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Introduction

John Pierpont Morgan never had the security of working alongside a central bank in the US. Distrust of banks, especially central banks, was widespread in the US, and such suspicion ultimately contributed to the glaring absence of a lender of last resort in the payments system. Yet, described as having a massive, smoldering physical presence with the driving power of a locomotive,[1] he became the leading financier in the country, coordinating domestic private funds and funds from investors and central banks overseas to fight the recurring financial crises of the nineteenth and early twentieth centuries. His actions garnered him the role of lender of last resort in the US, even though no such formal institution existed. The purpose of our book is to chronicle and analyze Morgan's interventions in financial crises, telling the story of how he learned the art of last resort lending by trial and error, and finding its relevance to issues that last resort lenders still face in the early twenty-first century. Figure 1.1 illustrates one contemporary view of Morgan's dominating role as a central banker.

Our book is part of the Cambridge University Press Studies in Macroeconomic History series. In Table 1.1 we identify which US recessions were associated with disruptions to the payments system. We also identify the instances in which Morgan created a last resort loan.[2] The table shows the length of time between peak economic

[1] Morris, 2006, p. 234.

[2] NBER data does not extend back to 1837. Thus, the table omits the last resort loan organized by George Peabody & Co., Morgan's predecessor firm, in London in the Panic of 1837. We cover the Panic of 1837 in Chapter 4.

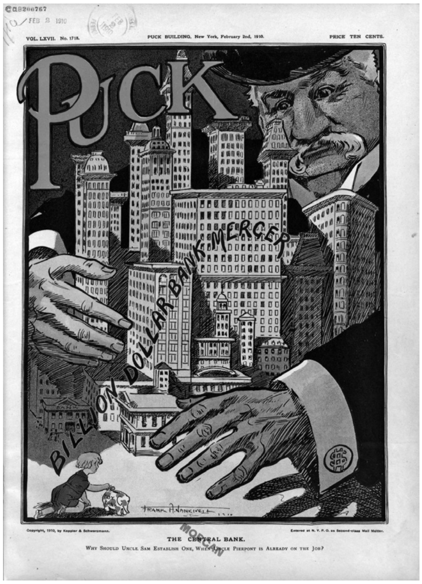

FIGURE 1.1 "Why should Uncle Sam establish one, when Uncle Pierpont is already on the job?" Illustration on the cover of *Puck*, vol. 67, no. 1718 (February 2, 1910). © 1910 by Keppler & Schwarzmann

activity and troughs for each recession. Not all recessions were associated with banking crises; the payments system was disrupted to varying degrees indicated in the right column. Morgan created last resort loans in nine of the thirteen business contractions.

To show how J. P. Morgan, a private citizen, became the de facto lender of last resort, we show first *how* he took on the role. He was able to adapt his successful use of the investment syndicate from his routine business transactions to his nonroutine, crisis last resort loan transactions. To do that, we show how he was able to motivate and incentivize private investors to participate in these crisis fundings by arranging the risk and reward incentives to appeal to private investors, remembering that he had no central bank backstopping these deals. As in his routine syndicates, he recruited subject matter experts (SMEs) along with investors who could provide the large financial capacity to make the deals work. Such experts, while lacking capacity on occasion, had specialized knowledge of the markets Morgan was trying to protect, keeping the syndicate on track. His deep network of contacts in

TABLE 1.1 *Macroeconomic recessions, disruptions to the payments system, and Morgan last resort loans*

