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Mispricing of dual-class shares: Profit opportunities, arbitrage, and trading ☆

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ABSTRACT

This is the first paper to examine the microstructure of how mispricing is created and resolved. We study dual-class shares with equal cash flow rights and show that a simple trading strategy exploiting gaps between their prices appears to create abnormal profits after transactions costs. Trade and quote data show that investors shift their trading patterns to take advantage of gaps. Contrary to common perception, long–short arbitrage plays a minor part in eliminating gaps, and one-sided trades correct most of them. We also show that the more liquid share class is usually responsible for the price discrepancies.

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1. Introduction

We examine price discrepancies between dual classes of shares offering the same cash flows and issued by the same company. We show that investors are frequently able to buy shares of one class of stock at its quoted ask price and simultaneously sell the other class at a higher bid price. These price discrepancies typically disappear over a few days as prices converge. A unique contribution of this paper is that we use intraday trade and quote data from NYSE Trade and Quote (TAQ) to see how these price gaps arise and how they are corrected.

Each pair of dual-class shares in our sample consists of shares with equal cash flow rights but different voting rights. Prices of the two classes of shares can differ for rational reasons. For example, the extra votes could have value or the market could value the extra liquidity provided by one class. Nevertheless, we find that significant abnormal returns are produced by the simple trading strategy of buying the cheaper class and shorting the more expensive class when the bid price of one exceeds the ask price of the other by a specified amount. The abnormal returns from exploiting these price gaps easily survive trading costs from bid–ask spreads, but we are unable to say if they survive all implementation costs. We frequently refer to these price discrepancies as mispricings, which we define as price gaps that would permit arbitrage profits in the absence of further market frictions.

We next examine intraday trade and quote data from TAQ to see how the price gaps arise and how they are

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eliminated. The most common cause of the gaps is price pressure moving the active nonvoting stock price out of line. This is somewhat counterintuitive. We would expect the least active, not the most active, stock to become mispriced. After gaps arise, we find that purchases of cheap shares and sales of expensive ones become more likely to execute at quoted prices, which is evidence that investors are trying to trade quickly before prices change. We also find that trading volume changes in the expected ways when a gap exists. That is, sell volume becomes a larger part of total volume for expensive shares and buy volume becomes a larger part of total volume for the cheaper class. The changes in volume are particularly clear for the less active voting shares.

Perhaps our most interesting finding is that, contrary to common perception, long–short arbitrage plays only a minor role in correcting gaps. To measure arbitrage activity, we examine volume from matched trades, defined as the purchase of shares of one class and the sale of the same number of shares of the other class within a minute. Volume from matched sales of expensive shares and purchases of cheap shares increases when a gap exists. The change in volume from matched trades is far less than the change from single-sided trades. We conclude that single-sided trades are more important than arbitrage trades for correcting price discrepancies. This could reflect limits to arbitrage for our sample.

We believe that our findings shed light on price discrepancies between other pairs of similar assets. Siamese twins are shares with equivalent voting rights that trade in different markets. Our work is also related to research on arbitrage opportunities involving portfolios of securities. Lee, Shleifer, and Thaler (1991), and Pontiff (1996) examine the mispricing of closed-end funds and Jarrow and O'Hara (1989) study the pricing of primes and scores. Several researchers, including Rosenthal and Young (1990), Froot and Dabora (1999) and Scruggs (2007), show that the ratio of prices of these shares diverge significantly and for long periods of time from the ratio of their cash flows. Our finding that price discrepancies in dual class shares appear to provide profit opportunities is also similar to findings on pairs trading (see Gatev, Goetzmann, and Rouwenhorst, 2006; Engelberg, Gao, and Jagannathan, 2009). Pairs trading is a statistical arbitrage trading strategy. Pairs are not stocks issued by the same company or stocks with proportional cash flow rights. Instead, pairs are formed from stocks that have historically had high correlations of returns. If cumulative returns (or normalized prices) diverge, the strategies call for buying the stock with the lower recent return and shorting the stock with the higher recent return. Gatev, Goetzmann, and Rouwenhorst (2006) report annual abnormal returns of 11% from pairs trading. In their view, these returns appear to exceed even conservative estimates of transactions costs.

The remainder of the paper proceeds as follows. In Section 2 we discuss dual-class shares. Section 3 describes our sample. In Section 4 we examine whether differences in the prices of dual-class shares represent mispricing. In Section 5 we analyze intraday trade data to see how prices of dual class shares diverge. We study how they converge again in Section 6. A summary of our results is given and conclusions are drawn in Section 7.

2. Dual-class shares

A company with dual-class shares has two classes of common stock with different voting rights or rights to elect different numbers of directors. Dual share classes are usually created to guarantee control for founding family members or other insiders who have a minority stake in the company's cash flows. In most cases, corporate charters require cash flows from dividends, liquidations, and other sources to be equal for both classes of shares. In other cases, cash flows for the two classes are required to be in specified proportions.

The trading rules we test later in the paper assume that, when share classes have equal cash flows, a share class with a lower price is underpriced relative to the other class. These are simple rules, not optimal ones. There are good reasons apart from mispricing for price discrepancies. All else equal, voting shares could be more valuable if private benefits accrue to those who control the company through ownership of voting stock (see Lease, McConnell, and Mikkelson, 1983; DeAngelo and DeAngelo, 1985; Bailey, 1988; Zingales, 1995; Nenova, 2003; Doidge, 2004). Christofferson, Geczy, Musto, and Reed (2007) examine the value of votes in the equity loan market and show that votes are usually worth zero. Their sample is not restricted to dual-class shares, however, and they note that the marginal price of a vote could be higher for these dual-class firms. Differences in liquidity may also cause prices of dual class shares to diverge (see Smith and Amoako-Adu, 1995; Zingales, 1995). Shares with superior voting rights are typically less liquid. There are often fewer of them outstanding, and they are usually held for long periods of time by investors who wish to retain control of the company. Lower liquidity can explain why shares with superior voting rights sometimes sell for lower prices than shares with inferior votes. If price discrepancies are the result of differences in votes or liquidity, our simple trading rules would not produce abnormal returns.

Casual observation suggests, though, that the value of votes and differences in liquidity are only part of the reason for the price discrepancies between voting and nonvoting stock. The value of liquidity and the value of extra votes should be fairly stable on a day-to-day basis, especially if we exclude dates around shareholder meetings and control events. However, if mispricing is behind the differences in dual-class share prices, we would expect the price differences to vary over time. Panel A of Fig. 1 shows the ratio of daily closing bid prices of Comcast voting stock to nonvoting stock from 1994 through 1997. Both classes of stock have the same cash flow rights, but only one class has voting rights. For most sample firms, both classes have votes but one has more than the other. For simplicity, in all cases we refer to the class of shares with more votes as voting shares and the class with fewer votes as nonvoting stock.

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