

The Anatomy of a Banking Crisis: Household Depositors in the Australian Depressions

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Photo: Keith Lance – Getty Images

Abstract

Looking into archival material can provide a new lens through which to view historical events. With the launch of Unreserved, the RBA has released archival records to the public, including longitudinal data on individual bank depositors that uncovers new facts about the behaviour of Australian households during the economic depressions of the 1890s and 1930s. Depositors responded to both depressions by withdrawing more money, consistent with households drawing down on their saving buffers in the face of rising unemployment and falling incomes. The net withdrawal rate of depositors also increased when deposit interest rates fell and when public confidence in the banking system deteriorated, with clear evidence of a run on a savings bank in the 1930s. In more normal times, most saving deposits were 'sticky' with transactions being very rare. This high degree of deposit stickiness appears to be because most people held these bank accounts to save for significant life events. While it is difficult to draw policy implications from the historical analysis, some features of the depositor behaviour are likely to hold true today.

Australia has experienced 2 severe economic depressions over the past 150 years: the financial crisis in the 1890s and The Great Depression of the

1930s. In both cases, real economic activity fell sharply and unemployment rose, causing financial hardship for many people (Graphs 1 and 2) (Gruen

and Clark 2010; Withers, Endres and Perry 1985). As the depressions deepened, problems in the banking system were exposed, public confidence in the banks fell, and some banks experienced depositor runs. A significant share of the Australian financial system collapsed during the 1890s Depression (Merrett 2013). The disruption to the financial system in the 1930s was relatively mild by comparison (Kent 2011).

Despite the severity of these economic events, we know little about how people living in these difficult times adjusted to the events in terms of their banking behaviour. In this article, we explore how individual bank depositors behaved during the 1890s and 1930s using a unique dataset constructed from the depository ledgers available

at the RBA. See Dwyer and MacDonald (2021) for more information about the RBA data being released to the general public through the launch of Unreserved.

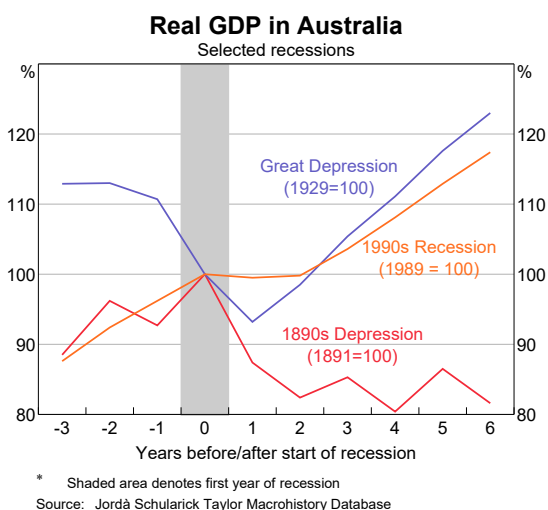
Bank runs hardly ever occur, even outside of Australia, and it is especially rare to see how individual depositors behave when their bank comes under financial stress. These granular data therefore provide economists and historians with a rare glimpse into household banking behaviour during a significant macroeconomic event.

Some highlights from the new historical ledger dataset include:

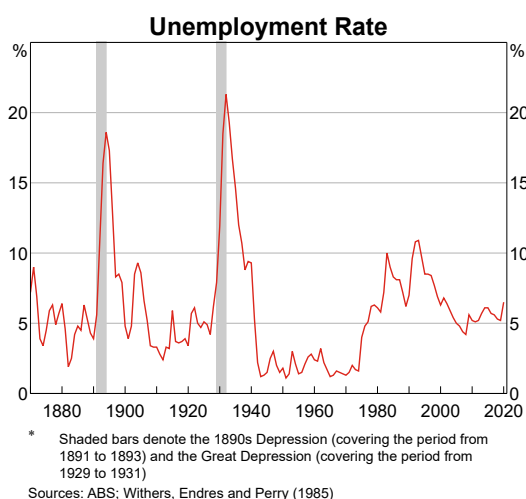
- Most depositors responded to the depressions by increasing their rate of net withdrawal (withdrawals less saving) in deposits. This suggests that many depositors drew down on their saving buffers in the face of rising unemployment and falling incomes.
- Depositors also increased the rate of net withdrawals when it became apparent that their own bank was under financial stress or when the interest rate on their deposits fell.
- Despite all this, deposits were typically very ‘sticky’ in that the account balances do not change much over time. The fact that many accounts have very few transactions appears to be because many people at the time maintained these deposits to save for significant life events, such as buying a home or getting married.