Peak month (peak quarter)	Trough month (trough quarter)	Contraction duration in months, peak to trough, JPM involved*	Suspension of payments system by New York Clearing House
June 1857 (1857Q2)	December 1858 (1858Q4)	18*	Yes
October 1860 (1860Q3)	June 1861 (1861Q3)	8	Yes
April 1865 (1865Q1)	December 1867 (1868Q1)	32	Greenbacks issued
June 1869 (1869Q2)	December 1870 (1870Q4)	18	Greenbacks issued
October 1873 (1873Q3)	March 1879 (1879Q1)	65*	Yes
March 1882 (1882Q1)	May 1885 (1885Q2)	38*	No
March 1887 (1887Q2)	April 1888 (1888Q1)	13	No
July 1890 (1890Q3)	May 1891 (1891Q2)	10*	No
January 1893 (1893Q1)	June 1894 (1894Q2)	17*	Yes
December 1895 (1895Q4)	June 1897 (1897Q2)	18*	No
June 1899 (1899Q3)	December 1900 (1900Q4)	18*	No
September 1902 (1902Q4)	August 1904 (1904Q3)	23*	No
May 1907 (1907Q2)	June 1908 (1908Q2)	13*	Yes

Sources: NBER U.S. Business Cycle Expansions and Contractions, Wicker (2000), Burk (1989), and J. P. Morgan & Co. Syndicate Books.

industry and finance outside of the New York society circle were key to his success as the lender of last resort.

Then we show *why* he accepted this role. We provide evidence that he was certainly guided by the profit motive like any of the financiers and entrepreneurs of the Gilded Age, as were the central banks of England and France, but which had different stakeholders from Morgan. But he was also motivated by providing long run stability to financial and industrial markets, believing that this was a both the responsibility of any reputable businessman of high privilege and that this was the best environment for his own firm to produce profits. This longer run perspective was amplified by his long relationship with his father Junius, passing it on to his son Jack and beyond. In this way his actions were much like the intergenerational, dynastic investing of the House of Rothschild and the long horizons taken by the central banks of England and France.

To understand Morgan's journey to being the lender of last resort, we should be aware that the path he followed, ultimately leading to the Federal Reserve Act, was laid down in the complicated and unpredictable financial setting of the US, a path that did not resemble anything found in Europe. He operated within a banking and payments system structured around unit banking (banking with little branching, albeit connected to other banks by a dense correspondent network) having no clear structure like the Bank of England to expedite payments across longer distances. He also grew up in an America that suffered far more periodic panics and financial crises compared to the major European countries. The most notable panics that Morgan would have dealt with directly during the national banking era (1863–1914) were in 1873, 1884, 1890, 1893, and 1907; Europe, in contrast, did not suffer from such recurring panics after 1866. Morgan learned from each panic, becoming increasingly adept at using his private sector skills to contain them, experiencing both failures and successes along the way. Morgan and his contemporaries may have been aware of the earlier efforts of Alexander Hamilton and of the First and Second Banks of the United States to stabilize the financial system between 1791 and 1836. But we have not uncovered any direct mentions in Morgan's correspondence to those earlier American episodes, so we cannot assume that they informed his lender of last resort activities. We limit our analysis to only those events that he, his father, or George Peabody, his father's partner, specifically referred to in their letters as evidence of Morgan's learning how to create lender of last resort functions in a private sector setting. (See Sylla, Wright, and Cowen (2009) for Alexander Hamilton's last resort loan during the early Panic of 1791–92.)

The country had experimented with creating a central bank early on, but the experiment had not gone well, ending with the demise of the Second Bank of the United States in 1836. Policy makers subsequently chose a different path, one that resulted in three disparate pools of bank reserves. The US Treasury's reserves could at times be used like those of a lender of last resort, but there were limitations. The private sector had fragmented reserves that were held by individuals, unit banks, and the clearinghouses formed by banks, most notably the one in New York. Finally, there were reserves held by European investors like the Rothschilds and central banks like the Bank of England and the Banque de France, reserves earmarked for non-US priorities. These three stockpiles of money available to solve a financial crisis had, by design, no formal channel through which they could be coordinated as last resort resources. At the same time, the country valued the public good of financial stability, which we define as the protection of the means of payment or the settlements system.[3] Without an official social contract to commit the country's financial reserves in times of commercial peril, it fell to the private market to devise cooperation or commitment technologies to accomplish the task. Morgan eventually rose to meet that challenge.

We trace how Morgan learned to navigate the three pools of liquidity. Starting in 1853 at age sixteen, he learned international banking from his father, Junius, George Peabody in London. From them he learned merchant banking and then later, developed the practice of syndication for routine lending that brought bankers together to temporarily pool resources to make loans for capital and financial investments. He further developed his own negotiating techniques, especially the use of credible ultimatums to convince reluctant bankers to take collective action, pricing in profits large enough to make risk-bearing attractive.

Morgan's techniques of channeling the private reserves to the distressed banks involved a standard concern: risk and reward had to balance. In order to access funds, borrowers had to find ways to convince lenders that their commitment to pay back was credible. Without the credibility of a central bank, Americans had to provide collateral that was trusted to back last resort loans. They often pledged 'IOUs' payable to US grain or cotton exporters (known as bills of exchange) or railroad bonds known to Europeans. Railroad bonds became an increasingly important form of collateral in the nineteenth century as the US railroad network expanded dramatically.

We classify Morgan's last resort loans into three types. First, the many times in which he was able to coordinate reliable collateral, loans were priced at the prevailing risk-free rate. The fewer times when he was unable to secure adequate collateral, he negotiated financing at higher rates reflecting the presence of some risk, as in 1895 and 1896. Finally,

3 Toniolo and White, 2015, p. 5.

the rare times when he either had no time to secure adequate collateral or when collateral was plunging in value, he arranged auctions of excess bankers' reserves at exorbitant rates on the floor of the New York stock exchange, as during the Panic of 1907. In short, we find the more risk and uncertainty remaining in his transactions, the higher the price that was charged for emergency liquidity. His use of the profit mechanism as the device to coordinate last resort loans meant his facilities would not produce the outcome that we are acquainted with today when the Federal Reserve provides almost unlimited quantities of emergency funding at low interest rates.

We know of at least a dozen biographies of Morgan and books about his firm. Indeed, one has appeared almost every decade since he died. Burk, Chernow, Landes, and Hoyt cover the entire scope of the House of Morgan. Carosso's exhaustive work examines Morgan's investment projects in detail up to 1913, using the Syndicate Books as source evidence, providing more statistical detail than other works, while Horn's recent work uses partners' memos, covering the firm in the interwar period, after Morgan died. Pak analyzes the striated and hierarchical social milieu that formed the underpinning for Morgan's activities. Hovey, Corey, Winkler, Satterlee, Allen, and most recently Strouse focus directly on Morgan's life, with Satterlee's biography being the only one that could be considered as authorized by Morgan himself. Our focus is different from all those works in that we do not look at his personal life resulting in another biography, nor do we recount details of his hundreds of private financial arrangements. Rather we limit our investigation to how he developed and adapted his syndicate structure to provide lender of last resort services in the US before the Federal Reserve System.

We rely on three primary archival data sources to support our different perspective: Morgan's Syndicate Books, his General Ledgers, and his personal correspondence such as telegrams and letters to partners and customers. Information in his Syndicate Books explains how he organized financial deals and how he expanded these private dealings to take on systemic financial crises. The Syndicate Books are not accounting ledgers; they do not record debits or credits or systematic profits and losses. Instead, they record the types of transactions, the quantity of funds pledged, often the prices at which deals were floated, and the names of the syndicate participants, allowing us to identify investors Morgan viewed as subject matter experts or capacity investors. We can also get some idea of which investors Morgan chose to have repeated dealings with. While other financiers used the syndicate structure, we are not aware of other syndicate records that contain the detail of Morgan's books, so unfortunately, we cannot draw meaningful comparisons with his peer bankers. Finally, by quoting from his correspondence to partners and testimony in various investigations, we bring Morgan's own voice to our story. It is our hope that reading about crises from one person's viewpoint makes crises writ large more readily understood by our readers.

We develop several appendices in which more technical analysis of Morgan's actions fit into finance and economic theory, most likely of interest to policy makers, academics, and students of last resort lending, but not essential for readers who seek to generally understand the essential story of Morgan's learning process as he designed last resort loans. The appendices include stylized balance sheet T-accounts to demonstrate how the New York Clearing House expanded loans during crises, regressions that estimate Morgan's routine of including subject matter experts in his noncrisis securities underwritings, and stylized supply and demand analysis of the market for emergency liquidity in Morgan's time, with suggestions for why Morgan's upward sloping supply curve is very different from today's supply of emergency funds of near limitless quantities at low interest rates supplied by the Federal Reserve. (See Technical Appendix 1.1 for the supply and demand graph.)

To aid the reader in seeing our story at a glance, we provide Table 1.2 listing the forty different actions Morgan took during financial crises. We analyze how the three sources of reserves could be coordinated to reveal the complexities within which he worked (Chapter 2). After that we explore Morgan's normal business routines, describing his routine syndicate business in much more detail (Chapter 3). We then turn to a more chronologically ordered story, starting with his early, formative days in London and the panics before the National Banking Era began in 1863 (Chapter 4). We note his quickening pace of development in actions taken during the Panics of 1873, 1884, 1890, and 1893, with rocky relationships, close calls, outright failures, but also some spectacular successes along the way (Chapter 5). Then we turn to Morgan's first effort to quell a system-wide crisis, not just a panicked banking system, but one in which the US Treasury nearly ran out of gold reserves in 1895 and 1896, threatening the international gold standard and US public finances. His ability to convince and coordinate domestic investors as well as major overseas agents like the Bank of England and the House of Rothschild in the refunding of the Treasury's gold stock comes into sharp focus in his efforts in 1895/96 (Chapters 6 and 7). A few smaller crises before the Panic of 1907 reveal how Morgan had settled into the

TABLE 1.2 *Actions Morgan took during financial crises*

Transaction #	Year	Action by Peabody/ Morgan	Risk management technique pricing: collateralized, negotiated, auction, equity	Pricing	Deal size, in dollars	Pitched/ enacted/ prevention	Annual net profit/loss across Morgan firms
Actions taken during the Peabody partnership years							
1	1837	Peabody in BoE loan loss guarantee for Brown Bros.	Collateralized	Bank rate	$2 million to Brown Bros.	Enacted	Unknown
2	1857	Peabody requires loan from BoE	Collateralized	Bank rate	$4 million	Enacted	250,000
Actions taken during the Morgan partnership years							
3	1870	JSM loan to France	Negotiated	7.38%	$50 million	Enacted	2,760,000 over two years
4	1873	Morgan sells early	Not applicable			Prevention	1,169,000
5	1884	Oregon & Transcontinental Railroad loan	Collateralized	6%	$10.4 million	Enacted	−72,000
6	1890	Burns borrows in US to prepare	Negotiated	Bank rate	$1 million	Enacted	1,069,000
7	1890	JPM organizes pool of NYCH banks O&T	Collateralized	Unknown	$900,000	Enacted	1,069,000
8	1890	JPM advises National Bank of Commerce to use CHLC for gold purchases	Not applicable	CHLC rate	$2.5 million to $5 million	Pitched	1,069,000

9	1890	JSM and JPM loan guarantee for Barings	Collateralized	Bank rate	$500,000	Enacted	1,069,000
10	1893	National Cordage loan	Negotiated	7.13%	$6 million	Enacted	−1,134,000
11	1893	NY Savings Banks	Collateralized	Bank rate	$5 million	Pitched	−1,134,000
12	1894	Syndicate member. Second Cleveland public loan	Collateralized	3%	$50 million	Enacted	1,655,000
13	1895	Morgan-Belmont Loan syndicate and Exchange syndicate	Negotiated	3.77%	$62.5m	Enacted	2,016,000
14	1896	1896 loan and syndicate	Negotiated	Unknown	$100 million	Pitched	2,356,000
15	1896	Second Exchange syndicate	Collateralized	Unknown	$50 million	Enacted	2,356,000
16	1899	JPM loans at 6% in money pool	Collateralized	Call loan rate	$1 million	Enacted	8,110,000
17	1901	Northern Pacific control of CBQ	Collateralized	Call loan rate	$22 million	Enacted	19,344,000
18	1902	Money pool	Collateralized	Not activated	$45 million	Prevention	24,870,000
19	1907	Refuse aid to Knickerbocker. Refuse to meet with Charles Barney	Not Applicable			Enacted	−21,500,000
20	1907	Working capital loans to TCA and LT	Collateralized	Call loan rate	$3 million	Enacted	−21,500,000
21	1907	Phone Washington for aid. Guide Tsy Secy Cortelyou as to where to deposit Tsy gold	Not Applicable	0%	$25 million	Enacted	−21,500,000

(continued)

TABLE 1.2 (*continued*)

Transaction #	Year	Action by Peabody/ Morgan	Risk management technique pricing: collateralized, negotiated, auction, equity	Pricing	Deal size, in dollars	Pitched/ enacted/ prevention	Annual net profit/loss across Morgan firms
22	1907	Money Pool 1	Auction	60%	$25 million	Enacted	−21,500,000
23	1907	Money Pool 2	Auction	35%	$10 million	Enacted	−21,500,000
24	1907	JPM changes his sentiment to support issuance of CHLCs	Not applicable			Enacted	−21,500,000
26	1907	New York City Revenue Anticipation Note	Collateralized	6%	$30 million	Enacted	−21,500,000
25a	1907	Trust Co syndicate	Collateralized	6%	$6 million	Enacted	−21,500,000
27	1907	JPM makes early payment of Nov. 1 bond coupons in gold	Not applicable	Unknown	Not available	Enacted	−21,500,000
28	1907	JPM calls Teddy Roosevelt to expedite shipments of cotton to the seaboards	Not applicable		Not available	Enacted	−21,500,000
29	1907	Moore Schley	Negotiated	6%	$18 million	Enacted	−21,500,000
30	1907	JPM raises funds in London bills market to shore up JPM finances	Collateralized	Bank rate	$1.34 million	Prevention	−21,500,000

31	1907	JPM unfreezes American bills quotes in London with Brown Bros. in New York	Collateralized	Bank rate	$0.5 million	Enacted	−21,500,000
32	1907	JPM buys gold from Neuflize for sale to BofE to replenish its reserve	Collateralized	Bank rate	$1 million	Enacted	−21,500,000
33	1907	Sovereign Bank of Canada with Dresdner of Berlin	Collateralized	Bank rate	$0.4 million	Enacted	−21,500,000
34	1907	BdeFrance loan	Collateralized	Banque rate	$30 million	Pitched	−21,500,000
35	1908	JPM refinances Canada Southern debt coming due	Collateralized	6%	14 million	Enacted	13,300,000
36	1908	JPM refinances NY Central & Hudson	Collateralized	7%	30 million	Enacted	13,300,000
37	1908	JPM refinances New York City	Collateralized	5.75%	35 million	Enacted	13,300,000
38	1908	JPM sells some IMM from JPM & Co to reliquefy his own firm	Equity		0.4 million	Enacted	13,300,000
39	1908	JPM IRT recapitalization for Belmont	Collateralized	6%	$30 million	Enacted	13,300,000
25b	1908	Trust Company pool finally paid back the syndicate. Closed	Collateralized	6%		Enacted	13,300,000
40	1908	JPM bail-in recapitalization	Equity		16 million	Enacted	13,300,000

role of a de facto lender of last resort by coordinating small groups of Clearing House banks when their association did not (Chapter 8). Finally, the great Panic of 1907 sets the stage for Morgan's powers as a lender of last resort to come into full view, coordinating funds from all three sources of reserves to save the banking system, the stock exchange, several large brokerages, and even the City of New York (Chapters 9 and 10). We examine the aftermath of the Panic and Morgan's efforts in 1908 to recapitalize his own firm and others (Chapter 11). Finally, we examine Morgan's legacy and relevance to ongoing modern discussions (Chapter 12), from finding echoes of his crisis coordination routines in the terms of the Aldrich–Vreeland Act in 1908, to finding possible motivations for his tacit support for founding the Federal Reserve in 1913, to finding suggestions that his pricing approach to last resort lending could illuminate how supplementary funding to public last resort loans could be structured today.