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WHO PANICS DURING PANICS?
EVIDENCE FROM A NINETEENTH CENTURY SAVINGS BANK

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Evidence from a Nineteenth Century Savings Bank
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## ABSTRACT

Using records of the bank accounts of individual depositors, this paper provides a detailed microeconomic analysis of two nineteenth century 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 was not strong enough to create more than a local panic. In contrast, the panic of 1857 began with runs by businessmen and banking sophisticates followed by less informed depositors. Uninformed contagion may have been present, but the evidence suggests that this panic was driven by informational shocks in the face of asymmetric information about the true condition of bank portfolios.

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Contagion is greatly feared in today's financial system. The possibility that the collapse of a country's banking system or equity market can set off an economic crisis is a grave concern for policy makers. To find the appropriate safeguards and remedies, it is thus important to understand the underlying causes of contagion. In this paper, we use a unique data set on individual depositors to examine the most traditional form of contagion, banking panics in mid-nineteenth century America, for evidence on which models best explain panics in an era of light regulation and no deposit insurance.

In the large literature on banking panics (see Gorton and Winton, 2001), there are two general classes of models that have been used to explain why depositors panic. Models following the seminal paper of Diamond and Dybvig (1983) 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. 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. Kauffman (1994) terms these panics, where a run on one bank spreads to otherwise sound banks to be the result of "non-informational" contagion. In contrast, models based on asymmetric information (Gorton, 1985; Chari and Jagannathan, 1988; Jacklin and Battacharya, 1988; Calomiris and Schweikart, 1991; and Calomiris and Gorton, 1992) see runs as beginning when some depositors observe negative information about the value of bank assets and withdraw their deposits. Unable to perfectly discriminate between sound and unsound banks and observing a wave of withdrawals, other

depositors follow suit, leading to runs on multiple banks.[1]  Given that panics of this character are initiated by identifiable shocks, Kauffman terms them "informational" contagion.

Although there have been empirical studies of nineteenth century American panics, these focus at the aggregate level on the number of bank closings and they find some support for both models.  We use the records of individual depositors of the Emigrant Savings Industrial Bank (EISB), which was subject to serious runs in 1854 and 1857, to examine the causes of banking panics using a hazard model.  These two episodes provide a natural experiment, as the panics were the results of different shocks.  The panic of 1854 was local and started with the news of a single bank's insolvency, while the panic of 1857 was brought about by a system-wide shock that affected the whole financial sector.  The microeconomic evidence reveals that the runs on the EISB do not fit a simple stylized picture.

In neither 1854 nor 1857 did depositors respond to a signal which 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.   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 ignites runs on the EISB and other savings banks even though there was no

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[1] Calomiris and Kahn (1991) 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

evidence that they were insolvent. In earlier work, Kelly and Ó Gráda (2000) 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. However, the banks were not overwhelmed, and by steadfastly paying their customers, the panic died 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 look more like a panic generated by asymmetric information. The banking system was overwhelmed and only a general suspension of payments prevented a total collapse. Overall, while there is evidence for pure contagion a la Diamond-Dybvig, the general shock in the presence of informational asymmetries appears to be of more importance because of its severity.

## 1. Banking Panics in Nineteenth Century America

The nineteenth and early twentieth century American banking system was subject to banking panics that led first to the creation of the Federal Reserve System in 1913 and later to the establishment of the Federal Deposit Insurance Corporation in 1933. However, while panics may have troubled the public and policy makers, the definition of what constitutes a panic remained fluid. 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

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constraint that efficiently rewards those who arrive and withdraw their funds first.

differences in the number of panics, as counted by different authors. Looking at the period 1890 – 1910, Sprague (1910) emphasized three crises (1890, 1893 and 1907) while his contemporary Kemmerer (1910) found six major panics (1890, 1893, 1899, 1901, 1903, and 1907) plus fifteen minor panics. Modern authors (e.g. Friedman and Schwartz, 1963; Miron, 1986) also differ on what episodes constituted banking panics.

Calomiris and Gorton (1991) have defined a banking panic as an event involving a significant number of banks are involved. 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. In the case of the latter, late nineteenth clearing houses acted to increased liquidity by accepting member bank assets and issuing clearing house loan certificates. Table 1 reports Calomiris and Gorton's list of banking panics that conform to their definition. During the National Banking Era 1864-1914, there were four widespread suspensions of convertibility (1873, 1893, 1907, 1914) and six times when clearing houses issued loan certificates (1873, 1884, 1890, 1893, 1907, and 1914). By their definition, one event we consider, 1857, is a panic, but 1854 is not because it was a local New York phenomenon. Nevertheless, it is valuable to examine 1854 is well worth examing because it

meets their definition at the local level with many banks experiencing rapid withdrawals.

Table 1
Banking Panics

| Height of Panic |
| --- |
| 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 |
| August 1914 |

Source: Calomiris and Gorton (1991). For the late nineteenth century, Sprague (1910) identified August 1890, May 1893 and October 1907 as panics. Kemmerer (1910) declared that major panics occurred in September 1890, May 1893, December 1899, May 1901, March 1903, and October 1907 with an additional 15 panics between 1893 and 1908.

Disagreeing about the definition of panics, researchers have also argued about the origins of panics. It has long been noted that panics tended to occur at times when the agricultural sector's demand for money was at a peak in spring and especially autumn. The stress this imposed on the banking system is generally regarded to have been amplified by the structure of reserve requirements under the National Banking System and later the Federal Reserve, and the pre-Fed inelastic supply of banknotes. Thus, Friedman and Schwartz (1963), Miron (1986), and others have argued that panics arose when a shock hit an already seasonally tight money market.

