DEPARTMENT OF ECONOMICS AND FINANCE

COLLEGE OF BUSINESS AND LAW

UNIVERSITY OF CANTERBURY

CHRISTCHURCH, NEW ZEALAND

Financial Markets in the Face of the Apocalypse

Jędrzej Białkowski
Ehud I. Ronn

WORKING PAPER

No. 14/2016

Department of Economics and Finance
College of Business and Law
University of Canterbury
Private Bag 4800, Christchurch
New Zealand

WORKING PAPER No. 14/2016

Financial Markets in the Face of the Apocalypse

Jędrzej Białkowski[1]
Ehud I. Ronn*[2]

April 25, 2016

Abstract: This paper brings together two strands of the literature: Quantifying the impact of apocalyptic risk on capital markets, and the correct computation of the equity risk premium. For the former, we use events in four countries during the Second World War to discern markets' incorporation of information regarding the probability of an Armageddon for each country. We argue that past computations of the equity risk premium did not properly account for the financial implications of political collapse on property/civil/human rights. Accordingly, we show that past calculations overstated the equity risk premium. We provide an estimate of the equity risk premium that is corrected for lack of basic rights, demonstrating the important changes in this estimate over time.

Keywords: Rare ("black swan") events; Equity premium; International political crises; property, civil, and human rights; World War II

JEL Classification: G12, G15

Acknowledgements: The authors acknowledge the financial support of the Dept. of Economics and Finance, University of Canterbury and the Dept. of Finance, University of Texas at Austin. We acknowledge with thanks the research assistance provided by Ayesha Kang, Zack Liu, Aynaz Nahavandi, Matilda Stigell and Antoine Tamano. Special thanks to Jacek Bialkowski for identifying IKC articles at the National Library of Poland. We would like thank Neville Bennett, Douglas Biow, Glenn Boyle, George Constantinides, Elroy Dimson, Jamie Galbraith, Will Goetzmann, Duncan James, Philippa Levine, Johannes Lindvall, Lyndon Moore, Johan Östling, Ramesh Rao, David Sheridan, Alan Tully, Yanis Varoufakis and Piotr Wrobel for useful comments and discussions, and seminar participants at the University of Texas at Austin and Fordham University, while remaining solely responsible for any errors therein. We acknowledge the use of Global Financial Data (GFD) and the assistance of their VP - Sales & Marketing, Kevin Harty.

[1] Department of Economics and Finance, University of Canterbury, Christchurch, NEW ZEALAND
[2] Department of Finance, McCombs School of Business, University of Texas at Austin, Austin, Texas, USA

* Corresponding Author: Ehud Ronn, Email: eronn@mail.utexas.edu

Financial Markets in the Face of the Apocalypse

1 Introduction

In this paper, we combine two important strands of the literature on importance of apocalyptic risk for capital markets. The risk is defined as event which leads to collapse of political system and abrogation of property/civil/human rights. The apocalyptic risk is represented by events such us foreign military invasions, coup leading to dictatorship etc. In our study, we would like to answer two main research question. First we would like to know to what quantitative degree *were* financial markets able to understand and incorporate the cataclysmic changes confronting their national body politics. Second, we aim to re-estimation equity risk premium in way that it will reflect the fact that property/civil/human rights are integral part of free market economy.

We use events during the Second World War to discern markets' incorporation of information regarding the probability of an Armageddon for each country.[1] The forward-looking nature of equity and bond financial markets render them particularly suitable to an analysis of major changing points in human history. Willard, Guinnane and Rosen (1996) use a time-series analysis "to determine which events of the U.S. Civil War were viewed as turning points by people at the time" using "asset prices," specifically, the "inconvertible currency called the Greenback." Following on that work, Frey and Kucher (2001) and Frey and Daniel Waldenström (2004) "analyze the prices of domestic and foreign government bonds traded before and during World War II." More recently, Choudhry (2010) studied the relationship between key World War II events and the Dow Jones Industrial Average. These studies examine the link between historical events and performance of asset markets.

In the context of these studies, we explore these issues by considering an event study-type analysis of four national equity and bond markets facing the advent and initial consequences of the European theater of the Second World War in 1939. The four countries are: France, Poland, Sweden and the United Kingdom. We chose these countries judiciously. Due to military defeats in September 1939 and June 1940, respectively, two of the countries — Poland and France — suffered collapse at the beginning of World War II. In reporting simultaneous news stories in these two countries, we document the differences between our study and the Jorion and Goetzmann (1999) study, as well as the differences in the historical experience across the four countries' stock- and bond-markets.

[1] It has been suggested the danger of national collapse should be evaluated in terms of cash flows and risk premiums. We assume these considerations are overwhelmed by the more basic issues concerning loss of human, civil and property rights.

The two remaining countries, the United Kingdom and Sweden, subsequently confronted apocalyptic risks but survived with their constitutional structures intact. The United Kingdom faced an existential threat in the Battle of Britain which followed in the fall of 1940 immediately after the June 1940 conclusion of the Battle of France. The Kingdom of Sweden faced similar threats during the war.[2] Although historians debate the dates when these threats "passed," their financial markets reflected the improving prospects of both countries in the succeeding years. We document these capital markets reactions whilst recognizing the simultaneous news reports.

We believe the true computation of the equity risk premium should be informed by correctly inferring what it means to earn a return on investment capital (or any asset) in a free-market economy. The work we seek to address is the oft-quoted work by Jorion and Goetzmann (JG, 1999) and Dimson, Marsh and Staunton (DMS, 2008 and 2011).

Both previous papers have attempted to compute what DMS denote as the magnitude of the "equity risk premium historically." While we take pains to improve the quality of the data we use in contrast to JG, one issue we address in detail is what Jorion and Goetzmann (1999) characterized as "temporary" and "permanent" market closures in the continents of Europe and Asia. In seeking to provide a conservatively-low estimate of the difference between the U. S. and other national markets, they impute "a 75 percent loss in the month the series permanently disappears" (page 974) to these market closures. We believe they are inappropriately conservative when they effectively *concatenate* returns over "temporary" closures to the resumption of trading when that subsequently occurred: "For some of these, such as Germany ..., we are able to trace the fall in value, which we evenly spread over the time period of the interruption" (page 974).[3]

Consider three examples of events whose consequences are thus "evenly spread over the period" of interruption:

1. The effective end of civil rights in Germany's Weimar Republic with the Feb. 1933 issuance of the so-called "Reichstag Fire Decree" and the German parliament's passage of the Enabling Act in March 1933.

2. The March 1938 "Anschluss" by which the Republic of Austria was incorporated into the "Third German Reich."

3. The June 1940 signing of an armistice between the French Republic and Germany, which provisions included the surrender of all persons who had been granted political asylum as well

[2] By the time the United Kingdom and Sweden faced their existential threats, it was far more clear what a failure would entail.

[3] The works of DMS (2008, 2011), Barro (2005) and Barro and Ursúa (2008) are subject to the same criticism.

as subsequent loss of civil and human right in France.[4]

We claim the computations of Jorion and Goetzmann (1999) were unduly generous in failing to recognize the above events abrogated not only all property rights within the affected entities, but also civil and indeed human rights. The nature of the prevailing regime, and the arbitrariness of the regime's identification of individuals deprived of rights, render these events over-arching in terms of their impact on the respective countries' *domestic* investors. In free market economies, the point of financial resources is the implication they bear on *purchasing power:* In the absence of basic human and civil rights, there is simply no meaning to the ostensible "purchasing power" of financial (or real) assets.

The impact is less clear on international investors (in the absence of capital controls), so our evaluation is a lower bound on the expropriation of such international investors' assets.[5] In the event of the above WWII cases, *ex post* international investors domiciled in belligerent nations (i.e., the Western Allies including United Kingdom, Australia, New Zealand and the United States) were also expropriated as states of war were sequentially interposed (1939 and 1941) between such investors and their financial assets.[6]

In addition, consider the case of the two major successful Communist revolutions of the twentieth century, the 1917 Russian and the 1949 Chinese. Such events overturned the existing financial regimes and eliminated entirely the property rights of shareholders. In this case, there is no distinction in the losses of domestic and international investors. We do not believe it would be meaningful to attempt a "concatenation" of property rights between 1917 and 1995 or between 1949 and 1990.

As a consequence, we should not treat subsequent values in these European domiciles as governed by a free market, but rather assume there is a total elimination of the value of the equity market. We believe the same is true in the advent of a successful Communist revolution, á la Russia in 1917

[4] In private communication, one economic historian has argued the loss of rights was incurred by only a portion of the resident French population.

[5] In light of our analysis of the implications of the abrogation of civil and human rights, we believe this is the *correct* estimate to compute.

[6] In addition to the nature of the regime imposed on conquered nations such as Poland and France in 1939 and 1940, Overy (1994) documents

> "German leaders sought to coordinate the industrial resources of the conquered and dependent areas with the long-term economic interests of the Reich. ... The state sought to suppress purely economic motives and to substitute some rough notion of 'racial political' priority ...."

Separately, Smith (1989) documents the magnitude of "monetary gold stolen by Germany during World War II" as 320 tons.

or China in 1949.[7]

While it is our firm belief the above three cases are relatively easy to determine in terms of the impact on human rights and their implications, our analysis requires a more-subtle distinction between the above cases and, say, those of Pinochet's Chile or modern-day regimes in China, Russia and the Middle East: In these latter cases, while there remains some arbitrariness to the rule of law, it is reasonably clear to market participants their willingness to abstain from political activities contrary to the prevailing regime provides adequate cover to engage in commercial activities, including but not limited to stock-market transactions. In contrast, for our examples cited from the 1930s and 40s, as well as the original 1917 / 1949 Communist regimes in the Soviet Union and China, no amount of regime accommodation by certain individuals would assure them the right to commercial activities or basic human rights.

The importance of respecting human, civil and property rights to all segments of a country's domestic population follows from the realization curtailment of such rights to a portion of the population can be arbitrarily expanded to other segments of society as well as to international investors. Property rights in a free-market economy are indivisible: Arbitrary abrogation to some segments of the population can be expanded to all domestic and indeed to *international* investors via expropriation, currency controls or wartime measures.

It is for this reason we argue JG's 25% residual-value assumption is an inappropriate upward-biased estimate of equity value. We thus recompute the equity risk premium under our zero-residual-value assumption. We are by no means the sole to make this zero-residual-value assumption: Thus, Berkman, Jacobsen and Lee (2011) write explicitly, "[I]nvestors in Russian stocks and bonds during the Revolution of 1917 lost all their money."

While abrogation of property rights need not always be applied to all investors, relative to previous papers who have *ignored* this component, our zero-residual-value is thus an *upper* bound (on the impact of violation of the three human, civil and property rights) relative to the *lower* bound implicitly obtained by previous authors. Moreover, in lieu of considering individual investors, it has been suggested the zero-residual-value assumption can also be motivated by a country's lack of independence. Specifically, if a country was unable to manage its national wealth, as approximated by the stock and bond markets, then the value of an asset on which an investor has lost control is zero or close to it.

With the success of Western-style free-markets over competing economic and political systems

[7] The Shanghai stock market was closed with the arrival of Imperial Japanese forces Dec. 5, 1941. Subsequent to V-J Day, trading resumed temporarily in 1946 but terminated three years later. The city of Shanghai was occupied by Communist forces May 27, 1949. The present Shanghai Stock Exchange re-opened and began operation Dec. 19, 1990.

in 1945 and 1991, time-aggregation has diminished the impact of pre-1945 diminution of property, civil and human rights in the world's major markets. But such was not the case in the first half of the 20th century, so we provide a moving-window time-series estimate of the equity risk premium, as well as its implication for total-value as of 2014. Accordingly, we provide a correct estimate of the equity Sharpe Ratio, demonstrating the important changes in this estimate over time.

As an example of another paper which has addressed the issue of political risk, consider Berkman, Jacobsen and Lee (2011), who

> "create a crisis index that shows substantial variation over time. Changes in this crisis index, our proxy for changes in perceived disaster probability, have a large impact on both the mean and volatility of world stock market returns. Crisis risk is positively correlated with the earningsprice ratio and the dividend yield. Cross-sectional tests also show that crisis risk is priced: Industries that are more crisis risk sensitive yield higher returns."

Although the authors concede they "lack long data series for Russian stock markets," they claim "several months with missing observations for some European countries around the start of World War II, and some monthly returns are missing for the German stock market at the end of World War II." In seemingly minimizing the lack of data and attributing it to "missing observations," we contend their paper, also, has failed to recognize some crises are of an existential threat to their domestic domiciles.

As have other authors, the exceptional role of the United States in the computation of a global equity risk premium is also recognized here. The United States has been subject to existential risk of a global nuclear apocalypse since Soviet detonation of a nuclear device in Aug. 1949, and that risk was expanded with the Oct. 1964 first nuclear test in the People's Republic of China. Due to its unique geographical location, including the relative friendliness of its northern and southern neighbors, the United States has not since 1814 been at serious risk of an invasion of its continental territory.[8] On the domestic side, there were periods of labor unrest in the United States, a 1919 – 1921 "First Red Scare" when the Socialist Party of America garnered nearly a million votes in the 1912 and 1920 Presidential elections. That said, the Great Depression was addressed through existing Constitutional structures, and the Socialist Party dissolved itself in 1972 to form the Social Democrats, USA. As a consequence of this external security and internal stability, as well as the size of its capital market, we separate out the impact of U. S. capital markets as we compute a global equity risk premium.

[8] Even if its resolution had been different, we assume the American Civil War did not threaten the viability of the northern states.

It is appropriate at this time to lay out the specific assumptions under which our analysis proceeds: First, computing an equity risk premium should take correct cognizance of the purchasing-power implication of earning a return on an asset in a free-market economy Moreover, in the absence of clear substantiation of ownership rights, “concatenating” returns over “temporary” closures to the resumption of trading when that subsequently occurred is inappropriate. We believe the same is true in the advent of a successful Communist revolution, á la Russia in 1917 or China in 1949 Finally, there is a distinction between non-democratic regimes which tolerate free markets so long as individuals abstain from political activities contrary to the prevailing regime. In contrast, for the examples we cite from the 1930s and 40s, as well as the original 1917 / 1949 Communist regimes in the Soviet Union and China, no amount of regime accommodation by certain individuals would assure them the right to commercial activities or basic human rights.

As a result, there is a special role to examining European stock markets in the 1930s. While analogous analyses should have been conducted in Russia in 1917 and China in 1949, we do not have access to stock and bond markets in those countries for those periods.

The paper is now structured as follows. Section 2 presents an overview of the data sources we assembled in support of this research, considering the special difficulties of capturing contemporary views of current events. Section 3 considers a separate analysis of four countries — Poland, France, the United Kingdom and Sweden — and their capital markets’ reactions to the existential threat posed by the approach of the Second World War beginning in March 1938. Section 4 presents the calculation of the global equity risk premium using our modified methodology. While it has no bearing on U. S. equity risk-premium estimates, we correct numerical errors in reported values and present our calculation of that premium as well. Section 5 concludes.

2 Data

In order to shed light on the research questions on which we focus, we obtained data from the Global Financial Data (GFD) database and manually extracted information from microfilms available in the National Library of France, the National Library of Poland, the Royal Library in Sweden and the library of the University of Texas at Austin. The GFD database provides historical financial data on international stock indices. For most of the countries under consideration, U. S. dollar-denominated benchmarks are available from the early 1920s. Since total-return indices were only available on a annual frequency, in our study we use monthly capital return indices starting in January 1921. These indices are built using a uniform methodology. The GFD database pays special attention to the quality of its time series, and therefore employs a double-blind proprietary research process that involves only primary sources. The database takes primary source information from government archives, exchanges, central banks and periodicals of record. Each dataset’s history may come from varying sources, and sometimes includes more than one primary source. The GFD database uses a third party to build the dataset with the same source material to confirm that its findings are accurate. Such an approach provides multiple points of comparison, and any discrepancies are researched individually to ensure accuracy.

