Asymmetric information, dividend reductions, and contagion effects in bank stock returns

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Abstract

In an environment of asymmetric information, banks face information externalities due to their role as intermediaries of information. In particular, bank insiders will possess private information from monitoring loan customers. Accordingly, outsiders may interpret changes in a bank’s financial policy as signals about the quality of its loan portfolio and to the extent that the assets (loans) of different banks are viewed as similar, they will interpret such signals as pertaining to non-announcing banks as well leading to contagion effects. We test for the presence of contagion effects in stock returns associated with announcements of dividend cuts by money-center banks. We find that dividend cuts induce negative abnormal returns in the stocks of non-announcing money-center banks and to a lesser extent in the stocks of large regional banks. The observed contagion effects appear consistent with informed rather than contagious panic behavior because these effects are systematically related to risks that are common to all affected banks. © 2000 Elsevier Science B.V. All rights reserved.

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1. Introduction

It is a well-established notion that stock prices respond to new information. Numerous studies over the past 30 years have documented the stock market’s reaction to corporate announcements such as earnings, dividends, and security offerings. Although such announcements are firm-specific, they may contain value-relevant information about other related non-announcing firms causing the stock prices of those firms to react to the same news. Such intra-industry transfers of information have been documented recently around corporate bankruptcy announcements, seasoned equity issues, and dividend changes, and are often referred to as contagion effects.¹

Although recently documented in other industries, contagion effects have long been of the utmost concern in the banking industry where contagious domino-like failures were feared in the 1930s.² In this paper we use the term \textit{contagion effect} to refer to any spread of information from one firm (bank) to another. We then distinguish between an \textit{information effect} and a \textit{pure contagion effect}, which refer to the informed re-pricing of shares and the indiscriminant re-pricing of all bank shares, respectively. Much of the justification for the post-depression regulatory environment was and still is driven by fears of the potential for pure contagion, i.e., systemic risk. In this paper we test for contagion effects in bank stock returns stemming from announcements of dividend reductions by money-center banks. Dividend reductions have been shown to be strong negative signals, particularly for banks (see Keen, 1983; Bessler and Nohel, 1996) and as such have the potential to trigger contagion effects.

What most concerns regulators about the wave of contagious bank failures in the 1930s is that there is some evidence that suggests that banks were affected irrespective of the quality of their asset profiles (sometimes referred to as a bank panic, see Saunders and Wilson (1996)). This possibility arises because of the information asymmetry that exists between bank insiders (managers and/or board members) and outsiders (shareholders, loan customers, and depositors). However, contagion effects need not be indicative of a panic. It is possible that a particular piece of news, even firm-specific news, should and does have implications for the valuations of many banks. Accordingly, investors may \textit{correctly} re-price the equity of affected banks. If contagion effects are merely an

¹ See Lang and Stulz (1992), Szewczyk (1992) and Fifth (1996) for the cases of bankruptcies, equity issues, and dividends, respectively.

² The expression \textit{contagion effect} has been used in the banking literature with different meanings. Bhattacharya and Thakor (1993) distinguish between a bank run and a bank panic, the former referring to a withdrawal from one bank while the latter is the simultaneous run on many banks. Kaufman (1994) differentiates between bank-specific contagion effects and pure or industry-specific contagion effects: the former being rational, the latter being irrational.
indication of the market’s ability to correctly identify risks that many banks have in common, there is little reason to be concerned about them.

Our purpose in this paper is twofold: we test for the presence of contagion effects in bank stock returns around announcements of dividend reductions by money-center banks, and, having established that contagion effects are present, we look for evidence that the market can correctly identify risks common to all affected banks. We separately test for contagion effects in non-announcing money-center banks and large regional banks. We find that non-announcing money-center banks suffer negative abnormal returns when rival money-center banks announce dividend cuts. In addition, we observe a negative but less pronounced effect on large regional banks, a group of banks we argue are less similar to the announcing bank than are rival money-center banks. Finally, we conclude that investors are able to identify the nature of the correlation in asset returns across banks. In particular, we find that the abnormal returns of non-announcing banks are systematically related to risks common to both announcing and non-announcing banks. These risks include LDC debt exposure in the 1980s and exposure to certain weak real-estate markets as well as to highly levered transactions (HLTs) in the 1990s.

