BANK CRISES AND INVESTOR CONFIDENCE

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Abstract

In addition to their direct effects, episodes of financial instability may decrease investor confidence. Measuring the impact of a crisis on investor confidence is complicated by the fact that it is difficult to disentangle the effect of investor confidence from coincident direct effects of the crisis. In order to isolate the effects of financial crises on investor confidence, we study the investment behavior of immigrants in the U.S. Our findings indicate that systemic banking crises have important effects on investor behavior. Immigrants who have experienced a banking crisis in their countries of origin are significantly less likely to have bank accounts in the U.S. This finding is robust to including important individual controls like wealth, education, income, and age. In addition, the effect of crises is robust to controlling for a variety of country of origin characteristics, including measures of financial and economic development and specifications with country of origin fixed effects.

1.   Introduction

Turmoil in global financial markets during 2007 and 2008 makes it clear that banking crises are a continuing challenge, even for developed countries. In this recent episode we have seen old-fashioned bank runs, with depositors lining up to get their deposits out of banks like Northern Rock in the U.K. and IndyMac in the United States. During the past twenty-five years, the frequency and severity of financial crises has grown. About 113 system-wide banking crises have occurred in 93 countries since 1980 (Caprio and Klingebiel, 2002).

Financial crises tend to be costly in terms of output loss, employment and economic growth. Recent estimates suggest that output losses associated with banking crises amounted to an average of 12.8 percent of GDP (Honohan and Klingebiel, 2003).[1] Financial crises can impact economic growth through several channels. Borrowers may reduce consumption or investment in response to a sudden increase in the cost of credit or a decline in the availability of credit. In addition, changes in asset prices may generate changes in wealth that affect investor and firm behavior.

In addition to their direct effects, episodes of financial instability may decrease investor confidence. Decreased confidence in the banking sector can prolong recovery following a crisis and reduce the perceived credibility of post-crisis reforms. Measuring the impact of a crisis on investor confidence is complicated by the fact that it is difficult to disentangle indirect effects from coincident direct effects of the crisis. Both the direct and the indirect effects will reinforce one another at a time of crisis: reduced wealth and increased uncertainty will diminish investment as will weakened confidence in the financial sector. According to Gerard Caprio of the Worldbank, "Crises … leave citizens wary of entrusting their savings to the official banking sector. This diversion of savings is likely one of the great and unmeasured costs of banking crises."

Despite the importance of investor confidence in determining the cost of a crisis and paths to recovery, it is largely unstudied. In this paper, we isolate the indirect effects of financial crises on investor confidence. We do this by studying the investment behavior of immigrants in the U.S. If episodes of financial instability have lasting effects on investor confidence, then immigrants who have experienced a crisis may make different financial choices compared to their counterparts who have not lived through a financial crisis.

Nearly 10 percent of U.S. residents were born abroad, coming from a large and diverse set of countries. Nationally representative U.S. data sets provide us with information on the financial decisions of a large group of individuals who may have experienced systemic financial crises prior to migration. While household wealth, even post-migration, may be directly impacted by financial crises in the origin country, the data that we use include information on household wealth, so we are able to control for these effects in our empirical analysis. We augment the individual level data with country of

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[1] Mexico's 1994 banking crisis cost almost 10% of GDP. In South Korea and Chile, recent banking crisis were even more costly, amounting to 24% of GDP and 30% of GDP, respectively.

origin data on the timing and duration of systemic banking crises, information on the regulatory and financial environment as well as information on the quality of governance, the level of development and other important country of origin characteristics.

By analyzing how immigrants' financial decisions in the U.S. are influenced by crises in their countries of origin, we can explore how these events shape behavior. In addition to documenting whether exposure to systematic financial crises impacts future behavior, we can also explore how the effects of behavior differ across individuals. For example, we can compare the importance of crises for recent migrants relative to migrants who have been in the U.S. for many years. This comparison provides some insights into how long it takes investor confidence to return following a crisis episode. In addition, we can examine how the impact of a crisis varies with country of origin regulatory and financial system characteristics. What role does the overall development of the financial sector play? Is confidence more resilient for immigrants from countries with deposit insurance, or for immigrants from countries with less concentrated banking sectors, for example?

Our work is related to Kelly and O'Grada (2000) who show that county of origin impacts investor behavior during a banking panic using a unique sample of Irish immigrants in the U.S. We use a similar empirical strategy to study the impact of country of origin institutional quality on stock market participation (Osili and Paulson, 2008). In related work, Fernandez and Fogli (2005) show that country-of-ancestry fertility and female labor force characteristics influence the fertility and work behavior of U.S.-born children of immigrants.[2]

Our findings indicate that living through a systemic banking crisis has important effects on future behavior. Immigrants who come from countries that have experienced a banking crisis are less likely to have checking accounts in the U.S. This finding is robust to including a vast array of individual controls including wealth, education, income, and age. In addition, the effect of crises is robust to including country of origin fixed effects, which control for many other country characteristics including the level of economic and financial development and the quality of governance in the country of origin.

We also find that aspects of the legal and regulatory environment at the time of the crisis have important effects on future investor behavior. In particular, individuals who experience a crisis in a country that had deposit insurance in place prior to the crisis are as likely to have a checking account in the United States as their counterparts from the same country who migrated before the crisis. This demonstrates that policy may play an important role in mitigating shocks to investor confidence caused by financial turmoil.

The results are robust to addressing a number of econometric issues. For example, the country of origin fixed effects estimates also address the possibility that unobserved individual attributes are correlated with country of origin measures of financial stability.

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[2] Carroll, Rhee and Rhee (1994 and 1999) also use a conceptually similar approach in their studies of the cultural determinants of savings. Hendricks (2004) examines the behavior of immigrants in the U.S. to explain variation in hours worked across countries. Borjas (1987) also looks at the impact of country-of-origin characteristics on immigrant wage assimilation.

We also control for time-varying country specific unobserved heterogeneity in some specifications.

The next section describes the framework we use to derive the predicted relationship between bank crises and financial decisions. In section 3, we describe the country and individual level data that we analyze. Section 4 outlines the empirical strategy, discusses our findings and their robustness. Section 5 presents conclusions.

2. Background and Framework

Given our focus on banking crises, this paper draws on several strands of literature. A large number of studies emphasize investor behavior during and following a crisis. In an influential model, Diamond and Dyvbig (1983) show that a self-fulfilling loss of confidence in the banking system may lead depositors to seek to withdraw their funds from banks, causing widespread failure of the banking system.[3] In Chari and Jagannathan (1998), asymmetric information about the quality of bank assets leads investors to withdraw their deposits.

