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# Northern Ireland in Turmoil: A Quantitative Analysis of the impact of the Troubles on the Irish Stock Market

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## **Abstract**

This dissertation studies the effects of the Troubles on the Irish Stock Exchange. Our research contributes to the literature first by applying empirical methods to investigate the impact of significant historical events on the Irish Stock Exchange. We employ an event study and descriptive statistics to test the significance of negative events such as bombings, shootings and riots, and positive events such as peace negotiations in the conflict. In the aftermath of events that were expected to exacerbate the conflict we expect investors to react negatively and market prices to fall, while observing the reverse effect when events that were expected to alleviate the crisis occurred. Secondly, this study contributes to the literature by employing a primary dataset which has been used previously by only one study. Our analysis displays that while the developments in the conflict did influence the Irish Stock Exchange, it was relatively limited and was not the dominant factor in explaining the behaviour of the market. The main driver of the market was major international developments such as exchange rate changes, the 1987 stock market crash, the collapse of the Bretton Woods System and the Gulf Conflict. We do acknowledge that the period following the Good Friday Agreement exhibited positive significant returns, indicating investors believed that the agreement would have positive effects for the Irish economy. However, on balance the Irish stock market was generally not affected by events in the Troubles, no matter how devastating and emotive the events were.

## **Introduction**

From 1968 to 1998 Northern Ireland was engulfed in a ferocious sectarian conflict known as The Troubles. Categorized as a low-level war, The Troubles were one of the longest ongoing conflicts in Western Europe following the second World War.<sup>1</sup> Motivated by centuries of underlying tensions between the respective Catholic and Protestant populations, the conflict escalated in the late 1960s and resulted in widespread acts of violence and terrorism across the

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<sup>1</sup> Laura McAtackney, *An Archaeology of the Troubles: the Dark Heritage of Long Kesh / Maze Prison*. Oxford: Oxford University Press, 2014

United Kingdom and The Republic of Ireland by both republican and unionist paramilitary groups. Northern Ireland was an especially contentious region during the twentieth century. The Catholic population felt they had been systematically oppressed and wanted access to basic civil rights and in some cases independence from Britain, while the Protestant population wished to remain part of the United Kingdom and retaliated against Catholic demonstrations. The outbreaks of violence and terrorist attacks over the thirty-year period resulted in the death of over 3,600 people and injuries to more than 40,000, many of whom were civilians.<sup>2</sup> The impact of this period still resonates and dictates life in Northern Ireland today. Primarily, research into the conflict has focused on the animosity that caused the outbreak and the effects of it. The following study intends to explore the conflict from a different perspective, the Irish Stock Exchange.

During the period of The Troubles, the Republic of Ireland was not subject to the same level of violence as their Northern neighbours. However, in some instances the violence did spill over and the proximity to the North meant that investors in the Republic were well informed of developments across the border. Analysing the movement of the Irish Stock Market during this period could provide contemporary perspectives on the development of the Troubles. The following study attempts to provide new insights into the Troubles from analysis of the Irish Stock Exchange, testing the effect of selected major events and using the data to identify significant moments that may have been previously overlooked. There is a growing body of literature analysing capital markets in periods of political turmoil, terrorism and international conflict. Many such works have analysed equity and bond markets in both World Wars, while recent analysis has examined the behaviour of equity indices in the aftermath of terrorist attacks and political upheavals.

The main ambition of this paper is to analyse key moments in the Troubles and their effects on the Irish Stock Market in the period from 1968 to the signing and

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<sup>2</sup> Laura McAtackney, *An Archaeology of the Troubles*

implementation of the Good Friday Agreement in 1998. This research will inform us if the Troubles had a significant effect on the outlook of investors in the Irish Stock Exchange. The behaviour of the stock market could also provide fresh insights into whether certain terrorist attacks, developments in peace negotiations and other significant events had any adverse effect on the Irish stock market but have been overlooked in their importance by historians.

The research also has the scope to provide additional insights such as identifying whether people were worried about violence increasingly spilling over into the Republic of Ireland. There were certain instances where bombs were detonated in Irish counties at the northern border, and even instances of attacks on the Irish capital, Dublin. These attacks could have had a greater effect on the equity market than similar attacks in the North.

This dissertation contributes to the literature in 3 ways. Firstly, we are contributing to the growing literature on capital market behaviour during periods of political turmoil and violence by conducting well-established analysis on a period that has not been covered yet. A similar paper investigating the Northern Ireland Troubles is currently being written by Hanna, Quinn & Turner but is yet to be published.<sup>3</sup> Their analysis conducts a narrative-based approach, similar to Shiller and does so on the FT30.<sup>4</sup> Secondly, we are employing a monthly price index of ordinary stocks and shares which was published by the Central Statistics Office of Ireland. This dataset is comprised of official data from the Irish Stock Exchange and, to our knowledge, has been employed by only one previous study.<sup>5</sup> We are complimenting the quantitative analysis of our primary datasets by consulting both the Irish Times Historical Archive and the Financial Times Historical Archive to provide contemporary commentary on events.

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<sup>3</sup> John D. Turner, Alan J. Hanna and Clive Walker, “The Spectre of Terrorism and The Stock Market”, *QUCEH Working Paper Series*, No. 2022-10, (2022), <https://doi.org/10.2139/ssrn.4285414>.

<sup>4</sup> Robert J. Shiller, “Narrative Economics.” *The American Economic Review* 107, no. 4 (2017): 967–1004. (2019)

<sup>5</sup> Brian M. Lucey & Shane Whelan, “Monthly and semi-annual seasonality in the Irish equity market 1934-2000”, *Applied Financial Economics*, 14, 203-208

Finally, we are contributing to the literature surrounding behavioural finance and investor sentiment and extending the literature around the Irish Stock Exchange.

The results of our study indicate that terrorist attacks and political developments associated with the Troubles did not have a large effect on the behaviour of equity listings on the Irish Stock Exchange. While the descriptive statistics do reveal that on days where bombings occurred there were generally negative returns on the stock, these changes were mostly small and not statistically significant. These results are somewhat surprising given the results of other studies which we shall detail, however, we shall discuss the potential reasons for this equity market indifference to news of developments in the Troubles. In addition, periods which exhibited high levels of volatility are explained by international economic factors rather than any Troubles related incidents.

The Dissertation is structured as follows. Section 1 critically examines the literature surrounding the behaviour of capital markets in times of violence and political turmoil and previous research focused on the Irish Stock Exchange. Section 2 provides a background to the Troubles, discussing the sources of the conflict and how it escalated from the outbreak in 1968 to the signing of the Good Friday Agreement in 1998. Section 3 discusses our data and its sources, while Section 4 outlines our methodological approach. Section 5 details the results and Section 6 provides a discussion of the results before providing our concluding observations.

## **1: Literature Review**

The rationale behind our research is that instability in the form of political disputes, terrorist attacks and civil wars is detrimental to the economic prosperity of the region in which it occurs. Turbulent environments discourage private investment, particularly foreign direct investment. Firms operating in

economies which experience frequent attacks that result in disruptions to their business operations and higher operating costs suffer with regard to the expectation of their future prospects. While Northern Ireland is in the United Kingdom, it is situated on the island of Ireland, and we expect that there were fears among Irish investors that violence could increasingly spread into the Republic. Furthermore, conflict in Northern Ireland was likely to have spillover effects into the Republic. There are examples such as that of Donegal, the Irish county in the northwest, which found it increasingly difficult to attract investment due to its proximity to the conflict.<sup>6</sup> Northern Ireland itself found it challenging to attract investment due to their instability having adverse effects on their business prospects. The Stormont Minister for Commerce described their prospective investment as being “half-empty” due to their adverse situation.<sup>7</sup> Timothy & Muelle show that there were significant welfare effects for the population of Northern Ireland following the cessation of conflict, particularly in areas which had experienced high levels of violence.<sup>8</sup> A similar conflict to that of Northern Ireland took place in the Basque Country in Northern Spain. Abadie & Gardeazabal employ an event study to this conflict and the announcement of a ceasefire between 1998 and 1999. Their analysis determines that terrorism in the Basque country did have adverse economic effects on the region when compared with other Spanish regions and that the stocks of firms which were located in the Basque country experienced an increase upon the announcement of the ceasefire.<sup>9</sup> Guidolin & La Ferrara examine the cost of conflict for private firms through the Angolan civil war, their findings suggest that it does discourage private investment and leads to higher operating costs for firms in the region.<sup>10</sup> These studies demonstrate the economic benefit to the cessation of violence. The rationale behind the examination of security prices is

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<sup>6</sup> “Industry reluctant to locate in Donegal”, in *The Irish Times*, Monday, August 17, 1998, 18

<sup>7</sup> “N.I. industry pipe-line ‘half empty’” in *The Irish Times*, Monday, November 17, 1969, 1

<sup>8</sup> Timothy Besley & Hannes Mueller “Estimating the Peace Dividend: The Impact of Violence on House Prices in Northern Ireland”, *American Economic Review*, 20120, 102 (2): 810-833

<sup>9</sup> Alberto Abadie & Javier Gardeazabal, “The Economic Costs of Conflict: A Case Study of the Basque Country”, *The American Economic Review*, Mar., 2003, Vol. 93, No. 1 (Mar., 2003), pp. 113-132

<sup>10</sup> Massimo Guidolin & Eliana La Ferrara (2007), “Diamonds Are Forever, Wars Are Not: Is Conflict Bad for Private Firms?”, *The American Economic Review*, Vol. 97 No 5. 1979

that they tend to incorporate investors' sentiment and beliefs regarding future cash flows. According to the semi-strong efficient market hypothesis, the price of a security should reflect all information that is relevant and is available to the public.<sup>11</sup> Thus, a change in investor sentiment is reflected in security prices. We anticipate that developments in the Troubles did alter investor behaviour due to the possible economic consequences they brought.

