

Bank Runs in Emerging-Market Economies:
Evidence from Turkey's Special Finance Houses

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Abstract

There is longstanding debate about the causes of bank runs. This paper introduces new evidence from a set of runs on Turkey's Special Finance Houses (SFHs), an uninsured subsector of the banking industry. Although fundamental factors were influential in initiating the runs, the magnitude of withdrawals from the SFHs was out of proportion with the risk, suggesting overreaction. To identify informational factors and self-fulfilling elements at work in the run, we use disaggregated data on withdrawals from one SFH. We find evidence of both types of dynamics, suggesting a role for deposit insurance, judiciously used, in ruling out possibilities of runs.

Introduction

There is longstanding debate about the causes of bank runs. Although runs may seem to be irrational panics, Diamond and Dybvig (1983) showed that, given the first-come-first-serve rule used to accommodate withdrawals, a random piece of bad news can lead to a bank run: any shift in expectations that makes depositors anticipate a run, whether or not it conveys anything fundamental about a bank's condition, can in fact lead to one. An alternative view stresses problems of uncertainty and asymmetric information about banks' financial conditions. Chari and Jagannathan (1988) argue that runs reflect a signal extraction problem in which some individuals receive a noisy signal about the bank's return, which may lead them to withdraw funds early; other depositors must infer from observed withdrawals whether a negative signal was received by informed depositors, or whether liquidity needs happen to be high. Here bank runs occur because uninformed depositors misinterpret liquidity shocks as bad news about the condition of bank assets.¹ Distinguishing between self-fulfilling and informational aspects of runs is important because they have quite different implications for policy. In Diamond and Dybvig, runs are inefficient, and deposit insurance valuably rules out them out -- but in information-based models, bank runs can be optimal arrangements for risk sharing and should be allowed to happen. This debate is particularly important for emerging-market countries, where combined effects of financial liberalization, mobile global capital, and underregulation have led to problems with banking crises in recent years.²

A large body of empirical research attempts to distinguish between self-fulfilling and informational theories of bank runs. Many studies detect a role for informational factors: in particular, when the banking system comes under stress, banks with weak pre-run balance sheets are more likely to be subject to runs and more likely to fail. However, even if informational factors do contribute to runs, it is not obvious that there are not also problems of excessive reaction to noisy information. Thus, for example, Chen (1999) argues that both the first-come, first-served rule and information externalities are important in causing contagious bank runs: The first-come, first-served rule creates a negative payoff externality among depositors, which forces depositors to respond to early noisy information such as failures of other banks. In this case, failures of a few banks may trigger runs on other banks.

¹ See also Jacklin and Bhattacharya (1988) and Samartin (2003).

² Kaminsky and Reinhart (1999) found that the number of banking crises that occurred after the period of financial liberalization in emerging-market countries was five times higher than in the 1970s. Rojas-Suarez and Weisbrod (1996) and Caprio and Klingebiel (1996) document that the consequences of banking crises tend to be more severe in emerging-market countries, both in terms of costs of resolving them and in terms of reductions in real economic activity.

This paper examines these issues using evidence from a set of runs on a subsector of uninsured banks in Turkey in 2001. Special Finance Houses are Shariah-compliant bank-like financial institutions in which costs of borrowing and returns to lending are based on risk participation, rather than interest payments. While Turkey's commercial banks had been covered by deposit insurance since the 1980s, the finance houses had not been covered and so had not developed the sorts of moral hazard problems that had arisen in the commercial-bank sector. In February 2001, the largest finance house became insolvent due to irregular use of funds and was abruptly closed. Occurring at the same time as a macro/financial crisis, runs on the other SFHs erupted, resulting in a sizable loss of deposits in the sector. We argue that, while there were valid reasons for depositors to be concerned about the safety of their funds, their sense of urgency about getting their money out of the SFHs was out of proportion with the risk, and is best interpreted as prompt reaction to noisy bad news that escalated into a panic.

Because we have detailed withdrawal information from one SFH, we are also able to investigate how depositors of different sizes reacted to each other's withdrawals. We find that increased withdrawals by moderate-size accountholders tended to boost withdrawals by smaller counterparts, suggesting that the latter viewed the behavior of the former as informative with respect to the SFH's financial condition. Yet we also find that increased withdrawals by smaller accountholders tended to boost withdrawals by moderate-size accountholders, and that increased withdrawals by moderate-size accountholders tended to boost withdrawals by large accountholders -- effects that are more consistent with concerns about self-fulfilling elements of runs. We interpret our findings as consistent with the argument of Chen (1999) -- that there are both first-come, first-serve and informational elements involved in bank runs. This suggests a role of deposit insurance, judiciously used, to rule out the possibility of runs.

Previous research on bank runs

There is a substantial body of research investigating U.S. bank runs in the period before the introduction of deposit insurance in 1933. Many studies find that runs tend to occur in periods of deteriorating economic fundamentals (Gorton 1988, Calomiris and Gorton 1991). This is sometimes taken as support for an informational view of bank runs, since declining fundamentals may both undermine banks' finances and induce households to shift assets into very safe forms (currency). Thus, for example, Gorton (1988) argues from his study of the National Banking Era (1865-1914) that panics are situations in which people are reacting normally to extreme changes in conditions, rather than reacting extremely to normal changes in conditions. There is also good evidence that informational factors shape how bank runs

unfold; for example, several studies find that banks with weaker balance sheets before a run were more likely to face heavy withdrawals during a run.³ While this research runs counter to a view of bank runs as caused in full by ‘sunspots’ (i.e. factors unrelated to underlying economic and financial conditions), it does not rule out the possibility that runs brought on by deteriorating fundamentals have a self-fulfilling component. Thus, for example, although Gorton does not find panics without big shocks to fundamentals, he does find some big shocks that did not produce panics.

There is considerably less evidence on bank runs in emerging-market countries. Several cross-country studies have documented broad correlates of banking crises, including sudden changes in exchange rates, reversals of capital flows, under-regulation, and excessive build up of credit.⁴ The 1997 Asian financial crisis highlighted problems of currency- and maturity-mismatch, notably a tendency for banks to raise short-term capital abroad denominated in foreign currencies, while making longer-term loans denominated in domestic currencies; in this situation, a speculative attack on the domestic currency will put severe pressures on banks’ balance sheets that may erupt into crisis.

In a study similar to ours in some respects, Schumacher (2000) analyzes a banking crisis in Argentina that accompanied the ‘tequila crisis’ of December 1994. Devaluation of the Mexican peso had boosted expectations that the Argentine peso would also be devalued, triggering a currency run in Argentina that spilled over into bank runs.⁵ Consistent with an informational view of bank runs, Schumacher finds that banks most likely to lose deposits and fail during the crisis were those that had been weakest before it; in effect the run was an “episode of market discipline during which depositors attempt[ed] to sort among ex ante ‘good’ (solvent) and ex ante ‘bad’ (insolvent) banks in a world of asymmetric information regarding bank asset values” (p. 258). From this Schumacher concludes that “a policy of information disclosure might be effective as a deterrent to bank runs caused by exogenously generated shocks on bank solvency, such as an attack on the domestic currency” (p. 276).

³ These include Saunders and Wilson’s (1996) study of the 1929-33 bank runs; Calomiris and Mason’s (1997) study of the early 1930s; and Calomiris and Wilson’s (1998) work on New York City banks in the 1920s and 1930s. These findings are often taken as evidence that depositors have some ability to distinguish between solvent and insolvent banks (Benston et al 1986, Kane 1987, Kaufman 1994).

⁴ Eichengreen and Artela (2000) find banking crises to be robustly correlated with rapid domestic credit growth, large bank liabilities relative to reserves, and deposit-rate decontrol -- but not with exchange rate regimes and crises. Demirgüç-Kunt and Detragiache (1997) also find an aggravating role of explicit deposit insurance.

⁵ At that time, the Argentine banking system was not covered by deposit insurance, and the currency-board system limited the government’s ability to act as lender-of-last-resort. However, the government reintroduced some deposit insurance after a few banks failed, though it was limited to small accounts.

A useful way to gain additional insight into informational vs. self-fulfilling aspects of bank runs is to examine withdrawal behavior across categories of depositors over the course of a run. In informational theories, some depositors get early access to information about bank solvency, while others must infer from observed withdrawals whether liquidity needs happen to be transitorily high, or whether there is something fundamentally wrong with the bank. A reasonable assumption in this regard is that relatively large depositors can acquire information about the bank's condition more readily than small depositors: they are likely to have more skill and experience in collecting and interpreting financial information, and they may engage in privileged exchange of information with the bank.⁶ Here then, if self-fulfilling elements of runs are not important, we would expect depositors to watch the withdrawal behavior of relatively large depositors, and to increase their own withdrawals when those of large depositors rise unexpectedly, since such a rise could be expected to be informative with respect to the bank's condition. At the same time, we would not expect unanticipated fluctuations in withdrawals by small depositors to have much effect on withdrawals overall, since the information content of their behavior would not likely be high.

