International Review of Financial Analysis 30 (2013) 86–97

Contents lists available at ScienceDirect

International Review of Financial Analysis

Market liquidity and institutional trading during the 2007–8 financial crisis☆

Ser-Huang Poon [a], Michael Rockinger [b], Konstantinos Stathopoulos [a,*]

[a] Manchester Business School, UK
[b] HEC Lausanne and SFI, Switzerland

ARTICLE INFO

Article history:
Received 11 February 2013
Received in revised form 20 May 2013
Accepted 15 June 2013
Available online 21 June 2013

JEL classification:
G01
G11
G20

Keywords:
Institutional herding
Institutional count
Institutional holdings
Market liquidity
Financial crises

ABSTRACT

This paper shows that institutional sell-side herding increased bid–ask spreads and liquidity risk during the 2007–8 financial crisis. Such an impact on liquidity is most pronounced in firms with large numbers of institutions that sold the same stocks, that is, have correlated trades. For the same reason, we find institutional investors with a dedicated, buy-and-hold, investment style to be the least likely to herd; their trading activity did not affect stock market liquidity during the crisis. Our results are robust to alternative explanations, different test specifications and consistent with recent theories highlighting the negative impact of institutional trading activity on market liquidity during a crisis.

1. Introduction

Recent theories highlight the role of institutional trading in reducing market liquidity during a financial crisis (see Brunnermeier & Pedersen, 2009; Garleanu & Pedersen, 2007; Huang & Wang, 2009; Kyle & Xiong, 2001; Xiong, 2001). They predict that institutions' sell-orders during negative extreme market shocks exacerbate order imbalances. In this paper, we corroborate these theories by presenting empirical results which suggest that institutional sell-side herding is a key factor in impairing market liquidity and creating liquidity risk. Our paper makes two important contributions: First, we show that the number of institutional shareholders is a (noisy but readily available) proxy for the level of institutional trading and the potential institutions' sell-side herding during a market downturn (Chiang & Zheng, 2010; Nofsinger & Sias, 1999; Sias, 2004; Zhou & Lai, 2009). Second, we illustrate the significant effect of institutional sell-side herding and correlated trades on both trading costs and liquidity risk during the 2007–8 financial crisis.

Shares of firms with a greater number of institutional shareholders are more likely to suffer from institutional herding when they exit at the same time, creating excess order imbalances and wider spreads. We do not equate herding to irrational behavior and do not make any attempt to discern which of the possible herding reasons drives our results. Recent theoretical studies suggest that increased selling activity during a crisis could be driven by several factors, such as increased funding constraints (Brunnermeier & Pedersen, 2009), higher risk aversion (Huang & Wang, 2009), and/or tighter risk management (Garleanu & Pedersen, 2007). All or some of the herding explanations could contribute to the herding results presented here. Companies with smaller numbers of institutional shareholders but large institutional holdings do not suffer as much, possibly because these institutions have better information about the firms, and are more likely to offload their shares in a more orderly manner to minimize the price impact of their transactions.

To further understand institutional characteristics and their trading patterns, we classify institutional investors into groups according to their 'type' and 'investment style'. Different investor types and styles have varying degrees of correlated trades both within and across their groups (Sias, 2004). Thus, given that a higher degree of correlated trades is associated with a greater impact on order imbalances, and hence illiquidity, we expect to find systematic differences in the impact

☆ We are very grateful to Michael Brennan for the many discussions that helped to improve the quality of this paper and its presentation; we also thank Nicholas Chen, Vivian Fang (discussant), Charles Sutcliffe, Martin Walker, Charles Ward, as well as conference and seminar participants at the Fordham-JBF Liquidity Risk Management Conference, ICMA Centre at Reading University Henley Business School, Manchester Business School, Singapore Management University and Victoria University of Wellington for the helpful comments and suggestions.

