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War and stock markets: The effect of World War Two on the British stock market

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ABSTRACT

This paper studies the effect of World War Two (WWII) on the British stock market. It contributes to the literature in several ways. First, this paper thoroughly investigates the impact of historically major events on the British stock market using a variety of empirical approaches in order to ensure a comprehensive examination of the impact of WWII on British stock returns. We utilise an event study of pre-selected historically major events, an investigation of the possible causes of the largest price movements as well as utilising an endogenous procedure testing for structural breaks. Secondly we extend the literature on behavioural finance and investor sentiment in extreme circumstances. In particular we examine the 'negativity effect', documented by Akhtar et al. (2011) and determine whether stock returns reacted more strongly to negative events or positive events. Overall we find limited evidence of strong links between war events and market returns although there is support for the 'negativity effect'.

1. Introduction

World War Two (WWII) was a global war that began in 1939 and ended in 1945 which involved almost all of the world's great powers. With more than 100 million people serving in military units, it was the most widespread war in history and the deadliest conflict (Sommerville, 2008). The effect of the war was long-lasting for Britain with over 450,000 lives lost and more than a quarter of Britain's national wealth spent during the war. As 55% of the British labour force had been employed in war production, Britain faced huge unemployment issues and austerity in the post-war years (Harrison, 1998). In addition, very heavy government spending throughout the war, disruption of exports and heavy spending on imports of war supplies led to a substantial debt overhang and balance of payments problems that persisted for many years after the war (Harrison, 1998; Higgins, 1949).

Surprisingly given the magnitude of the events concerned and the expanding literature on event studies and investor sentiment, the effect of the war on financial markets has been relatively little examined in the financial literature. A handful of studies have explored the impact of the war on markets, such as Frey and Kucher (2000, 2001) and Choudhry (2010), but none of them examine WWII's impact on Britain. The British stock market is a good setting for such a study since Britain was heavily involved in the war from the beginning and although there was a significant threat of invasion and defeat for a period (after the collapse of France in 1940) and the civilian population was subjected to very heavy air and missile attacks, the markets remained open throughout the war.

The paper contributes to the literature in several ways. First, this paper thoroughly investigates the impact of historically major events on the British stock market using a variety of empirical approaches. Secondly we extend the literature on behavioural finance and investor sentiment in extreme circumstances. In particular we examine the 'negativity effect' and determine whether stock returns reacted more strongly to negative events or positive events.

We take several different approaches in our empirical analysis to make sure our findings are robust with respect to the methodology employed. Initially, we pre-select 22 major positive and negative events and determine whether they had a significant impact of stock prices through an event study analysis. Secondly we examine events associated with the largest stock market moves during the war. Finally, we follow Choudhry (2010) and apply a structural break test to stock returns to explore the location of structural shifts in returns and volatility and determine whether such shifts are associated with events of WWII.

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We are able to contribute to the growing literature documenting a 'negativity effect', as coined by Akhtar, Faff, Oliver, and Subrahmanyam (2011), where stock returns react significantly to bad news but insignificantly to good news. Akhtar et al. (2011) examined the announcement of good/bad sentiment news on the Australian All Ordinaries Index and found that news creating bad sentiment was associated with a significant negative announcement day effect, whilst good news was associated with no effect. Similar 'negativity effects' are also supported in the literature by Kaplanski and Levy (2010) who find that the stock market losses of aviation disasters are substantially larger than that of the actual costs of the disasters, whilst Edmans, García, and Norli (2007) find a country's unexpected loss in a sporting event causes a significant negative reaction in the stock market which is not mirrored by a significant position reaction to an unexpected win. We are well placed to investigate this phenomenon in rather extreme circumstances where the events involved are of great importance.

The rest of the paper is set up in the following manner. Section 2 presents a literature review of investor sentiment as well outlining the major relevant events of WWII. Section 3 presents the methodology used whilst Section 4 presents the data. Section 5 contains the empirical results whilst Section 6 summarises the findings and provides conclusions.

2. Literature review

2.1. Investor sentiment literature

Event studies that examine the effect of particular events on the stock market have been well documented in the literature, with many routine and seemingly economically unimportant events having been shown to have a significant effect on stock returns, such as cloud cover (Saunders, 1993) daylight (Kamstra, Kramer, & Levi, 2000, 2003), sunshine (Hirshleifer & Shumway, 2003), temperature (Cao & Wei, 2005) and even sports results (Edmans et al., 2007). With such strong and varied evidence of small and economically unimportant events having effects on returns, it is quite surprising that some very major events such as armed conflict have not received the same level of attention in the academic literature. A few types of major events, not directly related to conflict have been explored such as airplane crashes (Barrett, Heuson, Kolb, & Schropp, 1987; Davidson, Chandy, & Cross, 1987; Kaplanski & Levy, 2010), hurricanes (Angbazo & Narayanan, 1996; Huerta & Perez-Liston, 2010; Lamb, 1995, 1998), earthquakes (Shan & Gong, 2012) and tsunamis (Ramiah, 2013).