In the search for some shift in the economy that could induce panics, Gorton (1988) regressed the deposit to currency ratio on the interest rate and other panic indicator variables and found that there was no structure change in the relationship between panic and non-panic periods. He concluded that bank runs were "systematic" events triggered by changing views of deposit risk rather than by special events attendant to each panic. Surveying the effects of macroeconomic variables on panics, Calomiris and Gorton (1991) concluded that general macroeconomic disturbances were responsible. They found that during the National Banking era panics occurred when depositors realized that there had been an adverse shock but did not know the precise extent or incidence of the shock among banks. In contrast Donaldson (1992) looked at the interest rate as an indicator of panic and in weekly data found panic period behavior was different from non-panic periods. Unable to predict the exact panic dates, Donaldson concluded that panics were random draws from a set of possible events, as suggested by the Diamond and Dybvig (1983) model. In contrast to these studies, this paper finds evidence for both models of panics in the behavior of the depositors of the Emigrant Industrial Savings Bank.

## 2. The Emigrant Industrial Savings Bank

Formed to promote thrift among Irish immigrants, the Emigrant Industrial Savings Bank 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. The bank began to accept deposits at its offices on Chambers Street in Manhattan on September 30, 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 eleven savings banks were chartered during the decade (Olmstead, 1976). The rapid growth of the EISB's and New York City mutual savings banks' accounts and deposits are shown in Table 2. 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 (New York State, Assembly Document No. 5, 1858). In the same year, the sixteen 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 6 hours (Olmstead, 1976). The size of the EISB's 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 (Olmstead, 1976). 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.[2] Nevertheless, the bank had many prosperous clients whose accounts exceeded $500. Some depositors held multiple accounts in one or more banks to gain higher interest.[3] Quite apart from philanthropic bias toward small savers, bank trustees harbored 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 the president of the Bank for Savings, Philip Hone whose numbers imply that the average size of withdrawals greatly exceeded the average balance per account in the Panic of 1837 (Olmstead, 1976; Nevins, 1969).

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[2]More established mutual savings banks tended to offer 5 percent up to a maximum balance of $500 or $1000 and 4 percent thereafter, while newer ones followed the EISB's pattern of 5 and 6 percent (Olmstead, 1976, p. 37-8).
[3] New York Herald (October 14, 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.

Table 2
Accounts and Deposits of Mutual Savings Banks
1851-1861

| Year | EISB Number of Accounts | EISB Deposits ($) | All Savings Banks Number of Accounts | All Savings Banks Deposits ($ 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 |

Source: Olmstead (1976), p. 159 and 182.

The average deposit of $224 in 1855 represented a substantial accumulation. Goldin and Margo (1992) study of wages paid to civilians by the U.S. Army is the most comprehensive source of information of wages in the mid-nineteenth century. They found that the average daily wage for laborers was $1.08, while artisans were paid $1.43 and clerks $2.35. Wages seem to have been little different in New York City in 1850. Lebergott (1964) reported that unskilled workers received $0.90 per day, carpenters $1.38, and female domestics $1.05 in addition to room and board. While depositors held a significant fraction of annual income in their accounts, not all were accumulating nest eggs. In about one-third of accounts opened in the bank's early years the last withdrawal was smaller than the original deposit, while in another tenth or so the sum withdrawn was the same as that deposited. Most accounts were held

for a year or two, though some customers who closed their accounts re-opened them later.  The pattern of EISB account holder behavior replicates Alter, Goldin, and Rotella's finding's for accounts opened at the Philadelphia Saving Fund Society in 1850 as "relatively large in size, brief in duration, and inactive" (Alter, Goldin, and Rotella, 1994, p. 764).

Dividends—interest on accounts—were credited and compounded on January 1 and July 1, 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 January 1 or July 1, and three months' interest was paid on all sums deposited after January 1 or July 1 and before October 1 or April 1.   In response, deposits in savings banks peaked in March, June, September, and December and were low in January and July (Olmstead, 1976).

Table 3
EISB Capital and Assets
1854-1861

| Year | Total Assets ($ thousands) | Surplus ($ thousands) | Capital To Asset Ratio (percent) |
|------|------|------|------|
| 1854 | 853 | 39 | 4.6 |
| 1855 | 844 | 22 | 2.6 |
| 1856 | 1,039 | 38 | 3.7 |
| 1857 | 1,371 | 69 | 5.0 |
| 1858 | 1,409 | 61 | 4.3 |
| 1859 | 1,696 | 67 | 4.0 |
| 1860 | 2,202 | 30 | 1.4 |
| 1861 | 2,658 | 30 | 1.1 |

Source:  see text.

Although its origins were philanthropic, the bank conducted its lending in a business-like manner. Its charter limited its investments to invest in 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. In 1853, New York granted savings banks the power to make call loans, loans to brokers collateralized by stocks and bonds (Olmstead, 1976). The EISB was the first mutual savings bank to be granted this power in its charter in 1850, and it was a regular lender to brokers.[4] The bank kept relatively little cash on hand in the 1850s. In the crisis in 1857, the bank 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 was on hand, relying instead on liquid funds held in commercial banks for safekeeping, where they earned interest.

Most mutual savings banks began with little capital. The trustees, keenly aware of the need to build up capital to protect depositors achieved this through the surplus funds. However, the state legislature apparently regarded the accumulation of surplus funds by mutuals with suspicion. When Albany threatened to confiscate their surplus funds, some savings banks sent lobbyists to defeat the proposals (Olmstead, 1976). This threat may thus have kept capital

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[4]Older mutual savings banks, including the Bank for Savings, Seaman's, Greenwich, and Bowery were not active in this market (Olmstead, 1976, pp. 138-9).

lower than trustees may have desired. Table 3 shows the total assets, surplus and capital to asset ratio for the EISB.[5] The last column suggests that the bank built up capital during stable periods, only to see it drop in financial crises.


