Turner, John D.

Working Paper

Financial history and financial economics

QUCEH Working Paper Series, No. 14-03

Provided in Cooperation with:
Queen's University Centre for Economic History (QUCEH), Queen's University Belfast

Suggested Citation: Turner, John D. (2014) : Financial history and financial economics, QUCEH Working Paper Series, No. 14-03, Queen's University Centre for Economic History (QUCEH), Belfast

This Version is available at:
https://hdl.handle.net/10419/96489

QUCEH WORKING PAPER SERIES
http://www.quceh.org.uk/working-papers

FINANCIAL HISTORY AND FINANCIAL ECONOMICS

John D. Turner (Queen's University Belfast)

Working Paper 14-03

QUEEN'S UNIVERSITY CENTRE FOR ECONOMIC HISTORY
Queen's University Belfast
185 Stranmillis Road
Belfast BT9 5EE
April 2014

Financial History and Financial Economics*#

John D. Turner
Queen's University Belfast

Abstract
This essay looks at the bidirectional relationship between financial history and financial economics. It begins by giving a brief history of financial economics by outlining the main topics of interest to financial economists. It then documents and explains the increasing influence of financial economics upon financial history, and warns of the dangers of applying financial economics unthinkingly to the study of financial history. The essay proceeds to highlight the many insights that financial history can potentially provide to financial economics. The main conclusion of the essay is that financial economics can potentially learn more from financial history than vice versa.

Keywords: financial economics, financial history, asset pricing, agency, corporate finance, behavioural finance, options.

JEL Classification: G00, N01, N20.

* Essay prepared for *Oxford Handbook of Banking and Financial History*, Y. Cassis, R. S. Grossman and C. Schenk (editors). Oxford: Oxford University Press (forthcoming).

Thanks to Graham Brownlow, Gareth Campbell, Chris Colvin, and Qing Ye for their comments and suggestions.

Robert Solow, the Nobel laureate, once opined that "an economic historian is merely an economist with a high tolerance for dust".[1] In making this statement, Solow was railing against the cliometric revolution, and was arguing that economic history needed to be much more than merely testing economic theories using thin data. In a similar vein, I will make a plea in this essay that the financial historian should not merely be a financial economist with a high tolerance for dust and data entry.

The main purpose of this essay is to analyse the bidirectional relationship between financial history and financial economics because, as we will see below, they both have something to contribute to each other. In order to analyse this bidirectional relationship, we will critically examine how financial economics has affected and been used in financial history. Some suggestions as to potential future uses of financial economics in financial history will also be made. We will then explore the contributions that financial history has made and can make in the future to financial economics. The main argument that is developed in this essay is that financial history has more to offer financial economics than vice versa.

Financial economics, as a discipline, is closely related to, but sits somewhat separately from, the academic study of banking and financial intermediation. Banking theory has largely been developed by economists interested in industrial organization and the macroeconomy.[2] This essay will adhere to this strict subject delineation and will therefore not be analysing the relationship between banking theory and banking history.

The first section of this essay is a condensed history of financial economics, where the three foundational pillars of the discipline are identified and discussed, namely asset pricing, corporate finance, and the efficient markets hypothesis. The subsequent most important

[1] Solow, "Economic History", p. 331.

[2] See, for example, Freixas and Rochet, *Microeconomics of Banking*.

developments in the discipline are also discussed i.e., agency or corporate governance, option pricing, and behavioural finance.

The second main section of this essay looks at the effect of financial economics on the practice of financial history. In particular, it critically examines how the three foundational pillars of financial economics as well as the three subsequent developments in the field have affected financial history. The section also highlights some of the dangers of applying financial economics to financial history as well as looking at some future directions the application of financial economics to financial history could take.

The third part of this essay is an analysis of how financial history has contributed and can contribute to the development of financial economics. Some areas within financial economics, such as empirical asset pricing, are intrinsically backwards looking as they require long series of returns. However, financial history can provide financial economists with more than out-of-sample tests and natural experiments of asset pricing models. Financial history also provides financial economics with a wide variety of asset price reversals, which allow various economic theories of 'bubble' formation to be tested. In addition, we will see that financial history enables tests of corporate finance theories which ex ante rule out several important explanatory factors. Finally, in this section, we shall see that financial history provides insights into fundamental features of modern capital markets and corporations, such as securities regulation and limited liability, both of which are regarded as necessary prerequisites for the functioning of financial markets, because some of these alleged foundational features were not always present in the past.

A condensed history of financial economics

As a discipline, financial history predates financial economics. The genesis of financial economics as a separate field or subject in its own right can be traced back to the 1950s.

Although financial economics covers a broad range of topics, the central and foundational pillars of the discipline, which were erected in its first two decades as a discipline, are corporate finance, asset pricing, and the efficient markets hypothesis.

The seminal article in corporate finance was Lintner's empirically-informed model of corporate dividend policy behaviour, which was published in 1956.[3] However, corporate finance and financial economics made a significant departure from this approach with the publication in 1958 and 1961 of Modigliani and Miller's famous irrelevance theorems.[4] In their two papers, they argued that in a perfect capital market, and in a world without taxes and bankruptcy costs, the market value of any firm is independent of its capital structure and its dividend policy. The implications of this work were startling: firm values are solely determined by real considerations such as the earning power of a firm's assets and its investment policy, and not by how those assets are financed or how the firm's earnings are packaged for distribution to shareholders. However, the Modigliani-Miller propositions were rejected by the profession not due to the unrealistic assumptions underpinning their then-controversial arbitrage proof, but because they failed the Friedman positivism test.[5] The Friedman positivism test implies that it is not the model's assumptions which matter, but its ability to provide accurate predictions. The Modigliani-Miller propositions are difficult to test and are subject to numerous identification problems, and so it has proved difficult to calibrate them.[6] Consequently, much of the subsequent history of corporate finance was concerned with finding what was missing from the Modigliani-Miller model.[7]

[3] Lintner, "Distribution".

[4] Modigliani and Miller, "The Cost of Capital", "Dividend Policy".

[5] Friedman, *Essays in Positive Economics*.

[6] Miller, "The History of Finance".

[7] Hart, "Financial Contracting".

The attempts to fix up the Modigliani-Miller model over the past five decades have involved the weakening of some of their key assumptions. The earliest attempt to fix up the Modigliani-Miller model involved the introduction of tax (both corporate and personal), but created something of a puzzle in that the optimal dividend policy is that firms should pay zero dividends and the optimal capital structure is 100 per cent debt finance.[8] Subsequent attempts to fix up the model focussed on agency costs and asymmetric information. The agency cost models suggested that agency costs ultimately determine a firm's capital structure and dividend policy.[9] Meanwhile asymmetric information models suggest that managers pay dividends or raise debt finance in order to send costly-to-replicate signals to investors.[10]

Seminal work was also taking place in the 1950s in the area of asset pricing. Harry Markowitz, an operations research graduate at the University of Chicago, published a paper in 1952 which ultimately revolutionised the theory and practice of financial economics.[11] Markowitz's key insight was that he identified the return on an investment with its probability-weighted mean value of its possible outcomes and its risk with the variance of those outcomes around the mean. This was revolutionary at the time, and by identifying risk and return with variance and mean, Markowitz was able to apply statistical methods to form efficient portfolios i.e., a portfolio where an investor cannot lower their risk without sacrificing returns and vice versa.

