Bagehot's giant bubble failure

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Abstract. Walter Bagehot is remembered today primarily as a proponent of the doctrine of lender of last resort, in which central banks pump money into the economy to ameliorate the damage from a financial crisis. But none of the growing number of publications about him appear to investigate in depth whether, as the editor of *The Economist*, he warned his readers about the bubble that collapsed in the famous Overend crash of 1866. This paper shows that while Bagehot did express serious misgivings about that bubble in its early stages, he did not understand just how large it was, and he did not succeed in penetrating the depths of "financial engineering" that concealed the ugly reality that led to the crisis. Since none of the other prominent observers of the time appear to have done better, this may not have been a giant failure, but it was a failure to identify a giant bubble. It suggests we should not expect regulators to be able to detect bubbles in the future.

1 Introduction

Walter Bagehot's 1873 book *Lombard Street* [1] is often called "the Bible of central bankers," primarily for its recommendation that in a financial crisis those authorities should lend early and freely. The already enormous and rapidly growing literature on "the lender of last resort" doctrine considers in great detail the nuances of his recommendations. There are discussions, for example, of the extent to which recent practices, such as Quantitative Easing and negative interest rates, which were certainly not on Bagehot's mental horizon, actually fit with his views.

Bagehot's influence on the theory and practice of central banking are undeniable and has been widely recognized by experts[1]. But his contributions went far beyond *Lombard Street*. During his tenure as the Editor of the *Economist* from 1861 to his death in 1877, he attained great eminence for his writings on not just economics, but politics, literature, and a variety of other subjects, and also for his advice to politicians and business leaders. He was called "the spare Chancellor [of the Exchequer]" for his influence on the British government economic policy, and serious observers have called him "the greatest Victorian."

[1] It is known that Bagehot's prescription for central bank action in a crisis was basically what the Bank of England had been slowly adopting in the 19th century, and employed in full in 1866. Further, the basic ideas had been articulated seven decades earlier by a much more innovative thinker, Henry Thornton [27]. However, Thornton's writings were muddled, and were too early for his time. Bagehot's brilliant prose came at the right time, explained to the educated public what was happening, and provided a systematic framework for financial experts to think about the issues involved.

Sundry aspects of Bagehot's life and career have been covered in the two most recent very nicely written and illuminating biographies [4,12] and in numerous articles and book chapters. Yet one aspect of his career appears to have been neglected. As the Editor of the *Economist*, did he warn his readers of the bubble that climaxed in the crash of May 1866? Both biographies [4,12] give Bagehot credit for having seen the rot inside the Overend Gurney finance house whose closing was the climactic moment of the crash. They accept his explanation that he was not more vocal in warning his readers only because of libel law constraints. 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. Although the failure of this concern did spark the panic of May 1866, if it had not been around, something else would likely have caused a similar panic soon afterwards[2]. As far as the investment mania of the 1860s as a whole is concerned, of which the Overend Gurney panic is just one episode, Bagehot was seriously concerned about it in its early ebullient stages. (That bubble had many similarities to the one that led to the Global Financial Crisis of 2007–2008, as will be explained later.) He was fully aware of the dangers of "creative finance," and he warned his readers of the risks lurking in many of the new businesses that promoters were foisting on the investing public in the early 1860s. However, as the early "instant, effortless riches" atmosphere of that mania subsided, and none of the large feared disasters took place, Bagehot was lulled into complacency. Just like most observers of the early 2000s, he came up with innocuous explanations for the market anomalies he saw. He also did not understand just how big the bubble was, as he seemed to be unaware of some of the statistics that were available, some even in his own paper. His writings did begin to reflect the growing tension in the run-up to the Overend climax, but only late in the game, and he was surprised by the intensity of the crisis.

This paper is based primarily on 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. Practically no account is taken of the other parts of the *Economist*, which had specialized columns on various markets, book reviews, letters to the editor, and the large volumes of statistics that made this publication so valuable to both contemporaries and modern scholars. (The main exception to this neglect are the annual retrospectives of the preceding year that started appearing in 1864.) One could go further and explore the extent to which all that information could have been utilized to build quantitative models of the British economy, or even to obtain a more comprehensive qualitative view of the expert opinions of that period. That is not done in this paper. What is described here is the likely impression of the investment scene a reader would have obtained by reading just the most prominent part of the paper, those "leading articles."

[2] Bagehot recognized this himself. A year after the crash, he wrote that "[i]f there had been no gigantic ulcer like Overend's [and none of some other events, the bubble] might have been prolonged through the summer of 1866," *Economist*, 18 May 1867, pp. 554-55.

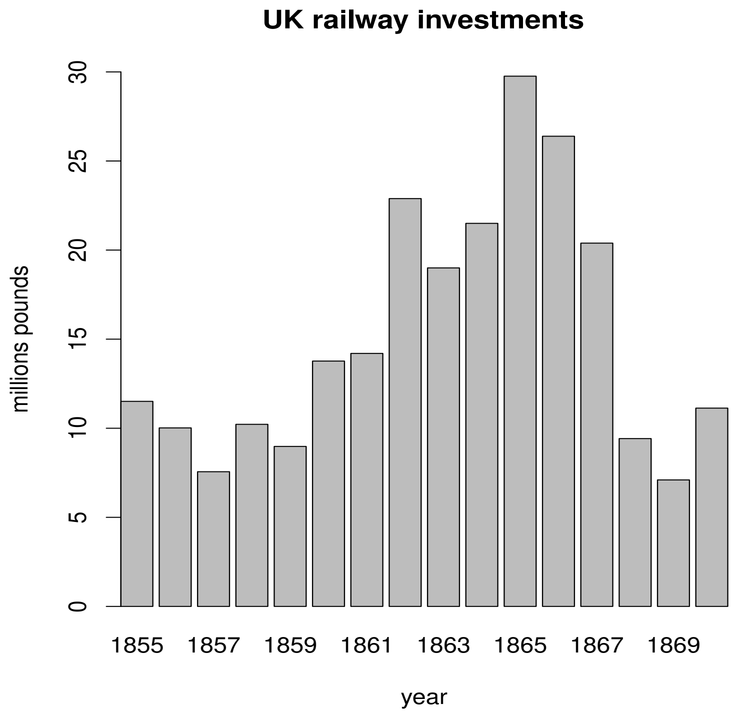

Fig. 1. Additions to the official paid-up capital (shares, debentures, ...) of UK railways, 1855 to 1870. Does not reflect fully the distorting effects of "creative finance" of the early and mid-1860s, which involved capital commitments not captured in the official figures reflected in the bar plot. GDP was around £900 million in this period. Parliamentary authorizations for raising capital were much more peaked, reaching almost £56 million in 1865. Sources: [16,29].

This paper illuminates an aspect of Bagehot's career that has not been explored before. That is interesting by itself. Even more important is that this story shows the difficulty of identifying bubbles, even by expert observers who, unlike modern authorities, do believe that bubbles exist and that they can sometimes be identified. This work also shows that it would not have required much additional work for Bagehot to obtain a fuller understanding of the dimensions of the investment mania he was experiencing.

2 Bagehot's attitude towards investment manias

While the Overend crisis, and especially the Bank of England reaction to it, have been studied in detail, there is little in the literature on the investment mania that led to it. A little more is said about this lack later. Here we just point out that the key part of that mania was a large expansion of the railway network. The main deficiency in Bagehot's analyses of the British economy in the 1860s was lack of awareness of how much money was going into railways. Britain had three huge railway investment manias. The one of the mid-1830s involved real capital investment of about 12% of GPD in the years 1835–1843. It was apparently the only giant and wildly speculative mania in history that was successful from the standpoint of investors, in that it provided above-market returns [19]. The famous Railway Mania led to the investment of about 30% of GDP in 1845–1851 and was an investment debacle. Finally, the mania of the 1860s, depicted in Fig. 1, which was also a disaster for investors, involved real capital investment of about 20% of GDP in 1860–1868, comparable to about $4 trillion for the US today [16,29]. Much of the excitement and beguiling promises of extraordinary profits in the general investment mania of the 1860s came from new financial companies. However, what kept many of them afloat, at least for (an often long) while was largely railway finance.

Railway manias were just some of the exciting episodes in British finance of the 19th century. 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 foolishness. Then came the crisis of 1837, followed by ones of 1847, 1857, and the Overend one of 1866 that is the focus of this note. 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 words from the *Economist* that may or may not be those of Bagehot, accompanied in Britain by "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 gold standard, as happened in 1847, 1857, and 1866]"[3].

To appreciate Bagehot's attitudes it is also important to keep in mind that he was a practical and successful banker, a factor that has only been explored in depth in his most recent biography [12]. He was born into a provincial banking family, and before assuming control of the *Economist* and moving into his influential multi-faceted career in London, he spent half a dozen years working in obscurity for the family concern. Even after the move to London he remained involved with that bank, as a shareholder and a manager. He was actually in charge of their small London office until his death. That bank, Stuckey's, was very profitable, and survived all the financial crises of the 19th century without any serious threats to its existence or independence.

Bagehot's investment advice generally was what one might expect from a conservative provincial banker: restrained, suspicious of "financial innovation," and especially of any promises of extravagant profits. This will be visible later in some quotes from his writings. He does not seem to have ever fallen for any of the fancy new promotions, unlike some of his respected and illustrious friends, as will also be shown later. In retrospect, we can say that he was absolutely right almost always. To many of his contemporaries, though, he must have often seemed hopelessly behind the times. However, unlike some people who stubbornly stick to the same view (as in some modern figures who are in love with "creative

[3] *Economist*, 14 March 1874, special annual supplement "Commercial History and Review of 1873," p. 4. This supplement was created in 1864 (thus for 1863) by William Newmarch, a distinguished economic statistician, who continued editing it for some years. It is not known how much involvement Bagehot had in this part of the *Economist.* It should be noted that Bagehot provided very good advance warnings about the threats of 1873, cf. his leader "The very peculiar position of the year 1873," *Economist,* 4 Jan. 1873, pp. 1–3.

finance," cf. [23]), he was open to new ventures and new types of investments. He was in fact enthusiastic about economic development, new technologies, and new business models. It's just that he tempered his enthusiasm with caution. The strength of his suspicions and warnings about new projects did vary depending on market conditions. In particular, he did raise the alarm about the dangers of the investment mania of the early 1860s. His failure was that he was then deceived by the "financial engineering" that was at work and missed the extent of wasteful investments and the depths to which their nature was hidden from public view.

