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I. Summary

The current phase of this project focuses on taking hand-entered data on Irish securities which has already been put into a spreadsheet, cleaning it, checking for inconsistencies, classifying the data by security type, by industry, and by location, and constructing a variety of security market indices.

II. Motivation

Some of the incentives we had to gather these data were:

• No one has collected monthly data on Irish securities before. • Understanding the dynamics of the Irish stock market can give us important information about the health of the economy.

• The period we investigate is an eventful time in Irish history. We want to run event studies on the important issues in Irish history, like the independence and civil war, political movements, land debates.

• Stock markets are remarkable information processors and there has been a great deal of work in the economic literature using stock market data to find turning points. We want to check for the consistency between what contemporaries viewed as important events in the explored period of time and what historians acknowledged as turning points in that past.

• We can compare and contrast the issues we encounter in the data with similar modern finance debates such as stock splits – both why they occur and what their consequences are; or par value changes – their significance in the past and the lost of meaning in modern times)

III. Data

We processed monthly data from the Investor's Monthly Manual, a record of securities traded both on domestic and foreign exchanges. Figure 1 shows part of a scanned page from an issue of the IMM. The records include capitalization, prices and dividends. At this stage of the project, we collected data only on capitalization and the latest price of each month. We have not yet gathered data on dividends, so we cannot produce total return data. We explain the meaning of the variables under capitalization since they might be confusing if we relate them to modern finance:

• No. of shares or amount of stock = number of shares outstanding;

• Share or stock = the total amount the company was authorized to issue;

• Paid (in later issues of the IMM appears as par value) = a portion of the authorized amount of a security paid in by the shareholders; the unpaid part of the capital could be called in at the management's discretion - either to help a company in trouble or to raise funds for new projects;

For the purposes of our research, having clean data was a crucial step of the project. One of the tasks we encountered to be most challenging in the clean-up was differentiating between equities, preferred shares and bonds, because unlike modern market informers like the Wall Street Journal, IMM does not have different tables for the different types of securities that a company issues. We also included in our data the location of the companies in the sample to later inquire if there is any difference between the north and the rest of the country in terms of financial activity.

Number of securities Ireland, 1869-1929	প্রি Market capita
75 65 56 56 56 56 56 56 56 56 5	3750000000 3250000000 2750000000 1750000000 1250000000 250000000 0 1870m1 1880m1 Market cap. b Market cap. e
Figure a.	Figure b.

Figure a presents the number of equities, bonds and preferred shares that we have in the index for each month. Figure b presents the market capitalization for the categories of securities above for each month of the explored period.

CREATING NEW IRISH STOCK MARKET INDICES, 1869-1929

- Data and computational issues -

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Figure 1. Picture of part of one page of the December issue of the Investor's Monthly Manual, year 1905. The arrow points to an Irish company that is in our sample.

	Name	Kinahan & Co. Breweries UIster Antrim Jan-95 Apr-08				Kinahan & Co., 5.5		
	Industry					Breweri		
	Province					Ulster		
	County					Antrim		
	Start					Jan-95		
	End					Apr-08		
	Type of Sec.	Equity				Preferred S		
	Date(vert.)	No.of shares	Auth. amount	Paid/Par	Price(latest)	No.of shares	Auth. amount	
_	Nov-05	8000	10	10	2.625	8000	10	
\rightarrow	Dec-05	8000	10	10	2.625	8000	10	
-	Jan-06	8000	10	10	2.90625	8000	10	
	Feb-06	8000	10	10	2.90625	8000	10	

Figure 2. Part of the excel sheet we created that contains information about capital and the latest price of the security from the IMM and the distinctions we made between type of security and geographical position.

IV. Methodology: Constructing stock market indices

i. Index calculations

We calculated a month-to-month percent change in price for each security issued and then averaged the changes for every month. Some securities were not actively traded in each month. When that happened, those securities were not included in the sample in the respective months.

For each month, we calculated a weighted average of the percent change in price. The weights used were market capitalization and paid-up capital.

We converted both the unweighted percent average and the weighted percent averages into indices, setting January 1869 at 100.



These are the formulas we used to calculate the weighted percent averages indices, where p_x is the latest price of the month associated with each security, p_x is the monthly percent change in price, r_{v} is the par value of each security and s_{v} is the number of shares issued. We assume we have n securities.

ii. A taste of results

Figure 3 presents stock market indices calculated from the unweighted average of the monthly percent change in price for the equities of firms that were located in what was to become after the war of independence, the Republic of Ireland and for the equities of the companies that were located in what would later become Northern Ireland.



Figure 3. Unweighted stock market indices, 1969-1929



 $\left[\%\Delta_n\times(r_xs_x)\right]$

$$\sum_{x=1}^{n} r_{x} S_{x}$$

Figure 4 displays stock market indices with the average percent change weighted by market capitalization. The indices are constructed with the formula in section VI.



V. A comparison with the indices used in modern finance

Given our future plans of running events studies, we found it appropriate to calculate the indices explained in section IV. There are two commonly used index methodologies in the modern world: Standard & Poor's 500 (S&P 500) - a market-value-weightedindex and the Dow Jones Industrial Average (DJIA) - price-weighted average.

We did not use either approach because:

• We did not want to have to take account of par changes - which would have been the case for S&P500.

• We did not want to give extra weight to the companies with higher prices - which would have been the case for DJIA.

VI. Next step

The next step of our project is to create a program to scan through the data, looking for structural breaks.

Tests for structural breaks are common in economic history and political economy work.

There are several papers in the literature that talk about the techniques for discovering structural breaks. See, for example:

Willard, Kristen, Timothy Guinnane, and Harvey Rosen, "Turning Points in the Civil War: Views from the Greenback Market," American *Economic Review* 1996 (September)

Sussman, Nathan and Yishay Yafeh, "Institutions, Economic Growth and Country Risk: Evidence from Japanese Government Debt in the Meiji Period" Journal of Economic History, June 2000, pp. 442-46.

VII. In the future

Stock splits and reverse splits are a debated subject both in historical and modern finance. Even if they do not have any effect on the market value of a company, they have psychological effects that may trigger changes in the price of a certain security. In this study, we decided to omit stock splits when calculating the stock market indices. However it is an issue we want to explore in our future work. We outline several reasons for why a stock split may occur: The security becomes too expensive and the company wants to

make it more accessible.

• The higher the price of a certain security, the less liquidity the security has. So by splitting a share, the company increases its liquidity.

There is a general positive sentiment surrounding a stock split. Investors suddenly have more shares to trade, so if the price increases they are happy.

On the other hand, a reverse split is usually seen as a bad sign, since companies usually do that to avoid a security from being delisted or to make their company look more valuable.

With historical data, we have the benefit of hindsight and we can analyze a happening, such as a stock split, in the context of a later chain of events.

