

Chapter 8

Testing for Overreaction and Return Continuations in Stock Price Index Returns

Nathan Lael Joseph
Aston University, UK

Khelifa Mazouz
Bradford University, UK

ABSTRACT

In this paper, the authors examine the impacts of large price changes (or shocks) on the abnormal returns (ARs) of a set of 39 national stock indices. Their initial results support returns continuations for both positive and negative shocks in line with prior results. After controlling for market size, their findings provide support for over-reaction, return continuations and market efficiency, but these result depend on the magnitude of the price shocks. Whilst the market is efficient when the positive shocks are large, the market also over-reacts when negative shocks are large. To illustrate, for large stock markets that are more liquid, positive shocks of more than 5% generate an insignificant day one CAR of -0.004%, whilst negative shocks of more than 5% generate a positive and significant day one CAR of 0.662%. In contrast, positive (negative) shocks of less than 5% generate a significant one day CAR of 0.119% (-0.174%) for these same (large) stock markets.

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1. INTRODUCTION

The efficient market hypothesis (EMH) predicts that a security's price immediately incorporates all information about itself such that future price movements are not predictable or exploitable. Several empirical studies show however that stock returns exhibit systematic patterns after large positive and negative price changes/shocks (see, e.g., Howe, 1986; Park, 1995). Both the over-reaction hypothesis and the return continuations phenomenon have been put forward to explain the systematic price changes on finding that the EMH does not hold (see, e.g., Howe, 1986; Lasfer et al., 2003). Empirical studies directly concerned with the contrarian and momentum strategies (in the absence of large price shocks) show that both strategies can operate at the same time, but apply at different investment horizons (see, e.g., De Bondt & Thaler, 1985; Jegadeesh & Titman, 1993; Conrad & Kaul, 1998). These empirical studies provide the insight that it might be possible to find support for both over-reaction and return continuations following from large price shocks, but that such a result might depend on the degree of return autocorrelations. Since investors might be conservative in their response to small shocks compared with large price shocks, taking the magnitude of the shocks into account might have different impacts on empirical results. Furthermore, if the magnitude of the shock has different impacts on the abnormal returns (ARs), empirical tests of large price changes need to capture both the ARCH and asymmetric effects in the ARs. These arguments are particularly important since there is no clear consensus that the ARs following large price changes are entirely consistent with either market efficiency, over-reaction or return continuations.

Given the above considerations, this paper focuses on two main empirical issues. We examine: i) whether the magnitude of the shock affects the behavior of the ARs; and ii) whether the choice of the model used to estimate the ARs impacts on

the results obtained. Both issues are related in the following contexts. First, French et al. (1987) show that returns are positively related with volatility implying that volatility will impact on the ARs that follow from price shocks. Of course, the stock price might quickly adjust to equilibrium following larger price shocks, such that the evidence supports market efficiency. However, the magnitude of the price shock and the associated degree of volatility might also lead to results that support over-reaction and return continuations. We note however, that Bremer and Sweeney (1991) alter their basic one day trigger value of -10% to -7% and -15% but this action did not lead to support for the over-reaction hypothesis. Indeed, prior empirical work that applies different trigger values tends to employ firm-level returns. Firm-level studies rely on what we consider to be relatively large trigger values - around $\pm 10\%$ (see, e.g., Howe, 1986; Bremer et al., 1997; Atkins & Dyl, 1990). We show later that trigger values of these magnitudes are more likely to generate results that support over-reaction or market efficiency in the case of stock index returns. Of course, the shocks associated with firm-level returns would tend to be much larger than those associated with stock indices. This might explain why return continuations are more likely to arise in stock index returns (see Lasfer et al., 2003; Schnusenberg & Madura, 2001). However, disaggregating the ARs for shocks of different magnitudes may lead to different results.

Finally, prior empirical work typically estimates the ARs using standard linear estimation methods. Atkins & Dyl (1990), Cox & Peterson (1994) and Bremer et al. (1997) use standard linear methods to estimate various versions of the single beta CAPM and market-adjusted return (MAR) model. If the volatility of returns depends on the magnitude of the price shocks, then models that capture both the ARCH and asymmetry in the ARs would be more appropriate. Furthermore, if the time taken to process market information is a source of volatility clustering that in turn leads

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