders.¹²² Early 20th century investors also consulted newspapers, financial magazines and market letters brokerage firms circulated to gain a sense of trends likely to affect a company's industry and the stock market more generally.¹²³ The business news press was sufficiently active by 1900 to communicate substantial information on general economic trends to customers and also engaged in independent ferreting and analysis of industry developments.¹²⁴

The telegraph technology of the time meant reports concerning specific industries and core economic trends relevant to the stock market could be rapidly impounded in share prices. As the *New York Times* indicated in 1909, "The race for news in Wall Street today is still more keen because the great increase in the general command of information makes it more difficult for the man in Wall Street to outstrip his fellows."¹²⁵ News tickers played a significant role in this context. These were machines that relied on telegraph technology to provide subscribers with distilled real-time access to company- and industry-specific

¹²¹ Frank B. Cross and Robert A. Prentice, *The Economic Value of Securities Regulation*, 28 CARDOZO L. REV. 333, 368 (2006).

¹²² SMITH, *supra* note 98, 71; Previts and Bricker, *supra* note 102, 637-38; JONATHAN BARRON BASKIN AND PAUL MIRANTI, *A HISTORY OF CORPORATE FINANCE* 191-92, 194-95 (1997).

¹²³ DICE (1928), *supra* note 121, 61-62, 95-98; W.C. ANTWERP, *THE STOCK EXCHANGE FROM WITHIN* 162 (1914); S.S. HUEBNER, *THE STOCK MARKET* 231-34 (1934).

¹²⁴ Ajeyo Banerjee and F. Woodrow Eckard, *Why Regulate Insider Trading? Evidence from the First Great Merger Wave (1897-1903)*, 91 AMER. ECON. REV. 1329, 1333 (2001).

¹²⁵ Frank Fayant, "Inside News" – *And What it Means to Wall Street*, N.Y. TIMES, Sept. 19, 1909, SM5. See also THOMAS CONWAY, *INVESTMENT AND SPECULATION: A DESCRIPTION OF THE MODERN MONEY MARKET AND ANALYSIS OF THE FACTORS DETERMINING THE VALUE OF SECURITIES* 92 (1911) ("One of the most important influences affecting prices of speculative securities is the current news contained in the telegraph, the telephone, the news bureau slips and the financial dailies....Wall Street is quick to discount any unfavorable condition.")

information and general news that could influence a particular company or industry, or financial markets as a whole.¹²⁶

The news ticker was a cousin of the stock ticker. Stock tickers, which again were rented to subscribers, printed information concerning stock exchange dealings on a tape, with transactions occurring on the New York Stock Exchange generating data on the number of shares sold and the price per share.¹²⁷ According to a 1901 newspaper report focusing on shares of companies traded on the NYSE, by virtue of stock tickers “six seconds after a sale, bid or offer ‘on the floor’, particulars (were) known” in the offices of 1000 members of the exchange as well as 1000 non-members.¹²⁸ The NYSE sought, asserting property rights over quoted prices, to preclude use of tickers by non-members to trade off the exchange using up-to-date NYSE quotes.¹²⁹ Nevertheless, by the early 1920s there were just over 7,000 ribbon tape tickers in the U.S., most of which were used to relay stock prices, and this number increased to nearly 13,000 by the late 1920s.¹³⁰ Newspapers also disseminated a substantial amount of information on stock exchange dealings, with roughly one-tenth of newspaper matter estimated to relate to stock exchange transactions as of 1919.¹³¹

Stock tickers and newspaper reports of share price fluctuations would have facilitated price decoding, which again involves inferring otherwise unavailable firm-specific

¹²⁶ SECURITY MARKETS STAFF OF THE TWENTIETH CENTURY FUND, *supra* note 120, 153-56; HUEBNER, STOCK MARKET, *supra* note 124, 231-32; G.C. SELDEN, THE MACHINERY OF WALL STREET: WHY IT EXISTS, HOW IT WORKS AND WHAT IT ACCOMPLISHES 154-55 (1917).

¹²⁷ DICE (1928), *supra* note 121, 52; HUEBNER, STOCK MARKET, *supra* note 124, 218.

¹²⁸ *Stock Ticker*, BOSTON GLOBE, July 14, 1901, 43.

¹²⁹ J. Harold Mulherin, Jeffrey M. Netter and James A. Overdahl, *Prices are Property: The Organization of Financial Exchanges from a Transaction Cost Perspective*, 34 J.L. & ECON. 591, 605-6, 611-17 (1991).

¹³⁰ *Broad Expansion of Stock Ticker*, BARRON'S, Dec. 26, 1927, 7.

¹³¹ ROSS, SPECULATION, *supra* note 12, 214.

information from trading patterns of shares.¹³² A 1928 guide to the stock market described in a chapter on “tape reading” how practitioners of the art relied on stock tickers in this manner:

“(T)he ticker records immediately the transactions of those who know the facts, and the tape reader sees the effects on stock prices and acts according to the clues there given. The tape tells the news accurately and in plenty of time for the tape reader to get into the market before the news comes out.”¹³³

While price decoding operated as a mechanism of market efficiency during the opening decades of the 20th century, investing based on direct analysis of financial data seemingly was primitive. The New York Society of Securities Analysts, which by 1963 had nearly 3,000 members, was only founded in 1937 by approximately 20 analysts and had only 82 members as of 1939.¹³⁴ Indeed, it is arguable that the job title “securities analyst” would not have been understood prior to the mid-1930s.¹³⁵ A 1934 text on the stock market indicated that stockbroking firms had inaugurated market advisory services to provide subscribers with recommendations on the timing of buying and selling of particular shares.¹³⁶ On the other hand the staff generating these reports often were mere information clerks rather than a statistician or economist of significant standing.¹³⁷

To what extent had matters improved by the 1950s, the decade when tender offers began to supplant OMB and it became commonplace for “outsiders” to launch takeover bids (Fig. 7)? The sources of data and news informed investors could rely upon were much the

¹³² *Supra* note 24 and accompanying text.

¹³³ DICE (1928), *supra* note 121, 281-82.

¹³⁴ Benjamin Graham, *The Future of Financial Analysis*, FIN. ANALYSTS J., May-June, 1963, 65, 65; New York Society of Securities Analysts, *History, Mission and Governance* <http://www.nyssa.org/AboutNYSSA/History.aspx> (accessed June 16, 2014).

¹³⁵ John C. Coffee, *Market Failure and the Economic Case for a Mandatory Disclosure System*, 70 VA. L. REV. 717, 729 (1984).

¹³⁶ HUEBNER, STOCK MARKET, *supra* note 124, 235.

¹³⁷ SECURITY MARKETS STAFF OF THE TWENTIETH CENTURY FUND, *supra* note 120, 148-49.

same as they were in the late 1920s and early 1930s, including corporate financial reports, the stock ticker, newspapers, financial publications and brokerage letters.¹³⁸ However, the enactment of federal securities legislation in the mid-1930s potentially made corporate reporting considerably more informative. The Securities Act of 1933¹³⁹ required public disclosure of material financial information about public offerings companies made and the Securities Exchange Act of 1934 imposed substantial recurring disclosure requirements on companies with shares already listed on stock exchanges. The author of a guide to the stock market who emphasized that investors could not work intelligently without full information and said in the 1928 edition of reports issued by public companies “the information is still very incomplete”¹⁴⁰ indicated in the 1952 edition that the requirements of the 1934 Act had reinforced New York Stock Exchange rules governing disclosure and “greatly improved the situation.”¹⁴¹ Moreover, according to a 1963 survey of the development of financial reporting in U.S. manufacturing companies “businessmen...rapidly improved their financial reporting practices in response to the direct pressure of the Securities and Exchange Commission.”¹⁴²

Various caveats need to be borne in mind, however, with the impact federal securities legislation had on corporate disclosure up to the 1950s. First, rules in the 1934 Securities Exchange Act mandating the disclosure of financial data only applied to issuers with shares traded over-the-counter when the total market capitalization of securities issued exceeded specified levels.¹⁴³ Second, even for companies where disclosure was mandated, the full

¹³⁸ JOSEPH MINDELL, *THE STOCK MARKET: BASIC GUIDE FOR INVESTORS* 25-32 (1948).