### 3. 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 of 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 percent on the dollar (Olmstead, 1976, p. 142). 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 banks' portfolio was surprisingly weak. The real estate securing its mortgages were overvalued, and notes held by the savings bank and collateralized 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" (cited in Olmstead, 1976: 142-3).

The run started on 12 December 1854 on the news that the Knickerbocker

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[5] Surplus is imputed as the difference between total assets and total deposits, and the capital to asset ratio is the ratio of surplus to total assets. The EISB Finance Committee records provided

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 their 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 December 18, 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 have scarcely have been more uselessly directed so far as savings depositors are

the data on assets and Olmstead (1976) the information on deposits.

concerned ... will soon expend itself."[6]

The Emigrant was not mentioned in these accounts, but it certainly was not immune from the panic. Between December 11 and December 30, 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 of New York municipals, accounting for 90 per cent of the bonds were stable, while Missouri bonds rose.

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[6] A run on the Savings Bank of Baltimore was similarly described as the product of "mischevious 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, 1956, pp. 88-89).

## Figure 1
## Number of Accounts Opened and Closed per Month
## 1851-1863
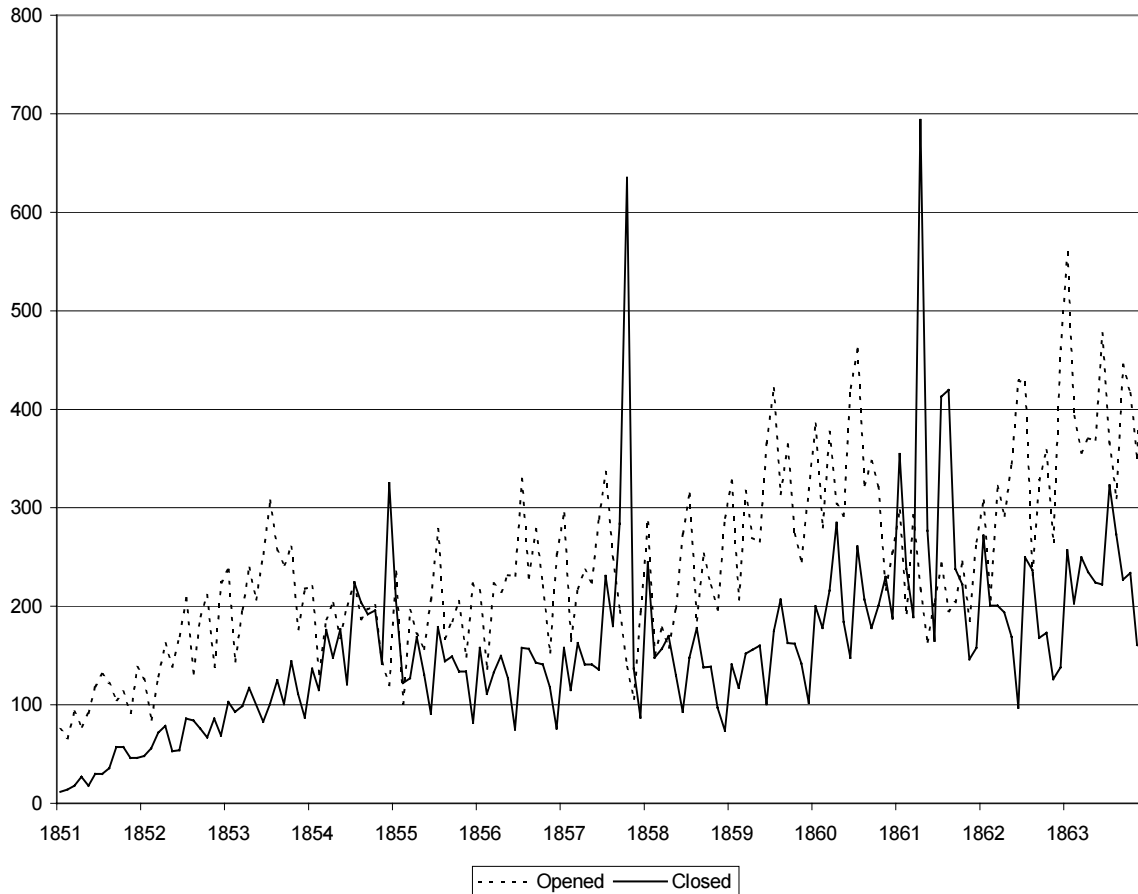


Source: EISB Finance Committee minutes.