[8] Modigliani and Miller, "Corporate Income Taxes"; Brennan, "Taxes"; Farrar and Selwyn, "Taxes"; Miller, "Debt and Taxes".

[9] Easterbrook, "Two Agency Cost Explanations"; Jensen and Meckling "Theory of the Firm"; Jensen, "Agency Costs"; Rozeff, "Growth, Beta and Agency Costs".

[10] Bhattacharya, "Imperfect Information"; John and Williams, "Dividends"; Leland and Pyle, "Informational Asymmetries"; Miller and Rock, "Dividend Policy"; Myers and Majluf, "Corporate Financing".

[11] Markowitz, "Portfolio Selection"

William Sharpe took Markowitz's insights and posed the following question: if everyone invests in a Markowitz efficient portfolio, what prices will securities command when the capital market equilibrates?[12] The answer was simple, but elegant: the expected return of a security was proportional to its covariance with the rate of return on the overall market, the famous "beta". In other words, a single risk factor was able to describe the cross-section of expected returns. However, subsequent and substantial testing of the capital asset pricing model (CAPM) has revealed that at least two other factors, size and book-to-market ratios, are also important for describing the cross section of returns on common stocks.[13]

During the 1960s, there was an upsurge in interest in the randomness of stock market prices, particularly from statisticians such as Kendall, Working, and Roberts.[14] Subsequently, economists such as Cowles, Cootner, Samuelson, and Fama provided an economic explanation for the randomness or near-randomness of stock prices.[15] The explanation provided was that, in an efficient market, arbitrage ensures that all available information pertinent to the valuation of a security is reflected in its price. Thus stock price changes were random because the arrival of new information about a security's value was random. This theory was refined somewhat by Fama in his 1970 paper to take account of the fact that there were some elements of predictability in long-run returns.[16] He differentiated between the weak, semi-strong and strong forms of the efficient markets hypothesis, which alluded to the type of information reflected in security prices.

[12] Sharpe, "Capital Asset Prices"; Independently and simultaneously, Lintner, "The Valuation of Risk Assets" and Mossin, "Equilibrium" developed similar capital asset pricing models.

[13] Fama and French, "Common Risk Factors", "The Cross-Section".

[14] Kendall, "The Analysis"; Working, "New Concepts"; Roberts, "Stock-Market Patterns".

[15] Cowles, "A Revision"; Cootner, "Stock Prices"; Samuelson, "Proof"; Fama, "Behavior".

[16] Fama, "Efficient Capital Markets".

Since the laying of these foundational pillars, there have been at least three additional topics within financial economics which have received a lot of attention and have emerged as important elements of the discipline. First, options have received a lot of attention from financial economists following the formal development of put-call parity and the Black-Scholes-Merton formula.[17] Second, since the 1980s, behavioural finance has emerged as an exciting area of research, which affects all the foundational pillars of finance.[18] In behavioural finance some of the neoclassical assumptions about investor behaviour are replaced by their psychological or behavioural counterparts. Third, following the work of Jensen and Meckling, agency or corporate governance has emerged as an important issue which has received a lot of attention from financial economists.[19] Arguably, however, this topic should be dated back to the seminal work of Berle and Means.[20]

The use of financial economics in financial history

In this section of the essay we want to (a) establish the extent to which financial economics is used in financial history, (b) examine critically how the three foundational pillars of financial economics outlined above as well as the three important topics which have subsequently emerged have been used in financial history, and (c) outline the possible ways financial economics can be used in the future development of financial history.

Table 1 contains the number of citations of the foremost finance and economics journals in the *Financial History Review*, which was founded in 1994. Two things from this table are worthy of comment. First, prior to 2004, there was not very much citation of

[17] Stoll, "The Relationship"; Black and Scholes "The Pricing of Options"; Merton, "Theory".

[18] Shefrin, "Behavioralizing Finance".

[19] Jensen and Meckling, "Theory of the Firm"; Shleifer and Vishny, "A Survey of Corporate Goverance".

[20] Berle and Means, *The Modern Corporation*.

finance or economics journals, with the three foremost finance journals being cited on only seven occasions. Second, since 2004, and particularly since 2008, there has been an increase in citations of the foremost economics and finance journals. Although this may reflect a changed editorial policy, such policies tend to reflect (and lag) general trends in the field.

Table 2 contains the number of articles in the *Journal of Economic History* and *Economic History Review*, the two leading economic history journals, which cite the three foremost finance journals and, for the sake of comparison, the *Journal of Money, Credit and Banking*. Four features of this table are worthy of comment. First, there has been a steady increase in the number of financial history articles published in these two journals, which mirrors the growth of financial economics as a discipline. Second, there are fewer citations of finance journals in the *Economic History Review*, which partially reflects a lower number of financial history articles, but also may reflect a difference in the practice of economic history in the UK and USA, with the latter much more open, particularly in the 1970s and 1980s, to cliometrics. Third, there has been an increase in the number of articles citing financial economics journals over the past four decades, and there has been a substantial change in the first decade of the 2000s. This increase in citations cannot be accounted for by an increased number of financial history articles in these journals, and thus may reflect an increasing influence of financial economics on financial history. Fourth, given the relative youth of financial economics at the time as well as some of the finance journals, it is unsurprising that finance journals are rarely cited in the 1970s. Indeed, none of the finance journals in Table 2 are cited in the two economic history journals prior to 1970.

The above raises the following question: why has the use of financial economics in financial history increased since 1970, and particularly in the 2000s? The cliometrics revolution in economic history plays something of a role in encouraging the early growth. However, the huge increase in the 2000s has two sources. First, unlike previous generations,

the new generation of economic historians has been trained in financial economics. Second, and probably most importantly, technological advances have enabled scholars working in financial history to utilise the toolbox of financial economics. Financial economics at its core is an empirical discipline which requires lots of data and computational power to process data. The digitisation of newspapers and periodicals has dramatically reduced the costs of acquiring market price data from earlier periods. For example, the International Center for Finance at Yale University has digitised many early price lists such as the *Investor's Monthly Manual* for 1869-1929. In addition, digital photography and optical character recognition software has enabled scholars to gather the large amounts of data required for rigorous analysis.

In terms of corporate finance, one of the earliest attempts in financial history to use corporate finance theory was by Baskin and Miranti.[21] In their book, they draw heavily on the asymmetric information and (to a lesser extent) agency theories developed in corporate finance to interpret and understand the evolution of corporate finance from the preindustrial world through to the modern era. Their broad coverage of time and space helps us understand the role asymmetric information plays in the development of corporate financial policies over time. One of their main insights is that dividends can be used to signal information to investors and a pecking-order model of capital structure explains why firms issued so much debt in the pre-tax era.[22] Subsequent to Baskin and Miranti, there has been little in the way of empirical work into capital structure and dividend policies of firms in the past apart from a two studies of dividend policy which look at the UK in the nineteenth century and at the beginning of the twentieth century.[23] Notably, both of these studies support

[21] Baskin and Miranti, *A History of Corporate Finance*; Baskin, "The Development".

[22] See Myers and Majluf, "Corporate Financing" for the pecking-order theory of capital structure.