* Corresponding author at: Manchester Business School, Crawford House, Booth Street East, Manchester M15 6PB, UK. Tel.: +44 1612756863.
E-mail addresses: ser-huang.poon@mbs.ac.uk (S.-H. Poon), Michael.Rockinger@unil.ch (M. Rockinger), k.stathopoulos@mbs.ac.uk (K. Stathopoulos).

1057-5219/$ – see front matter © 2013 Elsevier Inc. All rights reserved.
http://dx.doi.org/10.1016/j.irfa.2013.06.003

of the various groups' trading activity on market liquidity. Based on the SEC 13f filings, institutional investors are classified into bank trusts (BNK), insurance companies (INS), independent advisors (IA), public pension funds (PPS) and university and foundation endowments (UFE).[1] Furthermore, we use the database constructed by Bushee (2001) to group institutional investors into quasi-indexers (QIX), transient (TRA), and dedicated (DED) based on their long-horizon trading pattern.[2] In general, IA dominates our sample firms over the 2004–8 period, and over two-third of the institutional investor sector is quasi-indexers. We do not detect any significant correlation between 'type' and 'style'; all three 'styles' appear in a similar sector representation within each 'type'. UFE trades have high within-group standard deviation, and are least correlated with the other institutional trading patterns, which diverge even further in the crisis period. The same applies to DED trades, which during the crisis became less correlated with QIX and TRA. This lower correlation in the trading pattern of UFE and DED with all the other groups leads to an insignificant impact of their herding activity on market liquidity. In contrast, the herding activity of all other institutional types and styles affects market liquidity. Separately, Koch, Ruenzi, and Starks (2010) find a strong commonality among the Amihud price impact measure of stocks owned by mutual funds which have high turnover and liquidity shocks due to their investors' withdrawals. Similarly, we find that the impact of institutional trading on liquidity is the strongest among the Independent Advisor (IA) group, which includes mutual funds. Among the five institutional investor types, IA is the most likely to be subject to institutional constraints and the least able to stick to their trading strategies during a financial crisis, thus we expect them to have correlated trades. But unlike Koch et al. (2010), we find that our results are statistically significant only for institutional sell-side trades during the crisis. The very high correlated buy-side herding before the crisis did not have any impact on liquidity or liquidity systematic risk.

We recognize that there might be spurious relations and omitted variables that might explain our results. Therefore, we run a battery of tests to try to alleviate such concerns. We include in our model specifications several market and accounting-based control variables, which the literature has identified as important determinants of trading cost and liquidity risk. In addition, we use industry and firm fixed effect specifications to account for omitted variables. In all our models, we cluster the standard errors at the firm level to control for time-series dependence, and add year dummies to capture the effect of cross-sectional dependence. We run regression models based on the changes in the variables instead of their levels. We also run separate tests to control for alternative explanations based on institutional blockholders, or the lack of retail investors. Our main findings remain the same.

The remainder of the paper is organized as follows. In Section 2, we position our paper alongside the previous literature and present our hypotheses. In Section 3, we describe our data sources, variable definitions and provide some descriptive statistics. In Section 4, we report our results. Section 5 provides some discussion and concluding remarks.

