Bagehot's giant bubble failure

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Abstract. Modern economic history literature has extensive coverage of the Overend, Gurney crash of 1866 and the associated Lender of Last Resort operations of the Bank of England. But it basically ignores the giant British investment mania of the 1860s that led to that crisis and to the crisis of 1867 that followed. Yet that mania has many other interesting features that are relevant for dealing with bubbles. In particular, that historical episode shows that high interest rates may not suffice to deflate a bubble. It also demonstrates the dangers of "financial innovation," which flowered in that period and enabled promoters to mislead and ruin investors in novel ways, while producing a rapid expansion of the railway system that escaped public notice. Even some of the most sophisticated contemporary observers, such as Walter Bagehot, who were bothered by the market anomalies they saw, were deceived by that pioneering "financial engineering" which has strong similarities to the one that led to the Global Financial Crisis of 2008. This paper points out some of the many neglected aspects of that mania. Those include an illustration of the evolution of economic thought towards ignoring underlying causes of financial crises and concentrating just on the panics in which they culminate.

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JEL classifications: E44, G10, G24, N23, O16

1 Introduction

The coverage of the British investment mania of the 1860s in modern economic history literature is extremely deficient. Published works are concerned almost exclusively with the Overend, Gurney panic of 1866 and the Lender of Last Resort actions of the Bank of England that helped resolve it. (Section 11 discusses briefly a selection of those works, namely [6,23,24,57,58,59,62,67,74], as well as a few older books [12,13,34,37].) There is practically nothing in recent publications about what caused that crash, nor about several other interesting features of that period, such as the crisis of 1867 that followed a year after the collapse of Overend, Gurney. There is also nothing about the giant expansion of the railway system during that period that was accomplished by stealth, without any serious public attention.

One lesson from the 1860s that has not been noted in modern literature and yet is of particular relevance for public policy concerns the utility of interest rates in controlling bubbles. The main tool that central banks are universally thought to have for deflating bubbles is to raise interest rates (cf. [57], Chapter 12.). Yet in the 1860s, high short-term rates did not have that effect, as can be seen in Fig. 1. What happened appears to be best explained by a passage by Karl Marx (who lived in London during that period, and made at least one very profitable speculation in the share market at that time)[1]:

> a high rate of interest can also indicate, ..., that the country is undermined by the roving cavaliers of credit who can afford to pay a high interest because they pay it out of other people's pockets (whereby, however, they help to determine the rate of interest for all), and meanwhile they live in grand style on anticipated profits. Simultaneously, precisely this can incidentally provide a very profitable business for manufacturers and others.

The aim of this work is to elucidate how "financial innovation" enabled the activities of those "roving cavaliers of credit," how it led to investors being fleeced in multivarious ways, and how it misled even very knowledgeable and inquisitive observers into thinking that "this time it's different." The presentation is centered on the evolution of views of the economy by Walter Bagehot. Today he is remembered primarily for his clear formulation of the doctrine of Lender of Last Resort in his 1873 book *Lombard Street* [3], which is used to justify central banks' lending freely in a crisis[2]. But his contributions went far beyond *Lombard Street*, as is widely recognized in the literature, and is outlined in Sec. 2. This paper also draws on the perspectives of William Newmarch, the most eminent economic statistician of that era, and of Marmaduke Blake Sampson, the business editor of *The Times* and the most influential financial journalist of that period. All were misled by the "financial engineering" of the mania of the 1860s, and it took the Overend, Gurney crisis of 1866 and the railway securities crisis of 1867 for them to realize what had happened. Their retrospective views of the financial developments of the 1860s differ substantially from what little can be gleaned from modern economic history literature. They concluded that railway investments and "financial innovation" that concealed reality were key, and

[1] The cited passage is from ([41], Chapter 33). It is not known when Marx wrote that passage. The phrase omitted from the quote refers to 1857, since Marx was commenting on a discussion about causes of high interest rates that arose in a Parliamentary committee hearing in 1857. However, it is very likely this passage was written later, and if so, it may reflect the benefits of knowledge of what happened in the 1860s. His letter about personal gains from speculative trading is in [40]. While there is no comprehensive study of the British investment mania of the 1860s, Marx appears to have planned to study it in detail, as he collected a large selection of articles from the *Economist* and the *Money Market Review* from that period. However, he did not live to make much use of them, cf. [39]. It should also be noted that the in the 1860s, Bank of England did not raise its rate with the aim of controlling the bubble, but to deal with what were perceived to be short-term exigencies.

[2] What are called Bagehot's rules, as formulated by Bagehot (although they had in essence been articulated much earlier, especially by Henry Thornton [66]), also called for lending to be at high rates of interest, and backed by good collateral. In modern practice, those last two rules have been inverted, as in crises central banks lend at low or even negative rates, and with collateral that Bagehot would have considered junk.

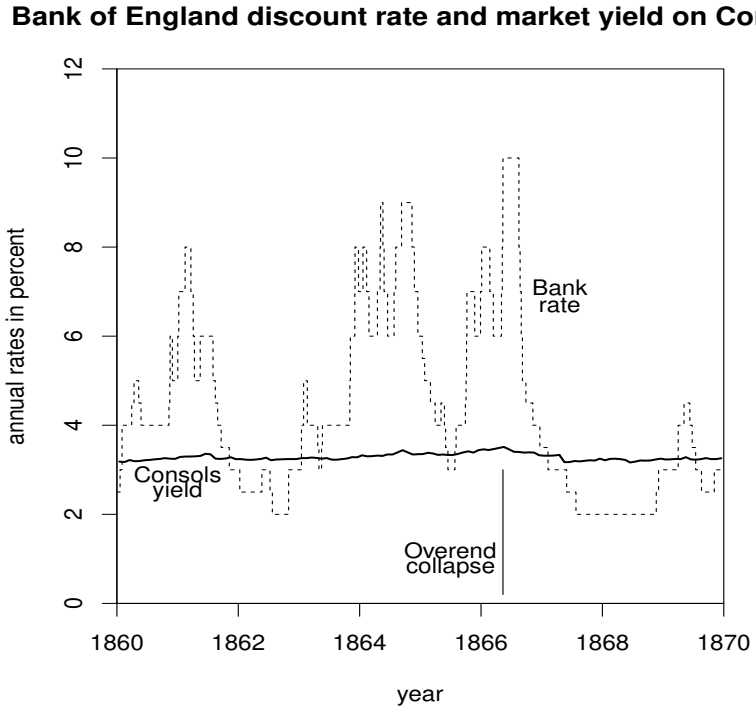

Fig. 1. Bank of England discount rate, the most prominent short-term London rate, and the market yield on Consols, the main British government long-term security, 1860 through 1869. Sources: [4,35].

the Overend, Gurney crisis of 1866 was just one of the side effects of the huge flow of funds into railways. For example, Newmarch wrote in early 1867 that[3]:

> Looking back over the last four or five years, with the help of the disclosures now become public, it is more and more clear that the chief cause of the collapse of '66 was the unsound and extravagant "financing" operations of Railway companies and [railway] Contractors.

The British investment in railways in the 1860s was huge, about as large as the great Railway Mania of the 1840s[4]. The largest civil engineering project in Europe in the last couple of decades has been Britain's Crossrail (which provides service as the London Underground Elizabeth line). It took about a decade to execute, and cost about £20 billion of public funds, somewhat under 1% of British GDP of that period. In the 1860s, the British rail system grew, mostly over half a decade, from about 10,000 miles to about 15,000 miles (on its way to its maximal extent of about 20,000 miles at the time of World War I). The cost, all in private funding, came to about £200 million, approximately 20% of the GDP

[3] "Commercial History and Review of 1866," supplement to the *Economist* of 9 March 1867, p. 4. A year later, in the "Commercial History and Review of 1867," 14 March 1868, p. 2, Newmarch, with the benefit of more experience, in particular of the crisis of 1867, offered a similar evaluation.

[4] In absolute terms. It was noticeably smaller in comparison to the size of the economy.

Table 1. Capitalization of British railways, in millions of pounds sterling, based on official statistics, so distorted by "creative finance."

year	common shares	preference shares	debenture bonds	debenture stock	total
1850	150.0	34.7	55.5	-	240
1855	169.6	52.8	75.2	-	298
1860	190.8	67.9	81.9	7.6	348
1865	219.6	124.3	97.8	13.8	456
1870	229.3	158.7	90.7	51.2	530
1875	254.6	222.3	40.4	123.0	640

of the UK then, see Table 1[5]. And this was accomplished largely by stealth and deception, without any of the eminent observers realizing the size of the effort, and without the investors who put up the money knowing what they were getting into! As Bagehot wrote a few months after the Overend, Gurney crash[6]:

> The competition of railways, the zeal or vanity of a few landowners, the speculative plans of contractors, the "finance" which has been possible in the money market, have made hundreds of little and of isolated non-paying railways for us. The English mode is far less just than the foreign mode. It does not impose a charge on the property enhanced in value. It gets the requisite funds by so to say defrauding the shareholders; they are led by engineers and lawyers to think they are going to receive an income, when in fact they will never get a penny. But the English system is, nevertheless, most effectual. It, as yet at least, has multiplied our railways as fast at least as can be wished.

This appraisal by Bagehot entails a key insight that is typically missing from modern coverage of that period, and was seldom mentioned explicitly even in his time (most likely because it was taken as obvious). That is, the railway lines that were constructed for the most part did not provide competitive rates of return for investors, and this led to the collapse of many enterprises, including Overend, Gurney.

The retrospective views of Bagehot, Newmarch, and Sampson appear to be correct, even though they are contrary to the current scholarly consensus. Not only were they the most knowledgeable experts on the British financial system[7], but there is much evidence to support their opinions, as will be discussed in Section 8. Still, the picture that is drawn in this paper is not as satisfactory as one might hope for. Due to the large deficiencies in the existing literature, we lack precise figures for most of the huge financial flows that

[5] The source is [73]. The difference between debenture bonds and debenture stock will be discussed in Section 10. Both were fixed-interest obligations and the evolution from one form to the other, spurred primarily by the crisis of 1867, is one of the many interesting developments from that period that have not been studied in modern literature.

[6] *Economist*, 1 September 1866, pp. 1022-1024. By that time he had learned quite a bit about railway finance, but not enough, as he was later surprised by the crisis of 1867.

[7] Clapham wrote that "[t]he *Economist* of the [1860s and 1870s], under Bagehot ... was so well informed and well written that it will always remain a chief authority for these years. A better cannot be found," [12], p. 376, n1. Clapham's books that deal with this period, namely [12,13], rely heavily on the *Economist* as a source.

were involved. Therefore this paper relies substantially on the estimates and opinions of Bagehot, Newmarch, and Sampson. This work aims to stimulate more research in this area, to elucidate some of the many obscure points that remain. Section 8 presents many of the current gaps in our quantitative understanding of that period.

One of the central goals of this work is to document the change in attitude towards bubbles. As is shown in Section 3, modern literature is devoid of discussions on how to detect bubbles, and there is even a famous figure who occupied the most powerful position in the world in monetary regulation who has proclaimed that bubbles cannot be identified even after the fact. Such views would have been regarded as absurd by 19th century observers. Some of those observers, including Bagehot, even believed that some bubbles can be detected beforehand. Bagehot himself was sufficiently bothered by the anomalies he saw in the British markets of the early 1860s that he went to serious effort to investigate the situation. However, because he relied on faulty statistics, and ignored other relevant data, some published in his own paper, the *Economist,* he failed to realize what was happening until just before the crises of 1866 and 1867. Since practically nobody did any better (aside from Sampson, the only exception that has been found so far, and even that one has to be qualified, as will be explained later), this was not a giant failure, but it was a failure to identify a giant bubble.

There are various conclusions that one can draw from Bagehot's failure. Since just a little more diligence or luck might have made him realize he was working with defective statistics, one can argue that what is needed is better training on detecting bubbles, and more meticulous investigations. That is the approach taken to intelligence mistakes. Catastrophic failures, such as the Nazi invasion of the Soviet Union, Pearl Harbor, Yom Kippur war, 9/11, and, most recently, the Hamas attack of October 2023, have given rise to a huge and growing literature. These studies investigate the various bits of information available before attacks that might have been used to prepare for them, and the reasons such evidence was not utilized properly by defenders. Although the debates on these issues have shed much light on decision making in noisy environments, they have not prevented all giant disasters, as the list above attests. Still, policy makers feel it is important to pursue such studies, and claim they have helped to prevent other attacks as well as to prepare for the attacks that do take place. One could argue that a similar attitude should be taken to financial crises.

On the other hand, after-the-fact claims have to be taken with some skepticism, and one could argue that if Bagehot and Newmarch could not fathom what was wrong with the investment mania of the 1860s, we should not expect modern regulators to do better. And indeed we do find arguments of a similar nature already in the 19th century. For example, a leader in *The Times* three months after the Overend, Gurney crisis[8] claimed that with the growing complexity of the economy and the novel financial instruments that were enabling it,

> we must submit to periodic perturbations. The violence of such perturbations must increase as the organization of credit becomes more complex, but it will diminish if men become more enlightened and reasonable; in any case the perturbations them-

[8] *The Times*, 17 August 1866, p. 6.

> selves are the price we pay in seasons of distrust for the economy of capital which is an essential condition of modern life.

But there were then a few contrarian voices, although they were few, and they did not offer much hope and did not lead to any serious action or even attract attention from policy makers. In particular, Bonamy Price, a prominent economist, wrote an article in 1871 in which he "propose[d] to inquire into the nature, the causes, and, if any there be, the means of prevention, of commercial crises in England"[9]. He concluded that to prevent crises "is difficult, yet not absolutely insoluble," and required knowledge and skill, "the faculty of discerning small signs and judging their significance accurately," "a great grasp of mind and thought." He further wrote:

> It is easier, no doubt, to float down the stream as it runs in the present, to make profits and to let to-morrow take its chance, or to set up some empirical rule, some high-sounding jargon, without stopping to inquire whether it possesses the reality as well as the look of knowledge. But if men choose to let their actions be guided by such methods, they must look out for crises–sharp, sudden, and overwhelming crises.