[23] Braggion and Moore, "Dividend Policies"; Turner et al., "Why Do Firms Pay".

the view of Baskin and Miranti that dividends played an important information communication role in early capital markets.

Larry Neal and Philip Mirowski were amongst the first scholars to think about the efficient markets hypothesis in an historical context when they tested the efficiency of London and Amsterdam stock markets in the eighteenth century.[24] Subsequently, financial historians have tested the efficiency of the market for UK debt in the nineteenth century as well as the efficiency of the German stock exchange at the turn of the twentieth century.[25]

As tests of the efficient markets hypothesis face the joint hypothesis problem, tests of market efficiency conducted by financial historians have also been tests of the underlying asset pricing model. The discovery of the size and value anomalies were at first believed to undermine the efficient markets hypothesis, but latterly, the prevailing view is that these anomalies are simply manifestations of deficiencies with the capital asset pricing model. Thanks to the development of large stock-market databases, financial historians have tested for the presence of these anomalies in several early capital markets.[26]

The ability of financial historians to use asset pricing models crucially depends on high quality stock-market indices, which include dividend income as well as capital gains / losses. Dimson et al. have constructed annual indices of returns on various financial assets for 16 countries dating back to 1900.[27] In the 2000s, high-quality indices of stock-market returns stretching back into the 19th century were, for example, developed for Belgium,

[24] Neal, "The Integration and Efficiency", *The Rise of Financial Capitalism*; Mirowski, "What Do Markets Do?"; "The Rise".

[25] Brown and Easton, "Weak-From Efficiency"; Gelman and Burhop, "Taxation".

[26] Grossman and Shore, "The Cross Section"; Fohlin and Reinhold, "Common Stock Returns".

[27] Dimson et al., *Triumph of the Optimists*.

France, the UK, and the US.[28] The development of these indices and the underlying databases of equities will enable financial historians to apply a variety of asset pricing models to early capital markets, enabling us to understand more about the efficiency, performance, and the contribution to capital formation of early capital markets.

Modern portfolio theory has been used by economic historians to address several important questions. First, portfolio theory has been used to examine the issue of British investment overseas in the 1870-1913 period and ultimately whether or not the British capital market failed by directing finance overseas instead of towards domestic industry.[29] Second, portfolio theory has been used to assess the performance of British railway securities and ultimately the railways themselves in the late Victorian and Edwardian eras.[30] The finding which emerges from this work supports the claim that British railways experienced managerial failure in the late Victorian era.

Of the three important financial economics topics to emerge after the foundational pillars of financial economics were laid, agency or corporate governance is the topic that has been most utilised in financial history. The reasons for this are at least fivefold. First, there has been a long interest in corporate governance in economics, which predates the formal development of financial economics and which stretches as far back as Adam Smith.[31] Second, the data requirements for examining corporate governance in an historical setting are much less onerous than in other areas of finance. Third, economic and business historians have a long-standing interest in corporate performance and its effect on economies.[32] Fourth,

[28] Acheson et al., "Rule Britannia"; Annaert et al. "New Belgian"; Goetzmann et al. "A New Historical Database"; Grossman, "New Indices"; Le Bris and Hautcoeur, "A Challenge".

[29] Goetzmann and Ukhov, "British Investment Overseas"; Chabot and Kurz, "That's Where the Money Was".

[30] Mitchell et al., "How Good".

[31] Anderson and Tollison, "Adam Smith's Analysis".

[32] Chandler, *Scale and Scope*.

the case-study methodology, much used in business history, can be used to great effect when looking at corporate governance. Fifth, the corporate governance scandals and failures of the 2000s have stimulated interest in past governance scandals.

The study of corporate governance in financial history has covered many diverse economies. For example, Morck's edited volume on the history of corporate governance, as well as looking at the US, Canada, and major European economies, examines China, India and Japan.[33] With respect to Belgium and Germany, there has been extensive work analysing the role of universal banks in firm governance.[34] There are also studies which examine corporate governance and agency prior to the rise of freedom of incorporation in the nineteenth century.[35] Notably, legal scholars have also written on the history of corporate governance.[36] This is unsurprising given that, according to Miller, agency belongs in a legal rather than financial domain.[37]

Option pricing theory has been little used by financial historians, apart from two notable exceptions. Moore and Juh examine derivative pricing on the Johannesburg Stock Exchange 60 years before the Black-Scholes-Merton formula had been created and find that investors had a good instinctive understanding of the determinants of derivative pricing.[38] Shea has used option pricing theory to show that South Sea subscription shares were rationally priced during the episode known as the South Sea bubble.[39]

[33] Morck, *A History of Corporate Governance*.

[34] Fohlin, *Finance Capitalism*; Van Overfelt et al. "Do Universal Banks"

[35] Freeman et al., *Shareholder Democracies*.

[36] Cheffins, *Corporate Ownership and Control*.

[37] Miller, "The History of Finance".

[38] Moore and Juh, "Derivative Pricing".

[39] Shea, "Understanding Financial Derivatives".

The one area of financial economics which has had a limited effect on financial history is the topic of behavioural finance. This could be to do with data limitations and lack of information on investor behaviour in the past. The lack of engagement of financial history with behavioural finance is somewhat strange given that investors in early capital markets were usually retail investors not institutions and that, in the era before a scientific approach to investing and financial theory had been developed, investors may have devised heuristics influenced by their behavioural biases such as underweighting probable in comparison with certain outcomes, self-control, regret aversion or mental accounting. Notably, a study of dividend policy in the UK in the nineteenth century found no evidence of that investors preferred dividends to capital because of behavioural biases or that managers catered to such biases.[40]

As highlighted above, the use of financial economics in financial history has undoubtedly provided insights into how financial institutions and markets evolved in the past. However, there lurk three major dangers that we need to be cognisant of when applying modern financial theories to financial history.

The first danger is that financial history becomes merely a laboratory for financial economics. In the parlance of the discipline, historical episodes merely become out-of-sample tests of contemporary theories. This approach to financial history raises the danger that we remove the poetry out of financial history.[41] Financial history is full of fascinating characters, institutions, and incidents and these are what give it a soul as a discipline. As the

[40] Turner et al., "Why Do Firms Pay".

[41] This was an observation which I heard Mary O'Sullivan make at a financial history conference at the Paris School of Economics in 2010.

use of financial economics (rightly) increases, we need to ensure that we do not lose the story-telling genius of scholars like Kindleberger, Michie and Taylor.[42]

Another danger is that the emphasis on financial economics means that financial historians ignore or place less emphasis on the cultural, economic, legal, social, and political environment in which financial institutions and markets have operated in in the past. In particular, the political environment has had a significant effect on the development of financial institutions and markets in the past. After all, some of the earliest liquid financial markets were for government bonds and the early central banks were created to help finance government war efforts. Thankfully, it appears that the next generation of financial historians is giving attention to the environment in which financial institutions and markets in the past emerged.

