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The impact of sell-side analyst research coverage on an affiliated broker's market share of trading volume

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ABSTRACT

Using NASDAQ reported individual stock level trading volume, we find that analyst research coverage on a stock increases the level of an affiliated broker's market share of trading volume in that stock by 0.8%, on average, which corresponds to an additional annual volume of about one million shares in an average stock. Optimistic recommendations increase the level of market share by an additional 0.3%, on average, which is consistent with the notion that analysts have an incentive to issue optimistic recommendations. Also, a broker's market share of volume increases on average when an affiliated analyst changes his/her recommendation, and decreases with the length of time during which an analyst maintains the same recommendation on a stock. The latter findings suggest that sell-side institutions are rewarded for providing new information to the market and for on-going research services.

1. Introduction

We study the impact of sell-side research coverage on an affiliated broker's trading revenues by examining the association between analyst stock recommendations and the affiliated broker's market share of trading volume at the individual stock level. Our evidence provides new insights about how investors direct trades to brokerage firms and the resulting incentives for sell-side analysts.[1] In addition, we corroborate and refine some existing results that Jackson (2005) reports for the Australian stock market and Irvine (2001, 2004) reports for the Toronto Stock Exchange, even though we examine the NASDAQ market and use a panel data approach that allows us to correct for potential biases in a cross-sectional analysis.

Our results are pertinent to three main issues. First, we examine whether there is an association between brokerage trading revenue and research coverage at the individual stock level. That is, if an analyst affiliated with brokerage firm *j* provides research coverage on stock *s*, does brokerage firm *j* experience a greater market share of the trading volume in stock *s*? On one hand, Michaely and Womack (1999) argue that institutional investors often use information provided by one firm and trade with another brokerage firm. Moreover, institutional investors can "compensate" a brokerage firm for information provided about a particular stock by trading other stocks with that brokerage firm (Goldstein et al., forthcoming). Despite these arguments, Irvine (2001) and Jackson (2005) report that, for the Toronto and Australian market places, respectively, there is a positive relation between research coverage and affiliated broker market share at the individual stock level. We also find a positive relation for the NASDAQ market, but the magnitude of the increase in market share is smaller than previously reported in other studies.

We use panel data which allow us to control for unobserved heterogeneity in base-line market shares and thereby correct for potential bias in existing estimates. Heterogeneity in base-line market shares is likely to exist because the institutional equity market is characterized by idiosyncratic business and personal relationships between buy-side and sell-side institutions. The quality of non-research services that a buy-side institutional investor receives, as well as the backgrounds, personalities, and experiences of the individuals involved, is likely to cause institutional investors to have relationships with a small set of sell-side institutions. As a consequence, the buy-side institution is likely to direct a disproportionate number of trades to a relatively small set of sell-side institutions, which all else equal gives these institutions

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[1] Sell-side analysts face conflicts of interest because of the potential impact of recommendations on trading revenue, investment banking business, and access to top management of the covered firm (Boni and Womack, 2002). Agrawal and Chen (2005, 2008), Choi et al. (2009), Cowen et al. (2006), Hayes (1998), Irvine (2004), Jackson (2005), Ljungqvist et al. (2007), and this paper examine the role of trading revenue. For analysis of conflicts arising from affiliations with investment bankers, see Agrawal and Chen (2005, 2008), Bradley et al. (2008), Cornett et al., (2005), Lin and McNichols (1998), and Michaely and Womack (1999). For an analysis of conflicts arising from affiliations with corporate managers, see Das et al. (1998) and Lim (2001).

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a higher market share of volume for the stocks that the buy-side client trades.[2] Since relationships vary across institutions, base-line market shares of volume in a stock also vary across brokers.

The problem with not controlling for this heterogeneity is that a sell-side institution's decision to provide analyst coverage on a stock is also likely to depend on whether the institution has a relationship with a buy-side client that is prone to trading that stock. As Irvine (2003) explains, one reason why analysts initiate coverage on a stock is to provide additional service and support to important clients with significant holdings of the stock. By not controlling for the unobserved heterogeneity in market shares, a positive association between market share of volume and affiliated research coverage could be attributed to either the impact of research coverage on market share or the effect of relationships on both market share and research coverage. Thus, existing estimates of the impact of analyst research on market shares of trading volume could be unreliable.