The next section presents in more detail the three figures whose views of the investment mania of the 1860s are central to this paper. The following section has a brief discussion of opinions about existence and detectability of bubbles then and in modern times. Section 4 deals with quantitative versus qualitative detection of bubbles, and Bagehot's approach to the mania of 1860s. The next section provides a brief overview of the crises of 1866 and 1867, demonstarting that they came from bubbles, were destructive to investor fortunes, and were regarded by contemporaries as comparable in size. Section 6 provides more background on British economy and its financial sector in the 1860s. Section 7 contains a detailed technical discussion of the statistics available to contemporary observers such as Bagehot on the size and direction of British investments, and how he, along with others, focused on ones that were misleading. The following section has a brief overview of how investors' losses arose. Section 9 provides some more information about the Overend, Gurney company and what caused it to implode, to supplement the information in Section 5. Section 10 has some more details on the crisis of 1867. The following section describes briefly the treatment of the investment mania of the 1860s in the current literature. The next four sections describe how Bagehot (and to a lesser degree also Newmarch and Sampson) saw the mania as it was unfolding. At the end is the Conclusions section.

2 The cast of characters: Bagehot, Newmarch, and Sampson

The central figure in this study is Walter Bagehot. His influence on the theory and practice of central banking is undeniable and has been widely recognized by experts. But his contributions went far beyond *Lombard Street*. Sundry aspects of Bagehot's life and career have

[9] [56]. He expressed some similar opinions earlier, in [55]. Price was a professor of Political Economy at Oxford from 1868 to his death in 1888, and was a popular teacher and writer, although he tended to be rather dogmatic, and did not contribute any significant advances to economics.

been covered in the two most recent very nicely written and illuminating biographies [8,29], and in numerous articles and book chapters. Yet one aspect of his career appears to have been almost totally neglected. How well did he understand what was happening in the British financial system? Both of the recent biographies [8,29] give Bagehot credit for having seen the rot inside the Overend, Gurney finance house whose closing led to the climactic moment of the crash of 1866. Indeed, Bagehot was far more cautious than other journalists in evaluating the Overend, Gurney venture when it became a public company. He gave very insightful warnings about it to his readers. But that was just one company, and Bagehot's caveats about it were confined to one article in mid-1865 and were quite mild. (Afterwards he wrote that he had been constrained in his wording by concern for libel laws.)

As one might expect, Bagehot was sometimes right, and sometimes wrong when evaluating economic situations. He (along with most British observers) was skeptical of the prospects of Union victory in the American Civil War, and he did not think the purchase of Alaska by the United States from czarist Russia was worthwhile ("a few more square miles of ice-bound hills"). On the other hand, he did convey to his readers early and strong skepticism about the French Crédit Mobilier financial institution. He did this already in the 1850s, even though this company did not collapse until 1867. Later he stood out among British financial journalists in warning investors about the dangers of the Atlantic and Great Western Railway. It was a giant line in the United States that obtained almost all of its funding from Europe. It was highly touted in the British press, but turned out to be a huge investment disaster. (Even that warning by Bagehot was still in very mild tones, necessary in a country that to this day has a reputation of making it easy to sue for libel.) Perhaps most interesting was his pessimism about the economic prospects of the Suez Canal. There he was wrong, but for the right reasons. To be precise, he studied the subject carefully, and concluded that the projections of Ferdinand de Lesseps, that canal's main promoter, were not plausible. In the end, this giant project turned out to be extremely profitable. But that profitability came much later than promised, and only because of several technological breakthroughs that arrived long after the project was started and were not anticipated by de Lesseps[10].

Research documented here is based primarily on the leaders, the "leading articles" in the *Economist* during the investment mania of the 1860s. These came at the beginning of each issue, and were a mixture of news, analysis, and recommendations. It is known that Bagehot wrote a very large number of them. Since he exerted detailed editorial control of that weekly, all will be attributed to him here, although it is known that is not correct, and there is at least one leader that is very important for this study, published shortly before the Overend, Gurney collapse that was very likely written by Newmarch (who is known to have written other unidentified leaders for the *Economist*, too)[11].

[10] Some pieces by Bagehot on the topics mentioned in this paragraph can be found in the *Economist*, 11 October 1862, p. 1123; 6 April 1867, p. 381; 26 Sept. 1857, pp. 1065–66; 9 December 1865, pp. 1486–87; and 8 August 1863, pp. 870–71, respectively.

[11] "'Finance paper' and the rate of discount. A lesson for the future," *Economist*, 28 April 1866, pp. 497–498. The supposition that it was by Newmarch is due to that author reprinting it, without giving credit to any one else, in his article "The recent financial panic," in the *British Quarterly Review,* vol. 44, July 1866, pp. 125–140.

William Newmarch was the most eminent economic statistician of the third quarter of the 19th century. However, even more than Bagehot, he was heavily involved in practical finance. He had run an insurance company through the 1850s, was a director of several companies, and in 1862 he was appointed general manager of the private Glyn, Mills bank, one of the largest banks in London. He was a prolific writer, and contributed to many publications (often anonymously), including the *Economist.* At that weekly, he started in early 1864 its series of annual supplements summarizing economic and financial events of the previous year. They comprised extensive commentary and statistics, and are often cited in modern literature. These supplements were paginated separately from regular issues, and usually appeared in early March, with the first one, "Commercial History and Review of 1863," in 1864[12]. These annual retrospectives will all be credited to Newmarch.

The last of the trio of prominent observers who will be quoted extensively is Marmaduke Blake Sampson, the financial editor of *The Times* from 1846 to 1874. He was the most influential financial journalist of that era, both by virtue of writing for *The Times*, by far the most powerful newspaper in the world in that period, and because of the reputation he developed for insightful reporting and for detecting frauds. (It was ironic, therefore, that soon after he left *The Times* in late 1874, it was revealed he had been paid large sums under suspicious circumstances by the most notorious promoter of that era, Albert 'Baron' Grant[13].)

3 Bagehot and evolving views of bubbles

The consensus view of modern economists and financial system regulators is that crises are exogenous, arising from unpredictable events such as the Covid-19 pandemic[14]. Detection of bubbles before they inflate is not taken seriously except by some fringe observers. As an example, a famous economist declared that "[a]dvocates of bubbles would probably be forced to admit that it is difficult or impossible to identify any particular episode conclusively as bubble, even after the fact" [5]. What is undeniable is that when a few years later this person was appointed the most important financial regulator in the world, he did not look for bubbles in that position, and failed to identify what is generally regarded as a bubble, the one that led to the Global Financial Crisis (GFC) of 2008. The GFC does not appear to have changed basic attitudes. For example, that regulator's successor claimed that reforms enacted after the GFC would protect us from a financial crisis for a lifetime [16][15]. One of the points of this paper is that financial experts of Bagehot's era would have regarded all these claims as preposterous.

[12] The dates of publication of initial ones were 20 Feb. 1864; 11 March 1865; 10 March 1866; 9 March 1867; and 14 March 1868.

[13] A tribute from Bagehot to the high reputation that Sampson had attained, as well as some caustic comments about putting too much trust in a single individual, is presented in the *Economist*, 23 January 1875, pp. 86-87.

[14] Epidemiologists might object, and point out that for decades they had been warning that destructive pandemics were inevitable. But, in the current and foreseeable state of biological sciences, the timing and nature of such pandemics are not predictable. Similarly, there are some extremely destructive earthquakes that history predicts are inevitable in the not very distant future and that are likely to lead to financial crises, such as those in the Tokyo area and in California. But again, those can indeed be regarded as exogenous problems.

[15] That prediction was, of course, falsified just three years later, but that was due to Covid-19, which was certainly an exogenous event. The point, though, is that Yellen's attitude was one of building sturdy defenses, and not of

What about academic scholars, especially ones who study history? A recent book by Turner notes that "[e]conomists have been lambasted for the inability of the profession to predict the Great Crash of 2007–8," and that this has led "economists, policy makers and ordinary citizens" to "[look] to past financial crises" ([67], p. 2). However, that author also admits that his professional colleagues have not done better at predicting the GFC, and offers the defense that "economic historians are pathologists because they try to uncover what happened in the past." Turner offers his "book [as an examination of] the 'cadavers' of past banking crises to learn about the anatomy of banking crises and, in the process, perhaps learn something about preventive measures" ([67], p. 3). Yet already this language shows a very prominent feature of the dominant philosophy, as it talks just of "banking crises" and their "anatomy," and the "preventive measures" considered are basically those to be applied to the banking system. This might be compared to intelligence experts trying to improve the speed and strength of response to an enemy invasion, but ignoring the potential of stopping the assault before it happens[16].

The idea that bubbles cannot be identified "even after the fact" would have been universally regarded as absurd in the 19th century, although difficulties of recognizing them ahead of time were understood to be formidable, and there was little expectation of success. This difference in attitude is nicely illustrated by the British investment mania of the 1860s. In that period, some very knowledgeable and influential people did try to figure out whether the financial system anomalies they saw portended an impending crash.

In general, commercial and financial crises were a major topic for investigation, discussion, and debate in the 19th century. A whole recent book [65] is devoted to examining the theories of just a few of the most prominent thinkers of the past. To keep things short, let us just note that Hyman Minsky, who was for a long time in the late 20th century on the fringes of conventional economics thought, and whose insights only began to be recognized after the GFC, would have fit comfortably in the mainstream of 19th century thinking. It is also worth remarking that while bubbles were regarded as real and frequent, relatively little attention was paid to methods for detecting or preventing them[17].

This paper concentrates on the views and actions of Walter Bagehot. To understand Bagehot and his attitude towards financial crises it is important to realize that he lived in a period of frequent financial upheavals. He was born in 1826, just a couple of months after the great crisis of 1825, which was often compared to the South Sea Bubble of 1720 for its intensity and degree of investor folly. Then came the crisis of 1837, followed by ones of 1847, 1857, and the Overend, Gurney one of 1866 that is the focus of this paper. Shortly before his death in 1877, Bagehot witnessed the crashes of 1873 in Central Europe and the especially severe one in the fall of that year in the United States. Those crashes were, in the words of Newmarch from the "Commercial History and Review of 1873," accompanied in Britain by

actively looking for likely disasters. It should be acknowledged that there were official inquiries into the GFC, but there are controversies as to how penetrating they were, cf. [9]. That issue is out of the scope of this paper.

[16] This is fully in line with Yellen's claim cited above, that the measures put in place after the GFC would prevent a crisis for a lifetime.

[17] But this could also be qualified. For example, in the debates over the 1844 Bank Charter Act, Robert Peel, the Prime Minister, and other advocates of the Currency School, claimed their proposed legislation would prevent crises. When the 1844 Act had to be suspended in the 1847 panic, they sprang into action to explain that is not what they had meant, and that some crises were unavoidable.

"excessive stringency of rates, and no small alarm–alarm, indeed, so threatening that the occurrence of a few considerable failures would have led to grave disaster and [suspension of the Bank Charter Act of 1844, as happened in 1847, 1857, and 1866]." It should be noted that Bagehot provided his readers with very good advance warnings about the threats of 1873[18].

Bagehot's attitude is clear in two articles he published in 1856, early in his career[19]. The first one seemed to doubt whether bubbles can be prevented, based on his well-known elitist view of most investors, namely that "at particular times a great many stupid people have a great deal of stupid money." He claimed that "[e]very now and then, ..., the money of people of this class – the blind capital ... – happens to be particularly large and craving; it seeks for some one to devour it, and there is 'plethora' – it finds some one, and there is 'speculation' – it is devoured, and there is 'panic.'"

In the second article, he repeated one of his favorite phrases, "John Bull, as it has been wisely observed, can stand a good deal, but he cannot stand two per cent," but also expressed some hope that warning investors can be effective, provided it is done early enough. "[W]hen [manias] attain a certain growth, advice is thrown away."

Bagehot and many of his contemporaries felt that while there were many types of bubbles and panics, and not all could be detected beforehand, some were obvious. In addition to the Bagehot quotes above, a good example of this view is provided by John Fullarton's book [25], which appears to have influenced Bagehot's early thinking. In Chapter 8 of that work (p. 138ff) Fullarton presented his view on the inevitability of bubbles and predicted another bubble would arise soon. (And indeed, the Railway Mania was just getting started as his book was published in mid-1844.)

To conclude, let us cite a few more items from Bagehot's writings that illustrate his thinking about bubbles. The second of the quotes above expressed his belief that warning investors about a bubble can be effective, at least in the early stages of a mania and at least for some smart people. He, along with many of his contemporaries, gave credit to James Wilson, Bagehot's father-in-law, and the founding editor of the *Economist*, for warning about the dangers of the great Railway Mania of the 1840s, and thereby saving some investors from ruin[20]. He also (at least for a while at the height of the mania of the 1860s) believed that sometimes proper management by a quasi-central bank (such as the Bank of England in his time) could prevent most crises[21]. And he had flexible views about bubbles, and so was critical of Juglar's rather dogmatic views on how financial crises arise[22].

To decide whether the investment mania of the 1860s was a bubble, Bagehot's main approach was to mimic what James Wilson had done in the 1840s, namely compare the

[18] Cf. the leader, "The very peculiar position of the year 1873," *Economist,* 4 Jan. 1873, pp. 1–3.

[19] "Edward Gibbon" in *National Review,* Jan. 1856, pp. 1–42 and "Monetary schemes" in *Saturday Review,* 2 August 1856, pp. 313–314, both reprinted in [63], and both freely available online at Google Books, for example. At that stage Bagehot had several years of experience in his bank, and was beginning to look for new opportunities.

[20] [2], originally published in the *Economist,* 17 November 1860, pp. 1285–1300.

[21] "Will the extraordinary profits of banking continue? The Union Bank report," *Economist,* 16 July 1864, pp. 889–890. There Bagehot opined that "the management of [BoE] has so much improved that we need no longer fear these periodic crises and panics which used to mark almost every long period of very unfavourable foreign exchange."

[22] Review of Juglar's book [32], *Economist,* 27 September 1862, p. 1073.

scale of planned investments to available funds. Unfortunately, because he did not utilize relevant statistics, he formed a wrong impression of how big the mania was[23]. His (and also Newmarch's) reliance on faulty statistics and the ease with which they could have discovered their mistake is discussed in Section 7.