It is not necessarily clear how to identify self-fulfilling elements of runs -- that is, dynamics whereby depositors withdraw funds primarily because others are. Perhaps in a 'blind panic,' withdrawals by large depositors will boost withdrawals by both large and small depositors, and shocks to withdrawals by small depositors will boost withdrawals by both depositor types, since all withdrawals reduce other depositors' chances of being able to withdraw their funds. But unless depositors are truly panic-stricken, such an indiscriminate reaction would not be expected. Even if neither group of depositors has privileged insights into the bank's condition, withdrawals by both small and large depositors should be influenced especially by shocks to withdrawals by large depositors; because the latter usually hold a disproportionate share of deposits, a shock to their withdrawals will especially reduce other depositors' chances of withdrawing funds.

Effects of withdrawals by relatively small depositors may shed more light on self-fulfilling elements of bank runs. In particular, if small depositors have relatively poor access to information about the bank's condition, then we would not expect shocks to their withdrawals to have much effect if the dynamics of runs are primarily informational. But if runs have self-fulfilling elements, shocks to the withdrawals of small depositors may boost withdrawals generally, since such shocks may be interpreted as indicating the extent to which other

⁶ Below we discuss evidence of the appropriateness of these assumptions in the case we study.

depositors view current circumstances as grounds for a run. Below we examine evidence for these propositions using data from a run on Turkey's Special Finance Houses in 2001.

Special Finance Houses in the context of Turkish banking

Special Finance Houses (SFHs) are bank-like institutions that offer Shariah-compliant financial services. First authorized to operate in Turkey in 1983, three foreign houses began operations in the 1980s, and another three domestic houses entered the market in the 1990s (see Table 1). The SFHs can engage in all the activities of a commercial bank, as well as leasing and commodity trading. However, they take deposits and make loans in ways that do not involve payment or receipt of interest, but rather are based on risk participation. Their main source of funds is profit-and-loss participation accounts.⁷ Depositors invest funds for a given term (1 month, 3 months, 6 months, 1 year, and longer terms up to 5 years), and receive returns based on the investment projects financed with their funds; for each maturity, returns are calculated weekly and reported in newspapers. There is no guarantee of a positive return or return of principal. As such, profit-and-loss accounts are to some extent more like mutual funds with set maturities than they are like traditional bank deposits. The main use of funds by SFHs is short-term loans (typically 4-5 months in duration) provided to small- and medium-sized companies needing capital. This sort of financing, known as *murabaha*, represents 90% of the SFH's total use of funds. They also offer financial leasing and full or partial funding for long-term business projects, known as *mudharabah* and *musharakah* participations respectively. The SFH keeps 20% of income from lending activities and 80% is distributed to accountholders. While the SFH sector had been growing consistently and was viewed as a dynamic sector, as of 2000 it constituted a tiny sliver of the banking sector, holding less than 3% of its total deposits.⁸

Although the SFHs were traditionally regulated separately from commercial banks, the bank law of 1999 had brought them under the same regulatory requirements and apparatus.⁹ They were required to meet the same minimum capitalization as banks, the same required reserve ratios, and the same liquidity ratios.¹⁰ Like commercial banks, the SFHs must report weekly to

⁷ Profit-and-loss accounts represent 90-95% of the value of SFHs' deposits. The remaining 5-10% are "special current accounts" -- demand deposits that pay no return.

⁸ Calculated from Treasury Statistics and the *Banks in Turkey* report of the Banks Association of Turkey. The Special Finance Houses are part of an international movement to promote Shariah-compliant financial principles. Islamic financial institutions are estimated to manage \$230 billion worldwide and to operate in over 75 countries. See Henry (2001) and Kahf (2002).

⁹ Before 1999, the SFHs had been supervised by and reported to the Treasury under-secretariat and the Central Bank of Turkey.

¹⁰ In period covered by this article, the minimum capitalization was TL20 trillion; the capital-adequacy ratio was 8%; required reserves ratio were 8% and 11% for accounts denominated in Turkish Lira and foreign currencies respectively. Turkey had begun concerted efforts to bring

the central bank on their foreign-currency position. However, the Special Finance Houses were not covered by deposit insurance, with the rationale that profit-and-loss accounts involved no guarantee of return of principal.¹¹ Given the Turkish government's history of extending the safety net during banking crises, one can ask whether the SFHs may have nonetheless expected the government to step in and bail them out in the event of a financial crisis.¹² This seems unlikely, since the SFHs had variable political support and were periodically threatened with closure by critics in Parliament for their blending of religion and business.¹³

SFHs operations were different in several respects from those of commercial banks. As Table 2 shows, SFHs tend to be squarely focused on traditional banking activities of deposit-taking and making loans: in 1999 deposits constituted 88% of their liabilities and loans were 76% of their assets, compared to figures of 62.7% and 28.3% respectively at commercial banks. In place of traditional lending to large businesses (some part of which had shifted to Turkey's emerging capital markets), the commercial banks were increasingly involved in raising short-term non-deposit funds abroad and investing them domestically in government securities paying high interest rates. This practice built a fair amount of risk into banks' balance sheets since investors would want to liquidate their holdings if devaluation risks rose, at the same time as lira-denominated securities became difficult to sell. Another difference is that the SFHs were much more dollarized than commercial banks: in 1999, 93% of their deposits and 86% of their loans were denominated in a foreign currency, compared to shares at commercial banks of 53% and 49% respectively. Finally, although non-performing loans were on the rise at both SFHs and banks towards the end of the 1990s, at commercial banks non-performing loans had risen to 11.7% of total loans, versus 1.6% at the SFHs.¹⁴

its banking regulations in line with the Basel Accord, in anticipation of a possible application for membership in the European Union.

¹¹ Also unlike commercial banks, failed SFHs would not be transferred to the Saving Deposit Insurance Fund for reconciliation.

¹² Gale and Vives (2002) point out a time consistency problem in decisions to bail out failing banks: to reduce problems with moral hazard, ex ante a government would not want banks to expect to be bailed out in the event of a crisis, but ex post it may be optimal for them to do so nonetheless. Consequently banks may take on too much risk, recognizing that the government will depart from stated policy if a crisis arises. This has clearly been a problem in Turkish banking: Deposit insurance was first introduced during the 1980s crisis, and was increased in the 1994 crisis; while the government planned to reduce the amount of guaranteed deposits to European Union standards, in the November 2000 crisis the government temporarily restored its full guarantee of deposits in Turkish banking system.

¹³ See, for example, *Turkish Probe* (1998). Note, however, that the SFHs enjoyed good reputations and many politicians had accounts there.

¹⁴ This includes loans of banks that had been taken over by the Deposit Insurance Fund.

That the financial condition of the SFHs was stronger than that of commercial banks is suggested by the fact that their returns to U.S. dollar accounts were lower than those of commercial banks (see figure 1).¹⁵ This seems at odds with the SFHs' lack coverage by deposit insurance and lack of guarantee of principal or income. However, while the risks taken on by commercial banks might not have concerned depositors under a credible program of deposit insurance, the widely acknowledged problems in Turkish banking raised questions about whether the government would be able to handle additional insolvencies through normal insurance operations. At the same time, although the SFHs were uninsured, some of them had close ties with strong foreign financial institutions that could extend credit to them in the event of short-term liquidity problems. That depositors were aware of this is suggested by the fact that, in 2000, the two foreign-owned SFHs had lower rates of return on one-year U.S. dollar accounts than the domestically owned houses (see Table 1, column (f)).¹⁶

Backdrop to the run: the 2000-2001 crisis

As in many emerging-market banking crises, the runs on the Special Finance Houses occurred during in a period of macroeconomic and financial crisis. In 1999, Turkey had embarked on an IMF-supported stabilization program that was intended to bring inflation down using a crawling exchange-rate peg, while reducing fiscal imbalances through privatization. Doubts about whether the government could sustain the crawling peg created risks for banks: devaluation could be expected to prompt an outflow of foreign capital and a shift of TL deposits into foreign-currency assets, exacerbating problems with liquidity and solvency. Moreover, as part of a sweeping program to reform the banking sector, in late 2000 the government launched criminal investigations into the operations of 10 failed banks, and it was widely rumored that more charges and failures were to come.¹⁷ This produced a first wave of panic in November 2000 that caused acute liquidity problems in the banking sector; even with the central bank injecting \$7 billion in reserves to support the Lira, interbank interest rates rose to a high of

¹⁵ A large body of evidence for other countries suggests that uninsured depositors demand higher interest rates to compensate for higher risk. For the U.S., see Hannan and Hanweck (1988), Flannery (1998), and Park and Peristiani (1998). Monschean and Opiela (1999) give evidence for Poland; Barajas and Steiner (2000) for Colombia; and Martinez Peria and Schmukler (2001) for Argentina, Chile and Mexico. It is sometimes also suggested that SFH depositors are willing to accept lower returns to acquire financial services in ways consistent with their values, though SFH executives highlight the profit-orientation of their businesses, saying they aim to cater to consumer tastes, not religious considerations per se. See *Financial Times* (1998).

¹⁶ Also note that Ihlas, the SFH that subsequently failed, was offering significantly higher rates.

¹⁷ Called 'Operation Hurricane,' the investigations turned up many problems of financial irregularities, such as unsecured loans to related companies. Analysts predicted that another 20 or 30 of Turkey's 75 commercial banks could go under before the shake-out was over (Boulton 1999).

1,700 percent, and a good sized commercial bank failed (Demirbank). The crisis eased in December after an emergency loan of \$10 billion was provided by the IMF.¹⁸ While the country's macro/financial situation seemed to improve in early 2001, interest rates remained high and capital inflows remained short-term, suggesting ongoing devaluation fears.