¹³⁹ 48 Stat. 74.

¹⁴⁰ DICE (1928), *supra* note 121, 611.

¹⁴¹ DICE, *STOCK MARKET* (1952), *supra* note 80, 424.

¹⁴² Hawkins, *supra* note 105, 163.

¹⁴³ Cheffins, Bank, and Wells, *supra* note 81, 611.

impact of reform likely was delayed.¹⁴⁴ S.E.C. staff needed to gain experience with the disclosure regime and private parties had to become familiar with the new arrangements.¹⁴⁵ Perhaps because of this, securities regulators initially afforded considerable latitude to those preparing accounting documentation, resulting, according to a 1998 history of accounting in the U.S., “in very little change in pre/post-S.E.C. reporting relationships.”¹⁴⁶ Indeed, a study by two S.E.C. attorneys of balance sheets and income statements filed by nationally prominent corporations in 1937 found “(r)eports to stockholders, whether judged by the standards set by the S.E.C. or by one’s own lights, seem very inadequate.”¹⁴⁷

Third, with those public companies subject to requirements to disclose financial information on a periodic basis, it was unrealistic to expect ordinary investors to access the data directly because it was only available for inspection in Washington D.C. and the offices of national stock exchanges.¹⁴⁸ Indeed, a 1963 *Wall Street Journal* report indicating “Literally tons of (‘officially filed information’) fills row after row of filing cabinets at S.E.C. headquarters” suggested a lack of intense demand for much of the data:

“(T)he focal point for much of the essential transfer of financial data to securities-buyers is a cramped reference room in SEC headquarters here that, by actual count, provides just 20 chairs for America’s 17 million investors. What’s more only rarely is there great demand for the seats.”¹⁴⁹

¹⁴⁴ *Ibid.*

¹⁴⁵ Cross and Prentice, *supra* note 123, 369.

¹⁴⁶ GARY JOHN PREVITS AND BARBARA DUBIS MERINO, A HISTORY OF ACCOUNTANCY IN THE UNITED STATES: THE CULTURAL SIGNIFICANCE OF ACCOUNTING 276 (1998).

¹⁴⁷ Maurice C. Kaplan and Daniel M. Reaugh, *Accounting, Reports to Stockholders, and the SEC*, 48 YALE L.J. 935, 978 (1939); on their methodology see at 938, n. 16.

¹⁴⁸ *Ibid.*, 937.

¹⁴⁹ Louis M. Kohlmeier, *Informing Investors*, WALL ST. J., April 17, 1963, 16.

Even making due allowance for these caveats, a wider range of company-specific information should have been impounded in share prices in the 1950s and 1960s than was the case during the opening decades of the 20th century. For instance, even if the typical investor did not analyze S.E.C. filings there was a specialized cadre of professionally-informed investors that did so. Two S.E.C. attorneys said of filings by public corporations in a 1939 law review article that “brokers, large scale and institutional investors do obtain the information filed, and their judgment on the value of the security, presumably reflected in its market price, affords the ordinary investor some protection.”¹⁵⁰ Moreover, by the 1950s Standard & Poor’s was drawing upon the world’s largest private financial library to publish for subscribers a constantly updated loose-leaf compendium covering 6,000 companies and kept those subscribers abreast of recent corporate affairs and business developments by drawing upon reports by S&P field staff and reports from dozens of newspapers, magazines and trade journals.¹⁵¹

Evidence marshalled by Jeffrey Gordon further confirms that more information was reflected in share prices during the 1950s and the 1960s than was the case beforehand.¹⁵² Gordon identified various reasons why stock prices impounded a growing amount of firm-specific information between 1950 and 2005 and a number were operative in the 1950s and 1960s.¹⁵³ For instance, disclosure of vastly greater amounts of data, as measured by pages of

¹⁵⁰ Kaplan and Reaugh, *supra* note 148, 938.

¹⁵¹ Charles A. Schmutz, *Freer Flow of Data on Businesses Aids Systematic Investing*, CHRIS. SCI. M., July 31, 1957, 12

¹⁵² Jeffrey N. Gordon, *The Rise of Independent Directors in the United States, 1950-2005: Of Shareholder Value and Stock Market Prices*, 59 STAN. L. REV. 1465 (2007).

¹⁵³ Trends Gordon identified that only began after the 1960s and thus would not have had an impact during the time period on which we are focusing included a substantial bolstering of the S.E.C. public company disclosure rules, amendments to accounting standards that prompted more informative corporate disclosure and the rise of the personal computer, which drastically reduced the cost of information processing. See Gordon, *supra* note 153, 1548-62.

documentation companies filed with the S.E.C., commenced during the 1960s.¹⁵⁴ This was associated with a dramatic surge in “professionally informed” trading, evidenced by a quadrupling of the number of securities analysts between 1950 and 1967, that should have fostered the impounding of the growing amount of data in shares prices.¹⁵⁵ The proportion of shares owned by institutional owners, who unlike retail investors would invest on a sufficiently large scale to make effective use of securities research, also tripled from 11% in 1955 to 33% in 1970.¹⁵⁶ Moreover, while the personal computer would not feature in investing until the 1980s,¹⁵⁷ by 1967 there were over 100 subscribers for a Standard & Poor’s service offering securities analysts access to computers that crunched data on hundreds of companies almost instantaneously from earnings reports and balance sheets.¹⁵⁸

The fact that more firm-specific information became available in the 1950s and 1960s to those inclined to investigate plausibly would have affected the identity of those undertaking takeover bids. In particular, as Part IV.C.5 described, potential acquirors whose lack of a prior connection to their potential targets otherwise would have left them concerned they did not know enough to proceed should have become more willing to step forward. Correspondingly, it should not be surprising that our data indicate that the absolute number, and the proportion, of hostile transfer by sale deals launched by outsiders was considerably higher in the 1950s and 1960s than it was in the opening decades of the 20th century.

¹⁵⁴ *Id.*, 1545-47.

¹⁵⁵ *Id.*, 1561.

¹⁵⁶ *Id.*, 1562, 1568.

¹⁵⁷ The first stock market information service that operated by way of a table-top computer with a TV-like screen was first marketed in late 1979: *AP, Dow Jones to Offer Home and Office Quote Retrieval Service*, L.A. TIMES, Aug. 8, 1979, D15.

¹⁵⁸ Dana L. Thomas, *Electronic Investing*, BARRON’S, Aug. 14, 1967, 47. Statistics concerning the companies were stored on a magnetic tape data bank. On the challenges associated with putting historical financial data into tape-readable form see Dana L. Thomas, *Computers and Investors*, BARRON’S, June 22, 1964, 44.

For reasons canvassed in Part IV.C.3, the growing amount of firm-specific information in circulation in the 1950s and 1960s also might have affected the choice of takeover tactics. Informed investors, for instance, plausibly would have been better able to determine whether price movements arose from an OMB rather than trading based on favorable non-public news concerning the target. Successful decoding of OMBs plausibly could have prompted a shift to tender offers because reluctance by informed investors to sell out in anticipation of further buying by the bidder would have created for the acquirors steeply upward-sloping share supply curves that greatly reduced the likelihood of success. With uninformed investors, the growing amount of firm-specific information that was publicly available conceivably might have bolstered their faith in the veracity of share prices, which again could have fostered the steep supply curves for shares that hindered OMBs and fostered tender offers. While plausible, historically related empirical evidence on stock market efficiency, which we discuss next, provides only mixed support for these conjectures.

C. Historically Oriented Empirical Evidence on Stock Market Efficiency

Given the changes occurring to corporate disclosure throughout the course of the first half of the 20th century and through to the 1950s and 1960s, it might well have been expected that share prices would have been more efficient in the 1950s and the 1960s than they were previously. The available empirical evidence, while not extensive,¹⁵⁹ suggests a somewhat different story. This in turn casts doubt on the extent to which changes to the pricing of shares affected the choice between OMBs and tender offers.