Because banks and other financial intermediaries play an important role in relaxing credit constraints and providing funds where profitable trading and investment opportunities exist, it is particularly important to understand how financial crises affect firms and households.[4] In a growing body of work, researchers have investigated the consequences of banking crises for real economic activity. Dell'Ariccia, Detragiache, and Rajan (2005) find that growth in externally dependent sectors tends to be lower during banking crises. Kroszner, Laeven, and Klingebiel, (2007) find that firms that are more dependent on external finance perform relatively worse during banking crises in countries with well-developed financial systems.

To date, few studies have explored how financial crises shape the beliefs and behavior of individuals. A notable exception is Kim and Wei (2002) who investigate foreign portfolio investors before and during the Korean currency crisis in late 1997. They find that foreign portfolio investors outside Korea are more likely to engage in herding than the branches of foreign institutions in Korea or foreign individuals living in Korea. They interpret this as evidence that investors in Korea have different information compared to those outside the country.

An investor's response to a banking crisis may be influenced by access to reliable information as well by government policies. However, the literature on how policies that are adopted during a banking crisis impact investor confidence is sparse.[5] Moreover, an

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[3] Demirguc-Kunt, Detragiache, and Gupta (2000) find that banking crisis can occur, even when depositors do not withdraw their deposits, if other bank creditors seek to exit from the banking sector, or if banks become insolvent.

[4] See Levine (1997, 2005) and Kroszner and Strahan (2005) for surveys of the literature on financial market development.

[5] Claessens, Klingebiel and Laeven, (2001) and Honohan and Klingebiel (2003) use cross-country evidence to determine how policies adopted in the wake of the crisis influence the fiscal costs of resolving a crisis.

investor's exposure to a bank crisis may have long-term consequences for behavior if it shifts an individual's expectations and attitudes (see Kahneman and Tversky, 1979).

Framework

It is helpful to sketch out a simple reduced-form framework in order to make the hypotheses that we test clear. Consider an individual, i, from country J who is considering whether to open a bank account. The individual's demand for bank services is represented by:

$$S_i = f(R, X_i)$$

where S_i is the amount that individual i invests in the bank account, R is the expected return from the investment, and X_i is a vector of individual characteristics (risk aversion, wealth, income, education, years in the U.S., age at migration, and other characteristics) that affect the demand for bank services.

The effect of bank crises is modeled by assuming that the investor believes there is some probability, π_i of a bank crisis that will impact returns to bank services. Given her beliefs, the investor's expected return on the investment will not be R, the expected return on the bank account, but $\pi_i \times 0 + (1 - \pi_i) \times R$. This assumes that the return in the event of a crisis is zero. Assuming that during a crisis returns are negative would not change the analysis.

The probability that an investor places on the likelihood of a crisis may be a function of past experiences of financial crises in the country that investor was born in, J, which may in turn be a function of the length of time the investor spent in that country, y_J, and the length exposure that the investor has to the U.S., y_{US}: $\pi_i = \pi(J, y_J, y_{US})$.

An individual immigrant's estimate of the likelihood of a bank crisis, π_i, is likely to be higher for individuals who come from countries with particularly unstable financial systems and may be decreasing with years spent in the U.S. To put the focus on the effect of living through a systemic banking crisis, we include country of origin fixed effects in all of the empirical estimates. The fixed effects should address variation in π_i that is due to the country origin level of economic and financial development and its quality of governance.

Among similar immigrants from the same country, we expect π_i to be higher and consequently demand for bank services in the U.S. to be lower for individuals who have lived through a crisis. We also explore whether π_i varies with the age at which an individual experienced a crisis and with how long they have lived in the U.S.

3.   **Data**

Individual data

The challenge in using individual data is to find meaningful variation in exposure to bank crises within a single data set. We achieve this by looking at a sample of 3,644

immigrants from the 1996 Survey on Income and Program Participation (SIPP) who are over eighteen and who migrated to the U.S. after 1975. We use information on date of arrival from internal SIPP files accessed through the Chicago Census Center to create the crisis exposure variable. The internal files also include data on current county of residence, which we use as a control variable. In addition, the public use SIPP data include detailed information on family structure, education, wealth, income and financial market participation.

The main dependent variable in our analysis is the ownership of a checking account in the U.S. However, we also examine other financial market decisions: the decision to open a savings account, and to own stock outside of a retirement account, the ownership of an individual retirement account (IRA) or Keogh account, and homeownership.

Checking account ownership is relatively widespread compared to other financial assets: 41 percent of immigrants have a checking account compared with 64 percent of the native-born. Thirty-five percent of immigrants have a savings account, compared with 53 percent of the native-born (see Table 2A). Five percent of the immigrant sample owns stock, compared with 18 percent of the native-born. We study stock held outside of retirement accounts because these holdings are less likely to be determined by occupation and type of employer. However, for comparison purposes we note that twice as many (30 percent) native-born households have an IRA or Keogh account compared to immigrant households. About 56 percent of immigrants own their own homes compared to 73 percent of the native-born.

We restrict the sample to immigrants who are over 18 for a total sample of 3,644 observations.[6] Table 2A summarizes these data for immigrants and the native-born. Compared to the native-born, immigrants are younger, more likely to be married, non-white and have more children. Immigrants also tend to be less educated than the native-born. Thirty-eight percent of the immigrant sample has never completed high school compared to only 17 percent of the native-born sample. However, the percentage of immigrants and the native-born who have an advanced degree is roughly the same at 7.3 percent and 6.9 percent, respectively.

Monthly per capita household income is significantly lower for immigrants compared to the native born. For immigrants, average monthly per capita household income is $1,648, compared to $2,398 for the native-born. In addition to having lower incomes, immigrant households have also accumulated less wealth compared to households headed by individuals who were born in the U.S. The median immigrant household has wealth of $11,788 compared to $67,317 for the native-born.

Additional immigrant characteristics are described in Table 2B. Nearly sixty percent of the immigrants arrived in the U.S. after 1980. Just under half of the immigrants were born in a North American country (including Mexico) and about 14 percent were born in

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[6] We restrict our attention to the first annual survey wave where financial market participation and wealth data are available. Other SIPP data are collected quarterly.

Europe.[7]   Most of the immigrants arrived in the U.S. as adults, with about 87 percent arriving at age twenty-one years or older.

Bank Crisis Measures

We use data provided in Honohan and Laeven (2005) to identify and date episodes of systemic banking sector crises. The data cover the period 1976 to 2002 and include 98 countries and 60 systemic crisis episodes. Because the data include individuals who were interviewed in the U.S. in 1996, we focus on crises that occurred between 1976 and 1996. See Appendix Table 1 for a summary of the crisis periods by country. Episodes of banking sector distress are considered systemic if non-performing assets reached at least 10% of total assets at the peak of the crisis, if the cost of rescue operations was at least 2% of GDP, if emergency measures (bank holidays, deposit freezes, blanket guarantees to depositors or other bank creditors) were taken, or if large-scale nationalizations took place.