### 1.i Literature on the impact of violence on Capital Markets

There is a growing body of literature analysing the impact that violence in the forms of terrorism, international conflicts and civil wars has on financial markets. The most prominent contribution to the literature is that of Wilard et al, in which they apply a structural break analysis on the daily traded prices of Greenbacks to identify significant turning points in the American Civil War.<sup>12</sup> The motivation for their study was that Greenbacks were not convertible but would be redeemable in gold at a later date, thus their value depended on the Union Army winning the war. This meant that the daily traded price of a greenback reflected the prospects of the Union winning the war, as perceived by the contemporary investors. This provided fresh insights into the development of the conflict and identified previously overlooked events such as the retreat of a confederate army poised to attack Washington, while confirming the importance of noted battles such as Gettysburg and Vicksburg.<sup>13</sup> Subsequent studies into the U.S. civil war by Weidenmier and Brown & Burdekin expand upon this research by applying similar methodological approaches to the traded prices of Confederate issued Graybacks and Cotton Bonds respectively.<sup>14</sup>

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<sup>11</sup> Eugene Fama. "Efficient Capital Markets: A Review of Theoretical and Empirical Work", *Journal of Finance*, Vol. 25, 383-420

<sup>12</sup> Kirsten L. Wilard, Timothy W. Guinnane & Harvey S. Rosen, "Turning Points in the Civil War: Views from the Greenback Market", *The American Economic Review*, 1996, Vol. 86 (4), 1001-1018

<sup>13</sup> Wilard, Guinnane & Rosen, "Turning Points in the Civil War"

<sup>14</sup> Weidenmier, Marc D. "Turning Points in the U.S. Civil War: Views from the Grayback Market", *Southern Economic Journal*, 2002, Vol. 68(4), p.875-890; William O. Brown & Richard C. Burdekin, "Turning Points in the U.S. Civil War: A British Perspective" *The Journal of Economic History*, 2000, Vol. 60 (1), 216-231

Further extensions of the literature on using the secondary market for debt to identify key developments in conflict has been extended to the bond market during the first and second World Wars. Frey & Kucher analyse bond prices traded in Switzerland during World War 1 and determine that a loss of sovereignty had a significant effect on bond prices. Their findings in a subsequent paper also determine that some events considered historically significant were not reflected in bond prices.<sup>15</sup> Jopp analyses German 3% imperial loans traded on the Amsterdam Stock Exchange in World War 1 and concludes that bond prices accurately reflected Germany's war prospects, with the most notable event being Britain's signal that they would be joining the war imminently.<sup>16</sup> Choudhry applies a structural break analysis to the Dow Jones Industrial average stock index during World War 2 and shows that events in the war did have a significant effect on the U.S. stock market, and that some events viewed by historians as important were not reflected in the findings.<sup>17</sup> Waldenström & Frey examine structural breaks in the Nordic bond markets in World War 2 and argue that while historians believe there was a general sense of safety, Nordic investors reacted to significant events and the decline of the bond market indicated fears of an incoming invasion.<sup>18</sup> They expand upon this by investigating both the Zurich and Stockholm exchanges, concluding that both perceived war events to a similar degree.<sup>19</sup> Hudson & Urquhart examine the effects of events in WW2 on the British and American stock markets and find

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<sup>15</sup> Bruno S. Frey & Marcel Kucher, "History as Reflected in Capital Markets: The Case of World War 2", *Journal of Economic History*, 2000, Vol.60 (2), 468-496; Frey, Bruno, and Marcel Kucher. "Wars and Markets: How Bond Values Reflect the Second World War." *Economica* (London) 68, no. 271 (2001): 317–333.

<sup>16</sup> Tobias A. Jopp, "How Did the Capital Market Evaluate Germany's Prospects for Winning World War I? Evidence from the Amsterdam Market for Government Bonds." *Jahrbuch für Wirtschaftsgeschichte* 2 (2014): 159–186.

<sup>17</sup> Taufiq Choudhry, "World War II Events and the Dow Jones Industrial Index." *Journal of banking & finance* 34, no. 5 (2010): 1022–1031.

<sup>18</sup> Daniel Waldenström & Bruno S. Frey, "Did Nordic countries recognize the gathering storm of World War 2? Evidence from the bond markets", *Explorations in Economic History* 45 (2008) 107-126

<sup>19</sup> Bruno S. Frey & Daniel Waldenström. "Using Financial Markets to Analyze History: The Case of the Second World War", *Historical Social Research/Historische Sozialforschung*, 2007, Vol. 32, No. 4 (122), *Neue Politische Ökonomie in der Geschichte/ New Political Economy in History* (2007), pp. 330-350



that they did have an impact, in particular they showed greater reactions to negative events.<sup>20</sup>

Further studies have investigated the impact of terrorist attacks on stock markets. Zussman, Zussman & Nielsen find that escalations of the Israeli-Palestinian led to significant declines in asset markets.<sup>21</sup> Zussman and Zussman also examine the impact of counterterrorism measures on the Israeli stock market and conclude that the effect of the measure depends on the prominence of the target.<sup>22</sup> Nikkinen & Vähämaa examine the FTSE 100 index and conclude that terrorist attacks had statistically significant adverse impacts on the stock market and increased market uncertainty.<sup>23</sup> Coleman further tests equity market efficiency with respect to terrorist attacks and finds that markets fully price in the attack within a day of its occurrence.<sup>24</sup>

### 1.ii Literature on Political Risk and Capital Markets

The development of the Troubles was not limited to violent outbreaks. There were significant political developments that were just as pertinent to the issues underlying the Troubles and which had equally important effects in both exacerbating and calming the tensions. Thus, political risk is also a facet being explored in this study. Kim & Mei show that major political developments had a significant impact on both market volatility and market returns in the Hong Kong Exchange, with their analysis finding the presence of the negativity

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<sup>20</sup> Robert Hudson & Andrew Urquhart, “War and Stock Markets: The Effect of World War Two on the British Stock Market.” *International Review of Financial Analysis* 40 (2015): 166–177; Robert Hudson & Andrew Urquhart, “Naval Disasters, World War Two and the British Stock Market.” *Research in International Business and Finance* 59 (2022): 101556–.

<sup>21</sup> Asaf Zussman, Noam Zussman and Morten Ørregaard Nielsen, “Asset Market Perspectives on the Israeli-Palestinian Conflict”, *Economics*, Vol. 75, No. 297, Feb, 2008, 84-115

<sup>22</sup> Asaf Zussman & Noam Zussman, “Assassinations: Evaluating the Effectiveness of an Israeli Counterterrorism Policy Using Stock Market Data”, *Journal of Economic Perspectives*, Volume 20, Number 2 – Spring 2006, 193-206

<sup>23</sup> Jussi Nikkinen and Sami Vähämaa. “Terrorism and Stock Market Sentiment.” *The Financial Review* (Buffalo, N.Y.) 45, no. 2 (2010): 263–275.

<sup>24</sup> Les Coleman (2012), “Testing equity market efficiency around terrorist attacks”, *Applied Economics*, 44:31, 4087-4099, DOI: 10.1080/00036846.2011.587778

effect.<sup>25</sup> Bittlingmayer applies a similar analysis to German financial markets in the period 1880-1940 and determines that political events are clear sources of volatility in the market.<sup>26</sup> Ferguson analyses the effect of political risk on the London bond market between 1848 and 1914 and actually finds that it decreased over the period.<sup>27</sup> Beaulieu et al analyse the volatility of stock returns in relation to the possible independence of Quebec from Canada and determine that the news associated with this event significantly impacted the Canadian financial market.<sup>28</sup>

While Northern Ireland has been included in some studies that discuss terrorism and stock returns, there have not been many investigations that focus solely on The Troubles and their impact on the Irish financial markets. Currently, Walker, Turner & Hanna are producing a study which does focus on the Troubles, employing a quantitative narrative approach to investigate the spectre of terrorism on the UK stock market.<sup>29</sup> The narrative approach consults articles in the *Financial Times* in an attempt to quantify the general attitude of the public towards the events in Northern Ireland. Our study differs from this in our methodological approach and the study of the Irish Stock Exchange rather than the FTSE30 which is the subject of their analysis. The narrative approach does not focus on the occurrence of specific events but rather the media coverage of these events, this dissertation is focused on testing the effect of selected events and aiming to uncover events which may be overlooked by historians.

Furthermore, our choice of the Irish Stock Exchange is under the assumption that Irish investors were more likely to be informed of the events occurring in

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<sup>25</sup> Harold Y. Kim & Jianping P Mei, “What makes the stock market jump? An analysis of political risk on Hong Kong stock returns”, *Journal of International Money and Finance*, Volume 20, Issue 7, December 2001, 1003-1016

<sup>26</sup> George Bittlingmayer, “Output, Stock Volatility, and Political Uncertainty in a Natural Experiment: Germany, 1880-1940”, *The Journal of Finance*, Volume 53, 2002, Issue 6/ p. 2243-2257

<sup>27</sup> Niall Ferguson, “Political risk and the international bond market between the 1848 revolution and the outbreak of the First World War”, *The Economic History Review*, 59: 70-112.  
<https://doi.org/10.1111/j.1468-0289.2005.00335.x>

<sup>28</sup> Marie-Claude Beaulieu, Jean-Claude Cosset, and Naceur Essaddam. “The Impact of Political Risk on the Volatility of Stock Returns: The Case of Canada.” *Journal of international business studies* 36, no. 6 (2005): 701–718.

<sup>29</sup> Walker, Turner & Hanna “The Spectre of Terrorism”, 12

Northern Ireland than British investors. Irish media coverage of the events was more prominent and provided more frequent updates.<sup>30</sup> While Northern Ireland is in the United Kingdom, the relative proximity of the Republic of Ireland to the North in comparison with Great Britain meant that the Republic was more likely to experience the effect of attacks which occurred in the North. However, while the London Stock Exchange is situated much further away from Northern Ireland than Dublin (where the Irish Stock Exchange was traded), London itself was the target of republican bombings and we will include some of these attacks in our analysis.