4 Bubble detection: Opinions versus quantitative measures

The previous section mentioned Bagehot's sage warnings about the dangerous financial situation that led to the crises of 1873. He also deserves credit for warning his readers about the disastrous Bombay (now Mumbai) stock market bubble of 1863–65. There do not appear to be any careful studies of it[24]. But it was a memorably large one, a result of the huge profits that were being realized through the sale of Indian cotton, which was used to replace the supplies from the American Confederate states. The joint-stock boom in Bombay inflated in 1863 and 1864, and collapsed in mid-1865, as the prospect of a resumption of American cotton deliveries to Britain led to a drastic decline in prices of that crucial commodity. But already in mid-1864, Bagehot was writing (as were some other observers) of the likely debacle, based on the reports of the extreme investor exuberance that was visible and some early problems that had surfaced[25]. As will be shown later, at about that time, in mid-1864, Bagehot was slowly shedding his caution about the investment mania in Britain, and was moving towards the view that "this time is different," at least in that country. But the quote about the Bombay mania demonstrates he still preserved a large dose of caution and skepticism.

Bagehot's warnings about the Bombay mania in 1864, and about world financial markets in early 1873 were both well-timed. Both were based on his personal evaluations that levels of speculation, profit expectations, and asset prices were all excessive. But this was based on his subjective judgment, although based on extensive study and experience. He did not provide any quantitative arguments showing a likelihood of some catastrophe. The difference can be illustrated by (hypothetical) warnings to a concert promoter. Telling her that the the musicians she is planning to bring in are no longer very popular may very well be correct, but may not dissuade her from her venture, if she believes there is still a large fan base. On the other hand, pointing out that the concert hall she had rented has only 500 seats, which, even if full, will not provide enough revenue to make the event a paying proposition, is much more convincing. Bagehot and his contemporaries felt that James Wilson had provided that kind of strong persuasive evidence for the fallacy of the Railway Mania of the 1840s. What Bagehot looked for in the 1860s was similar evidence for the mania that was raging around him.

[23] Interestingly enough, James Wilson in the 1840s was right for the wrong reason. The fatal error of the great Railway Mania was not that it consumed too much of British savings, but that it was based on unrealistic expectations of the profits to be obtained from the new railways, cf. [47,49]. Had Bagehot utilized all available statistics, he would likely have come to a conclusion similar to that of his father-in-law, and raised a correct alarm for the wrong reason.

[24] Colorful descriptions of its bursting with a fair amount of detail were published in the *Spectator,* 10 June 1865, pp. 633–34; 12 August 1865, pp. 883–84; and 15 September 1865, pp. 1022–24. There is also substantial information in [71].

[25] *Economist,* 21 May 1864, pp. 638–40.

5 The crises of 1866 and 1867

In the aftermath of the crises of 1866 and 1867, Bagehot, Newmarch, and Sampson were all convinced that those two events were both serious, and were closely connected. For example, as the most intense phase of the crisis of 1867 was unfolding, Sampson noted[26] that:

> owing to the immense amount of capital involved, it may be questioned if the alarm and anxiety now prevalent are not more distressing than in the panic of May [1866, when Overend, Gurney failed], since the evil penetrates more than at that time among all the families throughout the kingdom, who have been reposing in confidence on what they considered to be non-speculative investments.

In his retrospective on events of 1867, Sampson wrote[27]:

> The year 1867 has shown that the panic of 1866 came, as was suspected, twelve months before it was due. ... Otherwise, the inflation might probably have been sustained until it would have been accompanied by the railway revelations that have since spread ruin where all parties thought themselves secure. Every one may now be thankful that this division of disaster took place. Had the entire mischief been developed at one blow the collapse must have been almost total. A state of confusion must have ensued from which it is scarcely possible any establishments with large liabilities, however wealthy or prudent, could have safely emerged.

In a similar vein, William Langton, an influential banker and promoter of cultural and intellectual activities in Manchester, thought that the Overend, Gurney collapse in May 1866 helped mitigate the crisis of 1867, by washing out early some of the excesses in the financial system that were building up[28].

How big were the losses of the boom and the resulting crises of 1866 and 1867? There were many types of losses, none have been investigated in a comprehensive way. We just mention a few. Levi's 1870 compilation [36] shows bankruptcies jumping from 75 in 1864 to 137 in 1865 (when some of the new companies began to implode), and then to 241 in 1866 and 253 in 1867. His statistics (which are not documented well, a promising area for further research) show that court-accepted claims of creditors of the bankrupt joint-stock companies in the period 1865–1868 came to £32.7 million, as opposed to £5.2 million in the preceding period of four years, 1861–1864.

Newmarch in the "Commercial History and Review" for 1868 considered the financial situation of the country, and opined that in the three year 1866 through 1868 Britain had not "added much to its accumulated wealth," and that there had been "the positive waste of scores of millions of capital in the idle and profligate schemes of the Prosperity Years." Bagehot, in mid-1867, claimed that "[t]he recent Extension Mania has, for a time, produced a dissipation of capital almost as complete as a war expenditure," and, in discussing war

[26] *The Times,* 29 March 1867, p. 10.
[27] *The Times*, 1 January 1868, p. 6.
[28] Remarks cited, as "especially worthy of notice," by Bagehot, in his review of [43], *Economist,* 1 February 1868, pp. 117–118.

spending, talked of a figure of £100 million[29]. Reading the Bagehot and Newmarch articles cited here in more detail, it is clear they were writing from the standpoint of investors, and their opinions substantiate the view that there was a bubble in British financial markets in the run-up to the crisis of 1866, and that its bursting led to the long and deep depression that followed.

Unfortunately there is no single price index that captures the complexity of what happened in the financial markets. Here we start with some brief illustrations that will be supplemented by more data in later sections.

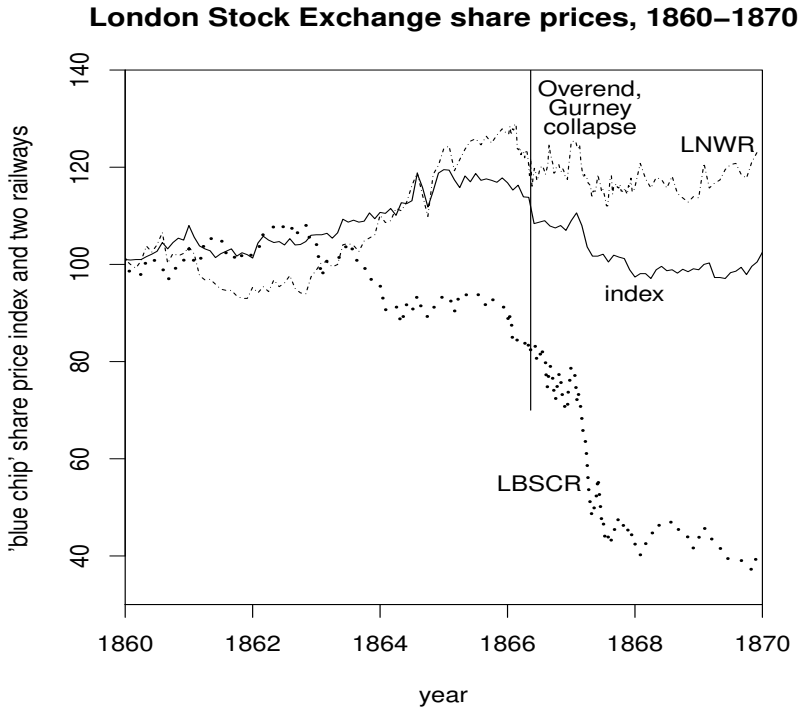

Fig. 2. London Stock Exchange, index of 'blue-chip' domestic company share prices, 1860 to 1870, and of two prominent railways, the London and North-Western Railway (LNWR) and the London, Brighton, and South Coast Railway (LBSCR).

Fig. 2 shows an index of London Stock Exchange (LSE) prices during the decade of the 1860s. It is the 'blue chip' index of corporate securities from a recent work [10]. At that time government securities (British and foreign) still dominated at the LSE. Corporate securities were growing in volume, and were dominated by railways. Hence this index reflects primarily the prices of common shares of large, established British railways. But there was much variation in that sector, so also shown are prices of common shares of two prominent railways, the London and North-Western Railway (LNWR) and the London,

[29] Leader "The causes of the existing depression of trade and the probabilities of its removal," *Economist*, 18 May 1867, pp. 554-555.

Brighton, and South Coast Railway (LBSCR), in both cases scaled so as to be equal to 100.9 for January 1860, the value of the 'blue-chip' index for that date.

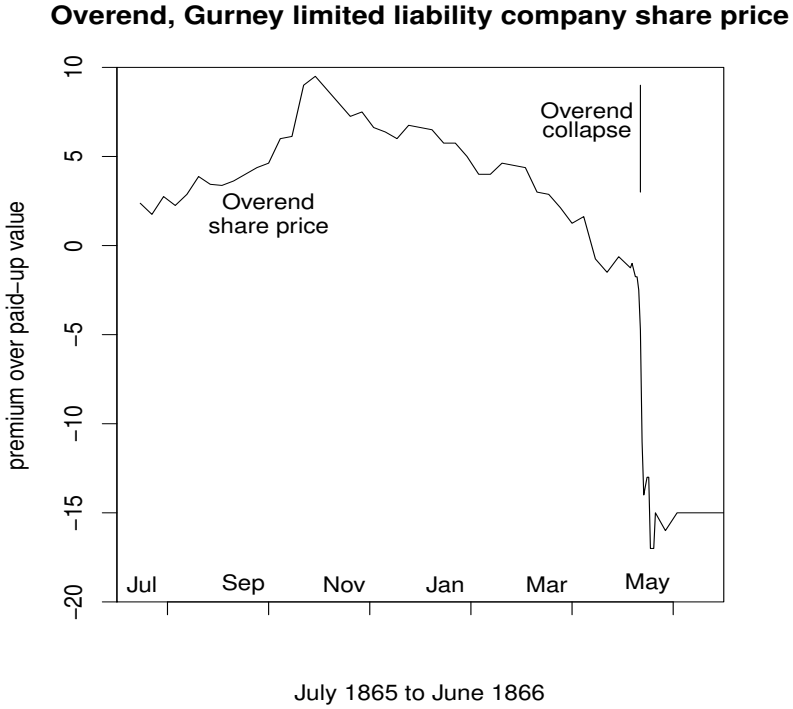

Fig. 3. Premium (and discount at the end) on the share price of Overend, Gurney Company, Limited, over the paid-up value (which reached £15 on 15 November 1865 and remained at that level until this enterprise suspended payment on 10 May 1866). The quotes below -£15 after the collapse meant that some sales were taking place at negative prices. Correct prices would have been around -£35, given the calls that shareholders had to pay up later.

The main index does not show anything serious, certainly not a crash. However, the averaging in the index conceals wild variations. Some railways, such as LNWR, which avoided the traps that others fell into, did just fine. On the other hand, a few, with LBSCR among the most prominent, suffered catastrophic declines, and this naturally colored public perception of the railway industry[30].

The 'blue chip' index shows a general decline even before the Overend, Gurney crisis of May 1866, followed by a further decline in 1866 after that crash, for a drop of just 4% from January 1866 to the following January. The following year, though, saw a drop of 11% (in two phases, actually). That's when the rot inside some of the most respected railways, such as LBSCR, was revealed, and when the railway finance crisis took place.

[30] The LBSCR did eventually return to prosperity, but it had to issue some preference shares at a big discount and had no or very minor dividends on common shares for many years, not reaching 5% per year until 1875, cf. [7], p. 576.

Railways is where most of the money went. But it was the crash of a key financial institution that gave its name to the crisis. Overend, Gurney was one of the most prominent financial institutions in London, often cited as second in importance only to the Bank of England. By 1840 it was the dominant actor in the London discount market, a market whose history and development are chronicled in King's book [34]. The origins of Overend, Gurney close to the start of the 19th century, its rise to great eminence and profitability, and its disastrous excursion over several years around 1860 into long-term financial commitments that became fatal millstones are covered well, if briefly, in that book. Overend, Gurney was run as a partnership from its origins until 1865. In that year, its management, realizing they were insolvent and were skating on thin ice, decided to take advantage of the frothy market for financial firms, and went public. In July 1865, investors were invited to buy 100,000 shares of nominal (par) value £50 per share, but were only asked to put up £15 per share. The £15 purchase price, which management claimed was likely to be all that would ever be asked for from shareholders, was payable in several parts, with the full amount due by mid-November. But the shares started trading on a "when-issued" basis right away, and their history is shown in Fig. 3, which displays the difference between the market price and the amount paid up as of that moment[31]. The highest amount shown there is £9.5, which corresponds to several days in October 1865, at which point original investors had paid £11 per share, and those shares were trading at £20.5 each[32].

The values in Fig. 3 that are below -£15 mean that shares were selling at negative prices, with sellers paying to have the liability for capital calls taken off their hands. Prices after the crash are only available for a short period, and they appear to reflect considerable optimism about the value of that enterprise. Shareholders were liable for a maximum of £35 per share beyond their purchase amounts, and in the end had to pay around £20, so that an accurate valuation would have produced a value of -£35 in that figure[33]. Thus an investor who did receive shares in the initial subscription (which was oversubscribed), paid £15 initially, and an additional £20 after the crash, for a 233% loss on the initial investment.

Some of the 'hot' new finance companies of the 1860s involved investors in even greater losses. For example, Barned's Banking Company failed three weeks before Overend, Gurney. (Its closure was widely regarded to have contributed to increase suspicion and anxiety among investors, which led to the run on Overend, Gurney.) It also converted to a limited-liability joint-stock company in 1865, with shares of nominal value £50, and with only £10 called up. After the failure, the remaining £40 were demanded from shareholders (and unlike with Overend, Gurney, even that apparently did not suffice to pay the creditors off in full). So in this case investors lost 500% of their investment. Hence this sector was not only the most visible and caused the greatest excitement, but was most 'bubbly.'

[31] Data derived primarily from the closing quotes printed in *The Times* for Fridays (and daily around the time of the collapse), with the ask price used in the figure.