Prominent modern figures who extol Bagehot's insights are very selective in what they cite and praise. In particular, they concentrate on his recommendations for the lender of last resort functions of central banks that are a key part of *Lombard Street*. But they pass over the extensive coverage in that book of bubbles whose bursting often calls for resort to such functions, and his conviction that markets are often driven to extremes by irrationality of crowd psychology. A famous figure in finance who is also known for expressing appreciation for Bagehot's work has 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 a bubble, even after the fact" [3]. Bagehot would have been astounded by such claims, and inside his family bank would likely have restricted anyone who held such views to strictly routine clerical tasks.

Bagehot would never admit that it is "difficult or impossible" to identify all bubbles. That is clear from reading *Lombard Street*[4]. It is even clearer in two articles he published in 1856, earlier in his career[5]. The first of these was a review of a new edition of Gibbon's *Decline and Fall of the Roman Empire*. Gibbon's grandfather was one of the directors of the South Sea Company in 1720, and after the collapse of that mania, he and his fellow directors were stripped of most of their fortunes through an extra-judicial process in Parliament as punishment for their perceived malfeasance. Bagehot wrote about this period:

> A great deal has been written and is being written on panics and manias - a great deal more than with the most outstretched intellect we are able to follow or conceive; but one thing seems certain, that at particular times a great many stupid people have a great deal of stupid money. ... Several excellent economists have plans for preventing improvident speculation; ...: but the only real way is, not to allow any man to have a hundred pounds who cannot prove to the satisfaction of the Lord Chancellor that he knows what to do with a hundred pounds. The want of this obvious and proper precaution allows the accumulation of wealth in the hands of ... persons who have no knowledge of business, and no idea except that their money now produces nothing, and ought and must be forced immediately to produce something. ... Every 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

[4] In particular, Chapter 7, "Why Lombard Street is often very dull, and sometimes extremely excited," shows very clearly that Bagehot believed the "animal spirits" of businessmen played a key role in the economy, and that irrational crowd psychology came into play with some frequency.

[5] "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 [26], 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.

> there is "plethora" – it finds some one, and there is "speculation" – it is devoured, and there is "panic."

The second article by Bagehot was about the contemporary 1856 financial scene, and opined:

> The *Times* not long since gave a list of the many new schemes and joint-stock companies which have lately been admitted to the Stock Exchange. Our contemporary's intention, of course, was to warn the public against unreasonable speculation, and his advice was well timed. Money was long much dearer than it now is, and whenever money becomes very cheap, experience teaches us to expect that it will be misspent. John Bull, as it has been wisely observed, can stand a good deal, but he cannot stand two per cent. The particular form of mania differs in various years; but when the common and tried employments of money yield but a low profit, recourse will be had to new and untried ones, some of which will be unprofitable, and a few of which will be absurd. It is only at the outset of such manias that warning is of the least use – when they attain a certain growth, advice is thrown away. Everybody is seen speculating; and what every one does must be judicious. Foolish person No. II, imitates foolish person No. I. It was so with the railway mania in 1845 – it was so with the general mania of 1825. ... No one can be more in favour of pecuniary caution than ourselves. No one can hold more strongly that this is the time for sound advice. People still have their money, and this is the time for telling them to be content with moderate returns from investments they understand, instead of expecting large profits from undertakings they cannot understand.

The difference in attitude towards detecting bubbles between Bagehot and modern experts is striking. Not only does the current scholarly consensus reject the idea of detecting bubbles before the fact, it has adopted the view that even the South Sea Bubble was not a true bubble, but rather a rational speculation that simply did not work out well for investors. For Bagehot and his contemporaries such opinions would have been absurd. They 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 [8], 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 some bubble like the Railway Mania, which was just getting started as his book was published in mid-1844. His view was that while "commercial affairs [were] still in a perfectly satisfactory state" at the time of his writing, and the investing public had so far shown "no disposition to embark in any very wild or hazardous projects," this was largely because they were still recovering from a deep economic depression and still had vivid memories of the losses they had suffered from lending money to states of the U.S. He warned:

> But let us not deceive ourselves by supposing, that this is to last for ever. The flame is only suppressed. It is wonderful, how soon even the severest lessons of experience are forgotten, where there are strong temptations to mislead.

And indeed, new railway schemes were proliferating as Fullarton wrote, although they were not very visible to the general public. Further, Fullarton was not the only one in that period to predict a bubble. There were others, and some even accurately deduced (largely from the success of the smaller railway mania of the 1830s) that the new bubble would be centered on railways.

Thus the general attitude of serious observers of Bagehot's time was that some bubbles could be detected even beforehand, and that some had been. But their attitude was rather fatalistic, as shown in the quotes above. While the Bank of England was at the apex of the financial system, it was not yet a central bank, had limited powers, even over short-term interest rates, had fairly limited resources, and was a private bank that answered primarily to its shareholders[6]. Bagehot's view was largely the common one (although it showed some signs of evolving in the 1860s, as will be noted later). Bubbles were like big tides that would not obey King Canute's commands. You could try to warn people about them, and perhaps get some to listen, but many would persist in venturing out into the dangerous waters. All you could do is prepare to toss out life jackets and lifelines once those improvident investors started drowning in the rip tides, and then arrange for recovery and decent burial of the corpses. There was little expectation that such tragedies could be entirely prevented.

3 Bagehot, financial journalism, and availability of information

Journalists like Bagehot did feel it their duty to warn investors about foolish and unwise projects, even as they saw that in most cases their warnings were not heeded. Financial journalism was undergoing rapid development in Britain in Bagehot's time. Much of it was known to be corrupt, and even when it was not corrupt, it was often prone to cheerleading. The *Economist* stood out for its sterling reputation for honesty, developed even before Bagehot took over as Editor. He himself contributed some very incisive financial analyses. For example, in 1857 he presented a brief analysis of the published accounts of the French Crédit Mobilier finance company that demonstrated its splendid profits were coming not from its stated mission of providing long-term finance for industrial development, but from short-term trading of securities[7]. Even some evaluations that from our perspective might look incorrect were very reasonable. He exposed the visionary nature of the Suez Canal projections. 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 made this waterway the practical and preferred route to the Far East.

[6] In the crisis of 1825, the government told the Bank they were on their own, and if they ran out of gold they should shut their doors. In a crisis in 1839, Bank of England had to rely on assistance from the Bank of France, something that *The Times* called a "disgrace" in its 31 July 1839 issue. But the attitudes of both government officials and Bank managers did change as time went on, and the Bank did slowly grow into the role of a modern central bank. Further, the public came to trust it to a much greater extent, at least partially because of the increased although largely implicit backing from the government.

[7] "The accounts of the Crédit Mobilier for the last two years," *Economist*, 26 Sept. 1857, pp. 1065–66. As Bagehot suspected, Crédit Mobilier did come to a dismal end, but it took quite a while.

The projections of Ferdinand de Lesseps at the inception of the scheme were indeed, as Bagehot pointed out, simply not plausible[8].

Bagehot as a person presents some paradoxes. An outstanding and extremely prolific writer, he had trouble spelling. And he had difficulties with arithmetic ([4], p. 75). Yet he had a remarkable quantitative sense. For this we can call on the opinion of Robert Giffen, who worked under Bagehot at the *Economist* from 1868 until Bagehot's death in 1877, and was offered the position of Editor after that event. In the scholarly literature Giffen is remembered today best for the thought-provoking but rather minor issue of "Giffen goods." That's because he did not contribute much to the theory of economics nor statistics. But he had masterful command of both, and contributed immensely to the practice of both, and was recognized as a leader in both through various professional honors. Later he became Sir Robert Giffen to acknowledge his contributions to his professions and especially to government statistics. Hence he was well qualified to evaluate statistical abilities of others. Giffen wrote a few years after Bagehot's death [9] that the latter had

> a repugnance to minute detail, including an aversion to manipulate figures, all but amounting to inability to "add up." The petty detail which most people find easy enough was, beyond measure, irksome to him, ... But columns of figures are not statistics though they are the raw material of statisticians, and this Bagehot fully proved by his remarkable appreciation of the numerical element in economic problems, all the while he had these technical difficulties in his way. In this quality he was second to no statistician I have ever met, and infinitely superior to most. ... that irksome as the detail of figures was to him, and naturally also the detail of constructing statistical tables, he was a singularly good judge and critic of such tables and the results they brought out. He knew what tables could be made to say and the value of simplicity in their construction. ... he was not a statistician in the technical sense, perhaps, and so could not be the authority on some subjects he was sometimes supposed to be, but he possessed the essential qualifications for dealing with and reflecting on statistical data when they came in his way, and a sufficient sense of quantity to lean upon and to guide him in his own studies and writing.

So did how this remarkable man, with his manifold talents and experience, and easy access to leaders of politics, business, and commerce, react the mania of the 1860s? That is what we consider in the rest of this paper.

One quantitative view of the financial environment that Bagehot was facing is offered by Fig. 1, which shows the level of real investment, equity and debt combined, in UK railway infrastructure. It was reported towards the end of each year for the preceding calendar year in Parliamentary Papers such as [29]. The usual level of railway investment before and for a while after the mania of the 1860s was about £10 million per year, about 1% of GPD, so comparable to about $200 billion per year for the U.S. today. Fig. 1 shows this level tripling at the peak of the investment mania. The actual level of investment was higher in the early days of that bubble, and lower in later ones, due to the distorting effects of new methods

[8] On the other hand, Bagehot's criticism of the purchase of a controlling interest in the Suez Canal, carried out by the Disraeli government in 1875, was less well grounded, and the deal turned out to be financially extremely profitable.

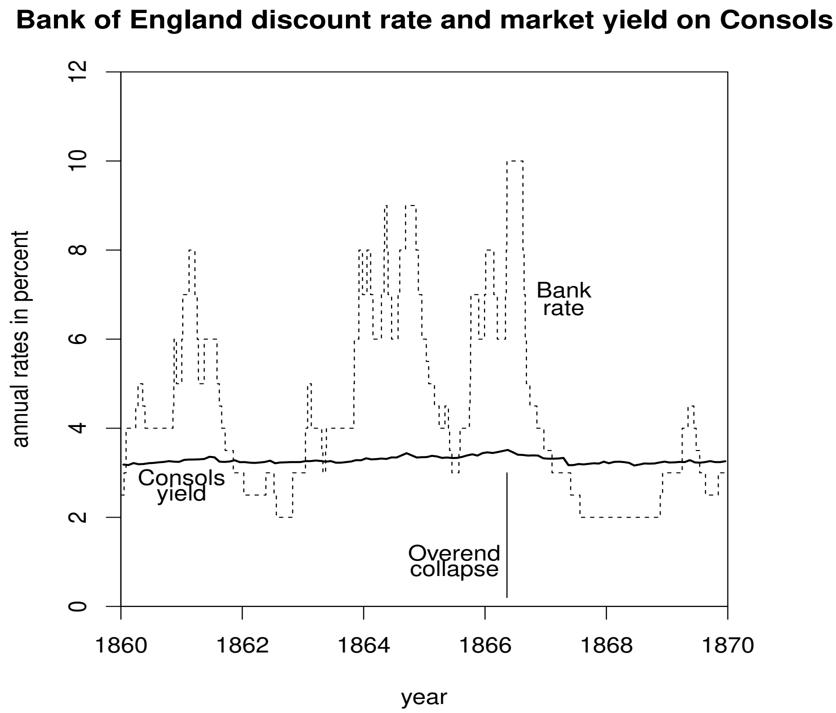

Fig. 2. Bank of England discount rate and the market yield on Consols, 1860 through 1869. Sources: [2,13].

of financing that were invented at that time and were not captured in the official debt and equity figures. (Some of those "creative finance" methods are presented in sections 6 and 7.) Those annual Parliamentary Papers also reported on railway authorizations for Parliament, and those show much greater jump in the peak years of the bubble, to a level in 1865 that was about twice what is seen for actual investments in Fig. 1. Many of those authorizations were never carried out, while others showed up later in the official accounts, as the innovative financial instruments (think "off-balance sheet financing" *à la* Enron) were replaced by conventional ones. Unfortunately it appears that Bagehot was not aware of these statistics, and was misled by other ones. This will be discussed later.