When conducting research on the impact of terrorism and war on capital market prices, there are two methodological approaches employed by researchers: structural break analysis and event-studies. The structural break approach has been used by studies such as Wilard et al and Frey & Kucher, and the event study employed by Zussman & Zussman and Hudson & Urquhart.<sup>31</sup> We have decided to employ the event study in our approach and will discuss our reasoning in the methodological section.

### 1.iii Literature on Irish Stock Market

The Irish Stock Market has not been the subject of much academic literature even though it is among the oldest in the world having been established in 1793.<sup>32</sup> The literature surrounding the early period of the stock market has focused primarily on the period before Irish Independence. Grossman, Lyons, O'Rourke & Madalina, and Hickson & Turner have explored the development and nature of the Irish Stock Exchange in this early period.<sup>33</sup> Further studies on

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<sup>30</sup> Bill, Rolston. *The Media and Northern Ireland: Covering the Troubles*. London: Palgrave Macmillan UK, 1990.

<sup>31</sup> Wilard, Guinnane & Rosen "Turning Points"; Frey & Kucher "Capital Markets"; Zussman & Zussman "Counterterrorism and stock markets";

<sup>32</sup> Patricia Chellery-Steeley & Brian Lucey (2008), "The Microstructure of the Irish Stock Market", *Multinational Finance Journal*, vol. 12, no. 3/4, pp. 279-311

<sup>33</sup> GROSSMAN, RICHARD S., RONAN C. LYONS, KEVIN HJORTSHØJ O'ROURKE, and MADALINA A. URSU. "A Monthly Stock Exchange Index for Ireland, 1864-1930." *European review of economic history* 18, no. 3 (2014): 248–276.; HICKSON, CHARLES R., and JOHN D. TURNER. "The Rise and Decline of the Irish Stock Market, 1865–1913." *European review of economic history* 9, no. 1 (2005): 3–33.

the stock market in the latter half of the 20<sup>th</sup> century have focused mainly on financial econometric testing. There has been little focus on investigating the market in the context of the adverse period in which it was situated. While it is noted by Lucey that the time period in the late 20<sup>th</sup> century is atypical, he attributes this to external factors such as the Gulf conflict, the relaxation of exchange controls and the crash of 1987 rather than any domestic acts of terrorism or political upheaval.<sup>34</sup> Our analysis further explores this conclusion. During the latter half of the 20<sup>th</sup> century the Irish Stock Exchange (ISE) was based in Dublin. The Dublin Stock Exchange was floor-based and held two daily trading sessions each weekday, the first in the morning from 9:30am to 10:30am and the second in the afternoon from 2:15pm to 3:15pm. It was not until June of 2000 that the Irish Stock Exchange implemented electronic trading, which their contemporaries in London had implemented in 1986. This resulted in Irish stock prices being stale in comparison with their British counterparts even though Irish companies were co-listed on the London Stock Exchange.<sup>35</sup> The relatively limited trading time led to the market being inefficient according to Gallagher.<sup>36</sup>

## **2: Historical Context**

The Troubles were a long, complicated conflict rooted in centuries of underlying tensions. Thus, providing a comprehensive commentary on the outbreak and development of the conflict is beyond the scope of this dissertation. There were numerous political developments, bombings, discussions, policies and riots which shaped and defined the conflict. This section aims to provide a summary of the conflict and its developments including the major figures and groups involved in order to situate our research in the historical context.

Following the 1920 Government of Ireland Act and the 1921 Anglo-Irish Treaty, Britain relinquished claim over the island of Ireland, except for 6 counties in the

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<sup>34</sup> Lucey “Empirics of the ISEQ index” 158

<sup>35</sup> Chellery-Steeley & Lucey “Microstructure of Irish Stock Market” 285

<sup>36</sup> Liam Gallagher. “INTERDEPENDENCIES AMONG THE IRISH, BRITISH AND GERMAN STOCK MARKETS.” *The Economic and social review* 26, no. 2 (1995): 131–147.

north of the island which would remain part of the United Kingdom and became Northern Ireland.<sup>37</sup> This region was the only in the island which had a Protestant majority following the successful Ulster Plantation. In the years following this split, Northern Ireland could be viewed as divided along both religious and political lines, with the Protestant majority wishing to remain part of the United Kingdom, while the Catholic minority campaigned for a reunification of the island and exodus from the UK.<sup>38</sup> There were further socio-economic divisions among the population, where Catholics were generally less wealthy than their Protestant compatriots. While the Protestant population were in the majority, the margin between the numbers of both populations declined over the 20<sup>th</sup> century.

This disparity in socioeconomic conditions between both groups incited the civil rights campaign and 1967 marked the formation of the Northern Ireland Civil Rights Association, whose aim was to remove discrimination facing Catholics in the allocation of “jobs and houses, permanent emergency legislation and electoral abuses”.<sup>39</sup> The growing animosity between both communities boiled over in August 1969 in an event known as The Battle of the Bogside. A three-day period of rioting in Derry spread across Northern Ireland and to many, signalled the start of the Troubles.<sup>40</sup> The British Army were deployed to Northern Ireland that same year and were initially welcomed by both the Catholic and Protestant populations as they seemed to signal an increased presence of authority which would help to ease tensions.<sup>41</sup> However, this did not transpire and the army and police force became a symbol of oppression to the Catholic community rather than one of justice. Tensions continued to rise build and soon both republican

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<sup>37</sup> Brenda Malone “The Signing of the Anglo-Irish Treaty, 1921”, *National Museum of Ireland, Ard-Mhúsaem nah Éireann*, <https://www.museum.ie/en-IE/Collections-Research/Collection/Documentation-Discoveries/Artefact/The-Signing-of-the-Anglo-Irish-Treaty,-1921/7a49e7e5-7cf7-4218-b3b4-c974d4adafa6>

<sup>38</sup> Seamus Dunn, *Facets of the Conflict in Northern Ireland*. Basingstoke: Macmillan, 1994. 18

<sup>39</sup> Dunn, *Facets of the Conflict in Northern Ireland*, 18

<sup>40</sup> “Battle of Bogside marked 50 years on”, BBC, 5 August 2019, <https://www.bbc.com/news/uk-northern-ireland-foyle-west-49232799> (Accessed 15 August 2023)

<sup>41</sup> Dunn, *Facets of the Conflict in Northern Ireland*, 19

and unionist paramilitary organisations began to take action in the form of bombings and shootings.

Paramilitary organisations were a key feature of the Troubles. Table 1 provides a list of some of the designated republican and loyalist paramilitary organisations who were responsible for attacks in the Troubles. The relationship between these organisations on the republican and unionist sides was one of clear animosity. However, intra-community tensions were also fraught and the nature of the relationship between groups of the same allegiance were not always clear. Throughout our analysis we will be referencing some of these groups as they accounted for 83% of murders in the conflict (Table 2). The main political parties were the Republican Sinn Féin and the Unionist Democratic Unionist Party (DUP). Both parties were linked to paramilitary organisations.

While there are still outbreaks of violence and severe underlying tensions which inhibit the growth of the Northern Irish economy, 1998 and the signing of the Good Friday Agreement marked the end of the period commonly known as the Troubles. The agreement was passed by referendum on the 22<sup>nd</sup> of May 1998 by a substantial majority of 71.1% in the North and 94.4% in the Republic and implemented on the 2<sup>nd</sup> of December 1999.<sup>42</sup>

<u>Table 1: List of Paramilitary Organisations</u>	
<b>Republican</b>	<b>Unionist</b>
Irish Republican Army (IRA)	Ulster Volunteer Force (UVF)
Provisional IRA (PIRA)	Loyalist Volunteer Force (LVF)
Irish National Liberation Army (INLA)	Red Hand Commando (RHC)
Official IRA	Ulster Defence Association (UDA)
Real IRA (RIRA)	Ulster Freedom Fighters (UFF)
Irish People’s Liberation Organisation	

<sup>42</sup> “About the Good Friday Agreement”, Ireland, <https://www.ireland.ie/en/25-years-of-the-good-friday-agreement/about-the-good-friday-agreement/> (Accessed 20 August 2023)

<u>Table 2: Organisations Responsible for Deaths</u>		
<b>Organisation Responsible</b>	<b>Number of Deaths</b>	<b>% of Total Deaths</b>
Republican Paramilitaries	2001	55.7
Loyalist Paramilitaries	983	27.4
British Army	318	8.9
Ulster Defence Regiment	11	0.3
Royal Ulster Constabulary	53	1.5
Civilian	11	0.3
Other	216	6.0
<b>Total</b>	<b>3593</b>	<b>100</b>

*Source:* Mapping Troubles Related Deaths<sup>43</sup>

### 3: Data

In conducting this research, we analyse equity listings on the Irish Stock Exchange (ISE) from the beginning of the Troubles in Northern Ireland in 1968 to the signing and implementation of the Good Friday Agreement in 1998. For the period 1983 to 1998, the Irish Stock Exchange All-Share Index (ISEQ) is available and has been sourced from the Irish Stock Exchange using Datastream.<sup>44</sup> This data is recorded on a weekly frequency from 1983 to 1986 and on a daily frequency from 1987 to 1998. The index lists the price index from the 5<sup>th</sup> of January 1983 until the 31<sup>st</sup> of December 1998, with the base date of January 1<sup>st</sup>, 1988 = 1,000. These daily and weekly observations should allow us to precisely examine the effects of significant developments (in the form of bombings, shootings, riots and political negotiations) in The Troubles on the stock exchange and to potentially uncover other significant developments that

<sup>43</sup> Fay, Marie-Therese, Mike Morrissey, and Marie Smyth. *Mapping Troubles-Related Deaths in Northern Ireland, 1969-1994*. Londonderry: INCORE, 1997.