With respect to informational efficiency, a 1973 study of the impact of the enactment of federal securities legislation indicated that stock prices fitted the pattern of a random walk equally well for eight years prior to the enactment of the 1934 Securities Exchange Act as for

¹⁵⁹ Kian-Ping Lim and Robert Brooks, *The Evolution of Stock Market Efficiency Over Time: A Survey of the Empirical Literature*, 25 J. ECON. SURVEYS 69, 71 (2011) (“there is little literature that examines the degree of time-varying inefficiency....”)

the six years following.¹⁶⁰ This implies that stock prices met the standard of weak form efficiency immediately prior to as well as following the federal revamp of securities law. As for semi-strong efficiency, event studies of market reactions to news announcements by early 20th century U.S. public companies show that in this era share prices impounded available relevant news very rapidly in the way that reputedly occurs now. For instance, with friendly corporate acquisitions carried out during a merger wave occurring between 1897 and 1903, share prices of companies being acquired increased rapidly and substantially in the modern fashion when a prospective merger was announced.¹⁶¹ In addition, for industrial companies traded on the NYSE between 1905 and 1910, dividend increases, dividend cuts/omissions and announced earnings decreases were associated with quick and significant price revisions.¹⁶² Announced earnings increases only prompted significant positive returns for companies that were paying dividends, perhaps reflecting the fact that for investors positive earnings reports lacked credibility unless backed by dividend payments.¹⁶³

Support for the proposition that early 20th century US stock markets were informationally efficient, or at least informationally efficient as stock markets in the 1950s and 1960s, also comes from studies with a longer time dimension. The studies in question were done by Andrew Lo¹⁶⁴ and by Anthony Gu and Joseph Finnerty.¹⁶⁵ This research,

¹⁶⁰ Benston, *supra* note 114, 144, 152.

¹⁶¹ Banerjee and Eckard, *Why*, *supra* note 125 (finding as well that prices declined rapidly in circumstances where a merger was a “fait accompli” in the first news report, seemingly reflecting disappointment on the part of investors that insiders had successfully captured all prospective gains before the public announcement).

¹⁶² Sivakumar and Waymire, *supra* note 113, 65.

¹⁶³ *Id.*

¹⁶⁴ Andrew W. Lo, *The Adaptive Markets Hypothesis: Market Efficiency From an Evolutionary Perspective*, 30(5) J. PORTFOLIO MGMT. 15 (2004); Andrew W. Lo, *Reconciling Efficient Markets With Behavioral Finance: The Adaptive Markets Hypothesis*, 7(2) J. INVESTMENT CONSULTING 21 (2005).

¹⁶⁵ Anthony Yanxiang Gu and Joseph Finnerty, *The Evolution of Market Efficiency: 103 Years Daily Data of the Dow*, 18 REV. QUANTITATIVE FIN. & ACCOUNTING 219 (2002).

which casts doubt on whether U.S. stock markets have ever been weak-form informationally efficient, indicates that the extent to which prices departed from a “random walk” was no greater during the opening half of the 20th century than was the case subsequently. The method used was to ascertain the nature and extent of autocorrelation, which exists when past performance or past patterns predict future movements. If share prices are engaged in a random walk they should be serially uncorrelated.¹⁶⁶ The empirical studies by Lo and by Gu and Finnerty indicated that this tended not to be the case during the opening half of the 20th century, but crucially for our purposes this was not a departure from the historical norm.

Lo, who examined monthly returns of the Standard & Poor’s composite index from 1871 to 2003, anticipated that indeed stock markets would have become more efficient in the weak form sense over time. He hypothesized that his measure of autocorrelation “might be expected to take on larger values during the early part of the sample and become progressively smaller during recent years as the U.S. equity market becomes more efficient.”¹⁶⁷ What he instead found was that the degree of (in)efficiency varied through time in a cyclical fashion, with autocorrelation levels for the decades between 1900 and 1950 not being markedly different than those in subsequent decades.¹⁶⁸ This implies there was no secular trend towards “weak form” stock market efficiency over time.

Gu and Finnerty’ findings similarly cast doubt on whether share prices became more informationally efficient between 1900 and the 1950s. They analyzed the daily index of the Dow Jones Industrial Average from 1896 to 1998, conjecturing in so doing that advances in

¹⁶⁶ Lo, *Adaptive*, *supra* note 165, 25; Lo, *Reconciling*, *supra* note 165, 35-36.

¹⁶⁷ Lo, *Adaptive*, *supra* note 165, 25.

¹⁶⁸ *Id.* (Exhibit); Lo, *Reconciling*, *supra* note 165, 35 (Fig. 2). The market was at its most “efficient” in the 1950s (i.e. the autocorrelation co-efficient was very close to zero) but the autocorrelation co-efficient was similarly low as the 20th century got underway.

information technology would help to increase weak-form market efficiency over time.¹⁶⁹ Their hypothesis was contradicted, in that while there was autocorrelation present during numerous years between 1896 and 1998, this trend was considerably more pronounced between the early 1940s and mid-1970s than it was either before or after.¹⁷⁰ This implies that, as compared with the opening decades of the 20th century, the stock market was *less* efficient after the introduction of federal securities regulation and during the period when the ECMH was developed than it was in other eras.¹⁷¹

The evidence is somewhat more contradictory with studies of stock price accuracy – fundamental efficiency rather than informational efficiency. In a 2000 article Randall Morck, Bernard Yeung and Wayne Yu investigated the extent to which in a given month between 1926 and 1995 stock prices and shareholder returns (including dividends) of a randomly selected sample of 400 U.S. stocks moved together with the stock market generally.¹⁷² They found the general pattern was for the fraction of stocks moving up and down together to decline over time.¹⁷³ A logical inference to draw is that stock prices became less “synchronous” over time because more firm-specific information was being impounded in the share prices of individual companies.¹⁷⁴ This in turn would imply an increase in stock

¹⁶⁹ Gu and Finnerty, *supra* note 166, 220.

¹⁷⁰ *Ibid.*, 225. Unpublished research by William Egan on autocorrelation patterns affecting the Dow Jones Industrial Average from 1929 to 2007 indicates there typically was a negative correlation from 1929 to 1940 and a strong tendency towards a positive correlation thereafter: William J. Egan, *Six Decades of Significant Autocorrelation in the U.S. Stock Market*, unpublished (2008), available at <http://ssrn.com/abstract=1088861>.

¹⁷¹ Gu and Finnerty, *supra* note 166, 219, 225-27.

¹⁷² Randall Morck, Bernard Yeung and Wayne Yu, *The Information Content of Stock Markets: Why Do Emerging Markets Have Synchronous Stock Price Movements?*, 58 J. FIN. ECON. 215 (2000).

¹⁷³ *Ibid.*, 220-22.

¹⁷⁴ Artyom Durnev, Randall Morck, Bernard Yeung and Paul Zarowin, *Does Greater Firm-Specific Return Variation Mean More or Less Informed Stock Pricing*, 41 J. ACCTING. RES. 797, 834-35 (2003) (saying of the implications of their analysis for U.S. historical data reported by Morck, Yeung and Yu, *supra* note 173, “Our findings suggest that higher firm-specific returns may also reflect more informationally efficient stock prices in the United States.”).

price accuracy, plausibly due to an expanded range of publicly-available firm-specific information.

During the course of the 20th century the enactment of the Securities Act of 1933 and the Securities Exchange Act of 1934 likely was the most significant catalyst for increased disclosure by companies so it might have been anticipated that share prices would have been markedly less “synchronous” thereafter. The time trend revealed in Morck *et al.*’s data only became pronounced, however, after 1950.¹⁷⁵ Moreover, when Paul Mahoney and Jianping Mei compared the impact of earnings reports on a variety of stock exchange metrics (share turnover, bid-ask spreads, “no trade” days and share price volatility) they found that the size of the reactions were not significantly different before (1927) the enactment of federal securities laws than after (1935).¹⁷⁶ Taken together, these findings are consistent with the historical evidence suggesting that even if federal securities legislation had an impact on the pricing of shares of public companies this effect was delayed.¹⁷⁷

In contrast with Morck *et al.*’s findings, Robert Shiller’s analysis of share price movements poses a challenge to the idea that there was any increase in the accuracy of share prices as the 20th century progressed. Based on a dataset he compiled of share price, earnings and dividend data for companies in the Standard & Poor’s composite index from the 1870s to the 1980s,¹⁷⁸ Shiller reported that throughout this entire period the stock market fluctuated much more dramatically than would have been anticipated given plausible expectations

¹⁷⁵ Gordon, *Rise*, *supra* note 153, 1543-44 (discussing Morck *et al.*’s findings and saying the time trend had arisen “particularly since 1950”).