The final and probably the most commonly-accepted danger is that applying modern finance theories to historical episodes can be anachronistic. This danger particularly applies to theories of asset pricing.[43] A key assumption of modern asset pricing models is that the investment decision is simply determined by portfolio payoffs.[44] However, in nascent capital markets, portfolio diversification may have been very costly due to a combination of factors such as high share denominations, unlimited shareholder liability, high transactions costs, restrictions on free incorporation, and poor investor protection laws.[45]

Another assumption of modern asset pricing theories is that investment assets are not also consumption assets. This assumption may not have held for bank shares in the nineteenth century as there was a well-documented access-to-credit benefit of owning bank

[42] Kindleberger, *Mania, Panics and Crashes*; Michie, *The London Stock Exchange*; Taylor, *Creating Capitalism.*

[43] Acheson and Turner, "Investor Behaviour."

[44] Bachrach and Galai, "Risk and return"; Fama and French, "Disagreement".

[45] See Jefferys, "Denomination" on the British capital market in the nineteenth century.

shares.[46] In addition, individuals may have bought shares in companies providing a public good out of civic pride or sense of responsibility or to prevent providers of such goods from abusing their monopoly power.

A further assumption of modern asset pricing theories is that investors have full information on the distribution of asset payoffs. However, in nascent capital markets with primitive accounting practices, poor disclosure requirements, and no analyst coverage, it is likely that investors had less-than-full information on the distribution of asset payoffs, and this may have manifested itself in stockholders exhibiting a local bias to share investment.[47] This may explain why local stock exchanges played a prominent role in the development of early capital markets.

Finally, much of modern finance theory assumes that capital markets are liquid, but this was far from the case in nascent capital markets, where the majority of stocks were very thinly traded. Infrequently traded stocks create all sorts of problems when using modern asset pricing theories. First, stocks in historical markets may have been so thinly traded that it is impossible to get a sensible beta estimate for a stock. Second, financial economics assumes that asset returns have a bell-shape, with the consequence that the standard deviation is a good measure of the riskiness of an asset. However, if a stock trades infrequently, there will not be much of a distribution of prices, with the result that the standard deviation is very low. This does not, however, mean that the risk or volatility of an asset is low. Third, illiquidity in early markets may have worked against portfolio diversification, which makes the application of modern portfolio theory in such historical situations anachronistic.

[46] Acheson and Turner, "Investor Behaviour."

[47] Notably, even analysis of modern financial markets suggests that individuals tend to invest in companies which are in close proximity (Coval and Moskowitz, "Home Bias").

Having warned of the dangers of using financial economics in financial history, what is the possible future direction for the application of financial economics within financial history apart from those alluded to above? One area where the application of financial economics to financial history may prove increasingly fruitful is to use historical asset prices to ascertain the economic effect of large events such as political changes, macroeconomic shocks, or technological change. As asset prices reflect (imperfectly) how investors perceive institutional changes or value technology, asset pricing models can be applied (with caveats mentioned above) to historical asset prices to provide insights for economists and economic historians alike. For example, historical asset prices have be used to analyse the economic effects of innovation before and after the Great Depression.[48] Historical asset prices can also reveal something about the importance and real economic effects of political events such as franchise changes or wars.[49]

The use of financial history in financial economics

In some senses, financial economics is an inherently backwards-looking discipline. For example, tests of the efficient markets hypothesis, empirical asset pricing, and option pricing models all rely on historical financial data, and the further back the data series stretches, the more accurate the pricing models. However, this in-built historical bent to financial economics is not reflected in citations of financial history articles in the leading financial economics journals. As can be seen from Table 3, the number of articles from the *Journal of Economic History* and *Economic History Review* cited in the *Journal of Finance* and *Review of Financial Studies* is very low, and before 2000, citations were almost non-existent.

[48] Nicholas, "Does Innovation".

[49] Turner and Zhan, "Property Rights"; Frey and Kucher, "History as Reflected in Capital Markets".

The rest of this section will highlight how financial history has been and can be used to help the development of financial economics as a discipline. In particular, we will focus on what financial history has contributed and can contribute to asset pricing, corporate finance, agency, and options. We will also highlight important origin-type questions for financial economics which cannot be answered with modern data.

The most obvious way in which financial history has contributed to financial economics is the development of long-run stock-market return series. These series can be used to determine the returns on traditional investment assets such as bonds and shares over the long-run as well as returns on alternative investments such as stamps and art.[50] Such long-run series can also be used to measure the equity premium in an attempt to figure out why the equity risk premium is so high.[51] The estimation of the equity risk premium using only twentieth-century financial data induces a time-selection bias as stock markets have been in existence for much longer. This bias can be partially avoided by investigating historical stock markets. For example, studies on the US market find that taking the nineteenth century into consideration reduces the estimate of the long-term equity premium for the US market.[52] In addition, the influential suggestion that rare event risk can explain the equity premium puzzle implicitly requires financial history to assess how the extent to which rare events affects the equity premium.[53]

Testing for stock market anomalies such as the size and value effect in modern markets is problematic because different stock markets are highly correlated and anomalies

[50] For long-run returns on alternative investments see Dimson and Spaenjers, "Ex Post"; Goetzmann et al. "Art and Money".

[51] Mehra and Prescott, "The Equity Premium".

[52] Siegel, "The Equity Premium"; Goetzmann and Ibbotson, "History and the Equity Premium".

[53] Barro, "Rare Disasters"; Berkman et al., "Time-Varying Rare Disaster Risk".

may be arbitraged away following their discovery.[54] Consequently, studies of returns from historical stock markets provide robust out-of-sample tests for anomalies and help us discern whether anomalies are durable features of stock markets, suggesting that there may be economic or behavioural reasons, rather than data-snooping reasons, for their existence. Tests for the presence of anomalies in historical markets may be superior in that they had few distortions, in the form of tax and regulation, relative to modern markets For example, studies on the size and value effects in the pre-1913 UK market find that there was no size effect in this market, but that there was a value effect.[55]

Financial history has the potential to provide natural experiments which enable financial economists to test asset pricing theories. For example, Koudijs uses the arrival dates of London mail boats in Amsterdam, which were carrying information on English securities, to identify the flow of information and measure the effect of this information flow on volatility of English securities which were traded on the Amsterdam market.[56] Similarly, financial economists have looked at IPO underpricing in an era before comprehensive regulation and disclosure requirements and found that it was substantially lower than in the modern era.[57]

Probably the most important way financial history can contribute to asset pricing is in the area of asset price reversals or 'bubbles'. As asset price reversals are not commonly occurring events, financial economists and others have increasingly been looking at financial history to gain insights into the underlying causes of asset price reversals. Studies on historical bubbles in financial markets have typically attempted to argue that bubbles can be

[54] Schwert, "Anomalies and Market Efficiency".

[55] Grossman and Shore, "The Cross Section"; Ye and Turner, "Hardy Perennial".

[56] Koudijs, "The Boats".