As seen in Table 2, the panic appears to have slowed down the bank's rapid growth since its founding in 1851. The number of accounts and the total deposits are scarcely higher at the end of 1855 than a year earlier. A more 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 2
Number of Deposits and Drafts per Month
1851-1863
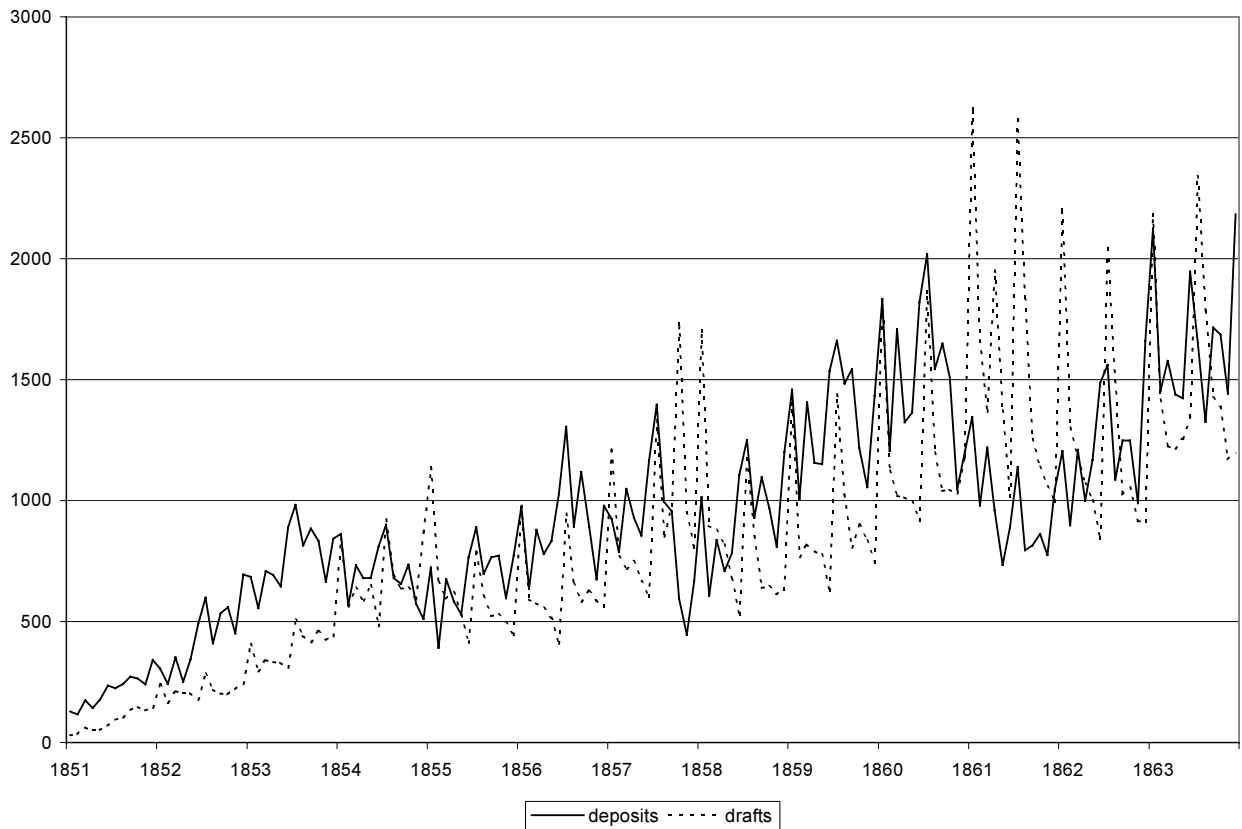


Source: EISB Finance Committee minutes

Figure 1 shows the monthly number of accounts opened and closed between 1851 and 1863.[7] 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

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[7] As is evident in Figures 1, 2, and 3, there was another panic in 1861. However, we do not analyze it, owing the absence of the requisite deposit records.

the number of drafts made on the bank.  In December the number of drafts rose

to a new peak of 868.  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.  The usual post-dividend payment decline in

January and February brought the total net loss to $39,000 or about 5 percent of

its deposits.

Figure 3
Dollar Inflows and Outflows
1851-1863
(thousands of dollars)
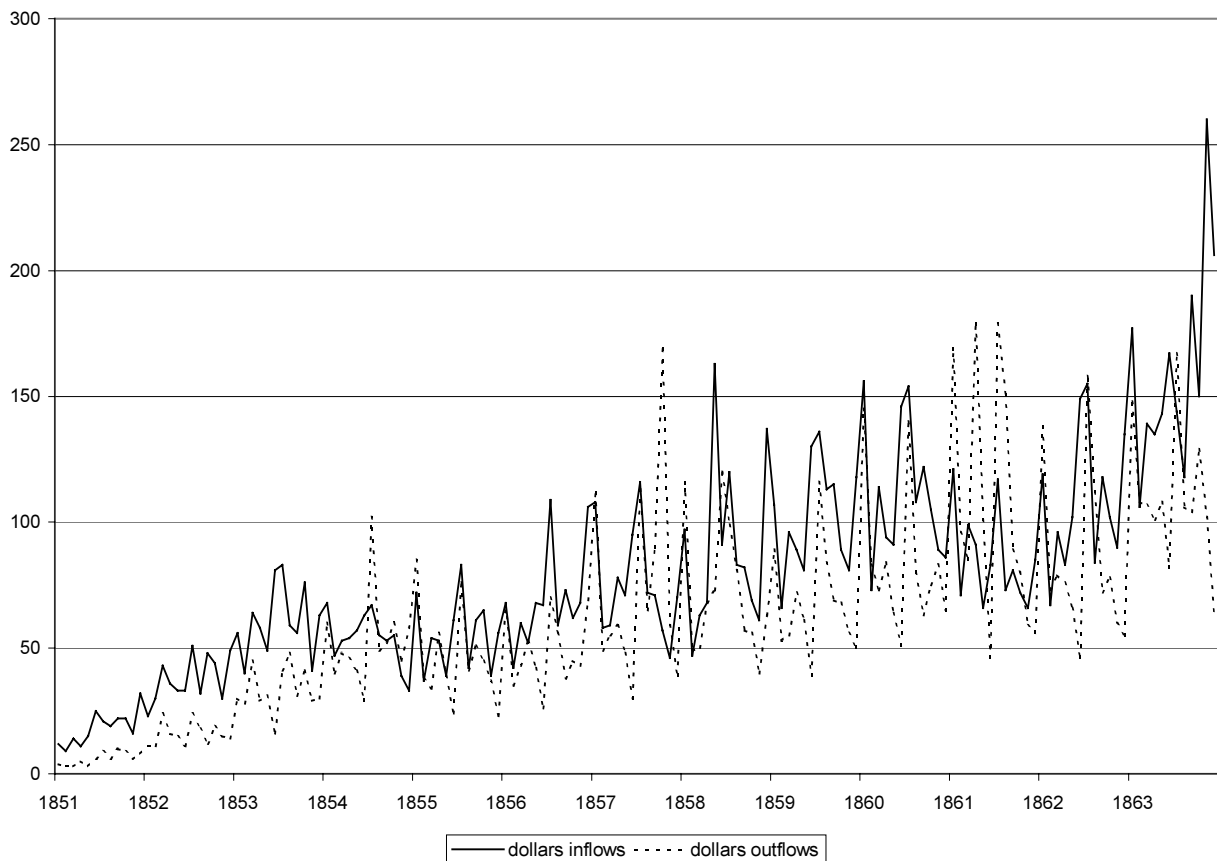


Source: EISB Finance Committee minutes.