Using fixed effects to control for the unobserved heterogeneity in base-line market shares, we find that in months in which an analyst has an outstanding recommendation on a stock, its affiliated brokerage's level of market share increase by about 0.8%. The magnitude of the relation is only about one-third of what has been reported for the Toronto and Australian exchanges and of what we find when we do not include fixed effects.[3]

It is important to highlight that the aforementioned estimates of the impact of research coverage on market share of trading volume reflect the average effect for the time period over which an analyst provides coverage. This observation leads to the second issue that we investigate: Does the reward to a brokerage firm from having an affiliated sell-side analyst cover a stock vary over time depending on (1) whether the analyst provides new information via a recommendation change and (2) the duration of coverage without a recommendation change? If there is an additional reward for providing new information about a stock, there will be an additional bump in market share during months in which the affiliated analyst provides new information about a stock, i.e., by changing an outstanding recommendation. Consistent with this perspective, we find that both upgrades and downgrades are associated with an increase in market share. However, the average change in the level of market share for upgrades is about twice that for downgrades.[4] This difference is likely due to short sale restrictions that limit the extent to which investors can trade on negative information.

During periods in which an analyst does not change his/her recommendation, the market share of volume will reflect the value of on-going research services on that stock. We examine whether the perceived value of these research services varies as the recommendation duration – the number of months without a change in the recommendation – increases. We find that, on average, market share gradually drops as the recommendation duration increases, becoming insignificant after about 36 months. This pattern suggests that there is value to on-going research services on a stock, but that this value gradually declines if an analyst does not change his/her recommendation.

The final issue is whether an affiliation with a brokerage operation provides sell-side research analysts an incentive to issue optimistic recommendations. Some argue that short sale constraints cause investors to respond asymmetrically to positive versus negative news, and therefore give analysts who are affiliated with a brokerage operation an incentive to issue optimistic recommendations (e.g., Unger, 2001). The counterargument is that these incentives are effectively mitigated by analysts' concerns for their reputation. Jackson (2005) presents a model in which incentives to issue optimistic recommendations and the reputation effects coexist. Jackson's (2005) evidence for the Australian market and Irvine's (2004) evidence for the Toronto Stock Exchange indicate that both reputation effects and incentives to issue optimistic recommendations are present. Our data also suggest that both forces are at work in the NASDAQ market – both recommendations issued by "star analysts" and optimistic recommendations lead to higher market share for the affiliated brokerage firm when we do not include fixed effects. The inclusion of fixed effects in our analysis, however, appears to "absorb" the reputation effects that are measured by the "star analyst" variable in the analysis that does not control for unobserved heterogeneity.

The remainder of the paper is organized as follows. Section 2 presents the hypotheses. Section 3 describes the methodology and data. We present the main regression results in Section 4. We compare the effect of optimism on market share exhibited through recommendations with that through earnings forecasts in Section 5. Section 6 concludes the paper.

2. Hypotheses

We use NASDAQ monthly volume data to calculate each broker's market share of volume in each NASDAQ-listed stock for each month from 1996 through 2004.[5] The brokers on NASDAQ include market makers, electronic communication networks (ECNs), and order entry firms. Of the several hundred brokers in our volume data, only 10–20 entities during a particular month are classified as ECNs or order entry firms.[6] Many, but not all, brokers are part of an organization that also has *equity analysts*, who provide recommendations on some but not all of the stocks that are traded through the broker.

We use volume as a proxy for trading revenue (commissions plus bid/ask spreads) from a firm's broker/dealer operations. When crediting the volume from a trade to a particular entity, NASDAQ uses the following hierarchy: brokers that are registered market makers in the stock, brokers that are members of NASD but not registered market makers in the stock, and finally non-members. NASDAQ credits a trade to the market participant that is highest in the hierarchy unless the shares are traded through SuperMontage, in which case the liquidity provider is credited with the volume regardless of its position on the hierarchy (the liquidity provider is defined as the party that fills the order). If two equal parties trade, the sell-side is credited with the volume. For a trade on an ECN, either the party that is a NASD member firm or the ECN itself will report the trade and will be credited with the volume. There are no uniform policies, and the practice is determined by each individual ECN.

These NASDAQ volume crediting rules imply that trading volume is a noisy proxy for trading revenue for three reasons. First,

[2] Descriptions of the role of equity sales forces on various institutions' web sites support the importance of client relationships. For example, Scotia Capital states that our "institutional equity sales and trading force builds solid relationships through a professional approach to understanding each client's portfolio and trading style." Thomson states that "institutional sales professionals must develop strategic relationships with investors and fund managers to compete successfully."

[3] The difference in the change in level of market share is not due to differences in firm size across the samples, as we obtain similar results for the annual top 100 stocks on NASDAQ ranked by volume.

[4] Using a sample of 100 stocks on the Toronto Exchange between September 1993 and August 1994, Irvine (2004) finds that buy recommendations increase the market share for the affiliated brokers, while sell recommendations have little impact.

[5] We thank Tim McCormick for providing us the historical volume data and the historical lists of names for NASDAQ broker/dealers. NASDAQ refers to broker/dealers as market participants.

[6] An ECN (e.g., INET) provides an electronic facility that allows investors to post bid and ask prices and to trade anonymously with each other. Order entry firms enter and execute orders for customers, but do not maintain price quotes.