Despite these insights, it is difficult to draw policy implications from the historical analysis. It has been nearly a century since the Great Depression and there have been many changes to the institutional features of the Australian banking system since that time. For instance, changes in depositor protection laws were introduced in Australia just after the Second World War, and further strengthened after the global financial crisis (Turner 2011). These changes mean that depositors could behave differently in the future if the banking sector were to again come under stress. Still, it is noteworthy that there are many similarities in the way depositors behaved during the 1890s and the 1930s, despite a 40-year gap between the depressions, so some of

Graph 1



Graph 2



the behaviour we observe in the archival records could be relevant to the way people do their banking today.

A new historical dataset

The RBA is the custodian for an extensive archive about Australia's central bank, the financial sector and the economy (MacDonald and Dwyer 2019). Within these archives are numerous bank depository ledgers – many of which have been digitised and some have also been transcribed to searchable text, with numerical observations exported for data manipulation. These ledgers hold very detailed records on individual deposits and withdrawals and cover more than a century of Australian history from the 1820s to the 1930s.

The information in the ledgers includes individual names and addresses, which allows us to track the banking behaviour of specific people over time. We can also see how they behave both before and after a big event like a severe recession or a bank run. This can give us unique granular insights into the behaviour of individuals during these types of events.

The transcribed datasets used in this article cover individual depositor transactions at 2 banks – the Savings Bank of NSW (SB of NSW) and the Government Savings Bank of New South Wales (GSB of NSW) – across 5 bank branches:^[1]

- the Bathurst branch of the SB of NSW between 1874 and 1901
- the Scone branch of the SB of NSW between 1872 and 1932
- the Goulburn branch of the SB of NSW between 1876 and 1897
- the Dungog branch of the GSB of NSW between 1912 and 1932
- the Balmain branch of the GSB of NSW between 1927 and 1932.

In effect the sample period covers the years between 1872 and 1932, with a break between 1901 and 1912. The number of account holders, and hence the sample size, varies each year depending on how many bank branches are represented in the data. In general, there are about 800 observations

each year, though the sample size is twice as large in the Great Depression period. The data are available at a daily frequency, though for analysis in this article the data for each account holder has been aggregated to a monthly frequency.

All the ledgers include information on the name of the account holder, the account balance, interest received, period of interest and the date, type and size of the transaction (i.e. deposit or withdrawal). Some of the ledgers include additional information about the account holder, such as their address and occupation. The account name and title (e.g. Mr, Mrs, Miss) can be used to determine the sex of the main account holder and whether the account is a trust or joint account.

The bank ledgers span 2 significant events in Australian economic history – the 1890s financial crisis and the 1930s Great Depression, which will be hereafter referred to as the 'depressions'. The richness of the ledger information allows us to explore in great detail how Australian depositors behaved during the depressions.

While the ledgers provide new insights into the historical behaviour of Australian households, there are a few caveats associated with the historical records.

First, the transcribed ledgers are drawn from banks that are not necessarily representative of the whole banking system. Australian banks operating in the late 19th and early 20th centuries were classified as either savings banks or trading banks. Savings banks paid little interest to their depositors, their lending activities were restricted to providing mortgages, and many were owned by state governments. Trading banks were essentially merchant banks, which did not provide services to the general public. The 2 banks represented in the ledger dataset were savings banks that had branches in the state of New South Wales. Some of the ledgers cover people living in Sydney, but most cover people living in regional areas. Because of the specific type of bank, and the regional concentration of their depositor base, any insights drawn from the analysis may not be representative of all depositors and banks operating at the time.

