The effectiveness of the hedging strategy finance essay

Finance

BEFORETheoretically, hedging in the futures market will downsize the price risk (volatility) to which traders are exposed. The effectiveness of the hedging strategy (hedging performance) is measured by computing the risk reduction being achieved by the hedging portfolio compared to the unhedged portfolio (which refers to the minimum variance framework). An impressive literature has focused on hedging performance within the risk minimisation context (Ederington, 1979). However, some believe that true hedging performance should be measured by considering both the risk and the return aspects. These risk and return aspects work within the investor's utility maximisation framework or the Markowitz mean variance framework (see Kroner & Sultan, 1993; Gagnon & Lypny, 1995; Gagnon, Lypny, & McCurdy, 1998; Yang & Allen, 2004). The mean-variance framework plays a vital role in making sense of financial theories, especially the portfolio theory. Together, the hedging and portfolio theories will establish the hedging performance measurement framework. Working (1953) emphasises that hedgers not only aim to reduce risk but also consider the profit maximisation goal because market participants do not constantly engage in hedging. In hedging performance measurements, researchers estimate the second moments of both spot and futures returns, then derive the optimal futures contract implemented for each spot contract (or hedging ratio). The hedging ratio has a direct impact on estimating the hedging portfolio returns, variances and, finally, the strategy performance. Conventionally, the hedging performance can be measured by computing the minimum variance hedging ratio. 1 This ratio is also known as the myopic hedging ratio. Ederington (1979) used this classical methodology (OLS) to estimate the hedging ratio in the Government National Mortgage Association. This method does not consider the surrounding information that may influence the changes of hedging decision and turns the hedging decision to be time varying. However, the myopic hedging ratio estimation is proven to give a bias hedging ratio, which will lead to an inaccurate percentage of risk minimisation (Ederington & Salas, 2008). In addition, overwhelming evidence highlights that heteroscedasticity and serial correlation issues exist in most financial data. These issues mean that the conventional estimation is less appropriate because OLS assumes variance and covariance of spot and assumes that futures tend to be monotonic in fashion, although the ARCH framework shades the light to overcome these issues. Over time, more empirical evidence reveals that the time factor present in most spot and futures returns could affect the hedging decision. The hedging performance measurement can be achieved using the univariate ARCH and GARCH framework. Cecchetti, Cumby and Figlewski (1988) were among the pioneers to investigate the hedging performance in Treasury bonds and the T-bond market within the univariate ARCH family framework. Engle (1982) and Bollerslev (1986) developed a more general model (GARCH), which is an extension of the ARCH model where the model considers the dynamic conditional second moments. The GARCH framework further acknowledges the time factor in estimating the second moment's return and allows the capture of its own long run shocks. In addition, the model is a flexible model that can accommodate a fat-tailed distribution in most spot and futures prices. Many researchers have used the GARCH framework to model the higher moments in variety commodity markets (Baillie & Myers, 1991;

Fackler, 1992; Bera, Gracia, & Roh, 1997; Foster & Whitemen, 2002, and in developed financial markets (Bollerslev, 1987; Baillie & Bollerslev, 1989; Kroner & Sultan, 1993; Wilkinson, Rose, & Young, 1999; Mili & Abid, 2004; Yang & Allen, 2004; Floros & Vougas, 2004) but only Ford, Pok and Poshakwale (2005) studied the developing market inter alia. Until now, a variety of advanced GARCH models have been introduced to improvise the second moment estimation process. In hedging performance measurement, the estimation process is closely related to model the behaviour of the return in both spot and futures markets. In addition, previous researchers preferred to adopt the general BEKK model in their hedging performance studies. Additionally, the model is found to be more flexible and it can be tailored according to the researcher's requirement. Moschini and Myers (2002) and Ford, Pok and Poshakwale (2005) demonstrated the flexibility of the BEKK model by imposing a restriction to test the equality of constant or non-constant hedging ratio hypotheses. They infer the superiority of a non-constant hedging ratio over a constant one. Additionally, the model also allows for testing of the asymmetric effect on hedging performance results (see Brooks, Hendry, & Persand, 2002; Malo & Kanto, 2005; Switzer & El-Khoury, 2006). However, the evidence supports that the asymmetric BEKK model promised a better risk reduction result the improvement is relatively smaller than the symmetric BEKK model. Using the BEKK model, Lee and Yoder (2007) introduced the regime shift effect within the hedging performance results in the Corn and Nickel market. They found that the regime switching BEKK model is marginally superior in reducing the hedged portfolio than the general BEKK model. Based on precedent studies, we can conclude that there is no conclusive answer to which model generates the best hedging performance results. However, the one obvious finding is that the dynamic hedging ratio succeeds in almost all hedging performance investigations in the various markets tested, as compared to the myopic hedging ratio. In multivariate GARCH models, the framework offers flexibility of specifications in modelling the conditional variance specifications and provides ample alternatives in modelling the mean conditional return. This framework provides different mean models, including both the simple constant and an error correction model. Baillie and Myers (1991), Gagnon and Lypny (1995), and Ford, Pok and Poshakwale (2005) documented the mean specification via the constant or intercept model in their hedging effectiveness studies. However, Lien, Tse and Tsui (2002), and Floros and Vougas (2004) considered VAR specification, which focused on short-run behaviour in spot and futures prices or return. Nevertheless, empirical evidence highlights the existence of a long-run relationship between spot and futures returns, and many documented this long- run effect in their mean specification (Kroner & Sultan, 1993; Lien & Tse, 1999; Wilkinson, Rose, & Young, 1999; Moschini & Myers, 2002; Lien, 2004; Mili & Abid, 2004; Yang & Allen, 2004; Floros & Vougas, 2004) inter alia. Additionally, Lien (2004) specifies that the non-inclusion of the long-run effect in the mean return specification tends to generate a lower hedging ratio. A similar result was reported in the estimation of the Australian stock index futures hedging ratio (Yang & Allen, 2004). In contrast to the evidence portrayed above, Wilkinson, Rose and Young (1999) and Floros and Vougas (2004) found that the ECM model tends to give a lower hedging ratio than the conventional models. Overall, the evidence reveals that the different restrictions imposed in the mean conditional model could affect the hedging ratio estimation results. Hence, we posit that the selection of restrictions implemented in modelling the conditional spot and futures mean returns could likely affect the hedging performance results.