2. Previous literature and testable hypotheses

Institutional investors are more likely than individuals to herd, that is, follow each other's trades.[3] This is because they can respond faster, they are subject to similar informational and regulatory environments, and their managers face heightened moral hazard problems, which makes them more reactive to bad news. Sias (2004) provides explanations for institutional herding.[4] His analysis makes it clear that institutional herding is not (always) irrational. Sias explanations though describe institutional trading behavior under normal market conditions, when trading is mainly information driven. Recent theoretical studies present alternative reasons why institutions herd and become liquidity traders during a financial crisis. Brunnermeier and Pedersen (2009) suggest that adverse shocks to the value of collateral induce sell pressure by institutions who reach their risk limits and funding constraints, which in turn leads to market-wide liquidity shortages. Similarly, Garleanu and Pedersen (2007) argue that tighter risk management by institutions during market downturns reduces liquidity provision. Furthermore, Xiong (2001) shows that in the case of extreme return shocks, wealth effects cause convergence traders to liquidate their positions, abandon their usual trading strategies and trade instead in the same direction as noise traders, thereby amplifying the original shock. Kyle and Xiong (2001) show that this effect could cause prices of fundamentally unrelated assets to move together and could lead to contagion. Huang and Wang (2009) argue that liquidity demand is endogenous and liquidity shocks typically occur on the sell side and are of large amounts. They anchor their theory on the balance between the need to trade and the cost of trading. Costly trading means non-continuous trade and increased risk aversion when the need to trade arises as traders face the uncertainty of the trade not being executed. Risk aversion reduces the desire to hold risky assets, so the impact on order imbalance is asymmetric and is greater on the sell side. Moreover, at low risk levels, the cost of trading outweighs the need to trade, so all traders stay away from the market. Trading takes place only when the idiosyncratic shock and risk aversion are large and sell side strongly dominates buy side. This big order imbalance drives down market prices even in the absence of changes in the fundamentals or information asymmetry. It is clear from the above studies that one should expect sell-side correlated trades from institutional investors during a market crisis. We do not investigate in this paper, which of the above reasons leads to the selling orders. During a crisis, all of them might play a significant role in raising the selling needs of institutional investors.

To date much of the previous research has focused on the impact of institutional shareholdings, firms' fundamentals and information asymmetry to explain securities trading costs. Given the above recent studies and the large presence of institutional investors in the financial markets, one may expect institutional trading activity itself to

[1] In SEC 13f, the five types of institutional investors are bank trusts (BNK), insurance companies (INS), investment companies (INV), independent investment advisors (IIA), and miscellaneous (MSC). We follow Bushee (2001) and merge INV and IIA into one group, i.e., investment advisors (IA). Bushee has also identified corporate pension funds (CPS), public pension funds (PPS), university and foundation endowments (UFE), which were classified in 13f as MSC. We use in our analysis PPS and UFE, but do not investigate separately (the scarcely represented) CPS and other MSC.

[2] Bushee (2001) groups institutional investors into three investment styles, viz. quasi-indexers (QIX), transient (TRA) and dedicated (DED), based on factor and cluster analyses on portfolio characteristics such as portfolio turnover, stability of holdings, block size, percentage ownerships in firms, average investment size. QIX are long-horizon but well-diversified investors. TRA are diversified but high portfolio turnover investors. DED are characterized as making large investments in their portfolio firms and having extremely low turnover. Bushee produced two versions of such classification; one assumes that institutions can switch style and the other uses the dominant style for the entire estimation period. We use the version that omits short term switching since the analyses here focus on the time series difference in trading and holding patterns of particular institutional investor groups between pre-crisis and crisis periods. This version of classification produces less switching in investment style during the crisis and should work against us finding significant results.

[3] Recent studies on retail investor trading behavior present some evidence of herding among retail investors as well (Dorn, Huberman, & Sengmueller, 2008; Goodfellow, Bohl, & Gebka, 2009; Hsieh, 2013; Kumar & Lee, 2006). Still, the extensive literature on herding provides a list of explanations for institutional herding, whereas we know little about the sources of retail herding. Also, the relatively small aggregate equity holdings of retail investors over our sample period justify our focus on the impact of institutional trading behavior on market liquidity. Finally, Corwin and Lipson (2011) show that it is institutional herding and not retail herding that drive liquidity.

[4] Informational cascades happen when Institutions infer information from each other's trades when information is noisy. Investigative herding occurs because Institutions follow the same signals. Reputational herding refers to the situation where Institutions choose to share the blame rather than taking independent decisions. Fads, or following the trend, refer to Institutions following the same investment strategies because they are considered novel. Characteristic herding refers to Institutions being attracted to securities with the same set of characteristics.