We use information on the country of origin of individual migrants together with data on when they arrived in the U.S. to create the bank crisis variable, Z_{ij}, for individual i from country j. This variable is equal to one if the individual lived in their birth country during the crisis period and is equal to zero if they were living in the U.S. at the time of the crisis or if they come from a country that did not experience a systemic banking crisis between 1976 and 1996. For individuals who have experienced multiple bank crises, we use information from the first crisis.

As an alternative measure of exposure to bank crises, we also look at how old people were when they were first exposed to a bank crisis. This variable, $\check{Z}_{ijt}$, is equal to individual i's age at the beginning of the first crisis they were exposed to and is equal to zero if they never lived through a systemic banking crisis. As an example, consider immigrants from El Salvador which had one bank crisis in 1989. Salvadorans who arrived in the U.S. between 1976 and 1988 will have Z_{ij} equal to zero. Those who arrived after 1989 (and who are born before 1989) will have Z_{ij} equal to one. Salvadorans who arrive after 1989 will have $\check{Z}_{ijt}$ equal to their age in 1989. Someone who was born in 1979 is assigned $\check{Z}_{ijt}$ equal to ten, for example.

Other country-level data

In addition to information on bank crises, we also examine the role of a number of other features of the financial and economic environment in the country of origin.   The country-level variables and their sources are described in Table 1. Tables 3A and B provide summary information about these variables and their correlation with one another.   Country-level variables include: measures of bank freedom (Heritage Foundation), information on the availability of deposit insurance (from Demirgüç-Kunt, Kane and Laeven, 2007), bank branches per 100,000 people (from Peria, Beck and Demirgüç-Kunt, 2005).

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[7] Mexico accounts for just about one-third of the immigrants in the sample.

In an effort to explore how the nature of the crisis impacts investor confidence, we examine several variables that describe the nature of the financial crisis. These variables include whether the country experienced a GDP crisis at the same time as the banking crisis. We define a GDP crisis period to be an episode of at least three consecutive years of negative GDP growth. We also examine the role of having enacted deposit insurance prior to the banking crisis (combining information on the timing of the crisis from (Honohan and Laeven, 2005) with information on deposit insurance from Demirgüç-Kunt, Kane and Laeven, 2007), the length of the banking crisis and the lowest GDP growth rate observed during the crisis (both from Honohan and Laeven, 2005).

In addition to these variables that measure financial sector development and the nature of the crisis, we also examine the effect of other important aspects of the countries financial and economic development. These variables include the level of economic development (average real GDP per capita over the 1976 – 1996 period), private credit (the value of credits by financial intermediaries to the private sector divided by GDP (Beck, Demirgüç-Kunt, and Levine, 2000), and a measures of the quality of governance – the KKZ index (Kaufman and Kray, 2000-2001).

4.   Empirical Findings

This section reports on our empirical findings. We estimate an immigrant's decision to have a checking account using the following linear probability model:

$$S_{isj} = \alpha + \beta_1 X_i + \beta_2 Z_{ij} + \delta_j + \delta_s + \varepsilon_{isj},$$

Where S_{isj} is the decision of individual i who lives in county s and comes from country j to have a checking account. Individual controls are incorporated in X_i and include age, age squared, wealth quartiles, income, labor force status, education, sex, marital status, number of children in household, and race. All of the specifications also include country of origin fixed effects, δ_j. A full set of county fixed effects are included in δ_s. The variable Z_{ij} is equal to one if the individual immigrated to the U.S. after experiencing a banking crisis while they were living in their country of origin.

All of the reported standard errors have been corrected to account for the heteroscedasticity that is implicit in the linear probability model and are also adjusted to allow for correlation across observations for immigrants who come from the same country and migrated during the same period.[8]

The relationship between financial behavior and systemic bank crises is explored in Table 4 for checking account ownership. The sample is restricted to immigrants who are at least 18 years of age and come from one of the 91 countries (excluding the U.S.) which

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[8] We use a linear probability model because it is computationally attractive given the large number of fixed effects, is consistent under weak assumptions and because the coefficient estimates are easy to interpret. In particular, the coefficients on interaction terms are straight-forward to interpret (see Ai and Norton, 2003). Non-linear estimation methods, such as probit or logit, generate similar results.

are represented in the SIPP data. The explanatory variables include age, age squared, wealth quartiles, labor force status, income, marital status, sex, race, education, number of children, controls for the country of origin as well as controls for the county where the immigrant lives in the U.S.

There are two important reasons for including country of origin fixed effects. First, there are many time-invariant country of origin characteristics that might influence the demand for various financial products. These include the level of financial and economic development in the country of origin as well as the quality of institutions that protect private property and provide incentives for investment (see Osili and Paulson, 2008). Many of these variables are likely to be correlated with the experience of bank crises. Table 3B shows the correlation between the bank crisis variables and other country of origin characteristics. By including country of origin fixed effects, we ensure that the effect of bank crises is measured holding these (and other) country level variables fixed.

The second reason for including country of origin fixed effects is to control for unobserved individual heterogeneity. Immigrants are not random representatives of their country of origin. They choose to migrate and that decision may be influenced by characteristics that are not observable. If unobserved individual characteristics are correlated with coming from a country that has experienced a bank crisis, then we need to be concerned that our findings capture the effect of unobserved individual characteristics, rather than the effect of bank crises. By including country-of-origin fixed effects, we eliminate correlation between unobserved individual attributes and country of origin.

Looking first at the estimates of owning a checking account (column [1]) without wealth and income controls, we find that individuals who have experienced a bank crisis are 13.3 percentage points less likely to have a U.S. bank account. When we include wealth and income controls in column [2], immigrants who have experienced a bank crisis are 10.8 percentage points less likely to own a checking account compared to otherwise similar immigrants. This is 26 percent lower than the observed percentage of immigrants who have a checking account of 41 percent. The effects of the other control variables included in the regressions are reported in Appendix Table 2.

In order to explore the robustness of the baseline findings, we take advantage of the fact that whether or not a given immigrant will have had direct experience with a bank crisis depends on the country of origin, when that individual migrated to the US, and also on the age of the individual at the time of the crisis. Individuals who are adults at the time of a bank crisis are more likely to have directly experienced the effects of the crisis compared to younger individuals. They are more likely to have had bank accounts and other financial assets whose values were impacted by the crisis, for example.