The crisis resumed in February 2001, in part sparked by an unexpected problem in a Special Finance house. Over the weekend of February 10, the largest Finance House, Ihlas Finans, had its license revoked by the Banking Regulation and Supervision Agency (BRSA) and abruptly closed its doors. This came as a considerable shock. Ihlas Finans was the largest SFH, having almost 40% of the sector's deposits in 1999. It was a subsidiary of the publicly-traded Ihlas Group, which has diversified holdings in household appliances, beverages, media and real estate and was at that time included in the FTSE World Index. The BRSA announced that Ihlas Finans had irregularly appropriated almost \$1 billion (practically the entire value of deposits) through connected lending to shareholders.¹⁹ Shares of Ihlas Group were suspended from trading on Monday, driving the stock market down 4.9% that day. The 200,000 depositors of Ihlas Finans were reportedly 'wandering hopelessly' outside of the firm's branches in various parts of the country, unsure what had become of their deposits.

Over the next days, the country's macro/financial crisis returned in full force. On February 19, Prime Minister Bulent Ecevit and President Ahmet Necdet Sezer had a widely publicized clash, in which the president allegedly attacked Ecevit for not moving fast enough in bank reform. As anxieties returned about the viability of the stabilization program, the stock market tumbled and the lira came under severe pressure. On February 22, the government abandoned the crawling peg and allowed the lira to float freely, and it immediately depreciated by 30%. Turkey's banks were pounded by the devaluation, having had a \$10 billion net foreign currency short position and facing a surge in funding costs.

Runs on the Special Finance Houses

The closure of Ihlas Finans put immediate pressure on the other SFHs.²⁰ The initial release of the BSRA said that, because Ihlas Finans was not a regular bank, its deposits were not covered by the Deposit Insurance Fund; customers could either reach a deal with the parent company, or take it to court.²¹ Ihlas Finans initially insisted that it had sufficient assets to repay

¹⁸ Much of this loan served to replenish the \$7 billion that the central bank had spent to support the Lira.

¹⁹ The irregular appropriation had until then been concealed by the rapid growth of deposits.

²⁰ *Turkish Daily News* (2001e).

²¹ Newspapers reported that court cases would take 2-3 years (*Turkish Daily News* 2001a).

depositors "down to the very last kurus," and urged depositors to be patient.²² But as details of the case against Ihlas Finans were released, it became clear that it had committed substantial wrongdoing and was plainly bankrupt.²³

Depositors of both Ihlas and the other Finance Houses protested that they had not realized their deposits were not covered by deposit insurance: many said they had assumed deposits were covered, or argued that they ought to be, given that the Finance Houses paid taxes to the government just as commercial banks did.²⁴ There were numerous public pronouncements regarding the fundamental solvency of the SFH sector. The head of the BSRA insisted that the other Finance Houses were in good health. The Association of Special Finance Houses highlighted that the troubles of Ihlas Finans had specifically to do with its irregular and illegal use of funds, and that no such charges had been leveled against any of the other houses (Simsek 2001). The remaining houses took out newspaper advertisements emphasizing that the situation of Ihlas Finance in no way reflected their own circumstances. It was also stressed that the Finance Houses had always met their obligations, without help from the state, even in the heavy withdrawals of the 2000 liquidity crunch.²⁵

Still, the SFH sector experienced a major run-off of deposits: as shown in Table 3 and Figure 2, assets of all SFHs declined 63% in the first quarter of 2001; between December 2000 and June 2001, the assets of the 5 remaining houses fell by more than 1/3.²⁶ Many depositors sought to withdraw their funds before maturity, and initially the SFHs accommodated such requests. But as the runs continued, some had to restrict early withdrawals. Some of the SFHs scrambled for emergency access to funds. It was reported that the Islamic Development Bank, a shareholder in Albaraka Turk and Kuwait Turkish Evkaf, was setting up a standby facility (although this support did not materialize). Kuwait Turkish Evkaf benefited from significant cash support from its foreign parent company, Kuwait Finance House. On Feb. 21, the special finance houses took

²² *Turkish Daily News* (2001b).

²³ It was however suggested that the parent company could use household appliances to compensate depositors (*Turkish Daily News* 2001c). A regional prosecutor got a court order to seize the air-conditioning systems at the parent company's offices, as compensation for his 10,400 DM account (*Turkish Daily News* 2001d).

²⁴ *Turkish Daily News* (2000).

²⁵ *Turkish Daily News* (2001g). Note that the failure of these pronouncements to stem the runs stands in contrast to Park's (2003) finding for the U.S., that the government or banks were able to stop bank panics by providing financial information on banks.

²⁶ Calculations from the Association of the SFHs; for details see Yilmaz (2003). Of course the February 22 devaluation lowered the U.S. dollar value of the local-currency deposits, but because such deposits had represented less than 10% of the sector's total deposits, this contributed only minimally to the decline in value. Overall, the value of the sector's deposits declined from US\$ 2.7 billion in December 2000 to US\$1 billion in June 2001, while its share of total deposits fell from 3.5% to 1.6%; these figures also reflect the lost deposits of Ihlas Finans.

out newspaper ads announcing their intention to set up a private insurance fund to cover deposits, with government approval but not financial support.²⁷ It is not clear, however, that these announcements had any effect in stemming the outflow of deposits.

Dynamics of the run on the Kuwait Turk Evkaf Special Finance House

We have daily withdrawal data from Kuwait Turk Evkaf Special Finance House (KTEFH) -- the third largest finance house. Established in 1988, KTEFH was (and is) foreign-owned: a 62% ownership share is held by the Kuwait Finance House, while 9% shares were held by both the Kuwait Social Security Institution and the Islamic Development Bank.²⁸ This foreign connection is important since it enabled KTEFH to obtain support from the foreign parent during the liquidity crunch.

Figure 3 shows the number of daily transactions from profit-and-loss accounts between February 12, the first business day after the closure of Ihlas had been announced, and April 25, when net flows into the SFH turned positive again. Withdrawals were heavy during the first week of the run; there was perhaps some abatement after 9th day of the run, when the lira had been devalued and the SFHs announced their agreement to set up a private insurance fund. Then the following week there was a regularly scheduled holiday 4-day holiday, with banks open on Friday only -- and KTEFH experienced its greatest number of withdrawals of the whole run.

As can be seen from the dashed line in the figure, the time profile of withdrawals is almost entirely due to withdrawals of amounts less than US\$5,000; such withdrawals accounted for 93.3% of the total number of withdrawals during the February-April period. While this might suggest that small accountholders were responsible for the run on KTEFH (and it was certainly them queuing up outside the bank), the distribution of amounts withdrawn suggests a different picture. As Table 4 indicates, though small accountholders made over 90% of the number of withdrawals, they were responsible for less than 15% of the *amount* withdrawn. Accountholders making withdrawals of \$20,000 or more made less than 2% of the number of withdrawals, but were responsible for 62% of the amount withdrawn.²⁹ Because we lack data on the pre-run

²⁷ *Turkish Daily News* (2001f). This provision became part of the Banks Act No. 4672 (29 May 2001), Article 20/6-b, which stipulated that: "The Association of Special Finance Houses is assigned to and authorized with establishing an Assurance Fund in order to provide security for savings of natural persons, who have special current accounts and accounts for sharing profits and losses with special finance houses."

²⁸ 18 % to the General Directorate of Associations Turkey (18%), and other shareholders (2%).

²⁹ Other studies also find small shares of depositors responsible for large shares of withdrawals. Schumacher (2000: 261) found that, in the first phase of the 1994-95 banking panic in

distribution of deposits, we cannot tell the extent to which groups' withdrawals were proportionate to their pre-run deposit shares. However, if the pre-run distribution of accounts at KTEFH resembled that of private commercial banks generally [shown in the RH panel of Table 4], then the distribution of withdrawals was probably more or less proportionate to the distribution of deposits. This suggests that the withdrawals of relatively large accountholders contributed centrally to SFH's liquidity problems -- not because they made withdrawals disproportionate to their deposits, but rather because only their claims were large enough to run down cash reserves.

To investigate the influence of the withdrawals by some types of depositors on those of others, we estimate vector autoregressions (VARs) of withdrawals by small, medium and large accountholders, defined as having had accounts of under \$5,000, \$5,000-\$50,000, and above \$50,000 respectively.³⁰ As discussed above, we expect the category of relatively large accountholders, which is dominated by business owners, to have better access to information about the SFH's condition than small- and medium-depositors: not only are their skills and experience in acquiring and interpreting financial information likely to be better, but also they are more likely to have privileged exchange information with SFH staff. Some evidence on this latter point concerns a spike on the 20th day of the run in net withdrawals from profit-and-loss accounts by large depositors (see Figure 4). Curiously, there was no corresponding spike in net withdrawals from *all* accounts, suggesting that deposits into the other account category (special-current accounts) offset withdrawals from profit-and-loss accounts. It turns out that this was the case. The 20th day of the run was March 15, the last day for companies to make tax payments. To avoid adversely affecting their future relationships with KTEFH, large depositors had communicated their withdrawal needs to the SFH's officials, who in turn arranged for a cash infusion from the Kuwait Finance House; this infusion, which was registered as a deposit, arrived on March 15 and covered the spike in liquidity needs. While SFH officials suspected that withdrawals by large depositors exceeded what they needed to make tax payments (so that the tax deadline had served an excuse for withdrawing funds), this pre-arrangement illustrates the likelihood that the SFH and its larger customers exchanged information in privileged ways.

