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Comovement revisited☆

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ABSTRACT

Evidence of excessive comovement among stocks following index additions (Barberis, Shleifer, and Wurgler, 2005) and stock splits (Green and Hwang, 2009) challenges traditional finance theory. We show that the bivariate regressions in this literature provide little information about the economic magnitude of excess comovement, with coefficients that are sensitive to unrelated factors. Using robust univariate regressions and matched control samples, almost all evidence of excess comovement disappears. In both examples, the stocks exhibit strong returns prior to the event, akin to momentum winners. We document that winner stocks exhibit increases in betas, generating much of the apparent excess comovement.

1. Introduction

In a perfect and frictionless financial market, asset prices change to reflect new information about future cash flows and discount rates. To the extent that there are common factors affecting either cash flows or discount rates, asset prices will move together to reflect innovations in such common factors.

However, there is growing evidence that prices move together for reasons that are seemingly unrelated to fundamentals. Evidence of this excess comovement has been found among S&P500 index additions and deletions (Vijh, 1994; Barberis, Shleifer, and Wurgler, 2005), changes in S&P500 value and growth indexes (Boyer, 2011), changes in the Nikkei 225 index (Greenwood and Sosner, 2007), changes in UK indexes (Mase, 2008), changes in Nikkei 225 index weights (Greenwood, 2008), additions to many national market indexes (Claessens and Yafeh, 2013), stock splits (Green and Hwang, 2009), stocks with correlated trading among retail investors (Kumar and Lee, 2006), stocks with corporate headquarters in the same geographic area (Pirinsky and Wang, 2006), stocks with similar institutional ownership (Pindyck and Rotemberg, 1993), stocks in closed-end country funds (Hardouvelis, Porta, and Wizman, 1994; Bodurtha, Kim, and Lee, 1995), stocks in closed-end domestic funds (Lee, Shleifer, and Thaler, 1991), sovereign bonds (Rigobon, 2002), information spillovers of highly followed firms (Hameed, Morck, Shen, and Yeung, 2015), and commodity futures (Tang and Xiong, 2012).

Even though excessive comovement in stock returns is attributed to several nonfundamental factors,[3] the

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[3] Barberis, Shleifer, and Wurgler (2005) propose three sources of friction and investor sentiment. Excess investor demand for a particular

primary explanation is an asset class effect, which is created by correlated demand unrelated to fundamentals for assets in a particular class. Theoretical models developed by Basak and Pavlova (2013), DeMarzo, Kaniel, and Kremer (2004), and Barberis and Shleifer (2003), among others, are consistent with such an asset class effect. However, the sources of this correlated demand are varied: investor behavior that causes investors to choose stocks based on styles or categories (Barberis and Shleifer, 2003); agents who care about relative wealth choosing assets held by other members of the community (DeMarzo, Kaniel, and Kremer, 2004); or institutional investors who care about their performance relative to an index tilting their portfolios toward stocks that are in that index (Basak and Pavlova, 2013).

Two papers, von Drathen (2014) and Kasch and Sarkar (2014), challenge the empirical evidence mentioned above in the context of two specific events: FTSE 100 and S&P500 index turnover, respectively.[4] They both point out that these events coincide with changes in fundamentals. Our focus is on providing a more general view of the issue and regression results in the existing literature and on understanding the mechanisms that underlie the link between momentum and comovement.

Accordingly, in this article, we reexamine the evidence on comovement, focusing on two studies that document what appears to be strong support for this phenomenon but in apparently unrelated contexts. The first is Barberis, Shleifer, and Wurgler (2005), which is considered a classic paper on comovement. Their sample consists of stocks that enter or leave the S&P500—an event that has been used by many other studies because index changes are generally believed to have little fundamental effect on the firm being added to or deleted from the index (Chen, Noronha, and Singal, 2004; Elliott, Van Ness, Walker, and Wan, 2006). Their hypothesis is that stocks in the index comove more with index stocks, whereas those not in the index comove more with nonindex stocks. The second paper is Green and Hwang (2009), who study comovement before and after stock splits. Specifically, their argument is that stocks with similar price levels comove more than would be justified by fundamentals, that is, that a stock moves more with high-priced stocks prior to a split and more with low-priced stocks after a split. As with index changes, splits appear to be useful events to study because they do not affect splitting firms in any fundamental way, although the announcement may signal private information.

In both cases, the primary evidence is in the form of differences between the coefficients in two regressions conducted before and after the event: (1) a univariate regression of the stock return on the return of the group it is joining, and (2) a bivariate regression of the stock return on the returns of both the old group and the new group. The bivariate regression results in Barberis, Shleifer, and Wurgler (2005) show that for additions to the S&P500 index, their coefficient on S&P500 returns increases dramatically after they join the index while the coefficient on nonindex stocks declines. In a similar vein, the bivariate regression results in Green and Hwang (2009) show that stocks after a split load more heavily on low-priced stocks (the new group) and less on high-priced stocks (the old group).

To better understand the implications of the excess comovement hypothesis for stock returns, we first develop a model closely related to that of Barberis, Shleifer, and Wurgler (2005). Some implications of our model are similar to those derived in their paper, but we highlight four additional important implications.

First, the model suggests that a univariate regression of the stock return on the return of the old group after the event can be very informative—a specification not examined in Barberis, Shleifer, and Wurgler (2005) or Green and Hwang (2009).

Second, the model indicates that the results of the bivariate regressions estimated by Barberis, Shleifer, and Wurgler (2005) and Green and Hwang (2009) are extremely sensitive to small changes in parameters. The sensitivity of these types of regression coefficients has been documented in the literature (Spanos and McGuirk, 2002) and is also noted in the context of index changes by Kasch and Sarkar (2014). Most critically for our analysis, this sensitivity implies that the interpretation of these coefficient estimates is not straightforward and that they may well provide little or no information about the question of economic interest—how much, if at all, is excess comovement responsible for the variation in stock returns.

Third, the model shows that changes in the parameters around the events, in particular shifts in loadings on the fundamental factor, can affect the univariate regression results. For example, an increase in the beta of a stock in the sample will generate an increase in the coefficient of the stock on the new group return after the event. In other words, these empirical results are also consistent with a change in fundamental comovement, not just excess comovement. Of course, this phenomenon also has implications for the univariate regression of the stock return on the old group return discussed above, and, in fact, it is this regression that allows us to distinguish between the two competing explanations.

Finally, the model shows that shifts around the event in the fundamental loadings and idiosyncratic risk of the group returns can cause significant shifts in the bivariate regression coefficients, even in a world with no excess

group of securities may arise because of investor awareness (habitat) or because those stocks form an asset class that is easy to follow (category). Third, the speed of information diffusion may increase for stocks included in the index. Similar arguments are in Hou and Moskowitz (2005) and Pindyck and Rotemberg (1993). Improvement in price discovery would cause the added stock to comove more strongly with index stocks than with nonindex stocks. Because it is difficult to empirically distinguish between the first two views, Greenwood (2008) combines them into a single demand-based theory, or an asset class effect. The last source of friction, quicker adjustment in prices to new information, is a desirable outcome of index additions because it makes prices more efficient even though it may increase comovement. In other words, there was too little comovement in the absence of efficient information diffusion, which has now been increased to an appropriate level (Claessens and Yafeh, 2013). Other explanations relate to transactions costs at an index level versus an individual stock level. However, we focus on the asset class effect as the generally accepted source of comovement.

[4] An earlier version of Kasch and Sarkar (2014) had the same title as our paper, "Comovement revisited." Their new title, "Is there an S&P500 index effect?," reflects the more specific focus on both valuation and comovement attributed to index additions.