Second, the ledgers are based on a sample of failed banks that were acquired by the Commonwealth Bank of Australia and eventually made their way to the RBA archives given the RBA was the successor to the original Commonwealth Bank.^[2] There is no information in the ledgers on depositors at non-failed banks, which again makes it hard to tell if the depositors in the sample are representative of the broader population. However, many of the estimates drawn from the ledgers align closely with published estimates from other sources, including deposit withdrawal rates and interest rates. For example, the net withdrawal rate in the 1930s GSB of NSW bank sample aligns closely with the broader population of depositors at the GSB and the savings banks more generally (Graph 3).

New historical insights on Australian banking

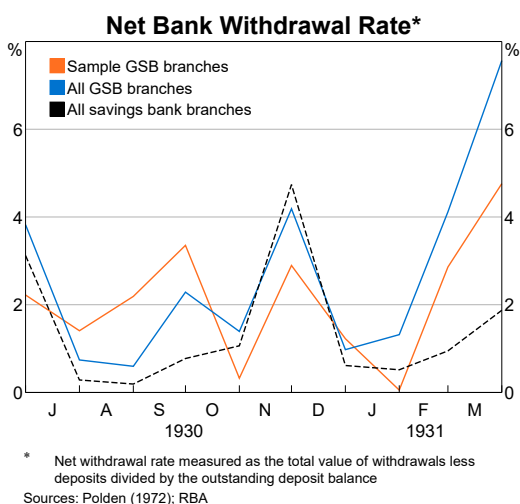
This article examines depositor behaviour across a number of dimensions, which is possible because of the richness of the underlying data. For the most part, the article focuses on measures of the growth in account balances for each depositor in each period, as well as its decomposition into saving (inflows) and withdrawals (outflows).

One of the more striking features of the ledger data is the share of bank accounts held by women. During the late 19th century, nearly half of the accounts have a female name as the primary account holder, with the share rising to more than one-half in the early 20th century (Graph 4).

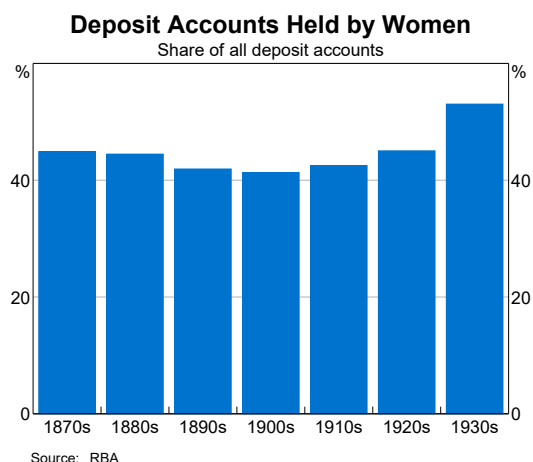
This is consistent with previous research that argues that women were direct contributors to the economy during the late 19th and early 20th centuries (Curthoys 1998). The high female share of account holders may be explained by the savings bank accepting small deposits, making it a useable institution for people on low incomes, of which women would have been disproportionately represented. Accounts could be opened with the bank, regardless of occupation or status, and account holders did not need to be approved by a board of directors, making it an institution that was particularly accessible to women with some surplus cash. Further, men had other options for managing their finances that may have been less available to women, such as investing in the stock market.

Another notable feature of the ledger data is the number of deposit accounts that record no activity for long spans of time. For about 90 per cent of deposit accounts in the late 19th century there is at most one annual transaction (Graph 5). This high degree of ‘deposit stickiness’ suggests that people maintained these bank deposits to save for significant life events, such as buying a home or getting married. The level of stickiness declined a bit in the 20th century, with a bit under half of all the accounts recording no transactions.^[3] Despite this high degree of stickiness, there is still evidence that some depositors used their accounts more often during large-scale macroeconomic events, such as the depressions.

Graph 3



Graph 4



How did household depositors respond during the depressions?