The rest of the paper is organized as follows: Section 2 discusses the role of asymmetric information in financial intermediation and how it is related to contagion effects. Section 3 describes the methodology and data. Sections 4 and 5 present and interpret our empirical results, and Section 6 concludes.

2. Asymmetric information, bank contagion, and dividend cuts

Diamond (1984, 1991) and Boyd and Prescott (1986) suggest that under the assumption of asymmetric information between economic agents banks play a pivotal role as intermediaries of information, namely, they collect and process information about loan customers. As such, bank insiders are likely to be in possession of vast amounts of private information. Thus, announcements of managerial decisions such as dividend changes, securities offerings, loan losses, and additions to loan-loss reserves, will convey information to outsiders that should be reflected quickly and accurately in the bank’s stock price. Furthermore, the common practice of syndicating large corporate loans among many banks implies that loan customers may be common to several banks and announcements of managerial decisions by one bank may reveal information about rival banks that share customers with the announcing bank (or have customers of similar type as the announcing bank). The correlation of assets (loan portfolios), i.e., the correlation of private information, across banks implies that the revelation of private information through a managerial announcement should trigger contagion effects if investors have the ability to identify the correlation of private information across banks. This is the notion
of an “information effect”. Alternatively, if outsiders are aware that loan portfolios are correlated but are unsure of the nature of the correlation of loan portfolios across banks there will be a tendency to devalue all banks if one bank reveals bad news. We refer to this as a “pure contagion effect”. It is essentially an empirical question whether or not bank customers react in an informed manner to the release of unfavorable information.

The empirical literature on bank contagion is vast and is primarily concerned with the effect that bank failures (or de facto failures such as Continental Illinois Bank in 1984) have on the financial system. A comprehensive review of this literature can be found in Kaufman (1994). In general these studies find that bank failures do lead to contagion effects but the notion of a systematic devaluation of all banks finds little empirical support as investors appear to be able to identify those banks that are most exposed to the problems of the failed bank (or most exposed to the troubled LDC). In addition, bank failures due to fraud did not lead to contagion effects. It is re-assuring that investors devalue banks accordingly in response to extreme external shocks, however, the question remains whether less extreme new information (such as a dividend cut by a major bank) is valued appropriately by the capital markets. As argued above, if asset returns are correlated, any firm-specific announcement by a bank with implications on how that bank should be valued has potential ramifications on the way in which other non-announcing banks should be valued and thus can trigger contagion effects. Announcements such as the decision to issue equity or to cut dividends are cases in point. In a recent paper, Slovin et al. (1992) test for and document contagion effects stemming from equity issue announcements by money-center banks. Although they argue that the observed contagion effect is due to the market’s proper perception of correlations of loan portfolios across banks, no attempt is made to distinguish the hypothesized “information” effect from a “pure contagion” effect. This is precisely the motivation for Section 5 of our paper.

3. Methodology and data

3.1. Methodology

To test the hypothesis of a negative valuation effect, we employ the standard event study methodology and compute abnormal returns (AR) and cumulative

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3 The exception is Saunders and Wilson (1996) who find evidence of panics in the depression era. More recently, Aharony and Swary (1996) test the “pure panic” hypothesis against an information-based contagion hypothesis around a set of bank failure announcements and find support for the information based contagion hypothesis.
abnormal returns (CAR). It is assumed that the returns are generated according to the following process:  

\[ r_{i,j,t} = \alpha_{i,j} + \beta_{i,j}R_{m,t} + e_{i,j,t}, \]  

(1)

where \( r_{i,j,t} \) denotes the realized (observed) rate of return for bank \( j \) on day \( t \) relative to announcement \( i \), \( R_{m,t} \) is the return on the market portfolio (CRSP value-weighted index) at time \( t \), and \( \alpha_{i,j} \) and \( \beta_{i,j} \) are constants. The unexpected return for bank \( j \) on day \( t \) relative to announcement \( i \), \( e_{i,j,t} \), is assumed to have an expected value of zero and a variance of \( \sigma^2_{i,j} \). Abnormal returns, \( a_{i,j,t} \), for stock \( j \) on day \( t \) relative to announcement \( i \) are then given by:

\[ a_{i,j,t} = r_{i,j,t} - (\alpha_{i,j} + \beta_{i,j} R_{m,t}). \]  

(2)

To minimize the impact of heteroscedasticity of returns, we employ standardized abnormal returns given by

\[ A_{i,j,t} = a_{i,j,t}/S_{i,j}, \]  

(3)

where \( S_{i,j} \) is the estimate of the standard deviation, \( \sigma_{i,j} \), computed using abnormal returns from days \( t = -110 \) to \( t = -11 \) (where \( t = 0 \) is the announcement day). Because of the strong possibility that the dividend cut announcements may induce variance increases in the distribution of event period returns we use the significance test suggested in Boehmer et al. (1991). This has the added benefit of giving consistent results when data are clustered in calendar time. We also include a non-parametric sign test of abnormal return significance (see Balbirer et al., 1992).