Similar to Willard, Guinnane and Rosen (1996), Frey and Kucher (2001) and Frey and Daniel Waldenström (2004), we use capital markets to determine importance of historical events. Due to the fact we examine short monthly time series we need to apply a more direct approach than proposed in the above studies. One of the key distinctive elements of our analysis is an examination of available indicators of public *sentiment* in countries that face an existential threat.[9] In particular, we would like to evaluate how that sentiment affects the performance of domestic stock markets. Taking into account our aim, we focus only on sentiment proxies which were available at the time of history-

[9] One open question is whether the content of these articles measures *sentiment* or *investors' information sets.* While perhaps of some interest, we believe the issue is moot since in either case we would expect such to be impounded in market prices.

shaping events.[10] For the sake of our study's aim, we refrain from referring to academic publications available *ex post.* In our opinion, such studies are biased by the knowledge of history after the key events affecting a given country. For the period under consideration, almost none of the modern commonly-used proxies for market sentiment were available.[11] Therefore, we decided to use articles from leading daily newspapers for information around key events and to use this as a proxy for public sentiment. For each of four countries, we identify a newspaper with a high circulation and whenever-possible a centrist political orientation. Together with our native-speaking research assistants, we selected newspaper articles on the looming German invasion. The topics of the articles were focused on, but not limited to, the reaction of public opinion, comments on external alliances, response of the central government, opinion on international policy, including evaluation of German foreign policy, and news on the strength of the resident armed forces and the modernization of their hardware. The selected proxy of public sentiment is not free from biases. First, newspapers in the period around WWII contained difficult-to-measure levels of propaganda. Second, the level and complexity of information released to the public was much lower in the 1940s than it is now. The existence of those biases is offset by the fact that at that time the general public had very limited access to alternative sources of information other than daily newspapers.

In the case of each country, we sought articles in the month around key events by studying microfilms. Established in 1822, the centre-right *Sunday Times,* with a circulation approaching a half million in the mid-1940s, was selected for the United Kingdom. *Ilustrowany Kuryer Codzienny (IKC)* was one of the first Polish nationwide daily newspapers published in Cracow between 1910 and 1939. In the 1920s, *IKC* grew to become Poland's most popular daily newspaper, with a readership exceeding 1 million. The paper had a centrist orientation and an average circulation of 250,000. The sentiment of the French public was measured by articles published in the daily center-right *Le Figaro* and the center-left *La Croix.* By the onset of World War II, *Le Figaro* had become France's leading newspaper. The daily newspaper *Göteborgs Handels-och Sjöfartstidning*

[10] Using Diction software for sentiment analysis, we computed the dispersion in fifteen key metrics: Ambivalence, Tenacity Satisfaction, Inspiration, Hardship, Aggression, Accomplishment, Communication, Passivity, Concreteness, Liberation, Denial, Optimism, Certainty and Realism – the within-category average dispersion and the cross-category average dispersion. The two categories are { United Kingdom, Sweden } and { France, Poland }. Interestingly, along the above fifteen items, in all except one category, the within-category dispersion is smaller than the cross-category dispersion, indicating greater within-, rather than without-, category commonality. See Tetlock (2007).

[11] Please compare to/with sentiment indices prepared by Jeffrey Wurgler (`http://people.stern.nyu.edu/jwurgler/`) and the American Association of Individual Investors (`http://www.aaii.com/`).

(GHT) was a key title in Sweden in the 1940s, and we examined articles published in it.

3 Europe, Post-1938

3.1 Existential Threats in Interwar Europe, 1918 – 1939, and World War II

The interwar period in Europe covers the period between the Armistice that ended the First World War on Nov. 11, 1918 and the hostilities that began the Second in Europe on Sep. 1, 1939. In our analysis, we consider the stock and bond markets of four countries in that period: Poland, France, Sweden and the United Kingdom. During this period, these four countries faced existential threats, which we define as threats to their existence and viability as a modern country, and threats that place at risk their populations' civil rights.[12] As is well known, two of these countries succumbed to their threats, whereas two were able to maintain a continuity of their institutions, markets and civil rights.

In presenting these empirical results, our analysis should be contrasted with JG's Figure 2, entitled "Real stock prices before interruption." (see page 969). Whereas theirs is a summary across all nations, our approach is country-specific and thus delineates the differences across disparate national markets, including both markets that succumbed as well as survived their existential threats

To understand the nature of stock and bond markets during this period, we consider certain critical events:[13]

[12] We recognize that in 1939, the nature of democracy and of civil rights in these four countries was not uniform. See McMillian (1985), Wieczorkiewicz (1991), Leczyk (2006), Neville (1995), Sejersted (2011) and Clarke(2011).

[13] Certain events were of specific importance to the Kingdom of Sweden, and we consequently relegate their detailing in the subsection dealing with Sweden.

Table 1: Critical Events, Europe, 1938 – 1941

Date	Event	Significance
March 12, 1938	Austrian *Anschluss*	Incorporation of Austria into Nazi Germany; first violation of World War I's Treaty of Versailles *beyond* Germany's borders
Sep. 30, 1938	Munich Accord	Agreement by United Kingdom and France, imposed on Czechoslovakia, permitting German annexation of Sudetenland
March 31, 1939	United Kingdom and France extend guarantee to Poland	Germany extends its reach beyond German-speaking lands: Following German dismemberment of residual Czechoslovakia, United Kingdom and France guarantee Polish independence Generally regarded as the end date of British / French policy of "appeasement"
April 28, 1939	Abrogation of German-Polish Non-Aggression Pact	Pact unilaterally abrogated by Germany; Increased likelihood of general hostilities in Europe
Sep. 3, 1939	United Kingdom and France declare war on Germany	Following German invasion of Poland Sep. 1. Beginning of World War II in Europe
June 22, 1940	French Armistice	"Battle of France" concludes with German victory; end of Third French Republic
July 7, 1940	Beginning of the "Battle of Britain"	Air offensive of the German air force against the United Kingdom, seen as preparatory for a German invasion of the home islands. The end date for the "Battle of Britain" is typically taken to be Oct. 31, 1940.
June 22, 1941	German invasion of the Soviet Union	Entrance of Soviet Union into war ends status of United Kingdom as sole European belligerent of Germany and Italy
Dec. 7, 1941	Japanese attack on Naval Air Station Pearl Harbor and other Hawaiian military facilities	Entrance of the United States as belligerent in World War II

3.2 The Role of the U. S. Dollar — Convertibility from Local Currency

As we consider the stock and bond markets' evaluations of important events, including existentially-threatening ones, it is appropriate to address the issue of *numeraire,* which we take as the local currency adjusted for the rate of change in its exchange with the U. S. dollar. We are explicitly making two critical assumptions:

1. At perhaps non-negligible cost, it was possible for investors in the various European countries to acquire U. S. dollars and use them as a store of purchasing power.

   The import of this assumption is to relegate importance to the local-currency values of the stock and bond markets, *adjusted for* their exchange-rate value to the U. S. dollar, and to embody them with purchasing-power. Thus, unless otherwise noted, all results are those adjusted for changes in the exchange rate.

   This may be contrasted with, say, the value of the U. S. stock market in Oct. 1962. The relatively-moderate decline in the U. S. market at the time — its greatest decline from crisis onset to resolution was a modest -4.7% — may be attributable to a range of factors, but one of them is the lack of a liquid alternative "riskfree" investment.

2. The U. S. dollar represented the riskless asset at the time.

The culmination of these two assumptions is to render meaning and significance to the value of stocks and bonds.

3.3 Republic of Poland, to Sep. 1, 1939

With its location at the intersection of central and eastern Europe, Poland has borne the consequent destiny of geography, dating back to the first partition of the Polish-Lithuanian confederacy in 1772. Whereas historians parse the number of partitions to which Polish territory has been subjected, the Second World War caused its dissolution in 1939 and resulted in extreme hardship to its population. Although its invasion was the reason the United Kingdom and France declared war in 1939, it may be said Poland did not resume true independence and national sovereignty until the establishment of a non-communist Republic of Poland in 1989.

Table 1 has already laid out the events preceding Sep. 1, 1939. In attempting to understand the market consequences of these events, we surveyed a contemporary national publication in Poland. The thrust of this effort was to determine whether the *ex-post* results of the German and consequent Sep. 17 Soviet invasions were fully or partially anticipated by market participants. Such an effort is particularly challenging, as in circumstances such as those prevailing in Aug. 1939, some national authorities may engage in hype, disinformation or "propaganda" whose purpose is to bolster the "national spirit."

Table 2 summarizes headlines and titles of main articles published by *Ilustrowany Kuryer Codzienny (IKC)* ("Illustrated Daily Courier") around key events. The newspaper at the time had the highest circulation among all newspapers available prior to World War II.

Table 2: Headlines of Newspapers Around Crucial Events for Polish Capital Market

The table summarises headlines and titles of main articles published by Ilustrowany Kuryer Codzienny *(IKC)* around key event for existence of state and capital market. The newspaper had the highest circulation among all newspapers available before World War 2. Selected titles are used as proxy of society expectation.

Date & Event	**Description & Titles/Newspapers/Publication date**
09/30/1938 Munich Accord	The Munich Agreement was a settlement permitting Nazi Germany's annexation of Czechoslovakia's areas along the country's borders mainly inhabited by German speakers, for which a new territorial designation "Sudetenland" was coined. 1) "Historical moments in Muenchen Palace-War was prevented", *IKC*, 10/02/1938 2) "Does Europe have still chance for Demobilization? -economic perspectives on world after Munich conference", *IKC*, 10/02/1938 3) "World peace maybe was saved-but future of Czechoslovakia still unclear", *IKC*, 10/07/1938 4) "Idyll of great four is gone- new fortification in West announced by Hitler", *IKC*, 10/11/1938 5) "Before new German offensive in Danube valley-third stage of brown march", *IKC*, 10/11/1938
10/24/1938 German demands on Poland	German request for the incorporation of the Free City of Danzig and an extra-territorial highway through the Polish territory. 1) "Poland will stand on guard of independence, unification and honour", *IKC*, 11/01/1938 2) "Great show of Polish aerospace industry-new fighter, mid-range bomber and dive bomber", *IKC*, 11/06/1938 3) "What will be next after Sudetenland?-next phase of German expansion", *IKC*, 11/07/1938 4) "Does United Kingdom satisfy German hunger from other plates? - shortage of commodities in Europe", *IKC*, 11/19/1938 5) " "German roads" -new unknown instrument of Third Reich expansion", *IKC*, 11/27/1938
03/31/1939 British & French Guarantee to Poland	United Kingdom and France pledged the support of itself and France to guarantee Polish independence after German invasion of Czechoslovakia. 1) "British military guarantees of Polish boarders" , *IKC*, 04/01/1939 2) "Why Germany won't win a world war?", *IKC*, 04/01/1939

Continued on next page

Table 2: Continued from previous page

Date & Event	**Description & Titles/Newspapers/Publication date**
04/28/1939 Abrogation of German-Polish Non-Aggression Pact	The pact was unilaterally abrogated by Germany. 1) "Hitler has followed in steps of his predecessors Wilhelm II and Stresemann- such(his) policy leads to the same known outcome", *IKC*, 04/30/1939 2) "Italian government expressed deep concern on German renouncement of Non-Aggression Pact(with Poland)" *IKC*, 04/30/1939 3) "United Kingdom (Polish ally) calmly take a command of fight for freedom -Sir Simone", *IKC*, 04/30/1939 4) "Today 100 airplanes over Cracow -parade of mighty Polish air force", *IKC*, 05/01/1939 5) "Germany needs to show respect to world peace, Poland won't be separated from Baltic sea -answer of Polish foreign minister Beck", *IKC*, 05/05/1939
09/01/1939 Invasion of Poland by Germany	Germany invaded Poland on September 1, 1939, initiating World War II. 1) "German newspapers on inevitability of Polish air strike on Berlin", *IKC*, 06/20/1939 2) "Hitler will finish of German nation for years to come", *IKC*, 08/18/1939 3) "Overwhelming military superiority of Peace Bloc over Axis countries", *IKC*, 08/19/1939 4) "1:14 and 1:5 there is no way that they (Axis countries) can win it", *IKC*, 09/01/1939

As Table 2 evidences, the Polish newspaper *IKC* reported the events leading to the Sep. 1 outbreak of hostilities. At the time of the Sep. 1938 Munich Accord, the newspaper seemed to share the "peace for our time" sentiment expressed by some statesmen. Less than a month later, the first demands were pressed upon Polish authorities with respect to Poland's sole access to the Baltic Sea, the Danzig Corridor, established after World War I. From there, in fairly rapid succession follow the March 15, 1939 disintegration of the remaining Czechoslovakia, the March 31, 1939 pledge of support to Poland by the British and French Western allies, the April 28, 1939 unilateral abrogation of the German-Polish Non-Aggression Pact and the Sep. 1, 1939 invasion of Poland. It may be noted Aug. 1939 headlines are relatively bullish regarding immediate Polish and allied military prospects.

Figure 1 below presents price indices for the Polish stock market (in USD and inflation-adjusted terms) as well as for Polish bonds issued in the local currency (5%) and the U. S. Dollar (4%) over the period Feb. 1938 – Aug. 1939. As is to be expected across all stock and bond markets, equities represent a more-risky and hence higher-volatility asset.

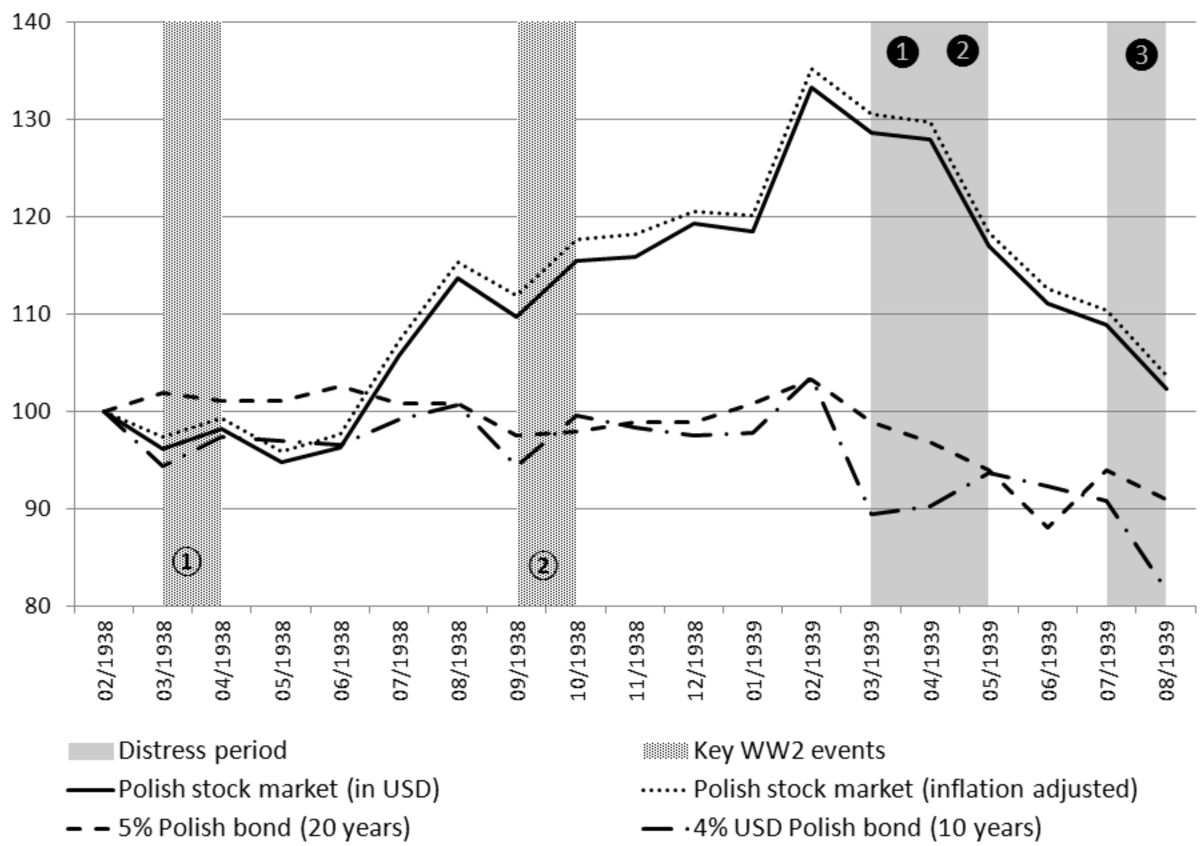

Figure 1: The figure displays performance of Polish stock and bond market during the period between February 1938 and August 1939. In addition the performance of Polish bonds held by local and foreign investors is shown. The dashed area corresponds to periods crucial for continuation of Polish stock and bond market. The areas are numerated as follows (on top): 1- British Guarantee to Poland, 2- Abrogation of German Polish Non-Aggression Pact, 3- Britain and France declared war on Germany after attack on Poland. On bottom of the figure the key events for WW2 period are highlighted: 1- Annexation of Austria, 2- Munich Accord and German demands on Poland.