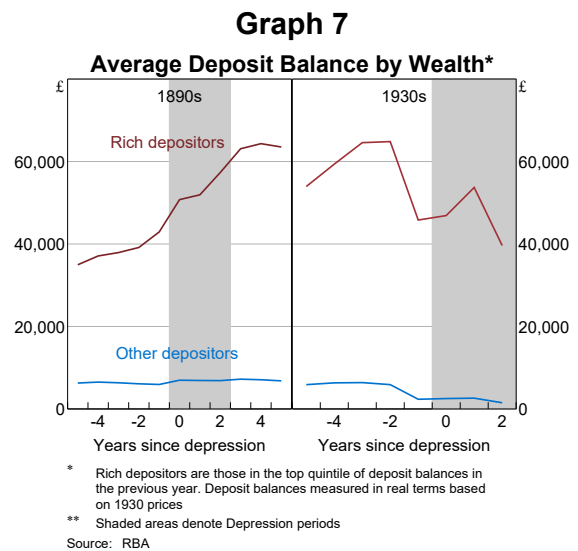
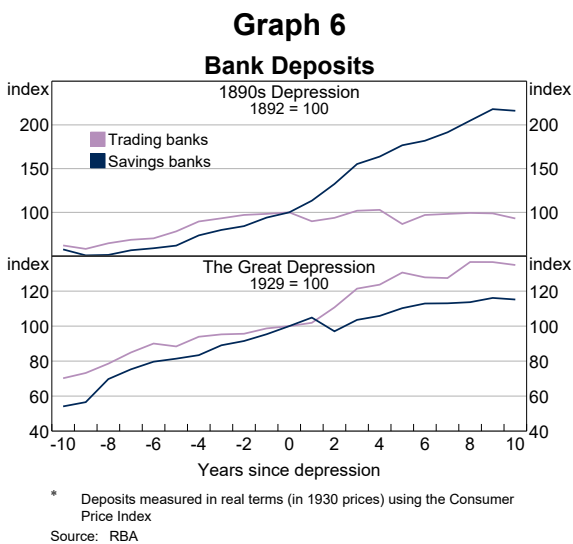
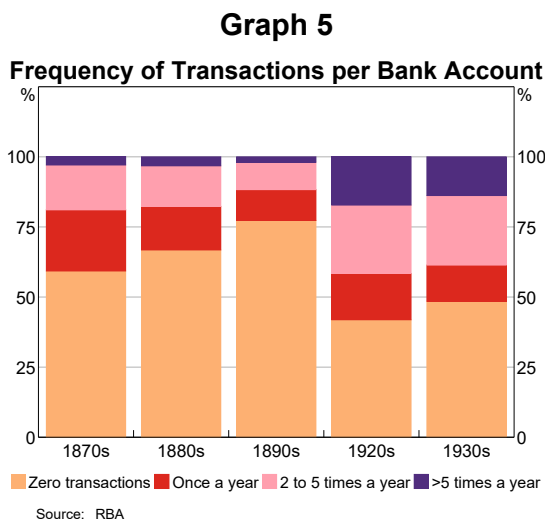
Both depressions had a significant effect on the Australian financial system. However, the depressions had different effects on different types of banks and therefore different types of depositors (Kent and Fisher 1999). Unlike the trading banks, the savings banks did not suffer deposit outflows in the 1890s, but experienced larger deposit outflows in the 1930s (Graph 6).

These aggregate trends mask how the depressions affected individual depositors. For instance, the ledger data reveal for the first time that during the 1890s crisis the growth in aggregate deposit balances was driven by ‘rich’ depositors (in the top quintile of deposit balances in the previous year) while poorer depositors experienced no real growth

in deposits (Graph 7, left panel). The Great Depression also had strong distributional effects, with deposit balances falling more sharply for the rich depositors (Graph 7, right panel).

Another useful feature of the ledger data is the ability to separate the growth in aggregate deposits into changes in saving (inflows) and withdrawal (outflows) at the depositor level. This accounting decomposition sheds further light on the experiences of households during both depressions. Specifically, the analysis examines trends in the withdrawal rate, which is measured as the total value of withdrawals each year divided by the deposit balance at the start of the year, and the deposit rate, which is measured as the total value of new deposits each year divided by the deposit balance at the start of the year.

For the 1890s, there is some evidence of an increased rate of withdrawal during the depression, compared with the periods before and after (Graph 8). This is consistent with some households drawing down saving buffers to smooth their spending in the face of declining income. At the same time some depositors may have increased their rate of precautionary saving because of uncertainty about their own finances and the potential to become unemployed in the future. In this case, we would expect to see an increase in the rate of deposit during the depression. However, there is limited evidence of an increased rate of deposit, which suggests that precautionary saving



motives were less important, at least at the aggregate level.