**4. The Panic of 1857**

Although the panic of 1857 was precipitated by the failure of the Ohio Life and Trust Company, the proximate cause of the panic 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  (Calomiris and Schweikart, 1991). 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 like Ohio Life.

Closed on August 24, Ohio Life was not an insurance company but a large bank, whose New York branch took deposits and made margin loans.  As the transfer agent for the state of Ohio, it was a major financial institution in that state (Van Vleck, 1943).   Moreover, few New York banks could match Ohio Life's 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 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 rollover brokers' debts, forcing more into bankruptcy, depressing bond prices further.

Between August 22 and September 26, 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.[8]  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 (Van Vleck, 1943).  While a seasonal contraction was typical, these events in 1857 were more severe (Temin, 1975). 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 September 25 and a complete suspension on September 26. Bank runs in Chicago and elsewhere followed.

No sooner did news of the suspension in Philadelphia arrived in New York than depositors began to withdraw deposits.  Thus, the New York panic was initiated on September 26.  Attempting to stem the tide of withdrawals, thirteen New York bank presidents declared that they would not suspend on September 28.  But the public turned a deaf ear to their statement.  Banks around the country began to suspend, drawing down deposits in New York.  On October 9, 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 railroad failed to meet their obligations. Bank runs continued to drain specie, forcing all banks except the Chemical Bank

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[8] The New York Clearing House began operation on October 11, 1853 with 51 member banks (Cannon, 1910).

to suspend payments on October 14. By that evening of October 14, banks throughout the country had suspended (Van Vleck, 1943). Deposits and specie were at their nadir of $42.7 million and $7.8 million at the end of the week, October 17. The markets began a quick recovery after the suspension, with stock prices rising quickly. Specie payment was resumed two months later on December 14.

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 (October 11 and 13, 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 depositors "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, waiting the whole day as clerks attempted to meet the demand for withdrawals.

The savings banks, and perhaps the EISB in particular received support from the Catholic Church. Priests reassured their congregations by example. In the sample described in the next section, there was one bishop and twenty-six 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 (October 17, 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 twelve percent of the approximately 5400 accounts.  The number of new accounts opened also fell in October and November.   In Figure 2, the number of drafts rose to 1733, 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 were mortgages on New York, mostly New York City, real estate. As the crisis of 1857 did not concern New York real estate values, these assets were presumably not in question, especially given that 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 (EISB, Finance Committee). The bank held no railroad bonds, where the fall in prices was most dramatic. Valuing the bond portfolio of the EISB is difficult because the securities market was quite thin.  Some bonds, like 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 August 3 and October 12/13, just before the banking suspension, its value of the portfolio decreased somewhere by between 11 and 14 percent.[9]  However, the suspension of payments by the commercial banks on October 14 not only halted the banking panic, it also buoyed the market.  Between October 12/14 and the end of the month, the value of the bank's portfolio increased by somewhere between 3 and 7 percent.  By the end of November it was up 5 to 16 percent.

As seen in Table 3, the EISB had a surplus of $69,000 and could have sustained a 5 percent decline in the value of its assets.  The main cause of concern were not the mortgages where there was no immediate changes, but in 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 just wiped out the bank's

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[9] If all New York municipals 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 the

capital. It is highly unlikely that the public knew the exact composition of the EISB's assets, much less its bond portfolio, but lacking 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 October 14 suspension, even though its 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 as reflected in Table 3.

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:

> 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 (EISB, Finance Committee, Minutes, October 12, 1857).

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

The 1857 crisis had a different character than the panic of 1854. A nationwide, rather than a local panic, it imparted a shock to the whole financial

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New York Herald provided the prices from the stock exchange and private auctions.

system.  Banks holding investments directly in the affected investments or having given credit to investors in securities would have experienced a sharp decline in their net worth, prompting runs.  The better-informed depositors were alarmed by events in Philadelphia and elsewhere.  In contemporary accounts, they began to withdraw their deposits before  less informed bank customers.


## 5.  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: every deposit, dividend and withdrawal. The EISB's test books 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.

These data provide a unique opportunity to study individual behavior during banking panics.   They also present a challenge in the identification of panic behavior. 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, not all accounts were 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 July 1857, but it is at the same level as the following January.

While 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. Similarly in April 1861, closings appear to account for $104,100 of the $179,000 of outflow.[10]

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 variables were difference but not level stationary.[11] The variables were first differenced and outflows was regressed on closings and drafts with an AR(6) to account for the seasonality:

(1)      D(OUT) = -0.217 + 0.114D(CL) + 0.065D(DR) + 0.171AR(6)
                  (-0.15)   (6.67)        (15.1)          (1.96)

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[10] 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.

where the adjusted R-squared was 0.865. On average, for the whole period, each individual closing caused an outflow of $114, while each draft averaged $65. 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, and as seen in the evidence about for the panic months, closings accounted for close to 70 percent of the outflows of funds.

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 month to many years. Closure of an account during a panic represented an abnormally early termination. We use survival analysis to examine the factors determining the closure of an account. To capture panic behavior, we have drawn information on the accounts closed during the panics of 1854 and 1857. The panic of 1854 is defined as having occurred between December 11 and 30. During this time, 240 accounts were closed. Our data includes the 218 panic closures for which there was complete data in 1854. Similarly we have 337 panic closures in 1857, where the panic of 1857 is defined as having happened between September 28 and October 13. Our control groups consist of a sample of 485 accounts opened before 1854 and 404 accounts opened after 1856.