¹⁷⁶ Paul G. Mahoney and Jianping Mei, *Mandatory vs. Contractual Disclosure in Securities Markets: Evidence from the 1930s*, unpublished working paper, 25-28 (2007), available at <http://ssrn.com/abstract=883706>.

¹⁷⁷ *Supra* notes 145 to 148 and related discussion.

¹⁷⁸ The year-by-year data and the sources drawn upon are set out in chapter 26 of ROBERT J. SHILLER, *MARKET VOLATILITY* (1989).

concerning dividends¹⁷⁹ or the actual dividend payments the companies subsequently made.¹⁸⁰ This consistent pattern of “overvolatility” suggests that the extent to which stock prices failed to reflect the fundamental value of companies, as measured by actual or expected cashflows to investors, was as substantial in the second half of the 20th century as the first half.¹⁸¹

Taken together, the key point emerging from the various historically-oriented share price studies is that they show no strong time trend suggesting share prices became more efficient as the 20th century progressed.¹⁸² Indeed, Shiller’s “overvolatility” analysis suggested share prices were less accurate during a “bull” market in the 1960s and early 1970s than was the case beforehand.¹⁸³ The only partial exception to the trend is the research by Morck *et al.*, which implies that from 1950 onwards that share prices were more accurate than they had been in prior decades.

How do we reconcile Morck *et al.*’s findings with the other chronologically oriented empirical evidence concerning share prices? This is relatively straightforward with the

¹⁷⁹ John Y. Campbell and Robert J. Shiller, *Stock Prices, Earnings, and Expected Dividends*, 43 J. FIN. 661 (1988). A study of expectations concerning dividends and share prices that found a considerably better “fit” than Shiller similarly did not reveal any sort of time trend in favor of greater efficiency over time: Robert B. Barsky and J. Bradford De Long, *Bull and Bear Markets in the Twentieth Century*, 50 J. ECON. HIST. 265, 271 (1990).

¹⁸⁰ Robert J. Shiller, *Do Stock Prices Move Too Much to be Justified by Subsequent Changes in Dividends*, 71 AMER. ECON. REV. 421 (1981).

¹⁸¹ See, for example, Stout, *Unimportance*, *supra* note 55, 698.

¹⁸² The studies cited here typically do not provide a detailed time-trend analysis. Instead, the evidence on time trends typically consists of charts plotting fluctuations in actual share prices and prices that would have been anticipated based on the “fundamentals” input chosen. See, for example, SHILLER, MARKET, *supra* note 179, 168-69, 363; Campbell and Shiller, *supra* note 180, 673-74; Barsky and De Long, *Bull*, *supra* note 180, 270-71; Shiller, *Do Stock*, *supra* note 181, 422; Robert B. Barsky and J. Bradford De Long, *Why Does the Stock Market Fluctuate?*, 108 Q.J. ECON. 291, 292, 294 (1993). Shiller, however, did provide a statistical time trend analysis of the relationship between the dividend/price ratio and share prices in SHILLER, MARKET, *supra* note 177, 35. He said “The efficient markets hypothesis thus appears to be dramatically wrong from this regression: stock prices move in a direction opposite to that indicated by the dividend-price ratio. This is true in every sub-period examined.”

¹⁸³ N. Gregory Mankiw, David Romer and Matthew D. Shapiro, *An Unbiased Reexamination of Stock Market Volatility*, 40 J. FIN. 677, 685 (1985).

studies measuring ECMH. As we have indicated, share prices can be informationally efficient even if publicly available information is scant.¹⁸⁴ To reiterate, in circumstances where publicly available information concerning corporations traded on the stock market is rudimentary, the information which is available may be incorporated rapidly and fully in share prices in the manner contemplated by the semi-strong form of the ECMH without share prices constituting a reliable measure of the intrinsic worth of companies upon which investors are likely to rely reflexively. Correspondingly, it is possible that share prices were just as efficient informationally in 1910 as in 1960 even though the nature and quality of the information being impounded was inferior in 1910.

Reconciling Morck *et al.*'s findings with Shiller's results is more challenging because the subject matter is the same, namely fundamental efficiency. Still, the different results may simply reflect the measurement of different things. Recall that Shiller's research was concerned with market-wide stock price movements relative to movements in actual, or expected, payouts to investors whereas Morck *et al.* were focusing on individual share price movements relative to general stock market trends. Morck *et al.* were interested in the position of particular companies in relation to companies collectively, assuming in so doing that less co-movement of share prices was evidence of the impounding of more firm-specific information in the share prices of individual companies. Shiller, in contrast, focused on excess volatility, which plausibly will result from trading strategies likely to affect the market at large. It may well be the case that investors were able to discriminate better between firms over time using more substantial information in the manner the findings of Morck *et al.* suggest while still being afflicted with the same biases that affect the volatility of prices market-wide. Hence, there may have been some improvement in the efficiency of share

¹⁸⁴ *Supra* note 15 and related discussion.

prices in relation to each other while due to general trading patterns stock prices remained a less than ideal indicator of future corporate performance.

Taken together, the historically-related empirical research on the efficiency of stock markets indicates that less changed between the beginning of the 20th century and the 1960s than might have been expected but that the changes which did occur might have been relevant to the choice of takeover tactics. It appears that stock prices in the 1950s and 1960s did not impound new public information much more quickly than was the case as the 20th century opened and that, at market level, stock prices did not become a more reliable barometer of fundamental value. These trends suggest that uninformed investors would have had little reason to put greater store in share prices during the mid-20th century than would have been the case as the 20th century began. As we will see in the next part of the paper, investors' beliefs about the veracity of stock prices in fact did not change markedly, in large measure because they had considerable faith in share prices even before the ECMH attracted attention. This all indicates that it is unlikely that the shift to tender offers we document occurred because OMBs had become difficult to execute due to growing trust in share prices among uninformed investors creating steeper supply curves for shares.

On the other hand, the historically-related empirical research on share prices does leave open the possibility that in the 1950s and 1960s investors relied on the growing amount of public information available on companies to discriminate more effectively between particular companies when buying and selling shares. To the extent that this was occurring, informed investors logically would have been able to decode more effectively price movements that could be traced to an OMB. If these investors did in fact become more adept at identifying OMBs and then refrained from exiting at the market price because they anticipated further buying by the bidder, this would have fostered upward-sloping supply

curves for shares that would have discouraged bidders. The scene then conceivably was set for tender offers to dominate OMBs.

D. Market Participants' Perceptions of Share Prices

Given that the tenets of the EMCH were not formulated formally until the 1960s,¹⁸⁵ it might have been thought that early 20th century investors would have had little reason to believe that share prices of public companies provided the best available estimate of value of those companies. Matters then conceivably would have changed as familiarity with the ECMH grew. Greater faith in share prices in the 1960s amongst uninformed investors would in turn have fostered the steeper supply curves for shares that would have discouraged OMBs and prompted bidders to rely on tender offers.

While this efficiency-based explanation of the switch to tender offers is potentially plausible, the evidence concerning investor perceptions of share prices tells a different story. While the ECMH only emerged in the 1960s, faith in the veracity of share prices extends back much earlier. George Gibson wrote in 1889 in *The Stock Markets of London, Paris and New York* that “when shares become publicly known in an open market, the value which they acquire may be regarded as the judgment of the best intelligence concerning them.”¹⁸⁶ Fifteen years later the *New York Times* acknowledged that share prices “may be influenced by speculative conditions for the time being” but emphasized that “stocks in the end rise upon values.”¹⁸⁷

A claim by Samuel Untermeyer, counsel for a 1912-13 congressional investigation of an alleged Wall Street “money trust”, in a 1915 *American Economic Review* article that “the

¹⁸⁵ *Supra* notes 94 to 97 and related discussion.