Fig. 2 displays the most prominent interest rates of the London money market, ones that Bagehot was very well aware of, and frequently commented on. Consols were the main long-term government bond, with nominal yield of 3% per year. During the 1860s, their actual market yield was mostly between 3.2% and 3.4%, without any drastic changes [13]. The "Bank rate" was the Bank of England discount rate, by far the most visible and talked-about short-term interest rate. Fig. 2 shows that the Bank rate was far above the Consols yield for much of the time during the bubble of the 1860s. In effect, putting aside the fact that the Bank rate was not the risk-free rate that is usually talked about today, this was an example of an "inverted yield curve," where short-term securities yield more than long-term ones. In modern times this is dreaded as it has often been the precursor of a recession. The London market of the 1860s was different, and full of anomalies, cf. [21]. To Bagehot and his contemporaries, the Efficient Markets Hypothesis would have seemed phantasmagorical. Still, the phenomenon visible in Fig. 2 was a major puzzle for Bagehot and his contemporaries, and they struggled to understand it, as will be shown below.

In evaluating Bagehot's performance with regard to the 1860s bubble, we should remember that the press of his time was far different from ours, and, most noticeably, had far fewer journalists collecting information. The *Economist* had grown, so it was no longer the slim operation it was at its founding in 1843. At that time James Wilson, the first editor (and Bagehot's father-in-law) did practically all the news-gathering and editorial work by himself. Bagehot had the assistance of gifted investigators such as Giffen (from 1868 onwards), of William Newmarch (part time), and Robert Lucas Nash the younger, who will be mentioned below. Still, he did much of the news gathering himself, on visits to government offices and the City (the commercial heart of London). But information gathering was only a part of his work. Much of his time was spent in writing an astounding amount on a variety of topics. Just at the *Economist* alone (in addition to his work on books and occasional contributions to other serials) he was commenting on the American Civil War, the Fenian unrest in Ireland, debates about voting reform, and other issues. The investment mania was only one of many topics of interest to Bagehot and his readers.

Furthermore, the data about economic and financial activities that was available in Bagehot's time was very limited. In fact, one of the great contributions of the *Economist* to both contemporary discussions and later economic history was its collection and publication of extensive statistics gathered in a consistent form over long periods. Certainly by modern standards, there was an extreme dearth of reliable official statistics. There were regular reports about foreign trade, but no price index, no measure of unemployment, nor a measure of the GPD (a concept that took the better part of a century to be invented). Bank of England statistics were eagerly scrutinized, with some basic measures published weekly. But private banks published nothing. One of the reasons that Bagehot and some other observers favored public joint-stock enterprises is that those had to report to their shareholders (and thereby indirectly to the public) twice a year. But even those reports could and did hide a lot, as accounting was in its infancy, and there were no industry standards, much less any government enforcement.

The limited basic data available in Bagehot's time and the lack of attention by modern scholars to the bubble of the 1860s mean that we lack reliable measures of many activities. Much of the discussion below of what was happening in the economy that Bagehot was reporting on is qualitative, based on comments by Bagehot and various other observers. Hopefully in the future better quantitative measures will be assembled.

The main point to keep in mind is that Bagehot and his contemporaries were operating in a very opaque environment. The counterargument, though, is that their world, and in particular their finances, were simpler than ours. Greater complexity and "creative finance" have led to a modern world where much of the basic reality is either obfuscated or simply escapes attention. As just one simple example, we can cite Danske Bank, which processed over \$200 billion of shady funds through a small branch in Estonia over a decade. Even though those were huge flows, and produced unprecedented levels of profits, they escaped attention by both management and regulators over a long period. Were Bagehot to come alive today, he might well wonder whether we have a better grasp of the modern economy than he had of his.

4 Bagehot and the Overend, Gurney company

Before discussing Bagehot's coverage of the 1860s bubble as a whole, let us consider his treatment of Overend, Gurney, the company whose collapse in May 1866 was the climax of that financial episode. All the action to be described took place in the last year of that mania.

Overend, Gurney was one of the most prominent financial institutions in London, often cited as the second most important after the Bank of England. Its origins were at the very beginnings of the 19th century. By the early 1860s it was thought to control about half of the crucial bill of exchange discounting business. It went public in the summer of 1865, when investors were invited to buy 100,000 shares of nominal (par) value £50 per share, but at a price of £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. We can see in this figure that this difference was positive, so the shares were trading at more than the amount paid on them, until mid-April 1866. At that point financial markets were in a growing panic, with various new financial concerns marked down especially hard (and several already gone). Overend, Gurney was then often cited as an example of a solid establishment whose decent share price showed not everything was lost.

Overend, Gurney suspended payments late in the afternoon of Thursday, 10 May 1866. The next day was the infamous "Black Friday," the severe panic in the London financial market. The *Economist* was published on Saturdays, and the issue of 12 May had extensive coverage of the event. One of the articles that Bagehot wrote on that occasion had a lot to say about Overend, Gurney[9]. He claimed there that he had thought the failure "possible any time [in the past] three months." He also claimed that when Overend, Gurney went public,

> we expressed ourselves most anxiously and guardedly as to the value of their shares. Of course we could not say what we then believed, and what was generally known, that the old firm had by most reckless management reduced one of the most profitable concerns in England to one of the most losing concerns.

The prices shown in Fig. 3 make it hard to believe that it "was generally known" in the summer of 1865 that Overend, Gurney was "one of the most losing concerns." Why would investors pay the premiums visible in that chart? But it is quite possible that Bagehot was among those who had some awareness this was a "most losing concern," as he did express considerable skepticism about this company when it went public.

[9] "The state of the City," *Economist*, 12 May 1866, pp. 553-54.

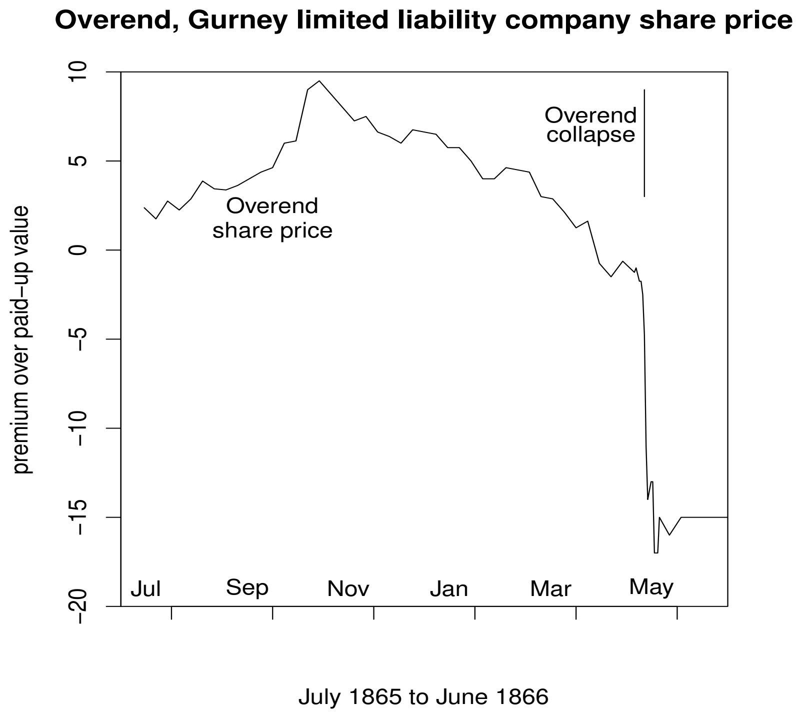

Fig. 3. Premium (and discount at the end) on the share price of Overend, Gurney Company, Limited, over the paid-up value, which reached £15 on 15 November 1865 and staid at that level until this enterprise suspended payment on 10 May 1866. Derived primarily from the closing quotes printed in *The Times* for Fridays (and daily around the time of the collapse), with the ask price used in the figure. The quotes below -15 after the collapse meant that some sales were taking place at negative prices. Correct prices would have been between -40 and -30, given the calls that shareholders had to pay up later.

Press coverage of the conversion of Overend, Gurney into a limited liability joint-stock company was essentially uniformly positive, sometimes to an extreme. *The Times* was supportive, *Bankers' Magazine* applauded the move as opening "another era in the history of limited liability," and *Money Market Review*, in order to emphasize the money-making skills of the company, went so far as to tell an improbable tale of an Overend, Gurney agent who had handled millions in discounts for the firm over many years without any losses at all[10]. Bagehot's coverage was by far the most skeptical[11]. He did pay lip service to the great reputation of the firm, but noted:

> First, everybody approves of the change, because now that Overend's is a limited company, it will be essential to publish an account of the nature of their business. For many years it has been matter of public notoriety that this firm transacted business

[10] *The Times*, 13 July 1865, p. 12; *Bankers' Magazine*, July 1865, pp. 905–909; *Money Market Review*, 15 July 1865, p. 81.
[11] "Overend, Gurney and Co. (Limited)," *Economist*, 15 July 1865, pp. 845–46.

> ... of a sort different from those conducted by bill brokers 'pure and simple.' ... Of course it is well known that a great proportion of Messrs Overend's is of an ordinary and excellent character; ... Still, we have heard many people with *real* money say that they should like to know the proportion between the pure bill brokering business of Messrs Overend, and the *extra* and accessory business which their large superfluous means had led them to undertake.