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[11] The ADF tests on twelve lags for the levels of closings, drafts and outflows were –2.19, -1.07, -1.32 and for first differences were -4.30, -4.00, -4.18, where the hypothesis of a unit root being

Obviously some accounts would have been closed during these periods even if there had not been a panic, however the number of closures was abnormally high. To identify the characteristics of individuals who panicked—that is closed their accounts—between these dates, we have collected data on depositors for two control groups. The first is a one-in-ten sample of all accounts opened from the date of the creation of the bank in 1850 to December 31, 1854. It includes individuals who closed their accounts before the panic and afterwards to capture "ordinary," non-panic behavior. The second control group includes similar depositors who opened their accounts in 1856 and 1857. Our sample appears to capture the diversity of account behavior, including representative short- and long-lived accounts.

Table 4 provides a summary of most of the basic characteristics of "panicked" depositors and the control groups. 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 panic.

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 worker, seamstresses, cartmen, and waiters. The two occupations that dominated this category were laborers and domestics. Professionals were gentlemen, land agents, saloonkeepers, lawyers,

rejected at the 1 percent level had a critical value of –3.47.

piano makers, physicians, and bookkeepers, with priests, teachers and

merchants being the most common members of this group. The very broad

**Table 4**
**Summary Characteristics**

| | 1854 Panicked | Percent Or S.D. | 1854 Control Group | Percent or S.D. | 1857 Panicked | Percent or S.D. | 1857 Control Group | Percent or 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 | 48.0 | 168 | 49.9 | 197 | 48.8 |
| Joint Accounts | 37 | 17.0 | 83 | 17.1 | 103 | 30.6 | 85 | 21.0 |
| 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 |
| Av. Years in Us 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 | 7.0 | 21 | 6.2 | 35 | 8.7 |
| Uptown | 11 | 5.0 | 26 | 5.4 | 18 | 5.3 | 31 | 7.7 |
| Brooklyn & Staten Island | 22 | 10.1 | 48 | 9.9 | 29 | 8.6 | 36 | 8.9 |
| NJ, CT and Upstate | 24 | 11.0 | 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 | 1155 | 1524 | 273 | 239 | 1432 | 1541 |
| Mean Deposits | 3.0 | 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 |

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 and the less likely to panic. For both men and women, unskilled workers represented a much higher proportion of depositors closing accounts in the panics of 1854 and 1857.

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 U.S. 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 4.

In terms of residence, this summary table shows no easily discernable patterns at this relatively high level of aggregation, although the regression analysis shows some districts being especially affected by the panic.  By every measure of banking activity, those closing their accounts in 1854 were markedly different.  They had smaller first deposits, closing balances, total deposits and fewer deposits and withdrawals.  However, the variation was very large as seen in the standard deviations.  Likewise, the large standard deviations in 1857, do not allow us to say that there were distinct differences between accounts closed during the panic and others.

Figures 4 and 5 display the number of 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 4.  In 1854, the dramatic collapse of the Knickerbocker prompted a run on the other savings banks, including the EISB, as seen in Figure 4.  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 relatively steady though higher until the big run begins on October 10 on the Bowery Savings Bank, sparking runs on more savings banks.  The effects on the EISB are seen in Figure 5.  Closings were then almost entirely halted by the suspension of payments on October 14.

**Figure 4**
**Number of EISB Accounts Closed in the Panic of 1854**

Figure 4
Number of EISB Accounts Closed in the Panic of 1854
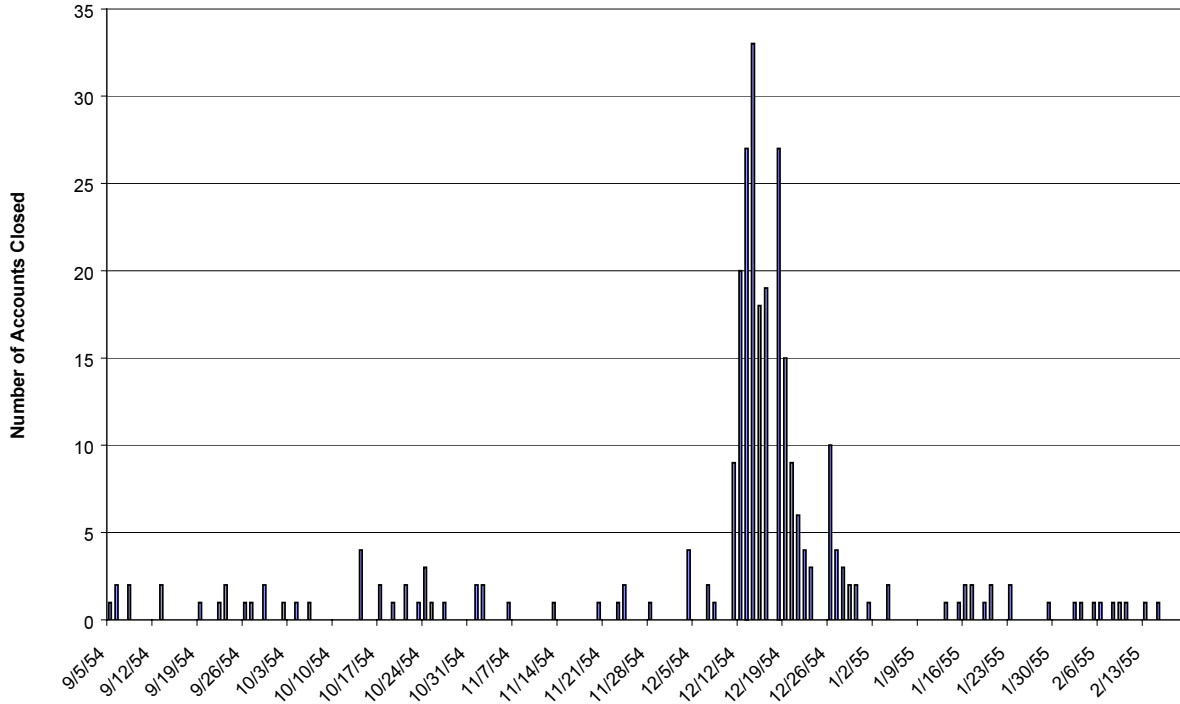
The key question we wish to investigate is what were the characteristics of those depositors who terminated their accounts during the panics compared to those who did not. To analyze the factors affecting the duration of an account, we employ a proportional hazard model with an assumed Weibull distribution, as the data contains observations with both very short and very long durations and there may be some duration dependence (Kiefer, 1988). Almost all of our observations represent completed episodes, as information was recorded as late as 1869, resulting in very little right hand censoring.