Based on month-end data, Polish stock and bond markets peaked in Feb. 1939, some 15 days before the critical March 1939 events, and then begin a secular decline, accelerating as the abrogation of the Non-Aggression Pact led to eventual hostilities. From the Feb. 1939 peak to end-of-markets Aug. 1939, stock prices declined 23.2%, whereas in the bond markets the 5%-coupon and 4%-coupon dollar-denominated bonds declined 11.8% and 21.3% respectively.

3.4 French Republic, to June 22, 1940

Since the end of World War I in Nov. 1918, the French Republic struggled to regain its pre-war economic, political and military balance. With substantial military actions having taken place on its home soil, France had suffered grievously during that war, and was severely buffeted by political and economic winds during the interwar period. Many military experts, perhaps with the hindsight of history, have attributed a lack of coherent national will, passivity and defeatism (as exemplified by the Maginot Line's fixed fortifications) to their unsuccessful attempt to withstand the initial onslaught of World War II in Western Europe. In the event, while France declared war in Sep. 1939, it undertook no significant offensive military operations during the "phony war" period, and together with its British ally was only able to hold out militarily from May 10 to June 22, 1940, before conceding defeat and suing for an armistice.

Table 3 summarizes headlines and titles of main articles published by *Le Figaro* and *La Croix. Le Figaro* was (and is) one of the French newspapers with the widest circulation.

Table 3: The headlines of newspapers around event crucial for survival of French capital market

The table summarise headlines and titles of main articles published by Le Figaro*(LF)* and La Croix*(LC)* around key event for existence of state and capital market. The Le Figaro was one of the largest-selling French newspapers. Selected titles are used as proxy of French society expectation.

Date & Event	**Description & Titles/Newspapers/Publication date**
09/30/1938 Munich Accord	The Munich Agreement was a settlement permitting Nazi Germany's annexation of Czechoslovakia's areas along the country's borders mainly inhabited by German speakers, for which a new territorial designation "Sudetenland" was coined. 1) "The calm of French people is to be admired -the Italian press acknowledged", *LF*, 26/09/1938 2) "London's decisions are to be taken only with Paris' agreement", *LF*, 26/09/1938 3) "In case of German aggression, France, Great Britain and the USSR would defend Czechoslovakia", *LF*, 27/09/1938 4) "Defensive measures are being taken in France: Passive defense, All the aviation factories will work on Saturday and Facilities will be provided to mobilized debtors", *LF*, 30/09/1938 5) "The Council of Ministers congratulates M. Daladier unanimously", *LF*, 01/10/1938 6) "M. EDOUARD DALADIER has rekindled the flame while a huge crowd struck up the French hymn Marseillaise", *LF*, 03/10/1938 7) "M. Daladier develops a "New" plan for the recovery of our economy", *LF*, 06/10/1938
03/31/1939 British & French Guarantee to Poland	United Kingdom and France pledged the support of itself and France to guarantee Polish independence after German invasion of Czechoslovakia. 1) "FRANCE WANTS PEACE AND FREEDOM FOR ALL CITIZENS but any kind of violence against it WOULD BE BROKEN UP declared M. Edouard Daladier", *LF*, 30/03/1939 2) "M. Chamberlain's speech reflects the desire of Paris and London to confront force with force", *LF*, 31/03/1939 3) "Moscow shows a defiant attitude toward Paris and London", *LF*, 03/04/1939
09/03/1939 Britain & France declare war on Germany	Germany invaded Poland on September 1, 1939, initiating World War II. 1) "Cellars and attics converted into shelters to face air attacks" *LF*, 28/08/1939 2) "In Paris, Drastic measures are taken to ensure the safety of the civilians" *LF*, 30/08/1939 3) "The Italian public opinion is impressed by the serenity and energy demonstrated by the French." *LF*, 30/08/1939 4) "The French and British naval supremacy... makes no doubt for the American insurance companies" *LF*, 01/09/1939 5) "The state of siege proclaimed in France and Algeria" *LF*, 02/09/1939 6) "The parliament voted unanimously for funds allocated to national defense" *LF*, 03/09/1939 7) " General mobilization continues calmly in the whole French empire" *LF*, 05/09/1939

Continued on next page

Table 3: **Continued from previous page**

Date & Event	**Description & Titles/Newspapers/Publication date**
06/22/1940	German victory in the Battle of France led to French capitulation.
French Armistice	1) "Marshal Ptain, president of the Council, gave a speech to the country ", *LC*, 18/06/1940 2) "The stirring address of Marshal Petain ", *LC*, 21/06/1940 3) "Plenipotentiaries have received the terms of the Armistice" (Some articles are censored), *LC*, 22/06/1940 4) "The armistice between France and Germany has been signed", *LC*, 24/06/1940 5) "Marshal Petain to be trusted", *LC*, 24/06/1940 6) "Our country's pride remains spotless-Marshal Petain declared", *LC*, 25/06/1940 7) "Day of national mourning - Hostilities with Germany and Italy have ceased on Monday night at 0:35 AM", *LC*, 26/06/1940 8) "We have to restore the image of France by showing its exemplary calm, its hard work and its dignity" Marshal Petain declared", *LC*, 27/06/1940.

The stories in the French newspapers constitute a mixture of hope, defiance and confidence. It is not until the Armistice has been negotiated that there is talk of "national mourning" coincident with the pronouncements of the post-Armistice French government.

French stock and bond markets provide an interesting insight into the prevailing views of those capital markets. Figure 2 below presents price indices for the French stock market (in USD and inflation-adjusted terms) as well as the 3% French consol bond over the period Feb. 1938 – June 1940.

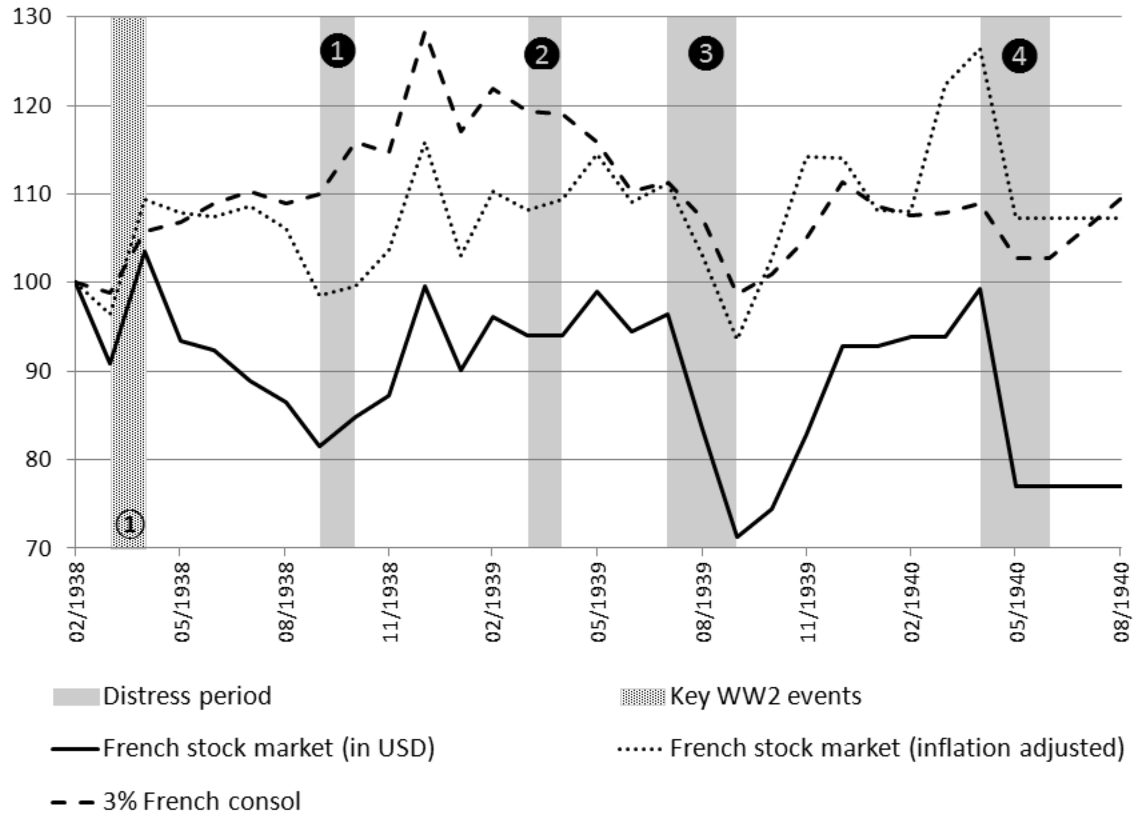

Figure 2: The figure displays performance of French stock and bond market during the period between February 1938 and August 1940. The dashed area corresponds to periods crucial for continuation of local stock and bond market. The areas are numerated as follow (on top): 1- Munich Accord, 2- British and French Guarantee to Poland, 3- Britain and France declared war on Germany 4- German victory in Battle of France. On bottom of the figure a key event for WW2 prior to mid-1940 is highlighted: 1- Annexation of Austria.

Considering USD-adjusted returns, the French stock market shared brief relief rallies in the aftermath of the Austrian *Anchluss* acquiescence (14% rise; the 3% consol bond simultaneously posted a 7% return) and post-Munich euphoria. As further events unfolded, a 26% decline was posted with the outbreak of World War II (the bond declined 11.5%), followed by a "recovery" presumably attributable to the initially-docile "phony war" on the Western Front. Finally, a 22.4% decline (the bond fell 5.6%) was posted from the end of April through the end of May 1940, at which time trading ceased, not to resume until March 1941.

Two comments are appropriate here: First, although their magnitudes are significant, the stock and bond declines from April through May do not reflect the calamitous events of *June* 1940: As is well-known, Germany began the second phase of its Western Front *Blitzkrieg* June 5th, and the city of Paris surrendered on the 14th. The month itself concluded with the end of the Third French Republic upon the June 22, 1940 Armistice.

Second, the French stock and bond markets resumed trading in March of 1941. As we argued in the Introduction and will specify in greater detail in Section 3, we posit a lack of continuity, consistency and indeed *identity* between trading during the Third French Republic and trading under the Armistice-Vichi institutional structure: The latter represent a total lack of civil and human rights, rendering the "value / purchasing-power" of money meaningless.

3.5 Kingdom of Sweden, 1938 – 1945

Sweden, much like the Swiss Confederation in both world wars and The Netherlands in the first, was the mirror-image of Poland in being a *beneficiary* of its geography. Located at the periphery of Continental Europe, it was absolved from post-Napoleonic military entanglement and permitted a neutrality it did not always scrupulously observe. One inadvertent but critical benefit accrued from the 1905 dissolution of its union with the Kingdom of Norway: As a consequence, Norway was a separate entity in World War II not linked to Sweden through a mutual-defense treaty, and so an attack on Norway did not automatically constitute an attack on Sweden.

To the east of Sweden lies the Republic of Finland, which during World War II found itself in hostilities twice against the Soviet Union (the Winter and Continuation Wars) and then against Germany. From these, too, Sweden was exempt. The traditional explanation for Sweden's conduct during the Second World War has been summarized by the term "small-state realism," a reference to *realpolitik* accommodation seemingly required of a small state during times of global-power hostilities. See Östling (2001) for a discussion.

Table 4 summarizes headlines and titles of main articles published by *Goetborgs Handels-och Sjoefartstidning (GHT)* newspaper around key events for Sweden during this time period. *GHT* was a key daily newspaper published until 1973.

Table 4: The Headlines of Newspapers Around Events Crucial for Survival of Swedish Capital Market

The table summarise headlines and titles of main articles published by Goetborgs Handels-och Sjoefartstidning *(GHT)* newspaper around key events for existence of state and capital market. The Goetborgs Handels-och Sjoefartstidning was a key daily newspaper published until 1973. Selected titles are used as proxy of Swedish society expectation.

Date & Event	**Description & Titles/Newspapers/Publication date**
11/30/1939 Beginning Soviet-Finnish war	The conflict known as Winter war occurred between 30 November 1939 and 13 March 1940. The war was concluded with Moscow Peace Treaty. Finland ceded 11% of its pre-war territory and 30% of its economic assets to the Soviet Union. 1) "The entire Nordic Region in anguished tension", *GHT*, 11/29/1939 2) "In the danger zone" An article on how close to Sweden may be and what we need to do in terms of rearming. *GHT*, 11/29/1939 3) "State Department sends ships to Finland to pick up Swedish citizen", *GHT*, 11/30/1939 4) "Mobilization in Sweden 'not yet imminent", *GHT*, 11/30/1939 5) "Sweden looks after Finnish interests in Moscow", *GHT*, 12/01/1939 6) "Do not spread rumours cause for concern!", *GHT*, 12/01/1939 7) "Prime Minister assures sympathy for Finland - Despite all the difficulties the neutrality politics be pursued", *GHT*, 12/02/1939 8) "Crowds in Stockholm tributes Finland - Singing and cheering outside the legation", *GHT*, 12/02/1939 9) "People and defence are agreed in Sweden - no warmonger but freedom should be safeguarded", *GHT*, 12/04/1939
06/10/1940 Norway capitulates to Germany	The conflict occurred between 9 April and 10 June 1940. As result of it Norway became occupied by German forces. 1) "The battle in Norway is stated - it is passed on outside the country", *GHT*, 06/10/1940 2) "Norway puts down its arms", *GHT*, 06/10/1940 3) "One day, the free Norwegian flag will be hoisted again - proclamations by the Norwegian Government and Commander in Chief", *GHT*, 06/11/1940
07/07/1940 German-Swedish agreement admitted	The official agreements on the Permittenttrafiken between Germany and Sweden are signed. 1) "German military on Swedish railways to Norway - Transit has been granted 'after the end of hostilities'", *GHT*, 07/06/1940 2) "English shrug to Sweden - but the foreign office has the transit in memory", *GHT*, 07/06/1940 3) "Sweden pretends neutrality which has ceased to have meaning. Sharp English criticism of Swedish government line", *GHT*, 07/10/1940