We estimate one VAR model based on withdrawal amounts, and another based on numbers of withdrawals (both expressed in logs). Our data cover the 48 business days of the run, starting

Argentina, some 2,000 accountholders with deposits exceeding \$1 million were responsible for 75% of the decrease in the total deposits of the banking system. See also Kennickell, Kwast and Starr-McCluer (1996) for evidence on skewness in the distribution of household bank deposits in the U.S.

³⁰ These breaks were chosen to keep each category sufficiently large in terms of levels and numbers of withdrawals. Results are qualitatively similar when cut-offs are changed slightly.

on February 12, 2001, and ending on April 25. A vector-autoregressive model will not be appropriate if any of the data series included in the model contain unit roots. As shown in Table 5, Augmented Dickey-Full tests reject the null hypothesis of a unit root in both the levels and numbers of withdrawals by small and large depositors at a 5% level or better. For medium-size depositors, we cannot strictly reject the null hypothesis for either the levels or numbers of withdrawals. However, the p-values are borderline at .0513 and .0548 respectively, and the series do not have a characteristic non-stationary appearance (see Figure 5). Consequently, we suspect this finding is spurious and treat the series as stationary.

In the VARs for both levels and numbers of withdrawals, we include dummy variables for days of the week; as is apparent from Figure 3, withdrawals especially from smaller accounts tended to be higher on Mondays and to decline somewhat in midweek. Since the level of withdrawals on March 15 was extremely high, in good part due to the tax deadline, we include a dummy variable for this date in the VAR for levels of withdrawals. While inclusion of this dummy makes the model better behaved, results are qualitatively unaffected when it is excluded. For both VARs, most tests for lag length selected a length of one.³¹

We use a recursive structure to identify the model, ordering the categories of accountholders from small to medium to large. This amounts to assuming that, on any given day, the behavior of small accountholders may be observed concurrently by medium and large accountholders, the behavior of medium-sized accountholders may be observed concurrently by large but not small accountholders, and the behavior of large accountholders is not observed concurrently by either small or medium account holders. That medium and large accountholders can observe the behavior of small accountholders concurrently is consistent with their numerical predominance: because they represent over 90% of total accountholders, a large queue outside the bank must be dominated by them. In line with the argument made earlier, large depositors may be able to get information on withdrawals from moderate-size accounts through connections with bank staff. However, their own behavior is likely to be hard for small and medium-sized depositors to observe: not only are they few, but also their banking needs may be handled out of public view.

Figure 6 shows impulse response functions from the VAR based on amounts of withdrawals. As shown in the first row, a one standard-deviation shock to withdrawals from small accounts significantly boosts withdrawals from such accounts, with the effect dwindling down over the

³¹ The tests include the Schwartz and Hannan-Quinn information criteria, sequential modified likelihood ratio, and final prediction error. The Akaike information criterion selected a lag length of 9 (from a maximum of 9); models estimated using 9 lags had some unreasonable features, which is perhaps unsurprising since the data contain only 48 observations.

course of the next week. Thus, small depositors appear to be fairly responsive to each other's withdrawal behavior; the relatively slow rate at which the effect dwindles down could reflect slowness of withdrawals due to queues, time lags in the circulation of information, and/or time lags in decisions about what to do. A shock to withdrawals from medium-size accounts also boosts withdrawals from small accounts, although here the effect is of only borderline significance. A shock to withdrawals from large accounts does not significantly affect withdrawals from small accounts, consistent with the idea that the behavior of large depositors is hard for other depositors to observe. Overall, almost all of the variance in withdrawals from small accounts is explained by shocks to withdrawals from small accounts.

A shock to withdrawals from medium-size accounts also tends to boost withdrawals within this account category (second row). Here the effect is relatively large initially but tapers way down thereafter; this relatively fast reaction suggests that lags in information flows or decision times may be shorter among medium-size versus small depositors. Again a shock to withdrawals by large depositors does not significantly affect withdrawals of medium-size depositors. However, withdrawals from medium-size accounts do pick up significantly after a shock to withdrawals from small accounts, with the effect taking a week or so to die out; also, these effects of shocks to small accounts explain a sizable share of variance in withdrawals from medium-size accounts. Thus, medium-size depositors seem to react importantly to the withdrawal behavior of small depositors -- a reaction that is more consistent with concerns about self-fulfilling elements of runs, than with reaction to information.

Lastly (third row), withdrawals from large accounts do not appear to be significantly affected by shocks to withdrawals from small accounts; this suggests that, unlike medium-size depositors, large depositors do not regard elevated withdrawals among small depositors as signaling greater potential for a self-fulfilling run. Withdrawals from large accounts move up a bit after a shock to withdrawals from medium-size accounts, though the effect is borderline in significance. In contrast, large depositors react strongly and immediately to a shock to withdrawals from large accounts, and this effect accounts for almost all of the variance in withdrawals from this category. Thus, while large depositors may ignore queues of small depositors outside the SFH, they seem keenly attuned to unexpected changes in withdrawals of depositors like themselves. While this is consistent with the idea that large depositors interpret elevated withdrawals by other large depositors as reflecting news about the SFH's financial condition, another possibility is that, because a loss of large deposits itself erodes the SFH's condition, it may provoke other large depositors to withdraw their funds, regardless of what originally caused the increase in withdrawals.

As an alternative specification, we also ran the VAR based on numbers of withdrawals. As can be seen from Figure 7, several of the results are qualitatively similar to those from the VAR based on withdrawal amounts. Again, within each account category, a shock to the number of withdrawals subsequently boosts the number of withdrawals in that account category; for both small and large depositors, most of the response occurs the next day, whereas for medium-size depositors it takes about a week to die out. Here again, a shock to withdrawals by small depositors tends to boost withdrawals from medium-size accounts, consistent with a concern among medium-size depositors that elevated withdrawals by small depositors may have self-fulfilling elements.

In a finding that differs in the VAR based on numbers of withdrawals, withdrawals from medium-sized accounts tend to boost withdrawals from both small and large accounts, and the effect is significant in both cases; also, shocks to withdrawals from medium-size accounts contribute appreciably to variance in withdrawals from both small and large accounts, with shares of 20 to 30%. Conceivably, the effect on withdrawals from small accounts may be informational: Medium-size depositors may be better informed about the SFH's financial condition than small depositors, and small depositors may be more closely connected to them than they are to large depositors, so that small depositors would view withdrawals from medium-size accounts as containing information on the SFH's condition. At the same time, it seems unlikely that the effect of withdrawals from medium-size accounts on those from large accounts is informational, since medium-size depositors are probably not better informed about the SFH's condition than large depositors. Rather, large accountholders may view withdrawals from more sizable accounts as having the potential to create self-fulfilling problems with solvency, even if the finances of the bank would otherwise be sound; thus, although they may ignore queues of small depositors outside the SFH, there is some evidence that they react to loss of deposits from more sizable accounts.

Discussion

To what extent should we interpret the runs on Turkey's special finance houses as a self-fulfilling Diamond-Dybvig reaction to random bad news, or as a fast yet justified response to noisy information? As found in most previous studies, informational factors clearly were important in triggering these runs. The sudden closure of Ihlas no doubt made depositors revise upward the probability of undetected financial problems in the other finance houses, especially given the tendency among commercial banks for problems turning up at one bank to turn up at

others.³² Moreover, the accompanying macro/financial crisis would also have led to increased withdrawals, both because of devaluation-related concerns about liquidity and solvency within the SFHs and because, fearing disruptions in economic activity, depositors would have wanted to shift their assets into hard-currency cash. Indeed, real GDP declined sharply in 2001, and to the extent that people anticipated this possibility at the onset of the crisis, it would have been prudent for them to put aside a buffer stock of hard-currency cash to be used to support consumption in a period of falling income.³³

And yet, there were also several elements of *overreaction* in the dynamics of the runs on the SFHs. First, while the failure of Ihlas surely boosted perceived risks of holding deposits in the SFHs, there was no reason to assume that risks of others failing were large or imminent: As much as depositors would have discounted official pronouncements on the solvency of the remaining SFHs and the apparent information content of their published balance sheets, it was also true that, *unlike* Ihlas, the other SFHs had come through the test of the November-December crisis without having faced severe liquidity problems. Thus, the better *ex ante* assumption would have been that none of the other SFHs were in as bad shape as Ihlas.³⁴ Second, depositors initially ran on all of the SFHs, without apparent regard to differences in financial condition or likely ability to mobilize resources to withstand a run. Notable in this regard was the run on KTEFH, which was known to have the backing of its deep-pocketed Kuwaiti parent company. *Ex post*, the total deposits of the SFH sector not only declined but were also reallocated across SFHs, with KTEFH, Family Finans and Asya gaining market share and Anadalou and Al Baraka losing it (Table 3). However, this reallocation does not seem consistent with *ex ante* estimations of differences in risk across institutions: based on pre-run returns to U.S. dollar accounts (Table 1), Anadalou and Al Baraka were apparently not regarded as riskier than KTEFH, while Family Finans and Asya seemed to be seen as more so. Rather, the reallocation across houses seemed to reflect their abilities to manage the run on a day-by-day

³² Although authorities emphasized the problems at Ihlas were specific, the public may have discounted their statements based on past experiences with delays and obfuscation in release of financial information. Several cases had occurred in which connected insiders were able to withdraw funds from failing institutions before information became public. Indeed, the central bank president who resigned after the Feb. 22 devaluation was subsequently investigated for having converted his savings account from lira to U.S. dollars shortly before the devaluation (BBC 2001).