To capture this effect, we create a new measure of having experienced a bank crisis which is equal to the individual's age at the time of the crisis for individuals who were exposed to a banking crisis in their origin country prior to migrating to the U.S. The variable is equal to zero if the individual has not experienced a crisis. In effect, the new measure, age at crisis, is equal to the interaction of "age at the start of the banking crisis"

with "experience with a banking crisis". Specifically, for individuals who have experienced a banking crisis, it is defined as:

$$Age\ at\ Crisis_{ijt} = Year\ of\ Banking\ Crisis\ Begins_{jt} - Year\ of\ Birth_{ijt}$$

Because "age at crisis" varies by country, by year of migration and by age, we can also include controls for the decade of migration in specifications which use age at crisis:

$$S_{isjdt} = \alpha + \beta_1 X_i + \beta_2 \check{Z}_{ijt} + m_d + \delta_j + \delta_s + \delta_j \times m_d + \varepsilon_{isjdt,}$$

Where S_{isjdt} represents the decision of individual i who lives in county s, comes from country j, migrated in decade d and who was born in year t to have a checking account. Age at crisis is represented by $\check{Z}_{ijt}$, m_d captures controls for the decade of migration and $\delta_j \times m_d$ are country x decade of migration fixed effects.

An extensive literature discusses how unobserved individual characteristics (such as ability) may vary with the timing of migration for a given country (see Borjas, 1994 and Borjas and Friedberg, 2006 for a review of this literature). By including decade of migration controls interacted with country fixed effects, we can account for any correlation between experiencing a banking crisis and unobserved characteristics that are shared by a cohort of migrants from a given country.

Individuals from the same country who migrated to the U.S. during a particular time period may share common characteristics such as unobserved ability, risk tolerance, or face similar labor market conditions in the U.S. These "cohort" effects may affect the decision to own a bank account and be correlated with having experienced a bank crisis. By including decade of migration controls in the regression, we eliminate the correlation between the age at crisis variable and unobserved immigrant characteristics that vary with the timing of migration.

As in the rest of the analysis, we include country fixed effects in all of the specifications. By including country of origin fixed effects, we eliminate correlation between unobserved individual attributes and country of origin characteristics. We should also note that county fixed effects are included in all of the estimates, and this allows us to rule out other potential source of biases in the estimated coefficient for the effect of experiencing a bank crisis.[9]

Columns [3] – [6] of Table 4 report on the relationship between checking account ownership and age at crisis for various specifications. In Column [3], the zero/one crisis variable is simply replaced with "age at crisis". According to this estimate, the effect of

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[9] Since location choice is non-random, immigrants who have experienced a bank crisis who choose to live in a county with a large fraction of immigrants from the same country may be systematically different along unobservable dimensions from immigrants who choose to live in a county with very few immigrants from the same country of origin. By including county fixed effects, we ensure that the coefficient on experiencing a bank crisis and age at crisis will be not be biased by unobserved characteristics that are correlated with the choice of county.

living through a crisis is larger for those who were adults than for those who were children at the time of the crisis, as one might expect. An individual who was 30 years old at the start of the crisis would be 9 percentage points less likely to have a checking account compared to someone from the same country who had not been exposed to the crisis. Someone who was 45 at the time of the crisis would be 13.5 percentage points less likely to have a checking account. We have also experimented with adding quadratic terms in age at crisis and did find some evidence that the age effect is non-linear. However, the coefficient on the age at crisis squared term was not significant, so we do not report on it here.

In column [4] we add decade of migration fixed effects and in column [5] we add decade of migration interacted with country of origin fixed effects. When we add these controls, we are effectively comparing the effect of a crisis on similar individuals from the same country of origin who all arrived in the U.S. in the same decade. This eases concerns that the findings are driven by time varying unobserved heterogeneity.

Migrating to the U.S. in response to a financial crisis is more plausible for people from some countries than from others. In particular, it may be relatively easy for people from Mexico to adapt their migration plans in response to a crisis because of its geographic proximity to the U.S. To make sure that the findings are not driven by immigrants from Mexico, we rerun the specification with country interacted with decade of arrival controls in Column [6] for a sample that drops immigrants from Mexico. The results are unchanged. We have also experimented with dropping additional immigrants from the Caribbean and Latin America with similar results.

In addition, we analyzed Department of Homeland Security data on immigration flows by year and by country to see if the number of immigrants responds to crisis conditions in the country of origin. There is no evidence that from the arrival data that migration flows respond to crises on average.

The effect of bank crises on different types of people

We turn now to analyzing how bank crises impact different groups of immigrants. In Tables 5, we examine how the impact of a bank crisis varies with education, citizenship and time in the U.S. These estimates help to identify the potential channels through which crises come to influence behavior and also serve as further robustness checks on our main results.

We first examine how the impact of experience with a bank crisis changes with education. Columns [2] and [3] present these results. In columns [2] and [3], we include two crisis variables. The first one is the usual one – an indicator variable that is equal to one if the individual experienced a bank crisis prior to coming to the U.S. The second one is that variable interacted with low education (in column [2]) or with high education (column [3]). Low education is equal to one if the immigrant in question has not

completed high school and zero otherwise. High education is equal to one if the immigrant has a college degree or more schooling.

We find that most living through a crisis has a much larger impact on individuals with less than a high school degree.[10] On the other hand, individuals with a college degree or greater appear to be largely unaffected by living through a financial crisis. It is interesting to note that education plays a role in mitigating the impact of experiencing a banking crisis despite the fact that educated immigrants are likely to have had more direct experience with banks and other financial institutions in their origin countries compared to the less-educated.

Column [4] – [6] examine how the effect of living through a crisis changes with various measures of assimilation in the U.S. In column [4], we look at how the effect of living through a crisis varies with years in the U.S. Each additional year in the U.S. lowers the effect of living through a crisis on checking account ownership by 0.80 percentage points. After being in the U.S. for 21 years, the effect disappears. Note that each additional year in the U.S. has (at least) two effects: 1) it represents an additional year to get acclimated to the U.S. and 2) it represents an additional year of time since the crisis. The regression in column [4] does not distinguish between these two effects.

In column [5], the interaction between the crisis variable and having lived in the U.S. for three years or less is added. Among recent immigrants the effect of having experienced a crisis is much larger. For recent immigrants who have experienced a bank crisis, checking account usage is 18 percentage points lower. For their counterparts who have also experienced a bank crisis but who have lived in the U.S. for more than three years, checking account usage is predicted to be 9 percentage points lower.   Finally, in column [6] we examine the impact of becoming a naturalized citizen. There is no statistically significant different behavior between naturalized citizens and other immigrants in terms of how living through a crisis impacts their checking account usage.

The effect of other country characteristics

In this section, we discuss how the effect of bank crises is influenced by other country characteristics. Table 6 investigates to what extent the effect of a banking crisis varies with other country of origin characteristics by including the interaction of the "experienced a bank crisis" variable with other country characteristics. Recall that all of these regressions include country of origin fixed effects. This analysis considers how the effect of a banking crisis is influenced by the level of economic and financial development in the country of origin, as well as by measures of governance.   These estimates also serve as robustness checks on the baseline specification.