<sup>44</sup> Datastream. New York: Thomson Reuters, n.d. (Accessed 2 July 2023)

have not received the same attention by historians. The value of the price index at the base date is calculated using Equation (1)

$$\frac{\sum_{i=1}^n I_{i,t} P_{i,t}}{\sum_{i=1}^n I_{i,N} P_{i,N}} \times 1000 \quad (1)$$

Where  $I_{i,t}$  is constituent  $i$ 's issued share capital at time  $t$ ;  $P_{i,t}$  is constituent  $i$ 's share price at time  $t$ .  $I_i$  is a constituent's issued share capital at the base date.  $P_i$  is the constituent's share price at the base date and  $n$  is the final component of the index.<sup>45</sup>

For the 1966 to 1982 period, we have accessed the Stock Exchange Index published by the Central Statistics Office of Ireland (CSO).<sup>46</sup> This index is available at a monthly frequency with a base date of January 1975 = 100 for the period 1974-1982 and a base date of January 1953 = 100 for the 1966-1974 period. There is an overlap, with 1974 being included on both series but with different base dates. This allows us to transform the index for the 1966-1973 period and recalculate it with January 1975 as the base date. This index is calculated in the same manner as the ISEQ (Equation 1).

Due to the varying granularity in our dataset with 1968-1982 having monthly observations, 1983-1986 having weekly and 1988-1998 having daily observations, we will treat all three as separate series and employ empirical tests on them individually. The primary limitation of our dataset is that we are confined to monthly frequencies between 1968 and 1982. Given that the aim of our analysis is to examine the effect of significant events and identify previously overlooked developments in the conflict that may have been turning points, we are somewhat limited in our inference here. However, in months that were particularly turbulent and had high rates of casualties or experienced other

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<sup>45</sup> Hamill, Opong & Sprevak. "Behaviour of Irish ISEQ index", 688

<sup>46</sup> Central Statistics Office of Ireland. Statistical Abstract of Ireland 1969, Dublin, Stationary Office, 1971; Central Statistics Office of Ireland. Statistical Abstract of Ireland 1972-32, Dublin, Stationary Office, 1976; Central Statistics Office of Ireland. <https://data.cso.ie/#> (Accessed 1 August 2023)



significant developments, one would still expect to observe higher levels of price volatility than in months which were relatively calm by comparison, with this volatility exhibited in the month end returns.

## 4: Methodology

### 4.i Event Study

In conducting this analysis, we have decided to employ two separate approaches. The first approach is an event study. The event study is a well-established econometric method that has been utilised by many researchers in the fields of financial economics, law and accounting and has also been employed by researchers investigating similar topics regarding the effect of violence on the capital markets.<sup>47</sup> The most common usage of the method is to measure the effect of a significant event such as merger or acquisition or a change in the regulatory environment on the valuation of a firm, however, the principal remains of testing the effect of an event on a given day on the stock market returns of a company or market index.<sup>48</sup>

The event study allows the researcher to select event dates they believe to be significant and test for their importance. The specific event study employed in this dissertation is modelled upon the approach Hudson & Urquhart in investigating the effects of World War Two on the FTSE30.<sup>49</sup> We will similarly use the mean-adjusted returns approach by Brown & Warner which computes daily excess returns of the ISEQ with Equation (2);<sup>50</sup>

$$AR_t = R_t - \bar{R} \quad (2)$$

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<sup>47</sup> Zussman & Zussman “Effectiveness of Israeli Counterterrorism Policy”; Hudson & Urquhart “War and Stock Markets”

<sup>48</sup> Craig Mackinlay. “Event Studies in Economics and Finance.” *Journal of economic literature* 35, no. 1 (1997): 13–39.

<sup>49</sup> Hudson & Urquhart “War and Stock Markets” 169

<sup>50</sup> Stephen J. Brown Jerold B. Warner. “Measuring Security Price Performance.” *Journal of Financial Economics* 8, no. 3 (1980): 205–258.

Where  $AR_t$  is the abnormal return for the index at time  $t$ ,  $R_t$  is the observed rate of return for the index, and  $\bar{R}$  is the mean return of the index daily returns in the (-20,-2) estimation period so that;

$$\bar{R} = \frac{1}{18} \sum_{t=-20}^{-2} R_t \quad (3)$$

We have chosen -20 and -2 as this would be the average returns over the previous month (working days) up to the day before an attack. We adjust this average return period for our monthly and weekly data. Given that attacks would generally not be known until they occurred the returns should not be influenced in the period leading up to the attack. We have decided to ignore dividend payments when calculating the index returns as there is a lack of visibility specifically for the 1966 to 1983 period. Thus, our index returns will be capital gains returns calculated as;

$$R_t = \ln\left(\frac{P_{t+1}}{P_t}\right) * 100 \quad (4)$$

Where  $R_t$  is the natural logarithmic return in the current period,  $P_t$  is the ISEQ price in the current period and  $P_{t-1}$  is the ISEQ price in the previous period. We initially compute abnormal returns on the day of the event at  $t = 0$ . However, given that some of the events we are studying lasted longer than one day we will expand the event window in some cases, and examine cumulative average abnormal returns over days following the event. These cumulative average returns are computed with the equation;

$$CAR_t = \sum_{t=T_1}^{T_2} AR_t \quad (5)$$

Where  $T_1$  is the day our event occurs.  $T_2$  is the specified period following the event. The study reports the cumulative average abnormal returns (CAAR), which is the average of the cumulative average returns (CAR) for each event. We determine whether these results are statistically significant using the

parametric t-statistic. This methodological approach is almost identical the event study employed by Hudson & Urquhart.<sup>51</sup> For events that occurred on days where the Stock Exchange was not traded, we will acknowledge them as occurring on the day of trading before. For example, the Omagh bombing on Saturday the 15<sup>th</sup> of August 1998 will be listed as occurring on the 14<sup>th</sup> of August.

#### 4.ii Study of dates with the largest percentage changes

Our event study approach examines the impact of pre-selected events on the Irish Stock Exchange Index. In selecting these events we have consulted historical literature, however, there is the possibility that these events are only considered important in retrospect and that at the time they were not viewed in the same regard. In addition, it could be the case that historians have overlooked certain events and their importance.

The second approach we employ is to examine price changes throughout the period and focus on the periods which display the highest level of price volatility. We will do this by calculating the daily percentage change in price for the 1987-1998 period, weekly percentage change for the 1983-1986 period and the monthly percentage change for the 1968-1982 period. We specify working days for the 1987-1998 period because the Irish Stock Exchange was traded only on weekdays.<sup>52</sup> This approach has also been used by Hudson & Urquhart and Kaplanski & Levy in their respective studies on WW2.<sup>53</sup> We consult historical archives of the *Irish Times*, and to provide contemporary news articles on the days surrounding the largest changes and identify what the cause of the volatility was.

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<sup>51</sup> Hudson & Urquhart “War and Stock Markets” 169

<sup>52</sup> Patricia Chellery-Steeley & Brian Lucey (2008), “The Microstructure of the Irish Stock Market”, *Multinational Finance Journal*, vol. 12, no. 3/4, pp. 279-311

<sup>53</sup> Hudson & Urquhart “War and The Stock Market”, Guy Kaplanski and Haim Levy. “Sentiment and Stock Prices: The Case of Aviation Disasters.” *Journal of financial economics* 95, no. 2 (2010): 174–201.

When conducting our approach, we considered applying a structural break analysis similar to Choudhry, Wilard et al and Frey & Kucher.<sup>54</sup> However, these applications of the structural break analysis have been applied to sovereign bond markets during times of large-scale wars with battles. The structural break analysis is effective when applied to these scenarios and can identify turning points in wars and conflict where large battles were key determinants of victory. In our case where we are examining a low-level conflict consisting of mainly guerilla warfare attacks and positive developments in the forms of negotiations and ceasefires, the structural break analysis does not seem to be appropriate for this application. The Troubles did not have clear examples of victory and defeat, for example the Omagh bombing which claimed 29 lives did not signal a Republican victory, but rather a devastating loss of innocent life. Hence why we have chosen not to apply the structural break analysis. Furthermore, our approach has an advantage over the structural break approach as a structural break approach allows for only one break in the time series. In some scenarios in which there were many attacks in a short timeframe such as the Dublin bombings in December and November 1971 and January 1972, the significance of these events may be overlooked by the structural break analysis.

## **5: Results**

### **5.i Event Study**

In conducting our event study, we have compiled a list of some major turning points and key events in The Troubles based on the widely held views of historians. There are countless instances of attacks, bombings and shootings during this period, thus, we have isolated events according to the number of fatalities and other events considered important. We have selected events across Northern Ireland, the Republic of Ireland and Great Britain that we anticipate had significant impacts on the Irish Stock Exchange. The following section shall discuss the selected events, explain the rationale behind their selection and

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<sup>54</sup> Choudhry “World War 2 and Dow Jones” 1022; Wilard, Guinnane & Rosen “Turning points in the civil war”, Frey & Kucher “History as Reflected in Capital Markets”.

discuss the results of our event study. Most of our selected events occur after 1982, this is because the weekly and daily data after this point should provide us with more accurate results than the preceding period, however, key events from this period are still considered and included in our analysis.

## 5.ii 1960s

### *5.ii.a Battle of the Bogside and RTÉ Bombing - August 1969*

While there is no official consensus surrounding the start date of the conflict, the three days of rioting in Derry from the 12<sup>th</sup> to the 14<sup>th</sup> of August 1969 also known as the Battle of the Bogside are generally considered to be the outbreak of the Troubles.<sup>55</sup> Following these riots, British Troops were deployed to Northern Ireland. In addition, on the 5<sup>th</sup> of August the UVF placed a bomb on the premises of Irish national broadcaster RTÉ, signalling the first bombing by loyalist paramilitaries in the Republic of Ireland during the Troubles.<sup>56</sup> The events of August 1969 signalled the beginning of the troubles according to historians. August 1969 exhibited a 5.5% decrease in the monthly stock index, however, while the direction of the CAAR's over the event window are negative, they are not found to be statistically significant.