**Figure 5**
**Number of EISB Accounts Closed in the Panic of 1857**
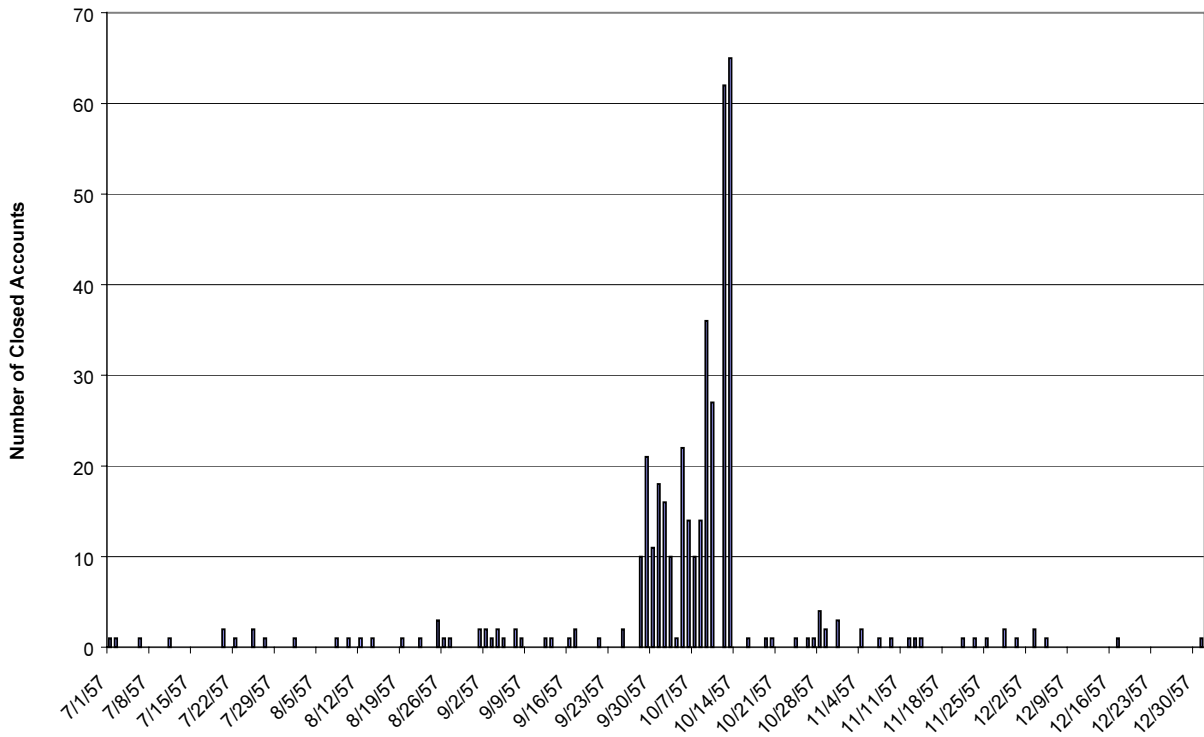


Table 5 presents the estimates for the panicking individuals and the control group for 1854 described above in three specifications. Banking variables were important for determining who panicked. The most highly correlated variables are the amount first deposited, the closing balance and the cumulative deposits. As this correlation created significant multicollinearity, only 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. The magnitude of the effect was the same for all models for both panics. The total number of transactions over the life of the account captured

account activity and banking experience.[12]  This banking experience reduced the hazard of closure substantially.

Banking variables were added to reflect the behavior of the 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 July 1 would earn six months interest by December 31 and funds deposited after July 1 but before October 1 would earn three months interest by the end of the year.  Dummy variables for opening an account, which was usually the largest deposit, after July 1 and after October 1 for 1854 and after July for 1857, were included to identify when depositors would not be at risk of losing interest.  In Table 5, those who did not stand to lose interest 3 or 6 months interest had a surprisingly 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.  Typically, the rate had high seasonal and cyclical component and soared in panics.  As the dividends paid on accounts was fixed, a low commercial paper rate could cause funds to flow into the bank and a high one could induce funds to depart.   Closures were quite sensitive to the commercial paper rate in the month of closure, 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 panic.  Nor did the number of children

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[12] 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.

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.