³³ On the subject of relations between risky labor income and household savings and portfolios, see Gollier (2002). Baxter and Jermann (1997) highlight that human-capital risks are likely to be positively correlated with returns to domestic assets, but less correlated with returns to foreign assets, so that households should bias their portfolios in favor of foreign assets. While existing research provides little evidence of this hedging strategy, the reliance on foreign-currency cash as a store of value in uncertain times is certainly consistent with it.

³⁴ This assumption would have been confirmed *ex post*: despite the great pressure on liquidity during the runs, none of the SFHs came close to failing -- although Family Finans (until then named Faisal Finans) did change hands due to problems coping with the runs.

basis. For example, it was rumored that foreign-owned Al Baraka would be able to arrange a line of credit from the Islamic Development bank (one of its shareholders), but such financing never came through, and jitters about its liquidity brought its deposits down by 42% -- compared to the 22% decline experienced by KTEFH.³⁵

Third, while the macro/financial crisis no doubt provided some impetus for depositors to withdraw funds, concretely there was no reason for the decline in macro/financial conditions to provoke large and immediate withdrawals from the SFHs. On one hand, unlike the commercial banks, the highly dollarized, conservatively managed balance sheets of the SFHs did not stand to deteriorate greatly as a result of devaluation: over 90% of their deposits were already in dollar-denominated accounts; with over 80% of their loans dollar-denominated, the currency mismatch between their assets and liabilities was relatively limited; and their assets were overwhelmingly dominated by shorter-term loans. On the other hand, while people would indeed have been wanting to draw down their assets to support consumption during an aggregate downturn, it is not clear why this would require sudden and complete withdrawals of funds from the SFHs; given how conservatively the balance sheets of the SFHs had been managed, and the limited increase in risk implied by the failure of Ihlas, it seems likely that depositors would have been able to withdraw funds to finance spending as needed, with no particular need to withdraw them immediately in full -- *but for* the concern that other depositors might well want to do the same. In other words, although the noisy information related to the failure of Ihlas and likely devaluation was not at all a 'sunspot,' the development of runs on the SFHs did not grow inevitably out of fundamental economic and financial factors -- but rather likely reflected compound risks of deteriorating fundamentals *and* depositors' concerns about sequential servicing. Thus, funds flowed out of the SFH sector and into 'mattress cash.'

Conclusion

In sum, while fundamental factors were clearly influential in initiating the runs on Turkey's Special Finance Houses in 2001, the magnitude of withdrawals from the SFHs was in certain respects out of proportion with the risk, suggesting a degree of overreaction. From our analysis of detailed data on withdrawals from a financially strong SFH, we find evidence that both informational factors and self-fulfilling tendencies were at work in the dynamics of the run. Increased withdrawals by moderate-size account holders tended to boost withdrawals by

³⁵ Other investors in Al Baraka include a family prominent in the textile industry in Turkey, the Dallah Albaraka Group of Saudi Arabia (a diversified global service company), and 200 individual shareholders from Turkey and abroad. See <http://www.albarakaturk.com.tr>.

smaller counterparts, suggesting that the latter viewed the behavior of the former as informative with respect to the SFH's financial condition. Yet we also find that increased withdrawals by smaller accountholders tended to boost withdrawals by moderate-size accountholders, and that increased withdrawals by moderate-size accountholders tended to boost withdrawals by large accountholders -- effects that are more consistent with concerns about self-fulfilling elements of runs. We interpret our findings as consistent with the argument of Chen (1999) -- that there are both first-come, first-serve and informational elements involved in bank runs. This suggests a role of deposit insurance, judiciously used, to rule out the possibility of runs.

Table 1. Turkey's Special Finance Houses

	Abbrev.	Est.	Ownership	Total deposits (1999)		Return to 1-year US\$ account (2000)
				(d)	(e)	(f)
	(a)	(b)	(c)	Amount (m. of US\$)	Share of SFH total	Percent
Al Baraka Turkish Finance House	ABTFH	1984	Foreign	629	23.5	6.1
Family Finance House	FFH	1984	Initially foreign; bought out by Turkish shareholders in 1998	190	7.1	6.6
Kuwait Turkish Evkaf Finance House	KTEFH	1988	Foreign	383	14.3	6.1
Anadolu Finance House	AFH	1991	Turkish	222	8.3	5.9
Ihlas Finance House	IFH	1995	Turkish	1,019	38.1	8.8
Asya Finance House	ASYAFH	1996	Turkish	233	8.7	6.6
Total SFH		-	-	2,676	100	-

Sources: Rates of return: Milliyet Newspaper, 6/16/2000 [www.milliyet.com.tr].

Table 2. Comparison of balance sheets of commercial banks and Special Finance Houses

	Commercial banks			Special Finance Houses		
	1998	1999	2000	1998	1999	2000
Composition of assets (percent):						
Liquid (ex. govt.)	18.5	18.9	20.9	12.7	15.9	18.2
Govt. securities	14.6	17.9	11.9	-	-	-
Loans	36.7	28.3	31.2	75.6	76.0	71.4
Permanent assets	8.0	9.3	15.0	8.5	7.0	7.3
Other	22.1	25.6	21.0	2.2	1.1	3.1
TOTAL	100	100	100	100	100	100
<i>As % of total loans:</i>						
FX-denominated	48.6	49.1	41.5	82.7	86.4	80.9
Non-performing loans	7.7	11.7	12.5	1.3	1.6	3.2
Maturity \leq 3 mos.	Na	Na	Na	17.1	16.6	15.2
Composition of liabilities (percent):						
Deposits	64.5	62.7	60.3	86.1	88.0	85.8
Non-deposit funds	13.1	11.0	9.3	-	-	-
Shareholders equity	8.5	8.6	10.9	5.9	5.3	5.9
Net income	4.3	4.4	3.0	1.1	0.9	0.7
Other	8.1	7.3	6.3	6.9	5.8	7.6
TOTAL	100	100	100	100	100	100
<i>As % of total deposit and non-deposit funds:</i>						
FX-denominated	57.0	53.1	51.9	91.5	93.3	91.9
Maturity \leq 3 mos.	78.0	71.0	84.0	85.8	86.5	86.3

Source: Banks Association of Turkey (1999, 2000).

Note: The category 'loans' for the SFHs includes certain commodity-related transactions, in which SFHs place part of their liquid assets with foreign banks in special arrangements. E.g. Citibank-England owns stock in London Metal Exchange Market; SFHs buy these stocks from Citibank, then immediately sell them back on deferred payment terms. This enables the SFHs to earn a safe, fixed, short-term return from commodity buying and selling.

Table 3. Percent decline in deposits at the SFHs, Dec. 31, 2000, to June 30, 2001

	Percent decline
Al Baraka Turkish Finance House	42.1
Family Finance House	29.4
Kuwait Turkish Evkaf Finance House	22.3
Anadolu Finance House	55.0
Ihlas Finance House	100.0
Asya Finance House	34.2
Total SFH	63.0
Total excluding Ihlas	36.4

Table 4. Distribution of withdrawals by withdrawal amount, and distribution of savings accounts by deposit amount

	Distribution of withdrawals from KTEFH		Distribution of savings deposits in private commercial banks	
	Percent of total:		Percent of total:	
<i>Amount of withdrawal or account:</i>	Number of withdrawals	US\$ amount of withdrawals	Number of accounts	US\$ amount of deposits
Below \$1K	82.2	2.9	95.4	7.8
\$1 to 5K	11.1	11.2	3.2	14.9
\$5 to 20-25	5.4	24.0	1.2	25.7
Above \$20-25	1.3	62.0	0.2	51.6

SOURCE: Authors' calculations from KTEFH data and Banks Association of Turkey (2001). Note that the withdrawal data have breaks at \$5,000-20,000 and \$20,000 and above, while the account data have breaks of \$5,000-25,000 and \$25,000 and above.

Table 5. Augmented Dickey-Fuller tests for unit roots

	MacKinnon one-sided p-values	
<i>Depositor category</i>	Level of net withdrawals (in logs)	Number of transactions (in logs)
Small	.0165	.0001
Medium	.0513	.0548
Large	.0000	.0024

Tests were performed with lag lengths chosen by the Schwartz Information Criterion and a maximum lag of 9.