[32] According to *Investor's Monthly Manual* for November 1865, the premium actually reached £10, but that was not in the price series used for this study.

[33] Shareholders had to pay £25 per share, last part early in 1869. However, later recoveries from liquidation of Overend, Gurney assets produced repayments amounting to £7.9 per share. The last of those repayments did not arrive until 1893, however (*The Times,* 17 November 1893, p. 12.). Hence, in place of a careful discounted cash flow analysis, the round figure of £20 per share is used for the net amount that was paid.

Overall, though, cumulative losses in the finance part of the market, although running into many millions of pounds, were clearly much smaller than in railways. Shareholders of Overend, Gurney had to put up £2 million to cover the losses of that concern, on top of their initial investment of £1.5 million. But that appears to have been by far the largest of the losses among the financial firms. Among railways, just the London, Brighton, and South Coast Railway (LBSCR of Fig. 2) lost comparable amounts all by itself. Their new management told LBSCR shareholders that they had spent £4 million on extensions, and they "would have been much better off if they had converted [that sum] into bank-notes and lit their pipes with them"[34].

As usual, we do not have complete data, but contemporaries thought that the implosion of the new financial companies, such as Overend, Gurney, was just an incidental byproduct of the huge flows of money into railways. For example, a railway paper noted at the start of 1867 that[35]

> The advances which were made by finance companies to railways in course of construction or completion, though not in themselves amounting to anything like the large sums which are generally supposed, proved in the hour of trial too great for associations which, having only a small amount of paid-up capital, found that the credit on which they traded was useless in a time of universal distrust.

6 British economy and finance in the 1860s

Modern estimates are that the GDP of UK in mid-1860s was around £1,000 million [17,21,45]. But the concept of GDP was not known at that time. What the public did pay the most attention to were taxes, which, at the central government level, amounted to about £65 million per year, with about £25 million of that going to pay interest on the national debt. The securities that made up that debt still dominated the London Stock Exchange. The 8th edition of a popular reference work on London financial markets, *Fenn's Compendium,* was published in 1863 [61]. Its preface gave a brief tabular summary "of some of the principal securities" that were traded in London. They came to a total of £1,289 million, with £805 million being British government debt, £325.5 million British railway securities, and only about £160 million for everything else.

As P. Simmonds, the editor of *Fenn's Compendium,* acknowledged, his summary tabulation was deficient. It did not include foreign securities (largely loans to foreign governments), nor various joint-stock companies traded on British provincial exchanges. There were additional issues with the Simmonds tabulation. One is that, as he himself acknowledged, he only counted the paid-up capital of enterprises, and many were trading well above that. This was most conspicuous for banks. The shares of the London and Westminster Bank, the largest of the British banks (aside from the Bank of England) traded at close to 500% of their paid-up value, a reflection of the excellent profits it was making. So promoters of new financial companies could point to these high profits and make a

[34] *The Times*, 4 August 1869, p. 10.

[35] "The last year and the railways," *Railway News,* 5 January 1867, pp. 3–4. Newmarch implicitly endorsed this view by reprinting the full article in "Commercial History and Review of 1866," pp. 31–32.

plausible case there was room for new entrants in that industry. Skeptics such as Bagehot and Newmarch were derided as defenders of their own banks' extravagant profits. Similar critiques were leveled at Sampson, who was sometimes criticized as a mouthpiece of the Rothschilds. Promises were made that with democratized finance, new joint-stock companies could invigorate areas of the economy that had been limited to single proprietorships or small partnership.

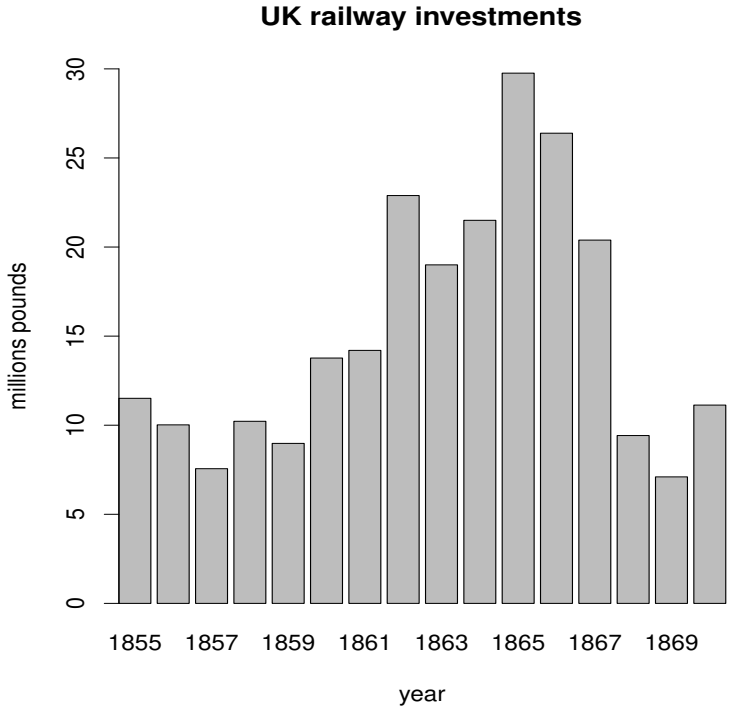

Fig. 4. Additions to the official paid-up capital (shares, debentures, ...) of UK railways, 1855 to 1870. Does not reflect fully the distorting effects of "creative finance" of the early and mid-1860s, which involved capital commitments not captured in the official figures reflected in the bar plot. Parliamentary authorizations for raising capital were much more peaked, reaching £56 million in 1865. Sources: [45,73].

In mid-1867, after the crisis of 1866 had opened the eyes of observers such as Bagehot, the 9th edition of *Fenn's Compendium* was published. This one was edited by Robert Lucas Nash the younger [46][36]. By that time the scale and importance of railway investments had become apparent. Nash estimated that from 1861 through 1866, British investment in "[m]iscellaneous joint-stock companies, including banks, steam-ship, gas, water, mining,

[36] Robert Lucas Nash the elder played an important although largely forgotten role in the final deflation of the Railway Mania of the 1840s [48]. The younger Nash, born in 1846, started working at the *Economist* in 1864. With time he attained excellent reputation for careful financial reporting. This only grew when he emigrated to Australia in the 1890s, where he came to be regarded as an eminent authority on finance in that country. But when he put out [46], he was just starting his career.

telegraph, finance, and other companies" came to about £100 million, in railways in India to about £40 million, and in domestic railways to about £175 million ([46], pp. x–xi). It was clear that Nash was making rough estimates. But he was aware of the "creative finance" that distorted the figures for railway investment, as he did mention Lloyd's bonds, and appeared to think they amounted to the very substantial figure of about £25 million[37].

Lloyd's bonds (to be discussed briefly in Section 8, and in more detail in [50]) were the principal financial instrument by which railway investments were concealed from public scrutiny. They did not enter into the official statistics published by the Board of Trade[38]. Hence all subsequent estimates, such as those in [28,30,33,44,45] all contain systematic distortions. But it should be kept in mind that all financial statistics from that period have to be treated with caution, especially those on international investments, cf. [52].

The American Civil War caused a major disruption to the economy. It led to the interruptions of investment and gold flows across the Atlantic. Even more important, it interrupted cotton supplies that were critical for the extremely important textile industry.

The "cotton famine" had a catastrophic impact on labour in the manufacturing districts. For the finance sector, the effects were somewhat paradoxical, often unexpected, but certainly disruptive. Initially, the fears of a cotton shortage led to rising prices, which enabled the industry to clear its overstuffed supply channels, and produced bountiful profits that lowered interest rates and helped stimulate the boom. At the tail end, the revival of American cotton supplies was delayed beyond what had been expected, which led to episodes of bankruptcies in that trade, some stretching well into 1866[39]. But there was a major disruption in between, one that gave rise to serious concerns that it would lead to a crisis. Replacement supplies of cotton were found, largely from Egypt and India, but shortages meant prices escalated (cf. Section 4), and this cotton had to be paid for to a substantial extent in precious metals. The flow of gold and silver from Britain "to Egypt and East," averaged about £10 million per year in the 3rd quarter of the 19th century[40]. It was at that level in 1861, but it jumped to £18.0 million the following year, and then rose to £23.2 and £23.8 million in 1863 and 1864, respectively. It declined to £14.1 million in 1865, to £10.0 million in 1866, and then collapsed to £3.6 million in 1867 in the aftermath of the Overend, Gurney crisis and the resulting upheaval. In a country with a precious metal monetary standard, outflows of bullion of this magnitude were watched with trepidation, and the disturbances they led to in 1864 in British markets were thought to bring

[37] This is an extrapolation, based on Nash's estimate that official figures for railway investments to the end of 1865, the last year for which they had been published when he was editing that edition, came to £125 million, and subtracting that from his £175 million estimate for total railway investments to the end of 1866, and then subtracting £25 million which was likely to be his estimate for the official figure for 1866.

[38] To some extent they did affect those statistics, in that some Lloyd's bonds got written off, but others were paid off with equity or bond financing, which did show up in the official statistics. What this meant is that some railway investment effectively showed up in Fig. 4 later than it was actually made.

[39] However, they did not appear to have had much impact on the Overend, Gurney crisis. As was noted in the *Money Market Review,* 5 May 1866, p. 597, in the leader "The cotton panic," cotton prices had declined 25 to 30%, but that this was foreseeable and foreseen, "[t]he collapse of the cotton speculation was inevitable sooner or later, and the only marvel is that it did not come before."

[40] "Commercial History and Review of 1873," p. 54. Over 75% was in silver, since that is what China and India demanded. That was the pattern that powered the first globalization that started in the 16th century, with much of the silver mined in the Americas going to South and East Asia.

the country to the verge of a financial crisis. But these bullion flows were too low to be significant in 1866, and so did not contribute to the Overend, Gurney panic.

7 The mania of the 1860s in numbers

We next consider some quantitative measures of British investments during the mania of the 1860s that were available to Bagehot and his contemporaries. All were deficient, to various degrees. What led Bagehot astray was that he trusted some very fallacious estimates, and ignored others that would have shown him he was going astray.

The mania of the 1860s involved the creation of a huge number of new ventures with ostensibly astronomical capital needs. Official registrations of new joint-stock companies (which did not include railways, an extremely important factor to be considered later in this section) in the years 1861 to 1867 were 479, 502, 760, 975, 1014, 754, and 469, according to the count in [36]. Hence there was a big jump in 1863. This jump was even larger when measured in the total nominal capitalization of these companies that is shown in the second column of Table 2, also drawn from [36]. These statistics (and even names of the new companies with some financial details) were submitted to Parliament and published, although with some delays[41].

Table 2. Capital estimates for various types of new British corporate ventures, in millions of pounds sterling, 1861 through 1867. The sources and meaning of the figures are explained in the text.

year	all regular registrations	*The Times* and Spackman lists	"deposits" in Spackman lists	railway authorizations	Hackett railway investment
1861	24.6	11.2	-	30.5	12.6
1862	68.1	54.0	-	20.7	12.7
1863	137.4	100.1	8.9	24.4	18.1
1864	235.8	155.9	12.5	45.5	18.2
1865	203.7	107.0	12.2	55.8	21.2
1866	74.6	10.3	2.1	44.3	34.2
1867	28.5	6.1	1.1	22.3	10.4

[41] The explosive growth in the early 1860s in the number and capitalization of new joint-stock companies was essentially universally attributed to the passage in 1862 of the Companies Act of 1862, which liberalized creation of limited liability companies. It remained the core of British corporate law into the 20th century, and it plays a memorable role in the Gilbert and Sullivan operetta *Utopia, Limited.* It is worth noting that Shannon [60] makes a persuasive case that blaming just this legislation seems inappropriate, since the limited liability legislation of the mid-1850s was already permissive enough. Newmarch was also of this opinion, and declared that the act "chanced to come into operation at a time when all the elements of a career of extravagance and folly were collected, and it became the accidental pretext for the particular form in which the disorder manifested itself," as he wrote in the "Commercial History and Review of 1866." This liberalization was often blamed for the disasters associated to the Overend, Gurney crisis of 1866. One of the intriguing questions that deserves to be investigated further is how to reconcile the almost universal public condemnation of easy access to limited liability (cf. [64]) with the further relaxation of the legal rules, but that is out of the scope of this work.

The high total numbers and the huge total capitalizations for all companies that are shown in the second column of Table 2 did not seem to attract much public attention by themselves. Most likely it was understood that most of the new ventures were either tiny (often in place of what would have been a partnership or a family enterprise before limited liability rules were relaxed), or extremely visionary (or fraudulent) and unlikely to amount to much. Leone Levi [36,38] and Shannon [60] have statistics on the high numbers of those companies that either disappeared without a trace or were liquidated.

But how much money did the companies that had real existence absorb? We do not have any really reliable estimates. Levi, who had a distinguished career as a jurist, economist, and statistician, claimed in 1870 that "scarcely [10% of the nominal capitalization] can be estimated to be the amount actually paid up" ([36], p. 22). Bagehot in early 1864 estimated that well under 20% of the nominal capital would be paid up[42]. So 15% might be a reasonable figure, and, of course, obtaining a better estimate would be highly desirable[43]. Nash's estimate from [46] cited before of £100 million is about 13% of total of nominal capitalizations for all companies in 1861 through 1866, and 23% of the total from *The Times* and Spackman lists.

Even in the early stages of the mania, some statistics started appearing. In particular, Sampson's final financial columns in *The Times* of the years 1860, 1861, and 1862 all had listings of new companies of that year with their capitalizations. The first two entries in the third column are derived from those. No explanation was offered for how those listings were prepared, but there were warnings that many of the companies included in them had not succeeded in raising the desired capital. A casual reader could easily be led to conclude that all new joint-stock companies were included, which is clearly not the case, as one can see by comparing the entries in the second and third column[44].

