Journal of Banking & Finance 45 (2014) 72–83

Contents lists available at ScienceDirect

Journal of Banking & Finance

journal homepage: www.elsevier.com/locate/jbf

Liquidity risk in stock returns: An event-study perspective

Charles Cao [a,b], Lubomir Petrasek [c,*]

[a] *The Pennsylvania State University, University Park, PA 16803, United States*
[b] *Tsinghua University, Beijing 100083, China*
[c] *The Board of Governors of the Federal Reserve System, Washington, DC 20551, United States*

ARTICLE INFO

Article history:
Available online 11 October 2013

JEL classification:
G01
G14
G20

Keywords:
Financial crises
Liquidity risk
Asymmetric information
Institutional investors

ABSTRACT

We examine in an event-study context what factors affect the relative performance of stocks during liquidity crises. We find that market risk, measured by the market beta, is not a good measure of expected abnormal stock returns on days with liquidity crises. Instead, abnormal stock returns during liquidity crises are strongly negatively related to liquidity risk, measured by the co-movement of stock returns with market liquidity. The degree of informational asymmetry and the ownership structure of the firm also help to explain abnormal stock returns on crisis days. Our findings have important implications for managing the liquidity risk of equity portfolios.

© 2013 Elsevier B.V. All rights reserved.

0. Introduction

The financial crisis of 2007–2009 was associated with several liquidity shocks that stressed the importance of liquidity risk for stock returns. While some stocks performed relatively well during periods of market turbulence, other stocks proved to be highly exposed to market liquidity dry-ups and underperformed the market portfolio during the crisis. Understanding the variations in stock returns during liquidity crises is important for risk management and portfolio selection. However, previous research provides little insight into the factors that determine the relative performance of stocks during liquidity crises.

This paper examines the determinants of cross-sectional stock returns during liquidity crises in an event-study context. We use several alternative measures of market liquidity to identify liquidity crises, including the innovations in the proportional quoted bid–ask spread, the innovations in the proportional effective bid–ask spread, and the Amihud (2002) illiquidity measure. Liquidity crises are defined as days in the left tail of the distribution of each of these measures. Specifically, we focus on the 48 days (1% of sample days) or 24 days (0.5% of sample days) with the largest adverse shocks to market liquidity between 1993 and 2011. We then empirically investigate what risk measures and characteristics can explain stocks' relative performance during liquidity crises.

We test in the cross-section of stocks several hypotheses about the determinants of abnormal performance of stocks during liquidity crises. Pastor and Stambaugh (2003) propose that the liquidity risk of stocks be measured by the liquidity beta, i.e. the covariance between individual stock returns and innovations in aggregate market liquidity. They show that investors require positive risk premiums to hold stocks with high liquidity betas. Acharya and Pedersen (2005) and Korajczyk and Sadka (2008) demonstrate that the liquidity beta is a distinct category of risk from the characteristic liquidity of stocks. Recently, Cao et al. (2013a,b) explore a new dimension of hedge-fund and mutual-fund managers' timing ability by examining whether they can time market liquidity through adjusting their portfolios' market exposure as aggregate liquidity conditions change. They show that liquidity timing is an important source of fund managers' abnormal performance.

However, not much is known about the importance of the liquidity beta for risk management. We examine whether liquidity risk, measured by the estimated liquidity beta, can predict the differences in stocks' relative performance during liquidity crises. We further compare the importance of liquidity risk with that of market risk, measured by the market beta. In addition, we examine the role of asymmetric information in predicting crisis-day abnormal returns. We test the hypothesis that, during liquidity crises, stocks with a greater degree of information asymmetry underperform stocks with a smaller degree of information asymmetry.

---

* Corresponding author.
E-mail addresses: qxc2@psu.edu (C. Cao), Lubomir.Petrasek@frb.gov (L. Petrasek).

0378-4266/$ - see front matter © 2013 Elsevier B.V. All rights reserved.
http://dx.doi.org/10.1016/j.jbankfin.2013.09.020

Finally, we examine whether the ownership structure of the firm's equity and the concentration of institutional ownership affect abnormal stock returns during liquidity crises. The ownership structure could matter if some types of institutional investors exhibit different trading pattern during liquidity crises than individual investors.

We find that crisis-day returns are strongly related to the liquidity beta that captures the co-movements of past stock returns with the liquidity factor. The liquidity beta alone explains up to 52% of the cross-sectional variation in stock portfolio returns during liquidity crises from 1993 to 2011, suggesting that the liquidity beta is a useful measure of risk for equity portfolios. In contrast, the market beta is not significantly associated with abnormal returns during liquidity crises between 1993 and 2011. In addition, abnormal returns during liquidity crises depend on informational asymmetry and the ownership structure of equity. Stocks with a greater degree of informational asymmetry, measured by the PIN model of Easley et al. (1996), experience significant negative abnormal stock returns on crisis days. The ownership structure of equity also matters for stock returns during liquidity crises. We find that firms with a greater fraction of shares held by investment companies experience significant negative abnormal stock returns on crisis days. This finding is consistent with the view that herding among fund managers increases the liquidity risk of stocks. In contrast, commercial bank stock ownership is associated with positive abnormal returns on crisis days, suggesting that banks are less likely to sell stocks in turbulent markets than other types of institutional investors or individual investors.