We first include the interaction of experiencing a banking crisis with average real per capita GDP from 1976 to 1996 in the country of origin in the estimate presented in

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[10] This result mirrors the findings of Guiso, Sapienza and Zingales (2004 and 2005) who find that the effect of social capital is muted for those with greater education.

column [2] of Table 6. We find that the interaction of experience with a bank crisis and average real GDP per capita is positive and statistically significant and statistically significant. According to these results the effect of living through a bank crisis is smaller for immigrants who come from places where the overall level of development is higher. A one standard deviation increase in real GDP per capita over the 1976 to 1996 period is associated with a 4.7 percentage point increase in the likelihood of having a checking account for individuals who experienced a crisis, all else equal.

The effect of overall economic development differs from the effect of financial development. There is no significant difference in the effect of living through a bank crisis for people who come from places where there is greater private credit (column [3]) or bank freedom (column [4]) or more bank branches per 100,000 people (column [5]). Banking freedom captures the openness of the banking sector, including the degree to which foreign firms can enter the banking sector and to what extent there is government ownership of banks. Several studies have argued that foreign banks provide a stabilizing influence during a crisis because they are subject to greater supervision and oversight from both host and home country regulatory institutions. Foreign banks may also provide outside resources to rescue failing banks.[11] Our findings suggest that experiencing a bank crisis in a country with greater bank freedom does not translate into significantly more confidence in the U.S. banking sector.

In countries with more bank branches per 100,000 people, the banking sector is likely to better developed and this suggests the presence of a more extensive regulatory framework to monitor bank activities. In addition, there are likely to be more people who have bank accounts and who would feel the impact of a crisis directly in these countries. Despite this we find that the effect of experiencing a bank crisis does not vary significantly with the number of bank branches per 100,000 people in the country.

Coming from a country that has good governance mitigates the effect of living through a crisis substantially, however, see column [6]. A one standard deviation increase in governance, as measured by the KKZ index, is associated with a 9 percentage increase in the likelihood of having a checking account after living through a crisis. The net effect is that individuals who have experienced a banking crisis are 3 percentage points less likely to have a checking account (-11.7 + 9 = 3 percentage points).

These findings suggest that economic development and good governance may play an important role in maintaining and/or restoring investor crisis during and following a systemic bank crisis. For example, investor confidence may be restored even in the face of a systemic bank crisis if credible government action is taken to resolve crisis and this credible government intervention is associated with high standards of institutional effectiveness (see Demirguc-Kunt, Detragiache, and Gupta, 2006).

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[11] Although the presence of foreign banks may provide a stabilizing influence, their impact may be limited during a systemic crisis if foreign banks purchase distressed domestic banks (Cull and Martinez Peria, 2007).

Does the Severity of the Banking Crisis Matter?

There is a large literature that measures how the severity of a financial crisis impacts economic growth (see Kaminsky and Reinhart (1999) and Caballero and Hammour (1994) for example). In Table 7, we investigate the effect of several measures of the severity of a banking crisis on subsequent investor behavior. We also explore the effect of banking crises that are accompanied by additional economic shocks.

For comparison purposes, we begin by examining the effect of experiencing a GDP crisis at the same time as a banking crisis in column [2]. A GDP crisis is defined as three consecutive years of negative GDP growth during the time period 1981-2001. Immigrants who live through a GDP shock at the same time they experience a systemic banking crisis have significantly different patterns of bank account ownership compared to otherwise similar immigrants who did not live through a GDP shock at the time of the banking crisis. In particular, they are much less likely to have a checking account in the U.S. compared to immigrants who experienced a banking crisis that is not accompanied by a severe economic downturn.

In column [3], we control for the lowest GDP growth rate experienced during the bank crisis period. Including this control variable has little effect on the estimates. In column [4], we examine how the length of the crisis influences investor behavior. The length of the financial crisis does not have a significant impact on the likelihood of having a checking account in the U.S.

Finally, we investigate how the availability of deposit insurance at the time of the crisis affects investor decisions (column [5]). Individuals who experienced a bank crisis in a country that has explicit deposit insurance in place prior to the crisis are as likely to have a bank account in the U.S. as individuals who never experienced a banking crisis prior to moving to the U.S. The estimates suggest that having deposit insurance *prior* to the crisis undoes the negative effect of living through a crisis on investor confidence.[12]

Do Banking Crisis Matter for other behavior?

Finally, we explore the robustness of the link between checking account ownership and experiencing a banking crisis by considering the effect of banking crisis on other behavior. In Table 8, we present estimates of experiencing a banking crisis on the decision to have any bank account, a savings account, to own stock, to own an IRA or Keogh account, to own a home and to be self-employed. These estimates serve two purposes. First, they allow us to test the hypothesis that the impact of a banking crisis varies with the degree to which the banking sector is required to make a particular

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[12] Interestingly, when we examined the effect of deposit insurance in general, rather than deposit insurance that is in place prior to the crisis, we find that deposit insurance weakens investor confidence (estimates available from the authors). One reason for the contrast between the findings could be the moral hazard effects of deposit insurance. Demirgüç-Kunt and Detrigiache (2002) show that explicit deposit insurance is associated with increased bank fragility, especially in countries with weak institutions.

investment decision reasonable. Second, these estimates address the possibility that experience with a banking crisis is proxying for some other unobserved attribute – risk aversion, for example -- that explains all sorts of behavior, not just behavior that should be impacted by experience with a banking crisis. In other words, the regressions in Table 8 tell us if living through a banking crisis matter more when we would expect it to and less when we would expect it not to.

We find that experiencing a banking crisis also has a significant impact on other financial market decisions that are mediated through banks: having any bank account, a savings account or purchasing a home. Compared to otherwise similar immigrants, immigrants who lived through a bank crisis in their country of origin are 7.3 percentage points less likely to own a home. Interestingly, exposure to systemic bank crises does not appear to have a significant impact on stock market participation, IRA/KEOGH ownership or self-employment. Although investor confidence in banks appears to be shaken by bank crises, this experience does not seem to translate to other investments.

5.   Conclusions

Our findings indicate that systemic banking crises have important effects on investor confidence. Immigrants who have experienced a banking crisis in their countries of origin are less likely to have bank accounts in the U.S. This finding is robust to including important individual controls like wealth, education, income, and age, as well as country of origin fixed effects. Individuals who experienced a crisis as adults are more likely to be impacted than younger individuals at the time of the crisis and the effect is particularly pronounced for immigrants with less education. However, the effect of bank crises does not impact stock market participation. This suggests that, although investors are unable to ignore their past bad experiences with banks in interacting with U.S. banks, these experiences do not spill over to non-bank investments.

Overall, the findings suggest that systemic financial crises have important indirect effects on investor confidence. Reduced investor confidence following a crisis is likely to be an important component of the cost of a systemic financial crisis and to make recovery more challenging.