The mania heated up in 1863, with many more company promotions. That was surely the main reason that the list of 263 new companies that Sampson published on the last day of that year caught wide attention, with many newspapers citing its summary statistics, and a few providing complete reprints. That list was provided by Spackman and Sons, a firm that was a dealer in illiquid securities[45]. They continued sending such lists to *The Times* (with occasional mid-year updates), and the entries for 1863 through 1867 in columns

[42] "Will the new companies cause a panic?," *Economist,* 19 March 1864, pp. 349-351. Bagehot's claim was that even 1/4 of the capital offered to the public would be an exaggerated estimate, and offered capital ranged from 68 to 78% of nominal capital in the Spackman lists of 1863, 1864, and 1865.

[43] Jenks ([31], p. 238) has a table with the number of companies and their capitalizations that is taken from [36] and credited to it. But that table also has entries for "capital issued" and "capital called up" that are not credited to any other source, but are not in [36], and go counter to Levi's and Bagehot's estimates as they are far larger. Jenks did not comment on this discrepancy, and did not explain how he obtained those additional figures.

[44] The discrepancy is even greater when one considers counts of new companies. For example, Sampson's list for 1862 included 162 ventures, whereas 502 had been registered that year, as was listed earlier in this section. The *Daily News* of the next day, 1 January 1863, had a similar listing, this one of 179 companies with total capital of £69.0 million. It explicitly claimed to "have compiled at some pains, and give below, a complete list of the new Companies ..." Yet that list is obviously not complete either.

[45] Spackman and Sons may also have provided the earlier lists, as was conjectured by Cottrell ([14], p. 37, n. 30), but there is no solid evidence for this. The 1863 list is the first one with a named source.

three and four of Table 2 are based on them. In spite of their substantial deficiencies, the Spackman lists came to dominate discussions of capital raised in the mania of the 1860s.

Unlike the earlier lists that Sampson printed, the Spackman ones listed for each new joint-stock company not only its full nominal capital but also the the capital that was offered to the public (which was often less, for example when some shares were held back, to be sold later, after they had hopefully attained a higher price) and an entry called "Total Deposit." That last item was not explained, but it often seems to have been understood to be the amount paid by the public, which was expected to be less than capital offered, even for successful flotations, because of the practice of partially paid shares, as with Overend, Gurney. That's also how it was interpreted by a modern scholar who called it "capital publicly subscribed" and "paid-up capital" ([14], p. 24 and p. 37, n. 30; [15], p. 99). And it does seem that some contemporaries may also have taken the "deposit" entry to denote how much money was invested in those companies by the public. For example, that appears to have been Newmarch's evaluation in the "Commercial History and Review of 1864" (p. 3). The "deposits" sum was not too far from Levi's estimate cited above of 10% of nominal capital being the total that was paid up on average.

The "deposit" entry was a very weak indication of how much money a company obtained from the public (as the Spackman firm obliquely admitted in their 1871 list[46]). It was definitely not the "paid-up capital" that is claimed for it by Cottrell ([14], p. 37). Based on investigating a few examples in detail, it appears that the Spackmans took the number of shares offered to the public and multiplied it by the amount investors were asked to pay when they first subscribed. For example, when the Overend, Gurney firm became a public one in July 1865, it sold all 100,000 shares it had on offer, and asked investors to pay at that time £7 per share. The Spackman list for 1865 then showed the "deposit" for this firm as £700,000. However, those Overend, Gurney investors were obliged to pay two additional instalments of £4 each per share on 15 September and 15 November of that year, so the firm actually collected £1.5 million from the public in 1865. So in this case the Spackman list underestimated the capital that Overend, Gurney received from the public by more than a factor of two. In other cases, the list overestimated such amounts. In many (possibly most) cases, not all shares that were offered were sold, and in quite a few cases almost no shares were sold.

The Spackman lists gained more prominence and credibility from being reprinted in Newmarch's "Commercial History and Review" productions, starting with the first one in early 1864. Newmarch not only reprinted the lists from *The Times*, but arranged the companies by industry, and provided the closing prices for their shares (in the relatively few cases where those were available). He did not mention any of the defects of those lists.

As an indication of the rare success of new ventures, of the 263 new companies in the Spackman 1863 list, only 35 had price quotes at the end of the year in Newmarch's enhanced version. This is a topic where further research might provide a better perspective, say by investigating in some depth a judicious sampling of all the 903 companies in the Spackman lists for 1863 through 1867[47].

[46] *The Times*, 30 December 1871, p. 4.

[47] Shannon [60] has some interesting statistics on success and survival rates, but for all early joint-stock ventures, and without information on invested capital.

No explanation was offered at that time as to how companies were selected for inclusion in the Spackman list. The 263 companies in the list for 1863 were only slightly more than a third of all the companies registered that year, and similar disproportion applied to later years[48]. As was deduced by some contemporaries, and confirmed by Spackman and Sons a few years later in their list for 1866 (so after the crash), presumably in response to queries and complaints from readers, those lists included only companies that issued prospectuses to solicit investments from the public[49]. That seemed a very natural choice, but not explaining it seems negligent. It appears to have confused observers.

By far the greatest defect of the Spackman lists (and of the unattributed lists published by Sampson at the ends of 1860 through 1862) was their almost complete omission of railway investments[50]. Had there been none, readers might have been struck by the lack of representation of this giant industry, which was known to be growing. But there were some, with non-trivial capitalization. For example, the list for 1865 had 14 railways with total nominal capital of £12.7 million, and "deposits" of £1.2 million. But this was not much, and this may have contributed to Newmarch's declaring in early 1865 that "The schemes of the last two years are only to a small extent railways"[51]. Yet, as the fifth column of Table 2 shows, in the previous two years, 1863 and 1864, Parliament had authorized spending of £70 million on railways. Hard to describe that as "small extent!"

The figures for railway authorizations in Table 2 are derived from [73], which collects data for several decades. Such Board of Trade statistics were published periodically all through the 1860s, but with unpredictable and often substantial delays, claimed to be due to railways being derelict in their required reporting. But there were other sources for such information that were more up to date, although not as authoritative. *Railway Times* published each year statistics of that year's authorizations, usually in October[52]. So someone curious about such issues could obtain the information from published sources. Such a person could also have easily found out by other methods that a railway mania was raging. For example, railway papers at the end of each year had information about railway projects that were to be presented for approval to Parliament next year.

Not all railway projects sanctioned by Parliament were carried out. On the other hand, those that did proceed almost invariably suffered from significant cost overruns, so on balance, approximately the amount of money authorized in a given year was spent on the lines of that year, but spread over several years in the future. So there was publicly

[48] In his introduction to the first Spackman list in *The Times*, 31 December 1863, p. 6, Sampson claimed it was "a complete list of the new Joint-Stock Companies brought out during the year now closing." The Spackman firm did not make any such incorrect claim in its preface to the list.

[49] *Herapath's Railway Journal,* 3 January 1863, pp. 14–15 in commenting on the Sampson list for 1862, and *The Times*, 29 December 1866, p. 5, reprinted by Newmarch in the "Commercial History and Review of 1866," p. 35.

[50] Some contemporary observers did note this, for example *Herapath's Railway Journal,* 3 January 1863, pp. 14–15, in comments on Sampson's list of new companies of 1862, but there did not seem to be wide recognition of this deficiency. It should be noted that railways were not included in statistics such as those in the first column in Table 2, since they did not go through the regular registration procedure, as they generally obtained their charters directly from Parliament.

[51] "Commercial History and Review of 1864," p. 3. In that same introductory piece, Newmarch was very much concerned about the "undue absorption of capital in new companies and enterprises."

[52] For example, those for 1864 and 1865 appeared in issues of 8 Oct. 1864, pp. 1333–1334 and 20 Oct. 1865, pp. 1390–1391.

available information to tell Newmarch (and Bagehot) that railway schemes were not just not of "small extent," but absorbed huge amounts of capital. Still, one could argue that perusing Parliamentary "Blue Books" such as [69], full of boring (to most people) details, or scanning industry-specific papers like *Railway Times*, was not something that people like Bagehot and Newmarch might be expected to do. However, information about the huge investments in railways was actually available right in the *Economist,* it's just that they did not pay proper attention to it.

From 1843 to 1873, *Herapath's Railway Journal* printed, usually in the first issue of each year, a collection of statistics about the railway industry collected by J. T. Hackett. Starting with his first "Commercial History and Review," which covered 1863, Newmarch reprinted those, crediting the source, and usually adding some words of praise (such as "excellent summary" for the retrospective on 1865). Hackett was primarily concerned with revenue statistics, but he also provided data on length of network and capital "expended on railways open for traffic." The last is the source of the numbers in the last column in Table 2, which, given what we know about accounting reports from that period, must have been distorted by the "financial innovation" and represented just share and debenture capital. Unlike Parliamentary authorizations, which corresponded to future expenditures spread over several years, Hackett's figures most likely came from adding up partial expenditures over several previous years. Still, they showed large expenditures, definitely not of "small extent"[53].

Hackett usually also provided extensive commentary on the development of the railway industry, and those were also reprinted by Newmarch (although occasionally in shortened form). In the overview of 1864, Hackett complained of Parliament sanctioning excessive construction, and stated that the authorizations of that session came to £63.5 million (clearly incorrect, perhaps he had added up sums for the preceding two years). The next year, in the retrospective on 1865, he was even more strident in raising concerns about rapid expansion of the industry, and stated that the authorizations of the previous two sessions had come to £100 million (just about right), and predicted that actual spending on the sanctioned lines would likely come to £150 million (which likely would have been correct, given the usual cost overruns, if all the schemes had actually been carried out, which did not happen).

Even putting aside Hackett's articles, the *Economist* published quite a few other items that could have made Bagehot and Newmarch suspect they had an incorrect view of the size of railway investments. For example, the "Railway Monitor" section of that paper regularly published information about established railways calling on their shareholders for funds. In particular, the 9 Dec. 1865 issue, p. 1509 reported that such calls for all of 1865 amounted to £14.0 million. And this was just for share capital. Similar information could also be gleaned from the *Investor's Monthly Manual,* which was published by the *Economist* starting in October 1864, initially as a supplement, and then as a separate publication.

[53] Hackett's capital expenditure data are not too trustworthy, in particular because of the suspiciously high figure for 1866.

Thus Bagehot, Newmarch, and Sampson had at hand reliable and easily accessible data to show that railway investment was huge, dwarfing any other destination for capital flows. But they did not absorb this information. We can speculate about the reasons, but should keep in mind that this is not uncommon, that groupthink even among very clever people makes them overlook things that are obvious in retrospect. National intelligence literature is full of examples. And so is economic history.

In the case of Bagehot, Newmarch, and Sampson, a major reason for their not paying much attention to railways may have been that this industry was growing and absorbing considerable capital even before the mania of the 1860s (and continued to do so afterwards) as is visible in Fig. 4. The crop of financial companies that arose during the mania, including Overend, Gurney in its joint-stock form from mid-1865 to its demise in May 1866, were new, and captured extensive public attention. In the case of railways, there was "only" an increase in the rate of capital investment, and it was accomplished by stealth. So it was natural to ignore it. All three observers knew about railways, and how they dominated the capital markets[54]. They were also aware of the inefficiencies in the railway system. Bagehot, for example, supported his arguments for government buy-out of railways (a very interesting departure for a strong advocate of *laissez faire* economic policies) by pointing out it would eliminate much of the waste involved in Parliamentary contests[55].

8 The mania of the 1860s: Four ways to fleece investors

It is best to think of the share markets during the investment mania of the 1860s as being divided into four segments. Two were visible to the public, with the one involving new financial companies the most prominent. The other two involved railways, one of them consisting of new projects that operated largely out of the public eye, the other made up from established companies engaging in activities that the public and those companies' shareholders were not aware of. We consider these in turn.

8.1 Myriad of almost completely unknown startups

Whatever the reasons, little research has been done on these companies. The papers of Leone Levi [36,38] are still of value, but have to be used after consulting the much more solid work of Shannon [60]. However, there does not seem to be any more recent work on this subject. Unfortunately neither of these authors was able to provide usable quantitative estimates of how well those companies did financially. Both authors, however, were persuaded that investors lost on average. For example, Shannon wrote ([60], p. 419) that "[w]e are left with a strong suspicion that whatever production took place under limited liability in its early days occurred at a business loss; ... Transfers of wealth were made from the investing class to promoters and their allies, to labour, and, perhaps, to the consuming public, home and foreign."

[54] For example, the early financial success of the Metropolitan Railway, the first line of what became the London Underground system, and which opened in early 1863, stimulated a mania for lines in and around London. Bagehot, and the press in general, covered it extensively, eg. *Economist,* 5 March 1864, pp. 288–289.

[55] "The political cost of railways," *Economist,* 14 Jan. 1865, p. 36.

These transfers of wealth took a variety of forms. Shannon mentions (and provides evidence) that some companies were set up just to claim a name that a more solid concern would then pay to use (a forerunner of cybersquatting with its battles over domain names). Others were set up to fail, "with the birth and burial expenses accruing to their creators."

Almost surely far greater transfers of wealth took place in the flotation of existing companies, through clever "financial engineering." The methods that were used were described in a passage from Spackman and Sons, accompanying their listing of new companies of 1864[56]. The promoters' tactics described there were not imaginary, there were many complaints and lawsuits that cited such abuses. For example, the Overend, Gurney public company flotation involved a deed that described the huge losing investments from half a dozen years before, but this deed was kept secret from new shareholders. There was universal agreement after this company imploded that investors would not have bought shares had they known about those hidden contracts and the losses they concealed.

There was wide recognition of such abuses, and proposals were floated for some investor protection measures to be taken, either by the government Registrar of Joint-Stock Companies, or by the London Stock Exchange. Both Bagehot and Newmarch were opposed to such[57]. Thus they both contributed to the damage that the mania of the 1860s inflicted on investors[58].

8.2 New financial companies

By far the most prominent part of the new joint-stock company mania was that in the financial sector. Of the 263 companies created in 1863 that were in the Spackman and Sons list, 56 (or 21%) were classed by that firm in the three categories of "Banking," "Financial and Discount," and "Insurance," and their nominal capital accounted for £61.2 million, or 61% of the total for all 263. (For the full four years of the mania, 1863 through 1866, the numbers were 141 out of 876, so 16%, and £186 million out of £373 million, or 50%.) A good overview of how well they did is lacking, although in this case it would probably require only a modest research project to provide one.