Continued on next page

Table 4: Continued from previous page

Date & Event	Description & Titles/Newspapers/Publication date
06/24/1941 Midsummer crisis	Germans asked Sweden to allow the transportation of armed German troops. The Swedish government granted this permission. 1) “Freedom of the press is essential if democracy is to prevail”, *GHT*, 06/19/1941 2) “About the Swedish policy of neutrality” The article suggests that the government believes in a German victory and responds accordingly. *GHT*, 06/23/1941 3) “No source of concern for the weekend, other than within politics” - describes Swedes as happy celebrating midsummer in the sunshine and though they are well aware of the war, they’re not that bothered, *GHT*, 06/23/1941 4) “Sweden allows the transit of German troops through Nordland”, *GHT*, 06/26/1941 5) “Leniency towards Germany gives birth to new demands - Increasingly difficult for Sweden to maintain their neutrality”, *GHT*, 06/28/1941 6) “Before it is too late,” whether Sweden will continue to give in, or if we are able to continue to keep neutrality, *GHT*, 06/30/1941
06/25/1941 Continuation War	The beginning of continuation war, between the Soviet Union and Finland. 1) “State uncertain, especially in Finland and Rumania- suspense / anxiety in Sweden” , *GHT*, 06/21/1941 2) “The fire spreads: now that Finland is with Germany” , *GHT*, 06/23/1941 3) “The stock exchange”: The stock market has not been the same since 10th June due to the Germany-Russia tension, *GHT*, 06/23/1941 4) “Swedish armour weapon in strong development”, *GHT*, 06/27/1941 5) “Even narrower”: The German-Russian War has led to a worsening of Sweden’s economic freedom. The space for the Swedish foreign trade has become even tighter , *GHT*, 06/28/1941 6) ”The stock exchange”: The German-Russian War has not brought about a profound reversal of the situation on the Swedish stock market.*GHT*, 06/30/1941
02-3/1942 The February crisis followed by mobilisation	In Sweden it is believed that Germany regards a pre-emptive occupation of Sweden as necessary, to prevent Sweden from cooperating with an Allied landing in Norway. 1) “German aircrafts on the coast of Skåne” , *GHT*, 02/09/1942, 2) “War Organization of the workforce should be prepared now - Industry Commission currently against new aerospace industry”, *GHT*, 02/21/1942, 3) “Our aerospace industry inspires high hopes - Minister for Defence speech in Gothenburg. Boldness and imagination required” It’s about how important it is that we have a strong defence both in the air, on land and on the water. *GHT*, 02/21/1942 4) “Our country will never itself take the initiative in war, but it will defend itself to the utmost if attacked”, *GHT*, 02/24/1942 5) ”We need powerful armoured troops - Current defence problems on the Stockholm Congress” , *GHT*, 03/24/1942 6) ”Fanatical information in English newspaper about Sweden (incoming German invasion) - But the official London knows nothing.”, *GHT*, 03/24/1942

Continued on next page

Table 4: Continued from previous page

Date & Event	Description & Titles/Newspapers/Publication date
07/15/1943	Sweden notifies Germany that the transition-agreement will be cancelled on 15 August.
The end of German-Swedish transition-agreement	1) "Crisis in Sweden, believes British correspondent - permittent traffic [not sure how to translate that but it's about German soldiers on furlough/leave] is again 'on the wall'", *GHT*, 07/31/1943 2) "Sweden decides to cancel the permittent traffic - Certain information in English press", *GHT*, 08/03/1943 3) "Transit consent and the war in Norway"- an article based on a book ("The Swedish people wonder" by Bertil Stålhane) , *GHT*, 08/04/1943 4) "London: The permittent traffic suspension is notified Berlin bluntly - The Swedish decision shows how the hearts of millions are liberated from the fear of Germany" , *GHT*, 08/05/1943 5) "Permittent traffic stops as well as military transports - consensus between Swedish and German governments about decommissioning during August", *GHT*, 08/06/1943 6) "Sweden acted very late - the decision is no surprise to London", *GHT*, 08/06/1943, 7) "No masked permittent-journeys - German civilians may go through Sweden, but only after visa", *GHT*, 08/20/1943

Media coverage in Sweden followed the Nordic foci of World War II: The Finnish-Soviet Winter War of Nov. 30, 1939 – March 13, 1940 and the German conquest of Norway April – June 1940. After the Norwegian surrender, Swedish acquiescence for the transit of "unarmed" soldiers through its territory became public knowledge (July 1940), notwithstanding this implicit violation of neutrality. In the midst of 1941 Sweden found itself in a "German sea," surrounded by Germany in Denmark, Norway and Poland and by German ally Finland.

In June 1941, at the beginning of the German invasion of the Soviet Union, Sweden was asked to provide transit through its territory to a German infantry division and its associated matériel. This clearly-flagrant violation of neutrality has since been described as a potentially existential threat if Sweden had refused: The term is the "Midsummer Crisis" with ostensible conflicts between various components of the Swedish government and the then-reigning monarch. Historians today debate whether or not there truly was a crisis — in the sense that acquiescence would inevitably be forthcoming — or whether the events were subsequently described as such to shield or attack various Swedish personalities. Simultaneously, the Finnish-Soviet Continuation War began on June 25, 1941. Press coverage follows these elements without explicitly alluding to an existential threat. Finally, as allied military fortunes continued to improve, the Swedish Government notified Germany of the termination of the transit agreement on July 15, 1943.

Figure 3 below presents price indices for the Swedish stock market (in USD and inflation-adjusted terms) as well as the 3% Swedish consol bond over the period Feb. 1938 – Aug. 1945.

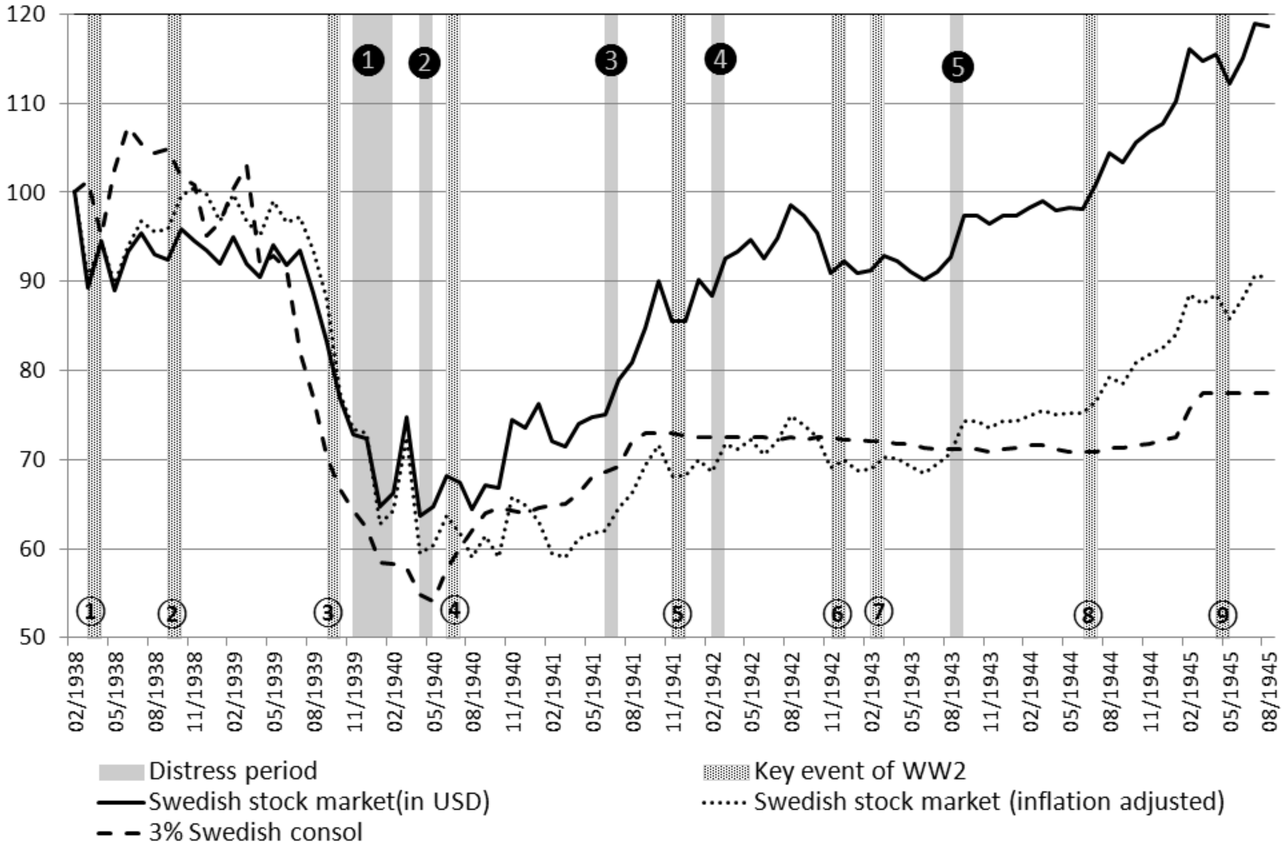

Figure 3: The figure displays performance of Swedish stock and bond market during the period between February 1938 and August 1945. The dashed area corresponds to periods crucial for continuation of local stock and bond market. The areas are numerated as follow(on top): 1- Soviet-Finnish war, 2- Norwegian campaign and German victory, 3- Midsummer crisis on transit of German war materials/beginning of war between the Soviet Union and Germany supported by Finland, 4- February crisis of 1942 and mobilisation, 5- Cancellation of transition-agreement. On bottom of the figure the key events for WW2 period are highlighted: 1- Annexation of Austria, 2- Munich Accord, 3- Invasion of Poland by Germany, 4- German victory in of Battle of France, 5- United States entered the War, 6- German setbacks at Stalingrad and El Alamein, 7-Germany's first major defeat- Stalingrad, 8- D Day: The Allied invasion of France, 9-Germany surrenders to the allies.

Beyond the 1939 outbreak of World War II in Europe, there are several dates which could be considered "existential" for the Swedish state and capital markets:

1. The Winter War of 1939 – 1940

2. The Norwegian campaign of 1940

3. The "Midsummer Crisis" of 1941

To its benefit, Sweden was able to maintain its integrity, independence and civil rights throughout the War period.

The nearly-coincident nature of the Winter War and Norwegian campaign did have a significant impact on Swedish capital markets: The stock market reached a trough on April 30, 1940, after the beginning of hostilities in Norway, with a decline of 36.3% from its Feb. 1938 reading. Interestingly, and in contrast to other countries, the concurrent bond market's decline was *greater:* 46%.

Given the nature and controversial interpretation of the Midsummer Crisis, it would be of interest to determine the Swedish stock and bond markets' reactions to that Crisis. This latter is however confounded by the monthly granularity of our data and the apparent short, intra-June 1941 nature of that crisis. In the event, the change in stock-market value between May and July 1941 is a 5.6% *increase,* which may in part be a relief rally. We find no evidence capital markets reflected significant concern regarding this event.

The survival of Sweden through World War II permits us to explore the exit of Swedish capital markets from the conclusion of hostilities in May 1945: After the above-noted 36.3% decline, the equity market rose 76%, to end 12.2% above its Feb. 1938 value. Another interesting result pertains to the bond market. Although its value never returned to par (by May 1945), its price *leveled off* by Aug. 1941 at a value 28% below its Feb. 1938 value, increasing an additional 7.6% at the end of March 1945. We take the level value as one indication of a return to a possibly-new "normalcy" at a higher level of interest rates than in 1938: If such be the case, it is interesting this happened as early as Aug. 1941.

3.6 The United Kingdom, 1938 – 1945

Under the leadership of Prime Minister Winston Churchill, the United Kingdom and its Commonwealth and Empire were the sole Western belligerents against Germany from the fall of France on June 22, 1940 until the German invasion of the Soviet Union exactly one year later. Dating back to the previous prime minister, in 1937 the British military Chiefs of Staff had warned its political leadership of the need to avoid the severe pitfalls of being sole combatant against an array of hostile adversaries. And yet, that is precisely the situation in which the United Kingdom found itself at the end of the Battle of France.

Since, in the final analysis, the United Kingdom was one of the Big Three to prevail in World War II, both media reports as well as capital-market reactions provide insights into the situation as perceived by some of the players during this period. Table 5 below presents headlines and titles of main articles in the *Sunday Times (ST),* then and now one of the primary British news outlets.

Table 5: The Headlines of Newspapers Around Events Crucial for Survival of British Capital Market

The table summarise headlines and titles of main articles published by Sunday Times *(ST)* around key event for existence of state and capital market. The Sunday Times was one of the largest-selling British national Sunday newspaper. Selected titles are used as proxy of society expectation.

Date & Event	**Description & Titles/Newspapers/Publication date**
09/30/1938 Munich Accord	The Munich Agreement was a settlement permitting Nazi Germany's annexation of Czechoslovakia's areas along the country's borders mainly inhabited by German speakers, for which a new territorial designation "Sudetenland" was coined. 1) "Markets Governed by Politics", *ST*, 09/25/1938 2) "Money Market: Active demand for dollars; larger turnover of gold; discount rates higher",*ST*,09/25/1938 3) "Italy and Germany United Against Democracies", *ST*, 09/25/1938 4) "Mussolini the Peace Maker", *ST*, 10/02/1938 5) "The Peace-and After: Outlook for European Settlement", *ST*, 10/02/1938 6) "How London Would Have Been Evacuated", *ST*, 10/02/1938 7) "The Outlook": The great relief that peace has been preserved has the amplest justification, and the Stock Exchange is likely to remain in buoyant mood this week, *ST*, 10/02/1938
03/31/1939 British & French Guarantee to Poland	United Kingdom and France pledged the support of itself and France to guarantee Polish independence after German invasion of Czechoslovakia. 1) "The Outlook: Right to expect a gradual further growth of Stock Exchange business. For the moment, particular groups of securities are likely to be singled out for attention-possibly iron and steel shares", *ST*, 03/12/1938 2) "Shock to Market Confidence: Immediate Outlook Dependent upon Politics"- Disturbing events arose with SE; only small pressure to sell in last few days, *ST*, 03/19/1938
09/03/1939 Britain & France declare war on Germany	Germany invaded Poland on September 1, 1939, initiating World War II. 1) "While Parliament was passing the Emergency Powers (Deference) Act, the city was making its own preparations between peace and war", *ST*, 08/27/1939 2) "Parliament and The Crisis: All Parties Support the Government, *ST*, 08/27/1939 3) "1914 vs. 1939, Hitler & Stalin", *ST*, 08/27/1939 4) "Patriotism is the soul of a nation" , *ST*, 08/27/1939 5) "Britain's Food Reserves Greater Than Ever", *ST*, 08/27/1939 6) "The City Prepares For War: How Supply of Credit is Maintained" -The City and the country is in far better economic shape than in August 1914, and our economic strength will become more and more apparent with the passage of time." *ST*, 09/03/1939