[57] Chambers and Dimson, "IPO Underpicing".

explained by rational factors, such as the emergence of new technology and myopia, or irrational behaviour or naiveté on the part of investors.[58] One study, which looks at the stock-market boom in 1920s Germany, has emphasised the dangers of government or central bank intervention to prick stock markets booms.[59] Evidence from the South Sea bubble has revealed that rational investors ride bubbles even though they know that prices are not being driven by fundamentals.[60] In addition, a study on the British railway mania has examined the role of news media in bubbles, and has absolved the press from hyping railway shares.[61]

Financial history can provide several insights for theories about dividend policy and capital structure. As income, capital gains, and corporation tax were effectively non-existent or very low in most economies prior to the twentieth century, tax can be ruled out ex ante as a determinant of capital structure or dividend policy in such eras. In addition, regulation regarding stock repurchases has varied over the very long run, making for a novel experiment as to how dividend policy changes with the introduction of regulation. In essence, the environment corporations operated in a century ago was free of the distortions that have been introduced by regulation and taxation. Institutional investors are also another feature of financial markets in the late twentieth century which were not present or active a century ago. Hence, studies of dividend policy in the nineteenth century can ex ante rule out institutional preferences for dividends as an explanatory variable for dividend behaviour. Some of these

[58] See, for example, Garber, *Famous First Bubbles*; Rappoport and White, "Was There a Bubble"; Dale et al. "Financial Markets"; Carlos et al., "Royal African"; Shea, "Understanding Financial Derivatives"; Thompson "The Tulipmania"; Pástor and Veronesi, "Technological Revolutions"; Campbell, "Myopic Rationality"; Campbell and Turner, "Dispelling the Myth".

[59] Voth, "With a Bang".

[60] Temin and Voth, "Riding".

[61] Campbell et al. "The Role of the Media".

unique features of early capital markets have been exploited in studies of dividend policy by financial economists.[62]

In terms of agency or corporate governance, financial history has made at least two major contributions to financial economics. First, Frydman and Sak's study of executive pay over the long run provides a perspective on the reasons for rise in executive pay since the 1980s.[63] Such studies are needed for other economies and further back in time in order to improve our understanding of the determinants of executive compensation. Second, financial history has contributed to our understanding of when and how ownership separated from control.[64] It has also contributed something to our understanding of how agency problems were ameliorated in an era before investor protection laws, corporate governance codes, and executive stock options.[65] However, financial economics needs more studies on agency in the past across different jurisdictions to see how our ancestors ameliorated the agency problems inherent in the corporate form.

Growing out of the agency literature, the topic of law and finance, which looks at how statutory, judge-made and securities law affects financial markets and corporate finance, emerged as a very influential area of study in the 1990s.[66] This literature argues that common-law (as opposed to civil-law) legal origin results in superior investor protection, which in turn has a positive effect on financial development. However, much of the active debate about this theory has been ahistorical, which is somewhat puzzling given the obvious historical nature of the legal-origins hypothesis, and that financial history presents the

[62] Braggion and Moore, "Dividend Policies"; Turner et al., "Why Do Firms Pay".

[63] Frydman and Saks, "Executive Compensation".

[64] Hilt, "When Did Ownership"; Hannah, "Divorce of ownership"; Foreman-Peck and Hannah, "Extreme Divorce".

[65] Campbell and Turner, "Substitutes"; Hilt, "When Did Ownership".

[66] La Porta et al., "Legal Determinants", "Law and Finance".

greatest challenge to this hypothesis.[67] First, the evidence on the variation of investor protection law and financial developments over the very long run suggests that there is not much relationship between financial development and investor protection.[68] Second, there was little difference in financial development and investor protection laws between common and civil law economies in circa 1913.[69] Financial history can contribute so much more to this area of financial economics by addressing issues such as the dynamics of changes in investor protection law across time and space, how commercial laws were transplanted into colonies, why investor protection laws change over time, and how investors protected themselves in the past whenever investor protection laws were primitive.

Studies of option pricing in the past have given insights into the complex heuristics used by options traders before and after the Black-Scholes-Merton formula.[70] The accuracy of options pricing in historical settings implies that the canonical view that the creation of the Black-Scholes-Merton formula caused the subsequent growth in option markets should be questioned. [71] Historical settings also allow financial economists to see how different market structures and rules affect the options market.

Probably the greatest contribution financial history can make to financial economics is that it can provide insights into features of modern capital markets and corporations that are regarded as foundational and necessary prerequisites for the functioning of financial markets. The reason that financial history can do this is that some of these foundational features were not always present in the past. For example, the existence of corporate law,

[67] Musacchio and Turner, "Does the Law and Finance Hypothesis".

[68] Musacchio, "Can Civil Law"; Coyle and Turner, "Law, Politics and Financial Development".

[69] Rajan and Zingales, "The Great Reversals"; Musacchio, "Law and Finance"; Musacchio and Turner, "Does the Law and Finance Hypothesis".

[70] Haug and Taleb, "Option Traders".

[71] Moore and Juh, "Derivative Pricing".

disclosure requirements, and securities regulation are regarded as prerequisites for the functioning of modern capital markets, but securities markets in the past had cursory regulation and little in the way of corporate law or disclosure requirements. How efficient were these markets in the past at channelling funds to companies and in processing information?

Another example is limited liability. The canonical view is that limited liability is essential to industrial capitalism and is a prerequisite for stock markets. The standard argument is that once liability is no longer limited, shares can no longer be freely traded on stock markets; otherwise an equilibrium will be reached where the extended liability becomes *de facto* limited in that shares are owned by investors who have no wealth to meet future potential calls.[72] However, studies of historical capital markets where some corporations had unlimited liability have found that limited liability is not a prerequisite for tradable shares and the emergence of an active capital market.[73] Investors in companies with various forms of extended shareholder liability appeared to have priced in the open-ended put option element associated with extended liability.[74] Notably, a key insight provided by financial history is that extended shareholder liability may have played a very important role in enhancing the stability of financial institutions.[75]

Summary

This essay has demonstrated the various ways in which financial economics has been used in financial history. Undoubtedly, the increased use of financial economics in financial history

[72] Woodward, "Limited Liability".

[73] Acheson et al., "Does Limited Liability Matter".

[74] Acheson et al., "The Character".

[75] Grossman, "Double Liability"; Grossman and Imai, "Contingent Capital".

has helped to invigorate the study of financial history. Nevertheless, as highlighted in this essay, we need to be careful that the idiosyncrasies of historical financial markets and institutions are considered whenever we apply modern financial theories in financial history. Thus, similar to Solow's clarion call to economic historians, financial historians need to make sure that the discipline is enriched and not corrupted by financial economics.[76]

In the long run, however, financial history may prove to be of more use to financial economics than vice versa. Amongst other things, financial history provides financial economists with natural experiments, a long-run perspective on the discipline, and environments 'unpolluted' by taxation and regulation. More fundamentally, however, financial history reveals something of the wisdom of our ancestors and how they addressed the complex agency and information problems inherent in financial markets and institutions. Consequently, the challenge for current and future generations of financial historians is to engage in work which not only is of interest to their financial history peers, but which contributes to the development of financial economics.

[76] Solow, "Economic History".

References

Acheson, Graeme G., Hickson, Charles R., Turner, John D., and Ye, Qing. "Rule Britannia!: British Stock Market Returns, 1825-1870." *Journal of Economic History* 69 (2009): 1107-37.

Acheson, Graeme G., Hickson, Charles R. and Turner, John D. "Does Limited Liability Matter? Evidence from Nineteenth-Century British Banking." *Review of Law and Economics* 6 (2010): 247-273.

Acheson, Graeme G. and Turner, John D. "Investor Behaviour in a Nascent Capital Market: Scottish Bank Shareholders in the Nineteenth Century." *Economic History Review* 64 (2011): 188-213.