**Table 5**
**Survival Analysis of Deposits Accounts**
**1854 Sample**

| | Haz Ratio | Std Error | z | P(z) | Haz Ratio | Std Error | z | P(z) | Haz Ratio | Std Error | 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 | | | 1.0545 | 0.0539 | | |
| No. of Obs | 709 | | | | 657 | | | | 657 | | | |
| No of Panickers | 218 | | | | 212 | | | | 212 | | | |
| LR Chi-Square | 392.1 | | | | 421.6 | | | | 453.2 | | | |

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 U.S. for the foreign born was significant. 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 (Ferrie, 1994) that years in U.S. could be a proxy for income or wealth. Each year of residence lowered the hazard of closure in the panic by four 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 (Ó Gráda, 1994) to be the relative income and wealth of the provinces. Coming from the poorest provinces of Connacht and Munster, increased the hazard of closure nearly 2 ½ and 3 ½ times, while 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. To identify depositors geographically, we used the grid pattern of a contemporary New York City Street

and Avenue Guide to group addresses. Most of the depositors and population 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 section 3C to 6D, which was assigned a dummy variable, leaving the rest of Manhattan and beyond with a zero. While 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. In both the more extended specifications, the estimated parameter, p, is insignificantly different from one indicating that there was no duration dependence. 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, while 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 6 reports the three specifications for the Panic of 1857, using the accounts closed in the panic and the control group, described in Table 4. The banking variables and the commercial paper rate all affect the probability of closure 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, while being unskilled again

had no effect, professionals had a high propensity to panic.    While the significance of this variable is low, it is distinctively different from 1854.    The nativity factors also appear to be much less important.  Being Irish, coming from a particular province or years in the U.S. did not affect the probability of panicking in 1857, in marked contrast to 1854.

**Table 6**
**Survival Analysis of Deposits Accounts**
**1857 Sample**

|  | Haz Ratio | Std Error | z | P(z) | Haz Ratio | Std Error | z | P(z) | Haz Ratio | Std Error | 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 | 1150.1 |  |  |  | 966.7 |  |  |  | 973.1 |  |  |  |

Estimated separately, it is difficult to compare the relative effects of the variables in 1854 and 1857. Furthermore, all the contemporary accounts strong suggest that there was a time dimension in the panic of 1857, being led by business men and the wealthy who closely followed the panics in other cities. The New York newspapers were full of information on the situation in Philadelphia, where the legislature delayed and labored over the potential terms of a suspension of payments (New York Herald, October 9, 1857) 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 first hit some days later. Moreover, the panic hit the commercial banks much harder than savings banks, losing 25 percent of deposits compared to just over 10 percent.[13] There is reason to believe it was not pure contagion. The suspension of the Bowery Bank on October 9, 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 (New York Herald October 11, 1857). Given the fierce pressure on other commercial banks in which savings banks held cash, the run against savings banks seems less unreasoned.

Tables 7 and 8 report estimates of the combined panicking and non-panicking depositors for 1854 and 1857 where the panics are treated as the same abnormal termination of accounts. Here, the objective is to search out the

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[13] Gibbons (1859: 335); New York Herald, October 1857; Olmstead (1976).

**Table 7**
**Survival Analysis of Deposits Accounts**
**Full Sample for 1854 and 1857**

| | Hazard Ratio | Standard Error | z | P(z) |
|---|---|---|---|---|
| Cum Deposits | 0.999 | 0.000 | -3.150 | 0.002 |
| Cum Deposits 54 | 1.004 | 0.002 | 1.870 | 0.062 |
| Cum Deposits Panic Time 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 |
| | | | | |
| | | | | |
| | | | | |
| P | 1.676 | 0.053 | | |
| No. of Obs | 1239 | | | |
| No of Panickers | 495 | | | |
| LR Chi-Square | 1865.7 | | | |

differences in depositor behavior between the panics and any time dimensions.   In Table 7, each variable is used, plus an interaction variable to identify the effect of that variable for 1854, and an interaction variable of the variable times a time trend for the number of days into the panic when the account was closed.   In Table 8, similar interaction variables were included for 1857.   While the cumulative deposits variable was similar in both tables, the

results for the total transactions in 1857 suggest that a high number of transactions increased the likelihood of panicking in 1857, but this may have decreased over the course of the panic. In 1854, professionals were less likely to panic, but their probability of closing their account increased as the panic wore on. The opposite was true in 1857 when being a professional in 1857 increased the probability of closing one's account with the effect declining over the course of the panic. Being Irish increased the probability of panicking in 1854, but decreased it in 1857.

These differences between the two years thus provide some evidence for the contrasting nature of the two panics. The more sophisticated and more informed depositors were more likely to panic in 1857 than in 1854. Furthermore, it appears that they led the panic. The poorer and less sophisticated joined in the runs, but it may not have been pure contagion given the declining value of their bond portfolios and the potential loss of reserves held in the vaults of weakened commercial banks.

**Table 8**
**Survival Analysis of Deposits Accounts**
**Full Sample for 1854 and 1857**

| | Hazard Ratio | Standard Error | z | P(z) |
|---|---|---|---|---|
| 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 |
| | | | | |
| | | | | |
| | | | | |
| P | 1.322 | 0.043 | | |
| No. of Obs | 1239 | | | |
| No of Panickers | 495 | | | |
| LR Chi-Square | 1366.3 | | | |

## Conclusion

This paper provides the a detailed microeconomic description of banking panics. What emerges are some features which stand at variance with the stylized facts typical of some models of banking panics. Banking panics were not characterized by an immediate mass panic of depositors, and account

closings were a modest fraction of all accounts. Although depositor behavior clearly changed quite rapidly, there were time dimensions to the panics. Account closings rise quickly, with distinct jumps in the number per day, often apparently influenced by news. The heterogeneous behavior of depositors allows us to see that there were elements of contagion and responses to dramatic news events. However, while contagion seems to have been present, it does not appear to be strong enough to drive the panic onwards in 1854, the one panic most likely to have been driven by pure uninformed contagion. The panic of 1857 appears more likely to have been led by business leaders and banking sophisticates followed by less informed depositors. Uninformed contagion may be present, but the evidence suggests that the run on the banks was driven by informational shocks in the face of asymmetric information about the true condition of bank portfolios.

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