And indeed, as was shown by liquidators after the collapse, at that mid-1865 stage the business was already hopelessly insolvent due to the large volume of that *extra* business that involved borrowing short and lending long. Bagehot's hopes that investors would get some look at the accounts of the business was never fulfilled. The first shareholder meeting was planned for mid-May 1866, and was to cover the initial 9 months of operation of Overend, Gurney as a joint-stock company, from 1 August 1865 to the end of April 1866. That meeting was never held, since the company collapsed a few days earlier. Further, even had the meeting taken place, it is not clear whether investors would have learned much. Formal accounting standards did not exist, companies had a lot of leeway in "massaging" their financial data, and often, especially among finance houses, pleaded the need to keep information secret for competitive reasons. Bagehot was far from the only person frustrated with inadequate disclosure. There were some changes after the 1866 crash, brought about by investor pressure, but it was not very effective. (Government did not get involved in corporate accounting for many decades even after the Overend, Gurney collapse, except for railways.)

Bagehot's warning was even stronger than the quote above implies, as he cited a former top manager at Overend, Gurney admitting at some point that he had lent money on "some shells"[12]. Bagehot had some other words of caution, for example about the value of the guarantee against bad debts in the assets of the private company that was provided by its owners to the joint stock company, and about the profitability of the bill discount business in general. In retrospect, he was right on all points, and all one could ask for would have been stronger words of skepticism. Whether they would have mattered is another issue. The shares went to a premium right away, a premium that grew substantially over the next few months, as is visible in Fig. 3. The initial offering was oversubscribed three-fold[13].

An interesting avenue of investigation would be to explore further the records of Bagehot's own bank, as has been done for the first time in [12]. Did they curtail their dealings with Overend, Gurney during the mania of the 1860s, and if so when? That might provide a solid quantitative measure of the extent of suspicion about the trustworthiness of that concern. At the moment we can only say that when Overend, Gurney went public, Bagehot provided the most skeptical coverage of that business and its prospects. But it was not very explicit, and it was not followed up by any further public warnings before the collapse.

[12] Bagehot did not provide a reference for this, just said this was well-known. It might indeed have been well-known to well-connected players in the English commercial world. That admission was made by David Barclay Chapman in sworn testimony in a court case in 1858, see a leader in *The Times,* 20 Dec. 1858, p. 7.

[13] *Money Market Review*, 22 July 1865, p. 118.

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

As usual, there were many political events that intruded on the commercial scene, and during the bubble of the 1860s they were actually more significant than those in most periods. The American Civil War was important for Britain as a moral and political issue[14]. It also posed the threat of military involvement. And, very important from an economic and financial standpoint, it led to a major disruption in the British economy. The key textile industry was dependent on supplies of cotton from the American South. The Union blockade of Southern ports led to a "cotton famine," the shuttering of textile factories, labor misery and unrest, and a desperate search for substitute cotton suppliers (which were eventually found in Egypt and India). The high short-term interest rates visible in Fig. 2 in 1861 were attributed largely to that factor.

There were many other economic issues around that time which affected how the markets performed and were viewed. In the background, though, was the "great Victorian boom." It started around 1850, right about the end of the great Railway Mania (and was attributed by many observers at least partially to that episode of investor exuberance, which ruined most of them, but provided Britain with a modern transportation infrastructure). Aside from what were actually relatively modest interruptions like the Overend, Gurney crisis of 1866, this boom lasted until 1873. It saw a period of unprecedentedly rapid growth, with development of industry and trade that was stunning to contemporaries. The growth rates they saw, averaging around 3.5% per year in their GDP over two decades, may not seem too exceptional today, especially when one recalls that China had approximately 10% annual growth rates over three decades, and before that, Japan and the "East Asian Tigers" had shown similar growth patterns. But those modern examples arose in a very different environment, of economies catching up, and doing so in a world that was already accustomed to overall growth that was fairly rapid. For the Victorians, who took Malthusian concerns seriously, those 3.5% growth rates were astonishing. This blossoming of the economy opened up people's thinking on potential progress in many dimensions, and in particular on potential of profit through new ventures.

By 1862, the economy was stabilizing after a turbulent year. In the first issue of his paper for that year, Bagehot noted that the financial industry was in great shape and that the Bank of England had handled recent disruptions well by being flexible. He drew the conclusion that "[i]t is impossible ... to lay down any rule which will, under all circumstances, obviate disaster or prevent peril"[15]. He was aware of the potential for nasty surprises. But he did not see any major dangers at that time.

As is visible in Fig. 2, the year 1862 opened with relatively low Bank rate, 3%, and it mostly went down from that level, with much of the year spent at 2%. The second quote from 1856 that was presented earlier included a phrase that Bagehot loved, as he repeated it many times in his writings: "John Bull ... can stand a good deal, but he cannot stand two per cent." This fear that low interest rates would push British investors into

[14] As is shown in the most recent biography of Bagehot [12], he was very much on the wrong side of history, expecting the South to win and denigrating Abraham Lincoln. This did not stop him from quietly switching to lavish praise of Lincoln once the Union had won.

[15] "The monetary policy of 1862," *Economist*, 4 January 1862, pp. 1–3.

foolish adventures was deeply ingrained in the thinking of contemporary observers and was not specific to Bagehot. The worst outcome they could conceive of was for their naive compatriots to send their money overseas, as those observers were convinced such ventures were doubly destructive, in taking British money out of the country, and losing it there. Bagehot broke with this consensus to some extent. While he admitted the dangers of foreign investments, he thought they were promising, provided they were selected judiciously. It appears he was driven to this conclusion to a large extent by desperation induced by the perceived savings glut. In one piece he wrote:

> As we last week explained, we consider it exceedingly desirable that a considerable part of our spare English capital should just now be embarked in loans to foreign Governments. We do not want the money; money in the open market is 2 per cent., and has been less; and foreign Governments do want it.

He did add that "[o]nly those who can form an intelligent and sound opinion upon the goodness of foreign loans should invest ... assuredly this class ... is still limited in number." And he provided, that year[16], and in later years, lots of advice on which ventures to avoid. Thus Bagehot was a pioneer in making foreign investments respectable. But he hedged his recommendations with many caveats. It does not seem that he ever fully realized that in spite of the frequent defaults, the high interest rates paid on foreign loans on average more than compensated for the losses. This was first shown by Robert Lucas Nash the younger, who apparently had spent the 1860s and 1870s working for Bagehot. Nash's research, published in the 1880 book [17] surprised the author and all its reviewers by showing that foreign loans on average were very profitable[17]. Apparently there were enough investors able to "form an intelligent and sound opinion upon the goodness of foreign loans" to provide appropriate market pricing. (Bagehot's input into the thinking of such investors may have been a positive contribution, but is impossible to quantify.)

As the year 1862 progressed, Parliament passed the Companies Act of 1862, which plays a memorable role in the Gilbert and Sullivan operetta *Utopia, Limited.* The big battle to allow general use of limited liability by corporations was fought and won by the middle of the previous decade. But the 1862 Act, which remained the basic framework for corporate law in Britain for the next half a century, loosened the restrictions, in particular those that still applied to financial institutions. After the 1866 crash, many observers blamed this legislative move for much of the virulence and destructiveness of the bubble. At the time of enactment, though, debate was limited and Bagehot was very supportive of this move[18]. Towards the end of 1862, though, the flood of new limited liability financial startups was causing concern. At that stage Bagehot did think more about that issue, but largely dismissed such concerns. He argued that the new projects were not absorbing enough capital to cause a concern (other than to their investors), "so far from the amount

[16] Leaders on pp. 254–55, 337–38, 394–95, 617–18, 842, 869–71, and 897–98 in *Economist*, of 1862, between 8 March and 16 August, in particular. The cited passage is from the 16 August issue, pp. 897–98.

[17] Unfortunately Nash did not document his methodology. Also, his statistics covered only the 1870s, so it is still an open question how profitable foreign loans were in other periods.

[18] "Limited liability in banking," *Economist*, 17 May 1862, pp. 536–38 and 21 June, pp. 676–77.

of capital employed in new undertakings being excessive, unemployed capital presses upon Lombard street and keeps the rate as low as it is"[19].

In the first issue of 1863, Bagehot reiterated his belief that the new schemes did not pose a threat to the economy. This time he pointed out that while the total capitalization of those companies was high, the actual capital they were raising was far lower. "They have asked for much, but they have obtained little. Many of them are designed for desirable objects; many of them are designed for objects which would pay; but, nevertheless, on the whole, their drafts upon the national resources have been inconsiderable in comparison with these resources"[20]. As the year went on, Bagehot did not seem to be getting too alarmed. His leaders expressed considerable skepticism about a British version of the French Credit Mobilier that was proposed, about abuses by railways issuing illegally large volumes of bonds, and so on. But this did not seem to rise about the usual level of taking precautions and warning the public about hasty and ill-considered decisions. Towards the end of the year, though, as the mania advanced, there seemed to be some rise in concern. At the end of October, Bagehot was still not convinced that new projects involved enough capital to be worth worrying about[21]. But at the end of the year, clearly to be sure his views were correct, Bagehot undertook a substantial exercise to estimate annual growth of capital in Britain[22]. James Wilson, the founder of the *Economist*, and others had carried out such studies during the Railway Mania of the 1840s, and Bagehot had been arguing that since the economy had grown, there was much more money available in the 1860s. The two articles in December 1863 on this subject were designed and did provide evidence of this thesis. This reinforced 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 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. 1.

By the time the studies on capital accumulation had appeared, the Bank rate had moved up, from the 3–5% level that had prevailed during most of the year, to 7%, and even to 8% for three weeks. It got worse in 1864. That year was one of serious alarm about the state of the British economy, and this was reflected in Bagehot's writings as well as those of other observers. The most visible sign of the stresses in the financial system was the high level of the Bank rate. It never went below 6% that year, and it reached the unprecedented level of 9% twice, for a total of two and half months. Even during the crisis of 1847 with its first suspension of the gold standard, the Bank rate only went up to 8%, and then only for a month. Yet in 1864, during a period of prosperity and great expansion of industry and commerce, the rate reached a higher level. This elicited extensive coverage in the *Economist.* Before we turn to that coverage, let us make a digression into British railway finance, since, as is visible in Fig. 1, that is where the big flows of capital went, although Bagehot did not appreciate this at the time.

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[19] "The new banks," *Economist*, 13 Dec. 1862, pp. 1373–74.
[20] "The results of 1862 and the prospect of 1863," *Economist*, 3 Jan. 1863, pp. 1–2.
[21] "The probability of a considerable rise in the value of money," *Economist*, 31 Oct. 1863, pp. 1205–1206.
[22] "The annual accumulations of capital in the United Kingdom," *Economist*, 12 Dec., pp. 1381–83 and 19 Dec., pp. 1411–13.