Continued on next page

Table 5: Continued from previous page

Date & Event	Description & Titles/Newspapers/Publication date
06/22/1940	German victory in the Battle of France led to French capitulation.
French Armistice	1) “Armistice Terms Signed: Fight Goes on Until Peace is Reached with Italy”, *ST*, 06/23/1940 2) “Keitel’s Tribute to French; The Fall of France: Will Resistance Go On?”, *ST*, 06/23/1940 3) “How France Heard of Peace Move: People’s Fortitude in Face of Defeat”-France collapsed because of military and political reasons; England not the same”, *ST*, 06/23/1940 4) “Pros and Cons of Invasion”-The enemy will rely on fear, will attempt a blockade, and there will be an unknown political factor involved”, *ST*, 06/23/1940 5) “Still Hope for the French Empire: Qualified Acceptance of the Armistice” -”If France goes on living an independent life in her overseas Empire” ”, *ST*, 06/30/1940
07/07/1940	Offensive of German Air Force against the United Kingdom started in the summer of 1940.
Beginning of Battle of Britain	1) “Germans Admit RAF Successes”, *ST*, 07/07/1940 2) “If Britain is Invaded”, *ST*, 07/07/1940 3) “Some Problems of the Financial Front-”All war losses should be shared by the whole community”, *ST*, 07/07/1940 4) “All In the Front Line Now: Are We Ready in Heart and Soul?”, *ST*, 07/07/1940 5) “The Strategical Conditions of Invasion”-Possibility is there, but there will be much delay; handicap against success is severe because of need to launch two-pronged attack, *ST*, 07/07/1940
06/22/1941	The launch of German invasion of the Soviet Union
German attacks on USSR	1) “Axis Funds in US Frozen”, *ST*, 06/14/1941 2) “The War’s Ebb and Flow: Undercurrents in Our Favor”, *ST*, 06/14/1941 3) “The Spirit of the People”, *ST*, 06/14/1941 4) “The War’s Ebb and Flow: Undercurrents in Our Favor”, *ST*, 06/14/1941 5) “Stream of Planes Over Atlantic: Astonishing Achievement of Ferry Pilots”, *ST*, 06/22/1941 6) “The United States Preparing For War”, *ST*, 06/22/1941 7) “Should Britain Increase Supplies?”, *ST*, 06/22/1941 8) “Blow at Heart of Russia: Hitler’s Aim in Moscow Drive”, *ST*, 06/22/1941 9) “Smashing Invasion Plan and Aiding Russia”, *ST*, 06/22/1941 10) “Hitler as Napoleon”, *ST*, 06/22/1941
12/07/1941	As result of the attack United States declared war on Japan.
Japanese attack on US navy base in Pearl Harbor	1) “The Seesaw in Russia and Libya: German Army’s First Major Defeat”, *ST*, 12/07/1941 2) “What Japan Wants”, *ST*, 12/07/1941 3) “War Must be Won In Germany”, *ST*, 12/07/1941 4) “The United States: Preparing Huge Victory Production Plan”, *ST*, 12/07/1941 5) “Driving Enemy from Philippines: Only One Foothold Left: US Fear Guam Has Fallen”, *ST*, 12/14/1941 6) “World-Wide War: Balance of Victories and Defeats”, *ST*, 12/14/1941 7) “Allies to Form a United Front: Pooling Resources of Men and Supplies”, *ST*, 12/14/1941 8) “The Power of Darkness”-Japan’s sudden and treacherous attack on the United States is one of the most momentous events in history, *ST*, 12/14/1941

As can be seen from Table 5, there was substantial initial relief at the outcome of the Munich Conference ceding the Sudentenland to Germany. It appears the *Sunday Times* recognized the seriousness of the progression to war in March 1939, as the United Kingdom and France extended guarantees to several countries, including Poland, in the aftermath of Czechoslovakia's elimination. At this time, the paper refers to sector-rotation in the markets, towards the heavier "iron and steel shares." The Sep. 3, 1939 declaration of war gave rise to favorable (from the British perspective) economic comparisons with Aug. 1914. French capitulation in June 1940 instituted an analysis of a prospective invasion, together with expressions of hope regarding continued resistance by French overseas territories. Key attention was then paid to the critical Battle of Britain over British skies. On June 22, 1941, Germany's Operation Barbarossa brought the Soviet Union into World War II as a British ally, with the paper alluding to an "Ebb and Flow ... Undercurrent in Our Favor." The events on Dec. 7, 1941 focus on the Japanese attack on Naval Station Pearl Harbor and other Hawaiian military facilities as "one of the most momentous events in history."

The British stock and bond capital markets serve as a most-illuminating quantitative assessment of on-going international events. Figure 4 below presents price indices for the British stock market (in USD and inflation-adjusted terms) as well as the 4% U. K. Consolidated bond over the period Feb. 1938 – July 1945.

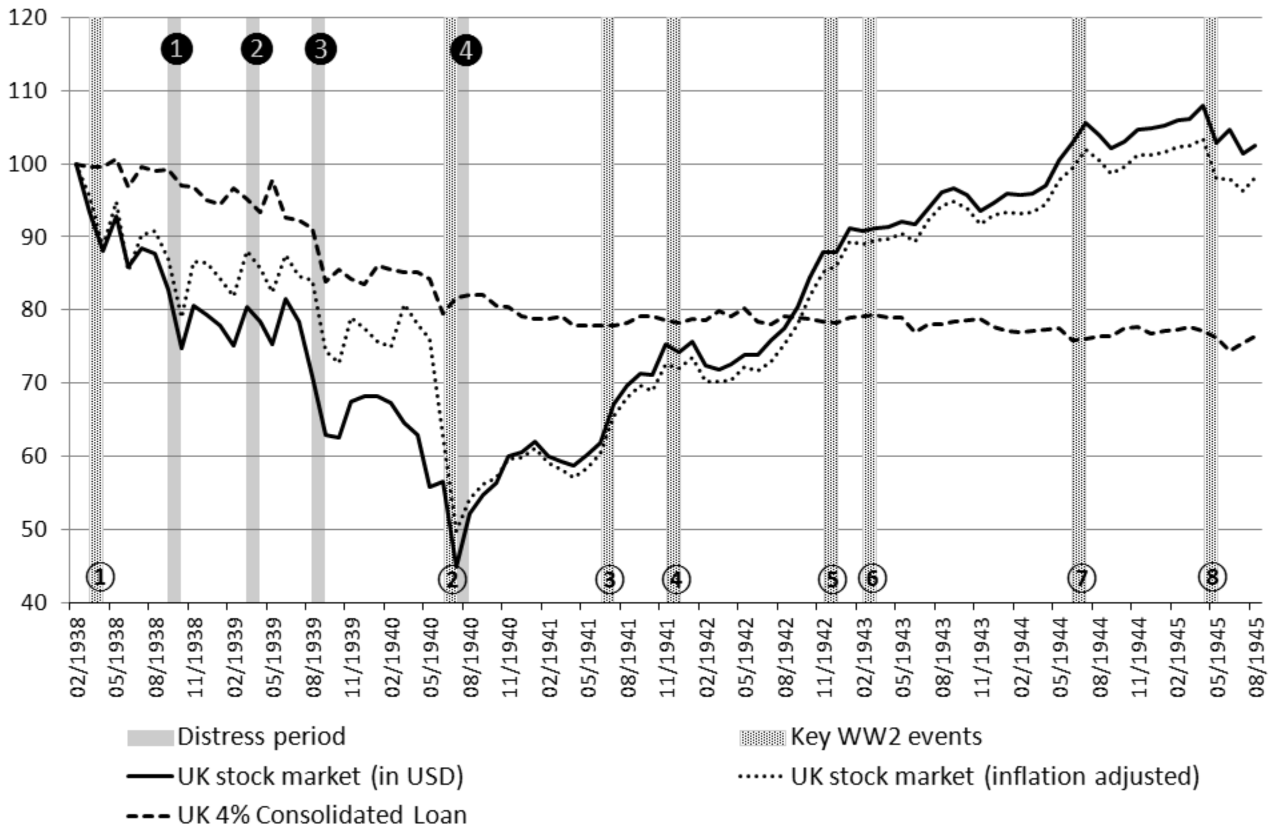

Figure 4: The figure displays performance of British stock and bond market during the period between February 1938 and August 1945. The dashed area corresponds to periods crucial for continuation of local stock and bond market. The areas are numerated as follow (on top): 1- Munich Accord, 2- British Guarantee to Poland, 3- Britain and France declared war on Germany 4- Beginning of Battle of Britain. On bottom of the figure the key events for WW2 period are highlighted: 1- Annexation of Austria, 2- German victory in of Battle of France, 3-Beginning of war between the Soviet Union and Germany 4- United States entered the War, 5- German setbacks at Stalingrad and El Alamein, 6-Germany's first major defeat- Stalingrad, 7- D Day: The Allied invasion of France, 8-Germany surrenders to the allies.

We believe Figure 4 gives rise to the following conclusions and results: The seemingly bullish outcome of the Sep. 1938 Munich Conference did not produce a stock-market rally, possibly in part due to the monthly frequency of our observations. The seven months preceding Oct. 31, 1939 resulted in a decline of 22.2%. The all-time low over this period came on July 31, 1940, following the end of the Battle of France and following the July 10th beginning of the Battle of Britain. The index had declined 55.1% from its Feb. 28, 1938 value.

The Battle of Britain is generally considered to have ended on Oct. 31, 1940, by which time the index had recovered 25.7% from its July 31, 1940 value. The addition of the Soviet Union as an ally in June 1941 did not appear to have an immediate positive effect on stock-market values, likely due in part to initial Soviet setbacks, although the market did appreciate 8.5% in *July* 1941. Perhaps surprisingly, the addition of the United States, of greater eventual impact on the U. K. in its influence, in Dec. 1941 failed to post a significant positive return by Jan. 31, 1942.

In early Nov. 1942, British forces were on track to succeed in the second battle of El Alamein in Egypt, while Anglo-American troops landed in North Africa in Operation Torch. In recounting those two events at one of his famous wartime speeches, Prime Minister Churchill addressed the Lord Mayor's Day luncheon Nov. 9, 1942:

> "Now this is not the end. It is not even the beginning of the end. But it is, perhaps, the end of the beginning."

As can be seen from Figure 4, the British stock market had continued an almost monotonic increase in value from July 31, 1940: By Nov. 30, 1942, it had increased 95.6%.

By month's end after V-E Day, May 31, 1945, the British stock market had doubled, representing an increase of 129.2%, relative to its July 31, 1940 value. The bond market's behavior was quite distinct. Although it too declined 50.1% from Feb. 1938 to May 1940, by Aug. 1940 — two months before the stated end of the Battle of Britain — it increased in value back to 80% of its Feb. 1938 value. Critically, the bond price stayed at that level for the remainder of the time period (through the end of Aug. 1945). Again, if we interpret that as the (possibly-new) level of bond-market "normalcy," the bond market returned to that level very early in the war.

Assuming bond prices reflected free-market operations and not stabilization policies by British monetary authorities, the behavior of the bond market appears to highlight the role of Battle of Britain as the point of British maximal existential exposure.

3.7 Raw Returns or World Market-Adjusted *Excess* Returns?

Before we turn to summarize the results of this section, it is important to opine on whether the results we report are simply a reflection of U. S. or global markets exhibiting substantial fluctuations in prices. Given the substantial pressure under which these four countries labored in this period, that is *a priori* unlikely. Nevertheless, to perform this analysis we considered the returns of each of these four countries, respectively, in excess of our global market return, essentially positing a beta of unity on the world market portfolio. [14] The results of that analysis are presented graphically in the figure below (see Figure 5):

[14] In the Appendix's Table A1, we present the composition of a global index portfolio: In the early 1920s, the portfolio consists of 20 countries; during World War II, there are 31 countries in the portfolio. The last rebalancing in the 1990s leads to a global portfolio of 34 countries.

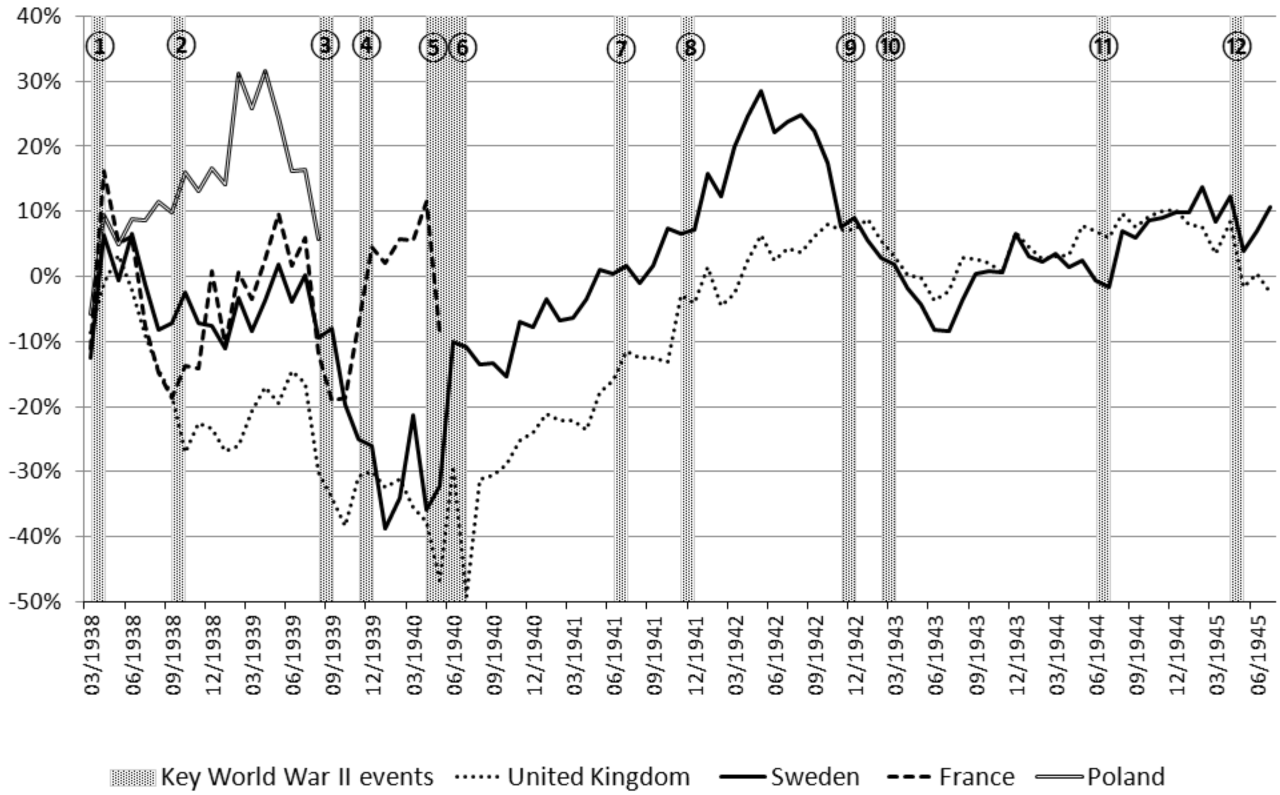

Figure 5: The figure displays cumulative abnormal returns for British, French, Swedish and Polish stock market during the period between February 1938 and August 1945. The abnormal return is defined as difference between monthly return of each of these four stock markets and global market return. The dashed area corresponds to periods crucial for outcome of World War II. The areas are numerated as follow : 1- Annexation of Austria, 2- Munich Accord, 3- Invasion of Poland by Germany, 4- Soviet-Finnish war, 5- Norwegian campaign and German victory, 6- German victory in of Battle of France, 7-Beginning of war between the Soviet Union and Germany, 8- United States entered the War, 9- German setbacks at Stalingrad and El Alamein, 10-Germany's first major defeat- Stalingrad, 11- D Day: The Allied invasion of France, 12-Germany surrenders to the allies.

The conclusions we glean from this figure are these. For the U. K. and Sweden, it would appear the results bear out the country-specific nature of stock-market returns: While the country was under pressure, its stock-market underperformed. As the country's pressure was relieved — Aug. 1940 for the U. K. and Jan. 1941 for Sweden — its stock market recovered. As previously stated, there is no empirical evidence of a Sweden 1941 "Midsummer Crisis."

For France, there is a crisis in Sep. 1939 with the outbreak of hostilities and at the end of Third Republic. But arguably the market did not have a sense of what the 1940 armistice would forebode.

Polish stock-market behavior appears to indicate little impact to the April abrogation of the non-aggression pact, whereas there was some impact to the imminence of 1939 hostilities.

Thus, as was to be expected, the excess returns for the four countries over the period March 1938 – June 1945 exhibit the same sensitivity to prevailing country-specific events as do the raw returns we presented above.