Overall, our results show that abnormal stock performance on crisis days is, in part, predictable. Based on past stock returns and several characteristics, investors can construct portfolios that significantly outperform the market during liquidity crises. Furthermore, such portfolios do not significantly differ in their degree of market risk, and thus should not have lower expected return according to the capital asset pricing model (CAPM). Nevertheless, these portfolios contain stocks with different sensitivities to market liquidity, degrees of information risk, and ownership structures. Previous research suggests that some of these risks and characteristics are priced (e.g., Pastor and Stambaugh, 2003; Easley et al., 2002). We therefore analyze the expected returns of portfolios sorted according to their predicted performance during liquidity crises during the period 1998–2011. Consistent with prior research, we find some evidence that portfolios with greater predicted returns during liquidity crises have lower average expected returns, in particular during the 1998–2007 period. These findings suggest that, although it is possible to effectively manage the liquidity risk of stocks, liquidity risk management is costly in terms of expected returns.

The rest of the article proceeds as follows. Section 1 presents testable hypotheses about the determinants of stocks' abnormal performance during liquidity crises. Section 2 describes methodology and data. Section 3 presents empirical results. Section 4 provides concluding remarks.

1. Hypotheses

We test several hypotheses about stocks' abnormal performance during liquidity crises. First, we examine whether liquidity risk, measured by the liquidity beta, can explain the differences in the cross-section of stock returns on crisis days. Originally proposed by Pastor and Stambaugh (2003), the liquidity beta measures the sensitivity of stock returns to fluctuations in aggregate market liquidity. However, it is not obvious that the liquidity beta can be effectively used to manage liquidity risk. The liquidity beta is a linear measure of risk, whereas liquidity crises are extreme tail events. In addition, Wantabe and Wantabe (2007) argue that stock returns' sensitivities to aggregate liquidity fluctuations vary over time, suggesting that historical liquidity betas may not be useful for managing the liquidity risk of stocks. To assess whether the estimated liquidity beta is a valid measure of risk, we test the hypothesis that the estimated liquidity beta helps to explain the cross-sectional variation in stock returns during liquidity crises. We further compare the importance of the liquidity beta for managing liquidity risk with that of the market beta, estimated over the same time interval.

In addition, we test the hypothesis that, during liquidity crises, stocks with a greater degree of information asymmetry underperform stocks with a smaller degree of information asymmetry. The asymmetric information hypothesis is motivated by the finding of Jeffrey (2011) that higher quality of accounting information lowers the sensitivity of stock returns to market liquidity and reduces the cost of capital, and the finding of Petrasek (2012) that transparency has real effects on corporate financial policy. Intuitively, lower informational asymmetry could reduce the sensitivity of stock returns to market-wide liquidity shocks because investors have a strong preference for certainty during liquidity crises. This argument is also consistent with recent research that relates market-wide liquidity shocks to macroeconomic and financial uncertainty (e.g., Eisfeldt, 2004).

Next, we test the hypothesis that the ownership structure of equity affects abnormal stock returns during liquidity crises. We distinguish between equity ownership by individual and institutional investors, as well as ownership by different types of institutional investors, such as investment companies, banks, and other financial institutions. Institutional ownership could affect the sensitivity of stocks to liquidity shocks because institutional trades are more correlated with one another than trades by individual investors. For example, multiple studies document that managers of investment companies tend to herd, i.e. buy into or out of the same securities at the same time.[1] According to Chordia et al. (2000), and Koch et al. (2010), such herding by fund managers could induce correlated changes in liquidity across stocks and increase the liquidity risk of stocks. We therefore hypothesize that investment company ownership has a negative effect on stocks' abnormal performance during liquidity crises when fund managers herd out of stocks. On the other hand, Gatev and Strahan (2006) argue that commercial banks rarely herd with other institutional investors. Banks' funding flows are typically more stable than those of other institutional investors, and portfolios managed by banks also tend to have longer investment horizons than portfolios managed by other institutions or by individuals. We therefore test the hypothesis that commercial bank ownership is positively associated with abnormal stock returns during liquidity crises.

In addition to the level and composition of institutional ownership, ownership concentration could also matter for stock returns during liquidity crises. Edmans (2009), for example, suggests that ownership concentration could lower the liquidity risk of stocks because large shareholders are more likely to retain their shares in a liquidity crisis. We measure ownership concentration by the Herfindahl index, i.e. the sum of the squared ownership fractions of all institutional investors, and empirically examine the relation between ownership concentration and abnormal stock returns on crisis days.

Finally, we test the hypothesis that stock returns during liquidity crises depend on the level of short interest. Desai et al. (2002) and Boehmer et al. (2008) show that firms that are heavily shorted

---

[1] See, e.g., Sias and Starks (1997), Wermers (1999), Nofsinger and Sias (1999), Griffin et al. (2003), Sias (2004).

متن کامل مقاله ← دریافت فوری

ISIArticles
مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات