

# *The Panics of 1854 and 1857: A View from the Emigrant Industrial Savings Bank*

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Using records of individual depositors' accounts, this article provides a detailed microeconomic analysis of two banking panics. The panics of 1854 and 1857 were not characterized by an immediate mass panic of depositors and had important time dimensions. We examine depositor behavior using a hazard model. Contagion was the key factor in 1854 but it created only a local panic. The 1857 panic began with runs by businessmen and banking sophisticates followed by less informed depositors. Evidence suggests that this panic was driven by informational shocks in the face of asymmetric information about the true condition of bank portfolios.

Banking panics were a much-feared feature of the nineteenth-century American business cycle. Although they typically did not ignite a recession, the rapid withdrawal of deposits forced a contraction of credit that contributed independently to downswings. To eliminate these crises, the Federal Reserve Act and New Deal banking reforms were passed in the wake of the panics of 1907 and the early 1930s. Yet, although panics were an important weakness in the financial system, there is widespread disagreement about the forces that prompted bank runs and even about the dating of banking panics. In this article, we examine the behavior of individual depositors in the panics of 1854 and 1857 for insight into the precipitating factors and dynamics of a bank run.

Often the term banking panic has been used to identify an event where banks fail in the midst of a recession or stock market crash. The result has been substantial differences in the number of panics, as counted by different authors. Looking at the period 1890–1910, O. M. W. Sprague emphasized three crises (1890, 1893 and 1907), whereas his contemporary Edwin Kemmerer found six major panics (1890, 1893, 1899, 1901, 1903, and 1907) plus 15 minor panics. Modern authors such as Milton Friedman and Anna Schwartz and Jeffrey Miron also differ on what episodes constituted

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banking panics. Most recently, Charles Calomiris and Gary Gorton identified 12 banking panics over the “long” nineteenth century.<sup>1</sup>

A generally accepted, recent definition of a banking panic is provided by Calomiris and Gorton.<sup>2</sup> In their view, a run on a single bank does not constitute a panic, though a panic may involve some but not all banks in the system. Furthermore, depositors must suddenly demand redemption for cash, so protracted withdrawals are ruled out. The volume of desired redemptions must be sufficiently large to require banks to suspend convertibility or act collectively to avoid suspension at the rate of one dollar of debt for one dollar of cash.<sup>3</sup> By Calomiris and Gorton’s definition, one event we consider, 1857, is a panic; but the other, 1854, did not make their list, presumably because it was a local New York phenomenon. Nevertheless, 1854 is well worth examining because it meets their definition at the local level with many banks experiencing rapid withdrawals, approaching the suspension of payments for some.

Although there have been many empirical studies of nineteenth-century American panics, they have focused on the aggregate number of bank closings rather than on the behavior of depositors or note-holders.<sup>4</sup> An exception is the study by Morgan Kelly and Cormac Ó Gráda, which exploits the records of the Emigrant Industrial Savings Bank (EISB) for evidence of informational networks driving market contagion during runs on the bank in the 1850s.<sup>5</sup> That study focused exclusively on Irish account holders, however, and was not concerned with the money-macro aspects of the panics. Here, we use a different dataset of individual EISB depositors, employing a hazard model to examine the causes of banking panics in 1854 and 1857. These two episodes provide a natural experiment, as the panics were the results of different types of shocks. The panic of 1854 was local and started with the news of a single bank’s insolvency, whereas the panic of 1857 was brought about by a system-wide shock that affected the whole financial sector.

These differences seem to mirror the two theoretical explanations for panics.<sup>6</sup> Models following the seminal paper of Douglas Diamond and Philip

<sup>1</sup> Sprague, *Crises*; Kemmerer, *Seasonal Variation*; Friedman and Schwartz, *Monetary History*; Miron, “Financial Panics”; and Calomiris and Gorton, “Origins.” The peak months of Calomiris and Gorton’s panics were August 1814, April–May 1819, May 1837, October 1839, October 1857, December 1861, September 1873, May 1884, November 1890, June–August 1893, October 1896, October 1907, and August 1914.

<sup>2</sup> Calomiris and Gorton, “Origins.”

<sup>3</sup> In the case of the latter, late-nineteenth-century clearing houses acted to increase liquidity by accepting member bank assets and issuing clearing-house loan certificates.

<sup>4</sup> For example, see Gorton, “Banking Panics”; Calomiris and Gorton, “Origins”; and Donaldson, “Sources.”

<sup>5</sup> Kelly and Ó Gráda, “Market Contagion.”

<sup>6</sup> For surveys of the literature on bank runs and panics, see Kaufman, “Bank Contagion”; and Gorton and Winton, “Financial Intermediation.”

Dybvig view bank runs as ignited by random events that induce each depositor to run because they believe that other depositors will run on the bank and force it into a costly liquidation.<sup>7</sup> The fear of being last, when depositors are served sequentially, drives the run. Panics here are produced by the spread of runs from one bank to another. In contrast, models based on asymmetric information see runs as beginning when some depositors discover negative information about the value of bank assets and withdraw their deposits.<sup>8</sup> Unable to perfectly discriminate between sound and unsound banks and observing a wave of withdrawals, other depositors follow suit, leading to runs on several banks.<sup>9</sup>

Although these models provide very useful insights, they do not capture some important features of the panics analyzed here. In this article, we describe the dynamics of panics from the vantage point of the EISB, examining the characteristics of the runs on the bank and how its management responded to the crisis. In neither 1854 nor 1857 did depositors respond to a single signal that led them to crowd into banks all at once. Instead, panics lasted a few weeks, building and sometimes ebbing in intensity, and only a fraction of all accounts were closed. Our survival analysis of the accounts supports savvy contemporaries' observations, providing a more accurate and nuanced understanding of these important macroeconomic shocks.

The run on the EISB during the panic of 1854 was by predominantly less wealthy, less experienced, and less sophisticated—"uninformed"—depositors. The "random" event of another savings bank failure ignited runs on the EISB and other savings banks even though there was no evidence that they were insolvent. In earlier work, Kelly and Ó Gráda have shown that the run followed networks within the Irish community, providing a test of social contagion. As such, the 1854 run followed the pattern described by Diamond and Dybvig. But this is not the complete story. The banks were not overwhelmed, and by steadfastly paying their customers they drove the panic away. In contrast, the panic of 1857 began as a run by the more wealthy experienced and sophisticated depositors—the "informed"—who observed the declining value of many bank portfolios, and then ran. Watching these depositors, others eventually joined them at the tellers' windows, making 1857 an event where asymmetric information was important. The banking system was overwhelmed and only a general suspension of payments prevented a total collapse.

<sup>7</sup> Diamond and Dybvig, "Bank Runs."

<sup>8</sup> For example, Gorton, "Bank Suspension"; Chari and Jagannathan, "Banking Panics"; Jacklin and Battacharya, "Distinguishing Panics"; Calomiris and Schweikart, "Panic of"; and Calomiris and Gorton, "Origins."

<sup>9</sup> Calomiris and Kahn ("Role") see panics as a monitoring device where depositors are induced to engage in costly monitoring. The sequential payment of depositors at the window serves as a constraint that efficiently rewards those who arrive and withdraw their funds first.

## THE EMIGRANT INDUSTRIAL SAVINGS BANK

Formed to promote thrift among Irish immigrants, the EISB was chartered as a mutual savings bank in April 1850. The EISB was an outgrowth of the Irish Emigrant Society, which had been founded by Irish immigrants in 1840 and had built up a considerable bill business in sending emigrant remittances back to Ireland during the 1840s. Distinguished from other savings banks by its predominantly Irish constituency, the EISB began to accept deposits at its offices on Chambers Street in Manhattan on 30 September 1850.

The EISB was the eighth mutual savings bank in New York to be chartered. The first, the Bank for Savings, was established in 1819. The 1850s was a period of fairly rapid bank formation, and another 11 savings banks were chartered during the decade.<sup>10</sup> The rapid growth of the EISB's and New York City mutual savings banks' accounts and deposits are shown in Table 1. However, the leading depository institutions were the commercial banks. In 1856 there were 56 commercial banks in New York City. Their individual deposits totalled \$66.1 million, and they had issued \$8.2 million in banknotes and held another \$20.3 million in deposits of other banks.<sup>11</sup> In the same year, the 16 savings banks had 132,917 accounts with \$28.2 million. Although the savings banks were smaller, their depositors were more representative of the general population of the city, as commercial banks catered primarily to the business community in this period.

The EISB's 4,291 accounts, containing \$1 million in deposits, made it the seventh largest savings bank in 1856. There were also 23 commercial banks with individual deposits that exceeded the holdings at the EISB. Thus, the EISB was a mid-sized institution. It was one of the most accessible savings banks in New York City in the 1850s, open 42 hours per week when some savings banks offered only six hours. The size of its accounts was fairly typical of savings banks. In 1855 the average deposit account at the EISB had \$224, while the Bowery Savings Bank had \$212, the Greenwich Savings Bank \$280, the Bank for Savings \$164, and the Seaman's Savings Bank \$313. The average for all American savings banks was \$196.<sup>12</sup>

Savings banks tended to discourage large accounts through discriminatory interest-rate policies. Thus the EISB paid 6 percent on accounts under \$500 and 5 percent on accounts over \$500.<sup>13</sup> Nevertheless, the bank had many prosperous clients whose accounts exceeded \$500. Some depositors held

<sup>10</sup> Olmstead, *New York City*, pp. 157–61.

<sup>11</sup> New York State, *Assembly Document No. 5*, 1858.

<sup>12</sup> Olmstead, *New York City*, pp. 31–33, 157–60.

<sup>13</sup> More established mutual savings banks tended to offer 5 percent up to a maximum balance of \$500 or \$1,000 and 4 percent thereafter, whereas newer ones followed the EISB's pattern of 5 and 6 percent (Olmstead, *New York City*, pp. 37–38). Except for interest-rate ceilings established by usury laws, commercial banks did not have fixed rates for interest on their deposit accounts.

TABLE 1  
ACCOUNTS AND DEPOSITS OF MUTUAL SAVINGS BANKS, 1851–1861

| Year | EISB<br>Number of<br>Accounts | EISB<br>Deposits<br>(\$) | All Savings Banks<br>Number of<br>Accounts | All Savings Banks<br>Deposits<br>(\$ millions) |
|------|-------------------------------|--------------------------|--------------------------------------------|------------------------------------------------|
| 1851 | 265                           | 34,899                   | 79,325                                     | 17.0                                           |
| 1852 | 1,098                         | 186,313                  | 88,893                                     | 19.6                                           |
| 1853 | 2,183                         | 455,310                  | 98,131                                     | 22.1                                           |
| 1854 | 3,661                         | 813,996                  | 118,362                                    | 26.2                                           |
| 1855 | 3,691                         | 822,453                  | 122,453                                    | 26.2                                           |
| 1856 | 4,291                         | 1,001,233                | 132,917                                    | 28.2                                           |
| 1857 | 5,461                         | 1,302,791                | 151,510                                    | 32.6                                           |
| 1858 | 5,698                         | 1,348,730                | 154,569                                    | 32.8                                           |
| 1859 | 5,586                         | 1,628,755                | 170,433                                    | 37.0                                           |
| 1860 | 8,487                         | 2,172,873                | 196,079                                    | 43.7                                           |
| 1861 | 10,096                        | 2,627,542                | 216,755                                    | 49.2                                           |

Note: The data are for 1 January.

Source: Olmstead, *New York City*, pp. 159, 182.

multiple accounts in one or more banks to gain higher interest.<sup>14</sup> Quite apart from philanthropic bias toward small savers, bank trustees harboured a distrust of their more prosperous customers, whom they associated with pressure to make risky investments and with making heavy withdrawals during panics. Evidence of such behavior was given by Philip Hone, president of the Bank for Savings, where the average size of withdrawals greatly exceeded the average balance per account during the Panic of 1837.<sup>15</sup>

The average deposit of \$224 in 1855 represented a substantial accumulation. Robert Margo's recent study of antebellum wage levels reports the average daily wage of common laborers in the northeastern United States at \$0.94 in 1850 and \$1.09 in 1860. Artisans were paid \$1.42 and \$1.80 daily, and white-collar workers \$42.17 and \$49.19 per month. Wages were not much higher in New York City at this time.<sup>16</sup> Although depositors held a significant fraction of annual income in their accounts, not all were accumulating nest eggs. Most accounts were held for a year or two, though some customers who closed their accounts reopened them later. The pattern of EISB account-holder behavior replicates the findings of George Alter, Claudia Goldin, and Elyce Rotella for accounts opened at the Philadelphia Saving Fund Society in 1850 as "relatively large in size, brief in duration, and inactive."<sup>17</sup>

<sup>14</sup> *New York Herald* (14 October 1857): "Bustling in came a square-built Dutch woman, puffing and blowing with apprehension, and holding in her hand ten account books, each for \$499." Apart from a few similar examples, there is no evidence on the extent of holding multiple accounts.

<sup>15</sup> Olmstead, *New York City*, pp. 58, 62; Tuckerman, *Diary of Philip Hone*, vol. 1, pp. 256–57.

<sup>16</sup> Margo, *Wages and Labor*, 67–69; Ernst, *Immigrant Life*, pp. 67, 77–78; and *New York Herald*, 30 April 1854.

<sup>17</sup> Alter, Goldin, and Rotella, "Savings," p. 764.

Dividends—interest on accounts—were credited and compounded on 1 January and 1 July, although they were not paid until the middle of the month. Deposits of less than \$5 received no interest, nor did fractions of a dollar. Six months' interest was paid on all funds deposited six months prior to 1 January or 1 July, and three months' interest was paid on all sums deposited after 1 January or 1 July and before 1 October or 1 April. In response, deposits in savings banks peaked in March, June, September, and December and were low in January and July.<sup>18</sup>

Although its origins were philanthropic, the bank conducted its lending in a business-like manner. Its charter limited its investments to purchases of state and municipal bonds, call loans, and mortgages. Mortgage loans were permitted for a maximum of half the value of the collateral. The interest rate on its mortgages was 7 percent, a limit set by the state usury law. The EISB was the first mutual savings bank granted the power, in its charter, to make call loans to brokers, collateralized by securities.<sup>19</sup> By 1853 this experiment seemed safe and this power was extended to all New York savings banks.

The EISB kept relatively little cash on hand in the 1850s. When the crisis struck in 1857, it held approximately 2.5 percent of its assets in cash. Afterwards, it tended to keep 5 percent in cash, reaching 7 percent when the Civil War neared. The EISB preferred to maintain its liquidity with its loans on call (briefly mixed in 1860–1861 with U.S. securities) that averaged about 15 percent of its portfolio. For most of this period, it held very little cash on hand, relying instead on deposits held in commercial banks' vaults, where they earned interest.

#### THE PANIC OF 1854

The panic of 1854 began with news of the failure of the Knickerbocker Savings Bank, which sparked a run on the other savings banks in the city. The Knickerbocker's demise was due to the failure of the bank of issue by the same name, with which it was closely linked and where a quarter of its deposits were held. It was the only savings bank to fail in the antebellum era. When its affairs were finally wound up, the bank paid its depositors 86.5 cents on the dollar.<sup>20</sup> Other savings banks and banks in the city were solvent and did not fail during or immediately after the panic.

The Knickerbocker Savings Bank was apparently manipulated by its trustees who were also directors of the Knickerbocker Bank. The savings bank's portfolio was surprisingly weak. The real estate securing its mortgages were overvalued, and notes held by the savings bank and collateral-

<sup>18</sup> Olmstead, *New York City*, pp. 70–71.

<sup>19</sup> Olmstead, *New York City*, p. 138.

<sup>20</sup> Olmstead, *New York City*, p. 142.

ized by the stock of the commercial bank were almost a total loss. Little wonder that a report by special investigator Emerson W. Keyes found that the Knickerbocker “was in fact little more than a side issue of the bank of discount.”<sup>21</sup>

The run started on 12 December 1854 on the news that the Knickerbocker Bank had not produced a weekly statement for the New York Clearing House. On the 13th several of the savings banks were forced to pay out “freely,” and on the following day the Bank for Savings sent \$200,000 of its government paper to Washington for redemption. The news reduced the demand for deposits, and the *Tribune* confidently predicted that “a week’s experience” would satisfy even the most gullible account holders that all was well with the savings banks. On Monday, 18 December, the same paper reported that the “senseless” run on the savings banks had “measurably subsided,” and that “a few days will probably see the end of it.”

The consensus in the press was that the banks were solvent and the run on the savings banks was by uninformed depositors. The city’s newspapers were unanimous in denouncing the folly of those participating in the run, and repeatedly urged that the other savings banks were sound. The *New York Post* deemed the run on the Bank for Savings “one of the most senseless on record” and reminded those contemplating withdrawal that they stood to lose the half-year’s interest they would earn if they waited until the end of the month. The *Tribune* explained that “most of the depositors in these institutions [were] easily excited by rumors, and incapable of discriminating between a perfectly safe institution like the Chambers Street, Bowery, Greenwich, etc. and such bogus affairs as the Eighth Avenue concern.” The *Tribune* declared that the Bank for Savings had assets of the “highest character” and mortgages “on the choicest property in this city.” The *Times* predicted that the run, which “could scarcely have been more uselessly directed so far as savings depositors are concerned . . . will soon expend itself.”<sup>22</sup>

The Emigrant was not mentioned in these accounts, but it certainly was not immune from the panic. Between 11 December and 30 December, 234 account holders (about 7 percent of all account holders) closed their accounts. No developments specific to the EISB could have provoked the increased closure of accounts. There was no change in the real estate market, and the EISB’s mortgages were well collateralized. The only likely source of a shock would have been from the bond market, as about 25 percent of its assets were held in state and municipal bonds. Yet, there was little change in the relevant bond prices between September and December 1854. Prices

<sup>21</sup> Cited in Olmstead, *New York City*, pp. 142–43; see also *Hunt’s Merchants Magazine*, 1855.

<sup>22</sup> A run on the Savings Bank of Baltimore was similarly described as the product of “mischievous rumors” among depositors that the bank had speculated in Baltimore and Ohio Railroad stock. Depositors withdrew \$160,000 and sold savings books at discount. The run abated when wealthy businessmen pledged to back the bank (Payne and Davis, *Savings Bank of Baltimore*, pp. 88–89).

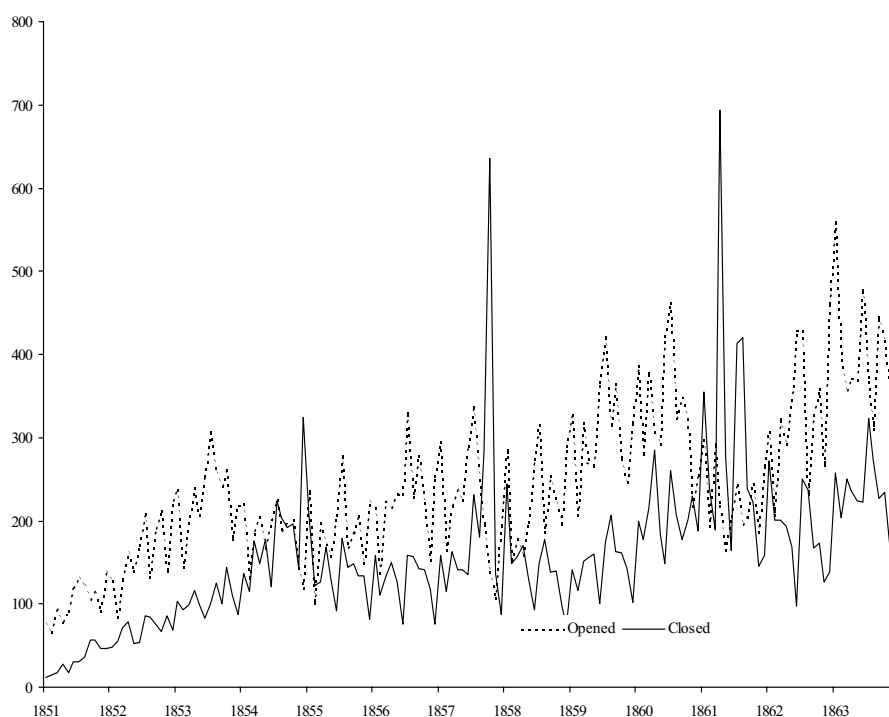


FIGURE 1  
NUMBER OF ACCOUNTS OPENED AND CLOSED PER MONTH, 1851–1863

Source: EISB Finance Committee minutes.

of New York municipals, accounting for 90 percent of the bonds, were stable.

As seen in Table 1, the panic appears to have slowed down the bank's rapid growth. The number of accounts and the total deposits are scarcely higher at the end of 1855 than a year earlier. A detailed view of how the panic affected the bank can be seen in Figures 1 to 3. Besides highlighting the early growth of the EISB and the crises that beset it, they show a high degree of seasonality in the bank's business. For example, drafts were subject to much more seasonality than deposits, with two major peaks in January and July. The striking bi-annual peaks in withdrawals are a reflection of a form of "coupon-clipping": a significant number of depositors regularly withdrew interest payments due without touching the principal.

Figure 1 shows the monthly number of accounts opened and closed between 1851 and 1863.<sup>23</sup> The panic of December 1854 stands out clearly in terms of the number of accounts closed. Figure 2 displays the number of deposits made and the number of drafts made on the bank. In December the

<sup>23</sup> As is evident in Figures 1, 2, and 3, there was another panic in 1861. However, we do not analyze it, owing to the absence of the requisite deposit records.

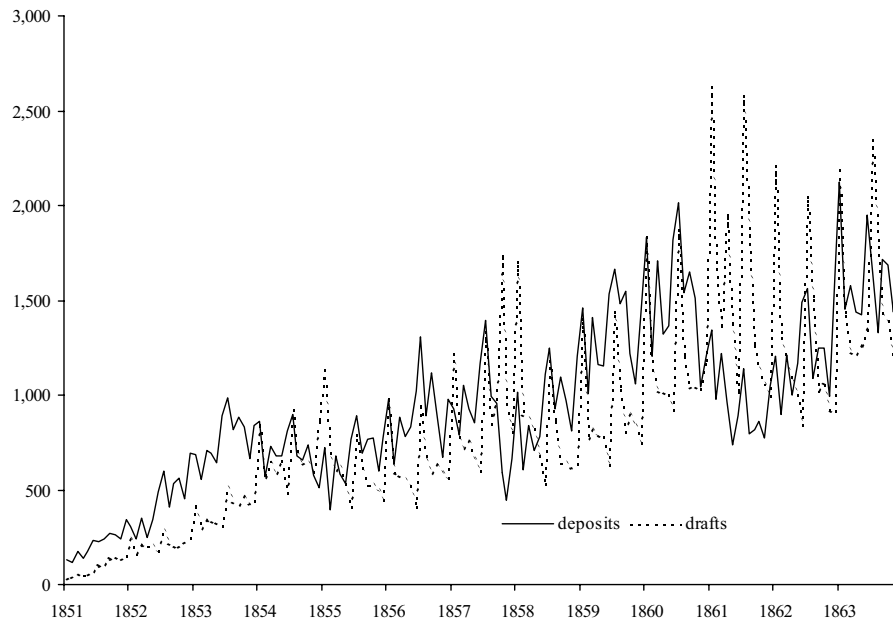


FIGURE 2  
NUMBER OF DEPOSITS AND DRAFTS PER MONTH, 1851–1863

*Source:* EISB Finance Committee minutes.

number of drafts rose above 1,000. The spike seems to reflect the fact that some depositors did not empty their accounts but chose to lower their balances. The net loss of funds in Figure 3 was \$25,000 for December, a notable decline in a month when the bank ordinarily gained funds. Noticeable in the smaller second peak, the post-dividend payment outflows in January and February brought the total net loss to \$39,000 or about 5 percent of its deposits.

#### THE PANIC OF 1857

The panic of 1857 was a nationwide, rather than a local event. Although it was precipitated by the failure of the Ohio Life and Trust Company, its proximate cause was the collapse of the market for speculative western land and railroad securities. This collapse was linked to the political uncertainty over whether Kansas and Nebraska would become slave states.<sup>24</sup> The uncertainty hurt the new Western railroads, which connected eastern markets with new areas of settlement. In the spring of 1857 railroads were market favorites, but by late summer prices fell, devastating institutions such as Ohio Life.

<sup>24</sup> Calomiris and Schweikart, "Panic."

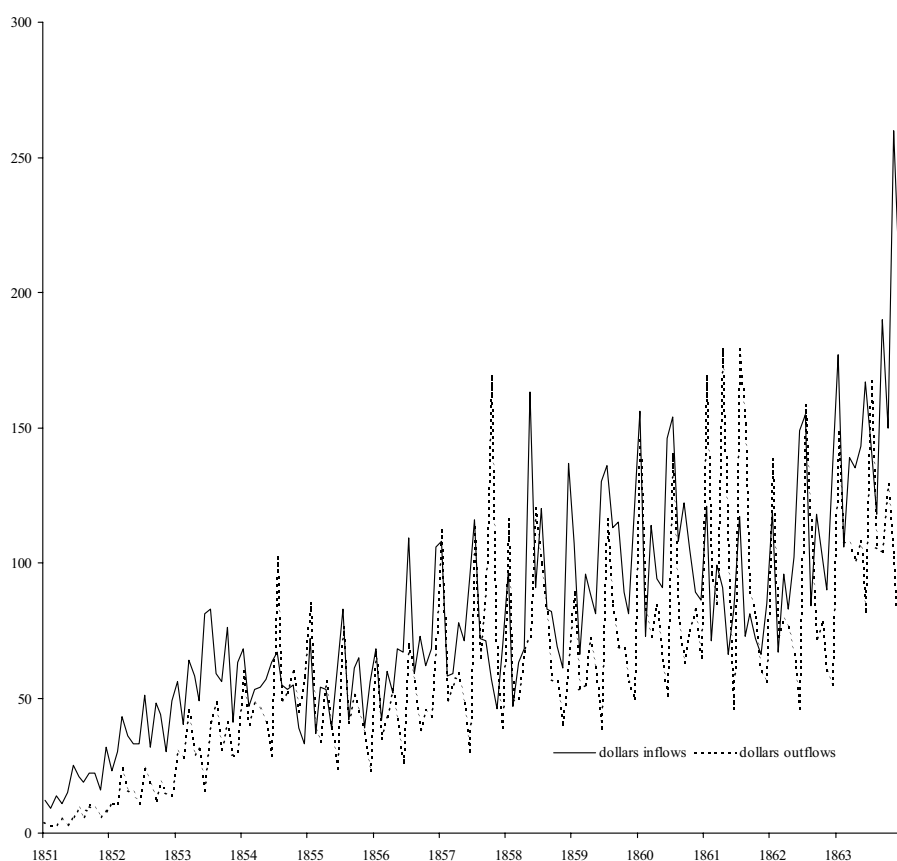


FIGURE 3  
DOLLAR INFLOWS AND OUTFLOWS, 1851–1963  
(thousands of dollars)

Source: EISB Finance Committee minutes.

Closed on 24 August, Ohio Life was not an insurance company but a large bank, whose New York branch took deposits and made margin loans.<sup>25</sup> As the transfer agent for the state of Ohio, it was a major financial institution in that state.<sup>26</sup> Indeed, few New York banks could match its capital of \$2 million. Its failure prompted a drop in the stock market and a tightening of credit by the banks in New York and other Eastern cities. The reduction of bank loans to brokers and dealers forced some into bankruptcy, dumping more securities on the market. At the same time, the rise in bank risk prompted some noteholders and depositors in New York State to convert

<sup>25</sup> Margin loans are loans collateralized by securities that are subject to calls for additional collateral if the price of the securities declines in excess of the margin.

<sup>26</sup> Van Vleck, *Panic*, p. 64.

their bank notes and deposits into specie. Country banks began to demand redemption from city banks. Finding their gold reserves in decline, the city banks refused to roll over brokers' debts, forcing more into bankruptcy, depressing bond prices further.

Between 22 August and 26 September the Clearing House banks—almost all commercial banks in New York City—saw their deposits fall from \$64.2 to \$56.9 million and their banknotes from \$8.7 to \$7.8 million.<sup>27</sup> Although their specie dipped temporarily in the interim, it rose from \$10.1 to \$13.3 million, managed largely by the contraction of loans from \$120.1 to \$107.8 million. Although a seasonal contraction was typical, these events in 1857 were more severe.<sup>28</sup> Initially, the public retained some confidence in New York banks, but it was waning elsewhere. Widespread rejection of notes by banks created a demand for specie. The panic began when a run on the banks in Philadelphia led to a partial suspension of specie payments on 25 September and a complete suspension on 26 September. Bank runs in Chicago and elsewhere followed.

No sooner did news of the suspension in Philadelphia arrive in New York than depositors began to withdraw deposits. Thus, the New York panic was initiated on 26 September. Attempting to stem the tide of withdrawals, 13 New York bank presidents declared that they would not suspend on 28 September. But the public turned a deaf ear to their statement. Banks around the country began to suspend, drawing down deposits in New York. On 9 October there were heavy runs on several banks. Deposits in New York banks fell to \$49.7 million and specie dropped to \$11.5 million. On the same day the Erie, Michigan Central, and Illinois Central railroads failed to meet their obligations. Bank runs continued to drain specie, forcing all banks except the Chemical Bank to suspend payments on 14 October. By the evening of 14 October, banks throughout the country had suspended. Deposits and specie reached their nadir at \$42.7 million and \$7.8 million at the end of the week, 17 October. The markets began a quick recovery after the suspension, with stock prices rising quickly. Specie payment was resumed two months later on 14 December.

According to the newspapers, the panic began with businessmen running on the banks, suggesting that runs were initiated by more informed depositors. The *New York Herald* (11 and 13 October 1857) declared that “the laboring classes have shown their wisdom in not being needlessly frightened and the savings institutions have not been compelled to meet any extraordinary demand from their depositors.” Early on only the Bowery Savings Bank was hit with a run the day after the Bowery Bank failed—many depos-

<sup>27</sup> The New York Clearing House began operation on 11 October 1853 with 51 member banks (Cannon, *Clearing Houses*).

<sup>28</sup> Van Vleck, *Panic*, pp. 70–74; and Temin, “Panic.”

itors “supposed the Bowery Bank was the Bowery Savings Bank, altogether two entirely distinct establishments.” As the panic spread, there were runs on other savings banks, and the newspapers implied that the less informed laboring classes led these runs. The offices were jammed full with people, forced to wait the whole day as clerks attempted to meet the demand for withdrawals.

The savings banks, including the EISB, received support from the Catholic Church. Priests who held deposits in the EISB reassured their congregations by example. The sample described in the next section included one bishop and 26 priests with accounts in the bank at the beginning of October 1857. Only six priests closed their accounts, but they resided upstate, on Long Island, in New Jersey, and one in Brooklyn. Their accounts were relatively modest, suggesting most were personal funds. The *Irish American* (17 October 1857) stated “We understand that in some of the Catholic churches in Brooklyn on Sunday last, the pastors assured such of their flocks as had deposits in Savings Banks that they need not be alarmed about them, as these institutions were perfectly safe.” And the paper then commented:

These institutions are conducted on principles entirely different from those of banks of issue. The capital of the New York Savings Banks is generally invested at interest in State and United States stocks, and mortgages on improved real estate, well secured, and can always be realized dollar for dollar, provided no extraordinary demands are made on the Banks by depositors.

Figure 1 shows the October 1857 spike in closed accounts that reached 635, representing 12 percent of the approximately 5,400 accounts. The number of new accounts opened also fell in October and November. In Figure 2, the number of drafts rose to 1,733, peaking again in January 1858. Meanwhile the number of deposits made fell below 500. Similarly, dollar outflows in Figure 3 reached a new peak of \$168,000 in October 1857, with deposit inflows remaining very low for two months. The net outflow of funds from September to November totaled \$144,000, or over 10 percent of total deposits.

Was the solvency of the EISB in question in 1857? Over 35 percent of the bank’s portfolio consisted of mortgages on New York, mostly New York City, real estate. These assets were presumably not at risk, especially given that the maximum mortgage was only half the value of the property. Between 40 and 45 percent of the bank’s portfolio was in state and municipal bonds. In June 1857 the bank held \$647,000 in bonds, of which \$364,000 were New York City, Rochester, and Troy bonds. The remaining \$283,000 were bonds of Missouri, Tennessee, North Carolina, Ohio, Virginia, Kentucky, and Georgia.<sup>29</sup> The bank held no railroad bonds, where the fall in

<sup>29</sup> EISB, Finance Committee.

prices was most dramatic. Valuing the bond portfolio of the EISB is difficult because the securities market was quite thin. Some bonds, such as New York municipals, were not traded for months at a time. Furthermore, there is no information on the prices at which bonds were acquired. Nevertheless, it appears that the value of the EISB portfolio fell considerably. Between 3 August and the banking suspension, the value of its portfolio decreased by somewhere between 11 and 14 percent.<sup>30</sup> However, the suspension of payments by the commercial banks on 14 October not only halted the banking panic but also buoyed the market. Between 14 October and the end of the month, the value of the bank's portfolio increased by somewhere between 3 and 7 percent, rising further by the end of November.

The EISB had capital of \$69,000 and could have sustained a 5 percent decline in the value of its assets. The main cause of concern was not the mortgages but the bond market. Given that the bond portfolio had a book value of \$694,000, an 11 to 14 percent decline in its value would have wiped out the bank's capital. It is highly unlikely that the public knew the exact composition of the EISB's assets, much less its bond portfolio. But regardless of public awareness of this specific information, the size of the drop in the market did in fact threaten the bank. With asymmetric information, depositors could have reasonably run on the panic in the days before the 14 October suspension, even though the bank's position was quickly improved afterwards. The collapse did some damage to the capital accounts as New York State and City bonds were sold between the end of September and October, presumably with some loss.

To manage the contraction of deposits, the finance committee of the bank cut the bank's call loans. The margin on these loans was usually 20 percent and sometimes not even 10 percent, a danger in a volatile market. Just before the onset of the run, EISB president Robert Dillon obtained a unanimous resolution from the Finance Committee that:<sup>31</sup>

In view of the probability that the drafts upon the bank will exceed the amount of deposits to the full sum of the stock loans. Resolved: The Comptroller is directed in all cases of such loans upon which there is now a margin to demand payment, this day, of the amount due and not paid tomorrow, that he sell the securities the next day

Call loans that had stood at a high of \$281,000 in July 1857, drifting down to \$237,000 by September, were slashed to in October to \$150,000. On the eve of the suspension, the net October withdrawal of \$111,000 was covered by the repayment of \$87,000 of call loans, a drop in cash of \$13,000, and the sale of some bonds.

<sup>30</sup> If all New York municipals declined as much as New York City bonds, the change is 11 percent. If they fell as much as New York State bonds, the decline was 14 percent. The *New York Times* and *New York Herald* provided the prices from the stock exchange and private auctions.

<sup>31</sup> EISB, Finance Committee, *Minutes*, 12 October 1857.

## INDIVIDUAL BEHAVIOR DURING BANKING PANICS

The records of the EISB's depositors present an embarrassment of riches. Already in early 1854 over 6,000 accounts had been opened, and by the beginning of 1857, an additional 7,000 accounts had been created. The bank's massive account ledgers have preserved every transaction conducted in its first decade: every deposit, dividend, and withdrawal. Names in these ledgers may be matched with those in the EISB's "test books" (employed to "test" the identity of those withdrawing funds), which contain the names, addresses, and occupations of account holders. Usually, they also provide data on nationality, spouses and children, relatives abroad, and the date of arrival in New York. Written down in the sometimes clear and sometimes unclear hand of the clerks, these two sources yield a profile of each account holder.<sup>32</sup>

These data provide a unique opportunity to study individual behavior during banking panics. The traditional image of a banking run is of a long line of all customers waiting impatiently to close their accounts. Yet the runs on the EISB during the panics of 1854 and 1857 do not conform to this standard picture. Although they generated lines of anxious depositors, only a modest fraction of accounts closed. Furthermore, it appears that the funds flowed out of the bank by an increased number of drafts, suggesting that some individuals drew down on their accounts but did not close them. In December 1854 drafts rise but they do not peak as do account closings; the seasonal withdrawal peaks of July 1854 and January 1855 are higher. In the October 1857 panic, the peak in drafts is higher than in July 1857, but it is at the same level as in the following January.

Although they may not be a perfect measure of a run, closed accounts appear to capture much of the panicking activity. In December 1854 the total gross outflow of funds totaled \$58,000. The 325 account closings had an average final balance of \$127, implying that they produced an outflow of \$41,275. For October 1857 the 635 closing accounts had an average final balance of \$168, thus accounting for \$106,680 of the \$169,000 outflow from the bank.<sup>33</sup> An econometric analysis of the outflow of funds confirms the importance of account closings. Augmented Dickey-Fuller unit root tests on closings (*CL*), drafts (*DR*), and outflows (*OUT*) indicated that these vari-

<sup>32</sup> The riches of the EISB archive are being recognized by historians and genealogists. See Rich, *Irish Immigrants*; Anbinder, "Famine"; and [www.nybgs.org/info/articles/emigrantbank.html](http://www.nybgs.org/info/articles/emigrantbank.html). For the economic historian, the loss of the account ledgers after 1861 is unfortunate.

<sup>33</sup> Similarly, in April 1861 closings appear to account for \$104,100 of the \$179,000 of outflow. In the absence of data on deposit accounts for 1861, the estimated outflow was found by using the average of the last balance for 1854 and 1857, although this is probably an underestimate given the growth in the size of accounts.

ables were difference- but not level-stationary.<sup>34</sup> Given that inferences using nonstationary variables and conventional *t*-statistics are likely to be spurious, the variables were first differenced and outflows were regressed on closings and drafts:

$$D(OUT) = -0.220 + 0.112D(CL) + 0.066D(DR) \quad (1)$$

(−0.19) (6.73) (17.7)

where the adjusted *R*-squared was 0.865. On average, for the whole period, each additional closing caused an outflow of \$112, and each additional draft averaged \$66. The coefficient on drafts is more tightly estimated, as the series is less volatile, as seen in Figures 1 and 2. In ordinary times, the greater swings in drafts compared to closings led them to account for about half of the changes in outflows. However, in crisis times, the volume of closings dominated, as seen in the evidence presented previously for the panic months, when closings accounted for close to 70 percent of the outflows.

To examine who panicked we analyze closed accounts during the panics of 1854 and 1857, using the data from the account ledgers and test books to construct profiles of the depositors. Depositors opened accounts for a variety of motives, with the period of holding an account open varying considerably from a few days to many years. Closure of an account during a panic potentially represented an abnormally early termination. We use survival analysis to examine the factors determining the closure of an account. We define the panic of 1854 as occurring between 11 and 30 December and the panic of 1857 as happening between 28 September and 13 October.

To capture panic behavior, we have drawn information on the accounts closed during the panics of 1854 and 1857 for which there is complete information and on two control groups of accounts. Our data include the 218 closures during the panic of 1854 and 337 closures during the panic of 1857. Our control groups consist of a one-in-ten sample of accounts (485) that opened between the bank's foundation and 31 December 1854, and a one-in-ten sample of accounts (404) that opened between January 1855 and August 1857. The two control groups are intended to capture accounts that have "ordinary" life spans not cut short by a panic. Obviously some accounts closed during the panics would have been closed in any case. However, the number of closures was abnormally high and we are testing to determine if there were differences between accounts closing in panic and nonpanic periods. Our sample captures the diversity of account behavior, including short- and long-lived accounts, closing before, during, and after the panics.

<sup>34</sup> The ADF tests on 12 lags for the levels of closings, drafts, and outflows were −2.19, −1.07, and −1.32, and for first differences were −4.30, −4.00, and −4.18, where the hypothesis of a unit root being rejected at the 1-percent level had a critical value of −3.47. The inclusion of seasonal dummies did not improve the performance of the regression.

TABLE 2  
SUMMARY CHARACTERISTICS

|                               | 1854     |                 |                  |                 | 1857     |                 |                  |                 |
|-------------------------------|----------|-----------------|------------------|-----------------|----------|-----------------|------------------|-----------------|
|                               | Panicked | %<br>or<br>S.D. | Control<br>Group | %<br>or<br>S.D. | Panicked | %<br>or<br>S.D. | Control<br>Group | %<br>or<br>S.D. |
| Total                         | 218      |                 | 485              |                 | 337      |                 | 404              |                 |
| Men                           | 151      | 69.3            | 360              | 74.2            | 194      | 57.6            | 289              | 71.5            |
| Women                         | 67       | 30.7            | 125              | 25.8            | 143      | 42.4            | 115              | 28.5            |
| Married                       | 125      | 57.3            | 233              | 48              | 168      | 49.9            | 197              | 48.8            |
| Joint Accounts                | 37       | 17              | 83               | 17.1            | 103      | 30.6            | 85               | 21              |
| One Child or More             | 94       | 43.1            | 172              | 35.5            | 138      | 40.9            | 142              | 35.1            |
| Unskilled                     | 131      | 60.1            | 195              | 40.2            | 234      | 69.4            | 225              | 55.7            |
| Semi-Skilled                  | 62       | 28.4            | 175              | 36.1            | 72       | 21.4            | 126              | 31.2            |
| Professional                  | 5        | 2.3             | 50               | 10.3            | 21       | 6.2             | 42               | 10.4            |
| North America                 | 8        | 3.7             | 37               | 7.6             | 13       | 3.9             | 25               | 6.2             |
| Great Britain                 | 8        | 3.7             | 30               | 6.2             | 15       | 4.5             | 23               | 5.7             |
| Europe                        | 14       | 6.4             | 48               | 9.9             | 27       | 8.0             | 33               | 8.2             |
| Ireland                       | 187      | 85.8            | 360              | 74.2            | 283      | 84.0            | 310              | 76.7            |
| Ulster                        | 32       | 14.7            | 101              | 20.8            | 41       | 12.2            | 83               | 20.5            |
| Munster                       | 77       | 35.3            | 109              | 22.5            | 115      | 34.1            | 101              | 25.0            |
| Leinster                      | 45       | 20.6            | 93               | 19.2            | 73       | 21.7            | 72               | 17.8            |
| Connacht                      | 32       | 14.7            | 41               | 8.5             | 43       | 12.8            | 40               | 9.9             |
| Avg. Years in U.S. if Foreign | 5.08     | 2.3             | 6.15             | 1.3             | 5.73     | 1.7             | 8.58             | 2.1             |
| Lower Manhattan               | 142      | 65.1            | 301              | 62.1            | 220      | 65.3            | 230              | 56.9            |
| Midtown                       | 21       | 9.6             | 34               | 7               | 21       | 6.2             | 35               | 8.7             |
| Uptown                        | 11       | 5               | 26               | 5.4             | 18       | 5.3             | 31               | 7.7             |
| Brooklyn and Staten Island    | 22       | 10.1            | 48               | 9.9             | 29       | 8.6             | 36               | 8.9             |
| NJ, CT, and Upstate           | 24       | 11              | 44               | 9.1             | 45       | 13.4            | 57               | 14.1            |
| Mean First Deposit \$         | 105      | 126             | 120              | 168             | 124      | 160             | 159              | 343             |
| Mean Days Open                | 293      | 215             | 1,155            | 1,524           | 273      | 239             | 1,432            | 1,541           |
| Mean Deposits                 | 3        | 3.1             | 4.6              | 6.6             | 2.8      | 3.5             | 5.4              | 8.2             |
| Mean Withdrawals              | 2.7      | 2.4             | 5.7              | 5.7             | 2.4      | 4.0             | 5.5              | 6.4             |
| Mean Closing Balance \$       | 121      | 117             | 174              | 270             | 160      | 170             | 189              | 239             |
| Mean Cumulative Deposits \$   | 162      | 160             | 310              | 457             | 202      | 284             | 367              | 623             |

Source: See the text.

Table 2 provides a summary of the depositor and account characteristics from the test books and account ledgers.<sup>35</sup> For 1854 the share of men and women in both groups is similar; but in 1857 the proportions of men and women panicking differed substantially, with far more women closing their accounts. Married individuals and people with one or more children seem to have been at a slightly higher risk of panicking.

<sup>35</sup> The only information not collected was the infrequently reported names of ships on which the immigrant arrived and family members remaining abroad. Compare with Rich, *Irish Immigrants*.

We used a three-way occupational classification of unskilled workers, semi-skilled workers, and professionals. The first and last categories were tightly defined. Individuals identified as unskilled were domestics, servants, laborers, washerwomen, drivers, porters, factory workers, seamstresses, cartmen, and waiters.<sup>36</sup> The two occupations that dominated this category were laborers and domestics. Professionals were gentlemen, land agents, saloonkeepers, lawyers, piano makers, physicians, and bookkeepers, with priests, teachers, and merchants being the most common members of this group. The very broad middle category embraced smiths, coopers, mechanics, farmers, tailors, ironworkers, masons, and clerks. Although a washerwoman or porter might have eavesdropped on a knowledgeable employer, we consider that the more skilled the worker, the more likely he or she would be informed of the banking situation. For both men and women, unskilled workers represented a much higher proportion of depositors closing accounts in the panics of 1854 and 1857.

The test books identify the country of birth. For the foreign born, those in the control group were resident in the United States for more years on average during both panics. A longer familiarity with the country may have made more informed depositors. The time in the United States is higher in the later period, reflecting the fact that there had been a tidal wave of immigrants from Ireland in the late 1840s and early 1850s. In terms of nativity, the Irish, a relatively poor group in New York, were the dominant group of depositors, and they constituted a higher proportion of the panickers. The counties of origin were also given for the Irish immigrants, and they were classified according to the four provinces of Ulster, Connacht, Leinster, and Munster, roughly the northeast, northwest, southwest, and southeast of the country. The regions of Leinster and Connacht were the poorer regions. If the Irish typically represented the poorest and hence least informed, then we would expect that they would be most likely to panic, and this would be most pronounced for those from the poorest regions. In both panics there is some evidence of this effect in Table 2.

Almost all depositors provided an address in the test book. We used this information and the south-north, east-west grid (B to F and 2 to 6) in Henry Phelps's 1857 "New York Street and Avenue Guide" to group depositors by area, and thereby capture any effects of distance to the bank and neighborhood.<sup>37</sup> In terms of residence, Table 2 shows no easily discernable patterns when aggregated into Lower Manhattan, Midtown, and Uptown, although the regression analysis shows some districts being especially affected by the panic.

<sup>36</sup> Seamstresses and factory workers were categorized as unskilled to separate them from the mainly artisanal, craft, and literate workers who dominated the skilled category.

<sup>37</sup> In Phelps, *Strangers and Citizens Guide*.

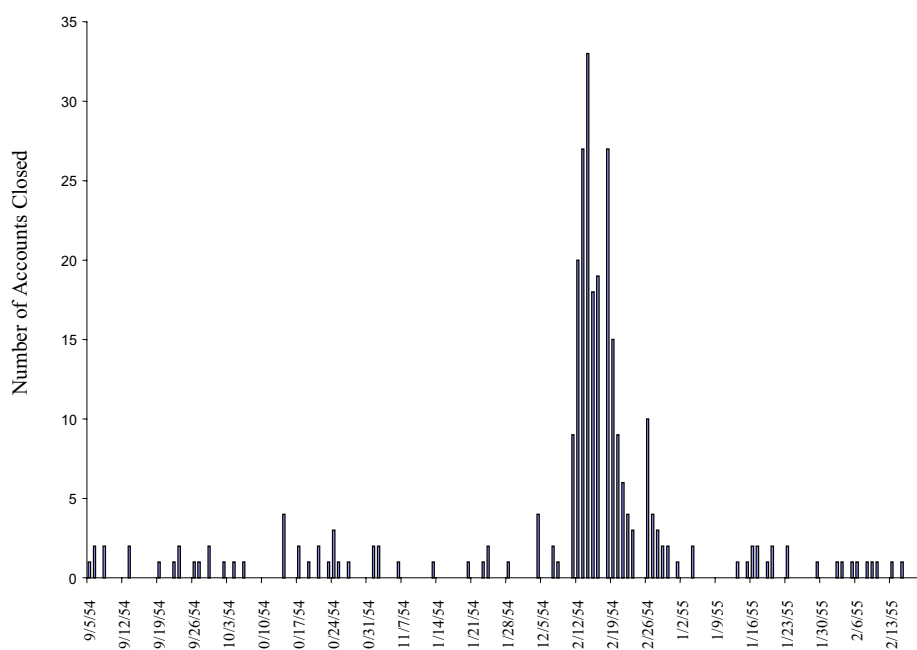


FIGURE 4  
NUMBER OF EISB ACCOUNTS CLOSED IN THE PANIC OF 1854

*Source:*

The last panel of Table 2 reports data from the account books. Although every transaction was recorded, we collected key attributes that appear to summarize the characteristics of the depositor. The number of days an account was open is strikingly shorter for accounts closed in the panics and the control groups. The size of the first deposits, the dollar sum of all deposits made (“cumulative deposits”), and the balance upon closing also seem smaller for accounts closed in the panics, as do the number of deposits and withdrawals. However, the variation was very large as seen in the standard deviations. Whereas most accounts were modest with infrequent deposits and withdrawals, there were some accounts that appear to have been used for very active businesses.

Figures 4 and 5 display the number of EISB accounts closed daily in the panics of 1854 and 1857. The six-month windows for each panic show their time dimensions, using the accounts closed in the sample described in Table 2. In 1854 the dramatic collapse of the Knickerbocker prompted a run on the other savings banks. However, the continued and steady payments to depositors allayed depositor fears and gradually the run tapered off and halted. In 1857 the number of closed accounts jumps up, but remains rela-

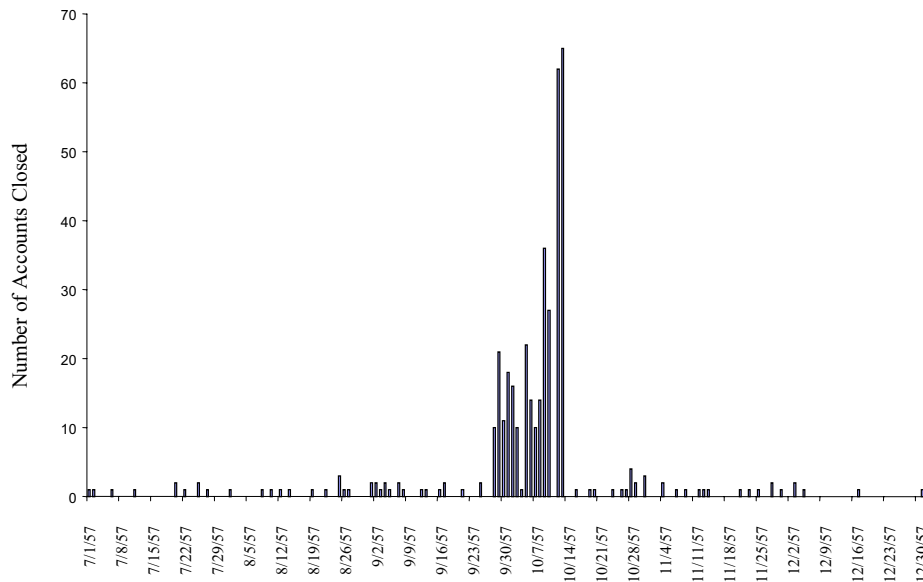


FIGURE 5  
NUMBER OF EISB ACCOUNTS CLOSED IN THE PANIC OF 1857

Source:

tively steady though higher until the big run begins on 10 October on the Bowery Savings Bank, sparking runs on more savings banks. Closings were then almost entirely halted by the suspension of payments on 14 October.

The question we wish to investigate is how the characteristics of those depositors who terminated their accounts during the panics compared to those who did not. To analyze the factors affecting the duration of an account, we employ a proportional hazard model with an assumed Weibull distribution, as this specification is appropriate for data that contain observations with both very short and very long durations. Furthermore, it enables us to test for duration dependence, that is, whether there was any inertia or resistance to closing an account the longer it had been open.<sup>38</sup> Almost all of our observations represent completed episodes, as information was recorded as late as 1869, resulting in very little right hand censoring.

Table 3 presents the estimates for the factors that affect the hazard that an account would be closed during the panic period of 1854, using the sample of accounts that opened before the panic. It is clear that banking variables were important for determining who panicked. The most highly correlated variables are the amount first deposited, the closing balance, and the cumulative deposits. As this correlation created significant multicollinearity, only

<sup>38</sup> Kiefer, "Economic Duration Data."

TABLE 3  
SURVIVAL ANALYSIS OF DEPOSITS ACCOUNTS: 1854 SAMPLE

|                  | Haz Ratio | S. E. | z      | P(z)  | Haz Ratio | S. E. | z      | P(z)  | Haz Ratio | S. E. | z      | P(z)  |
|------------------|-----------|-------|--------|-------|-----------|-------|--------|-------|-----------|-------|--------|-------|
| Cum Deposits     | 0.998     | 0.000 | -4.980 | 0.000 | 0.998     | 0.001 | -3.440 | 0.001 | 0.999     | 0.000 | -2.760 | 0.006 |
| No. of Trans     | 0.901     | 0.015 | -6.110 | 0.000 | 0.874     | 0.017 | -7.070 | 0.000 | 0.855     | 0.018 | -7.620 | 0.000 |
| July 1854        | 3.339     | 0.608 | 6.620  | 0.000 | 3.500     | 0.668 | 6.560  | 0.000 | 3.599     | 0.709 | 6.510  | 0.000 |
| October 1854     | 2.594     | 0.566 | 4.370  | 0.000 | 3.006     | 0.685 | 4.830  | 0.000 | 3.397     | 0.797 | 5.210  | 0.000 |
| CP Rate          | 1.146     | 0.012 | 13.120 | 0.000 | 1.137     | 0.012 | 11.870 | 0.000 | 1.149     | 0.014 | 11.500 | 0.000 |
| Female           | 0.999     | 0.151 | -0.010 | 0.994 | 0.999     | 0.157 | -0.010 | 0.995 | 0.994     | 0.161 | -0.040 | 0.970 |
| Married          |           |       |        |       | 1.587     | 0.268 | 2.740  | 0.006 | 1.726     | 0.295 | 3.190  | 0.001 |
| No. of Children  |           |       |        |       | 0.971     | 0.046 | -0.620 | 0.534 | 0.929     | 0.046 | -1.510 | 0.130 |
| Unskilled        |           |       |        |       | 1.120     | 0.182 | 0.690  | 0.488 | 1.109     | 0.184 | 0.620  | 0.535 |
| Professional     |           |       |        |       | 0.419     | 0.199 | -1.830 | 0.068 | 0.445     | 0.218 | -1.660 | 0.098 |
| Years in U.S.    |           |       |        |       | 0.968     | 0.015 | -2.080 | 0.038 | 0.963     | 0.016 | -2.340 | 0.019 |
| Irish            |           |       |        |       | 2.647     | 0.622 | 4.140  | 0.000 |           |       |        |       |
| Ulster           |           |       |        |       |           |       |        |       | 1.585     | 0.475 | 1.530  | 0.125 |
| Connacht         |           |       |        |       |           |       |        |       | 3.507     | 1.040 | 4.230  | 0.000 |
| Leinster         |           |       |        |       |           |       |        |       | 3.106     | 0.879 | 4.010  | 0.000 |
| Munster          |           |       |        |       |           |       |        |       | 4.439     | 1.162 | 5.690  | 0.000 |
| 3C               |           |       |        |       |           |       |        |       | 0.000     | 0.006 | -0.020 | 0.987 |
| 3D               |           |       |        |       |           |       |        |       | 2.170     | 1.141 | 1.470  | 0.140 |
| 4B               |           |       |        |       |           |       |        |       | 0.895     | 0.910 | -0.110 | 0.913 |
| 4C               |           |       |        |       |           |       |        |       | 1.216     | 0.285 | 0.840  | 0.403 |
| 4D               |           |       |        |       |           |       |        |       | 1.312     | 0.318 | 1.120  | 0.263 |
| 4E               |           |       |        |       |           |       |        |       | 1.662     | 0.996 | 0.850  | 0.397 |
| 4F               |           |       |        |       |           |       |        |       | 0.000     | 0.006 | -0.020 | 0.986 |
| 5C               |           |       |        |       |           |       |        |       | 1.086     | 0.253 | 0.350  | 0.723 |
| 5D               |           |       |        |       |           |       |        |       | 1.122     | 0.331 | 0.390  | 0.696 |
| 5E               |           |       |        |       |           |       |        |       | 0.000     | 0.064 | 0.000  | 0.998 |
| 6D               |           |       |        |       |           |       |        |       | 2.199     | 1.630 | 1.060  | 0.288 |
| P                | 0.861     | 0.040 |        |       | 0.993     | 0.049 |        |       | 1.054     | 0.054 |        |       |
| No. of Obs       | 709       |       |        |       | 657       |       |        |       | 657       |       |        |       |
| No. of Paniclers | 218       |       |        |       | 212       |       |        |       | 212       |       |        |       |
| LR Chi-Square    | 392.1     |       |        |       | 421.6     |       |        |       | 453.2     |       |        |       |

the results for the cumulative deposits are reported, although very similar results were obtained using, alternatively, the first deposit and closing balance. Reflecting wealth and banking experience, higher cumulative deposits significantly reduced the hazard of closure, indicating that wealthier, more experienced depositors were less likely to panic. For every dollar of total funds deposited the hazard of closing an account fell by 0.2 percent. The total number of transactions over the life of the account captured account activity and banking experience.<sup>39</sup> This banking experience reduced the hazard of closure substantially.

Banking variables were added to reflect the behavior of depositors to the payment of dividends—interest on accounts. Closing an account before dividends were paid could have resulted in a loss of the interest. Funds deposited before 1 July would earn six months interest by 31 December and funds deposited after 1 July but before 1 October would earn three months interest by the end of the year. Dummy variables for opening an account (usually the largest deposit) after 1 July and 1 October for 1854 and after 1 July for 1857 were included to identify when depositors would not be at risk of losing interest. Table 3 shows that those who did not stand to lose three or six months interest had a significantly higher probability of closing their accounts in the panic.

The commercial paper rate can be regarded as an indicator of general economic or financial stress—a warning sign of trouble, rather than an alternative investment opportunity for depositors. Typically, the rate had high seasonal and cyclical components and soared in panics. Closures were quite sensitive to the commercial paper, with higher rates raising the hazard of closure. Gender appears to have played no role as women appeared no more likely than men to panic in either 1854 or 1857. Nor did the number of children seem to matter. However, married individuals appear to have been more likely to panic, perhaps reflecting extra concern over protection of the family's nest egg.

The effects of occupation on the hazard of closure are less sharp. Unskilled workers showed no increased proclivity to close or maintain an account in the panic of 1854, but professionals had a lower propensity to panic. Given the difficulty of accurately classifying many jobs, it may not be surprising that the unskilled variable is not significant.

In contrast, the length of residence in the United States for the foreign born did matter. The longer a depositor was in the country, the more familiar he or she would have been with its customs. In addition, we know from studies of immigrants that years in United States could be a proxy for in-

<sup>39</sup> Average annual transactions did not capture activity very accurately, as some accounts were open very briefly for one deposit and then closed, giving the impression of a high rate of activity.

come or wealth.<sup>40</sup> Each year of residence lowered the hazard of closure in the panic by 4 percent.

Nativity was clearly important. Separating depositors into Irish and non-Irish revealed that the Irish had more than a one-and-half times higher hazard of closure in 1854, reflecting, we hypothesize, higher poverty and lack of human capital. This conjecture appears to be borne out further when dummy variables are used for provinces of origin. All four Irish provinces increase the hazard of closure significantly compared to non-Irish, but they vary considerably in effect. Their effects are, in fact, ordered in accordance to what we know to be the relative income and wealth of the provinces.<sup>41</sup> Coming from the poorest provinces of Connacht and Munster increased the hazard of closure nearly 2.5 and 3.5 times, whereas a depositor from Ulster had a hazard only 59 percent higher, with weaker significance.

Lastly, we sought to see if geography played a role, if distance mattered or if there were any concentrations of panickers. Most of the depositors and population of the city were concentrated below 14th Street; and in 1854, 64 percent of depositors we examined were in lower Manhattan. Depositors living in lower Manhattan were divided according to the grid from sections 3C to 6D, which were assigned dummy variables, leaving the rest of Manhattan and beyond with a zero. Although these variables had weak joint significance, there was no indication of increased hazard of panicking by individual district.

In the regressions, there is no strong evidence for duration dependence—the longer an account was open did not affect the hazard of closure. In both the more extended specifications, the estimated parameter,  $p$ , is insignificantly different from one, indicating that there was no duration dependence.<sup>42</sup>

Table 4 reports the three specifications for the Panic of 1857, using the accounts closed in the panic and the second control group, described in Table 2. The banking variables and the commercial paper rate all affect the probability of closure in ways similar to 1854, except that the impact of the July variable is lessened, as might be expected, by the smaller potential loss of interest. Gender, marriage, children, and location have similar effects. However, although being unskilled had no effect again, professionals had a higher propensity to panic. Although the significance of this variable is low, it is distinctively different from that of 1854. The nativity factors also appear

<sup>40</sup> Ferrie, "Wealth Accumulation."

<sup>41</sup> Ó Gráda, *Ireland*, p. 39.

<sup>42</sup> One caveat for these results concerns the composition of the control group. In the control group, 205 depositors closed their accounts before the panic of 1854, whereas another 161 lasted until after the panic but before the crisis in 1857. Eight of these depositors closed in that panic and another 118 kept their accounts. If these accounts had special characteristics reflecting their longevity, their inclusion might be inappropriate. However, their exclusion had no effect on the results.

TABLE 4  
SURVIVAL ANALYSIS OF DEPOSITS ACCOUNTS: 1857 SAMPLE

|                 | Haz Ratio | S. E. | z      | P(z)  | Haz Ratio | S. E. | z      | P(z)  | Haz Ratio | S. E. | z      | P(z)  |
|-----------------|-----------|-------|--------|-------|-----------|-------|--------|-------|-----------|-------|--------|-------|
| Cum Deposits    | 0.999     | 0.000 | -2.540 | 0.011 | 0.999     | 0.000 | -2.990 | 0.003 | 0.999     | 0.000 | -3.100 | 0.002 |
| No. of Trans    | 0.931     | 0.014 | -4.620 | 0.000 | 0.904     | 0.017 | -5.470 | 0.000 | 0.902     | 0.017 | -5.510 | 0.000 |
| July 1857       | 9.228     | 1.548 | 13.250 | 0.000 | 10.018    | 1.897 | 12.170 | 0.000 | 9.925     | 1.910 | 11.930 | 0.000 |
| CP Rate         | 1.342     | 0.021 | 18.880 | 0.000 | 1.325     | 0.022 | 16.680 | 0.000 | 1.329     | 0.023 | 16.490 | 0.000 |
| Female          | 0.954     | 0.109 | -0.410 | 0.684 | 1.056     | 0.148 | 0.390  | 0.700 | 1.044     | 0.154 | 0.290  | 0.769 |
| Married         |           |       |        |       | 1.291     | 0.216 | 1.520  | 0.127 | 1.334     | 0.230 | 1.670  | 0.095 |
| No. of Children |           |       |        |       | 0.947     | 0.042 | -1.230 | 0.217 | 0.943     | 0.043 | -1.300 | 0.195 |
| Unskilled       |           |       |        |       | 1.016     | 0.164 | 0.100  | 0.920 | 1.001     | 0.167 | 0.010  | 0.993 |
| Professional    |           |       |        |       | 1.596     | 0.489 | 1.520  | 0.127 | 1.635     | 0.515 | 1.560  | 0.118 |
| Years in U.S.   |           |       |        |       | 0.998     | 0.012 | -0.170 | 0.867 | 0.994     | 0.013 | -0.440 | 0.660 |
| Irish           |           |       |        |       | 0.904     | 0.163 | -0.560 | 0.574 |           |       |        |       |
| Ulster          |           |       |        |       |           |       |        |       | 0.785     | 0.192 | -0.990 | 0.323 |
| Connacht        |           |       |        |       |           |       |        |       | 0.979     | 0.232 | -0.090 | 0.928 |
| Leinster        |           |       |        |       |           |       |        |       | 0.993     | 0.214 | -0.030 | 0.974 |
| Munster         |           |       |        |       |           |       |        |       | 0.949     | 0.192 | -0.260 | 0.796 |
| 3C              |           |       |        |       |           |       |        |       | 0.735     | 0.757 | -0.300 | 0.765 |
| 3D              |           |       |        |       |           |       |        |       | 0.520     | 0.313 | -1.090 | 0.278 |
| 4B              |           |       |        |       |           |       |        |       | 0.728     | 0.524 | -0.440 | 0.659 |
| 4C              |           |       |        |       |           |       |        |       | 1.071     | 0.227 | 0.320  | 0.746 |
| 4D              |           |       |        |       |           |       |        |       | 0.945     | 0.210 | -0.250 | 0.801 |
| 4E              |           |       |        |       |           |       |        |       | 0.715     | 0.145 | -1.650 | 0.099 |
| 4F              |           |       |        |       |           |       |        |       | 1.240     | 0.654 | 0.410  | 0.684 |
| 5C              |           |       |        |       |           |       |        |       | 0.914     | 0.230 | -0.360 | 0.720 |
| 5D              |           |       |        |       |           |       |        |       | 1.016     | 0.251 | 0.070  | 0.948 |
| 5E              |           |       |        |       |           |       |        |       | 0.399     | 0.407 | -0.900 | 0.367 |
| 6D              |           |       |        |       |           |       |        |       | 1.481     | 1.069 | 0.540  | 0.586 |
| P               | 0.565     | 0.043 |        |       | 1.888     | 0.089 |        |       | 0.647     | 0.047 |        |       |
| No. of Obs      | 733       |       |        |       | 582       |       |        |       | 589       |       |        |       |
| No of Panickers | 329       |       |        |       | 276       |       |        |       | 276       |       |        |       |
| LR Chi-Square   | 1150      |       |        |       | 966.7     |       |        |       | 973.1     |       |        |       |

to be much less important. Being Irish, coming from a particular province or years in the United States did not affect the probability of panicking in 1857, in marked contrast to 1854.

In accordance with contemporary descriptions, these differences suggest that the factors driving these two panics were different. Estimated separately, it is difficult to compare the relative effects of the variables in 1854 and 1857. Furthermore, all the contemporary accounts strongly suggest that there was a time dimension to the panic of 1857, being led by businessmen and the wealthy who closely monitored the panics in other cities. The New York newspapers were full of information on the situation in Philadelphia, where the legislature labored over the potential terms of a suspension of payments.<sup>43</sup> In New York City in 1857 the commercial banks, whose clientele was primarily businessmen and professionals at this time, were first to be subjected to a run. The savings banks, with their much more diversified depositor base, including many middle-class and worker-class depositors, were hit later. Moreover, the panic hit commercial banks much harder than savings banks, the proportionate declines in deposits being 25 percent and 10 percent respectively.<sup>44</sup> The suspension of the Bowery Bank on 9 October threatened the liquidity of the Bowery Savings Bank, which had \$50,000 of its reserves in the commercial bank's vaults, and a run on the savings bank ensued.<sup>45</sup> Given the fierce pressure on other commercial banks in which savings banks held cash, the run against savings banks appears a reasoned response.

Tables 5 and 6 report estimates for all depositors described in Table 2, where we estimate the hazard of an account closure in 1854 and 1857, treating them as the same event. The objective is to search out the differences in depositor behavior between the panics and any time dimensions. Table 5 uses each variable, plus an interaction variable to identify the effect of that variable on 1854, where the interaction variable is the original variable times a dummy variable if the account was closed during the panic of 1854 (*CumDeposits54*). This interaction variable picks out what is different for individuals closing accounts during the panic of 1854 compared to the control groups and the panic of 1857 for the measured variable. To capture the time elements for 1854, a variable was created equal to the variable multiplied by a time trend in days beginning the first day of the 1854 panic, if the account was closed during the panic (*CumDepositsPanicTime54*). Table 6 includes similar interaction variables for 1857. The impact of most variables was similar in both tables, with a few important differences. In both regressions, more transactions lowered the hazard of closure in general, but for 1854 the

<sup>43</sup> *New York Herald*, 9 October 1857.

<sup>44</sup> Gibbons, *Banks of New York*, p. 335; *New York Herald*, 31 October 1857 (which reports the sums paid out by individual savings banks); and Olmstead, *New York City*, pp. 157–61.

<sup>45</sup> *New York Herald*, 11 October 1857.

TABLE 5  
SURVIVAL ANALYSIS OF DEPOSITS ACCOUNTS: FULL SAMPLE FOR 1854 AND 1857

|                            | Hazard Ratio | Standard Error | <i>z</i> | <i>P</i> ( <i>z</i> ) |
|----------------------------|--------------|----------------|----------|-----------------------|
| CumDeposits                | 0.999        | 0.000          | -3.150   | 0.002                 |
| CumDeposits 54             | 1.004        | 0.002          | 1.870    | 0.062                 |
| CumDepositsPanicTime 54    | 1.000        | 0.000          | -1.140   | 0.254                 |
| No. of Trans               | 0.868        | 0.016          | -7.700   | 0.000                 |
| No. of Trans 54            | 0.998        | 0.071          | -0.030   | 0.972                 |
| No. of Trans Time 54       | 1.014        | 0.006          | 2.430    | 0.015                 |
| July 1854                  | 6.908        | 1.395          | 9.570    | 0.000                 |
| October 1854               | 6.453        | 1.482          | 8.120    | 0.000                 |
| July 1857                  | 8.629        | 1.438          | 12.930   | 0.000                 |
| Commercial Paper           | 1.295        | 0.014          | 23.220   | 0.000                 |
| Female                     | 1.060        | 0.110          | 0.560    | 0.573                 |
| Married                    | 1.251        | 0.152          | 1.840    | 0.066                 |
| Number of Children         | 0.958        | 0.034          | -1.230   | 0.218                 |
| Unskilled                  | 0.878        | 0.130          | -0.880   | 0.380                 |
| Unskilled 54               | 1.387        | 0.724          | 0.630    | 0.531                 |
| Unskilled Panic Time 54    | 1.005        | 0.034          | 0.140    | 0.887                 |
| Professional               | 0.668        | 0.205          | -1.320   | 0.188                 |
| Professional 54            | 0.021        | 0.054          | -1.510   | 0.131                 |
| Professional Panic Time 54 | 1.493        | 0.296          | 2.020    | 0.044                 |
| Years in US                | 1.002        | 0.012          | 0.190    | 0.851                 |
| Years in US 54             | 1.025        | 0.054          | 0.460    | 0.643                 |
| Years in US Panic Time 54  | 0.998        | 0.003          | -0.600   | 0.547                 |
| Irish                      | 0.930        | 0.155          | -0.440   | 0.663                 |
| Irish 54                   | 18.176       | 11.677         | 4.510    | 0.000                 |
| Irish Panic Time 54        | 0.961        | 0.041          | -0.930   | 0.353                 |
| <i>P</i>                   | 1.676        | 0.053          |          |                       |
| No. of Obs                 | 1,239        |                |          |                       |
| No of Panickers            | 495          |                |          |                       |
| LR Chi-Square              | 1,865.7      |                |          |                       |

hazard rose in the course of the panic for higher transactions, suggesting more sophisticated depositors joined in the panic as it proceeded. For 1857 higher transactions increased the hazard of closure, as seen in the positive, significant coefficient (*No.ofTrans57*), though this declined over the course of the panic, suggesting that the more sophisticated led the panic.

The occupational variables for professionals support this interpretation, as professionals appear less likely to have panicked in 1854 (*Professional54*) and more likely in 1857 (*Professional57*). Assuming that depositors were more informed the longer they lived in the United States, and if they were not Irish, then the variables for years in the United States and Irish further support the interpretation that they were more likely to panic in 1854. For 1857 the coefficients in Table 6 indicated that professionals and long-term residents were more likely to close accounts, while the Irish were less likely.

These differences between 1854 and 1857 emphasize the contrasting nature of the two panics and corroborate contemporary accounts. The more

TABLE 6  
SURVIVAL ANALYSIS OF DEPOSITS ACCOUNTS: FULL SAMPLE FOR 1854 AND 1857

|                            | Hazard Ratio | Standard Error | <i>z</i> | <i>P</i> ( <i>z</i> ) |
|----------------------------|--------------|----------------|----------|-----------------------|
| Cum Deposits               | 0.998        | 0.000          | -3.770   | 0.000                 |
| Cum Deposits 57            | 1.002        | 0.001          | 1.700    | 0.088                 |
| Cum Deposits Panic Time 57 | 1.000        | 0.000          | -0.490   | 0.626                 |
| No. of Trans               | 0.857        | 0.015          | -8.550   | 0.000                 |
| No. of Trans 57            | 1.157        | 0.061          | 2.750    | 0.006                 |
| No. of Trans Time 57       | 0.995        | 0.004          | -1.240   | 0.214                 |
| July 1854                  | 6.291        | 1.195          | 9.680    | 0.000                 |
| October 1854               | 4.146        | 0.945          | 6.240    | 0.000                 |
| July 1857                  | 4.149        | 0.624          | 9.450    | 0.000                 |
| Commercial Paper           | 1.155        | 0.011          | 14.950   | 0.000                 |
| Female                     | 0.951        | 0.097          | -0.490   | 0.624                 |
| Married                    | 1.465        | 0.169          | 3.310    | 0.001                 |
| Number of Children         | 0.928        | 0.029          | -2.360   | 0.018                 |
| Unskilled                  | 1.126        | 0.173          | 0.780    | 0.438                 |
| Unskilled 57               | 1.201        | 0.566          | 0.390    | 0.698                 |
| Unskilled Panic Time 57    | 0.971        | 0.035          | -0.820   | 0.414                 |
| Professional               | 0.277        | 0.131          | -2.710   | 0.007                 |
| Professional 57            | 9.853        | 8.294          | 2.720    | 0.007                 |
| Professional Panic Time 57 | 0.940        | 0.057          | -1.020   | 0.308                 |
| Years in US                | 0.891        | 0.017          | -6.210   | 0.000                 |
| Years in US 57             | 1.106        | 0.038          | 2.960    | 0.003                 |
| Years in US Panic Time 57  | 1.002        | 0.003          | 0.650    | 0.513                 |
| Irish                      | 3.973        | 0.855          | 6.410    | 0.000                 |
| Irish 57                   | 0.324        | 0.153          | -2.390   | 0.017                 |
| Irish Panic Time 57        | 0.978        | 0.036          | -0.620   | 0.536                 |
| <i>p</i>                   | 1.322        | 0.043          |          |                       |
| No. of Obs                 | 1,239        |                |          |                       |
| No of Panickers            | 495          |                |          |                       |
| LR Chi-Square              | 1,366.3      |                |          |                       |

sophisticated and more informed depositors had a greater hazard of closing their accounts in the panic of 1857 than in 1854. Furthermore, it appears that they led the panic in 1857, with the poorer and less sophisticated joining later, whereas it was the less experienced and less informed who first closed accounts in the panic of 1854.

#### CONCLUSION

This article provides a detailed microeconomic description of two banking panics, comparing the panics of 1854 and 1857 in New York. The outcome is partly at variance with the stylized facts of the theoretical literature on banking panics. Banking panics were not characterized by an immediate mass panic of depositors, and account closings were a modest fraction of all accounts—even in a serious crisis such as that of 1857. Some depositors hedged by withdrawing part of their funds, keeping their accounts open.

There were also important time dimensions to the panics. Account closings rose quickly, with distinct jumps in the number per day, often apparently influenced by news. The heterogeneous behavior of depositors implies both elements of contagion and responses to dramatic news events. However, whereas contagion seems to have been present in 1854, it was too weak to drive the panic onwards and force a shutdown of the banking system as occurred in 1857. The nationwide panic of 1857 offers evidence of being led by business leaders and banking sophisticates, who were followed by less informed depositors. Uninformed contagion may have been present, but the record suggests that the run on the banks was warranted in this case by informational shocks in the face of asymmetric information about the true condition of bank portfolios.

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