## 5.iii 1970s

### *5.iii.a McGurks' Bar Bombing 4 December 1971*

The deadliest bombing in the Troubles before the bombing in Omagh in 1998. 15 people were killed and a further 17 were injured when the Ulster Volunteer Force detonated an explosive in McGurk's bar in Belfast. This event has been selected as it was the deadliest bombing in the conflict for almost 30 years and signalled the coming period of further bombings and violence. The Irish Times on the 6<sup>th</sup> of December described the bombing as "unquestionably the worst-ever blast to shake the city".<sup>57</sup> The index declined 3.48% in December of 1968, however, this event was not reported as being statistically significant (Table 3).

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<sup>55</sup> See "Battle of Bogside", BBC

<sup>56</sup> "Explosion in R.T.E studios at Montrose", in *The Irish Times*, Tuesday August 5, 1969, 1

<sup>57</sup> "Empire Loyalists Claim Pub Blast", in *The Irish Times* Monday, December 6, 1971, 1

### *5.iii.b Bloody Sunday – 30<sup>th</sup> January 1972*

One of the most infamous events in the Troubles which is still the source of widespread animosity and debate in the present day. On the 30<sup>th</sup> of January, Catholic protestors in Derry marched against the British policy of internment without trial which had targeted many civilians with no involvement in paramilitary operations.<sup>58</sup> The demonstrations quickly descended into chaos in which some protestors threw rocks at British forces and were met with indiscriminate gunfire, which persisted even when protestors attempted to flee. The gunfire resulted in 14 casualties, half of whom were children. In addition, 15 people were injured.<sup>59</sup> The market index actually increased by 5.17% in January, and the event was not found to be significant (Table 3)

### *5.iii.c Month With the Highest Death Toll - July 1972*

Commonly referred to as the bloodiest month of the bloodiest year of the Troubles, 1972 saw a total of 480 people die while July alone accounted for 88 of these casualties.<sup>60</sup> Among these events was Bloody Friday on the 21<sup>st</sup> of the month where 9 people were killed and another 130 injured following the explosion of 19 bombs across Belfast.<sup>61</sup> July of 1972 had the highest death toll of any month in the Troubles, we anticipate that this resulted in fears that further escalation of the conflict was imminent, which would be reflected in the Stock Exchange. July exhibited a 2% increase in the price index. The abnormal returns were calculated and not found to be statistically significant (Table 3).

### *5.iii.d Dublin Bombings – November 1972, December 1972, January 1973*

Over the 3-month period between the 26<sup>th</sup> of November 1972 and the 20<sup>th</sup> of January 1973, four bombs exploded in Dublin in four separate incidents resulting in 3 deaths and 185 injuries.<sup>62</sup> The rationale behind the selection of

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<sup>58</sup> Fintan O'Toole "Bloody Sunday, the 10-minute massacre that lasted decades" in *The Irish Times*, Sat 22<sup>nd</sup> January 2022

<sup>59</sup> See Fintan O'Toole "Bloody Sunday"

<sup>60</sup> See Fay, *Mapping The Troubles*

<sup>61</sup> Department of the Taoiseach, "Statement by Taoiseach Micheál Martin on the 50<sup>th</sup> anniversary of Bloody Friday, Belfast 21 July 1972" 21 July 2022

<sup>62</sup> Ronan McGreevy, "It's like yesterday': Dublin city centre bombings remembered 50 years on", in *The Irish Times*, Thursday 1 December 2022

this event is the context in which it took place. It was not the deadliest attack, however, the string of bombings occurred at the end of the bloodiest year of the conflict and was one of few attacks in the Republic of Ireland. We anticipate that this string of bombings resulted in a decline in the Irish Stock Exchange because of heightened fears that further attacks on the capital would be imminent. In reality the market increased over this period, by 2.8%, 4% and 3.6% in November, December and January respectively, and the bombings were not found to be statistically significant (Table3).

#### *5.iii.e Dublin and Monaghan Bombings May 1974*

The Dublin and Monaghan bombings on the 17<sup>th</sup> of May 1974 resulted in the largest loss of life in a single day during the Troubles.<sup>63</sup> Carried out by the Ulster Volunteer Force on the 17<sup>th</sup> of May, within the space of an hour and a half four car bombs exploded (three in Dublin, one in Monaghan) and claimed 33 lives while injuring approximately 300.<sup>64</sup> The catastrophic effect of these bombings would have been amplified by the sinister comments of UDA press officer Sammy Smyth when he exclaimed “I am very happy about the bombings in Dublin. There is a war with the Free State and now we are laughing at them”.<sup>65</sup> The ferocity of the attack coupled with the menacing reaction by the UDA would have indicated that further attacks were imminent. There was a -0.9% change in the index over the month of May, however, this was not found to be statistically significant (Table 3).

#### *5.iii.f Assassination of Lord Mountbatten – August 1979*

On the 27<sup>th</sup> of August 1979 the British royal, Lord Mountbatten was killed when the PIRA detonated a bomb on his boat off the coast of Sligo in the northwest of the Republic of Ireland.<sup>66</sup> On the same day, 18 British soldiers were killed in a PIRA double landmine ambush at Carlingford Lough, County Louth.<sup>67</sup> There was

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<sup>63</sup> “Dublin-Monaghan Bombings”, Dáil Éireann Debate, Tuesday 24 May 2022

<sup>64</sup> See “Dublin-Monaghan”, Dáil Éireann

<sup>65</sup> “UDA, UVF deny being responsible” in *The Irish Times*, Saturday, May 18, 1974, 1

<sup>66</sup> “Bomb on boat kills Lord Mountbatten” in *The Irish Times*, Tuesday, August 28, 1979, 1

<sup>67</sup> “Chorus of horrified protest in the North” in *The Irish Times*, Tuesday, August 28, 1979, 1

widespread condemnation of the assassination of Mountbatten and the ambush of the British soldiers, with Unionists “unanimously blaming the Southern government” for “harbouring fugitive murderers and encouraging the Provos”.<sup>68</sup> The market declined by almost 6% but similar to out other results the assassination is not found to be statistically significant.

<u>Table 3: Event Study Results 1968-1982</u>				
<b>Event</b>	<b>Date</b>	<b>% Index Change</b>	<b>CAAR [0,0]</b>	<b>CAAR [0,1]</b>
Battle of the Bogside	Aug 1969	-5.1	-4.02%	-3.39%
McGurk’s Bar	Dec 1971	-3.4	-4.55%	-0.45%
Bloody Sunday	Jan 1972	5.3	3.75%	8.2%
July 1972	Jul 1972	2.0	6.64%	6.44%
Dublin Bombings	Nov 1972	2.7	0.00%	7.00%
Dublin Bombings	Dec 1972	3.9	0.00%	7.00%
Dublin Bombings	Jan 1973	3.5	7.00%	10.99%
Dublin & Monaghan	May 1974	-0.9	-0.13%	-6.88%
Mountbatten	Aug 1979	-5.7	-1.83%	4.85%

\*\*\* p-value < .01, \*\* p-value < .05, \* p-value < .1

#### 5. iv 1980s

##### *5.iv.a Maze Prison Escape - 25<sup>th</sup> September 1983*

The Maze prison located in Co. Antrim was infamous for holding paramilitary prisoners (both republican and unionist) during the course of the Troubles. It has been stated that many of the conflicts turning points “originated in and centred on” the prison.<sup>69</sup> One such event was the escape of 38 PIRA members in the afternoon of the 25<sup>th</sup> of September. The escape resulted in twenty prison officers being injured and one dying. Fifteen of the escapees were recaptured on the day

<sup>68</sup> “Chorus of horrified protest in the North” in *The Irish Times*, Tuesday, August 28, 1979, 1

<sup>69</sup> Laura McAtackney, *Archaeology of the Troubles*, 2



with four more being captured in the following two days.<sup>70</sup> The stock market by 1.6% during the week of the escape and while the CAAR reported are negative they are not statistically significant.

*5.iv.b Anglo-Irish Agreement - 15<sup>th</sup> November 1985*

The Anglo-Irish Agreement which was agreed on the 15<sup>th</sup> of November 1985 was a significant development in the peace process. The largest “Anglo-Irish initiative since 1921” provided the Republic with an “official but circumscribed role with the British Government in administering Northern Ireland”.<sup>71</sup> The agreement was met with “furious” reaction from the Loyalist leaders among them DUP leader Ian Paisley who described the actions British Prime Minister Margaret Thatcher as an act of treachery. Among threats of challenging the legality of the agreement there were further fears that unionist paramilitaries would respond to the agreement with deadly force. The effect of this agreement on the Stock Exchange is particularly interesting because while it appeased some republican parties it clearly enraged the unionist population. On one hand it was likely there would be fewer republican attacks but on the other heightened fears of further loyalist attacks. There was a 1.9% increase in the stock exchange in the week in which these talks occurred. However, the event is not found to be statistically significant.