Figure 1. Comparison of returns to U.S. dollar accounts, Commercial banks and Special Finance Houses

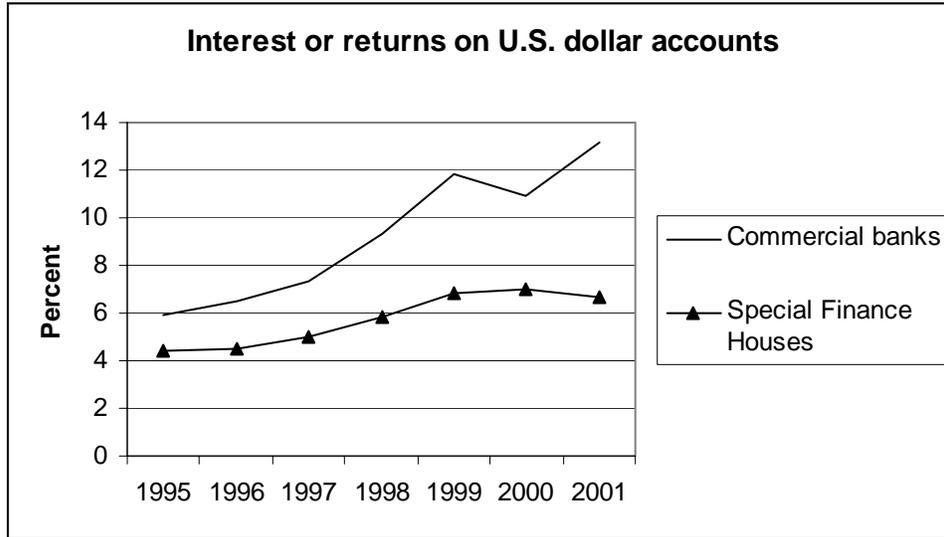


Figure 2. Levels of deposits at the Special Finance Houses, June 2000-March 2002

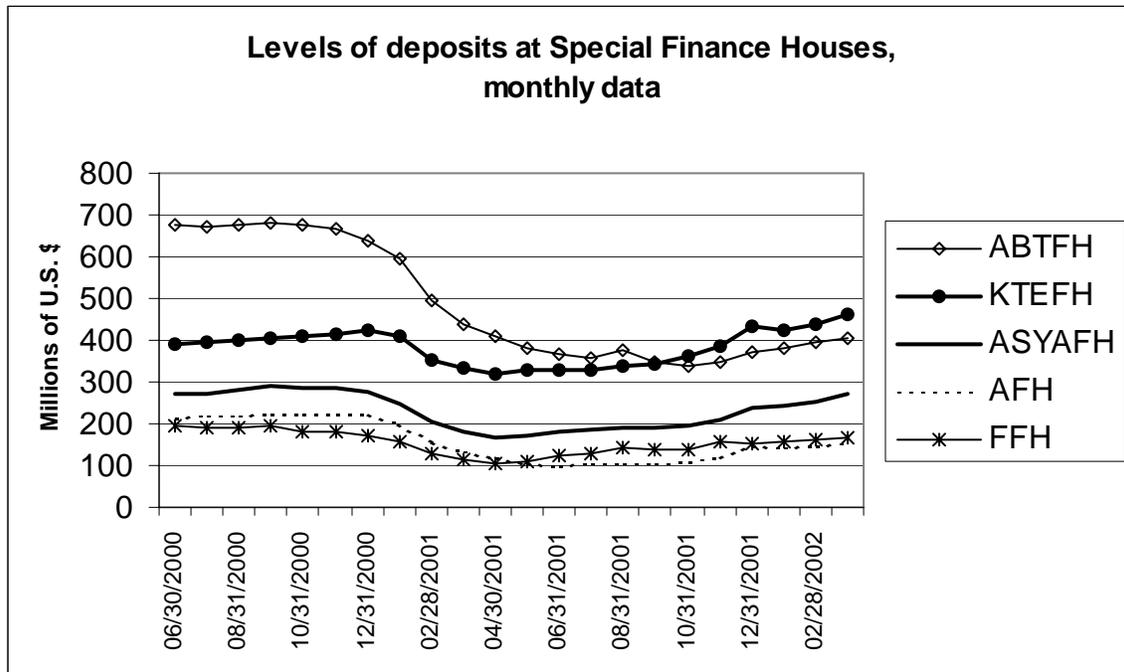


Figure 3. Number of transactions, by number of business days into the run, Kuwait Turkish Evkaf Finance House

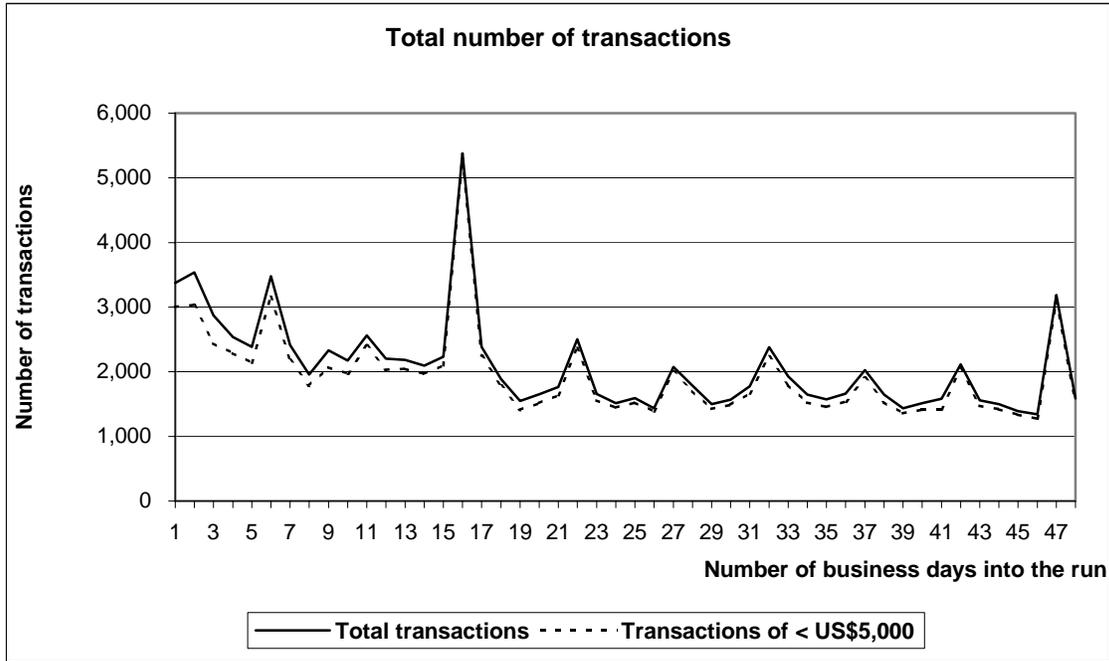


Figure 4. Total amount of net withdrawals from profit-and-loss accounts, by number of business days into the run, Kuwait Turkish Evkaf Finance House

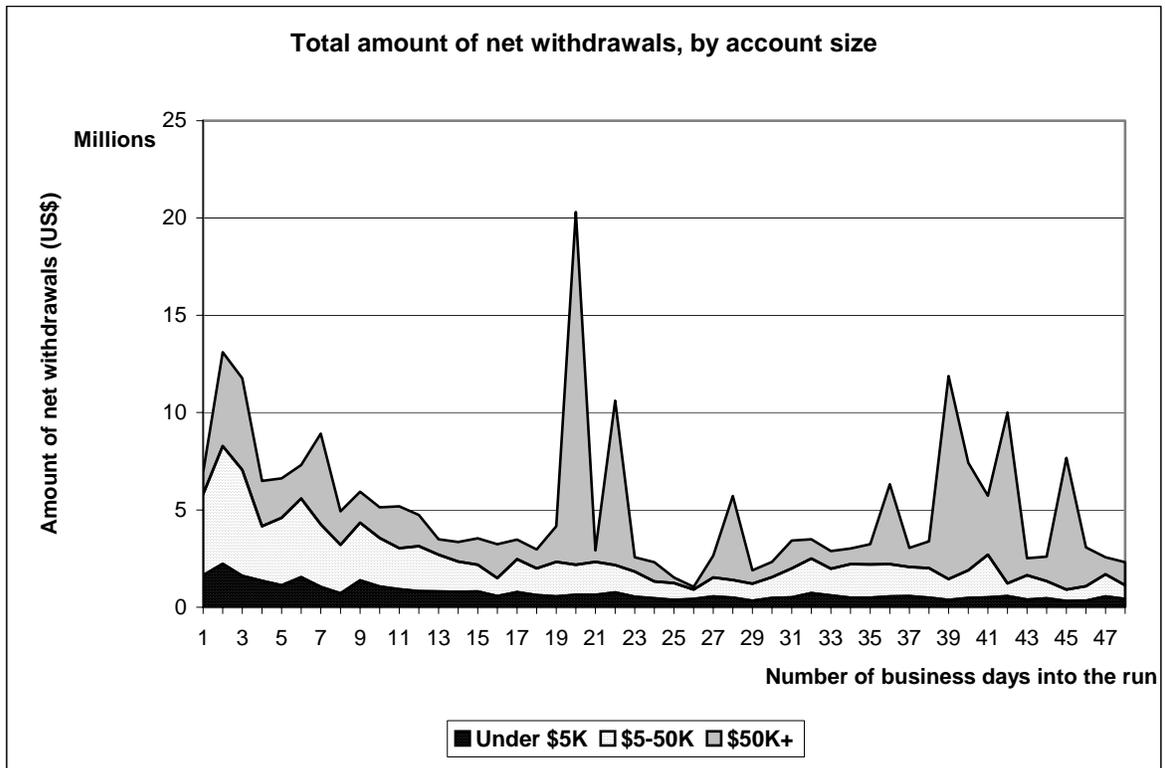


Figure 5. Numbers of withdrawals from medium and large accounts, by number of business days into the run, Kuwait Turkish Evkaf Finance House