6 British railways and "creative finance"

The great Railway Mania of the 1840s ended in grief for most equity investors, but it did produce a smoothly functioning, although not very efficient, transportation infrastructure. It also did not lead to a financial crash. It almost surely contributed somewhat to the panic of 1847, through the displacements it forced on the financial system. (More than half of the annual national savings went into railways in 1847, for example.) But the bankruptcies of 1847 that led to the crash did not involve railways or railway suppliers. Instead of having a sudden crash, the Railway Mania deflated gradually, from the peak of exuberance in the third quarter of 1845 to the trough of share price depression at the end of 1849[23]. Charlotte Brontë wrote in those final depressing stages how "[m]any–very many are–by the late strange Railway System deprived almost of their daily bread." But they were being deprived of their daily bread individually, on different time scales, and the financial responsibility was dispersed. So it was a slow grind spread over four years until investors' dreams and hopes were finally crushed. Furthermore, the financial responsibility rested primarily with individuals, and there were no key financial institutions whose solvency ever came into question[24].

The Overend, Gurney crisis was similar to the Railway Mania in that it involved huge financial losses on giant real infrastructure investments. But it differed from the Railway Mania in how it unfolded. It was in many ways more like the crash of 2008. In both the Overend, Gurney and the 2008 cases there were colossal liabilities that were concentrated in some large and prominent institutions, and opaque accounting involving novel financial instruments meant that even sophisticated players could not be sure who was solvent. In both cases, tremors began shaking financial markets about a year ahead of the climax brought about by the closure of a large institution: Overend, Gurney in 1866, and Lehman Brothers in 2008. Those closures led in both cases to complete collapses of confidence in the creditworthiness of practically all financial institutions.

The difference between the financial outcomes of the Railway Mania of the 1840s and that of the 1860s was due a combination of a relaxation in government regulations and of "financial innovation" that produced new instruments and new ways to conceal where liabilities lay. (The similarities with the Global Financial Crisis of the last decade thus start at a very fundamental level.) Railway promoters almost always went to Parliament to obtain limited liability (which, until the change in the mid-1850s, was treated as a special privilege and was hard to procure) and also to obtain the right to force landowners to sell their property. A conspicuous violation of the "sacred right of property" was involved in taking something from one private person and giving it to another. In railway cases that other entity was a corporation, and was treated with extra suspicion for that reason, especially since it was quite correctly accused of monopolistic practices. Consequently Parliament before the mania of the 1860s insisted on verifying that a proposed line would be of public benefit, and to ensure that, it demanded evidence that the line was going to be built and operate profitably. Hence restrictions were imposed. If a project was estimated to

[23] See the charts, tables, and descriptions in [18,20].

[24] Some institutions did fail, in particular the Scottish "exchange banks," but they were not large, and their failures were spread over extended periods.

cost £300,000, it was as a rule given permission to raise £300,000 in equity and £100,000 in debt. Furthermore, no bonds could be issued until half the equity had been paid up. In addition, there were requirements that subscribers for much of the required equity funding had to be lined up before Parliament would approve a project. Those subscribers were scrutinized to ensure they were "men of substance," who could pay up on their subscriptions. In practice, quite a few "stags" and "men of straw" did pass through the scrutiny. This often happened with the connivance of the promoters, who were hard pressed to find investors of the desired quality. Still, on the whole the process did ensure that during the Railway Mania most of the equity was coming from known individuals who could be squeezed to provide the funds[25]. By the early 1860s, the scrutiny was loosened to the point of almost complete elimination[26]. Hence there was no assurance that people of wealth were standing behind new projects, and novel methods were used to finance them. Section 10 has an extended 1867 quote from Bagehot showing that he came to understand these factors after the Overend crash of 1866.

The most important change in funding of new railway projects was the introduction in the early 1860s of what came to be called "Lloyd's bonds," after the name of the lawyer who came up with the financial structure and provided a legal justification for them. These allowed railway companies to borrow money totally outside the official framework. There are no statistics on their volume, but all contemporary observers agreed that it was very large in the later stages of the mania of the 1860s. Initially, though, they appear to have spread slowly, and also not to have attracted much attention. That changed in 1864, as the volume of railway capital expenditures was rising rapidly, and there was general concern about the state of the money market, associated with the high and extremely variable interest rates mentioned earlier.

The great Railway Mania of the 1840s led to a railway press mania, with about two dozen specialized railway serials (most weekly, but two daily) being created. (It also led to a substantial rise in the the level of sophistication of the financial analysis, with Robert Lucas Nash the elder the foremost pioneer in that area, cf. [20].) By the early 1860s those had dwindled to just two with substantial circulation, and a couple more that were rather obscure[27]. The increased activity and greater investor interest in the railway mania of the 1860s led Edward McDermott and Samuel Smiles to started a new weekly, *Railway News*. In the very first issue, they had an article that commented on the decline of profitability of established railways due to the opening of new branches[28]. This was one of many warning signs that the huge ongoing expansion of the British rail system was likely to end up poorly for investors, and therefore possibly even for companies even peripherally involved in those

[25] Railway subscription contracts were in effect futures, not options, and operated like the contracts that wealthy individuals, endowments, and the like enter into with venture capital firms or private equity funds today. The subscribers put down an initial deposit, and then were legally obliged to respond to the "calls" from management for more money as construction proceeded, up to the limit of the par value of each share.

[26] When this loosening was blamed for the crash of 1866, defenders argued that since the earlier scrutiny was not too effective, there was no point in doing it at all, cf. [7]. The similarities to modern times are rather obvious.

[27] On the other hand, the level of coverage of railways in the general press was far greater than it had been before the Railway Mania.

[28] "Cheap railways," *Railway News*, 2 Jan. 1864, pp. 4–5.

ventures. In the second issue they had an article about Lloyd's bonds[29], in which they opined that those were likely illegal, and posed a danger for investors:

> If these bonds be good in point of law, railway directors would appear to hold in their hands the power of creating almost unlimited capital. It would even be possible for them, besides creating and issuing all their share capital and all their loan capital, to defray the whole cost of making and stocking their lines by means of these bonds ... It need scarcely be added that such could never have been the intention of Parliament.

That article might not have had much effect by itself. However, a few days later this piece was reprinted by *The Times*, by far the most influential newspaper in the world at that time. That led to letters of rebuttal in the next two issues of that paper, complaining about false alarms being raised, pointing out that Lloyd's bonds had been recognized as legal by a court some time before, and claiming that they were an innocuous measure that allowed railway managers to temporarily bypass the unnecessarily rigid restrictions of standard bonds[30]. Two weeks later, though, another letter was published by *The Times* which pointed out that Lloyd's bonds were not the only way the financial picture of new railway projects was being distorted, and the underlying economic reality was being hidden from both Parliament and the companies' own investors[31]. The writer mentioned that what seemed a small change in the law that had seemed innocuous was being exploited by railway promoters. Instead of paying for land in cash before the start of construction, as used to be the standard operating procedure, they were now able to promise landowners annual rent payments on completion of the project. That made the apparent cost of the line lower, but at the expense of cutting into eventual profits. The writer of the letter noted that this would have a major impact on railways, especially in urban areas with high land acquisition costs, where "[v]ast, indeed, must be the net earnings of a company which will bear successfully such a weight of incumbrances, and yet leave a dividend for preference and ordinary shareholders."

Thus there was considerable information available to the general investing public about the distortions being introduced into railway finance by the novel measures and instruments. This body of information grew when the House of Lords set up a committee to look into railway borrowings. Its report, in the words of *Herapath's Railway Journal*, was "short but valuable," and showed that "[t]he Committee are against Lloyd's Bonds, and well they may be"[32]. *The Times* used the appearance of that report to publish a leader that explained what Lloyd's bonds were, and discussed their dangers[33]. Its essence can be summarized by a statement it contained, that "[a] Lloyd's Bond is briefly an ingenious implement by which a railway can be made for nothing."

There were calls for Parliament to curb the issuance of these instruments, but nothing was done. It appears that the consensus was that they were not sufficiently big and

[29] "Lloyd's bonds," *Railway News*, 9 Jan. 1864, p. 33.

[30] The reprint of the *Railway News* piece was in the financial ("money market") column of *The Times*, 13 Jan. 1864, p. 7, and the two letters in issues of 14 Jan., p. 7, and 15 Jan., p. 6.

[31] *The Times*, 29 Jan. 1864, p. 7.

[32] *Herapath's Railway Journal*, 23 July 1864, p. 848, with the report itself, but not the minutes of evidence, which are in [28], on p. 840.

[33] *The Times*, 21 July 1864, p. 10.

dangerous to worry about. Proponents of Lloyd's bonds argued they were just temporary debts that were going to be replaced by conventional bonds soon. At the end of 1864, *The Times* noted sarcastically in a leader that[34]

> Parliament, having interfered to prevent these Companies from borrowing, as it would seem they might well be permitted to do, to the extent of their credit, employs itself in passing Bills for the issuing of stock or debentures in order to pay off loans contracted in defiance of its own prohibition, thus helping those who have got into a difficulty by eluding the rules which Parliament itself has laid down.

But there was no sign of concern that Lloyd's bonds would lead to a disaster. In fact, the leader in *The Times* cited above was basically saying that Parliament should loosen the restrictions on railway borrowing, so they would not have to engage in such questionable procedures as Lloyd's bonds[35].

In the end, all contemporary observers agreed that Lloyd's bonds were a major contributor to the general investment disaster of the mania of the 1860s, and to the Overend, Gurney climactic crash in May 1866 in particular. Railways would issue these bonds to contractors to pay for work, contractors would sell them to finance houses, and they would be accounted for so as to produce splendid paper profits. It's just that those declared profits turned out to be illusory once reality intruded, and prices had to be adjusted to fit the low revenues of the new railways. Since the volume, ownership, and real value of those securities were not known, once serious doubts started spreading, reinforced by a growing number of bankruptcies, a runaway panic ensued.

7 Bagehot's own contribution to ruinous "financial innovation"

Lloyd's bonds were not the only way that investors were misled. Those instruments were just one element of the complexification of finance in the 1860s. They were combined with other elements, such as railway "contractors' lines." These projects deserve a book-length treatment, and some solid statistical studies on their extent and influence. They were essentially uniformly castigated after the Overend, Gurney panic. In Bagehot's writings they show up in the category of "unwanted lines" that he railed against. The reality was a little more nuanced. These lines were indeed unwanted from the standpoint of the large companies that Bagehot was mostly concerned about, and of those investors who had been snared into putting money into them. But there was a demand for them[36]. A fairly balanced

[34] *The Times*, 27 Dec. 1864, p. 6.