3.8 Summary

In a free-market economy, the value of the stock-market at any point in time represents the present values of expected cash flows accruing to stockholders, discounted at the appropriate risk-adjusted discount rate. In general, of course, these will be impacted by a myriad of political, economic and financial considerations. In examining four national stock markets before and during World War II, we posit the *ex-ante* single-minded focus on the survival of the national body politic as then constituted, and the maintenance of civil and human rights that permit stockholders to enjoy the fruits of their investments. Given the events that possessed the continent of Europe from the establishment of the Nazi regime in March 1933, the remilitarization of the Rhineland in March 1936 and especially the Austrian *Anschluss* of Feb. 1938, until the declaration of war in Sep. 1939, we feel this is a reasonable hypothesis to maintain.

1. That said, we attempted to discern whether stock and bond markets were able to anticipate the potential loss-of-sovereignty "apocalypse" during the Second World War. Any conclusion with respect to the informational efficiency of capital markets must perforce face the distinction between *ex-ante* and *ex-post* realizations. With respect to the two countries which succumbed during World War II, Poland and France, it is fair to say their respective stock markets had no inkling as to the *ex-post* likelihood and implications of military defeats. Polish capital markets declined 23.2%, and the French market an almost identical 22.9%, from their Feb. 1938 levels. In the event, *ex-post* Poland did not return to capital markets for over half a

century, and both countries suffered considerably before their return to sovereignty.[15]

2. For the two countries that remained intact, the peak-to-trough decline was 36.3% for Sweden and 55.1% for the United Kingdom. The trough for both countries does appear to be the moment of greatest exposure, and somewhat-coincidentally the same chronological date:

   (a) For Sweden, the German invasion of next-door Norway

   (b) For the United Kingdom, the end of the Battle of France, which left the United Kingdom and its Commonwealth as the sole Western belligerents

   For both countries, the changing fortunes of military engagements subsequently revived their domestic stock and bond markets.

4 The Global Equity Risk Premium

4.1 Importance of the Global Equity Risk Premium

Lying as it does close to the heart of finance, the computation of the equity risk premium is central to the profession:[16]

1. Its impact is pervasive in *corporate finance* as it is an input in the determination of risk-adjusted returns critical for valuation purposes

2. It serves a central role in asset pricing, as it is the benchmark against which risky debt and equity returns are computed

Consequently, Jorion and Goetzmann (1999) sought to address the computation of the global equity risk premium by considering some 75 years of returns to equity assets throughout the world.

As laid out in our initial assumptions, we believe the computation of such returns cannot ignore the *environment* in which they are calculated: Specifically, we believe asset returns represent claims to purchasing power, and if access to purchasing power is impeded or indeed eliminated, the nominal returns become meaningless. It is this defect in the JG computations we seek to address.

[15] Several correspondents have alluded to the fact there were several historical precedents to France and Poland being invaded by Germany *prior to* 1939: France in 1870 and 1914; Poland through several "partitions." Respectfully, in so doing these analysts fail to distinguish between the Bismarckian and Wilhelmine regimes on the one hand, and the nature of the German regime in 1939.

[16] The monograph by Mehra (2008) provides detail surveys on estimation and application of equity risk premiums.

4.2 The Value of Financial Assets Amid Property, Civil and Human Rights

It is perhaps self-evident one requires property rights in order to secure the benefits of financial and real assets: It is only through such rights societies provide all of their members with guarantees they can convert their investments into the purchasing power which provides the utility individuals are maximizing.[17] We assume civil and human rights are necessary but not sufficient conditions for the existence of property rights.

To begin, we note the literature is replete with authors who have *correlated* economic development and property rights.

1. Mauro (1995) addresses this relationship: "Low security of property rights over physical capital, profits, and patents may reduce incentives and opportunities to invest, innovate, and obtain foreign technology."

2. Knack and Keefer (1995) note "[I]nstitutions that protect property rights are crucial to economic growth and to investment." Further, Keefer and Knack (1997) write, "Deficiencies in the institutional environment may reduce investment and the ability of countries to absorb technological advances from abroad. Without these advances, countries may grow more slowly."

3. De Soto (2000) argues transitional and developing economies have limited success with capitalism due to lack of formal property rights for the poor.

4. According to its web site, the Cato Institute is "a public policy research organization ... dedicated to the principles of individual liberty, limited government, free markets and peace." In its position on "Property Rights, The Key to Economic Development," it states, "Historical economic development can only be explained by private property, the rule of law, and other key institutions."

5. In economics, the Coase Theorem addresses the importance of well-defined property rights (though possibly not their initial distribution) to an efficient allocation of capital to investment. This has led to the conclusion a clear delineation of property rights is an essential ingredient to market transactions.

6. Pinto, Weymouth and Gourevich (2010) uncover a surprising result, that "left-leaning governments are more likely to be associated with higher stock market capitalization than their

[17] With the Lutheran Pastor Martin Niemöller's famous quote firmly in mind, the adjective "all" is designed to eliminate selective or sequential arbitrary deprivation of rights.

counterparts to the right and center of the political spectrum." They explain this seemingly paradoxical result by noting "These results are consistent with recent theories emphasizing an emergent coalition of workers and owners against managers in favor of greater transparency and shareholder protection."

7. Dowell-Jones and Kinley (2011) consider the impact of finance on human rights, exploring how the Great Recession's derivatives aspect has adversely impacted employment. Our paper considers the (reverse) impact of human rights on finance: In the absence of such rights, finance is meaningless.

Our position is a stronger one: We posit there is no value to an asset *unless* unrestricted property rights — and, explicitly, human and civil rights — give its owner the right to legal, free and unfettered consumption. Thus:

1. In a book review, Kuzner (2012) writes of

   > "negative freedoms, or 'freedoms from,' say, the seizure of property, arbitrary violence, and so on. Here freedom assumes the form of protection, a set of borders or frontiers that surround and safeguard the individual."

2. Johnson, McMillan and Woodruff (2002) write explicitly, "Property rights are fundamental: entrepreneurs will not invest if they expect to be unable to keep the fruits of their investment."

3. Harold Demsetz (1967), writing in "Toward a Theory of Property Rights":

   > "When a transaction is concluded in the marketplace, two bundles of property rights are exchanged. . . . Economists usually take the bundle of property rights as a *datum* [emphasis added] . . .."

   Our perspective is similar, though not identical, and, we argue, *consistent:* We assert that in the absence of civil and human rights, property rights cannot exist.

4. Boubakri, El Ghoul and Saffar (2014) provide a quantitative estimate of the existence/absence of human rights:

   > "We examine the influence of political rights on the implied cost of equity capital using a sample of firms from 44 countries. We find that firms' equity financing costs are lower when political rights are stronger."

5. Writing in the narrower context of real estate, Yong Tu and Helen X. H. Bao (2009):

   > Political instability may weaken investors' belief in property rights, putting the investors in fear that part of their investment may be wasted due to poor protection."

We consequently take issue with the assertion, in Frey and Waldenström, that "A nation may disappear but the related financial assets may survive." Rather, we believe the implication of our definition of property, civil and human rights is this: In its absence, due to the inability to consume freely from one's wealth, the residual value of the equity (and bond) claims is zero, not 25% as assumed by Jorion and Goetzmann (1999). The remainder of this section is devoted to detailing the empirical implications of that assumption.

Consider Tables 6 through 8 below. Table 6 presents those countries which have had continuous equity markets, as we define them, over the period covered by the GFD data we utilize.

Table 7 details the specific circumstances which abolished civil and property rights in different countries during the 20th century.

Based on Table 7, Table 8 conducts the calculation of equity returns based on our assumption regarding countries with discontinuous equity markets due to loss of property and/or human rights. In so doing, we explicitly distinguish between the empirical results of JG approach, and our own, designated BR, approach.[18]

The construction of Table 8 required a judgment call as to which countries to include, and exclude, from this table. We deemed those countries which succumbed internally or externally to autocratic rule during World War II to be incontrovertible, and hence included in the table. The sole additional country is then-named Kingdom of Egypt, whose price series ends in 1952 with the Revolution of the Free Officers Movement. In Table 6, we specifically considered military *coup d'etats,* primarily in Latin America but also in post-WWII Europe, Africa and Asia. By examining each, we determined these internal *coups* were materially different from the external loss of sovereignty during World War II, and also different from a regime change that abolished capital markets. We deemed the 1952 change in Egypt to be a change of regime akin to the Nov. 1917 Bolshevik Revolution in Russia.

Accordingly, we made the judgment calls that these military *coup d'etats* did *not* constitute events causing an end to their respective national capital markets. That in turn implies our estimate

[18] In Appendix A, we include our detailed presentation of two tables:

1. Table A1 contains the Composition of World Index for Countries with Continuity of Human and Property Rights throughout the period, and identifies for each country its period of exclusion and return (if any).

2. Table A2 contrasts by presenting the Composition of World Index for Jorion and Goetzmann (1999) Approach.

of the equity risk premium is conservative, since inclusion of any additional countries would tend to *lower* the risk-premium estimate further.

Table 6: Performance of Equity Markets with Continuity of Rights

Country	Begin Date	End Date	Mean	Median	Std. Dev.
Argentina(ARG)	31/01/1939	31/12/1996	20.05	0.00	61.49
Australia (AUS)	31/01/1921	31/12/1996	6.67	4.96	17.65
Brazil(BRA)	30/06/1925	31/12/1996	−19.99	−32.44	31.57
Canada (CAN)	31/01/1921	31/12/1996	6.37	8.54	17.17
Chile (CHL)	31/12/1921	31/12/1996	12.91	0.02	39.09
Columbia (COL)	31/01/1927	31/12/1996	0.23	−3.40	21.84
Spain (ESP)	31/01/1921	31/12/1996	3.74	3.24	18.96
Finland (FIN)	31/01/1921	31/12/1996	7.01	3.22	21.26
Greece (GRE)	31/12/1952	31/12/1996	9.72	−4.89	27.69
India (IND)	31/01/1921	31/12/1996	3.38	0.60	18.90
Ireland (IRL)	31/01/1934	31/12/1996	6.58	4.70	16.44
Israel (ISR)	31/01/1949	31/12/1996	6.73	4.74	26.64
Mexico (MEX)	31/01/1930	31/12/1996	8.85	1.81	30.07
New Zealand (NZ)	31/12/1926	31/12/1996	5.10	6.78	18.20
Pakistan (PAK)	31/07/1960	31/12/1996	3.90	1.71	21.04
Peru (PER)	31/12/1926	31/12/1996	8.76	0.00	44.03
Philippines (PHL)	31/12/1952	31/12/1996	2.30	−5.13	32.53
Portugal (POR)	30/06/1931	31/12/1996	8.01	−0.73	30.05
South Africa (ZAF)	31/01/1921	31/12/1996	6.67	5.46	19.47
Switzerland (SUI)	31/01/1921	31/12/1996	7.91	8.28	16.56
Sweden (SWE)	31/01/1921	31/12/1996	8.06	8.65	17.78
United Kingdom (UK)	31/01/1921	31/12/1996	6.56	8.79	19.15
Uruguay (URY)	31/01/1925	31/12/1996	1.20	−4.07	56.11
United States (USA)	31/01/1921	31/12/1996	7.99	11.01	19.26
Venezuela (VEN)	31/12/1929	31/12/1996	7.64	3.02	25.48

The table presents annual nominal returns denominated in U.S. dollars for 25 countries. In those countries human and property rights were preserved during examined period. The sample period varies across country and it is defined by column 2 and 3. The last three columns reports mean, median and annual volatility. The returns reported in the table are consistent with approach of Jorion and Goetzmann (1999).

Table 7: Description of Events Leading to Restrictions of Civil and Property Rights in Twenty Century

Country	Break Date (with 0)	Event Date	Restart	Description of Event
Austria	Apr-38	12/03/1938	Oct-46	Austria was annexed into the Germany.
Belgium	Jun-40	10/05/1940	Jun-45	Invasion of Belgium by German forces.
Czechoslovakia	Oct-38	30/09/1938	1993[a]	Nazi Germanys annexation of Czechoslovakias areas along the country's borders.
Denmark	Apr-40	9/04/1940	Jun-45	Invasion of Denmark by Germany.
Egypt	Feb-52	25/01/1952	N/A	Nasser Revolution to Sadat Succession
France	Jun-40	22/06/1940	Sep-44	German victory in the Battle of France led to French capitulation.
Germany	Apr-33	23/03/1933	Mar-57	The Enabling Act and Reichstag Fire Decree- most civil liberties were abolished.
Hungary	Dec-40	20/11/1940	1990[a]	Hungary joined German-Italian-Japanese pact.
Italy	Sep-43	8/09/1943	May-45[b]	Italy left the Axis and joined Allies. As a consequence, Italy was occupied by German forces.
Japan	Jul-44	N/A	Jul-46	GFD database covers the Japanese market until July 1944.
Netherlands	May-40	15/05/1940	May-45	Invasion of Netherlands by Germany
Norway	Apr-40	9/04/1940	Jun-45	Invasion of Norway by German forces
Poland	Sep-39	1/09/1939	1991[a]	Germany invaded Poland and started World War II.

The table describes 13 events from history of 38 countries, when the Human, Civil and Property rights were significantly limited or abolished. We assume that lack of key rights and liberties are equivalent with collapse of free economy and capital market. In second column, the dates of such events are reported; as default is assumed that stock market on those days is equal to 0. The next columns report exact date of event, date of restart of stock market and brief description of event. [a] In early 90's stock markets were reopened in Poland, Hungary and Czech Republic. However in first years of operation they were not representative to the whole economy due to their tiny size. Thus, in line to work by Jorion and Goetzmann (1999) those markets were not included in the analysis before year 2000. [b] In the case of Italy 1943, the motivation for our assumption is the loss of national sovereignty and its attendant implications for property, civil and human rights.

Table 8: Performance of Equity Markets with Discontinuity of Human and Property Rights

	JG Approach				BR Approach			
Country	Period	Mean	Median	Std. Dev.	Period	Mean	Median	Std. Dev.
Austria (AUT)	01/1922-12/1996	7.48	3.60	28.76	01/1922-04/1938	0.04	−1.93	49.36
					10/1946-12/1996	7.90	1.60	25.27
Belgium (BEL)	01/1921-12/1996	5.01	2.72	19.78	01/1921-06/1940	−6.03	−16.44	36.02
					06/1945-12/1996	5.99	5.20	15.21
Denmark (DNK)	01/1921-12/1996	4.93	1.91	14.49	01/1921-04/1940	−4.97	−0.29	27.83
					06/1945-12/1996	6.49	3.21	14.26
France (FRA)	01/1921-12/1996	6.97	8.02	24.96	01/1921-06/1940	−5.02	−8.83	33.96
					09/1944-12/1996	6.63	10.27	23.08
Germany (GER)	01/1921-12/1996	−4.63	2.28	47.35	01/1921-04/1933	−80.00	−24.18	105.91
					03/1957-12/1996	10.54	8.61	17.81
Italy (ITA)	01/1921-12/1996	8.18	2.02	31.29	01/1921-09/1943	5.69	−0.16	32.25
					05/1945-12/1996	6.76	3.01	29.82
Japan (JPN)	01/1921-12/1996	7.87	7.24	28.11	01/1921-07/1944	−4.55	−0.77	26.68
					07/1946-12/1996	14.41	17.99	30.31
Netherlands (NED)	01/1921-12/1996	6.59	6.07	20.01	01/1921-05/1940	−5.70	0.38	29.09
					05/1946-12/1996	9.19	10.56	16.57
Norway (NOR)	01/1921-12/1996	5.52	1.43	17.06	01/1921-04/1940	−1.38	2.91	27.41
					06/1945-12/1996	5.71	0.00	18.20
Czech Republic (CZE)	01/1921-10/1938	3.08	2.10	29.83	01/1921-10/1938	1.67	2.10	33.75
Egypt (EGY)	12/1948-08/1962	−11.79	−8.70	26.40	12/1948-02/1952	−60.20	−12.80	71.80
Hungary (HUN)	12/1924-10/1948	2.25	−7.05	53.06	12/1924-12/1940	−3.55	−6.32	37.40
Poland (POL)	01/1921-9/1939	5.57	−8.62	97.49	01/1921-9/1939	−6.57	−9.16	74.56

The table presents U.S. dollars annual nominal returns denominated in percentage points for 13 countries. In those countries human and/or property rights were violated during examined period. The table is divided into two panels. The first one report markets with temporary violation of key rights. The second panel reports markets permanently closed (see Jorion and Goetzmann (1999)). The table reports two approaches to breaks in trading activity. So called JG approach applies linear interpolation for missing months. The BR approach estimates performance of equity market only if human and/or property rights are fully respected.