Table 4: Event Study Results 1983-1986						
Event	Date	% Index Change	CAAR [0,0]	CAAR [0,1]	CAAR [0,2]	CAAR [0,3]
Maze Prison Escape	25/9/1983	-1.6	-1.97%	-1.42%	-3.91%	-5.11%
Anglo Irish Agreement	15/11/1985	1.9	0.93%	-0.13%	1.07%	1.46%

\*\*\* p-value < .01, \*\* p-value < .05, \* p-value < .1

<sup>70</sup> Laura McAtackney, *Archaeology of the Troubles*, 12

<sup>71</sup> “Leaders to sign historic pact on North today” in *The Irish Times*, Friday, November 15, 1985,

#### *5.iv.c Remembrance Day bombing - 8<sup>th</sup> November 1987*

11 people were killed and 63 injured when the PIRA detonated a bomb in the town of Enniskillen in Fermanagh on Remembrance Day.<sup>72</sup> The attack clearly targeted the Protestant community and increased fears that further attacks, including unionist ones were imminent. There was a 2.5% decrease in the ISEQ on the 9<sup>th</sup> of November and the downward trend continued the following day with a further 5% decrease on the 10<sup>th</sup>. The trend reversed on the 11<sup>th</sup> with a 1.2% increase, but the market did not recover to pre-bombing levels until the 12<sup>th</sup> of November, 4 days after the attack. The CAAR was calculated as -2.5% on the first day after the bombing and then 1.4% the following day. However, while the descriptive statistics and initial results indicate that there was a negative effect on the stock market, these results are not statistically significant as displayed in Table 4.

#### 5.v 1990s

##### *5.v.a PIRA bomb the London Stock Exchange - 20<sup>th</sup> July 1990*

The bombing of the London Stock Exchange by the PIRA in the morning of the 20<sup>th</sup> of July marked the first civilian targeted attack in Great Britain since the bombing of the Harrods department store in December 1983.<sup>73</sup> While the bombing of the London Stock Exchange did not result in any casualties or injuries it was a clear attack on the British economy and the media feared it signalled the beginning of a “summer offensive” by the IRA similar to the 1970s. The bombing did not disrupt trading on the London Stock Exchange as it was computerized at that stage. On the day of the attack the ISEQ declined by 1%, however, while the CAAR of -0.83% indicates that this event did have a negative effect on the stock market it is not found to be significant (Table 4).

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<sup>72</sup> “11 civilians killed in Enniskillen war memorial bombing” in *The Irish Times*, Monday, November 9, 1987, 1

<sup>73</sup> “Blast renews fears of IRA offensive” in *The Irish Times*, Saturday, July 21, 1990, 1

#### *5.v.b IRA bombs Downing Street - 7<sup>th</sup> February 1991*

Following the bombing of the London Stock Exchange the next major IRA attack was on the residence of the British prime minister in the morning of the Thursday the 7<sup>th</sup> of July. The PIRA fired three mortar bombs from a van parked in the Whitehall area of London, one of these mortars exploded in the garden of 10 Downing Street, mere 15 metres from the intended target where a cabinet meeting was taking place.<sup>74</sup> While no one was killed or injured, the attack was the closest the IRA had come to killing the British PM since the 1984 Brighton bombing where the Conservatives were holding their annual party conference.<sup>75</sup> The ISEQ increase by 2% following the failed assassination attempt, however, the CAAR suggest that the assassination did not have a statistically significant effect on the stock market (Table 4).

#### *5.v.c PIRA bomb Baltic Exchange - 10<sup>th</sup> April 1992*

The PIRA bombing of London's Baltic Exchange on the evening of Friday the 10<sup>th</sup> of April claimed the lives of two people while inflicting serious injuries on another 14.<sup>76</sup> The attack in the heart of the City of London caused in excess of £800 million in damages and was claimed to have been motivated by republican losses in a recent election.<sup>77</sup> This bombing signalled attacks of the United Kingdom's financial district, however, we observe only a 0.3% decrease in the market index following the attack. Furthermore, the CAAR are not found to be statistically significant (Table 4).

#### *5.v.d PIRA bomb Northern Ireland Forensic Science Lab - 23<sup>rd</sup> September 1992*

The IRA bombing of the Northern Irish Forensic Science lab in Belfast on the evening of Wednesday the 24<sup>th</sup> of September came after a "lull in the IRA bombing campaign". The blast injured 12 people and could be heard up to 16km away from where it detonated indicating the scale with which it affected the

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<sup>74</sup> "IRA shatters Whitehall security" in *The Irish Times* Friday, February 8, 1991, 1

<sup>75</sup> "IRA shatters Whitehall security" in *The Irish Times* Friday, February 8, 1991, 1

<sup>76</sup> "Two die in London bombing" in *The Irish Times*, Saturday, April 11, 1992, 1

<sup>77</sup> "Two die in London bombing" in *The Irish Times*, Saturday, April 11, 1992, 1

city.<sup>78</sup> The significance of this bombing was that it significantly impacted the prosecution of bomb makers and would make it increasingly easier for paramilitary organisations in the North to avoid being caught when making bombs, increasing their opportunity to do so. The index decreased by 1.1% following the attack and the results presented in Table 4 indicate that this attack did have a significant effect on the Irish stock exchange.

#### *5.v.e Bishopsgate bombing - 24<sup>th</sup> April 1993*

The bombing of Bishopsgate in the City of London on Saturday the 24<sup>th</sup> of April by the IRA resulted in one civilian being killed and a further 45 being injured.<sup>79</sup> This attack targeted the British financial district and the warning given to the metropolitan police an hour before detonation signalled that the aim was to disrupt the British economy rather than loss of life. Following the attack there was increasing concern that a further campaign of IRA bombings in Britain would yield significant “financial implications”, among them fears that insurance costs would rise. The bombing itself caused approximately £350 million in damages and forced many companies to implement disaster recovery plans.<sup>80</sup> The Bishopsgate bombing, however, is not found to be statistically significant.

#### *5.v.f Shankill Road bombing and Greysteel massacre - 23<sup>rd</sup> October and 30<sup>th</sup> of October 1993*

The period leading up to November of 1993 contained two brutal attacks by republican and unionist paramilitaries and produced a death toll of 23, with republican groups responsible for 13 and unionist groups for 10.<sup>81</sup> The first of these atrocities occurred when a bomb placed by the IRA detonated in a fish shop on the staunchly unionist Shankill Road in Belfast.<sup>82</sup> The bombing which killed 10 people and injured a further 50 incited retaliations by unionist paramilitaries,

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<sup>78</sup> “Bombing of forensic lab likely to disrupt courts” in *The Irish Times*, Thursday, September 24<sup>th</sup>, 1992, 1

<sup>79</sup> “City blast raises security concerns” in *The Irish Times*, Monday 26<sup>th</sup> April 1993, 1

<sup>80</sup> “City blast raises security concerns” in *The Irish Times*, Monday 26<sup>th</sup> April 1993, 1

<sup>81</sup> “Tensions grip North in advance of Anglo-Irish Conference talks” in *The Irish Times*, 1

<sup>82</sup> “Adams under pressure to end violence as 12 die in North”. In *The Irish Times*, Monday, October 25, 1993, 1

one of which was carried out at a Halloween party in Greysteel, a small village outside of Derry. Two gunmen entered wearing balaclavas and indiscriminately fired upon the partygoers, killing 8 of them and injuring more.<sup>83</sup> These attacks happened in advance of the Anglo-Irish Conference in which the respective Irish and British governments would sit down to discuss solutions for the bloody conflict in the North. However, their effect on the market was negligible and not found to be statistically significant.

#### *5.v.g Downing Street Declaration - 15<sup>th</sup> December 1993*

The Downing Street Declaration announced on the 15<sup>th</sup> of December signalled progress in the Northern Irish peace process. The agreement declared that Northern Ireland would only be transferred to the Republic of Ireland if a majority voted for it.<sup>84</sup> This declaration was met with mixed reaction, with the republicans being more favourable to it while the unionists were outraged, the leader of the DUP describing it as a “sell-out act of treachery”.<sup>85</sup> The commentary around the declaration speculated that the possibility of peace hinged on the reaction of paramilitary groups and there was a clear division in this reaction. The market did increase, which we anticipated given this was a positive development, however, the change was only 0.3% and not statistically significant.

#### *5.v.h London Docklands bombing - 9<sup>th</sup> February 1996*

The bombing of the London Docklands in the evening of the 9<sup>th</sup> of February signalled the brutal end to a 17-month republican ceasefire. Two people were killed, four seriously injured and another one hundred described as “walking wounded” when the IRA detonated a truck bomb in the Isle of Dogs region.<sup>86</sup> This attack not only signalled the recommencement of the republican campaign

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<sup>83</sup>“Halloween massacre leaves a small village in numbed grief” in *The Irish Times*, Monday November 1, 1993, 1

<sup>84</sup>“Declaration on North Expected Today” in *The Irish Times*, Wednesday, December 15, 1993, 1

<sup>85</sup>“Prospect of IRA ceasefire in the balance after joint declaration” in *The Irish Times*, Thursday, December 16, 1993

<sup>86</sup>“Major’s government faces crisis over its North policy” in *The Irish Times*, Saturday, February 10, 1996, 1

in Britain which would have severe financial implications, but also reignited fears of loyalist retaliation on the Catholic communities of Northern Ireland and the Republic. In addition, it put the prospect of a peaceful settlement in further doubt. We do not observe a large change in the market following the attack and the event is not found to be statistically significant.

#### *5.v.i Manchester bombing - 15<sup>th</sup> June 1996*

The IRA assault on Great Britain continued into the summer of 1996 with the bombing of Manchester, while no one was killed, 200 civilians sustained injuries with 16 of those being serious<sup>87</sup> The attack placed further strain on the peace process. However, the stock market showed little reaction to it (Table 5).

#### *5.v.j PIRA renewed ceasefire - 20<sup>th</sup> July 1997*

On Sunday the 20<sup>th</sup> of July the IRA announced the “complete cessation” of all military operations that would begin fully on midday that day. It was a reinstatement of the 1994 ceasefire and was done in the hope that it would allow for progressive peace talks with the British government and the Unionist political parties.<sup>88</sup> Following the ceasefire the market exhibited a decrease, and the event was observed to have a negative effect on returns in the market over the following days at the 99% confidence level.