Acheson, Graeme G., Turner, John D., and Ye, Qing. "The Character and Denomination of Shares in the Victorian Equity Market." *Economic History Review* 65 (2012): 862-886.

Anderson, Gary M. and Tollison, Robert D. "Adam Smith's Analysis of Joint-Stock Companies." *Journal of Political Economy* 90 (1982): 1237-1256.

Barro, Robert J. "Rare Disasters and Asset Markets in the Twentieth Century." *Quarterly Journal of Economics* 121 (2006): 823-66.

Baskin, Jonathan B. "The Development of Corporate Financial Markets in Britain and the United States, 1600-1914: Overcoming Asymmetric Information." *Business History Review* 62 (1988): 199-237.

Baskin, Jonathan B. and Miranti, Paul J. *A History of Corporate Finance*. Cambridge: Cambridge University Press, 1997.

Berle, Adolf A. and Means, Gardiner C. *The Modern Corporation and Private Property*. New York: Harcourt, Brace & World, Inc., 1932.

Bachrach, Benjamin and Galai, Dan. "The Risk - Return Relationship and Stock Prices." *Journal of Financial and Quantitative Analysis* 14 (1979): 421-441.

Bhattacharya, Sudipto. "Imperfect Information, Dividend Policy, and 'The Bird in the Hand' Fallacy." *Bell Journal of Economics* 10 (1979): 259-270.

Berkman, Henk, Jacobsen, Ben and Lee, John B. "Time-Varying Rare Disaster Risk and Stock Returns." *Journal of Financial Economics* 101 (2011): 313-332.

Black, Fischer and Scholes, Myron. "The Pricing of Options and Corporate Liabilities." *Journal of Political Economy* 81 (1973): 637-654.

Braggion, Fabio, and Moore, Lyndon. "Dividend Policies in an Unregulated Market: The London Stock Exchange 1895-1905." *Review of Financial Studies* 24 (2011): 2935-73.

Brennan, M. J. "Taxes, Market Valuation and Financial Policy." *National Tax Journal* 23 (1970): 417–429.

Brown, Robert L. and Easton, Stephen A. "Weak-Form Efficiency in the Nineteenth Century: A Study of Daily Prices in the London Market for 3 per cent Consols, 1821-1860." *Economica* 56 (1989): 61-70.

Campbell, Gareth. "Myopic Rationality in a Mania." *Explorations in Economic History* 49 (2012): 75–91.

Campbell, Gareth and Turner, John D. "Substitutes for Legal Protection: Corporate Governance and Dividends in Victorian Britain." *Economic History Review* 64 (2011): 571-597.

Campbell, Gareth and Turner, John D. "Dispelling the Myth of the Naive Investor during the British Railway Mania, 1845–46." *Business History Review* 86 (2012): 3–41.

Campbell, Gareth, Turner, John D. and Walker, Clive B. "The Role of the Media in a Bubble." *Explorations in Economic History* 49 (2012): 461-481.

Carlos, Ann M., Moyen, Nathalie and Hill, Jonathan. "Royal African Company Share Prices during the South Sea Bubble." *Explorations in Economic History* 39 (2002): 61-87.

Chabot, Benjamin R. and Kurz, Christopher J. "That's Where the Money Was: Foreign Bias and English Investment Abroad." *Economic Journal* 120 (2010): 1056-1079.

Chambers, David and Dimson, Elroy. "IPO Underpricing over the Very Long Run." *Journal of Finance* 64 (2009): 1407-42.

Chandler, Alfred D. *Scale and Scope: The Dynamics of Industrial Capitalism*. Cambridge, MA: Belknap Press, 1990.

Cheffins, Brian R. *Corporate Ownership and Control: British Business* Transformed. Oxford: Oxford University Press, 2008.

Cootner, Paul H. "Stock Prices: Random vs. Systematic Changes." *Industrial Management Review* 3 (1962): 24-45

Coval, Joshua D. and Moskowitz, Tobias J. "Home Bias: Local Equity Preference in Domestic Portfolios." *Journal of Finance* 54 (1999): 2045-2073.

Cowles, Alfred. "A Revision of Previous Conclusions Regarding Stock Price Behaviour." *Econometrica* 28 (1960): 909-15.

Coyle, Christopher and John D. Turner. "Law, Politics and Financial Development: The Great Reversal of the UK Corporate Debt Market." *Journal of Economic History* (forthcoming).

Dale, Richard S., Johnson, Johnnie E. V. and Tang, Leilei. "Financial Markets Can Go Mad: Evidence of Irrational Behaviour during the South Sea Bubble." *Economic History Review* 58 (2005): 233-271.

Dimson, Elroy, Marsh, Paul and Staunton, Mike. *Triumph of the Optimists: 101 Years of Global Investment Returns*. Princeton: Princeton University Press, 2002.

Dimson, Elroy and Spaenjers, Christophe. "Ex Post: The Investment Performance of Collectible Stamps." Journal of Financial Economics 100 (2011): 443-458.

Easterbrook, Frank H. "Two Agency Cost Explanations of Dividends." *American Economic Review* 74 (1984): 650–659.

Fama, Eugene F. "The Behavior of Stock-Market Prices." *Journal of Business* 38 (1965): 34-105.

Fama, Eugene F. "Efficient Capital Markets: A Review of Theory and Empirical Work." *Journal of Finance* 25 (1970): 383-417.

Fama, Eugene F. and French, Kenneth R. "The Cross-Section of Expected Stock Returns." *Journal of Finance* 52 (1992): 427-465.

Fama, Eugene F. and French, Kenneth R. "Common Risk Factors in the Returns on Stocks and Bonds." *Journal of Financial Economics* 33 (1993): 3-56.

Fama, Eugene F. and French, Kenneth R. "Disagreement, Tastes, and Asset Prices." *Journal of Financial Economics* 83 (2007): 667-689.

Farrar, Donald E. and Selwyn, Lee L. "Taxes, Corporate Financial Policy and Return to Investors." *National Tax Journal* 20 (1967): 444-454.

Fohlin, Caroline. *Finance Capitalism and Germany's Rise to Industrial Power*. New York: Cambridge University Press

Fohlin, Caroline and Reinhold, Steffen. "Common Stock Returns in the Pre-WWI Berlin Stock Exchange." *Cliometrica* 4 (2010): 75-96.

Foreman-Peck, James and Hannah, Leslie. "Extreme Divorce: The Managerial Revolution in UK Companies before 1914." *Economic History Review* 65 (2012): 1217-1238.

Freeman, Mark, Pearson, Robin and Taylor, James. *Shareholder Democracies? Corporate Governance in Britain and Ireland before 1850*. Chicago: Chicago University Press, 2012.

Freixas, Xavier and Rochet, Jean-Charles. *Microeconomics of Banking*. Cambridge, MA: MIT Press, 1997.

Frey, Bruno S. and Kucher, Marcel. "History as Reflected in Capital Markets: The Case of World War II." *Journal of Economic History* 60 (2000): 468-496.

Friedman, Milton. *Essays in Positive Economics*. Chicago: University of Chicago Press, 1953.

Frydman, Carola and Saks, Raven E. "Executive Compensation: A New View from a Long-Term Perspective, 1936-2005." *Review of Financial Studies* 23 (2010): 2099-2138.