In terms of armed conflict, there has recently been growing attention in the financial literature to the influence of terrorist attacks on capital markets. Abadie and Gardeazabal (2003) study the case of the Basque region in Spain and find evidence that terrorism related news has a significant impact on equity prices. They use three event study methods to estimate Basque firms' abnormal return following new announcements related to peace talks during the cease-fire around 1998. They find that following the release of good news the Basque portfolio outperformed the non-Basque portfolio and following the release of bad news the Basque portfolio underperformed the non-Basque portfolio. Carter and Simkins (2004) examine the effect of the September 11th attacks on New York in 2001 and find large significant negative abnormal returns for airfreight firms and international airlines. Further Chen and Siems (2004) examine the US capital markets response to various terrorism attacks dating back to 1915 and up to the September 11th attacks in 2001. They show that these attacks had a significant negative impact on the US capital markets but that they are more resilient than in the past and recover sooner from terrorist attacks than other global markets. Charles and Darné (2006) perform a study on the impact of the September 11th attacks in 2001 on international stock markets by estimating abnormal price changes using an outlier detection method based on an ARIMA model. This model has the ability to identify whether the changes in the market are endogenous, exogenous, permanent or temporary. The results show that the September 11th bombings produced outliers in all indices examined with the US markets less affected by the attack than other international markets. Further, Nikkinen and Vahamaa (2010) examine the behaviour of the FTSE100 index around the terrorist attacks of September 11th 2001, the 2004 attacks in Madrid and the July 7th attacks in London in 2005. They show that terrorism had a strong adverse effect on stock market with a pronounced downward shift in the expected value of the FTSE 100 and that these attacks caused 3 of the 5 largest daily increases in implied volatility from January 2000 through to December 2005. Brounen and Derwall (2010) examine the effects of terrorist attacks on stock markets, using a dataset that covers all significant events that directly relate to major economies of the world. Using an event study, they show that terrorist attacks produce mildly negative price effects which rebound within in the first week of the aftermath. They also show that reactions are strongest for local markets and industries that are directly affected by the attack. Kollias, Papadamou, and Stagiannis (2011) examine the effect of the bomb attacks in Madrid on 11th March 2004 and in London on 7th July 2005 on the equity sectors. They find significant negative abnormal returns across the majority of sectors in the Spanish markets but not so for London. Further they find that the market rebound was much quicker in London compared to the Spanish markets and that the bombings had only a transitory impact on returns and volatility that did not last for a long period. Coleman (2012) examines the nine major bombings attributed to Al Qaida since 1998 and find that the markets takes well under one trading day to fully price in a completely unexpected attack, indicating semi-strong market efficiency.

Although wars are often much higher impact events than terrorist attacks, the literature on financial markets and wars is limited, with very little written on WWII. Willard, Guinnane, and Rosen (1996) study daily price data for the US Greenbacks from the New York gold market during the US Civil War to analyse how investors evaluated military, political and financial news. They find that whilst some of their results are consistent with conventional accounts, they also find that contemporaries gave more weight to certain events than historians. They argue that such findings demonstrate that the opinion poll implicit in financial market prices can lead to new conclusions about how contemporaries viewed such events. Also, Brown and Burdenkin (2000) study the Confederate cotton bonds floated in Europe on the London market during the US Civil War and find that the turning points important to Southern interest differ from those identified for the Northern side. Therefore the war news did not always have symmetric effects on the North and South. Schneider and Troeger (2006) examine the effect of political developments within three war regions from 1990 to 2000 using data from the CAC, DJIA and FTSE. They show that the conflicts caused a negative reaction in the three markets, with the notable exception of the Gulf war on the DJIA.

In terms of WWII, Choudhry (2010) investigates the DJIA to determine endogenously the structural breaks during the war by examining price changes and volatility through an exponentially weighted moving average. He distinguishes between two possible types of breaks; turning points and blips. Turning points are breaks that cause a price change in the same direction for at least five days, whilst blips are breaks that cause a price change in the same direction for less than five days. The results show that many events deemed by historians as important are reflected in the data as turning points. However, some major events are only blips (German invasion of Poland), or fail to generate a break point (Battle of Britain, Invasion of France, Operation Market Garden[1] etc.). The paper concludes by stating that news seen as good by investors tends to increase the price the next day after the event and for the next five working days and leads to a fall in volatility. Frey and Kucher (2000) examine the prices of the government bonds of five European countries traded on the Swiss bourse during WWII. They find that the loss and gain of national sovereignty during WWII influenced the bond prices of the countries involved. Further, Frey and

[1] An airborne attempt to seize the Rhine bridges by the allies from 17th–25th September 1944.