For the 1930s, there is a sharp increase in the average withdrawal rate during the depression (Graph 9). And the average rate of deposit also increased significantly. This suggests that both motives were at play – some households were drawing down on their buffers while others were looking to build them in expectation of difficult times ahead.

In both depressions, the net withdrawal rate rose as economic conditions deteriorated. This is consistent with higher unemployment and lower wages reducing the income available for deposits and making depositors more reliant on savings to finance spending. However, closer analysis of the

depositor ledgers reveals that the increased rate of net withdrawal in the 1930s was not just due to the deterioration in the economy but also due to falling public confidence about the viability of the GSB of NSW.

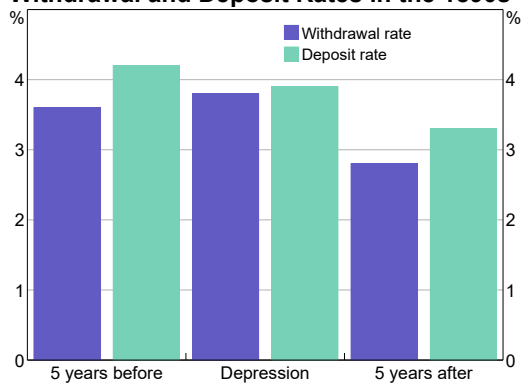
The collapse of the Government Savings Bank of New South Wales: A natural experiment

During the Great Depression, all savings banks lost funds as unemployment and wage cuts compelled depositors to draw on their savings. In the case of the GSB of NSW, political uncertainty added to the economic depression, resulting in a run that forced the bank to close (Fitz-Gibbon and Gizycki 2001). The GSB was the largest of the 3 financial institutions that suspended payments in the 1930s depression (Kent and Fisher 1999). Notably, the GSB was forced to close because of state government influence and not because of the weakness in the economy or how the bank was managed or operated (Polden 1972). When combined with the granular ledger information, this event provides a ‘natural experiment’ to explore the behaviour of depositors during a bank run. Even by international standards, it is rare to get a glimpse into how individual depositors behave during a bank run (Iyer and Puri 2012).

The GSB ledger data reveals that depositors were quick to respond to news about an impending recession in Australia. In November 1929, soon after

Graph 8

Withdrawal and Deposit Rates in the 1890s*

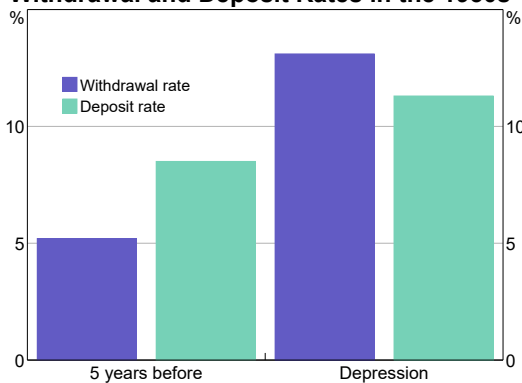


* The withdrawal (deposit) rate is measured as the total value of withdrawals (new deposits) during the year divided by the deposit balance at the start of the year. Estimates based on an unweighted average at depositor level

Source: RBA

Graph 9

Withdrawal and Deposit Rates in the 1930s*

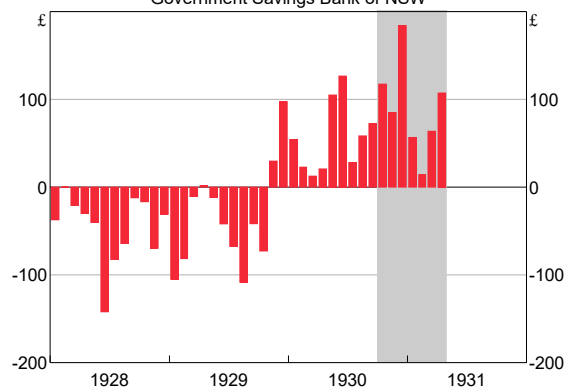


* The withdrawal (deposit) rate is measured as the total value of withdrawals (new deposits) during the year divided by the deposit balance at the start of the year. Estimates based on an unweighted average at depositor level