Even in the absence of a thorough investigation, it is easy to find rough confirmation of the universal view of British financial market observers after the Overend, Gurney crash that this finance sector mania was a bubble[59]. Looking just at the listing of "Finance companies" in *Investor's Monthly Manual* for December 1867, and excluding those that did not have any market prices listed, we find that the 35 companies that remained had nominal capital of £35.9 million, paid-up capital of £12.5 million, and market value of just £7.5 million. This accounting is biased on the positive side, since it only includes companies

[56] Printed first in *The Times,* 30 December, 1865, p. 6, and then reprinted in the "Commercial History and Review of 1865," p. 34.

[57] For an example of Bagehot's views, see the *Economist*, 19 August 1865, pp. 998–999.

[58] The Overend, Gurney crisis did not shake Bagehot's attitude. In a long leader, "Non-paying railways," *Economist*, 1 September 1866, pp. 1022–1024, he wrote that "[i]f money has got into the hands of foolish people, those people will be sure to find bad investments. The proper protection against unsafe money dealing is losing your money. and it is not for the State to interfere in the matter." However, the crisis in 1867 did lead him to modify his position slightly, in that he endorsed the slight increase in railway accounting requirements that was enacted in 1868, *Economist*, 7 March 1868, pp. 263–64.

[59] For example, see Newmarch's retrospectives for 1865 and 1866.

that survived, and also includes several (such as National Discount and Scottish Australian Investment) that predate the mania by some years and were run conservatively.

There were several waves of financial company promotions. A quick overview is provided in ([34], p. 229ff). They attracted intense attention. The most prominent among these financial enterprises were the "finance" companies, such as London Financial Association, General Credit and Finance Company of London, and Crédit Foncier and Mobilier of England. "These companies would build railways in any part of the world, finance every sort of public works (land development, sewerage, irrigation, road-making, swamp drainage, or even the building of museums), assist a Government, float loans, or makes advances on fixed or floating property," to quote ([34], p. 231).

The "finance" companies had very flexible charters, allowing them to do just about anything. They also wrapped their operations in secrecy, with their managers telling shareholders they could not reveal the "secret sauce" that enabled them to earn the (initially) splendid profits they were reporting. Fortunately, extensive records of one of these companies, the International Finance Society, have survived, and were the basis for the only existing study of that sector of the British economy in the 1860s, the excellent book of Cottrell [15]. "The overall impression obtained is that during 1865 the finance companies turned generally to the finance of railway construction as an alternative to company promotion," ([15], p. 378). The results were not pretty. For example, Sampson's column in the 17 July 1868 issue of *The Times* listed the principal investments held at that time by Crédit Foncier of England. They amounted to £3 million in nominal value, with 48% of that accounted for by railways (one British, the notorious London, Chatham and Dover, and one foreign). The share price table on the same page of *The Times* showed that the entire company was valued in the market at under £550,000, while the paid-up capital was £2 million (which came partially from funds called up after the Overend, Gurney crash and the reorganization of this company, which started as as the Crédit Foncier and Mobilier of England). Another of these companies, the London Financial Association, had practically all its investments in railways. Management reported in September 1867 that it held securities of nominal value £2.2 million[60]. The paid-up capital amounted to £1.2 million, but the market value of the company was around £0.3 million.

London Financial and Crédit Foncier survived and repaid their creditors (although their investors never recovered anything close to what they put in). This was due to the mechanism, described in Section 5, that allowed Overend, Gurney and many other companies that went bankrupt to pay their debts, namely partially-paid shares. Investors were led to believe that they would be liable only for the sum actually paid per share (£15 in the case of Overend, Gurney), but they were actually liable for the full nominal amount (£50 for Overend, Gurney). While some observers were warning about such practices, which led to essentially unlimited liability for shareholders, Bagehot welcomed them long before Overend, Gurney engaged in them. He felt this was excellent protection for creditors, who could be sure "that there [was] beyond the control of [such a company's] managers and

[60] *The Times*, 30 September 1867, p. 5. This sum consisted of 0.33 million in railway debentures, 0.25 million in Lloyd's bonds, 0.73 million in railway preference shares, and 0.92 million in railway ordinary shares.

directors a very considerable fund" to draw on in cases of trouble[61]. Thus he contributed to the damage suffered by investors.

8.3 Independent and not-so-independent railways

The inflation of financial companies in the 1860s was due largely to the flow of funds from railway construction, with Marx's "roving cavaliers of credit" arranging the flows. The implosion of the financial sector was then caused largely by the poor revenues shown by the new railway projects. This was the conclusion not just of Bagehot, Newmarch, and Sampson, but also of others. For example, William Duncan, manager of one of the major Scottish joint-stock banks, wrote at the end of 1866 about the unusual behavior of British financial markets compared to previous panics, and concluded ([18], p. 75)

> that one leading cause of the protracted high rates and uneasy feeling was the extent to which, during several preceding years, the capital and accumulations of the country had got absorbed in many fixed and inconvertible forms, and to the enormous amount of accommodation required by large contractors and others for the formation of contractors' lines of railway, a description of financing of comparatively recent origin.

Yet these underlying money flows escaped notice. This is perhaps best illustrated by Newmarch's "Commercial History and Review" for 1863, 1864, and 1865, the last one published just two months before the Overend, Gurney crash. If we consider the introductions to those retrospectives, which give general overviews, we find extensive coverage of the new financial firms. On the other hand, there are only a few passing references to contemporary railways, including the telling and absurd quote cited before from the review of 1864, which claimed railway schemes were only of modest extent. The one extensive discussion of railways is also in the review of 1864, but is about the Railway Mania of the 1840s. Newmarch claimed there that the mania of the 1860s was much less dangerous than the one of two decades earlier, since it involved projects that could in most cases be aborted or scaled back on a moment's notice, unlike the railways in the 1840s, which, once started, had to be completed before they would be of any use. Yet the ongoing railway projects of early 1865 were absorbing sums not far short of those at the peak of the Railway Mania of the 1840s. Hard to imagine better proof that Newmarch was ignorant of what was going on.

How could careful and generally well-informed observers such as Bagehot and Newmarch be ignorant of the railway mania that was raging in Britain? The main reason is that the nature of railway expansion had changed as a result of a relaxation in government regulations and of "financial innovation" that produced new instruments and new ways to conceal where risks and liabilities lay. (The similarities with the Global Financial Crisis of the last decade thus start at a very fundamental level.) This was recognized after the Overend, Gurney crash by many commentators. For example, Bonamy Price ([55], p. 375) observed that "[t]he old method of financing railways and public works stood on the same solid ground. An estimate of cost was laid before the public; shares were offered directly to

[61] "Limited liability in banking," *Economist*, 21 June 1862, pp. 676–77.

investors, ..." Some people began to recognize this shortly before the crash. In particular, Bagehot (or possibly Newmarch) wrote, two weeks before the crash, on how the profound changes in railway financing that introduced new levels of opacity to that area[62]. His comments there about "rates of interest and commission almost fabulous" that were involved parallels Marx's comments about "roving cavaliers of credit who can afford to pay a high interest"[63].

One of the most important changes in funding of new railway projects was the increase in leverage. It had been strictly limited, so that the common equity cushion served to protect investors in bonds and preference shares of railways. But this changed, and largely without public notice. Officially, railways were only allowed to raise funds through equity and debentures. However, John Horatio Lloyd, a prominent attorney, found a loophole that led to the creation of what came to be called "Lloyd's bonds." These bonds allowed railway managers to bypass not only Parliamentary limits on their borrowings, but also shareholder scrutiny.

Another major change was the decline in public information. Railway projects used to advertise heavily to solicit investors as well as public support (necessary to obtain Parliamentary approval). By the 1860s, it became possible for just a few promoters to launch a line, usually relying heavily on a contractor not just for the work, but also to handle financing[64].

The many changes in financial instruments and legal restrictions that transformed railway finance in the 1850s and 1860s are considered in a separate work [50]. Here we provide an illustration of how this process operated. The Tewkesbury and Malvern Railway (TMR) was a short (13 mile) line that actually opened for service in mid-1864. Some aspects of how it was financed were investigated by the House of Lords. The testimony from that investigation [68], and the miserable revenue figures from early operations, were public by early 1865. They should have served as a warning to investors about what was happening in railway finance more generally.

In the case of the TMR, the contractor initially was paid for each £5 worth of work with an ordinary share of nominal value £10. But then payments had to be switched to Lloyd's bonds, since he could not sell the shares for anything close to £5, and, at the time of the testimony, in the market "you would not get more than [£3]" for each[65]. The reason £10 shares were valued at £3 was undoubtedly the growing suspicion about the viability of the concern. As it turned out, that suspicion was not strong enough. Even £3 per share was far more than the project was worth. In 1877, when the Midland Railway took over the line, the nominal capitalization had £236 thousand of common shares, £107 thousand of Lloyd's bonds, and £89 thousand of debentures. The debenture holders received about 66% of what they were owed, shareholders £1 per share (or 10% of nominal value), and Lloyd's bonds owners 10% of the nominal value ([7], p. 243).

[62] "'Finance paper' and the rate of discount. A lesson for the future," *Economist*, 28 April 1866, pp. 497–98.

[63] For explicit examples of such practices, see, e.g. *Economist*, 30 October 1867, p. 1352.

[64] Railway contractors, who usually also undertook other infrastructure projects, have not been studies much. The best single source is the book of Jenks [31]. Some other very useful sources of information on various aspects of railway finance in the 1860s are [14,15,30,33,44,53,54].

[65] Testimony of Richard Stephens, Secretary of the Tewkesbury and Malvern Railway, in Appendix to [68]).

The TMR example shows an important point, namely that although the various financial institutions were involved in railway finance, and were often ruined by it, there was also much money invested by the general public[66]. But we have no precise estimates.

Many of the railway contractors who went broke, as well as many of the investors who bought common shares, debentures, or Lloyd's bonds, likely were victims of the common overoptimism that prevails in a mania. But there is evidence that in many cases they were playing the "find a greater fool" game. Many projects were not expected to be viable on their own, and the intention was to play off major railways against each other and get them to bid to take over the project in order to keep rivals away. How often that happened is not known. Also, in many cases (again, no hard estimates are known) the nominally independent lines were actually set up, or stimulated, by managers of established lines, who were trying to avoid the appearance of poaching on another line's territory.

In general, it is not known how well the independent lines did on average, the TMR may well have been one of the extreme cases. This is a neglected area that deserves further research. It may be done best in collaboration with railway historians. Unfortunately, finance is usually of little interest to them. But their literature is very scholarly, and they know where to locate relevant information, as they often cite interesting tidbits about railway financings (such as that about the Atlantic and Great Western Railway in [1]).

8.4 Established railways

The previous three subsections briefly outlined how investors lost through being led to accept onerous governance conditions, through believing that partially paid shares would not involve any further liability on their part, and by purchasing railway securities that were far riskier than expected. Shareholders of established railways suffered greatest losses in 1867, as is visible in Fig. 2. This came from three overlapping factors. One was that it finally became apparent that the branches and extensions that their lines were constructing were not profitable. Another one was that their managers had made them responsible for some supposedly "independent" railways. And the third was that in quite a few cases managers had produced fraudulent accounts (in contrast to the Railway Mania of the 1840s, where actual fraud was a minor factor [48]).

9 The Overend, Gurney crisis

This section provides some more detail about the Overend, Gurney company and its implosion. In particular it demonstrates the role of railway finance in that debacle. John Mills, a Manchester banker and active member of the Manchester Statistical Society, wrote in 1868 that "[a]s a rule, Panics do not destroy Capital; they merely reveal the extent to which it has been previously destroyed by its betrayal into hopelessly unproductive works" [43]. That describes well what happened in the GFC in 2008. The Lehman Brothers collapse was just the culmination of the search for where the losses from the real estate bubble were

[66] An example is the ad for £2.2 million (nominal value) of the London, Chatham, and Dover Railway, offered at 27.5% of par, *Economist*, 14 April 1866, p. 465.

hidden. And it applies to the Overend, Gurney panic. Bagehot wrote a week after that event[67] that "[a] great deal of this bad business was lying on the market, and no one knew in whose hands it was." From the start of 1866 there was a rising tide of hard news about existence of "bad business," and this stimulated an even faster rising tide of suspicion about financial institutions. Overend, Gurney happened to be the first large London firm to run out of money, to a large extent because of its bad investments of half dozen years before, a "gigantic ulcer" in Bagehot's phrase[68]. Its central role in the British financial system meant that when it closed its doors, the "Black Friday" panic ensued.

The precise moment when a bank run commences is hard to predict, as is shown by the case of Silicon Valley Bank (SVB), which collapsed in March 2023. It was known for several months that it was insolvent, but it is thought that a particular move by that bank caused the run to start in a few hours [42]. In the case of Overend, Gurney, a number of sources state that its closing at 3:30 pm on Thursday, 10 May 1866, was precipitated by a judicial decision the previous day. That court verdict made some of Overend's railway securities holdings worthless, which led to a rush by depositors to withdraw their money. This makes for a colorful story, but the dating is slightly off, which makes for a slightly less persuasive scenario, although a still plausible one. The relevant verdict was rendered a day earlier than claimed, on Tuesday, 8 May, 1866[69]. All the modern and even not-so-modern sources that cite that verdict give the wrong date for it[70]. But this misdating may only make the story a bit less dramatic. It could be that the information about Overend, Gurney problems simply took longer to diffuse and be processed by investors than in the case of SVB. One can only speculate about the influence of fast modern communication technologies, or possibly of more herd-like behavior among Silicon Valley technologists and venture capitalists than among British investors of the 1860s.

The importance of that case is hard to determine, as is the case of all incidents that occur at the height of a panic. Some weeks after the collapse of Overend, Gurney, *Bankers' Magazine* claimed that the "publication [of the judicial decision] made securities to an untold amount mere waste paper, and contributed the last ounce to the pressure which broke the back of Overend and Gurney"[71]. And that seems very plausible. There was general pressure, leading to an unstable system, and so any disturbance could have led to a collapse.