### 3.2. Data

The data for this study represent all cuts in regular dividends between 1975 and 1991 by the 17 banks classified as money-center banks in the Federal Reserve Bulletin of December 1981.  

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4 We investigated the possibility of using a multifactor model as the return generating process, including factors meant to capture the banks' sensitivity to interest rate changes (as in Akella and Greenbaum (1992), Kane and Unal (1990) and Flannery and James (1984)). However, we found no improvement in explanatory power, which is no surprise given we are dealing with daily data. In addition, we tried including factors that might explain default risk (e.g., the AAA/BAA spread), and liquidity risk (e.g., the Fed Funds rate), again with no improvement in explanatory power. The current specification minimizes complexity with no loss in explanatory power.

5 The money-center banks were listed as: Bank of Boston, BankAmerica, Bankers Trust, Chase Manhattan, Chemical NY Corp, Citicorp, Continental Illinois, Crocker National, First Chicago, First Interstate, Irving NY Corp, Manufacturer's Hanover, Marine Midland, Mellon Corp, J.P. Morgan, Security Pacific and Wells Fargo.
chronologically in Table 1. Of particular interest is the bunching of dividend cuts in the mid 1980s (LDC problems) and the early 1990s (problems with commercial real-estate). This mirrors the pattern in the banking industry as a whole, as discussed in Bessler and Nohel (1996). We focus on the money-center banks because these are/were considered the leaders in the banking industry and we would therefore expect their revelations to have the greatest impact on the entire banking industry. Also other studies, e.g., Slovin et al. (1992), use this classification of money-center banks, thus our using the same classification scheme allows us to better tie in with related work.

The stock return data in our study are from the daily returns file of the Center for Research in Security Prices (CRSP), NYSE/AMEX and NASDAQ tapes. Dividend announcement dates are from the CRSP monthly master file and are confirmed in the Wall Street Journal Index; earnings announcement dates are from the Wall Street Journal Index. Accounting data such as total assets, equity, book value, etc., are from various issues of Moody’s Banking and Finance Manual, and loan portfolio data, including LDC, HLT, and real-estate exposure data, are from bank annual reports. The classification of firms as commercial banks is based on the SIC codes on Standard & Poor’s COMPSTAT tape. Table 2 contains summary

<table>
<thead>
<tr>
<th>Company</th>
<th>Date</th>
<th>Previous dividend ($)</th>
<th>Announced dividend ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marine Midland</td>
<td>11/19/75</td>
<td>0.45</td>
<td>0.20</td>
</tr>
<tr>
<td>Crocker</td>
<td>03/20/84</td>
<td>0.60</td>
<td>0.30</td>
</tr>
<tr>
<td>Continental</td>
<td>05/18/84</td>
<td>0.50</td>
<td>0.00</td>
</tr>
<tr>
<td>Crocker</td>
<td>06/19/84</td>
<td>0.30</td>
<td>0.10</td>
</tr>
<tr>
<td>BankAmerica</td>
<td>08/05/85</td>
<td>0.38</td>
<td>0.20</td>
</tr>
<tr>
<td>BankAmerica</td>
<td>01/21/86</td>
<td>0.20</td>
<td>0.00</td>
</tr>
<tr>
<td>Mellon</td>
<td>04/02/87</td>
<td>0.69</td>
<td>0.35</td>
</tr>
<tr>
<td>Chase Manhattan</td>
<td>09/21/90</td>
<td>0.62</td>
<td>0.30</td>
</tr>
<tr>
<td>Bank of Boston</td>
<td>09/27/90</td>
<td>0.31</td>
<td>0.10</td>
</tr>
<tr>
<td>Chemical Bank</td>
<td>10/11/90</td>
<td>0.68</td>
<td>0.25</td>
</tr>
<tr>
<td>Citicorp</td>
<td>01/16/91</td>
<td>0.45</td>
<td>0.25</td>
</tr>
<tr>
<td>Manufacturer’s Hanover</td>
<td>01/16/91</td>
<td>0.82</td>
<td>0.47</td>
</tr>
<tr>
<td>Security pacific</td>
<td>03/19/91</td>
<td>0.63</td>
<td>0.38</td>
</tr>
<tr>
<td>Bank of Boston</td>
<td>06/27/91</td>
<td>0.10</td>
<td>0.00</td>
</tr>
<tr>
<td>First interstate</td>
<td>07/01/91</td>
<td>0.75</td>
<td>0.30</td>
</tr>
<tr>
<td>Continental</td>
<td>08/30/91</td>
<td>0.25</td>
<td>0.15</td>
</tr>
<tr>
<td>Citicorp</td>
<td>10/15/91</td>
<td>0.25</td>
<td>0.00</td>
</tr>
<tr>
<td>Security pacific</td>
<td>10/15/91</td>
<td>0.38</td>
<td>0.00</td>
</tr>
<tr>
<td>Wells Fargo</td>
<td>12/12/91</td>
<td>1.00</td>
<td>0.50</td>
</tr>
</tbody>
</table>
statistics on a number of firm-specific variables for both money-center and regional banks.