Source: RBA

Graph 10

**Average Net Withdrawals*
Government Savings Bank of NSW**



* Net withdrawals are measured as the difference between the value of withdrawals and deposits at 1930 prices and averaged across all bank accounts

** Shaded area shows period since NSW election campaign

Source: RBA

the stock market crash in the United States, net withdrawals among depositors turned positive, so that withdrawals exceeded new deposits for the first time in years (Graph 10). Net withdrawals increased even more in late 1930, following the Labor party's win at the NSW state election, which acted as the 'trigger' for the run on the GSB.^[4] More detailed econometric analysis confirms that both the onset of the depression and the bank run were important factors in driving the rise in net withdrawals. This increase in aggregate net withdrawals was mainly driven by changes in the behaviour of rich depositors, although it appears that most depositors ran at the same time.

The distribution of household deposit interest rates

The ledgers also provide information to calculate each account's interest rate, providing a unique long-run history of interest rates. The estimates suggest that, in nominal terms, bank deposit rates were falling over the last 2 decades of the 19th century, with sharper declines during the depression (Graph 11). In the 1920s and 1930s, deposit rates were generally flat over time. The levels and trends in these interest rate estimates closely align with other historical estimates, such as those provided in the Jordà-Schularick-Taylor Macrohistory Database.

The ledgers allow researchers to construct the cross-sectional distribution of deposit interest rates and examine how the distribution has evolved over time. Interest rates clearly varied a lot across depositors, with this cross-sectional distribution being quite stable from year to year. The spread between deposits paying high interest rates (at the 90th percentile) and those paying low interest rates (at the 10th percentile) was about 3–4 percentage points for much of the sample period.^[5]

How did household depositors respond to changes in interest rates?

The distribution in deposit interest rates indicates that the experience of each depositor was unique and dependent on their own financial circumstances, even in normal times. From a research perspective, this distribution of deposit

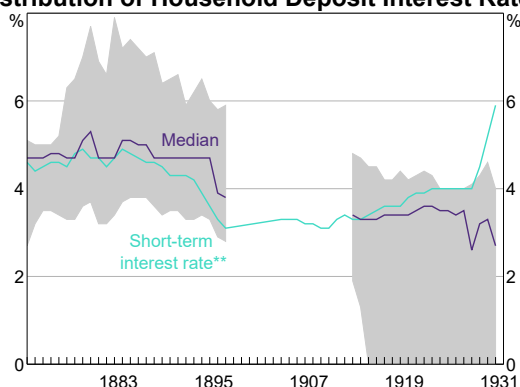
rates, along with depositor-level information on withdrawals and deposits, can be used to test the predictions of macroeconomic models. For instance, standard models predict that lower interest rates should encourage more spending and less saving in bank deposits (the 'intertemporal substitution effect' of an interest rate change).

The ledgers provide evidence that depositors respond to changes in deposit interest rates. Specifically, depositors are more likely to withdraw (and less likely to save) money when interest rates fall (Graph 12). This result is consistent with the predictions of the standard models, though it could also reflect depositors moving money between banks. The changes in net withdrawals are most apparent for relatively large increases and decreases in interest rates (shown by the bars for the lowest and highest quintiles of the interest rate distribution). Depositors respond less to small changes in interest rates (shown by the 'middle' bars). This suggests that depositors are sensitive to changes in their own economic situation, as well as changes in the broader economic environment.^[6]

Conclusion and directions for future research

The RBA's historical ledger data sheds new light on the lives of Australians through the late 19th and early 20th centuries. The unit record data reveal that Australian depositors typically withdrew more

Graph 11
Distribution of Household Deposit Interest Rates*



* The shaded area shows the distribution of interest rates between the 10th and 90th percentiles

** The short-term interest rate is based on estimates from Pope, D. 1986. *Australian Money and Banking Statistics for 1870 to 1914*. For the remaining period it is based on the average of seven interest rates in Butlin, S. (1971). *Australian banking and monetary statistics 1817-1945*.