Garber, Peter M. *Famous First Bubbles: The Fundamentals of Early Manias*. Cambridge, MA: MIT Press, 2001.

Gelman, Sergey and Burhop, Carsten. "Taxation, Regulation and the Information Efficiency of the Berlin Stock Exchange, 1892-1913." *European Review of Economic History* 12 (2008): 39-66.

Goetzmann, William N., Ibbotson, Roger G. and Peng, Liang. "A New Historical Database for the NYSE 1815 To 1925: Performance and Predictability." *Journal of Financial Markets* 4 (2001): 1-32.

Goetzmann, William N. and Ukhov, Andrey D. "British Investment Overseas 1870-1913: A Modern Portfolio Theory Approach." *Review of Finance* 10 (2006): 261-300.

Goetzmann, William N. and Ibbotson, Roger G. "History and the Equity Premium" in William N. Goetzmann and Roger G. Ibbotson (eds). *The Equity Risk Premium: Essays and Explorations*. Oxford: Oxford University Press, 2006, 25-40.

Goetzmann, William N., Renneboog, Luc and Spaenjers, Christophe. "Art and Money." American Economic Review 101 (2011): 222-226.

Grossman, Richard S. "Double Liability and Bank Risk-Taking." Journal of Money, Credit, and Banking 33 (2001): 143-159.

Grossman, Richard S. "New Indices of British Equity Prices, 1870-1913." *Journal of Economic History* 62 (2002): 121-46.

Grossman, Richard S. and Shore, Stephen H. "The Cross Section of Stock Returns Before World War I." *Journal of Financial and Quantitative Analysis* 41 (2006): 271-294.

Grossman, Richard S. and Imai, Masami. "Contingent Capital and Bank Risk-Taking among British Banks before the First World War." *Economic History Review*, forthcoming.

Hannah, Leslie. "The Divorce of Ownership from Control from 1900: Re-calibrating Imagined Global Historical Trends." *Business History* 49 (2007): 404-438.

Hart, Oliver. "Financial Contracting." *Journal of Economic Literature* 29 (2001): 1079-1100.

Haug, Espen G. and Taleb, Nassim N. "Option Traders Use (Very) Sophisticated Heuristics, Never the Black-Scholes-Merton Formula." *Journal of Economic Behaviour and Organization* 77 (2011): 97-106.

Hilt, Eric. "When Did Ownership Separate from Control? Corporate Governance in the Early Nineteenth Century." *Journal of Economic History* 68 (2008): 645-685.

Jefferys, J. B. "The Denomination and Character of Shares, 1855-1885." *Economic History Review* 16 (1946): 45-55.

Jensen, Michael C. "Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers." *American Economic Review* 76 (1986): 323–329.

Jensen, Michael C. and Meckling, William H. "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure." *Journal of Financial Economics* 3 (1976): 305–360.

John, Kose and Williams, Joseph. "Dividends, Dilution, and Taxes: A Signaling Equilibrium, *Journal of Finance* 40 (1985): 1053–1070.

Kendal, Maurice G. "The Analysis of Economic Time-Series-Part I: Prices." *Journal of the Royal Statistical Society* 116 (1953): 11-34.

Kindleberger, Charles P. *Manias, Panics and Crashes: A History of Financial Crises*, 4th edition, New York: John Wiley and Sons, 2000.

Koudijs, Peter. "The Boats That Did Not Sail: News and Asset Price Volatility in a Natural Experiment." Stanford GSB working paper (2012).

La Porta, Rafael, Florencio Lopez-De-Silanes, Andrei Shleifer, and Robert W. Vishny. "Legal Determinants of External Finance." *Journal of Finance* 52 (1997): 1131-50.

La Porta, Rafael, Florencio Lopez-De-Silanes, Andrei Shleifer, and Robert W. Vishny. "Law and Finance." *Journal of Political Economy* 106 (1998): 1113-55.

Le Bris, David and Hautcoeur, Pierre-Cyrille. "A Challenge to the Triumphant Optimists? A Blue Chips Index for the Paris Stock Exchange, 1854-2007." *Financial History Review* 17 (2010): 141-183.

Leland, H.E. and Pyle, D.H. (1977), "Informational Asymmetries, Financial Structure, and Financial Intermediation." *Journal of Finance*, 32: 371-87.

Lintner, John. "Distribution of Incomes of Corporations among Dividends, Retained Earnings and Taxes." *American Economics Review* 46 (1956): 97–113.

Lintner, John. "The Valuation of Risk Assets and the Selection of Risky Investments in Stock Portfolios and Capital Budgets." *Review of Economics and Statistics* 47 (1965): 13-37.

Markowitz, Harry. "Portfolio Selection." *Journal of Finance* 7 (1952): 77-91.

Mehra, Rajnish and Prescott, Edward C. "The Equity Premium: A Puzzle." *Journal of Monetary Economics* 15 (1985): 145-161.

Merton, Robert C. "Theory of Rational Option Pricing." Bell Journal of Economics and Management Science 4 (1973): 141-183.

Michie, Ranald *The London Stock Exchange: A History*. Oxford: Oxford University Press, 1999.

Miller, Merton H. and Modigliani, Franco. “Dividend Policy, Growth and the Valuation of Shares.” *Journal of Business* 34 (1961): 411-433.

Miller, Merton H. “Debt and Taxes.” *Journal of Finance* 32 (1977): 261–76.

Miller, Merton H. “The History of Finance: An Eyewitness Account.” *Journal of Portfolio Management* 25 (1999): 95-101.

Miller, Merton H. and Rock, Kevin. “Dividend Policy under Asymmetric Information.” *Journal of Finance* 40 (1985): 1031-1051.

Mirowski, Philip. “The Rise (and Retreat) of a Market: English Joint Stock Shares in the Eighteenth Century.” *Journal of Economic History* 41 (1981): 559-577.

Mirowski, Philip. “What Do Markets Do? Efficiency Tests of the 18th-Century London Stock Market.” *Explorations in Economic History* 24 (1987): 107-129.

Mitchell, Brian R., Chambers, David and Crafts, Nicholas F. R. “How Good Was the Profitability of British Railways, 1870-1912?” *Economic History Review* 64 (2011): 798-831.

Modigliani, Franco and Miller, Merton H. “The Cost of Capital, Corporate Finance, and the Theory of Investment.” *American Economic Review* 48 (1958): 261–97.

Modigliani, Franco and Miller, Merton H. “Corporate Income Taxes and the Cost of Capital: A Correction.” *American Economic Review* 53 (1963): 443–53.

Moore, Lyndon and Juh, Steve. “Derivative Pricing 60 Years before Black-Scholes: Evidence from the Johannesburg Stock Exchange.” *Journal of Finance* 61 (2006): 3069-98.

Morck, Randall K. (ed.). *A History of Corporate Governance Around the World: Family Business Groups to Professional Managers*. Chicago: University of Chicago Press, 2007.

Mossin, Jan. “Equilibrium in a Capital Asset Market.” *Econometrica* 34 (1966): 768-783.

Musacchio, Aldo. “Can Civil Law Countries Get Good Institutions? Lessons from the History of Creditor Rights and Bond Markets in Brazil.” *Journal of Economic History* 68 (2008): 80-108.