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Table 1: Definitions and Sources of Banking Crisis Variables

Variable	Definition and Source
Bank Crisis	An indicator of whether a country has experienced a systemic financial crisis between 1980 and 2001. This information is combined with information from the 1996 Survey on Income and Program Participation (SIPP) on country of origin, year of migration to the U.S., and age to create "experienced bank crisis" which is equal to one if an individual lived through a systemic bank crisis and zero otherwise and "age at crisis" which is equal to an individual's age at the beginning of the systemic bank crisis. For individuals who experienced multiple crises, information from the first crisis that they experienced is used. Source: Honohan, Patrick and Luc Laeven, 2005, Systemic Financial Distress: Containment and Resolution, Cambridge, UK: Cambridge University Press, 2005 and authors' calculations using 1996 SIPP data.
Experienced Bank Crisis	
Age at Crisis	
Average GDP	Average real GDP per capita 1976-1996 (2000 dollars). Source: Authors' calculations using World Bank World Development Indicators
Private Credit	A broad measure of financial intermediary development. It is calculated as the value of credits by financial intermediaries to the private sector divided by GDP. Source: Beck, Demirguc-Kunt, and Levine (2000)
Banking Freedom	An indicator of the relative openness of the banking and financial system, averaged over the period 1995–99: specifically whether foreign banks and financial services firms are able to operate freely, how difficult it is to open domestic banks and other financial services firms, how heavily regulated the financial system is, the presence of state-owned banks, whether the government influences allocation of credit, and whether banks are free to provide customers with insurance and invest in securities (and vice-versa). The index ranges in value from 1 (very low) to 5 (very high), calculated as 6 minus the banking freedom index of the Heritage Foundation. Source: Heritage Foundation's Index of Economic Freedom
Bank Branches per 100,000 people	Number of bank branches per 100,000 people. Source: Peria, Maria Soledad Martinez, Thorsten Beck and Asli Demirguc-Kunt, Reaching Out: Access to and Use of Banking Services Across Countries. http://econ.worldbank.org/
KKZ Index	A composite of six governance indicators (1998 data): voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and corruption. Higher values correspond to better governance. Source: Kaufman and Kray (2000-2001)
GDP Crisis	An indicator of whether a country experienced three consecutive years of negative real per capita GDP growth during the period 1981-2001. Source: Author's calculations using World Bank World Development Indicators
Lowest GDP growth during Bank Crisis	Lowest annual growth in GDP during period of Bank Crisis. Source: Honohan, Patrick and Luc Laeven, 2005, Systemic Financial Distress: Containment and Resolution, Cambridge, UK: Cambridge University Press, 2005
Length of Bank Crisis	Length of bank crisis in years. Source: Honohan, Patrick and Luc Laeven, 2005, Systemic Financial Distress: Containment and Resolution, Cambridge, UK: Cambridge University Press, 2005
Deposit Insurance at Time of Crisis	An indicator of whether a country had formal regulation requiring deposit insurance through central bank law, banking law, or the country's constitution before the time of the country's first crisis. Source: Demirgüç-Kunt, Asli, Edward J. Kane, and Luc Laeven, 2007, "Determinants of Deposit-Insurance Adoption and Design", Journal of Financial Intermediation, Forthcoming.

Table 2A: Characteristics of Immigrants and the Native Born in the SIPP Data

Characteristic	Native Born	Immigrant
Individual Characteristics	45.30	37.53
Age	(17.43)	(13.58)
% Male	46.07	46.58
% Married	57.72	66.28
% non-white	19.89	81.53
% unemployed or out of the labor force	33.21	34.24
# of children < 18 in household	0.74	1.42
	(1.11)	(1.45)
Average monthly per capita household income	$2,397.93	$1,639.92
	(3073.94)	(2575.34)
Median monthly per capita household income	$1676.40	$1057.60
Average household wealth	$171,563	$74,406
	(693,994)	(205,059)
25th percentile of household wealth	$13,522	$1,058
Median household wealth	$67,317	$12,061
75th percentile of household wealth	$180,413	$62,694
Educational Attainment (%)		
Less than High School	17.05	37.67
High School Graduate	32.21	23.55
Some College	29.71	18.65
Bachelor Degree	14.15	12.76
Advanced Degree	6.89	7.36
Financial Market Participation (%)		
% with banking relationship	74.87	56.32
% with a checking account (interest or non-interest)	63.53	41.16
% with a savings account	53.16	35.79
% own stock	17.84	5.45
% IRA/Keogh	18.17	5.17
Other characteristics (%)		
% own home	72.25	43.10
% self-employed	9.64	2.30
Number of Observations	49,109	3,817

Notes: Unless otherwise noted, mean values are reported. Standard deviations are in parentheses. Sample is restricted to the one wave of the 1996 Survey on Income and Program Participation with wealth information, to individuals 18 and over, to those who live in a county. The immigrant sample is restricted to those who arrived in the U.S. after 1975.

Table 2B: Immigrant Characteristics

Characteristic	Immigrant
Year of Arrival in the U.S. (%)	
1975 – 1979	16.98
1980 – 1984	22.79
1985 – 1990	25.41
1991 – 1996	34.82
Age at Migration (%)	
five years or younger	2.33
six to ten years	1.25
Eleven to fifteen years	2.20
sixteen to twenty years	4.49
over twenty years	89.73
Continent of Origin (%)	
North America	49.53
Europe	8.55
Asia	34.06
Africa	1.21
South America	6.45
Australia and Oceania	0.19

Notes: Sample is restricted to the first wave of the 1996 Survey on Income and Program Participation with wealth information, to individuals 18 and over, and to those who were born abroad and who arrived in the U.S. after 1975.

Table 3A: Summary of Country and Crisis Variables

Characteristic	N	Mean	Standard Deviation	Min	Median	Max	U.S. value
Measures of Banking Crisis							
Bank Crisis	98	0.469	0.502	0	0	1	1
Average GDP	84	8,704	10,376	106	3,208	42,873	24,831
GDP Crisis	70	0.528	0.503	0	1	1	0
Private Credit	62	0.532	0.378	0.046	0.473	1.687	0.460
KKZ Index	65	0.468	0.739	-1	0.33	1.72	1.29
Bank Freedom	65	3.468	0.763	2	3.333	5	4
Deposit Insurance	89	0.674	0.471	0	1	1	1
Branches/100,000 people	71	16.62	17.462	0.41	9.59	95.87	30.86

Table 3B: Correlation between Country Characteristics

Characteristic	Bank Crisis	Av. GDP	GDP Crisis	Priv. Credit	KKZ Index	Bank Freedom	Deposit Insurance	Branches/ 100,000 people
Bank Crisis	1.000							
Average GDP	-0.141	1.000						
GDP Crisis	0.083	-0.678***	1.000					
Private Credit	-0.331***	0.253**	-0.377***	1.000				
KKZ Index	-0.404***	0.196*	-0.306**	0.634***	1.000			
Bank Freedom	-0.218*	-0.062	-0.061	0.414***	0.469***	1.000		
Deposit Insurance	0.335***	-0.190*	-0.082	0.009	0.080	-0.029	1.000	
Branches/100,000 people	-0.301***	0.189*	-0.316***	0.432***	0.646***	0.298**	0.248**	1.000

Notes: *** indicates significance at at least the 1% level, ** at at least the 5% level, * at at least the 10% level.