Sources: Jordà-Schularick-Taylor Macrohistory Database; RBA

money from their bank accounts during times of economic turmoil. This is consistent with some households drawing down their saving buffers in the face of deteriorating labour market conditions. Depositors also responded to changes in interest rates on their deposit accounts, typically increasing the rate of net withdrawal when the interest rate fell. This is consistent with the predictions of standard macroeconomic models. And yet, in normal times, deposits were typically very sticky, with very few transactions on most accounts. This high degree of deposit stickiness appears to be because most people maintained these deposits to

save for significant life events, such as buying a home or getting married.

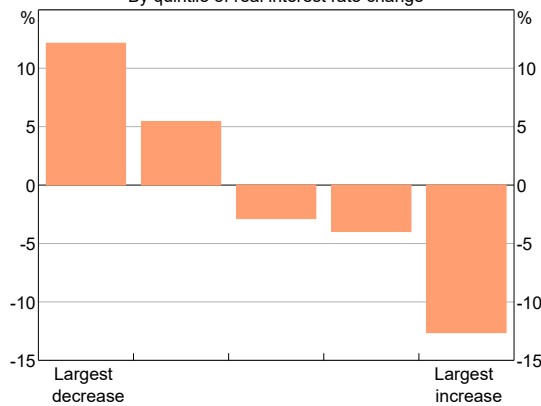
The Australian economy is markedly different today than it was a century ago (Bishop 2020). Similarly, the banking sector has evolved significantly since the events of the Great Depression. So it is difficult to draw clear policy implications from this historical analysis of the depressions. Still, there are likely to be features of depositor behaviour that hold true today. For example, depositors appear to distinguish between a bank that is under financial stress and systemic banking stress when deciding whether to withdraw their money or not.

The RBA historical ledgers currently only include the accounts of depositors at failed banks. There are no banks that did not fail in the sample. To be able to properly identify the effect of a bank’s collapse on depositor behaviour, there would ideally be a ‘control’ group of depositors at a bank that did not fail. Future research may look to combine the RBA historical ledger data with similar historical data that seem to be available within the archives of other Australian commercial banks. The fact that depositors responded to changes in interest rates provides some early evidence that household spending and saving was sensitive to monetary policy during the late 19th and early 20th centuries. This may be another fruitful area of future research.

Graph 12

The Effect of Interest Rates on Net Withdrawals*

By quintile of real interest rate change



* The graph plots the average level of net withdrawals (i.e. withdrawals less new deposits) across the distribution of deposit rate changes. The estimates are based on an OLS regression of the change in net withdrawals on the change in the real deposit interest rate. The regression is estimated on monthly panel data and includes controls such as the deposit balance, year and month dummies, as well as depositor fixed effects.

Sources: ABS; RBA

Footnotes

- [*] The authors are from Economic Group.
- [1] The Government Savings Bank of NSW absorbed the Savings Bank of NSW in 1914. So, in effect, the sample is based on a specific large financial institution between the 1870s and the 1930s.
- [2] The Reserve Bank descended from the original Commonwealth Bank of Australia, which had a central banking function and, at the time of its creation, had absorbed other banks with a colonial history. See Dwyer and MacDonald (2021) for more details.
- [3] The lower degree of deposit stickiness in the 1930s partly reflects a change in the underlying sample. The 1890s sample includes only regional branches, while the 1930s sample includes both city and regional bank branches. The degree of deposit stickiness was significantly lower in the city branches relative to the regional branches.
- [4] Prior to the NSW state election in October 1930, statements by the incumbent Nationalist Government predicted financial collapse if a Labor government was elected. This caused public alarm, which was further inflamed when the Labor party won the election and the public became aware that the government had defaulted on the payment of interest due to the GSB. On 1 April 1931, the NSW Government also defaulted on interest payments owed to British holders of government bonds and this triggered a run on deposits at the GSB, which led to the closure of the bank in April. The GSB eventually merged with the Commonwealth Bank of Australia in December 1931.
- [5] In the sample, deposit accounts paying zero interest appear to have become more common during the 1920s and 1930s. This seems to explain why the interest rate distribution widens towards the end of the sample period.
- [6] There also appears to be heterogeneity in the interest rate sensitivity, with rich depositors being much less sensitive to changes in interest rates than other depositors.

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