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Systematic Liquidity Risk and Stock Price Reaction to Large One-Day Price Changes: Evidence from London Stock Exchange

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ABSTRACT

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Systematic Liquidity Risk and Stock Price Reaction to Large One-Day Price Changes: Evidence from London Stock Exchange

Keywords: Systematic liquidity risk, asset pricing, large one-day price changes, time-varying risk, S-GARCH, efficient market hypothesis, overreaction, underreaction.

This thesis investigates systematic liquidity risk and short-term stock price reaction to large one-day price changes. We study 642 constituents of the FTSALL share index over the period from 1st July 1992 to 29th June 2007. We show that the US evidence of a priced systematic liquidity risk of Pastor and Stambaugh (2003) and Liu (2006) is not country-specific. Particularly, systematic liquidity risk is priced in the London Stock Exchange when Amihud's (2002) illiquidity ratio is used as a liquidity proxy. Given the importance of systematic liquidity risk in the asset pricing literature, we are interested in testing whether the different levels of systematic liquidity risk across stocks can explain the anomaly following large one-day price changes. Specifically, we expect that the stocks with high sensitivity to the fluctuations in aggregate market liquidity to be more affected by price shocks. We find that most liquid stocks react efficiently to price shocks, while the reactions of the least liquid stocks support the uncertain information hypothesis. However, we show that time-varying risk is more important than systematic liquidity risk in explaining the price reaction of stocks in different liquidity portfolios. Indeed, the time varying risk explains nearly all of the documented overreaction and underreaction following large one-day price changes. Our evidence suggests that the observed anomalies following large one-day price shocks are caused by the pricing errors arising from the use of static asset pricing models. In particular, the conditional asset pricing model of Harris et al. (2007), which allow both risk and return to vary systematically over time, explain most of the observed anomalies. This evidence supports the Brown et al. (1988) findings that both risk and return increase in a systematic fashion following price shocks.
Declaration

No portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institution of learning.
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It is my great pleasure to have the opportunity to express my heartfelt thankfulness to my supervisor, Dr. Khelifa Mazouz, for his continual and precious guidance, inspiration, support and patience throughout this entire research. Without his priceless knowledge and help, it would have not been possible to accomplish this thesis. He is the greatest supervisor that any student would wish to have.

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It is my great pleasure to express my sincere gratitude to Yarmouk University, my home university, for awarding me a scholarship to obtain my PhD. It is what a devoted Jordanian expects from her dear home, Jordan.
Dedication

TO MY GORGEOUS FAMILY
الهداء

إلى الخالد الذي لن يموت في قلوبنا ابداً
إلى رمز الطيب والصبر والرجولة
إلى من لا أائني ان ارى نفسي الا تجسدا لذاته اال من ظلمته الدنيا فرحل قبل ان يحصد ثمار ما زرع
قم يا حبيبي فقد ابتعت اهارك و نضجت ثمارها
إلى روحك الظاهرة

إلى الدمشقية الطبية التي تحمل في عروقها كل اسالة الشام
إلى حبيبيتي التي تطلالما شاركتي حلو الابانم ومرها
إلى من تحملت الكثير الكثير لاجنا
إلى نبع العطاء الذي لا ينتهي
إلى الدافئة الرقيقة صديقة عمري

إلى تواو روحي
إلى من يفرح لفرح قبل ان افرح و يحزن لحزن قبل ان احزن
إلى ضحكه ملوه البارزة و عينان سمرأدان ملوهما الطيب
إلى من أفكر بخلقه العظيم و نجاحه الدائم
إلى الأخ وا الصديق وا الحبيب وا السند
إلى من أفيده يعمر
اخو حنا

البيكم يا من عشتم معى لحظة بلحظة لاتمام هذا العمل

إلى كل من احب
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<td>AIC</td>
<td>Akaike information criteria</td>
</tr>
<tr>
<td>AM</td>
<td>Mimicking aggregate liquidity factor of Amihud's (2002) illiquidity ratio</td>
</tr>
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<td>AM1</td>
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</tr>
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</tr>
<tr>
<td>AS-GARCH</td>
<td>Asymmetric Simplified Multivariate GARCH model</td>
</tr>
<tr>
<td>CAAR</td>
<td>Average Cumulative Abnormal Returns</td>
</tr>
<tr>
<td>CAPM</td>
<td>Capital Asset Pricing Model</td>
</tr>
<tr>
<td>C-F&amp;F</td>
<td>Carhart (1997) four-factor model</td>
</tr>
<tr>
<td>Diff(10-1)</td>
<td>Portfolios whose returns are difference between returns of least and most Liquid stocks.</td>
</tr>
<tr>
<td>EGARCH</td>
<td>Exponential GARCH model of Nelson (1991)</td>
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<tr>
<td>F&amp;F</td>
<td>Fama and French (1993) three-factor model</td>
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<tr>
<td>GARCH</td>
<td>Generalised Autoregressive Conditional Heteroskedasticity</td>
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<tr>
<td>GJR-GARCH</td>
<td>Glosten-Jagannathan-Runkle GARCH model of Glosten et al. (1993)</td>
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<tr>
<td>GRS</td>
<td>Gibbons et al. (1989) test</td>
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<tr>
<td>HML</td>
<td>High Minus Low factor of Fama and French (1993)</td>
</tr>
<tr>
<td>LM</td>
<td>Lagrange Multiplier test</td>
</tr>
<tr>
<td>LSE</td>
<td>London Stock Exchange</td>
</tr>
<tr>
<td>MKT</td>
<td>Market excess return</td>
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<tr>
<td>MOM</td>
<td>Momentum factor of Carhart (1997)</td>
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<tr>
<td>OLS</td>
<td>Ordinary Least Squares</td>
</tr>
<tr>
<td>Port</td>
<td>Portfolio</td>
</tr>
<tr>
<td>PSPR</td>
<td>Mimicking aggregate liquidity factor of proportional bid-ask spread</td>
</tr>
<tr>
<td>Code</td>
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<td>PSPR1</td>
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