[35] That leader was very interesting, it that it claimed that the new lines "whether they benefit the shareholders or no, are sure to benefit the public." Hence it supported a policy of sanctioning such projects, as localities were desperate to build them, "if they would not be altogether distanced and passed by in the race of improvement." There was no concern that the financial losses would be shifted unto some unsuspecting investors who might not even be aware of the particular project they got involved in by lending money to a finance house, say. Not entirely dissimilar to the securitizations we saw in the early 2000s.

[36] A justification was offered by a railway contractor in the pamphlet [7]. There was extensive discussion of them after the 1866 crash, covered in *Hansard's Parliamentary Debates,* letters by Lord Redesdale and others in *The Times*, and other places. Note also the leader from *The Times* of 27 Dec. 1864 that was cited before, which did acknowledge the desire for more railway service on the part of many localities.

view, although still biased towards the critical side, as it was written as a rebuttal to a contractor's pamphlet [7] that justified his and his colleagues' contributions, appeared in the *Pall Mall Gazette* the year after the crash[37]. It explained how the railway industry had stabilized after the Railway Mania of the 1840s, and evolved into a comfortable oligopoly of large enterprises that were attempting to avoid investments that would lower their profits.

> The public wanted new lines, but would not come forward as shareholders. The great companies opposed the proposed lines in Parliament, and spent untold sums in defending their monopoly. Under these circumstances the contractors gradually elaborated a system of financing by which they found the money for the works and then constructed the line.

In the looser regulatory environment, this creative new financing, often involving Lloyd's bonds, did produce new railways. It also concealed for a while the unprofitable nature of the projects and who was going to be stuck with the liability of paying for them.

There was also simple fraud, which is always present, but appears to rise to epidemic proportions in a mania. And there was extensive mischaracterization of investments, to an extent that today would be regarded as criminal. Unrealistic valuations were used to justify declarations of high profits and payment of high dividends, and financial houses that were supposed to engage in short-term financing were investing in long-term ventures. Bagehot, the practical and conservative banker, suspected much of this, as will be shown in the next section, and he warned his readers repeatedly throughout 1864 about the dangers of such practices. He knew well that borrowing short and lending long, which is what was happening on a large scale, was a road to ruin. But this road to ruin is often a long one, as the financial market can conceal reality from investors' view for extended periods.

However, while Bagehot provided repeated warnings, he also contributed, if only in a minor way, to one method of mystification of investors that ended up costing them dearly. This was through his support for partially-paid shares. He was very much in favor of allowing joint-stock finance companies to adopt limited liability for shareholders. However, he also supported what became a general practice, namely of using partially-paid shares. For example, consider the Overend, Gurney company, whose collapse precipitated the climax of the May 1866 collapse, and which was considered in Section 4. When it went public in the summer of 1865, it sold 100,000 shares of par value £50 each, but it declared in its prospectus that it only called for payments of £15 per share, spaced over several months, and did not intend to call for more. Bagehot welcomed such practices long before Overend, Gurney engaged in them, since legally the shareholders could be called upon for the other £35 per share, as their "limited liability" had a limit of the full £50 per share. 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 directors a very considerable fund" to draw on in cases of trouble[38]. As it turned out, there was trouble aplenty a short while later in many of those new companies. In particular, the Overend, Gurney shareholders were called upon to pay up most of the full additional £35 per share limit, and this was a common

[37] "Contractors' lines," *Pall Mall Gazette*, 2 March 1867, pp. 1–2.
[38] "Limited liability in banking," *Economist*, 21 June 1862, pp. 676–77.

occurrence[39]. However, investors did not understand the existence of such risks, as they thought limited liability meant they were only liable for what they had paid initially. Thus this was another way for the financial industry to create "value" out of thin air, providing tangible protection to the creditors without having those responsible for that protection be aware of their liability.

Investment advisories after the 1866 crash warned prominently against purchasing partially-paid shares, as representing unacceptable risks. But this was only after the extremely costly lesson of 1866. Bagehot, who emphasized the protection that such shares offered to creditors, does not seem to have warned investors of the other side of the coin, namely the risks they carried. When the House of Lords (the highest judicial body in UK) decided that shareholders did have to pay the additional calls in the Overend, Gurney case, Bagehot applauded. His view was that fraud and malfeasance on the part of management, even starting with the initial prospectus, should not relieve investors of the responsibility they took on when they became shareholders[40].

8 Bagehot's alarm followed by complacency

As was mentioned at the end of Section 5, 1864 was a year of serious concern about the state of the economy, concern visible in Bagehot's writings in the *Economist*, and that of other press organs. In the very first issue of the year he was only moderately cautious. He did not see any reasons for alarm, but warned that the flood of new companies would likely lead to some failures[41]. As time passed by, the tone became more concerned.

Particularly interesting is a long piece, "General results of the commercial and financial history of 1863" that appeared towards the end of February in the inaugural issue of the annual "Commercial History and Review of 1863"[42]. One of the appendices had a list of 263 new joint stock companies formed in 1863, with details of their announced finances. As will be argued later, reliance on that and similar lists was very likely a key factor in Bagehot's failing to understand how serious the dangers were. The list might be read as claiming to be complete, but it did not cover all the new companies of 1863, and was misleading in several other ways as well. The introductory section of the supplement in the *Economist* had extensive commentary, with an acknowledgement that there was justification for many of the new ventures, as commercial activity had grown, with foreign trade doubling between 1852 and 1862. But there were many words of very sensible warnings, noting, for example, that "it is impossible not to see that the extension of banking competition by the sudden creation of so many new lenders cannot fail to produce mischief." And there was extensive

[39] It appears that those shareholders ended up paying £25 per share in additional "calls" on top of the original £15, but eventually received about £8 per share back from the liquidation of Overend, Gurney assets, cf. *The Times,* 26 Feb. 1872, p. 6 and [26], vol. 9, p. 80.

[40] "The decision in Overend, Gurney and Co. (Limited)," *Economist*, 17 Aug. 1867, p. 925.

[41] "Monetary prospects of the new year," *Economist*, 2 Jan. 1864, pp. 1–3.

[42] Separately paginated supplement to the 20 Feb. 1864 issue. Sometimes it is bound right after the regular 20 Feb. issue, sometimes at the end of the full volume for a given year. This supplement was created, as noted earlier, by William Newmarch, but the first three pages, with the general overview, read as if they were written by Bagehot, and certainly must have been reviewed by Bagehot. This supplement started out at about 50 pages, and later grew to about 100, and was packed full of statistics and market commentary.

discussion of the way mischief was likely to arise, fortified by historical examples. And, indeed, mischief often did arise (and was already arising) in those ways. Still, the alarm was limited. Overall, Bagehot was doing more to allay public concerns than anything else. In March came a long leader with a detailed discussion of the new companies[43]. Bagehot claimed that "there [was] ground for caution and discrimination, but no ground for sweeping censure and condemnation." The joint-stock structure of the new enterprises promised greater safety through greater transparency. 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[44]. There was even a statement of belief that financial crises might be preventable, in the claim that "the management of the Bank of England 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"[45]. 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), and so there was going to be less of the desperate search for yield that 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[46]. When one of the early but notable bankruptcies of that period took place, that of the Leeds Bank, Bagehot noted that profit expectations for the new financial companies were too rosy, and that this failure offered a useful warning through demonstrating how easy it was for such enterprises to lose money[47]. Two weeks later, after some market turmoil, Bagehot wrote "[t]hat the present situation is grave every one admits." He surveyed the potential dangers, patted himself on the back for having warned of some of them, but in the end concluded that while most likely "there will be *tension* for some weeks to come, it need only be tension"[48]. Close to the end of 1864, he emphasized again the need for know and understand the assets of banks[49].

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)[50]. 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

[43] "Will the new companies cause a panic?," *Economist*, 19 March 1864, pp. 349–51.
[44] "The influence of increased education upon the stock market," *Economist*, 7 May 1864, pp. 575–76.
[45] "Will the extraordinary profits of banking continue? The Union Bank report," *Economist*, 16 July 1864, pp. 889–90.
[46] "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., pp. 1045–46.
[47] Two leaders in the 1 Oct. 1864 issue, pp. 1221-23.
[48] "The present situation," *Economist*, 15 Oct. 1864, pp. 1278–79.
[49] "On the importance of stating the *nature* of the liabilities of joint stock banks," *Economist*, 24 Dec. 1864, p. 1573.
[50] "What the value of money is likely to be," *Economist*, 21 Jan. 1865, pp. 61–62.

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."

Recall that high, but not extremely high, interest rates were seen by Bagehot as positive, preventing that desperate search for yield by the British investors who "can stand a good deal, but ... cannot stand two per cent." and were driven into foolish moves and bubbles when faced with such low rates. Bagehot was not the only one expecting continuation of high short-term rates. As another example, we can cite 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 wrote a widely acclaimed and widely reprinted 1861 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 [10]. As is visible in Fig. 2, soon after the Overend panic, which led to a temporary Bank rate of 10%, interest rates started dropping. Three years after his paper celebrating 7% rates, Goschen published another one, this time explaining 2% rates [11].

Those high rates that prevailed for much of 1863–66 were not the result of the British "Great Savings Glut" (in modern language, this terms had not been invented in Victorian times, but it does describe Victorian concerns, including those of Bagehot) being consumed by profitable new commercial opportunities. Instead, it came from the need to fund unprofitable railway projects. Borrowers scrambled to find money, and increasingly skittish lenders were demanding premiums for taking on those risks. (Those premiums turned out not to be high enough to properly compensate for the risks, though.) But that was something that Bagehot took a long time to realize[51]. For most of 1865, events unfolded as he predicted. Interest rates were less volatile than in 1864, and were largely in the 4 to 5% range during the year, even dipping down to 3% for 6 weeks in the summer. There were disappointments in the earnings of many of the new banks and finance houses, but that again fit Bagehot's prediction that expectations for those companies were too high. A well-developed and competitive financial industry like that of England made it unlikely that newcomers could make the splendid profits they promised, and seemed to deliver for a while. 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 of a prosperous new year coming[52]:

> One thing is very certain, that the London market has gone through a splendid half-year, the best, perhaps, it has every 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

[51] See Section 10 for an explicit quote from early 1867 showing his newly-learned understanding of what had been taking place.

[52] "The state of the money market," *Economist*, 16 Dec. 1865, p. 1517.

bad debts and no collapse. The high gross profits of bankers will not be impaired by any large losses of bad bills.