¹⁸⁶ GEORGE GIBSON, *THE STOCK MARKETS OF LONDON, PARIS AND NEW YORK* 11 (1889), quoted in ROBERT J. SHILLER, *IRRATIONAL EXUBERANCE* 172 (2000).

¹⁸⁷ *True Basis of Values*, N.Y. TIMES, Feb. 26, 1905, 13.

pretended market prices of securities of our greatest corporations have been ‘rigged’ and manipulated at the will of a handful of gamblers and operators”¹⁸⁸ elicited in response characterizations of the stock market similar to those of Gibson and the *New York Times*. Albert Atwood, who had collaborated on a 1911 book on investment and speculation,¹⁸⁹ said “the great fundamental changes in prices on the Exchange...have been due to the *changes in the value of the properties* the stocks represented.”¹⁹⁰ Henry Emery, a Yale economist, said similarly of stock exchange prices that they, “*whether proved right or wrong in the future*, do represent with exactness what we all think now.”¹⁹¹ W.C. Van Antwerp concurred in a 1914 guide on the stock market, saying of an investor and NYSE share prices:

“The (stock) ticker gives him instantaneous quotations....(T)hese quotations are not a one-man affair but the combined judgment of thousands of experts, bulls and bears, bankers and brokers, speculators and investors, all over the world....(T)he price thus established is not merely the opinion of the all these minds as to values to-day, but that it represents a critical look into the future.”¹⁹²

Similar faith in share prices was expressed even in the midst of the grueling “bear” market that followed the 1929 stock market crash. According to a 1930 survey of the functioning of the stock exchange, “The fundamental cause for changing prices is, of course,

¹⁸⁸ Samuel Untermeyer, *Speculation on the Stock Exchanges and Public Regulation of the Exchanges*, 5 AMER. ECON. REV. (supplementary issue), 24, 41 (1915). Untermeyer was counsel for a congressional sub-committee chaired by Arsène Pujo.

¹⁸⁹ CONWAY, INVESTMENT, *supra* note 126.

¹⁹⁰ *Speculation on the Stock Exchanges – Discussion*, 5 AMER. ECON. REV. (supplementary issue), 86, 86 (1915) (emphasis in original).

¹⁹¹ Henry C. Emery, *Speculation on the Stock Exchanges and Public Regulation of the Exchanges* 5 AMER. ECON. REV. (supplementary issue), 78 (1915) (emphasis in original).

¹⁹² W.C. VAN ANTWERP, THE STOCK EXCHANGE FROM WITHIN 22-23 (1914); see also *id.* 26, saying that if securities of railway companies were trading for a considerable period of time at a low level, “it shows investors, as plainly as words can tell, that this is an unsafe and unprofitable form of investment.”

changing values....Speculation merely intervenes to adjust present prices to future but seemingly probable values.”¹⁹³ A 1934 guide to the stock market indicated similarly

“Exchange markets...represent the collective mind of the investment world as to values, present and prospective. And in this connection it is all important to remember that the collective judgment is much more reliable than the judgment of an individual.”¹⁹⁴

This sort of faith in share prices as a barometer of the intrinsic value of companies was by no means universally held. For instance, during the 1930s Benjamin Graham, co-author of a leading guide on analysis of security prices, maintained that shares were only worthwhile buying at the stock market price if that price was below liquidation value and the corporation had good prospects.¹⁹⁵ Economist Wayne Leeman also offered a skeptical assessment, suggesting in 1949 “there is a mass of evidence which indicates that there is more trading on price movements, or *movement trading*, than there is *value trading*.”¹⁹⁶

Despite such skepticism, pre-1960s investors had a plausible intellectual foundation for assuming that fluctuations in share prices reflected actual changes to a company’s fundamentals. The fact that the price was being set by way of arm’s-length transactions with no inherent bias concerning outcomes was a pivotal consideration. Adolf Berle, the distinguished corporate law academic, acknowledged the point in a 1931 article on stock

¹⁹³ MEEKER, *supra* note 111, 133.

¹⁹⁴ HUEBNER, STOCK MARKET, *supra* note 124, 34.

¹⁹⁵ Barsky and De Long, *Bull*, *supra* note 180, 275 (citing BENJAMIN GRAHAM AND DAVID DODD, SECURITY ANALYSIS (1934)).

¹⁹⁶ Wayne A. Leeman, *An Evaluation of Organized Speculation*, 16 SOUTHERN ECON. J. 139, 143 (1949) (emphasis in original). For another example, see Lewis H. Haney, *Corporation Accounting Data from the Standpoint of the Investor*, 25 J. AMER. STAT. ASSOC., Supplement: Proceedings of the American Statistical Association 7, 10 (1930) (saying of “...the so-called good companies whose stock commands high prices”...“No one knows what they are worth and this makes it impossible to entertain exaggerated hopes.”)

market manipulation.¹⁹⁷ He said of a situation where an investor purchased shares on the stock market at the “ask” price of a prospective seller the price “becomes a material factor in all other appraisals of that security, of greater or less weight depending on the situation, but of very real importance in permitting the buyers and sellers to estimate the value of the stock in question.”¹⁹⁸ It follows that even if share prices did not incorporate as much information prior to the mid-20th century as was the case thereafter, prior to the formulation of the ECMH investors nevertheless generally believed that those prices were a reliable barometer of what potential target companies would be worth.

Drawing matters together, there appears to be little direct support for the idea that uninformed investors placed more faith in the veracity of stock market prices in the 1960s than they did previously. This in turn casts doubt on the idea that such a change might have led to a steepening of supply curves faced by acquirors pursuing OMBs in a way that would explain the switch to tender offers we document. It remains possible, though, as section B. indicated, that supply curves for shares of target companies steepened because informed investors could decode OMBs more effectively. To the extent this was the case it would have been anticipated that share prices would have responded more dramatically over time to the potential acquisition of a controlling stake by way of stock market purchases. We will consider now the limited evidence available on share price reactions in such circumstances.

E. Share Price Responses to Open Market Bids

The early history of the ECMH and the impounding of a wider range of relevant information in share prices after the introduction of federal securities law in the 1930s lend credence to the idea that increases in stock market efficiency meant by the 1960s share price responses to OMBs largely precluded use of this tactic. The evidence just reviewed

¹⁹⁷ A.A. Berle, *Liability for Stock Market Manipulation*, 31 COLUM. L. REV. 264 (1931).

¹⁹⁸ *Ibid.*, 270.

regarding investor perceptions suggests that any such effect more likely occurred through better price decoding by informed investors than increasing reliance on stock prices by uninformed investors. What does the evidence on share price reactions to OMBs tell us?

A 1958 bid by Edward Gilbert, part of a family that owned New York floor-maker Empire Millwork Corp., to obtain control of hardwood manufacturers E.L. Bruce & Co. reveals that a dramatic price increase fostered by an OMB was not merely a theoretical possibility.¹⁹⁹ The fight for control, which as press reports noted was uncharacteristically for that era driven by heavy stock market purchases by Gilbert and his family rather than canvassing for proxies, drove E.L. Bruce's share price up precipitously. The price of E.L. Bruce shares, which were trading for \$17 in early 1958, rose dramatically until the American Stock Exchange suspended trading in June when the stock hit \$77 amidst concerns that there was a "corner" in the shares because the total number of shares being sold "short" in response to the price increase exceeded the available supply.²⁰⁰ Gilbert himself paid \$61 for a sizeable proportion of the stock he bought, a price far in excess of the \$17 level at which the shares had been trading. Even then he failed to acquire an outright majority and had to use his sizeable minority stake as leverage to negotiate a deal where he would share control of the board with the incumbent management team.²⁰¹

While Gilbert's bid to obtain control of E.L. Bruce & Co. clearly illustrates the risks for a bidder undertaking an OMB, the fact the bid occurred in 1958 leaves open the possibility that in earlier decades the price reaction would have been sufficiently modest to mean that OMBs would have been feasible. Resolving the point definitively is impossible,

¹⁹⁹ On this contest for control, see Vartanig G. Vartan, *Bruce Proxy Fight Ended*, CHRISTIAN SCI. MONITOR, Sept. 30, 1958, 12; JOHN BROOKS, THE GO-GO YEARS 63-64 (1973).