Musacchio, Aldo. “Law and Finance c.1900.” *NBER Working Paper* 16216 (2010).

Musacchio, Aldo and Turner, John D. “Does the Law and Finance Hypothesis Pass the Test of History?” *Business History* (forthcoming).

Myers, Stewart C. and Majluf, Nicholas S. “Corporate Financing and Investment Decisions When Firms Have Information That Investors Do Not Have.” *Journal of Financial Economics* 13 (1984): 187–221.

Neal, Larry. “The Integration and Efficiency of the London and Amsterdam Stock Markets in the Eighteenth Century.” *Journal of Economic History* 47 (1987): 97-115.

Neal, Larry. *The Rise of Financial Capitalism: International Capital Markets in the Age of Reason*. Cambridge: Cambridge University Press, 1990.

Nicholas, Tom. "Does Innovation Cause Stock Market Runups? Evidence from the Great Crash." *American Economic Review* 98 (2008): 1370-1396.

Pástor, Luboš and Pietro Veronesi. "Technological Revolutions and Stock Prices." *American Economic Review* 99 (2009): 1451-1483.

Rajan, Raghuram G., and Zingales, Luigi. "The Great Reversals: The Politics of Financial Development in the Twentieth Century." *Journal of Financial Economics* 69 (2003): 5-50.

Rappoport, Peter and White, Eugene N. "Was There a Bubble in the 1929 Stock Market?" *Journal of Economic History* 53 (1993): 549-574.

Roberts, Harry V. "Stock-Market 'Patterns' and Financial Analysis: Methodological Suggestions." *Journal of Finance* 14 (1959): 1-10.

Ross, Stephen A. "The Determination of Financial Structure: The Incentive-Signaling Approach." *Bell Journal of Economics* 8 (1977): 23–40.

Rozeff, Michael S. "Growth, Beta and Agency Costs as Determinants of Dividend Payout Ratios." *Journal of Financial Research* 5 (1982): 249-259.

Samuelson, Paul. "Proof That Properly Anticipated Prices Fluctuate Randomly." *Industrial Management Review* 2 (1965): 41-49.

Schwert, G. William. "Anomalies and Market Efficiency" in George M. Constantinides, Milton Harris and Rene M. Stulz (eds). *Handbook of the Economics of Finance: Financial Markets and Asset Pricing*. Amsterdam: North Holland, 2003, 937-972.

Sharpe, William F. "Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk." *Journal of Finance* 19 (1964): 425-442.

Shea, Gary S. "Understanding Financial Derivatives during the South Sea Bubble: The Case of the South Sea Subscription Shares." *Oxford Economic Papers* 59 (2007): 73-104.

Shefrin, Hersh. "Behavioralizing Finance." *Foundations and Trends in Finance* 4 (2009): 1-184.

Shleifer, Andrei, and Robert Vishny. "A Survey of Corporate Governance." *Journal of Finance* 52 (1997): 737-83.

Siegel, Jeremy J. "The Equity Premium: Stock and Bond Returns since 1802." *Financial Analysts Journal* 48 (1992): 28-38.

Solow, Robert M. "Economic History and Economics." *American Economic Review* 75 (1985): 328-31.

Stoll, Hans R. "The Relationship between Put and Call Option Prices." *Journal of Finance* 24 (1969): 801-824.

Taylor, James. *Creating Capitalism: Joint-Stock Enterprise in British Politics and Culture, 1800-1870*. London: Boydell Press, 2006.

Temin, Peter and Voth, Hans-Joachim. "Riding the South Sea Bubble." *American Economic Review* 94 (2004): 1654-1668.

Thompson, Earl A. "The Tulipmania: Fact or Artifact?" *Public Choice* 130 (2007): 99-114.

Turner, John D., Ye, Qing and Zhan, Wenwen. "Why Do Firms Pay Dividends?: Evidence from an Early and Unregulated Capital Market." *Review of Finance* (forthcoming).

Turner, John D. and Zhan, Wenwen. "Property Rights and Competing for the Affections of Demos: The Impact of the 1867 Reform Act on stock Prices." *Public Choice* 150 (2012): 609-631.

Van Overfelt, Wouter, Annaert, Jan, De Ceuster, Marc and Deloof, Marc. "Do Universal Banks Create Value? Universal Bank Affiliation and Company Performance in Belgium, 1950-1909." *Explorations in Economic History* 46 (2009): 253-265.

Voth, Hans-Joachim. "With a Bang, not a Whimper: Pricking Germany's 'Stock Market Bubble' in 1927 and the Slide into Depression." *Journal of Economic History* 63 (2003): 65-99.

Woodward, Susan. "Limited Liability in the Theory of the Firm." *Journal of Institutional and Theoretical Economics* 141 (1985): 601-611.

Working, Holbrook. "New Concepts Concerning Futures Markets and Prices." *American Economic Review* 51 (1961): 160-3.

Ye, Qing and Turner, John D. "Hardy Perennial or Temporary Phenomenon? The Size and Value Effects in an Early Stock Market." Queen's University Belfast working paper (2012).

Table 1. *Number of citations of leading finance and economics journals in Financial History Review, 1994-2011*

	Journal of Finance	Journal of Financial Economics	Review of Financial Studies	Journal of Monetary Economics	Journal of Money, Credit and Banking	American Economic Review	Journal of Political Economy	Quarterly Journal of Economics	Total
1994	1				1	2			4
1995						3	1		4
1996	3	1			2	2	4		12
1997		1				2		1	4
1998						1			1
1999					1		1		2
2000					2	3	1		6
2001						1			1
2002					2			2	4
2003						1	1		2
2004	1					4	2	1	8
2005	6	1		1	2	6	2	4	22
2006					2	14	7	1	24
2007		2			5	1	1	1	10
2008	7	3		2	6	6	4	2	30
2009	3	1	2		2	5		3	16
2010	11	7	6	1	1	6	7	4	43
2011	6	3				2	4	1	16
Total	38	19	8	4	26	59	35	20	209

Source: *Financial History Review*, 1994-2012

Table 2. *Citation of finance journals in Journal of Economic History and Economic History Review*

	Number of articles in Journal of Economic History citing					Number of articles in Economic History Review citing				
	Journal of Finance	Journal of Financial Economics	Review of Financial Studies	Journal of Money, Credit and Banking	No. financial history articles	Journal of Finance	Journal of Financial Economics	Review of Financial Studies	Journal of Money, Credit and Banking	No. financial history articles
2000-11	33	21	7	27	91	15	7	4	3	61
1990-99	10	5	0	17	62	1	1	1	4	36
1980-89	8	2	0	11	27	1	0	0	1	11
1970-79	7	0	-	10	23	0	0	-	0	6

Sources: JSTOR and Web of Science.

Notes: The number of finance articles was determined by using the following topic searches in Web of Science: bank, finance, share, and stock. The Review of Financial Studies commenced publication in 1988.

Table 3. *Number of articles in Economic History Review and Journal of Economic History cited by articles in Journal of Finance and Review of Financial Studies*

	Journal of Finance	Review of Financial Studies
2000-11	10	6
1990-99	3	2
1980-89	0	-
1970-79	1	-

Sources: JSTOR.
Notes: The Review of Financial Studies commenced publication in 1988.