#### *5.v.k Signing of the Good Friday Agreement – 10<sup>th</sup> April 1998*

Marked as one of the key moments that signalled the end of the Troubles, the signing of the Good Friday Agreement on the 10<sup>th</sup> of April 1998 was the result of over 700 days of negotiations between the Irish and British governments. The document afforded citizens of Northern Ireland the right to identify as Irish and British and aimed to decrease the socioeconomic disparities between both groups.<sup>89</sup> The GFA is found to be statistically significant at the 95% confidence level.

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<sup>87</sup> “Dublin ultimatum to SF follows bomb outrage” in *The Irish Times*, Monday, June 17, 1996, 1

<sup>88</sup> “IRA CEASEFIRE STATEMENT”, in *The Irish Times*, Monday, July 21, 1997, 1

<sup>89</sup> See “About the Good Friday Agreement”, Ireland

### *5.v.l Good Friday Agreement Referendum – 22<sup>nd</sup> May 1998*

The Good Friday Agreement was officially voted into legislation on the 22<sup>nd</sup> of May. There was an “overwhelming democratic endorsement” of the agreement with 71% of the Northern population voting for it and an astonishing 94% in the South.<sup>90</sup> This referendum officially passed the Good Friday Agreement and signalled further commitment to peace in the North. This referendum is not found to be significant, we could speculate that because of the overwhelming majority of ‘Yes’ votes the result of the referendum was fully anticipated by the market.

### *5.v.m Omagh Bombing – 15<sup>th</sup> August 1998*

The most notorious and deadliest of all the terrorist attacks during the Troubles and described as the “worst single atrocity” that occurred during the period, 26 people lost their lives and over 300 were reported injured due to the explosion of a car bomb in Omagh, County Tyrone on the 15<sup>th</sup> of August 1998.<sup>91</sup> This attack occurred 4 months after the signing of the Good Friday Agreement and reignited fears that the Good Friday agreement would not alleviate the violence. The market decreased by -0.4% following the attack but rebounded 40 basis points by close of trading on Tuesday the 18<sup>th</sup>. This is a relatively minor change, and the bombing is found to be statistically insignificant as shown in Table 5.

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<sup>90</sup> See “About the Good Friday Agreement”, Ireland

<sup>91</sup> Mark Brennock “Governments in joint pledge to crush group responsible for Omagh slaughter”, in *The Irish Times*, Monday, August 17, 1998, 1

Event	Date	% Index Change	CAAR [0,0]	CAAR [0,1]	CAAR [0,2]	CAAR [0,3]
Remembrance Day Bombing	9/11/1987	-2.5	0.08%	-2.5%	1.4%	12.60%
LSE Bombing	20/7/1990	-1	-0.83%	-0.71%	-1.01%	-1.28%
Downing Street Bombing	7/2/1991	2.0	0.23%	2.24%	1.10%	2.70%
BSE Bombing	10/4/1992	-0.3	-0.20%	0.02%	1.09%	1.09%
Forensic Lab	23/09/1992	-1.1	-0.72%	-1.91%*	-3.40%***	-6.10%***
Bishopsgate	23/4/1993	-0.3	-0.59%	-0.49%	-0.40%	-1.62%
Shankill Road	23/10/1993	-0.1	-0.39%	-0.89%	-0.84%	-0.86%
Greysteel Massacre	30/10/1993	0.03	-0.30%	0.65%	1.89%*	1.18%
Downing Street Declaration	15/12/1993	0.3	-0.07%	0.25%	0.62%	0.83%
London Docklands	9/2/1996	0.2	-0.19%	0.42%	-0.19%	0.52%
Manchester Bombing	15/6/1996	0.0	-0.1%	-0.23%	0.05%	-0.49%
PIRA Ceasefire	19/7/1997	-1.8	-0.37%	-2.55%***	-1.86%**	-0.98%
Good Friday Agreement	10/4/1998	1.6	1.53%*	2.81%**	3.39%**	3.00%
GFA Referendum	22/5/1998	-0.3	0.13%	-0.02%	-2.09%	-1.81%
Omagh Bombing	15/08/1998	-0.5	0.40%	0.38%	1.7%	3.49%

\*\*\* p-value < .01, \*\* p-value < .05, \* p-value < .1

#### 5.vi Study of dates with the largest percentage changes

Our Event Study facilitated the choice of specific events in the Troubles with we expected to be significant due to the importance they have been allocated by commentators on the Troubles. Our study of the period which exhibited the largest volatility, allows the data to tell the story and present the dates which were most important for the Irish stock market. We provide contemporary commentary from large media outlets *The Irish Times* and the *Financial Times* to deduce what caused the volatility on these dates. This method also allows us to decipher how much of an effect the Troubles and events related to the Troubles had on the Irish Stock market. Our results are provided in tables below. The columns "*Troubles Event*" indicates whether a significant event did



occur in that period, which could explain the stock market change. There were constant escalations in the conflict year-round in all years observed and we have to apply some subjective analysis in determining whether any of these events were major enough to account for the change.

Date	Return (%)	Troubles Event	Explanation
May-72	6.43092	No	EEC Membership Referendum
Feb-75	10.74668	No	Oil and Banking Sector Gains <sup>92</sup>
Apr-75	5.799195	No	Banking Sector Gains <sup>93</sup>
Feb-77	5.732534	No	- <sup>94</sup>
Jan-78	5.98387	No	-

Date	Return (%)	Troubles Event	Explanation
Jul-74	-4.528	No	1973-1974 Stock Market Crash
Oct-74	-8.15714	No	1973-1974 Stock Market Crash
Dec-74	-5.46269	No	1973-1974 Stock Market Crash
Jul-75	-5.8423	No	International Economic Concerns <sup>95</sup>
Oct-81	-4.46297	No	Independent Newspapers report low profits <sup>96</sup>

Tables 6 and 7 present the months which had the highest volatility between 1968 and 1982, with the largest positive and negative changes listed respectively. They are listed in chronological order rather than by size of deviation. The largest increase was in February 1975 and can be attributed to large gains in the Oil and Banking sectors which continued in April 1975 with a

<sup>92</sup> “Double-figure gains as banks and oils lead stock market advance” in *The Irish Times* Thursday, February 27, 1975, 13

<sup>93</sup> “Irish Stock Market Report”, in *The Irish Times*, Tuesday, April 29, 1975, 15

<sup>94</sup> Upon Consultation of *The Irish Times*, we were unable to find explanations for some of the changes. These periods will be listed with (-) in the explanation column.

<sup>95</sup> “Market Depressed” in *The Irish Times*, Saturday, July 26, 1975 (13)

<sup>96</sup> “Trend is marginally weaker” in *The Irish Times*, Thursday, August 27, 1981 (12)

“meteoric rise” in the shares of Bank of Ireland and Allied Irish Banks.<sup>97</sup> The second largest monthly return was 6.4% in May of 1972, the same month in which the Republic of Ireland voted to join the European Economic Community which greatly improved the prospects for Irish businesses. The largest monthly decrease of -8.2% occurred in October 1974 and can be explained by the 1973-1974 stock market crash which reverberated across global financial markets. This specific crash can also explain the large decreases in July and December of 1974, which exhibited negative returns of -4.5% and -5.5% respectively.

Date	Return (%)	Troubles Event	Explanation
7/4/1983	5.9	No	Rebound from slump
4/8/1983	7.5	No	Oil Exploration <sup>98</sup>
12/4/1984	6.6	No	Oil Drilling <sup>99</sup>
20/2/1986	6.3	No	Rebound from slump
27/2/1986	7.2	No	Independent Newspapers Increase <sup>100</sup>

Date	Return (%)	Troubles Event	Explanation
18/8/1983	-5.7	No	Oil Test Results <sup>101</sup>
2/2/1984	-4.5	No	Oil drilling delay <sup>102</sup>
17/5/1984	-7.1	No	Banking Price Slump <sup>103</sup>
15/5/1986	-4.9	No	BOI and AIB poor results <sup>104</sup>
21/8/1986	-5.5	No	Equity Slump <sup>105</sup>

Table 8 and 9 present the largest daily price changes in the 1987-1998 period. The largest weekly gain of 7.5% was on the 4<sup>th</sup> of August 1983 was driven by oil exploration firm Atlantic Resources following a substantial oil find off

<sup>97</sup> “Irish Stock Market Report”, in *The Irish Times*, Tuesday, April 29, 1975 (15)

<sup>98</sup> “Atlantic shares take off again” in *The Irish Times*, Thursday, August 4, 1983, 12

<sup>99</sup> Shane Ross “Stock Exchange – Irish”, in *The Irish Times*, Thursday, April 12, 1984, 15

<sup>100</sup> Shane Ross “New high for Independent Newspapers” in *The Irish Times* Thursday, February 27, 1986, 15

<sup>101</sup> Shane Ross “Oil stocks stage general retreat”, in *The Irish Times*, Friday, August 19, 1983, 13

<sup>102</sup> Shane Ross “Price gap in gilts narrows”, in *The Irish Times*, Friday, February 3, 1984, 13

<sup>103</sup> Shane Ross “Stock Exchange – Irish”, in *The Irish Times*, Friday, May 18, 1984, 13

<sup>104</sup> “Bank of Ireland results prove disappointing”, in *The Irish Times*, Friday, May 16, 1986, 13

<sup>105</sup> “Gilts fall despite US rate cut”, in *The Irish Times*, Friday, August 22, 1986, 1

Waterford.<sup>106</sup> While the largest decreases are associated with negative oil test results and banking slumps.

Date	Return (%)	Troubles Event	Explanation
21/10/1987	5.6	No	1987 Wall Street Crash
12/11/1987	8.9	No	1987 Wall Street Crash
15/1/1988	3.9	No	-
30/5/1988	4.5	No	-
8/10/1990	4.4	Talks	Britain ERM
17/1/1991	4.2	No	Gulf Conflict
1/2/1993	6.0	No	Devaluation of the Punt
29/10/1997	4.9	No	Wall Street Crash
12/10/1998	6.0	No	-
6/1/1999	4.1	No	AIB and BOI buying spree

The increase of 4.4% observed on the 8<sup>th</sup> of October 1990 does have some significance with the regard to the Northern Irish conflict. The front page of *The Irish Times* that Monday featured a piece announcing the meeting of the Anglo-Irish Intergovernmental Conference in London on the 25<sup>th</sup> of October with “prospects for political development in the North” top of the agenda.