4. Empirical findings

The stock market reaction to announcements of dividend cuts by money-center banks is examined for two different cases. We first test for contagion effects in the stock prices of rival, non-announcing money-center banks. We follow with an analysis of the contagion effects in the stock returns of large publicly traded regional banks. In both cases we examine the abnormal returns for the three-day announcement period, consisting of event days −1, 0, and +1 (where day 0 is the announcement day).
4.1. Reaction of non-announcing money-center banks

It was postulated earlier that the announcement of a dividend cut by a money-center bank provides information not only about the dividend-cutting bank but also about other banks that are viewed as similar. In particular, other non-announcing money-center banks could be viewed as most similar because they have asset and liability structures that are closest to those of the announcing bank. For instance, money-center banks are the dominant players in the syndicated loan market including loans to LDCs and LBO loans classified as highly levered transactions (see Megginson et al., 1995). Syndicated loans are likely to increase the correlation of bank asset returns (see Section 2).

We find a reaction of $-1.434\%$ among rival money-center banks for the three-day announcement period that is significantly less than zero at the 1% level (a non-parametric sign test has a $t$-value of 2.69, significant at the 5% level). As a comparison, the announcing banks themselves lost 8.24% of their value over the three-day announcement period, consistent with the results of Bessler and Nohel (1996) who report similar results for a broader sample of bank dividend cuts. Clearly, the dividend-cutting bank is the hardest hit, but rival money-center banks are also substantially penalized.

In studying contagion effects it is particularly important to control for the contemporaneous release of relevant information (e.g., dividends and earnings announcements) by the non-dividend cutting banks. For this reason, we recompute the abnormal returns after eliminating banks with contaminating dividend or earnings announcements within $\pm 2$ trading days of the announcement of a dividend cut by a money-center bank. This reduced the sample size from 232 to 203. For the reduced sample, we find a three-day announcement period return of $-1.521\%$ (significant at the 1% level). Again, a non-parametric sign test showed the return significantly different from zero at the 5% level.

Our results indicate that the bank management’s decision to cut its dividend conveys unfavorable information about rival money-center banks, i.e., the banks face information externalities. This supports the view that private information about loan quality is correlated across banks with similar asset composition. It is not yet clear, however, whether investors devalue banks with or without regard to a bank’s loan quality or risk profile. This question is explored in Section 5.

4.2. Reaction of large regional banks

Investigating a group of banks whose stock is also traded on the major exchanges and have substantial asset size, but are clearly different from money-center banks, should offer additional insight into the contagion effects stem-
ming from dividend cut announcements of money-center banks. The abnormal returns of the regional banks are reported in Table 3. We find a three-day abnormal return of \(-0.669\%\). Although, the contagion effect is noticeably weaker (in magnitude) among the regional banks, it is nonetheless significant at the 1% level.