²⁰⁰ After trading was suspended, the price went as high as \$188 in over-the-counter trading: BROOKS, *supra* note 199, 64.

²⁰¹ In 1961 Empire Millwork, renamed Empire National, merged with E.L. Bruce & Co. Gilbert expropriated in 1962 \$2 million from the corporate till and fled to Brazil when his bid to acquire a larger company foundered: BROOKS, *supra* note 200, 65, 70-75.

but it appears that even in the opening decades of the 20th century there was a real risk that the share purchases underpinning an OMB could result in decoding that would drive the target company's share price up. According to a 1928 guide on stock market speculation:

“Each important situation in a corporation's finances has a direct reaction in the market for that corporation's shares. If the situation is very drastic, where, for example, a contest for the acquisition of the shares is in progress, the stock price may shoot wildly upwards....”²⁰²

Similarly, a 1934 analysis of the stock market indicated that for those seeking to accumulate a large holding in a company, “bidding for the stock will tend to raise the price unduly.”²⁰³ Likewise, a 1937 report by a NYSE special committee said that it was “now more difficult than formerly to sell or purchase blocks of stocks without affecting prices in a manner adverse to the interest of the buyer or seller.”²⁰⁴

These accounts suggest that, whether by virtue of price decoding or not, with OMBs there was even in the opening decades of the 20th century a good chance that the target's price would increase rapidly. We correspondingly might have expected to see the use of cash tender offers at this time but as we have seen (Fig. 5) this takeover technique was almost never used during the opening half of the 20th century. We do not know how difficult it was over time for an acquiror to commence an OMB without investors using price decoding to ascertain what was occurring. There is reason to believe, however, that it would have been easier for bidders to escape detection as the 20th century got underway than would have been the case by the 1960s. One clue is that companies disclosed considerably less firm-specific information during the opening decades of the 20th century than they would subsequently.

²⁰² FREDERIC DREW BOND, *STOCK MOVEMENTS AND SPECULATION* 71 (1928).

²⁰³ HUEBNER, *STOCK MARKET*, *supra* note 124, 400.

²⁰⁴ Quoted in ROSS, *SPECULATION*, *supra* note 12, 125.

Correspondingly, it would have been more difficult for price decoding investors to discern whether a significant price increase was attributable to trading based on undisclosed good news or to the launching of an OMB.²⁰⁵ It is also possible that early 20th century acquirors relied on market manipulation to a greater extent to disguise information about their trading activity to avoid detection. There is plausible historical evidence substantiating this latter conjecture, as we shall see next.

F. Market Manipulation

1. Disguising an OMB

Tactically astute buying and selling of shares provided one means by which an early 20th century OMB could be undertaken without driving the share price of the target upwards. A 1934 edition of a guide to the stock market described, for instance, a party accumulating “large lines of stock” while using “the most skilful methods of accomplishing their purpose without attracting attention”:

“Our operator will purchase whenever weakness develops, but should the price manifest an undue tendency to rise prematurely he will sell in order to depress the price....Gradually the desired line of securities is accumulated, whereas the unknowing, influenced by the apparent weakness of the market and their impatience at not seeing the market improve, dispose of their holdings.”²⁰⁶

Another more manipulative technique that parties seeking to carry out an OMB could use to cover their tracks would be to spread rumours that the target was going through difficult times and sell shares periodically to reinforce the bad news. As the 1928 edition of

²⁰⁵ For more detail on the logic involved, see text following note 61.

²⁰⁶ HUEBNER, STOCK MARKET, *supra* note 124, 400-1.

another guide to the stock market said of “getting control of the floating supply” of shares in a company “by buying on the market”:

“This requires plentiful credit and time, perhaps a few weeks, perhaps a few months. Stocks, of course, must be accumulated at a low price. To induce holders to sell at a bottom figure, reactions in the market are exaggerated by concerted selling, rumors of financial difficulty ahead, of small earnings, of new financing, and so forth. The price of the stock will be run a few points and then left to sink back below its former level. No permanent advance is permitted. The newspapers call attention to the false starts followed by reactions, and not progress made. This goes on week after week until holders get disgusted with their stock and sell out.”²⁰⁷

The “matched order” was an additional manipulative tactic that could be used to temper a share price increase that would have otherwise been associated with an attempt to obtain voting control by way of open market purchases.²⁰⁸ The most straightforward way for the bidder to proceed would have been to give a first broker orders to sell shares already owned at prices progressively lower than the then current market price and simultaneously give, unbeknownst to the first broker, a second broker orders to buy shares at the prevailing stock market price.²⁰⁹ So long as the purchases by the second broker were large enough to be recorded on the stock exchange ticker, the matching of the orders would cause the price indicated by the stock market ticker to fall.²¹⁰ This might well prompt nervous investors to

²⁰⁷ DICE, STOCK (1928), *supra* note 121, 429-30.

²⁰⁸ *Finance: “Matching Orders” on the Stock Exchange*, THE NATION, Aug. 27, 1908, 193; DICE, STOCK (1928), *supra* note 121, 423 (describing matched orders).

²⁰⁹ *The Stock Exchange Begins Self Reform*, N.Y. TIMES, Feb. 6, 1913, 1 (providing a detailed example of the pattern but focusing on a party that wanted to drive the share price up rather than down).

²¹⁰ One hundred shares was the minimum because the New York Stock Exchange constitution specified that 100 shares constituted the unit of trading: DICE, STOCK (1928), *supra* note 121, 53, 266.

sell and drive the price down still further.²¹¹ The party seeking to acquire control could then snap up a sizeable number of shares cheaply.²¹²

The relative paucity of public information available to informed investors about companies during the opening decades of the 20th century likely facilitated the efforts of those seeking to acquire control of a company by way of an OMB without pushing the share price upwards inordinately. As we have seen, while during this era there was limited scope for investors to make decisions to buy and sell shares on the basis of disclosures companies made, various investors apparently engaged in price decoding when deciding whether to buy and sell shares.²¹³ The process was described by Richard Wyckoff, the editor of *The Magazine of Wall Street*, in a 1924 guide on investing in shares:

“It long ago occurred to me that success in the security market demanded an understanding of the operations of those who were most influential, because these interests had been studying the business and operating in the market for many years and therefore were experts. It was sound reasoning to suppose that knowledge of the principles which they used in their market operations would enable one to detect their thumbprints on the tape and to follow with pleasure and profit.”²¹⁴

Wyckoff conceded, however, that market manipulation could complicate the decoding process in a way that would discourage substantial upward price pressure caused by the sort of heavy buying implied by an OMB:

²¹¹ DANA L. THOMAS, *THE PLUNGERS AND THE PEACOCKS: 150 YEARS OF WALL STREET* 47 (1967).

²¹² DICE, *STOCK* (1928) *supra* note 121, 423-24 (indicating that one purpose of matched orders was to accumulate “a lot” of stock “at a very low price.”)

²¹³ *Supra* note 133 and related discussion; see also David Hochfelder, “Where the Common People Could Speculate”: *The Ticker, Bucket Shops, and the Origins of Popular Participation in Financial Markets, 1880-1920*, 93 J. AMER. HIST. 335, 339 (2006) (citing the stock ticker’s “psychological hold” on financial markets in the early 20th century).

²¹⁴ RICHARD D. WYCKOFF, *HOW I TRADE AND INVEST IN STOCKS & BONDS* 99-100 (1924).