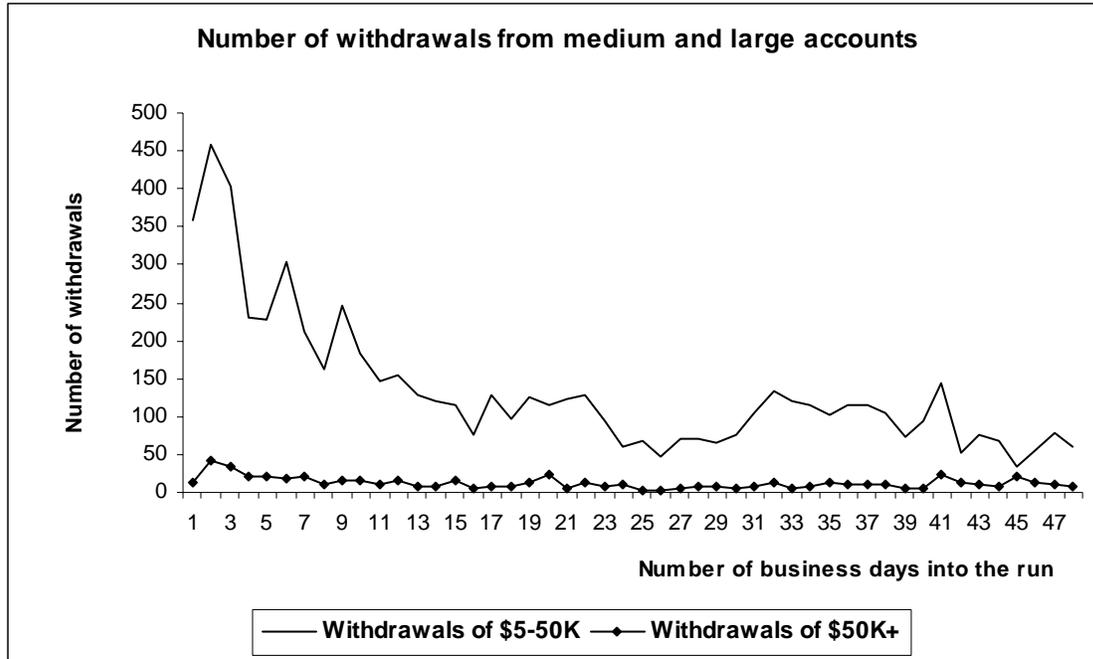


Figure 6. Impulse response functions based on amounts of withdrawals

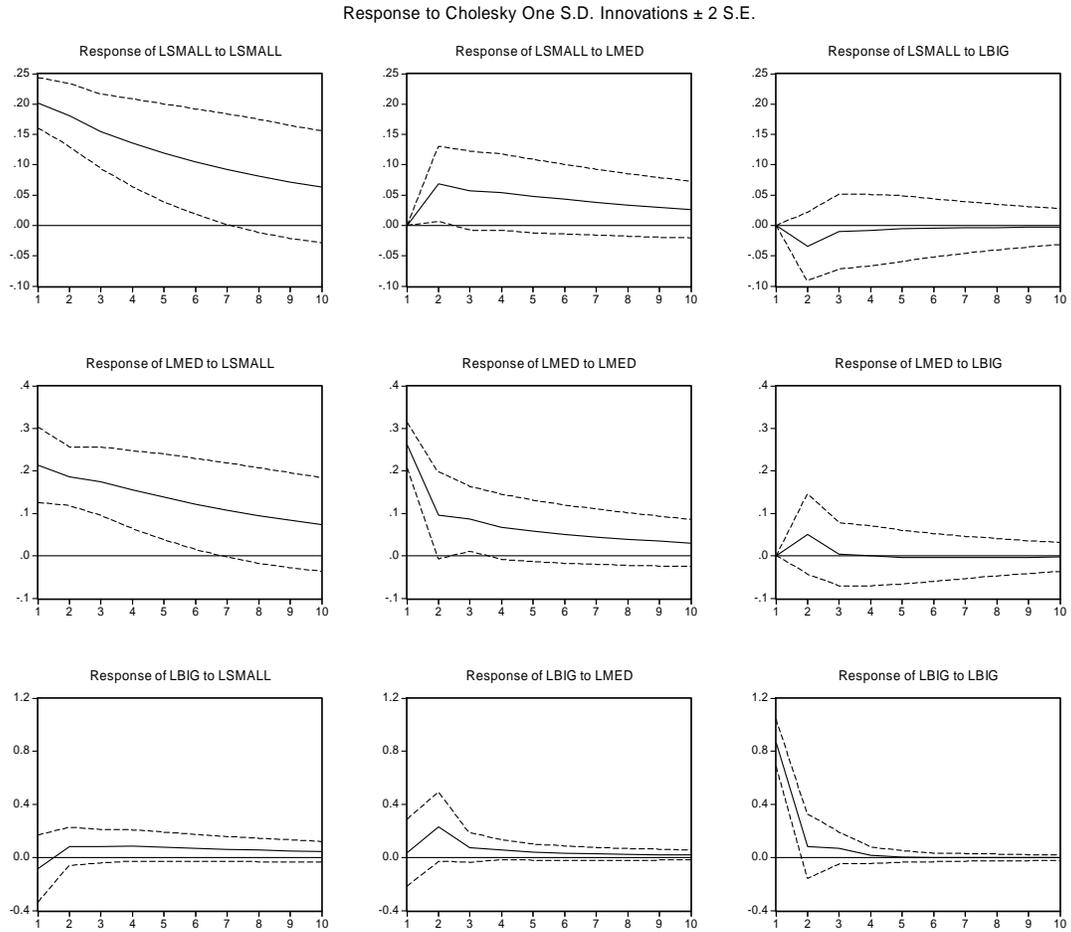
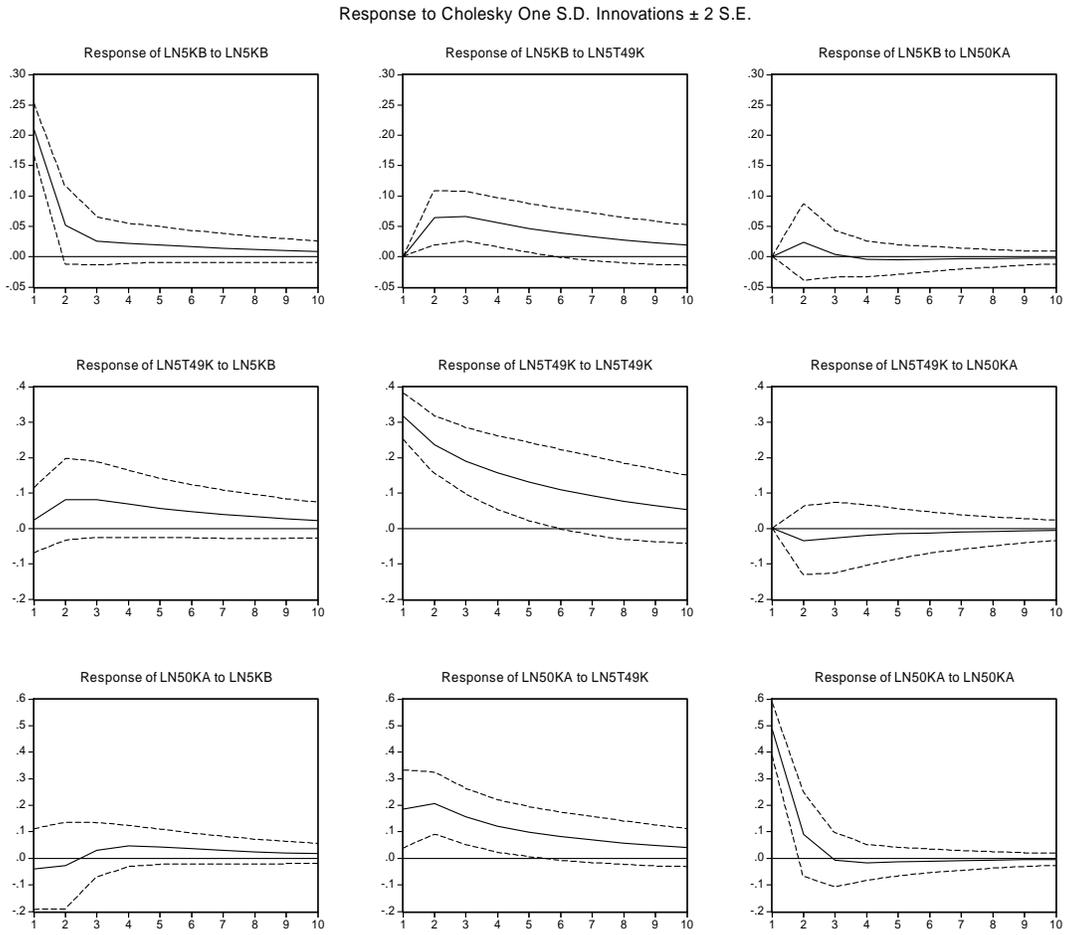