Table 4: Experiencing a Bank Crisis and Checking Account Ownership

Explanatory Variable	[1] No Wealth or Income Controls	[2] With Wealth and Income Controls (Baseline)	[3] Age at Crisis	[4] Age at Crisis Decade of Migration Controls	[5] Age at Crisis Decade of Migration * Country Controls	[6] Age at Crisis Decade of Migration * Country Controls No Mexico
Experienced Bank Crisis	-0.133***	-0.108***				
	(0.028)	(0.025)				
Age at Crisis			-0.003***	-0.003***	-0.002***	-0.003***
			(0.001)	(0.001)	(0.001)	(0.001)
Decade of Migration Fixed Effects				Yes	Yes	Yes
Decade of Migration * Country Effects					Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-Squared	0.2911	0.3114	0.3111	0.3111	0.3225	0.2916
Number of Observations	3644	3644	3644	3644	3644	2506
Number of Countries	91	91	91	91	91	90

Notes: In addition to those reported on here, regressions [2] – [5] include controls for age, age squared, wealth quartiles, labor force status, income, income squared, marital status, sex, ethnicity, education, number of children, and county controls. Regression [1] does not include income and wealth but does include the other explanatory variables. The number of observations differs depending on the number of countries for which a particular measure is available. A linear probability model is used and standard errors are corrected for heteroskedasticity and clustering at the country-cohort level. Standard errors are in parentheses. *** indicates significance at at least the 1% level, ** at at least the 5% level, * at at least the 10% level.

Table 5: Experiencing a Bank Crisis and Individual Attributes
Dependent Variable: Checking Account Ownership

Explanatory Variable	[1] Baseline	[2] Low Education	[3] High Education	[4] Experienced Bank Crisis * Length of Time in US	[5] Experienced Bank Crisis * Arrived in US in Last 3 years	[6] Citizens
Experienced Bank Crisis	-0.108***	-0.039	-0.128***	-0.166***	-0.090***	-0.113***
	(0.025)	(0.029)	(0.025)	(0.025)	(0.026)	(0.027)
Crisis*Low Education		-0.136***				
		(0.016)				
Crisis*High Education			0.123***			
			(0.042)			
Crisis*Years in the U.S.				0.008***		
				(0.002)		
Crisis*Arrived in U.S. in last 3 yrs					-0.090***	
					(0.018)	
Crisis*U.S. Citizen						0.036
						(0.048)
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-Squared	0.3114	0.2933	0.2937	0.3128	0.3131	0.3114
Number of Observations	3644	3644	3644	3644	3644	3644
Number of Countries	91	91	91	91	91	91

Notes: In addition to those reported on here, all of these regressions include controls for age, age squared, wealth quartiles, labor force status, income, income squared marital status, sex, ethnicity, education, number of children, and county controls. A linear probability model is used and standard errors are corrected for heteroskedasticity and clustering at the country-cohort level. High education immigrants are those with a bachelor's degree or more education. Low education immigrants are those with less than a high school degree. Standard errors are in parentheses. *** indicates significance at at least the 1% level, ** at at least the 5% level, * at at least the 10% level.

Table 6: Experiencing a Bank Crisis and Country Characteristics
Dependent Variable: Checking Account Ownership

Explanatory Variable	[1] Baseline	[2] GDP	[3] Private Credit	[4] Bank Freedom	[5] Branches/ 100,000 People	[6] KKZ Index
Experienced Bank Crisis	-0.108***	-0.124***	-0.142***	-0.114	-0.109*	-0.117***
	(0.025)	(0.029)	(0.037)	(0.080)	(0.061)	(0.026)
Crisis*Average GDP per capita[†]		0.455**				
		(0.202)				
Crisis*Private Credit			0.120			
			(0.092)			
Crisis*Bank Freedom				-0.001		
				(0.028)		
Crisis*Bank Branches/100,000					0.001	
					(0.007)	
Crisis*KKZ Index of Inst Quality						0.127**
						(0.055)
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-Squared	0.3114	0.3166	0.3241	0.3243	0.3281	0.3249
Number of Observations	3644	3301	2914	3067	2906	3067
Number of Countries	91	67	55	57	62	57

Notes: In addition to those reported on here, all of these regressions include controls for age, age squared, wealth quartiles, labor force status, income, income squared marital status, sex, ethnicity, education, number of children, and county controls. The number of observations differs depending on the number of countries for which a particular measure is available. A linear probability model is used and standard errors are corrected for heteroskedasticity and clustering at the country-cohort level. Standard errors are in parentheses. *** indicates significance at at least the 1% level, ** at at least the 5% level, * at at least the 10% level. [†]Coefficient and standard error are the actual ones multiplied by 100,000.

Table 7: Experiencing a Bank Crisis and Characteristics of the Crisis
Dependent Variable: Checking Account Ownership

Explanatory Variable	[1] Baseline	[2] GDP Crisis at Crisis	[3] Lowest GDP growth	[4] Length of Crisis	[5] Deposit Insurance At Crisis
Experienced Bank Crisis	-0.108	-0.063**	-0.115***	-0.010**	-0.129***
	(0.025)	(0.030)	(0.033)	(0.046)	(0.027)
Crisis*GDP Crisis at Crisis		-0.068***			
		(0.020)			
Crisis*Lowest GDP Growth			-0.160		
			(0.350)		
Crisis*Length of Bank Crisis				-0.001	
				(0.005)	
Crisis*Deposit Insurance at crisis					0.121***
					(0.032)
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes
Adjusted R-Squared	0.3114	0.3327	0.3060	0.3060	0.3136
Number of Observations	3644	2930	2578	2578	3542
Number of Countries	91	62	39	39	77

Notes: In addition to those reported on here, all of these regressions include controls for age, age squared, wealth quartiles, labor force status, income, income squared marital status, sex, ethnicity, education, number of children, and county controls. The number of observations differs depending on the number of countries for which a particular measure is available. A linear probability model is used and standard errors are corrected for heteroskedasticity and clustering at the country-cohort level. Standard errors are in parentheses. *** indicates significance at at least the 1% level, ** at at least the 5% level, * at at least the 10% level.