“But there is another kind of suggestion which is the most potent in its influence on the public, and that is the action of the market itself. A rising price for a stock suggests still higher prices and declining quotations bear the inference that prices are going lower....(G)roups will often try to depress a stock, counting on the public’s support when the issue begins to decline.”²¹⁵

A bidder seeking to carry out an OMB without driving up the share price markedly might well lack the expertise to achieve the desired result and thus might rely on a savvy stock market operator to acquire the shares. A 1901 contest for control of the Northern Pacific railway between J.P. Morgan and the Union Pacific railroad run by E.H. Harriman illustrates how stock market operators could be called upon to execute an OMB. To gain the upper hand Morgan recruited James Keene, said to be “the most successful stock speculator Wall Street has ever seen”,²¹⁶ to buy the Northern Pacific shares required.²¹⁷ Similarly, in 1911 Thomas Ryan, a tobacco magnate, asked Bernard Baruch, a prominent stockbroker, to acquire enough shares on the open market to give Ryan control of Wabash Railway, which Baruch proceeded to do.²¹⁸ Ryan also asked Baruch to buy control of the Norfolk and Western Railway by way of open market purchases and while Baruch’s efforts to obtain outright control did not succeed he purchased on Ryan’s behalf a large block of Norfolk and Western shares and did so without advancing the share price materially.²¹⁹ Baruch attributed his success with the Wabash Railway partly to his ability to persuade a broker specializing in

²¹⁵ *Ibid.*, 99.

²¹⁶ *A Giant of Wall Street*, BALTIMORE SUN, March 29, 1903, 2. See also BERNARD M. BARUCH, MY OWN STORY 143 (1957) (describing Keene as a “wizard”); Victor Smith, *Meteoric Career of John W. Gates, Skilful Juggler of Millions*, ATLANTA CONSTITUTION, June 15, 1902, A4 (Keene was “regarded as the ablest operator the street has known”); *James R. Keene*, N.Y. TIMES, January 30, 1910, SM2 (“master manipulator”).

²¹⁷ MAURY KLEIN, *THE LIFE & LEGEND OF E.H. HARRIMAN* 233 (2000).

²¹⁸ BARUCH, *supra* note 217, 112; JAMES GRANT, BERNARD M. BARUCH, *THE ADVENTURES OF A WALL STREET LEGEND* 107 (1997).

²¹⁹ BARUCH, *supra* note 217, 112.

Wabash stock to refrain from using Baruch's sizeable buying orders as a signal to buy Wabash shares to sell to Baruch at a higher price, citing the broker's awareness that Baruch would reciprocate at some point in the future.²²⁰

2. *How Prevalent was Market Manipulation?*

Ascertaining in any sort of definitive way the impact of market manipulation on the market for corporate control would require knowing how prevalent the practice was. For the opening decades of the 20th century the limited evidence on point is mixed. For instance, while in 1904 Thomas Lawson forcefully accused James Keene of using fictitious transactions to make bogus prices,²²¹ Lawson was a trenchant critic of the Wall Street "System" who alleged "malefactions uncountable, lootings incomputable"²²² and engaged in "imaginative disclosures,"²²³ perhaps "to launch various enterprises in unlisted stocks."²²⁴ Also, while a 1917 guide to Wall Street claimed "Manipulation...is always going on, within limits in any active market"²²⁵ and a 1994 study of accounting history said "Stocks of numerous industrial companies were manipulated...during the early part of the century",²²⁶ a 1913 magazine study of the New York Stock Exchange said "Whether this manipulation still continues and to what extent is a debated question."²²⁷ Similarly Van Antwerp's 1914 guide

²²⁰ *Ibid.*, 112-13.

²²¹ *Lawson Assails James R. Keene*, CHI. DAILY TRIB., Dec. 23, 1904, 2.

²²² *Twenty-Five Years After Lawson*, WALL ST. J., Dec. 13, 1929, 7.

²²³ *In the Days of Frenzied Finance*, NY TIMES, Feb. 10, 1925, 22

²²⁴ MARTIN, NEW YORK, *supra* note 49, 12.

²²⁵ SELDEN, MACHINERY, *supra* note 127, 169.

²²⁶ Previts and Bricker, *supra* note 103, 631.

²²⁷ Harold J. Howland, *Gambling Joint or Market Place? An Inquiry Into the Workings of the New York Stock Exchange*, OUT, June 28, 1913, 418, 422. See also Guolin Jiang, Paul Mahoney and Jianping Mei, *Market Manipulation: A Comprehensive Study of Stock Pools*, 77 J. FIN. ECON. 147, 169 (2005) (indicating based on empirical analysis of "pools", the most likely candidates to engage in market manipulation in the 1920s, "the size, liquidity, and information disclosure practices of exchange-listed companies in the 1920s were sufficient to make manipulation difficult.")

to the stock exchange suggested “The Keene type of manipulator has gone, never to return.”²²⁸

While the prevalence of market manipulation as the 20th century opened is uncertain, there can be little doubt that as time progressed it would have become more difficult for even a highly skilled stock market operator to mute share price increases otherwise associated with an open market bid. The reaction of investors to stock price changes was one factor militating against market manipulation. According to a 1930 guide to Wall Street, “Manipulation depends on a public following for its success.”²²⁹ Since it seems likely that over time the pricing of shares was increasingly driven by trading based on “hard” information in companies disclosed,²³⁰ the ability of a party to impose downward pressure on share prices through skilful buying and selling of shares should have diminished.

Another deterrent to market manipulation was that using matched orders and similar tactics to influence share prices became increasingly difficult as the 20th century progressed. Increased share trading volume was one obstacle. As early as 1901, during a “bull market” when share trading volume was uncharacteristically high, reputedly “the purchase of thousands of shares (was) necessary to advance prices”, making “fictitious trading...practically impossible.”²³¹ Share trading volumes increased dramatically during

²²⁸ VAN ANTWERP, STOCK EXCHANGE, *supra* note 193, 30. See also *Keene and His Market Losses*, BOSTON GLOBE, Jan. 7, 1913, 13 (“with the passing of Mr. Keene, the last of the great single or individual manipulators or operators in the securities markets has closed all of his worldly accounts”); *Exit the Swashbuckling Trader of Wall Street*, N.Y. TIMES, May 13, 1917, SM8 (calling Keene “the last of the class of great operators”).

²²⁹ JOHN FRANCIS FOWLER, INTRODUCTION TO WALL STREET: A PRACTICAL GUIDE BOOK FOR THE INVESTOR OR SPECULATOR 142 (1930).

²³⁰ *Supra* notes 139-43, 153-55 and related discussion.

²³¹ *The New Wall Street*, L.A. TIMES, March 3, 1901, C4.

throughout the opening decades of the 20th century.²³² The practical difficulties associated with share price manipulation correspondingly would have become more substantial over time.

Expansion of share registers of potential target companies was a related problem. During the opening decade of the 20th century only a small handful of companies had share registers with more than 5,000 stock holders.²³³ By the 1930s, it was commonplace for large public companies to have over 100,000 shareholders.²³⁴ The changing circumstances meant that it would have become increasingly difficult even for those as skilled as Keene and Baruch to go into the market single-handedly to purchase the shares required for an OMB and engage in the trading activity necessary to keep the share price in check.²³⁵ The *Boston Globe* confirmed the point in 1930, citing a dramatic growth in the number of listed companies and their market value over the past quarter-century to explain why “individual traders in the stock market can no longer swing the market.”²³⁶

Increasingly stringent regulation also would have hindered market manipulation that could make OMBs feasible. In 1913 the New York Stock Exchange supplemented an existing ban on fictitious transactions by adopting a resolution to prevent manipulation of share prices, especially in the form of matched orders.²³⁷ Stock Exchange officials

²³² O’Sullivan, *The Expansion*, *supra* note 116, 504 (chart setting out annual volume of share trading on the New York Stock Exchange), 507 (table providing annual total share volume for the New York Curb, 1911-1920).

²³³ Armour and Cheffins, *Origins* (2015), *supra* note 2, 1863.

²³⁴ *Ibid.*, 1865.

²³⁵ On the significance of share turnover in this context, see RICHARD D. WYCKOFF, *WALL STREET VENTURES & ADVENTURES THROUGH FORTY YEARS* 149 (1930).

²³⁶ *Meehan and Durant Took Up Leadership*, *BOSTON GLOBE*, July 21, 1930, 6.