The 8 May, 1866, railway securities decision is interesting, as it illustrates several aspects of the investment mania of the 1860s. In particular, the phrase "securities to an untold amount" used by *Bankers' Magazine* reflects the fact that there were no statistics on the volume of bills of exchange that had been issued by railways, and which were declared illegal.

[67] *Economist*, 19 May, 1866, pp. 581–583.
[68] *Economist*, 18 May, 1867, pp. 554–555.
[69] *The Times*, 9 May, 1866, p. 13.
[70] Wednesday, 9 May, 1866, is given in almost all cases, such as ([34], p. 242) and ([62], p. 98). The only exception that has been found to this misdating is in ([31], p. 261), which not only states that the case was decided on Monday, 4 May (an impossibility in 1866, there was no such day that year), but in addition claims it covered Lloyd's bonds, which it did not. The court ruled only that railways could not use bills of exchange.
[71] *Bankers' Magazine*, June 1866, pp. 674–675.

The *Bankers' Magazine* comment about "the pressure which broke the back of Overend and Gurney" leads to an important observation that is missing in many publications that deal with the 1866 crisis. The "pressure" affected all financial institutions, and was not confined to Overend, Gurney. And it started around the turn of the year. Between the end of December 1865 and the end of March 1866, share prices of National Discount and Overend, Gurney declined by 26% and 25%, respectively[72]. National Discount came through the May ordeal of the Overend, Gurney crash just fine. It declared splendid profits for that period, and continued to make very good profits and to be the largest discount house in London for several decades afterwards [34]. However, to survive the May ordeal, National Discount resorted to assistance by the Bank of England on a large scale. It was the second largest discounter there that month. Even the London and Westminster Bank, the largest bank in Britain (aside from the Bank of England), which was very prominent, and very solid, obtained a large loan from the Bank of England[73]. Many other firms went under.

The finances of Overend, Gurney remain largely a mystery. Accounts were not kept in good order, sometimes they were altered, and there was even conflicting court testimony, cf. [20]. There is universal agreement that their main problem was caused by the rogue management that was in charge from 1858 to some time in 1861, which, through combination of incompetence and corruption, involved the company in giant losses. The general impression conveyed by modern literature, though, is that aside from those misbegotten loans, the basic discounting of bills of exchange was going well. That was also Bagehot's impression in mid-1865, when the firm was going public[74]. However, a year and a half after the 1866 crash, information coming out of various liquidation hearings persuaded Bagehot that Overend, Gurney was reckless in its discount business[75]. And while we do not have precise figures, there are suggestive pieces of information that show that in the run-up to the 1866 crisis, Overend, Gurney did drink deeply of the poisoned chalice of railway finance. Peto's giant contracting house shut its door on the morning of "Black Friday," right after the bankruptcy of Overend, Gurney[76]. The obvious deduction was that Peto was dependent on obtaining funding from Overend, Gurney, and this was confirmed in Peto's bankruptcy proceedings[77]. Overend, Gurney also had some complicated but direct engagements with the Atlantic and Great Western Railway and its promoter, James McHenry ([51], p. 40), in addition to its exposure to Barned's Bank, whose big loan to that line was one of the reasons for its downfall.

[72] Final prices for those months as given in the *Investor's Monthly Manual* for those months. The declines were from £17.25 to £12.75, and from £21.5 to £16.125, respectively, on shares that had £5 paid in the case of National Discount and £15 for Overend, Gurney.

[73] [23], pp. 136–137. National Discount received close to £700,000, only a bit less than the largest user of the Bank's discount window that month, which was another discount house, the private firm Alexanders, Cunliffes. National Discount's paid-up capital and reserve fund were about £1 million at that time.

[74] *Economist,* 15 July, 1865, pp. 845–846.

[75] *Economist,* 30 November, 1867, p. 1352, which has some nice concrete examples of Marx's "roving cavaliers of credit" in operation.

[76] There were actually two contractor firms, Peto and Betts, and the smaller Peto, Betts, and Crampton. For simplicity they are here grouped under the name Peto. Peto was one of the two largest contracting firms in the world at that time. The other one, Brassey's, survived.

[77] *The Times,* 30 April 1868, p. 11.

10 The crisis of 1867

This section provides some more detail about the events of 1867, which illustrate the well-known principle that if systemically important institutions are not involved, and security holdings are widely dispersed, a large collapse in valuations may not produce dramatic financial crises. The greatest losses in the severe decline in railway securities in 1867 was suffered by holders of common shares. Those had no recourse, other than bring in new management (which several of the lines did). They could only rue the loss of their capital, which, in the words of Mills [43], "ha[d] been previously destroyed by its betrayal into hopelessly unproductive works." If this was all, there would have been nothing dramatic, just the slow acceptance of loss, as in the Railway Mania of the 1840s. But there was a class of railway investors who were able to exert more pressure. These were the holders of railway debentures. As is shown in Table 1, in mid-1860s these debentures amounted to about £100 million, more than the total capitalization of all financial institutions in Britain. They were issued by railways largely for periods of 3, 5, or 7 years. Hence a large volume of them had to be renewed each year. In the spring of 1867, the disclosures about disastrous financial results at major railways, often associated with fraudulent accounting, led to a panic among debenture holders. Even major railways, the Great Western in particular, had difficulty in renewing those securities. This led to a panic among railway managers, as well as many financiers. A prominent delegation visited the Chancellor of the Exchequer to ask for help[78]. This paralleled a visit by a (larger and more prominent) delegation of eminent financiers and merchants almost a year earlier to successfully ask for a suspension of the Bank Charter Act when Overend, Gurney closed its doors. In 1867 this request for immediate assistance was turned down, and railways were left to deal with the issue on their own, which they did, at high cost to shareholders.

To an overwhelming extent the fears of debenture holders were unjustified. Due to government restrictions, even with all the evasions of the intent of the law through legal and financial innovation, leverage was limited in the British railway industry, as is visible in Table 1. So debenture holders were safe in almost all cases, as many observers, including Bagehot[79], pointed out. That those investors were frightened and refused lucrative renewal offers serves as an indicator of just how discredited railway investments were as a result of all the financial disasters that were occurring.

11 Economic history literature on the investment mania of the 1860s

Economic history offers many lessons. One is that memories can be amazingly short. It's not just that modern literature is largely ignorant of the British investment mania of the 1860s. The same phenomenon can be observed much earlier. Only a few years after the end of that colorful episode, Leone Levi, who had a distinguished career as a jurist, economist,

[78] *The Times,* 15 March 1867, p. 8 and, in more detail, *Railway News,* 16 March 1867, p. 267. Both papers argued that government should not step in, and so did Bagehot in the *Economist,* 16 March 1867, pp. 289–290.

[79] *Economist,* 16 March 1867, pp. 289–290.

and statistician, published an economic history of Britain up to 1870 [37]. Its treatment of the mania of the 1860s was very limited and of low quality, largely concentrating on the mismanagement of the Overend, Gurney company, and on the numerous new companies, largely in finance, that were started at that time. Levi's work basically ignores the role of railways, and does not even mention the crisis of 1867. And that book set the tone for most of later historical treatments.

As examples of more modern works let us take Clapham's vol. 2 of *Economic History Of Modern Britain* [12], and his history of the Bank of England [13]. Neither work does justice to the investment mania of the 1860s. There is overemphasis on the Overend, Gurney company, and there is no indication anything interesting happened in 1867.

As was mentioned before, there are many works that present solid and useful information about various aspects of the mania of 1860s, especially of railway finance in that period, particularly [14,15,30,33,44,53,54]. But they do not present a comprehensive account.

The survey by Gourvish [28] is short and covers much ground. Its treatment of the railway construction boom of the 1860s cannot be faulted, given length limitations[80]. It does say that "contractors and finance companies" were key to the big expansion of that industry "in the boom of 1863-5" ([28], p. 16), but it does not even hint at the legal and financial innovation that enabled contractors and finance companies to play their key role out of sight of the public, "by so to say defrauding the shareholders," in Bagehot's words cited in the Introduction.

The GFC of 2008 led to an intensification of interest in financial history (cf. [67], p. 2). That included a noticeable spurt in publications about the Overend, Gurney crisis of 1866, including journal articles, book chapters, and reports [6,23,24,57,59,62,74]. All represent solid work of significant value. However, they concentrate just on the crisis, the Lender of Last Resort activities of the Bank of England that kept the British financial system from collapse, and the aftermath of the crisis. The developments in the British economy that gave rise to the crisis, as well as the slowly developing panic involving the new financial companies that culminated in the Overend, Gurney collapse are not covered at all, or very poorly. Several of these works do mention the Mid-Wales Railway judicial decision that was discussed in Section 9, and, as was shown there, all misdate it. None mention some of the earlier works that have useful information about the investment mania of the 1860s that were cited earlier, such as [15,31,34]. Further, none mention that 1867 crisis. In some, one gets glimpses of the cloven hoof of railway finance under the curtain, but none tear away that curtain and display what's behind it.

It is of some interest that a recent book of Quinn and Turner [57] that is subtitled "a global history of financial bubbles" does not cover the British investment mania of the 1860s, and does not mention the Overend, Gurney panic. So in the view of those authors either there was no bubble in Britain in the 1860s, or it was not significant enough to mention.

On the other hand, an earlier book by one of those two authors has a 5-page section devoted to British banking crises of 1866–1867 ([67], pp. 79–84). Just like all the papers mentioned above, it has no hint of the 1867 railway securities crisis, and does not explain

[80] It cites [14,53,54] which have much more solid detail.

just how large the investment mania of the 1860s was. (Of course, the book is about banking, so that does not affect its main theme much.) On the other hand, it has much clearer views of the cloven hooves of railway finance than the other works cited above. It states that "industrial activity in Britain had been high between 1863 and 1865 due to investment in increased railway mileage and to the incorporation boom that had followed [the 1862 legislation]." It also says that many of the new finance companies "were also instrumental in financing the activities of railway contractors, who were actively working on an immense addition to the nation's railway mileage." Further, it makes it clear that the collapse of Overend, Gurney was just the spectacular end of a slide in valuations of many companies in finance, and that many of the failures were due to ties to railway contractors. So of all the recent works mentioned in this section, it presents the best view of what led to the 1866 crisis.

Finally, let us consider the recent book *Calming the Storms* by C. Read [58]. It has a chapter on the 1860s that presents a very novel view of what happened. Unfortunately that view conflicts with facts. For example, according to Read, inflow of bullion to the Bank of England served to drain banknotes from that institution. That is counter to what the Bank Charter Act of 1844 specified. Bullion brought to the Bank led to creation of new notes that could go into circulation. Further, Read asserts that the Bank in July 1865 "began to sharply raise its rate over the next 12 months." That is not correct, as the Bank Rate did rise initially, but then, at the end of February 1866 began to be lowered, so it was down substantially by early May when the 1866 crisis exploded. And drains of bullion to India were simply not significant in the spring of 1866, as is discussed in Section 6. There are many other issues of similar kind in Read's treatment of the crisis of 1866 and the events leading up to it. Hence his description of what happened is very imaginative, but not plausible.

12 Bagehot and the early stages of the mania of the 1860s

Previous sections outlined the British investment mania of the 1860s, the information about it that was available to Bagehot and his contemporaries, as well as the considerable gaps in their and our knowledge about that period. We now turn to a brief presentation of how Bagehot, and to some extent also Newmarch and Sampson, reacted to the financial developments they observed.

By 1862, the British economy was stabilizing after a rather turbulent year. In the first issue of his paper for that year, Bagehot noted that "[i]t is impossible ... to lay down any rule which will, under all circumstances, obviate disaster or prevent peril"[81], but he did not see any major dangers.

Towards the end of 1862, the flood of new limited liability financial startups started catching public notice. At that stage Bagehot did begin to pay more attention to that issue, but largely dismissed concerns that some raised. He argued that the new projects were not absorbing enough capital to cause problems[82]. Sampson at that time was even

[81] "The monetary policy of 1862," *Economist*, 4 January 1862, pp. 1–3.
[82] "The new banks," *Economist*, 13 Dec. 1862, pp. 1373–74.

more optimistic than Bagehot. He felt the country had managed to successfully handle issues such as shifts in cotton supplies, and predicted (incorrectly) that there would be no major drains of bullion to India. But he was prescient with regard to the mania that was just rising. "Our only danger lies in the infatuation with which the British public allow themselves to be played upon by professional concoctors of public companies," he wrote[83]. Over the next few years he continued railing against 'concoctors' and their 'concoctions' (terms he seemed to love and used with abandon), and was not drawn into the "New Age" thinking that attracted Bagehot and Newmarch. However, he never presented any quantitative measures of the danger they posed, and, surely with an eye to libel laws, he never named any of the greatest miscreants, although some of his comments on new projects clearly implied a form of raised eye.

The year 1863 did see a rapid rise in new corporate promotions. For a long time these did not seem to alarm Bagehot. At the end of October, Bagehot was still not convinced that new projects involved enough capital to be worth worrying about[84]. But at the end of the year, clearly getting concerned, and to be sure his views were correct, Bagehot commissioned Newmarch to obtain more solid estimates of the growth in national savings in Britain. They were published in December[85]. These estimates, of about £130 million per year, were about twice as high as the figure Bagehot had cited a year and a half earlier[86], and were also higher than the £100 million that Newmarch had suggested in the spring of 1863[87]. (Remarkably enough, they are almost exactly the same as some modern figures, cf. Table 2.1 on p. 21 of [19].) Newmarch's estimates appear to have reassured Bagehot in his view that the new startups, even if failures as individual businesses, were not a threat to the economy as a whole. His big mistake here, as was discussed earlier, and will be discussed later, was in neglecting to take account of railway investments, which had already taken a big leap in 1862, as is visible in Fig. 4. Two months later, Newmarch in the "Commercial History and Review of 1863," the first in that series, was also generally optimistic about the prospects of the new year.

Sampson presented a much more alarming outlook in his first column of 1864[88]. He was very concerned about the promoters involved, and commented sarcastically that "if the 263 companies proposed during the past year have found persons [honest and competent to run them], a most encouraging improvement must suddenly have occurred in the ranks of commercial honesty and intelligence." He was convinced, based undoubtedly on his contacts with the people involved, that there would be many failures, which, combined with all the other commercial activity would lead to a crisis. "For this grand work to ripen, however, some two or three years will be necessary," he opined, thus predicting a panic in 1866 or 1867. As we now know, there were panics in both of those years.

