# Search Frictions and Controlling Shareholder Illiquidity

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# Introduction

- The study investigates the pricing implications of controlling blocks of public company under illiquidity, using a search model of block trades.
- The shares of a firm can be divided into two groups
- The controlling block, held by a controlling shareholder (the Incumbent, I);
- The holder of the block enjoys private benefits (B) by holding the block;
- The controlling block is traded to a new shareholder (the Rival, R) through successful bargaining (Ψ) only when the firm's asset value increases through this trade under normal circumstances;
- The dispersed shares, held by non-controlling shareholders;
- When hit by a liquidity shock, I is forced to sell the block to R in a fire sale price. The price of the block is further depressed given the potential absence of a bidder at any given time. The price discount of the block is the Marketability Discount (Φ).
- The price of the dispersed shares is also depressed under the fire sale of the controlling block, from the potential that R generates a lower security value, which induces the Illiquidity-Spillover discount.

# Contributions

- In general, the study contributes to the understanding of the costs and benefits of holding controlling blocks by examining the evaluation and trading of controlling blocks in a illiquidity context.
- The difficulty in estimating the marketability and illiquidity-spillovers discounts is that it requires the quantification of a counter-factual price: what should the block price be in absence of a liquidity shock?
- The study establish a framework in modeling the illiquidity effects and shows it is possible to identify the discounts.
- The study uses a search model to construct the structural estimation
- The search model is developed by Wolpin (1987) in the study of the labour market
- The application of the search model in finance is developed by Feldhutter (2010), using a search model variant of Duffie et al. (2005)
- The idea of the search model is that search frictions induce marketability discount
- The study differs from previous literature in this context in that data limitations imply that the information "on the time between two trades of the same block or multiple trades of the same block" is not available, so the study relies on the information on the valuations of block holders and dispersed shareholders at the time of the trade

# Methodology

- The study employs a search model to construct the structural estimation of the illiquidity effects on controlling blocks.
- The basic intuition is that the different price reactions of two types of shareholders – block holders and dispersed shareholders – allow the possibility of identifying the model parameters and fire sale values
- In the empirical analysis part, the study explores the possible factors inducing the marketability discount ($\Phi$), as well as the levels of the probability of a liquidity shock ($\theta$), private benefits (B), the bargaining power ($\Psi$), and the likelihood of a rival's bidding ($\eta$).
- The study tests the model using data on disclosed acquisitions of a block of more than 35% but less than 90% of the stock of US public companies from 1/1/1990 to 31/12/2010.
- The study shows that the average marketability discount is of 30% of the block value and the median is of 12%, with a standard deviation of 32%. The study argues that the estimates constitute lower bounds to the true parameters.
- Similar studies on the liquidation levels include Pulvino (1988), Coval and Stafford (2007) and Bollen et al., 2004.

# Parameters of the Model

- Seller's Bargaining Power
- Probability of Meeting a Buyer
- Private Benefits
- Liquidity Shock
- Fire Sale Price
- Cash Flow Distribution and Discount Rate

# Critical Analysis

Size of the Corporations

Bond Market not Relevant

Benefits of the Study not Focused

Information Proxy not Considered

Model Based on Liquidity Shocks

# Size of Corporations and Bond Market

- Sample selects corporations solely on block holdings
- Small, Medium and Large Corporations may have individual factors affecting the particular industry.
- To account for such factors, the study should have focused on specific sized corporations individually or collectively.
- Example, the The Herfindahl Index is a measure of the size of firms in relation to the industry and an indicator of the amount of competition among them. This could have been used as a control variable in the econometric specification.
- Block Holdings in Corporations is primarily a concept of Equity Market Holdings.
- As an alternative measure of funding liquidity, the study incorporates the bond liquidity premium index.
- Factors driving bond and equity markets may have linkages but affect the two in different ways and can not be used as a proxy for another.

# Information Proxy and Liquidity Shocks

- It has been established that liquidity shocks cause block holders to sell at fire sale prices.
- For the acquirer of the block holding to know that the current holder is distressed or has liquidity problems there needs to be an information proxy.
- As information is largely privately held, dispersed shareholders and public participants suffer adverse selection.
- Reasons other than liquidity that may cause a block holder to sell their holdings are not considered.
- Dummy Variables should have been added to check if market conditions or other reasons cause a sale.
- Example, a dummy variable for the 2008 crisis, 9/11 catastrophe, dot com bubble of 2000 etc. would have been able to identify block sales not caused by liquidity.

# Discussion

- The paper presents an intricate partial equilibrium model of liquidity in the presence of discontinuous block holdings of equity in firms.
- The innovation (which is very well executed) is in specifying the Method of Moments (simulated in this case) estimation procedure to back out the underlying structural parameters of the model, using a smooth adjustment probability model (indicated by the theta function)
- A question not quite answered in the paper is about the assumptions needed to generate the SMM moment restrictions
- Could the authors elaborate on this or specify a paper from the econometrics literature that explains the assumptions needed to make this work?
- It is interesting that after all the work that many of the elements of the model are reduced to an event study! I have a lot of sympathy with this! In Chen, Williams and Buckland (2012) the authors have a huge equilibrium model and produce parameters that they then present as an event study

# Discussion

- We also have the standard critique of this type of paper in that we assume that the econometrician (who has 20-20 hindsight as he has all the data!) knows less than the market participants generating the observed effects. There is nothing that can be done here though as we would have no papers in this field otherwise!
- This leads me on to a more substantive criticism: *there is no discussion of the implications for capital allocation problems*
- The model has a nice story to say, but the authors have not talked about certain very interesting questions raised from their results.
- Imagine a large mutual fund (examples could be MAN group or Aberdeen Asset Management). These firms invest in relatively small cross sections of stocks but take large minority holdings circa 15-30%. So if your results are to be believed then inappropriate analysis of the liquidity effect of their holdings could lead to very substantial deterioration of the diversification profile of their portfolio.

# Discussion

- In fact, timing of rebalancing of such portfolios becomes incredibly acute, indicating that such investment funds may be sitting on unknown levels of liquidity risk driven by their own block holdings.
- Seems to me that this is a substantial application of this study that is not commented on in the paper.
- Assume we have 10 billion invested in 10 companies across different sectors, each with a 30% block holding. If by accident each company is in the third quartile for the liquidity spillover discount (Table V) then we could be seeing an overvaluation of this fund, upon rebalancing of around 100-1000 Million dollars or 10-100 million dollars per holding. That is actually a lot of money that has been conflated to the fund.
- Should we worry about this? This was just from casual inspection of the results.
- Maybe a need to target this study at a particular focus group.
- For example, Regulators may be able to use it for Corporate Governance, Target Firms can use it to avoid hostile takeovers, Equity and Wealth Funds can use it to advise individual investors
- I am sure the authors could delineate even more insightful snippets on further investigation.

# Thank You!