9 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, 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. In the retrospective on 1865, published as a supplement to the *Economist* of 10 March 1866, there is a long passage about the disappointing performance in 1865 of the new finance companies[53]. It noted that "the opening of 1866 finds the world again sober enough to admit that no great discoveries remain to be made in finance, and that large and profitable businesses are not to be created by the paragraphs of a prospectus." But that was what Bagehot had been saying from the beginning, so he was not surprised by the winnowing of the chaff. This passage went on to suggest that the market may have overreacted, and that it was "probable that 1866 may witness considerable recovery in the shares of those Limited Companies, which are able to show solid evidence of their intrinsic solidity and progress." Those words may have been written some time before publication, since this special supplement was a major undertaking. They also may reflect the opinions of Newmarch more than Bagehot. Still, they are remarkably optimistic.

By the time the above optimistic outlook appeared in print, there were many more reports of trouble in the regular issues of the *Economist*. Furthermore, there was now growing awareness that railway finance was key to the market turmoil. Until then, railways did not seem to play a significant role in Bagehot's views of business conditions. This was his major failing, likely the key reason he did not have a proper appreciation of just how big and how dangerous the bubble was. The next section will discuss the probable reason for this omission.

In 1866 Bagehot started learning of the role of railways in the bubble that was approaching its climax. At the end of February (two weeks before the quote in the first paragraph of this section) he wrote of the "hope that there is no cause for real alarm, but it would be unwise to shut our eyes to the fact that advances to railway contractors are causing a difficulty"[54]. Two weeks later, in a regular issue of the same date as the annual retrospective cited above, 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"[55]. Three weeks later, he had an article about the "monstrous mode" in which many railways were made[56]. 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

[53] "Commercial History and Review of 1865," separately paginated supplement to *Economist*, 10 March 1866.
[54] "The new finance and discount companies," *Economist*, 24 Feb. 1866, pp. 221-222.
[55] "The state of the money market," *Economist*, 10 March 1866, p. 281.
[56] "The good and bad mode of making minor railways," *Economist*, 31 March 1866, pp. 378–80.

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"[57]. Many railways and "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." He expected some fall in interest rates, but he also thought the Bank rate would not go down below 5%. (As is visible in Fig. 2, 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."[58]. 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.

Bagehot may have sincerely believed what he wrote. On the other hand, he may have been trying not to sound too alarmist and end up being blamed for contributing to the panic. Many journalists in this period seemed to be trying their best to sound positive. One example is provided by a leader in *The Times* just three days before Overend, Gurney closed its doors[59]. It provided a fairly decent explanation for the depression in share prices of finance companies, blaming it on the promiscuous use of limited liability, opaque accounting, and related reasons. It warned investors their profit expectations had been too high. But it concluded that readers should "soon expect, however, to see the atmosphere cleared, and in the end ... Finance Companies will find a place, like Railway Companies, beneficial alike to the public and to themselves." Instead, almost all of those "Finance Companies" ended up in the dustbin of history.

Even if Bagehot really believed a gradual adjustment was possible, he seemed to be investigating and learning about the wonders of creative finance. A week after the reassuring words cited above, and so two weeks before the crash, we find him 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[60]. He now was aware of a key difference between 1866 and the Railway Mania of the 1840s. During that earlier period of investor exuberance, government rules meant that financial obligations were placed with individual investors, which dispersed the losses and led to a gradual deflation.

> But this system was gradually exploded, and for the last few years had been given up altogether. A project for a railway, dock, pier, or other public work requiring a large conversion of floating capital into fixed, is now concocted by a knot of four or five persons, consisting of a solicitor, an engineer, a parliamentary agent, a contractor,

[57] "The state of the money market," *Economist*, 14 April 1866, pp. 437–48.
[58] "The state of the money market," *Economist*, 21 April 1866, p. 469.
[59] *The Times,* 7 May 1866, pp. 8–9.
[60] "'Finance paper' and the rate of discount. A lesson for the future," *Economist*, 28 April 1866, pp. 497–98.

> and a financier. Some of the party have the command of the few thousands necessary to pay for surveys and indispensable preliminaries. They have, in most cases, name and position enough to enable them to borrow as much money as carries them as far as the Royal assent. That once obtained, the Act becomes a lively instrument of credit. The directors issue Lloyd's bonds, debentures, stock, preference shares, and the like to the contractor, and he in his turn finds avenues in the money market where, for rates of interest and commission almost fabulous, cash is to be had on these securities. Now, these securities, let it be remembered, are a pure speculation on the future, and a speculation subject to one principal and many smaller casualties.

Those speculations did indeed suffer from various casualties, and the result was the Overend, Gurney crash two weeks later.

10 Bad statistics and Bagehot's failure to recognize the bubble

Bagehot had all the prerequisites for successful identification of a bubble. He was a knowledgeable and experienced banker, with contacts throughout the British commercial world, and a keen appreciation for the dangers of "creative finance," "blind capital," opaque accounts, and investor groupthink. Whether success on his part in recognizing the bubble of the 1860s would have made a difference can of course be questioned, and is considered in the next section. But he did not recognize it until the very end. What he missed was the size and complex finances of the railway boom of the 1860s. He was certainly aware of railways and covered them extensively. He could hardly avoid doing that, since this was by far the largest industry in Britain in terms of capitalization. And he was aware to some extent of the extensive railway promotion activity that was going on. For example, at the start of 1865, he supported his arguments for government buy-out of railways (a very interesting departure for the strong advocate of *laissez faire* economic policies from his usual recommendations) by pointing out it would eliminate much of the waste involved in useless Parliamentary contests[61]:

> Every one knows that there is no real desire on behalf of the public for most of these schemes. A railway is now-a-days got up *to sell*, or at all events to *promote*. A lawyer and an engineer get together in a district ... The engineer and the lawyer are pretty sure of their money.

Still, he did not appear to see such activities as surface manifestations of gigantic financial flows that distorted all of British finance. He started recognizing the nature of the problem only just before the Overend, Gurney panic, as was noted in the preceding section.

Almost a year after the crash, reflecting on the bubble, Bagehot published a retrospective (which reads as if it was written by him, although Newmarch may have been involved as well) which included a concise summary that put the blame squarely on railways[62]:

> The crisis of the autumn of 1864 cleared away a large proportion of the weak and speculative Mercantile houses, but it left standing all the new banks and finance

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

[62] "Commercial History and Review of 1866," p. 4, annual supplement to *Economist,* 9 March 1867.

> companies. The crisis of 1866 has now cleared away most of these also. 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 Contractors. A system had gradually grown up, and in 1862-3 had attained to large dimensions, under which public companies and firms of contractors undertook, not only to provide the labour, materials, and superintendence for extensive works designed to cost millions and to occupy years, but also to take payment in bonds, shares, and other securities, by the disposal of which in the market, the ready money required for the actual work performed should be provided. In other words, the country became committed to transfers of floating into fixed capital to the extent of tens of millions, *without* any previous provision of a body of subscribers who had bound themselves to find the needful resources out of previous savings or accumulations. The exact opposite of this only natural and sound course was followed. The capital was first taken out of the floating balances of the money market, and then the securities representing this premature expenditure were sought to be disposed of to what may be called *ex post facto* investors. For a time, and up to a certain point, the process succeeded. The money market could bear the strain of a few millions, and permanent holders and purchasers could be found for the bonds and shares of some of the earlier and sounder undertakings. The first practitioners of this new art accordingly made large profits so easily and fast, that imitators sprung up on all sides, and the consequence was the hundreds of applications to Parliament during the years 1863-6. It was the mass of bills, bonds, and all sorts of documents put out by these financing contractors and companies, and the Credit institutions in league with them, which kept up the rate of discount through '64, '65, and '66, aggravated, of course, by the speculations of the cotton and India trades; and it was the final breaking down of the entire system, in consequence of the extravagant lengths to which it had gone, which was the chief cause of the Panic of May, '66.

Gone was the thesis of greater intelligence among investors leading them towards profitable new ventures and causing higher interest rates, cf. Section 8. Gone also were those high interest rates that stimulated the creation of that thesis, with the Bank rate at 3%, and headed towards 2% by the end of July.

There was more analysis of the causes of the disaster in this and the following year's similar retrospective. Both emphasized the key role of the financing of railway expansion in leading to the Overend, Gurney crash of 1866.

So how did all this activity related to railways escape Bagehot's attention while it was taking place? It appears he relied on faulty statistics that misled him. He issued repeated warnings about the new banks and other finance companies that were springing up. Still, he was not too alarmed, as he did not think they were a large enough influence on the market to cause a problem (other than losses to their shareholders). As was mentioned in Section 2, Bagehot did carry out and publish an extensive study at the end of 1863 that estimated annual savings of about £130 millions. The motivation was precisely to be able to estimate how much could be invested in new ventures without disrupting the economy.

A few months later, as is outlined in Section 8, he considered statistics of startups, surely in order to reassure himself and his readers that those companies did not pose a threat. In Table A of that inaugural issue of the annual review of the preceding year he published a listing of 263 new joint-stock companies of 1863. Their total capital was £100 million, but they were planning to use the "partially-paid" shares described in Section 7, so were offering to the public shares for £78 million. But the deposits were under £9 million, and in a later regular issue of his paper, Bagehot estimated that, with many projects likely to be abortive, only about £20 million was likely to be actually paid in by investors[63]. With annual savings of £130 millions that did not seem too threatening.

Unfortunately that Table A was very deficient. It was reprinted from *The Times*, and had been prepared by the brokerage firm of Spackman and Sons[64]. In subsequent years similar tables from the same source were printed in *The Times*, on the last business day of each year, and were reprinted in the annual reviews in the *Economist* a couple of months later. William Spackman was a noted compiler of economic and financial statistics in the 1840s, and was the author of the notorious supplement to the 17 Nov. 1845 issue of *The Times*, which had a listing of the astounding number of new railway projects before the public. Some histories credit that supplement with breaking the back of the Railway Mania. That is almost surely an exaggeration, as the excitement was already declining, railway share prices were substantially down, and the Bank rate had been raised a few weeks earlier. But there is no denying that Spackman's compilation, reprinted in a revised form as a separate pamphlet a short while later, did lead to extensive discussion, and made more of the public aware of the enormous extent of the Railway Mania. He may therefore have helped moderate the volume of new undertakings. A couple of years after that, Spackman embarked on a somewhat controversial career of trying to liquidate the stumps of some of the abortive projects of that episode. Later on, he established a brokerage firm, and starting with the end of the year 1863, *The Times* published his statistics on new joint-stock companies (with mid-year updates in some years). In none of the published and reprinted versions was there an explanation of the methodology used in preparing the tables. Nor, even after the crash of 1866, did either *The Times* or the *Economist* explain the rather obvious problems. The Spackman tables reflected only a tiny fraction of railway investment activities!