The results of Table 8 are particularly instructive as its BR results present the very disparate results obtained when taking cognizance of human and civil rights. In contrast, the JG results average over these, ignore their impact, and allow for the post-World War II global recovery and end-of-period 1990's peace dividend to improve the overall time-series performance of world equity markets.

4.3 Construction of Global Equity Indices: Approaches

Jorion and Goetzmann (1999) constructed a value-weighted global equity index using data on international stock markets' performance sourced from Morgan Stanley Capital International Perspectives (MSCIP) for developed markets and from International Finance Corporation (IFC) for emerging markets. Due to the lack of reliable data on market capitalization for all examined markets for the period 1921 – 1996, the authors assigned weights based on gross domestic product (GDP). The data on GDPs were obtained from Mitchell (1992, 1993, 1995) and converted to U. S. dollars using annual averages. The Jorion and Goetzmann study shows that the GDP weights are roughly of the same order of magnitude as the market-value weights implied by capitalization.

The beginning of each decade of the 20th century is marked by rebalancing of portfolios, where weights are determined by the changed distribution of world GDP. Jorion and Goetzmann argue that a value-weighted scheme is appropriate for measurement of investor returns when survival is an issue.

From the perspective of our study, it is very important to discuss how the Jorion and Goetzmann study dealt with trading interruptions. They considered two kinds of interruptions: A temporary one, where the stock market eventually reopens before the end of 1996, and a permanent one, with no information about the continuity of prices across the interruption. In the case of a temporary break in trading, the return between the last data point before the break and the first data point after resuming trading is evenly spread out over the time period of the interruption. In the case of countries such as Czechoslovakia, Egypt, Greece, Hungary, Poland and Romania, Jorion and Goetzmann assumed that a market fell by 75% in the month following a permanent interruption. They argued that arbitrary selection of a 75% imputed drop was justified by the fact that markets before their death are characterized by low weight.

In our paper, we refer to Jorion and Goetzmann's method of constructing a global equity portfolio as the JG approach. In Table A1, we present the composition of a global index portfolio using the JG approach. In the early 1920s, the portfolio consists of 20 countries; during World War II, there are 31 countries in the portfolio. The last rebalancing in the 1990s leads to a global portfolio of 34 countries.

Our study suggests an alternative approach to constructing a world index portfolio that takes into account the fact that without human, civil and property rights there is no free market. We construct a value-weighted global equity index using the same data applied in the JG method. The country indices and GDPs denominated in U.S. dollars were sourced from GFDatabase. Similar to Jorion and Goetzmann's (1999) study, we assigned weights based on GDP. In the case of non-violation of human, civil and property rights on a country level, ordinary rebalancing takes place at the beginning of each decade. Any such violation leads to at least one extraordinary rebalancing of the world portfolio — the value of the affected stock market is assumed to be 0 (investors lose all capital invested in a particular market), and the country is excluded from the world portfolio up until basic rights of all residents are restored. At that time, a second rebalancing take place, and the country again becomes part of the value-weighted world portfolio.

Table 7 presents thirteen country-level events when human, civil and property rights were significantly limited or abolished. In all except three cases, markets were added back to the world portfolio by the mid-1990s. In our paper, we refer to our described method of world index construction as the BR approach. In comparison with the JG approach, it has 24 rebalancings versus 8 for the JG approach, in the period 1921 – 1996. Table 10 presents the country composition of the BR value-weighted equity portfolio with respect to human, civil and property rights. The first row reveals the length of time without ordinary and extraordinary rebalancing. In the early 1920s, the BR portfolio consists of 20 countries; during World War II, the number of countries in the portfolio ranges from 22 to 25. The number was determined by GFDatabase data availability and German or Soviet occupations. On average, the world equity portfolio is subject to change every eight months during World War II. The years 1940 and 1944 are characterized by a particularly high number of changes to the portfolio. In the case of the JG approach, as little as 3% of the world equity market was affected by permanent interruption. In the BR approach, as much as 23.1% of the world equity market was affected by violations of basic rights in the early and mid-1940s. Not surprisingly, there are significant differences in the performance of both proxies for a global equity index.

4.4 The Global Equity Risk Premium — Contrasting JG and BR Estimates

With these results in place, Figure 6 presents a *time-series of* global non-U. S. and global-with U. S. estimates of the *monthly* equity Sharpe Ratio using JG and our own BR estimates.[19] In our estimates, we set the residual value of an equity market to zero in accordance with Table 7. Of

[19] As was indeed the case for the JG study, the Sharpe Ratio we compute also ignores the riskfree rate and is computed as the ratio of Average Monthly Return to Std. Dev. of Monthly Returns.

the two largest economies to which this applies, the German is set to zero in March 1933, with the enactment of the Enabling Act; the French is set to zero at the conclusion of the June 1940 Armistice.

Our analysis of failed markets recognizes these events occurred to some fairly substantial markets — Germany and France. To demonstrate the effect of *time* in our estimates, we compute the estimate of the Sharpe Ratio at distinct points, using data available up to that date. Thus, we begin our estimates in 1931 using the past ten years, and then expand that window until 1996, the date of the JG results. We present these results with and without the inclusion of the U. S. stock-market in the results.

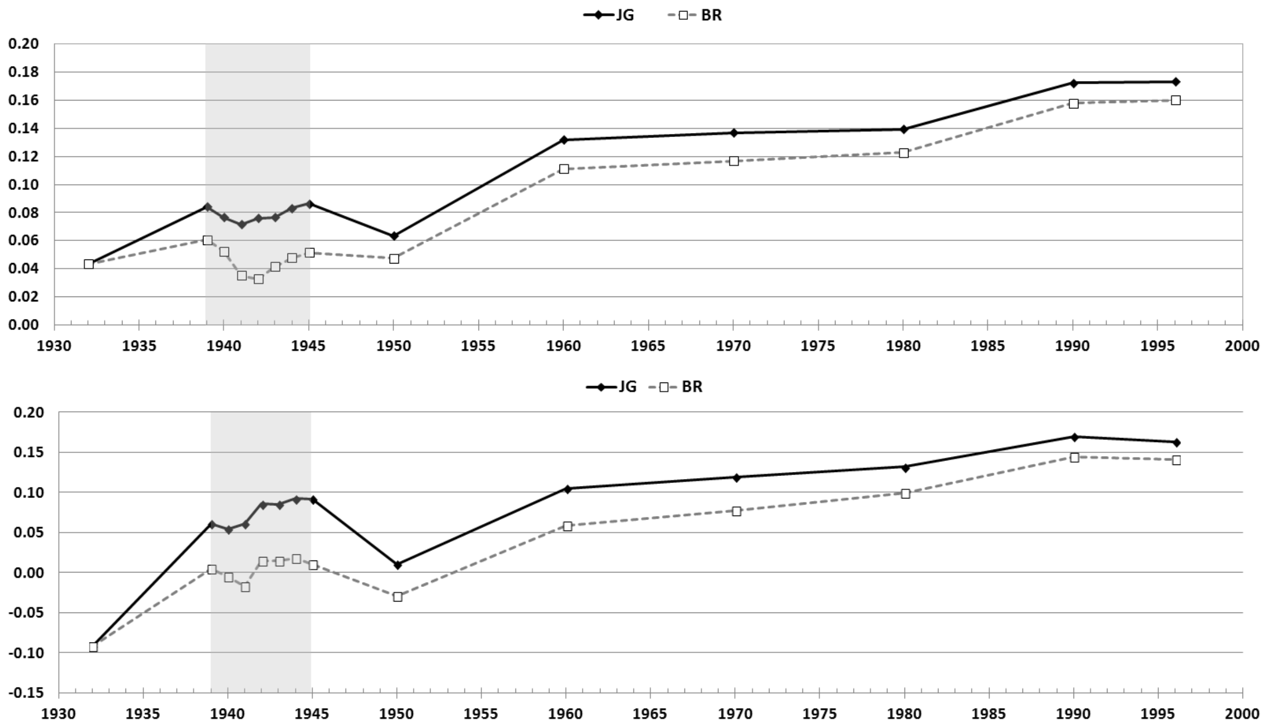

Figure 6: The figures display monthly Sharpe ratios calculated for World index constructed with (upper figure) and without U.S. stock market (lower figure). Each figure presents estimations for index constructed in line of Jorion and Goetzmann (1999) (JG approach) and BR approach. The BR approach for construction World index takes into account the impact of violation of human and property rights on wealth creation. For given point the Sharpe ratio is calculated from monthly returns for period between January 1921 and corresponding date. Sharpe ratio is the ratio of monthly mean to monthly volatility.

There are several results which highlight the differences between our results and those of JG:

1. Taking the point estimates at face value, we note the importance of our results to the rest-of-the-world analysis (see lower part of Figure 6): Given the lasting negative results of the Great Depression, under our BR results, the estimated Sharpe Ratio did not become positive until 1960, whereas the JG results first became positive as early as 1939.

2. The importance of the U. S. equity market to the world estimate of the equity risk premium is considerable. When the U. S. is included in the global equity portfolio, the BR Sharpe Ratio becomes positive as early as 1932, and is $0.16/0.14 - 1 = 14.3\%$ higher than the rest-of-the-world.

3. Over the twentieth century, the Sharpe reward to risk ratio for U. S. equities is $1-0.12/0.14 = 14.3\%$ lower than the rest-of-the-world. For JG paper it is $1 - 0.1433/0.1740 = 17.6\%$ lower than the rest-of-the-world.

4. Time diversification has compressed the JG and BR estimates, as equity markets reflected the generally-positive final outcomes to twentieth-century crises.

Finally, Table 9 conducts a comprehensive comparison of Sharpe-Ratio estimates across several dimensions: It contrasts the JG paper's *U. S.-specific* results with those obtained using GFD data. It contrasts the JG paper's *results* with our implementation of the JG *approach,* which we assert is a correct implementation of the analysis using GFD data. It contrasts the JG approach with our own BR approach. It implements these analyses for the U. S. index, the Global Index, and the Rest-of-the-World index. It computes arithmetic average returns, annualized volatilities, monthly Sharpe Ratios, geometric return and end-of-period wealth. It performs all of the above for both the JG period 1921 – 1996 *as well as* an updated calculation to 1921 – 2014.

Table 9: Performance of World Equity Index in periods 1921-1996 and 1921-2014

Index	Method/Source	Arithmetic Return		Annual Volatility		Monthly Sharpe Ratio		Geometric Return		Ending Wealth	
		1921-1996	1921-2014	1921-1996	1921-2014	1921-1996	1921-2014	1921-1996	1921-2014	1921-1996	1921-2014
U.S index	JG paper	8.04%	N/A	16.19%	N/A	0.143	N/A	6.95%	N/A	$171.2	N/A
	GFD	7.99%	7.74%	19.26%	18.68%	0.120	0.120	6.31%	6.16%	$104.41	$263.92
Global index	JG paper	7.76%	N/A	12.14%	N/A	0.185	N/A	7.25%	N/A	$211.2	N/A
	BR approach	6.98%	7.17%	12.57%	13.89%	0.160	0.149	6.36%	6.37%	$107.79	$315.07
	JG approach	7.44%	7.54%	12.38%	13.75%	0.173	0.158	6.87%	6.79%	$155.38	$454.21
Non-U.S index	JG paper	7.28%	N/A	12.08%	N/A	0.174	N/A	6.75%	N/A	$146.2	N/A
	BR approach	5.79%	5.69%	11.88%	13.24%	0.141	0.124	5.20%	4.91%	$46.85	$87.26
	JG approach	6.84%	6.55%	12.09%	13.39%	0.163	0.141	6.28%	5.79%	$101.71	$189.41

The table presents risk-return profile of indices. Each row corresponds to the different definition of index. Table reports nominal returns in U.S. dollars per annum. Arithmetic return is obtained from monthly returns multiplied by twelve. Volatility is equal to monthly standard deviation of returns multiplied by square root of twelve. Sharpe ratio is the ratio of monthly mean to monthly volatility. Ending wealth reports the final value of $1 invested on January 1921 at the end of the sample. Some numbers are taken directly from study by Jorion and Goetzmann (1999).

Table 10: Global Equity Risk Premium Relative to U.S. T-Bills for period 1900-2014

Index	Source/Approach	Period	Mean	Std. Dev.	Sharpe Ratio	Ending Wealth
U.S. Index	DMS 2011 paper	1900-2010	7.20%	19.80%	0.364	$21,766
	GFD database	1900-2014	7.41%	19.61%	0.378	$31,862
	3-month T-bills	1900-2014	3.83%	2.86%		$72.16
Global index	DMS 2011 paper	1900-2010	5.90%	17.10%	N/A	N/A
	DMS approach	1900-2014	6.68%	17.29%	0.387	$24,064
	BR approach	1900-2014	6.26%	16.79%	0.373	$15,864
Global index ex-U.S.	DMS 2011 paper	1900-2010	5.90%	19.90%	N/A	N/A
	DMS approach	1900-2014	5.66%	20.59%	0.275	$4,613
	BR approach	1900-2014	4.57%	19.08%	0.239	$1,754

The table presents estimation of equity risk premium for global index. The global index consist of following countries: Australia, Germany, Finland, France, Italy, Japan, Sweden, United Kingdom and United States. As proxy of risk free rate we use 90 days time-money rates on New York Stock Exchange Loans until 1920 and 3 month U.S. T-bills after 1920. Each row corresponds to the different definition of index. Table reports total returns in U.S. dollars per annum. Following the study by Dimson, Marsh, and Staunton (2011), the historical equity risk premium is measured by taking the geometric difference between the equity return and the risk-free return: $(1 + Equity\ rate\ of\ return)/(1 + Risk - free\ return) - 1$. Arithmetic mean and standard deviation of equity premium is calculated for each period. Sharpe ratio is the ratio of mean to standard deviation of annual equity risk premium. Ending wealth reports the final value of $1 invested in the beginning 1900 at the end of the sample. Some numbers are taken directly from study by Dimson, Marsh, and Staunton (2011), to compare DMS and BR approach. The table reports two approaches to breaks in trading activity. The so-called DMS approach used in work Dimson, Marsh, and Staunton (2011). The BR approach estimates performance of equity market only if human and/or property rights are fully respected.

Table 9 gives rise to several conclusions. JG significantly underestimate the *volatility* of the U. S. stock market: As is well-known, said vol exceeds 19% — consistent with Ibbotson-Sinquefield results — but they have it at just over 16%. This is a proportional error of magnitude $19.26/16.19-1 = 19\%$ and affects subsequent estimates of the monthly Sharpe Ratio. Their is at 0.143, whereas our is at 0.120 for period 1921-1996 and 1921-2014 period.

JG also overestimate the end-of-period wealth for \$1 invested in Jan. 1921: Their value is \$171.2 whereas ours is \$104.41. For period 1921-2014, such investment return \$263.92.