Figure 7. Impulse response functions based on number of withdrawals



References

- Banks Association of Turkey (2001). *Banks in Turkey*. Accessed electronically at www.tbb.org.tr on 9/30/2003.
- Barajas, Adolfo and Roberto Steiner (2000). "Depositor Behavior and Market Discipline in Colombia." IMF Working Paper WP/00/214 (December).
- Baxter, M. and U.J. Jermann (1997). "The International Diversification Puzzle is Worse Than You Think," *American Economic Review*, Vol. 87, No. 17 (March), pp. 170-80.
- BBC (2001). "Turkish banker faces inquiry," April 13.
- Benston, George, Robert Eisenbeis, Paul Horvitz, Edward Kane, and George Kaufman (1986). *Perspectives on Safe and Sound Banking*. Cambridge, MA: MIT Press.
- Boulton, Leyla (1999). "Anger at Turkish bank bailout," *Financial Times* (London), Jan. 11.
- Calomiris, Charles (1997). *The Postmodern Bank Safety Net: Lessons from Developed and Developing Countries*. Washington, D.C.: American Enterprise Institute Press.
- _____ and Gary Gorton (1991). "The Origins of Banking Panics: Models, Facts, and Bank Regulation." In R. Glenn Hubbard, ed., *Financial markets and financial crises*. Chicago and London: University of Chicago Press for the NBER, pp. 109-73.
- _____ and Joseph Mason (1997). "Contagion and Bank Failures during the Great Depression: The June 1932 Chicago Banking Panic," *American Economic Review*, Vol. 87, No. 5 (Dec.), pp. 863-83.
- _____ and Berry Wilson (1998). "Bank Capital and Portfolio Management: The 1930's 'Capital Crunch' and Scramble to Shed Risk." NBER Working Paper No. 6649 (July).
- Caprio, Gerard and Daniella Klingebiel (1996). "Bank Insolvency: Cross-Country Experience." World Bank Policy Research Paper No. 1620.
- Chari, V. V. and Ravi Jagannathan (1988). "Banking Panics, Information, and Rational Expectations Equilibrium," *Journal of Finance*, Vol. 43, No. 3 (July), pp. 749-61.
- Chen, Yehning (1999). "Banking Panics: The Role of the First-Come, First-Served Rule and Information Externalities," *Journal of Political Economy*, Vol. 107, No. 5 (Oct.), pp. 946-68.
- Demirgüç-Kunt, Asli, and Enrica Detragiache (1997). "The Determinants of Banking Crises: Evidence from Developing and Developed Countries." IMF Working Paper 97/106 (Sept.)
- _____, and Tolga Sobaci (2000). "Deposit Insurance Around the World: A Data Base." World Bank.
http://www.worldbank.org/research/interest/conf/upcoming/deposit_insurance/data.pdf
- Diamond, Douglas and Phillip Dybvig (1983). "Bank Runs, Liquidity and Deposit Insurance," *Journal of Political Economy*, Vol. 91, No. 3 (June), pp. 401-419.
- Eichengreen, Barry, and Carlos Areta (2000). "Banking Crises in Emerging Markets:

- Presumptions and Evidence." UC-Berkeley, Center for International and Development Economics Research (CIDER) Working Paper C00/115 (Aug.).
- Financial Times* (1998). "Emerging picture in different shades of green: Companies, like the politicians, have discovered that going Islamic can be good for business." Dec. 3, p. 4.
- Flannery, Mark J. (1998). "Using Market Information in Prudential Bank Supervision: A Review of the U.S. Empirical Evidence," *Journal of Money, Credit & Banking*, Vol. 30, No. 3, Part 1 (Aug.), pp. 273-305.
- Gale, Douglas and Xavier Vives (2002). "Dollarization, Bailouts, And The Stability of the Banking System," *Quarterly Journal of Economics*, Vol. 117, No. 2 (May), pp. 467-502.
- Gollier, Christian (2002). "What Does Classical Theory Have to Do with Household Portfolios?" In T. Jappelli, L. Guiso, and M. Haliassos, eds., *Household Portfolios: An International Comparison*. Cambridge, MA: MIT Press.
- Gorton, Gary (1988). "Banking Panics and Business Cycles," *Oxford Economic Papers*, Vol. 40, No. 4 (Dec.), pp. 751-81.
- Hannan, Timothy and Gerard Hanweck (1988). "Bank Insolvencies, Risk and the Market for Large Certificates of Deposit," *Journal of Money, Credit and Banking*, Vol. 20, No. 2 (May), pp. 203-11.
- Henry, Clement (2001). "Islamic Financial Movements: Midwives of Political Change in the Middle East?" Paper presented at the 2001 meetings of the American Political Science Association, San Francisco (Sept.).
- Jacklin, Charles, and Sudipto Bhattacharya (1988). "Distinguishing Panics and Information-Based Bank Runs: Welfare and Policy Implications," *Journal of Political Economy*, Vol. 96, No. 3 (June), pp. 568-92.
- Jang, Ji-Hyang (2003). "The Politics of Islamic Banks in Turkey: Taming Political Islamists by Islamic Capital." Manuscript, University of Texas at Austin. Presented at the 2003 Meeting of the Midwest Political Science Association, Chicago, IL.
http://www.gov.utexas.edu/content/research_papers/midwest_903/jangmpsa03.pdf
- Kahf, Monzer (2002). "Strategic Trends in the Islamic Banking and Finance Movement." Paper presented at the Harvard Forum on Islamic Finance and Banking, Harvard University, April 6-7.
- Kaminsky, Graciela and Carmen Reinhart (1999). "The Twin Crises: The Causes of Banking and Balance of Payments Problems," *American Economic Review*, Vol. 89, No. 3 (...), pp. 471-500.
- Kane, Edward J. (1987). "Who Should Learn What from the Failure and Delayed Bailout of the ODFG?" In Federal Reserve Bank of Chicago, *Proceedings from a Conference on Bank Structure and Competition*.
- Kaufman, George (1994). "Bank Contagion: a Review of the Theory and Evidence," *Journal of Financial Services Research*, Vol. 8, No. 2 (April), pp. 123-50.
- Kennickell, Arthur, Myron Kwast, and Martha Starr-McCluer (1996). "Households' Deposit Insurance Coverage: Evidence and Analysis of Potential Reforms," *Journal of Money, Credit & Banking*, Vol. 28, No. 3 (Aug.), pp. 311-22.

- Martinez Peria, Maria Soledad and Sergio L Schmukler (2001). "Do Depositors Punish Banks for Bad Behavior? Market Discipline, Deposit Insurance, and Banking Crises," *Journal of Finance*, Vol. 56, No. 3, pp. 1029-1051.
- Mondschean, Thomas and Timothy Opiela (1999). "Bank Time Deposit Rates and Market Discipline in Poland: The Impact of State Ownership and Deposit Insurance Reform," *Journal of Financial Services Research*, Vol. 15, No. 3 (May), pp. 179-96.
- Park, Sangkyun (1991). "Bank Failure Contagion in Historical Perspective," *Journal of Monetary Economics*, Vol. 28, No. 2 (Oct.), pp. 271-86.
- Park, Sangkyun and Stavros Peristiani (1998). "Market Discipline by Thrift Depositors," *Journal of Money, Credit & Banking*. Vol. 30, No. 3 (Aug.), Part 1, pp. 347-64.
- Rojas-Suarez, Liliana and Steven Weisbrod (1996). "Banking Crises in Latin America: Experiences and Issues." In Ricardo Hausmann and Liliana Rojas-Suarez, eds., *Banking Crises in Latin America*. Washington, D.C.: Inter-American Development Bank, pp. 3-22.
- Samartin, Margarita (2003). "Should Bank Runs Be Prevented?" *Journal of Banking and Finance*, Vol. 27, No. 5 (May), pp. 977-1000.
- Schumacher, Liliana (2000). "Bank Runs and Currency Run in a System without a Safety Net: Argentina and the 'Tequila' Shock," *Journal of Monetary Economics*, Vol. 46, No. 1 (Aug.), pp. 257-77.
- Simsek, Yalcin (2001). "Special Finance Institutions Urge Ihlas Holding Savings Holders: No Need for Panic," *Turkish Daily News*, Feb. 14.
- Turkish Daily News* (2000). "Bayraktar Sent to Ankara DGM in Ongoing Bank Probe."
- _____ (2001a). "Ihlas Finans Goes Under." Feb. 12.
- _____ (2001b). "Ihlas Assures Depositors They Will Be Paid Back." Feb. 13.
- _____ (2001c). "Mixers to offset debts," Feb. 14.
- _____ (2001d). "The Prosecutor Knows the Way," Feb. 15.
- _____ (2001e). "Ihlas Finans outlines liquidation plan," Feb. 14.
- _____ (2001f). "Pro-Islamist Finance Firms to Create Buffer on System," Feb. 22.
- _____ (2001g). "Special Finance Institutions Relieved with New Law," May 22.
- _____ (2002). "Ulker Gida owner, other executives face probe over acquisition of finance firm," June 7.
http://www.turkishdailynews.com/old_editions/06_07_02/econ.htm
- Turkish Probe* (1998). "Turkey's Islamic Finance Houses Prepare To Become Banks," Issue No. 294, Aug. 30.
- Yilmaz, Rasim (2003). "Bank Runs and Deposit Insurance in Developing Countries: The Case of Turkey." PhD dissertation, American University.