The only place that has been found that did point out this gap was a railway paper that criticized an earlier table that may or may not have some from Spackman. At the end of 1862, so exactly a year before the publication of the first compilation to be attributed to Spackman, *The Times* published, without attribution, a similar table of the new companies that were set up that year[65]. *Herapath's Railway Journal* reprinted that table, but had extended commentary pointing out the table was incomplete[66]. That railway weekly argued that the table failed to cover many ventures, especially in the railway industry. It surmised that the table was based on prospectuses that had been issued to the public, and that

[63] "Will the new companies cause a panic?," *Economist,* 19 March 1864, pp. 349-351.
[64] *The Times*, 31 Dec. 1863, p. 5.
[65] *The Times*, 31 Dec. 1862, p. 5.
[66] "New companies in 1862," *Herapath's Railway Journal*, 3 Jan. 1863, pp. 14–15. That paper reprinted several of the Spackman tables from *The Times* in later years, but without any comments.

this impacted railways especially severely since they often did not issue such prospectuses. (As the Bagehot quote at the end of Section 9 explains, contractors' lines often had just a handful of promoters who set up a project by using "creative financing" and only later enticed investors privately.) As one sign of the limitation of the Spackman tables, they covered just 263 new companies that were set up in 1863. But there were 760 new companies registered in that year [25].

In addition to including just a few new railway projects, the Spackman tables did not show any of the money being raised by established companies. The railway extension game in the 1860s often involved promoters working even without contractors, just setting up paper projects and getting rival big railways to bid against each other to take over those project in order to avoid having the new line divert traffic from them.

There were many ways to detect the extraordinary omissions in the Spackman tables and obtain at least a rough measure of the volume of funds being poured into railways. The House of Commons "Blue Books" in the series that contained [29] were issued annually, typically late in each year, and had official government statistics for the preceding calendar year[67]. Those had data about funds that railways were authorized to raise, as well as the amounts they actually raised, broken down by year, and by equity and regular bonds. (Lloyd's bonds were not covered.) Those publications were sometimes cited in the press[68]. There were also more up-to-date sources. For example, late each year, *Railway Times* went through the railway bills passed by Parliament in that year's session, which typically ended in July or August, and published the totals of the new authorizations[69].

Thus there was considerable publicly available information that could have told Bagehot he had an incorrect impression of where British investment funds were flowing. In fact, he could have gotten an inkling of this from a careful scrutiny of his own paper. The official title of it was *The Economist, Weekly Commercial Times, Bankers' Gazette, and Railway Monitor: A Political, Literary, and General Newspaper.* The "Railway Monitor," which remained part of the title well into the 20th century, was a residue of the Railway Mania. At the peak of that bubble, in the fall of 1845, James Wilson, the founding editor, set up this special section to provide careful coverage of the rapidly expanding industry that was absorbing all attention and all funds. With time, that section shriveled to a fraction of one page (aside from the extensive tables of railway share prices and of weekly railway revenues). Yet even this limited coverage had some valuable information. In particular, it listed the "calls" (demands for more money from investors on shares that were not fully paid) from railway companies. For example, issues at the end of 1865 would have told Bagehot that calls for December of that year came to £883 thousand, and for all of 1865 to £14.0 million[70]. These calls were just for equity capital, and only from established companies, so did not cover all the the money being invested in railways. But they did

[67] The ones for 1861 through 1867 were Parliamentary Papers 1862 (398) LIII.1; 1863 (492) LXII.623; 1864 (20) LIII.553; 1865 (456) XLIX.1; 1866 (483) LXIII.1; 1867 (516) LXII.1; and 1867-68 (484) LXII.1.

[68] For example, "A few facts about British railways," *Money Market Review,* 16 Dec. 1865, pp. 788–89.

[69] For example, "New capital - 1865," *Railway Times*, 28 Oct. 1865, pp. 1390–91 showed authorizations in 1865 of £35.7 million in equity and £12.2 million in bonds, with the corresponding figures for 1864 being 39.9 and 13.2 million. These figures, like those in the "Blue Books," did not include Lloyd's bonds, as those fell outside Parliamentary purview by design.

[70] "Railway Monitor," *Economist,* 9 Dec. 1865, p. 1509.

represent flows of real funds, not just promises, and their magnitude could be used to estimate how much capital was going into railways. They were simply not compatible with the puny amounts appearing in the Spackman tables.

The conclusion is that had Bagehot been slightly more diligent, and not relied on basically a single source of deficient statistics, he could have obtained a proper appreciation of how much money was going into railways, and of the dangers this posed for the entire economy. That might have led him to be much more emphatic in his warnings.

11 Identifying and dealing with bubbles

Even when a bubble is identified, the question of whether authorities should try to deflate it does not have an obvious answer. First of all, there is the example of the British railway mania of the 1830s, which many observers were convinced was a bubble, yet turned out to be productive for both the country and investors [19]. And the larger Railway Mania of the 1840s did ruin most investors who got engaged in it, but on balance was almost surely positive for the country. Some observers also felt it was positive in a wider sense, in keeping the owners of "blind capital" from throwing away their money on even more wasteful projects. Quite a few positive opinions have been expressed about the Internet bubble as well. On the other hand, it is hard to find anyone to say anything positive about the manias that led to the crashes of 1929 and 2008. Thus the topic of how to handle a bubble deserves an extended discussion, and is not covered here. The only question to be dealt with is that of whether bubbles can be identified.

Bagehot was bothered by the anomalous behavior of British financial markets, and he put considerable thought into the puzzles he saw. However, he came to the wrong conclusion. Because he did not use the most relevant publicly available statistics, and because "financial engineering" obfuscated what was happening, he did not appreciate the size of the railway bubble or how it was intertwined with the financial system. Instead, he accepted a rather implausible explanation for what he observed. New investment opportunities, and greater intelligence among investors might indeed increase demand for capital. But if that was what was happening, why were the rates so variable? And how come long-term interest rates (such as the rate on Consols visible in Fig. 2) remained at moderate levels? There were reasons one could concoct for that, such as the presence of a large class of ultra-cautious investors who simply did not see the light. Or one could write this off as one of the many anomalies in the markets (cf. [21]). Whatever Bagehot's thought, he did not see the essence of what was happening on the investment scene.

But suppose Bagehot had learned of the extent to which capital was being poured into railways. That would almost surely have magnified his concerns, and led him to issue much stronger warnings to his readers. But would that have made much of a difference? There are good reasons to doubt it. A few individuals who might have heeded his words and saved their fortunes by withdrawing from risky investments (or who might have made their fortunes by shorting risky securities). The problem is that the detailed information about the web of connections between various agents was simply not available. Bagehot had shrewd (and, in retrospect, accurate) suspicions about some of the problems, such as the wide practice of borrowing short and lending long, and of mixing genuine deposits with so-called acceptances in reports of banks. But he did not have the hard information needed to be totally convincing, and it is implausible to suggest he could have obtained such information. Further, we have growing volumes of cases showing that even hard information often fails to convince people of their cherished beliefs, and in a bubble, the faith in easy riches is very deeply cherished.

An additional complication is that the railway bubble of the 1860s was not an easy one to identify as a bubble. It was nowhere near as absurd as the South Sea Bubble, where British investors put about 70% of all tradeable financial securities of the country in the hands of a respectable but not particularly distinguished management team, and hoped to have that team double the value of those securities by some undisclosed method. It was not even as clear a bubble as the Railway Mania of the 1840s. There, the fact that an already large industry was to be tripled in size, together with the existence of a validated demand estimation methodology from the 1830s, makes it possible to show convincingly that very poor returns were inevitable on average [18]. In the 1860s, the situation was different. Railway investments were almost as large when measured in pounds sterling as during the Railway Mania, but they were quite a bit smaller as a fraction of GDP, and represented "only" about a 50% growth in railway mileage and capital. Thus had the promoters of all the small lines that made up the bulk of construction in the 1860s managed to foist them off on the large established railways (as was done successfully to a large extent) the result would have been a substantial hit to the profits of those big lines, but no sudden crisis. It was not even very clear that most of the new lines would be unprofitable. The demand estimation methodology from the 1830s was not being applied (and it had failed in the 1840s), and the gravity models that had been discovered by Desart during the Railway Mania [22] failed to be applied properly then, and had been totally forgotten by the 1860s.

In the aftermath of the Overend, Gurney crisis, John Mills commented that "Panics do not destroy Capital; they merely reveal the extent to which it has been previously destroyed by its betrayal into hopelessly unproductive works" [15]. Yet, as happened during the Railway Mania, big panics can sometimes be avoided when the owners of capital realize its destruction gradually. In both 1866 and 2008, the main issue was that large liabilities were concentrated on the balance sheets of a small number of large and highly leveraged institutions, and that opaque accounting led to suspicions building on suspicions in the usual herding behavior. It is unlikely that Bagehot could have obtained an accurate view of what was happening by himself, relying just on the information that was publicly available.

Scattered through this paper were many similarities between the manias that led to the panics of 1866 and 2008. An intriguing one is that in both cases there were warning signs, many discussed prominently in the press. Some of those preceding the 1866 crash have been cited earlier. In the early 2000s, we had Warren Buffett's famous characterization of derivatives as "financial weapons of mass destruction." We also had plenty of reports about "liar loans" and dangerous amounts of leverage in the banking system. On the other hand, there were reassurances from scholars and regulators that we were enjoying the "Great Moderation" and the "Global Savings Glut," and that housing prices had never gone down on a nationwide basis in the U.S. Hence to make sense of all these conflicting stories, it would have required serious investigation and construction of quantitative models of the real estate and financial sectors. Just how big a factor were those "liar loans," and how many institutions were exposed to them?

Intriguingly, is appears that such models were actually built, by some of the hedge funds that earned huge profits from shorting securities tied to dodgy finance [14]. Even more intriguingly, those models apparently have never been investigated by the mainstream scholars. One might expect that a profession as enamored of quantitative models as economics would jump at a chance to examine models that had been validated by gains measured in the tens of billions of dollars. But that has simply not happened, and the success of those hedge funds has been dismissed by a famous figure as "a statistical illusion." One of those hedge fund managers asked to testify to the august committee investigating the crash of 2008, but was rebuffed [5]. It appears that mainstream thinking is dominated by the dogma that bubbles cannot be detected, a dogma that was cited earlier as expressed by a prominent figure in 1999 [3].

Whatever one thinks of the currently reigning dogma, it is the case that Bagehot, who definitely did not subscribe to that view, did fail to detect the bubble of the 1860s. Hence it is very unlikely that modern authorities will be able to identify any bubbles in the near future.

12 Conclusions

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 authorities who do not believe that bubbles can be detected (cf. [3]), and that fairly modest changes in regulation can prevent a crisis for a lifetime (cf. [6]), 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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