



# Stock market reaction to irregular supermarket chain behaviour: An investigation in the retail sectors of Ireland and the United Kingdom

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## ABSTRACT

The creation of a single European currency, financial crises, changing consumer tastes and the entry of a significant number of new competitors has created an extremely competitive retail environment in Ireland and the United Kingdom. To defend market share, some retail companies have resorted to a variety of questionable, unethical and illicit techniques. This paper examines the reaction of investors to such incidents involving publicly traded companies. An ARMAX-GARCH(1,1) model is utilised to present evidence that increased market volatility is associated with detrimental internal behaviour and financial malpractice which may reassure regulators that these actions are not considered by investors as an acceptable manner in which to operate a company. Further, investors often do not consider a single company to be at fault, but rather punish the entire retail sector for diminished responsibility due to substandard quality assurance.

## 1. Introduction

The competitiveness of the European retail sector has been directly influenced by some key factors since the early 1990s. Primarily, the creation of the single European currency and the abolishment of cross border tariffs and other trading costs and barriers promoted a significant increase in imports and exports across European borders, enabling suppliers to locate a broad variety of goods at cheaper price points. One significant effect was an increase in retailer bargaining power with domestic producers, a position that generated significant cost reductions which could then be passed to consumers. Consequently, significant operating profits in Ireland and the United Kingdom incentivised new entrants to attempt to increase their market share, which has in turn increased competition and the behavioural dynamics of the companies operating within the retail sector.

The second major period of change for the retail sector was evident during the recent European-wide financial crisis between 2007 and 2013. Ireland was hit particularly hard by the financial effects of the significant recession (Corbet, 2016). A sharp increase in unemployment, combined with a decrease in the average salary of a European citizen generated significant demand for cheaper products as consumers attempted to reduce their expenditure. Supermarket chains recognized this shift in consumer behaviour and manipulated their pricing structures to maintain market share. This same change in consumer dynamics provided an opportunity to new market entrants, with two such examples evident in the Irish and British retail sectors - Aldi and Lidl.

The significant growth of these companies in terms of market share provides evidence of the sharp sensitivity to price reductions and the speed at which the retail markets must adapt to maintain position. In fact, observation of the quarterly balance sheets of the established retailers prior to the entry of these German low-cost retailers presents evidence of a significant reduction in operating profits. This also appeared to have a direct influence on the behaviour of some retailers who utilised inventive techniques in order to ensure survival and in an attempt to retain market share against the cost-cutting efficiency of the new market entrants. In this paper, we analyse investor attitude towards this type of behaviour. Flavian et al. (2002) completed a thorough analysis of such food retailing strategies while comparing the UK and Spanish markets, concluding that economic, demographic and cultural factors offer limited explanation.

Two key issues must be addressed directly. The first is how important are stock markets towards the funding of publicly traded companies? The second issue addresses exactly what constitutes irregular behaviour of supermarkets within the retail sector? Addressing the first concern, investors are primarily interested in company-returns and earnings per share. During the recent European financial crisis, due to increased competition, there was increased sensitivity to damaging news stories. Investors consider the growth potential of the company across the short, medium and long term. Some recent scandals have had damaging effects on the short-term reputation of the company with some supermarket chains immediately accepting responsibility for perceived negatives events in an attempt to reduce the detrimental

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reputational impact upon business operations. As the efficient market hypothesis (EMH) identifies, this news would therefore have to be immediately reflected in the share price of the incident-company. Examples of this include profit warnings, a reduction in credit rating or indeed accounting irregularities in the previous trading period. In the Irish and British retail markets there have unfortunately been some significant events that damaged the reputation of the industry as a whole. One such event was that of the horsemeat scandal in 2013 (Premanandh, 2013).

Irregular behaviour in the retail sector can account for a wide-variety of incidents, but this paper focuses specifically on those events that brought the name of the company directly involved into disrepute. It is also important to note, that even the rumour of unethical behaviour can trigger discourse and outrage among the general public (Babakus et al., 2004). The events selected for analysis in this paper have all been identified with evidence. In most cases, the supermarket chain acknowledged and apologised for their involvement in the incident.

This paper is organized as follows: section two presents a review of the relevant literature and motivation for the study. Section three presents the data used in the analysis and details of its compilation. Section four explains the methodology used to analyse stock market response to irregular supermarket chain behaviour. Section five presents the results of the analysis while section six concludes the paper.

## 2. Background and literature

Although much literature exists based on the retail sector as a whole, including that of product-based research and market dynamics, at the time of writing, there has been no research completed on the financial market volatility affects generated by incidents relating to the supermarket sector. This research question merits particular acknowledgement given the deep-rooted real economic hold that the retail sector has on each country. It is necessary to further understand the interlinkages between this key international sector and the financial markets that are used to generate capital to fund the supermarket industry and suppliers, but also the market that purchases the produce it sells. Some existing related research merits particular attention when considering the analysis found in this paper.