Table 8: Experiencing a Bank Crisis and Other Investment Decisions

Explanatory Variable	[1] Baseline: Checking Account	[2] Any Bank Account	[3] Savings Account	[4] Stock	[5] IRA/Keogh	[6] Homeowner	[7] Self-Employment
Experienced Bank Crisis	-0.108***	-0.151***	-0.090***	0.008	-0.016	-0.073***	-0.003
	(0.025)	(0.034)	(0.025)	(0.006)	(0.019)	(0.022)	(0.020)
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-Squared	0.3114	0.3198	0.2297	0.2302	0.1876	0.5001	0.1001
Number of Observations	3644	3644	3644	3644	3644	3644	3644
Number of Countries	91	91	91	91	91	91	91

Notes: In addition to those reported on here, all of these regressions include controls for age, age squared, wealth quartiles, labor force status, income, income squared marital status, sex, ethnicity, education, number of children, and county controls. A linear probability model is used and standard errors are corrected for heteroskedasticity and clustering at the country-cohort level. Standard errors are in parentheses. *** indicates significance at at least the 1% level, ** at at least the 5% level, * at at least the 10% level.

Appendix Table 1: Bank Crisis and GDP Crisis
Countries and Years

	Country	Year(s) of Banking Crisis	Year(s) of GDP Crisis
1	Afghanistan	None	No Data
2	Argentina	1980–82, 1989-90, 1995,2001-2002	1990,2001-02
3	Armenia	1994–96	1993
4	Australia	None	None
5	Austria	None	None
6	Bahamas	None	1992
7	Bangladesh	1987–96	None
8	Barbados	None	No Data
9	Belgium	None	None
10	Belize	None	1983-85,1996-97
11	Bermuda	None	No Data
12	Bolivia	1986–88, 1994-1995	1981-86
13	Brazil	1990, 1994-99	1983,1992
14	Burma	None	No Data
15	Cambodia	None	No Data
16	Canada	None	1992
17	Caribbean	None	None
18	Chile	1976, 1981-83	None
19	China	1998–2002	None
20	Colombia	1982–87	None
21	Costa Rica	1994–96	1982
22	Cuba	None	No Data
23	Czech Republic	1989–91	1993
24	Czechoslovakia	None	No Data
25	Denmark	None	None
26	Dominica	None	None
27	Dominican Republic	None	None
28	Ecuador	1980-1983, 1996-97,1998-01	None
29	Egypt	1980-1983	None
30	El Salvador	1989	1981-82
31	Ethiopia	None	1990-92
32	Fiji	None	No Data
33	Finland	1991–94	1992-93
34	France	None	None
35	Germany	None	None
36	Ghana	1982–89	1981-83
37	Greece	None	1982-83
38	Grenada	None	None
39	Guatemala	None	1983-86,2003
40	Guyana	None	1984,1990
41	Haiti	None	1983-90,1994-95, 2002-03
42	Holland	None	No Data
43	Honduras	None	1982-83
44	Hong Kong	None	None
45	Hungary	1991–95	1992-93
46	India	None	None
47	Indonesia	1997–2002	None

Appendix Table 1: Bank Crisis and GDP Crisis
Countries and Years

	Country	Year(s) of Banking Crisis	Year(s) of GDP Crisis
48	Iran	None	1981,1986-88
49	Iraq	None	No Data
50	Israel	1977–83	2003
51	Italy	None	None
52	Jamaica	1996–2000	1998
53	Japan	1992–2001	None
54	Jordan	None	1989-91
55	Kenya	1985–89, 1992, 1993-95	1983-84,1993-94
56	Korea/South Korea	1997–2002	None
57	Laos	None	No Data
58	Latvia	1995–96	1992-93
59	Lebanon	1988–90	No Data
60	Lithuania	1995–96	1993-94
61	Malaysia	1997–2001	None
62	Mexico	1981–91, 1994-2000	1988
63	Morocco	1980-1983	None
64	New Zealand	None	1989-91
65	Nicaragua	1987-1989	1986-93
66	Nigeria	1991–95	1983-84,1995
67	Norway	1990–93	None
68	Pakistan	None	None
69	Palestine	None	No Data
70	Panama	1988–89	1989
71	Peru	1983–90	1990
72	Philippines	1983–87, 1998-2002	1985,1993
73	Poland	1992–95	No Data
74	Portugal	None	None
75	Romania	1990–96	1990-92,1999
76	Russia	1995, 1998-99	1992-96
77	Saudi Arabia	None	1983-87,1995
78	Singapore	None	None
79	Slovakia/Slovak Republic	None	1992-93
80	South Africa	None	1987,1992-93
81	Spain	1977–85	None
82	Sweden	1991–94	1993
83	Switzerland	None	1993
84	Syria	None	1984
85	Taiwan	None	No Data
86	Thailand	1983–87, 1997-2002	None
87	Trinidad & Tobago	None	1985-89
88	Turkey	1982–85, 2000-2002	None
89	UK	None	None
90	Ukraine	1997–98	1992-98
91	Uruguay	1981–84, 2002	1984,2001-02
92	USSR	None	None
93	Venezuela	1994–95	1981-85
94	Vietnam	1997–2002	No Data
95	Yugoslavia	None	No Data

Appendix Table 2: The Effect of Control Variables on Having a Checking Account

Explanatory Variable	
Age†	0 .968***
	(0.286)
Age Squared†	-.0123***
	(0.003)
2nd Wealth Quartile	0.134***
	(0.022)
3rd Wealth Quartile	0.170***
	(0.032)
4th Wealth Quartile	0.135***
	(0.027)
Unemployed or Out of Labor Force	-0.069***
	(0.020)
Per Capita Income††	18.4***
	(6.56)
Per Capita Income Squared††	-0.001***
	(0.000)
Male	-0.041***
	(0.014)
Married	0.171***
	(0.020)
Number of Children	-0.020***
	(0.006)
Non-white	-0.050
	(0.044)
High School Graduate	0.126***
	(0.025)
Some College	0.190***
	(0.024)
Bachelor Degree	0.243***
	(0.034)
Advance Degree	0.307***
	(0.041)
Experienced Bank Crisis	-0.108***
	(0.025)
Constant	0.051
	(0.105)
County Fixed Effects	Yes
Adjusted R-Squared	0.3111
Number of Observations	3644

Notes: Dependent variable is equal to one if the respondent owned stock during the interview period in question and is zero otherwise. A linear probability model is used and standard errors are corrected for heteroskedasticity and clustering at the country-cohort level. Standard errors are in parentheses. The reported coefficients and standard errors of explanatory variables marked by a † are the actual ones multiplied by 100, by a †† are multiplied by 1,000,000. The lowest wealth quartile is the omitted wealth category, and the omitted education category is less than high school graduate. *** indicates significance at at least the 1% level, ** at at least the 5% level, * at at least the 10% level.