[83] *The Times,* 1 January 1863, p. 7.
[84] "The probability of a considerable rise in the value of money," *Economist*, 31 Oct. 1863, pp. 1205–1206.
[85] *Economist*, 12 Dec. 1863, pp. 1381–83 and 19 Dec., pp. 1411–13. Reprinted in the *Journal of the Statistical Society of London,* vol. 27, March 1864, pp. 118–127.
[86] *Economist*, 8 March 1862, pp. 254–55.
[87] Newmarch's £100 million figure was in a letter to *The Times*, 27 April 1863, p. 7. Attribution to Newmarch of both that anonymous letter, and of the estimates published by Bagehot in December 1863 that did not name the investigator behind the numbers, is based on [18].
[88] *The Times,* 1 January 1864, p. 5.

13 Bagehot's alarm followed by complacency

The year 1864 year was one of serious alarm about the state of the British economy, largely due to the drain of bullion to India and other countries to pay for cotton, and, at least to some extent, due to new joint-stock companies raising capital. This was reflected in Bagehot's writings as well as those of other observers. Still, the alarm was limited. In March came a long leader with a detailed discussion of the new companies[89]. Bagehot claimed that "there [was] ground for caution and discrimination, but no ground for sweeping censure and condemnation." Most important of all, the capital involved in the new ventures was simply not large enough to cause trouble. Some weeks later there was a leader about the importance of "the gradual but very rapid diffusion of intelligence among the wealthy," which led to better investment decisions[90]. Part of the reason for this belief was the view that with better educated investors and more investment opportunities, profit rates were going up (thus helping explain the high interest rates that were a puzzle to many, especially given the continuation of much lower long-term rates, cf. Fig. 1), and so there was going to be less of the desperate search for yield that had led to so many bubbles.

Later an increasingly cautious tone started showing up, with questions about the sources of what seemed to Bagehot to be improbably high profits being reported by some of the new finance companies, and about distortions in banking accounts[91]. Close to the end of 1864, he emphasized again the need to know and understand the assets of banks[92].

The year 1865 can be called one of complacency on Bagehot's part. In an early issue he congratulated himself for having predicted high and varying interest rates for the previous year, and he predicted steadier and lower rates for 1865 (which turned out to be correct)[93]. He argued, though, that rates would not drop too far, as the increased investment opportunities and greater sagacity of the investing public that would seize those opportunities would keep demand for money high. He admitted that there would be failures of some firms, but predicted that "[m]ost trade will be good, as it has commonly been good."

Bagehot was not the only one expecting continuation of high short-term rates. An outstanding example is that of George Goschen. At that time he was already seen as a rising star, and eventually would become Chancellor of the Exchequer and be made a viscount. He came from a prominent merchant family, achieved early success in commerce, was elected a director of the Bank of England at a very young age, and in 1861 published a widely acclaimed and widely reprinted (in revised editions) book about foreign exchanges. In January 1865 he published an article that predicted that 7% short-term interest rates were the new normal, and were a cause of celebration, as they came from all the exciting new commercial opportunities that were opening up [26]. As is visible in Fig. 1, soon after the Overend panic, which led to a temporary Bank rate of 10%, interest rates started dropping. Three years after his paper that celebrated 7% rates and predicted their continuance,

[89] "Will the new companies cause a panic?," *Economist*, 19 March 1864, pp. 349–51.
[90] "The influence of increased education upon the stock market," *Economist*, 7 May 1864, pp. 575–76.
[91] "What the reports of finance companies should tell us," *Economist*, 23 July 1864, pp. 921–22; "The use and abuse of finance companies," 20 Aug. 1864, pp. 1045–46.
[92] "On the importance of stating the *nature* of the liabilities of joint stock banks," *Economist*, 24 Dec. 1864, p. 1573.
[93] "What the value of money is likely to be," *Economist*, 21 Jan. 1865, pp. 61–62.

Goschen published another one, in January 1868, this time explaining that short-term 2% rates were likely to be the future [27].

Newmarch, in his second "Commercial History and Review," which appeared in March 1865, was sanguine. And so was Sampson, in his first column of 1865[94].

For most of 1865, events unfolded as Bagehot had predicted. There were some failures, of financial firms and railway contractors, harbingers of the more serious trouble that would follow in 1866. But they were not numerous, and did not seem threatening. At the end of 1865, Bagehot was confident a prosperous new year was coming[95]:

> One thing is very certain, that the London market has gone through a splendid half-year, the best, perhaps, it has ever seen. Last year it charged higher rates, but last year it made considerable bad debts. A large lender could hardly help doing so then. There was a collapse of industry which tried every one. But now there are no bad debts and no collapse. The high gross profits of bankers will not be impaired by any large losses of bad bills.

Bagehot's complacency continued for some time into 1866. It was also shared by Newmarch. In his "Commercial History and Review of 1865," which appeared in early March 1866, he did not foresee any crises.

In contrast to Bagehot and Newmarch, Sampson delivered a sharp alert of impending danger to his readers. His first column of 1866 presented his usual outlook on the year ahead[96]. He noted the puzzling behavior of some aspects of the British markets, and concluded they came from hidden losses in speculative ventures, and that there would be a giant panic, with interest rates rising to 12, 15, or 20%[97]. He warned that "although it would be idle to conjecture whether the trial is to come this year or the next or the year following, it will be well for all persons pledging themselves to future liabilities to frame their calculations on the possibility that the storm may overtake them at any instant."

14 Bagehot in the 1866 runup to the Overend, Gurney crisis

While tension had been building in the markets for a while, it led to the beginnings of a panic only in February 1866, but then kept increasing before erupting in the final spasm that culminated in the Overend, Gurney collapse in May. This tension was fueled by the increasing number of failures, primarily of railway contractors and financial concerns that almost invariably were involved with contractors[98]. Until then, railways did not seem to play a significant role in Bagehot's views of business conditions. But as winter turned to spring, Bagehot started learning of the role of railways in the bubble that was approaching its climax. At the end of February he wrote of the "hope that there is no cause for real alarm,

[94] *The Times*, 2 January 1865, p. 6.
[95] "The state of the money market," *Economist*, 16 Dec. 1865, p. 1517.
[96] *The Times,* 1 January 1866, p. 7.
[97] Such rates might have arisen, had the Overend, Gurney closing not led to suspension of the Bank Charter Act and to Lender of Last Resort operations by the Bank of England, as even with those moves, there were reports of some enterprises paying 12% or more in May.
[98] There were some exceptions, such as the large fraud at the Spanish trading house Pinto, Perez, and Co., in early April, which did not seem to have had any railway engagements.

but it would be unwise to shut our eyes to the fact that advances to railway contractors are causing a difficulty"[99]. Two weeks later, in a regular issue of the same date as the Newmarch annual retrospective, he wrote that "[i]t is certain that a great many small railways have been made which never ought to have been made, and the money found for them in Lombard street. The original undertaking for which the money was borrowed being a heavy loss, that loss must fall somewhere, and a good deal of it is now falling on the lenders in Lombard street"[100]. Three weeks later, he had an article about the "monstrous mode" in which many railways were made[101]. Still, he had yet to get an appreciation of just how bad the situation was. In mid-April, a month before the Overend, Gurney panic, Bagehot wrote that "the fall in the speculative securities" was expected by him and all competent observers, and that "[t]he wonder has been how it has been postponed so long"[102]. Many railways and also the "wild and hasty speculation of the new discount companies" were going to perish, "[b]ut the mass of the trade of England has nothing to do with such things."

Bagehot expected some fall in interest rates, but he also thought the Bank rate would not go down below 5%. (As is visible in Fig. 1, the Bank rate ended 1866 at 3.5%, and went down from there, not exceeding the 3.5% level until the spring of 1869, after spending a year and a half at just 2%.) He continued to print some reassuring words even when faced with more financial catastrophes. For example, the closure of Barned's Bank elicited from him a comment that this was nothing new, "that banks which have advanced largely on speculative securities ... must fail."[103]. However, with large gold reserves at the Bank of England, "there is no reason for apprehension among sound people, but every reason for confidence; ...; that what we now have is a gradual and successive weeding out of unsound speculators, whereas in old times they all failed at once in a mercantile crash and national disaster." Unfortunately for Bagehot's record in evaluating the present and predicting the future, the "old times" refused to go away, and a "crash and national disaster" did arrive three weeks later.

As the Overend, Gurney panic was approaching, Bagehot appeared to be investigating and learning about the wonders of creative finance. Two weeks before the crash, we find him (or, more likely, Newmarch, but in a leader that Bagehot must have read and agreed with) writing how the bankruptcies of some railway contractors have revealed the webs of financial ties among various institutions, and that this was clearing up some of the financial puzzles he had been struggling with[104]. He now was aware of a key difference between 1866 and the Railway Mania of the 1840s.

[99] "The new finance and discount companies," *Economist*, 24 Feb. 1866, pp. 221-222.
[100] "The state of the money market," *Economist*, 10 March 1866, p. 281.
[101] "The good and bad mode of making minor railways," *Economist*, 31 March 1866, pp. 378–80.
[102] "The state of the money market," *Economist*, 14 April 1866, pp. 437–48.
[103] "The state of the money market," *Economist*, 21 April 1866, p. 469.
[104] "'Finance paper' and the rate of discount. A lesson for the future," *Economist*, 28 April 1866, pp. 497–98.

15 The slowly unrolling crisis of 1867

The railway securities crisis of 1867 caught Bagehot, Newmarch, and Sampson by surprise. At the start of that year, Sampson was expecting steady recovery[105], as "[t]he finance panic [of 1866] was ... purely a Stock-Exchange affair, and, although the entire public were directly or indirectly compromised by it, the greater portion of the immoralities connected with it might be traced to a few hundred adroit adventurers outside of that establishment, versed in the rules necessary to "make a market," and to raise fictitious premiums." A year later, though, he had to confess those expectations had been wrong[106].

> In January [1867] it seemed that the commercial public had nothing to do but to clear away the wreck they had just witnessed, and to look for the gradual rebound that inevitably follows every period of terror. ... But an evil remained wholly out of reach of detection by any class of observers. ... it was beyond supposition in 1867 that the leading representatives of the railway system of the kingdom, in which 500 millions of capital was involved, could, either knowingly or unwittingly, have long committed themselves to the practice of declaring dividends that had never been earned, so as to delude their constituents into furnishing an unceasing supply of fresh capital for wild and unprofitable extensions.

Bagehot and Newmarch similarly failed to see how much of railway capital had been previously destroyed by its betrayal into "hopelessly unproductive works" (to borrow a phrase from [43]). Newmarch ended his introduction to the "Commercial History and Review of 1866" with the claim that Britain was "enter[ing] on 1867 with a load of difficulties swept away," as "every sort of unsoundness had been probed to the bottom." Instead, 1867 brought a string of unpleasant revelations, most prominently and with greatest damage at the LBSCR (visible in Fig. 2) and the Caledonian Railway. These revelations unrolled all through 1867.

16 Conclusions

Bagehot clearly overlooked relevant statistics, and so did not realize the financial scene he was observing was shaped largely by immense flows of money into railways, and that this was distorting British markets. Would he have been alarmed had he paid attention to all the data in the *Economist*? And would that have made a difference?

These are interesting questions that this paper does not attempt to answer. All that is demonstrated here is that Bagehot, Newmarch, and Sampson were alarmed by the anomalies they saw in the markets, but did not utilize available information, and so did not reach as good an understanding of the financial scene as they could have. But it is worth noting that there are plausible arguments that if Bagehot only learned of the size of railway investments, he might not have been bothered, even if he realized they were bound not to be profitable. They were nowhere near as large (in relation to the size of the economy)

[105] *The Times,* 1 January 1867, p. 5.
[106] *The Times,* 1 January 1868, p. 6.

as the ones during the Railway Mania of the 1840s, which alarmed James Wilson[107]. And Bagehot might easily have concluded that the "defrauding the shareholders" (in his words, from the quote in the Introduction) that was involved was just the natural "devour[ing]" of "stupid money" of "a great many stupid people" (from the quote in Section 3). But we leave such speculations aside, as well as comparisons with the Baring crisis of 1890, and many other issues. All that is claimed for this paper is that it provides motivation for deeper studies of the investment mania of the 1860s, studies that might help in addressing those other issues.

Bagehot believed that some bubbles can be identified, and was actively looking for signs of one in the 1860s. Unfortunately, reliance on bad statistics on British investments led him to incorrect conclusions about the market anomalies he observed, and he was lulled into complacency. This shows once again how hard it is to detect bubbles, especially when dealing with "financial innovation" that creates novel instruments that hide risks. But it also shows the potential for detecting bubbles, if one has the will to do it. Bagehot had many of the key insights into how finance can go wrong, and knew all too well what irrational crowd psychology, "blind capital," and "creative finance" can do. With just a bit more work, or a lucky comment from someone that corrected his main misapprehension, he might have realized what was happening.

Were Bagehot to come alive today, he would surely be surprised at the material progress that has taken place in spite of the abandonment of the gold standard. He would doubtless also be astounded by the powers central bankers possess these days. Tools such as negative interest rates, Quantitative Easing, and the general access to the public purse would surely have astonished him. And he would unquestionably be eager to find out what new methods will be invented and applied in the next crisis. The one thing he would likely be sure of is that such a crisis lies not far in the future. When faced with lack of interest among scholars in bubble detection, authorities who do not believe that bubbles can be detected or even exist (cf. [5]), and others that believe that fairly modest changes in regulation can prevent a crisis for a lifetime (cf. [16]), it is natural to suspect he would have concluded that the state of knowledge about the economy has regressed in the 150 years since his time, and that something unpleasant is on the way that will catch the world unprepared.

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⟨http://www-users.cse.umn.edu/∼odlyzko/doc/mania-ack.html⟩

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[107] See, for example, "Sir Stafford Northcote and Mr Gladstone on the panic," *Economist,* 11 August 1866, pp. 935–937, where Bagehot appears to take note of the Hackett data from the "Commercial History and Review of 1865."

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