²³⁷ ROSS, *SPECULATION*, *supra* note 12, 260 (indicating that there had been a rule forbidding fictitious transactions since at least the late 1860s); *The Stock Exchange Begins*, *supra* note 208.

apparently seldom detected or penalized such behavior.²³⁸ Nevertheless, according to Van Antwerp's 1914 guide on the stock exchange fictitious sales were "less frequent than people suppose."²³⁹ *Barron's* indicated similarly in 1928 "(w)hat the rules call 'a fictitious transaction' is as nearly an impossibility as may be", citing the fact that those with a \$400,000 seat on the Exchange would not risk it "for the few dollars a petty act of dishonesty would yield."²⁴⁰

The Securities and Exchange Act of 1934 tightened regulation of share price manipulation by specifically banning matched orders entered into for the purpose of creating a false or misleading appearance concerning the market for shares of a public company.²⁴¹ Wall Street veterans, acknowledging that the reforms would mean there would be fewer instances of manipulative sharp practice, used the example of those who used stock market transactions to build railroad empires at the beginning of the 20th century to explain the implications of the new rules, saying these railroad magnates would have been unable to proceed "if their buying and selling of great blocks of shares had not been given the screen of secrecy which only an unregulated market affords."²⁴² The Securities and Exchange Commission subsequently enforced the law on market manipulation sufficiently robustly to generate a sizeable body of case law.²⁴³ These enforcement efforts, combined with other factors that would have made market manipulation more difficult to execute, likely complicated efforts by acquirors to carry out OMBs without driving the share price of the

²³⁸ JOEL SELIGMAN, *THE TRANSFORMATION OF WALL STREET: A HISTORY OF THE SECURITIES AND EXCHANGE COMMISSION AND MODERN FINANCE 17-18* (1982) (making the point by reference to "wash sales").

²³⁹ VAN ANTWERP, *STOCK EXCHANGE*, *supra* note 193, 422.

²⁴⁰ *A Foreign Libeler*, *BARRON'S*, Aug. 20, 1928, 8.

²⁴¹ Securities and Exchange Act of 1934, §§ 9, 10; 15 U.S.C. 78i, 78j.

²⁴² *Huge Stock Exchange Deals Seem Barred*, *BOSTON GLOBE*, July 5, 1934, 29,

²⁴³ Section 9(a)(1), 15 U.S.C. 78i(a)(1); Lewis D. Lowenfels, Sections 9(a)(1) and (2) of the Securities Exchange Act of 1934: An Analysis of Two Important Anti-Manipulative Provisions Under the Federal Securities Law, 85 *NW. UNIV. L. REV.* 698, 698-701 (1991).

target up substantially. This trend, likely more than changes to the efficiency of share prices, would have tipped the balance in favor of the tender offer, and thus stands out as a leading explanation for our finding that the tender offer replaced the OMB as the transfer by sale method of choice in the 1950s and the 1960s.

VI. CONCLUSION

Given the significance of the market for corporate control, it is striking how little is known about the history of corporate control transactions in the United States. In this article, we address a significant facet of this history, namely linkages between share prices and the market for corporate control. In so doing, we make four key contributions. First, we present hand-collected time series data on the incidence of different types of hostile control transaction encompassing not only the first half of the 20th century but also the 1950s and the first half of the 1960s, an era often identified as the one where the market for corporate control took on its modern form. Second, we offer predictions on how changes to the pricing of shares might have impacted upon the development of the market for corporate control. Third, we identify historical trends concerning share price efficiency, an important topic neglected in much the same way as the history of the market for corporate control. Fourth, we relate our analysis of the development of the pricing of shares to our empirical data on control contests to test our predictions concerning the interrelationship between share prices and takeovers.

In some circumstances, our predictions concerning the interrelationship between share prices and the market for corporate control do not tally with our empirical findings. This is the case, for instance, with the popularity of exchange tender offers as compared with cash tender offers. Given increases in the scope and quality of information that public companies had to disclose that would have been incorporated in stock prices, it might have been thought that shares would have become increasingly popular over time as a form of acquisition

currency in the takeover context. Our data do not reveal, however, a time trend in favor of exchange tender offers as compared to cash tender offers.

On the other hand, in other ways our theoretical analysis does explain our data well. For instance, as expected the number of control contests increased over time as did the involvement of “outsiders” lacking a prior connection to targets. Acquirors logically will be reluctant to proceed with hostile takeovers when disclosure is rudimentary because they will have little faith in the share price of a prospective target as a barometer of firm value and will have had limited ability to carry out an independent investigation of a target’s financial circumstances. From 1900 through to the 1960s, public companies engaged in more extensive public disclosure and the information divulged likely was being impounded in share prices. These trends should have encouraged at least some otherwise reluctant bidders to proceed and this is what our data indicates happened. The effect logically would have been particularly pronounced with acquirors lacking a pre-existing connection to targets because for this type of acquiror a hostile takeover is very much a leap in the dark in a market environment where little firm-specific information is disclosed. The fact that hostile takeovers undertaken by bidders from a different industry to the target were considerably more prevalent in the 1950s and 1960s than was the case beforehand confirms this.

The fact that open market bids -- the preferred type of hostile transaction at the beginning of the 20th century -- were eclipsed by tender offers after World War II can also be accounted for by reference to trends concerning share prices. Extending back at least to the beginning of the 20th century investors have tended to assume that share prices provided a reasonably accurate estimate of firm value. However, with disclosure by firms having been meagre at the beginning of the 20th century but becoming more extensive over time, and with much-publicized theoretical work done on the efficiency of share prices commencing at the end of the 1950s, investors’ faith in the accuracy of share prices conceivably grew over time.

In a couple of ways, this could have made open market bids more expensive and thereby fostered the shift in favor of the tender offer.

First, with the quality of corporate disclosure improving “informed” investors who focused closely on data companies divulged when deciding whether to buy and sell shares should have become better able over time to infer that a sudden and otherwise unexplained increase in a firm’s stock price was due to a bidder seeking to obtain voting control by way of an open market bid. Second, “uninformed” investors who did not focus closely on company fundamentals but who had greater faith in share prices than their antecedents from prior eras would have been more inclined to interpret a rise in price covertly prompted by an OMB to be good news concerning the company’s prospects. Each of these trends would have tended to make open market bids more expensive than otherwise would have been the case and could have tipped the balance in favor of tender offers, which would have made clear to uninformed investors that the control premium incorporated in the offer was due to value which would only be added if control shifted and would have put pressure on informed investors concerned about losing out on the tender offer control premium to sell out.

Our analysis of how shares actually were priced from 1900 to the mid-1960s lends mixed support to these conjectures. It does seem likely that by the 1950s and 1960s decoding OMBs would have been easier for informed investors due to a surge in the amount of firm-specific information being disclosed and impounded in share prices. On the other hand, investors appeared to have considerable faith in share prices even prior to the much publicized research in the late 1950s and early 1960s that culminated in share prices being characterized as “efficient” under the efficient capital market hypothesis. Also, the limited historical evidence available suggests that share prices were not markedly more “efficient” in the 1950s and 1960s than they were in prior decades, with publicly available information

being quickly impounded in share prices as the 20th century opened and with the stock market being equally prone to “overvolatility” throughout the period on which we have focused.

The displacement of open market bids by tender offers can also be explained by reference to changes that made market manipulation more difficult. A putative acquiror intent on carrying out a transfer by sale can at least theoretically restrict the sharp share price increase an open market bid might be expected to generate by using savvy trading techniques and market manipulation to put downward pressure on the price. Bidders may well have had substantial scope to engage in such tactics as the 20th century opened. Over time, however, regulatory initiatives, a growing number of shareholders and increased trading volume would have made it more difficult for acquirors to constrain the share price increases OMBs would tend to cause. This may well have helped to open the way for cash tender offers to supplant open market bids when a lull in merger activity in the 1930s and 1940s ended, thereby making transfers by sale feasible.

While our analysis indicates that developments concerning share prices were important to the operation of the market for corporate control the account of takeover history offered here admittedly is partial. For instance, one of our most important empirical findings was the ubiquity of the proxy battle as a means of capturing control across the entire period we investigate. Our analysis of share prices does not readily explain the pattern, even it does shed light on other important features of the market for corporate control. There clearly are numerous additional issues concerning the historical development of the market for corporate control that merit investigation in future research.

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