In terms of the internal structure of supermarket chains, Matsa (2011) examined whether debt financing can undermine a supermarket firm's incentive to provide product quality. It found that highly leveraged firms appear to be degrading their product quality in order to preserve current cash flow for debt service. It is also found that while reducing quality can erode both current sales and customer loyalty, firms appear to be willing to risk these outcomes in order to achieve benefits associated with debt finance. Smith (2004) investigated whether cross-price elasticities between stores of the same firm enhance market power as calculated by the effect of merger and demerger on Nash equilibrium prices. Demerger is found to reduce the prices of the largest firms by between 2 and 3.8 per cent depending on local concentration, whereas mergers between the largest firms lead to price increases of up to 7.4 per cent (Smith, 2004). Moore (2001) reviewed the main literature on the role of corporate social and financial performance in the UK supermarket industry and suggested a negative relationship between the two. Prior period financial performance is found to be positively related with subsequent social performance. Positive relationships between both age and size of the company with social performance are also found.

The link between stock market volatility and investor uncertainty has been widely established across a broad range of financial markets, financial products and instigating events. Mutjaba Mian and Sankaraguruswamy (2012) examined whether market-wide investor sentiment influences stock price sensitivity to firm-specific earnings news. They find that the stock price sensitivity to good earnings news is higher during high sentiment periods than during periods of low sentiment. Whereas, the stock price sensitivity to bad earning news is

higher during periods of low sentiment than during periods of high sentiment. It also found that sentiment-driven mispricing of earnings contributes to the general mispricing of stocks due to investor sentiment. Campbell and Hentchel (1992) developed a formal model of volatility feedback using a simple model of changing variance using monthly and daily stock market data between 1926 and 1988. The authors found that the volatility feedback normally has little effect on returns, but it can be important during periods of high volatility. Koutmas and Booth (1995) investigated the transmission of price and volatility spillovers across New York, Tokyo and London stock markets taking into consideration the asymmetric impact of good and bad news on volatility transmission. The authors find strong evidence that volatility spillovers in a given market are much more pronounced when the news arriving from the last market trade is bad. Veronesi (1999) showed that in equilibrium, investors' willingness to hedge against changes in their own "uncertainty" on the true state market stock prices overreact to bad news in good times and underreact to good news in bad times. It is then shown that fact can explain volatility clustering, leverage effects, excess volatility and time-varying expected returns. Bansal et al. (2014) found that an increase in macroeconomic volatility is associated with an increase in discount rates and a decline in consumption. The authors demonstrate that volatility is important for understanding expected returns and macroeconomic fluctuations.

Sudden unannounced shocks to financial markets such as terrorist activities have also warranted significant attention. Charles and Darné (2006) investigated the effects of the terrorist attacks in the United States on September 11th, 2001. They show that the international stock markets experienced large shocks, both permanent and temporary, in response to the terrorist attacks and its aftermath (Peren Arin et al. (2008) showed that terror has a significant impact on both stock markets and stock market volatility, and the magnitude of these effects are larger in emerging markets. Baker and Bloom (2013) using a broad range of natural disasters, terrorist attacks and unexpected political shocks as stock market proxies, found that both the first and second moments are highly significant when explaining GDP growth, with second moment shocks accounting for at least half of the variation in growth. Variations in higher moments of stock market returns appear to have little impact on growth.

The composition of volatility based on duration and persistence is also an important consideration. In our model, we are investigating both the short-term and medium-term price discovery of stock market investors. That is, how investors reacted to the news immediately, and how they reacted in the following trading days and weeks. It is important to note that if the change in volatility is short-lived and does not persist, it can be stated that investors reacted immediately but the news did not change their long-term view of future company profitability and value. Whereas, if the volatility persists, there has been a substantial revaluation of the company's risk and immediate financial capability and potential growth. Anderson et al. (2007) use a newly developed bipower variation measure and corresponding nonparametric test for jumps to analyse exchange rates, equity index returns and bond yields. Their results suggest that the volatility jump component is both highly important and distinctly less persistent than the continuous component. Many of the significant jumps are associated with specific macroeconomic news announcements. Adrian and Rosenberg (2008) explored the cross-sectional pricing of volatility risk by decomposing equity market volatility into short-run and long-run components. The authors find that prices of risk are negative and significant for both volatility components, which implies that investors pay for insurance against increases in volatility, even if those increases have little persistence. The authors also note that the short-run component captures market skewness risk (interpreted as a measure of the tightness of financial constraints) whereas the long-run component relates to business cycle risk. Santa-Clara and Yan (2010) used a pricing model to imply time series of diffusive volatility and jump intensity from S&P 500 index options to capture ex ante risk assessed by investors to find that the

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