Computing the Sharpe Ratio for the global index over the JG period 1921 – 1996, their *paper* reports a value of 0.1845. Our replication of their paper yields 0.1734, whereas our methodology gives rise to 0.16. Their full overstatement is thus $0.185/0.16 - 1 = 15.63\%$. This has particularly-dramatic implications at the end-of-wealth levels: Their paper reports \$211.2, our implementation of their paper is \$155.38, and our approach gives \$107.79. The full overstatement here is $211.2/107.79-1 = 95.9\%$.

The contrast of the BR approach with JG approach for periods 1921 – 1996 and 1921 – 2014 leads to an overstatement $155.38/107.79 - 1 = 44\%$ and $454.21/315.07 - 1 = 44\%$, respectively. In the period 1996 – 2014 there is no difference between the two approaches, as none of the examined markets experiences limitation of property, civil and human rights.

These issues are compounded when one addresses the rest-of-the-world index. Their Sharpe-Ratio overstatement is on the order of $0.174/0.14 - 1 = 24.29\%$ and the wealth-ratio excess is $146.2/46.85 - 1 = 212\%$.

In addition to the contrast with JG, we also compare our results with Dimson, Marsh and Staunton (DMS, 2008 and 2011). In so doing, our sample consists of the total return indices for Australia (since 1900), France (1900), Finland (1929), Germany (1900), Italy (1929), Japan (1920), Sweden (1929), United Kingdom (1900) and United States (1900). Whereas the DMS study covers 19 countries over the period 1900 – 2010, the countries from our sample represent 87% of world capitalization in 1900. Our sample is limited to the countries whose returns are included in the GFD database over the sufficiently-long period of time.

In observing the results for Table 10, we can conclude the adjustment for critical events does give rise to a quantitatively and qualitatively distinct outcome. With respect to U. S. data, the GFD database we utilize results in a Sharpe Ratio of 0.378, which is slightly *higher* than the 0.364 reported by DMS. In contrast, for the Global index ex-U. S., our results report Sharpe Ratios lower by *13%* from their DMS counterparts

Thus, the consequences of our analysis, and their quantitative and qualitative distinction from those of JG and DMS, result from taking full cognizance of the events which occurred to stock markets and their investors primarily in Europe in the late '30's.

5 Conclusions

This paper sought to examine two major strands of literature, related but different.

The first addressed the performance of stock and bond markets in the face of national existential threats, with the potential of wiping out the entire value of the investment. Such can arise from external threats — such as invasion by a foe — or a domestic threat to a free-market economy, such as would be presented by a change-of-regime to command-and-control. In this respect, the experience of the Polish and French markets may have been *learning experiences* for the successive U. K. and Swedish markets.

To the perennial question, "How well do markets assess such risks?," the Polish and French markets, which succumbed to the external threat, the answer would have to be, "Not well." The answer appears more clear when it came later to markets that were able to maintain their continuity, such as the British and Swedish markets. With respect to the first two, our analysis shows those stock markets did not predict their own closures. In this regard, our findings are in contrast to the graphical representation (their Fig. 2) in Jorion and Goetzmann (1999) which appears to suggest a monotonic decline up to their self-described "permanent closure." Subsequently, it appears the British and Swedish markets did recognize the point of supreme risk and the subsequent recovery.

The second strand of the literature deals with the empirical estimation of the equity Sharpe Ratio, as exemplified most strongly in Jorion and Goetzmann (1999) and to some extent in Dimson, Marsh and Staunton (2008).

While we feel we corrected some erroneous computations the first two authors reported, there is a far-more fundamental reality of which we believe neither paper took proper cognizance: The absence of human and civil rights on the ability to enjoy the fruits of capital (and real) markets. Qualitatively correcting this gave rise to substantially lower Sharpe Ratio, especially when focused on the non-U. S. portion of the global portfolio. It is crucial to correct this error, as property, civil and human rights are fundamental to the purchasing-power component of free markets.

A Detailed Composition of World Indices for Empirical Analysis

Table A1: Composition of World Index for Countries with Continuity of Human and Property Rights

Period	1/21-1/30	1/30-4/33	4/33-4/38	4/38-10/38	10/38-9/39	9/39-1/40	01/40-5/40	5/40-6/40	6/40-12/40	12/40-9/43	9/43-7/44	7/44-8/44	8/44-4/45	4/45-6/45	6/45-7/46	7/46-10/46	10/46-1/50	1/50-3/50	3/50-3/57	3/57-1/60	1/60-1/70	1/70-1/80	1/80-1/90	1/90-12/96
/Month	108	39	60	6	11	4	4	1	6	33	10	1	8	2	13	3	39	2	84	34	120	120	120	83
ARG	X	X	X	X	X	X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	X	✓	✓	✓
AUS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
AUT	X	✓	✓	X	X	X	X	X	X	X	X	X	X	X	X	X	✓	✓	✓	✓	✓	✓	✓	✓
BEL	✓	✓	✓	✓	✓	✓	✓	X	X	X	X	X	X	X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BRA	X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CAN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CHL	X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
COL	X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CZE	✓	✓	✓	✓	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
DNK	✓	✓	✓	✓	✓	✓	✓	X	X	X	X	X	X	X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EGY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	✓	X	X	X	X	X	X
ESP	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FIN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FRA	✓	✓	✓	✓	✓	✓	✓	✓	X	X	X	X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
GER	✓	✓	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	✓	✓	✓	✓	✓
GRE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	✓	✓	✓	✓
HUN	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
IND	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
IRL	X	X	X	X	X	X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
ISR	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	✓	✓	✓	✓	✓	✓	✓
ITA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	X	X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
JPN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	X	X	X	✓	✓	✓	✓	✓	✓	✓	✓	✓
MEX	X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NED	✓	✓	✓	✓	✓	✓	✓	X	X	X	X	X	X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NOR	✓	✓	✓	✓	✓	✓	✓	X	X	X	X	X	X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NZ	X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PAK	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	✓	✓	✓
PER	X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PHL	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	✓	✓	✓	✓
POL	✓	✓	✓	✓	✓	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
POR	X	X	X	X	X	X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
ZAF	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SUI	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SWE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
UK	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
URY	X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
USA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
VEN	X	X	X	X	X	X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

The table display composition of World index constructed for market/periods with continuity of human and property rights. The weights are set by GDP weights at the beginning of each decade. Each row indicate countries included in World index (by ✓) and countries excluded from World index (by X). The above approach to construction World index assumes that in case of countries experience discontinuity of human and property rights, the value of index is zero.

Table A2: Composition of World Index for Jorion and Goetzmann (1999) Approach

Period	1/21-1/30	1/30-1/40	1/40-1/50	1/50-1/60	1/60-1/70	1/70-1/80	1/80-1/90	1/90-12/96
ARG	X	X	✓	✓	X	✓	✓	✓
AUS	✓	✓	✓	✓	✓	✓	✓	✓
AUT	X	✓	✓	✓	✓	✓	✓	✓
BEL	✓	✓	✓	✓	✓	✓	✓	✓
BRA	X	✓	✓	✓	✓	✓	✓	✓
CAN	✓	✓	✓	✓	✓	✓	✓	✓
CHL	X	✓	✓	✓	✓	✓	✓	✓
COL	X	✓	✓	✓	✓	✓	✓	✓
CZE	✓	✓	X	X	X	X	X	X
DNK	✓	✓	✓	✓	✓	✓	✓	✓
EGY	X	X	X	✓	✓	X	X	X
ESP	✓	✓	✓	✓	✓	✓	✓	✓
FIN	✓	✓	✓	✓	✓	✓	✓	✓
FRA	✓	✓	✓	✓	✓	✓	✓	✓
GER	✓	✓	✓	✓	✓	✓	✓	✓
GRE	X	X	X	✓	✓	✓	✓	✓
HUN	X	✓	X	X	X	X	X	X
IND	✓	✓	✓	✓	✓	✓	✓	✓
IRL	X	X	✓	✓	✓	✓	✓	✓
ISR	X	X	X	✓	✓	✓	✓	✓
ITA	✓	✓	✓	✓	✓	✓	✓	✓
JPN	✓	✓	✓	✓	✓	✓	✓	✓
MEX	X	✓	✓	✓	✓	✓	✓	✓
NED	✓	✓	✓	✓	✓	✓	✓	✓
NOR	✓	✓	✓	✓	✓	✓	✓	✓
NZ	X	✓	✓	✓	✓	✓	✓	✓
PAK	X	X	X	X	✓	✓	✓	✓
PER	X	✓	✓	✓	✓	✓	✓	✓
PHI	X	X	X	✓	✓	✓	✓	✓
POL	✓	✓	X	X	X	X	X	X
POR	X	X	✓	✓	✓	✓	✓	✓
SUI	✓	✓	✓	✓	✓	✓	✓	✓
SWE	✓	✓	✓	✓	✓	✓	✓	✓
UK	✓	✓	✓	✓	✓	✓	✓	✓
URY	X	✓	✓	✓	✓	✓	✓	✓
USA	✓	✓	✓	✓	✓	✓	✓	✓
VEN	X	✓	✓	✓	✓	✓	✓	✓
ZAF	✓	✓	✓	✓	✓	✓	✓	✓

The table display composition of World index constructed using Jorion and Goetzmann (1999) method. In order to minimize rebalancing, Jorion and Goetzmann (1999) adopted a portfolio value weighted approach. The weights are set by GDP weights at the beginning of each decade. Each row indicate countries included in World index (by ✓) and countries excluded from World index (by X). The approach assumes that in case of countries such Czechoslovakia, Egypt, Hungary, and Poland there a 75% was loss in the month series disappears.

References

1. Barro, Robert J., "Rare Events and the Equity Premium," NBER Working Paper Series, May 2005.

2. Barro, Robert J. and José F. and Ursúa, "Macroeconomic Crises since 1870," Brookings Papers on Economic Activity, Spring 2008.

3. Berkman, Henk, Ben Jacobsen and John B. Lee, "Time-varying rare disaster risk and stock returns," *Journal of Financial Economics,* 101 (2011), pp. 313-332.

4. Boubakri, Narjess, Sadok El Ghoul and Walid Saffar, "Political Rights and Equity Pricing," *Journal of Corporate Finance,* forthcoming, 2014.

5. Clarke, Peter, **Hope and Glory: Britain 1990-2000**, 2011, Princeton University Press.

6. Choudhry, T., "World War II events and the Dow Jones industrial index," *Journal of Banking and Finance,* 2010, 40, 10221031.

7. Czerniawski, Ryszard, **Warszawska Gielda 1918-1939**, 1997, Wydawnictwo Gield Papierow Wartosciowych w Warszawie.

8. Dimson, Elroy, Paul Marsh and Mike Staunton, "The worldwide equity risk premium: a smaller puzzle," Chapter 11 of R. Mehra (Ed), **Handbook of the Equity Risk Premium,** Elsevier, 2008.

9. Dimson, Elroy, Paul Marsh and Mike Staunton, "Equity Premiums around the World", Chapter 4 of P. Brett Hammond, Jr., Martin L. Leibowitz, and Laurence B. Siegel (Ed), **Rethinking the Equity Risk Premium,** Research Foundation of CFA Institute, 2011.

10. De Soto, Hernando, **The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else,** 2000, Basic Books, New York.

11. Demsetz, Harold, "Toward a Theory of Property Rights," *American Economic Review,* Vol. 57, No. 2, Papers and Proceedings of the Seventy-ninth Annual Meeting of the American Economic Association (May 1967), pp. 347-359.

12. Dowell-Jones, Mary and David Kinley, "Minding the Gap: Global Finance and Human Rights," *Ethics & International Affairs,* 25 no. 2 (2011), pp. 185 – 210.

13. Frey, Bruno S. and Marcel Kucher, "Wars and Markets: How Bond Values Reflect the Second World War," *Economica,* 2001, Vol. 68, pp. 317 – 333.

14. Frey, Bruno S. and Daniel Waldenström, "Markets work in war: World War II reflected in the Zurich and Stockholm bond markets," *Financial History Review,* 2004, pp. 51 – 67.

15. Glimour, John **Sweden, the Swastika and Stalin**, 2011, Edinburgh University Press.

16. Johnson, Simon, John McMillian and Christopher Woodruff, "Property Rights and Finance," *American Economic Review,* Vol. 92, No. 5 (Dec. 2002), pp. 1335-1356.

17. Jorion, Philippe and William N. Goetzmann, “Global Stock Markets in the Twentieth Century,” *Journal of Finance,* Vol. 54, No. 3 (June 1999), pp. 953-980.

18. Knack, Stephen and Philip Keefer, “Institutions and Economics Performance: Cross-Country Tests Using Alternative Institutional Measures,” *Economics & Politics,* 1995.

19. Kuzner, James, “Early Modern Ideas of Freedom,” *Modern Philology,* Vol. 110, No. 1, August 2012.

20. Leczyk, Marian, **Druga Rzeczpospolita 1918-1939 Spoleczenstwo, Gospodarka, Kultura, Polityka**, 2006, Ksiazka i Wiedza Press.

21. Mehra, Rajmish, **Handbook of the Equity Risk Premium**, 2008, Elsevier, Amsterdam.

22. Mitchell, Brian, **International Historical Statistics: Europe, 1750 – 1988,** Stockton Press, New York, 1992.

23. Mitchell, Brian, **International Historical Statistics: The Americas, 1750 – 1988,** Stockton Press, New York, 1993

24. Mitchell, Brian, **International Historical Statistics: Africa, Asia & Oceania, 1750 – 1988,**Stockton Press, New York, 1995.

25. Mauro, Paolo, “Corruption and Growth,” *Quarterly Journal of Economics,* 1995.

26. McMillan, James, **Dreyfus to De Gaulle: politics and society in France, 1898-1969**, 1985, London, UK: Edward Arnold.

27. North, Douglass, **The Rise of the Western World: A New Economic History**, 1973, Cambridge, UK: Cambridge University Press.

28. Neville, Peter, **France 1914-1969: the three Republics**, 1995, London, UK: Hodder and Stoughton.

29. Östling, Johan, “The Rise and Fall of Small-State Realism: Sweden and the Second World War,” in Henrik Stenius, Mirja sterberg and Johan Ostling (eds.), **Nordic Narratives of the Second World War: National Historiographies Revisited,** Lund: Nordic Academic Press, 2011.

30. Overy, R. J., “German Multi-Nationals and the Nazi State in Occupied Europe,” **War and Economy in the Third Reich,** Oxford Scholarship, 1994.

31. Pinto, Pablo M., Stephen Weymouth and Peter Gourevitch, “The politics of stock market development,” *Review of International Political Economy,* 17:2, May 2010, pp. 378 – 409.

32. Rand, Ayn, **The Virtue of Selfishness,** 1964, New York: New American Library.

33. Rosenberg, Nathan **The West grew rich: The Economic Transformation of the Industrial World** , 1986, New York: Basic Books.

34. Sejersted, Francis, **The Age of Social Democracy: Norway and Sweden in the Twentieth Century**, 2011, Princeton, NJ: Princeton University Press.

35. Smith, A. L., Jr., **Hitler's Gold. The Story of the Nazi War Loot,** Oxford, New York, 1989.

36. Tetlock, Paul C., "Giving Content to Investor Sentiment: The Role of Media in the Stock Market," *Journal of Finance,* Vol. 62, No. 3 (June 2007), pp. 1139-1168.

37. Tu, Yong and Helen X. H. Bao, "Property Rights and Housing Value: The Impacts of Political Instability," *Real Estate Economics,* 2009 V37 2, pp. 235257.

38. Wieczorkiewicz, Pawel, **Ostatnia lata Polski niepodleglej**, 1991, Krajowa Agencja Wydawnicza.

39. Willard, Kristen L., Timothy W. Guinnane and Harvey S. Rosen, "Turning Points in the Civil War: Views from the Greenback Market," *American Economic Review,* Vol. 86, No. 4 (Sep. 1996), pp. 1001-1018.