Accompanied by further announcements of talks between the Northern Ireland Secretary and the Irish Minister for Foreign Affairs to discuss the involvement of Dublin in talks on the future of Northern Ireland.<sup>107</sup> This was an apparent positive development in the conflict with both sides signalling their intentions for a resolution and could explain optimism that the conflict would be resolved explaining the positive increase in returns.

However, we must also note that there was positivity in the market due to the “prospects of lower UK interest rates and “Britain’s ERM membership.”<sup>108</sup> This would have been significant positive news for Irish exporters as it signalled, they would remain competitive in the UK market. Two thirds of Irish exports at the

<sup>106</sup> Eoin McVey, “Gulf oil find off Waterford ‘encouraging’” in *The Irish Times* Thursday, August 4, 1983, 1

<sup>107</sup> Maol Muire Tynan, “Haughey endorses Brooke on talks”, in *The Irish Times* 8 October 1990, 1

<sup>108</sup> “Outlook for Irish firms improved by UK decision”, in *The Irish Times*, 8 October 1990, 13

time went to the UK. Hence while it would be tempting to conclude that this increase could be attributed to the Anglo-Irish conference, given previous finding by Lucey and Kearney that exchange rate volatility is a dominant source of volatility in the Irish stock market, it is more plausible that the prospect of Britain joining the ERM is what accounted for most of the increase.<sup>109</sup> The 4.18% increase observed on the 17<sup>th</sup> of January 1991 can be attributed to the Gulf Conflict.

Date	Return (%)	Troubles Event	Explanation
19/10/1987	-6.0	No	1987 Wall Street Crash
20/10/1987	-11.9	No	1987 Wall Street Crash
22/10/1987	-6.3	No	1987 Wall Street Crash
26/10/1987	-5.2	No	1987 Wall Street Crash
28/10/1987	-8.8	No	1987 Wall Street Crash
4/11/1987	-7.5	No	1987 Wall Street Crash
10/11/1987	-5.1	No	1987 Wall Street Crash
16/10/1989	-7.2	No	Market Crash
23/8/1990	-5.6	No	Gulf Conflict
28/10/1997	-7.3	No	East Asian Crisis

Table 11 reports the results of the largest single day price decreases. The clearest result from this table is the effect of the 1987 Wall Street Crash. The largest daily change occurring on the 20<sup>th</sup> of October 1987 and equalling a negative shock of 11.985%, the next largest shock occurs eight days later and equals 8.8%. Global market crashes are the main cause of the largest decreases with the East Asian Financial Crisis in 1997 inciting a mini-crash across all markets and the Gulf Conflict in 1990 have the same effect.

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<sup>109</sup> Lucey “Empirics of the ISEQ Index”, Kearney “The Causes of Volatility”

## **6: Analysis**

### 6.i Event Study

#### *6.i.a 1968-1982*

It is clear from the results of our event study that events in the Troubles did not have a significant impact on the monthly price index for Irish Stock Exchange for the 1968-1982 period. August 1969, the month in which the conflict escalated, did not display a significant decrease. While this could be interpreted as investors not anticipating the scale to which the conflict would unfold across the following decades as it was only the outbreak our other results suggest similar findings. July 1972, the deadliest month of the deadliest year, exhibited positive monthly returns, while the three-month period of bombings in Dublin also had positive returns.

#### *6.i.b 1983-1986*

Although the descriptive statistics for both events analysed in this period supported the claim that both had the anticipated effect on the stock market, neither was found to be statistically significant. This strengthens our finding that the Troubles did not have a significant impact on the market.

#### *6.i.c 1987-1998*

The 1987-1998 period provided similar results to our previous periods. The 2.5% index decrease following the Remembrance Day bombing was not found to be statistically significant, nor was the 1% decrease following the bombing of the London Stock Exchange. The events that were found to be significant were the bombing of the Northern Irish Forensic lab which had a statistically significant effect on the returns of the Irish index in the days following. The announcement of a full ceasefire by the Provisional IRA on the 19<sup>th</sup> of July 1997 was also found to be statistically significant, however, in the opposite direction to what was expected. The index bombing of the Forensic Lab was also found to be significant and exhibited a negative impact on the market. In addition, the Good Friday Agreement which to many represents the most important moment in the troubles was found to have a statistically significant event on the Irish stock

exchange. Most surprisingly the Omagh bombing on the 15<sup>th</sup> of August 1998 was not found to have a significant effect on the returns. This is very surprising given the horrific nature of the attack and the outrage it incited, however, the bombing occurred on a Saturday so it may have been the case that the market was fully informed of all developments by commencement of trading on Monday.

Further extensions of this analysis could conduct more extensive non-parametric tests to determine the significance of these events. In addition, applications of the GARCH model could be applied to determine the levels of volatility when events associated with the Troubles occurred.

#### 6.ii Study of dates with the largest percentage changes

When discussing the results presented in Table 11 it is apparent that the largest single day percentage changes in the period were not associated with developments in the Troubles. Rather, they can be significant international events. The 7 days which experienced the largest depreciations all come in the aftermath of the 1987 Wall Street Crash. The effects of the 1987 crash are also apparent in Table 10, with rebounds from the crash represented in the large positive returns.

These results are consistent with previous analysis which has determined that the majority of stock market volatility during the period can be attributed to significant international events rather than any bombings, riots, peace talks or other developments in during the Troubles.<sup>110</sup> Both Lucey, and Kearney have stated that the exchange rate volatility is a key cause of volatility in the Irish stock market, our studies seem to support this with the devaluation of the Punt and Britain's imminent joining of the ERM showing large daily percentage gains. However, our analysis builds on this and places particular importance on the oil and financial sectors of the Irish Stock Exchange when explaining the largest movements. For the 1968-1982 and 1983-1986 periods it appears that oil companies were the primary drivers of the Irish Stock Exchange, we observe

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<sup>110</sup> See Stellery Cheeley & Lucey "Microstructure of Irish Stock Market"

sizeable increases surrounding periods in which there were major oil finds and the commencement of oil drillings. However, in the latter period their importance diminishes, and the financial sector is the predominant sector in the market as displayed in Table 12 where there are no oil companies present.

Our results display that while the Northern Irish conflict did have some effect on the Irish Stock Exchange, it was quite limited in scope and certainly was not the dominant factor in explaining the behaviour of the Irish Stock Exchange All-Shares Index (ISEQ).

Another possible explanation for the lack of reaction to terrorist announcements is that the Irish Stock exchange was dominated by a few large companies, the ten largest companies accounted for almost 73% of the market capitalization on the Dublin exchange.<sup>111</sup> These companies are listed below in Table 12.

<b>Table 12: Top 10 Companies on the ISEQ (1995)</b>		
<b>Company</b>	<b>Capitalization</b>	<b>Index Weight (%)</b>
AIB	2,072	13.78
Smurfit	1,964	12.95
BOI	1,852	12.32
CRH	1,502	9.99
Elan	812	5.40
Kerry	780	5.19
Irish Life	677	4.50
Independent	455	3.03
Waterford	445	2.96
Greencore	417	2.77
<b>Total</b>	<b>10,976</b>	<b>72.89</b>

*Source:* Cotter, *International Equity Market Integration*<sup>112</sup>

<sup>111</sup> Louis Murray “AN EXAMINATION OF BETA ESTIMATION USING DAILY IRISH DATA” *Journal of Business Finance & Accounting*, 22(6), September 1995, 0306-68 893-906

<sup>112</sup> John Cotter. “International equity market integration in a small open economy: Ireland January 1990-December 2000”, *International Review of Financial Analysis*, 13, (2004), 669-685

## Conclusion

The Troubles in Northern Ireland were undoubtedly a tumultuous period which wreaked havoc across the United Kingdom and the Republic of Ireland. However, as gruesome and brutal as the conflict was throughout the approximate 30 years in which it took place, our results indicate that it did not have a significant impact on the Irish stock market. We attribute this financial indifference to the Irish Stock Exchange being heavily linked to international developments, confirming the results of Lucey and Kearney.<sup>113</sup>

Another reason for the lack of reaction could be that a large proportion of developments and attacks occurred on the weekend or public holidays when the stock market was closed. Coleman finds that it takes efficient markets less than a day to fully price in the effect of terrorist attacks.<sup>114</sup> The Irish Stock Exchange was not an efficient market, however, we can assume that the effects of attacks would have been priced in in less than two days. Therefore, when markets first opened after the attack it was likely the effects of the attacks had been known and thus panic selling did not ensue. In addition, investors could have been desensitised to developments of the troubles given the widespread coverage it received during the time period. It was rare that a week went by without some development. It could be the case that over the 30-year period the Irish stock exchange became fatigued and that with daily data in the late 1960s and early 1970s one could observe significant reactions to the news from up North. One major finding is that the Good Friday Agreement did have a statistically significant positive effect on the stock market, indicating that there were positive sentiments about future economic prospects following an end to the conflict, and that investors believe this agreement would bring an end to it.

Further extensions of this research could use higher frequency data. For example, intraday data could be used to examine the immediate effect of attacks. Further investigations could also analyse the performance of Northern Irish

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<sup>113</sup> Brian Lucey “Empirics of the ISEQ Index”; Kearney “Volatility in a small market”

<sup>114</sup> See Coleman, “Equity Market Efficiency”



companies listed on the Irish Stock Exchange and the London Stock Exchange to compare their performance relative to the rest of the market. In addition, the same approach using a price weighted index rather than a market capitalization weighted index could produce results more reflective of the market wide effects.

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