A likely explanation for the weaker contagion effect in the regional banks is that their loans tend to be more concentrated in a particular region (whether they are commercial, consumer, or real-estate loans). Furthermore, although some regional banks were involved in LDC lending, the majority had minimal, if any, exposure to LDCs. In particular, in 1986 the LDC exposure of money-center banks averaged 4.6% of assets while the LDC exposure of regional banks averaged 0.95% of assets (see Table 2). Finally, while regional banks do participate in loan syndication, they again do so to a lesser extent than do money-center banks (Megginson et al., 1995). Note that in 1990 money-center banks had HLT loans of 4.71% of assets while regional banks had HLT loans of 1.86% of assets. HLT loans are typically syndicated. Although HLT loans are not the only loans that are syndicated, they do represent the category with the largest dollar volume of syndicated loans made to US corporate borrowers (Megginson et al., 1995). Furthermore, Kleege (1994) reports that eight of the top ten syndicators (by volume) are money-center banks. In short, the asset

<table>
<thead>
<tr>
<th>Category</th>
<th>Announcement period return (%)</th>
<th>t-stat</th>
<th>Fraction negative</th>
<th>z-stat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-announcing MC Banks</td>
<td>-1.434</td>
<td>-5.24**</td>
<td>0.591</td>
<td>2.69**</td>
</tr>
<tr>
<td>Non-announcing MC Banksa</td>
<td>-1.521</td>
<td>-5.10**</td>
<td>0.591</td>
<td>2.53**</td>
</tr>
<tr>
<td>Regional Banks</td>
<td>-0.669</td>
<td>-4.24***</td>
<td>0.578</td>
<td>3.35***</td>
</tr>
<tr>
<td>Announcing MC Banks</td>
<td>-8.244</td>
<td>-3.38***</td>
<td>0.737</td>
<td>1.84*</td>
</tr>
</tbody>
</table>

*aAll “contaminated” data have been removed.
*bSignificant at the 10% level.
**Significant at the 5% level.
***Significant at the 1% level.

Table 3
Announcement period abnormal returns

6 The regional banks in our sample include: Amsouth, Banc One, Bank of NY, Barnett, Equimark, First Bank, First City, First Empire, First Fidelity, First Pennsylvania, First Republic, First Union, First Virginia, Firstar, Fleet Norstar, Interfirst, Keycorp, M Corp, MNC, NCB, NBD, National City, Norstar, Norwest, PNC, Republic NY, Shawmut, Signet, Southeast, Suntrust, Texas American Bancshares and UJB.

7 Among the syndicated loans analyzed by Megginson et al. (1995) are 174 loans made to US corporate borrowers with a total value of $125.45 billion. Of these 42 loans worth $81.8 billion are in the category of LBO/HLT loans. If these figures are representative, then clearly HLT loans make up a sizeable portion of the syndicated loan market.
(loan) structures of money-center banks and regional banks are quite different. Moreover, the regional banks were better capitalized (see Table 2). The weaker reaction among regional banks is likely due to these or other perceived dissimilarities. ⁸

5. Cross-sectional analysis

The analysis in the previous section provides significant evidence that dividend cuts by money-center banks induce negative valuation effects in the stock prices of non-announcing banks. However, it needs to be understood whether the documented contagion effect is consistent with an “information” effect or a “pure contagion” effect. To differentiate between these two effects we examine whether the magnitude of the stock market reaction for non-announcing banks is systematically related to risks common to both announcing and non-announcing banks. This analysis is carried out in two steps. In the first step, we examine the circumstances surrounding each event, through press releases, etc. In the second step we combine those announcements where the announcing banks faced similar problems and analyze each group of events as composite “events”. For each of these composite “events” we then test whether the abnormal returns of non-announcing banks are systematically related to the problems that prompted the announcing bank to cut its dividend.

The events examined here cluster into two distinct time periods: ⁹ the mid 1980s most notably characterized by the LDC debt crisis and the early 1990s characterized by problems in certain real-estate markets and regulators’ concerns about highly levered transactions (HLTs). We form two composite “events” in the first period and again in the second period.

5.1. Cross-sectional analysis: Methodology

To test whether the abnormal returns of non-announcing banks are related to individual bank loan portfolio characteristics we estimate cross-sectional regressions of the following form:

⁸ We also tested for contagion effects among investment banks as in Slovin et al. (1992). However, unlike Slovin et al. (1992), we find no evidence of contagion effects there. Furthermore, the minor reaction that we do find among investment banks is positive rather than negative (though lacking statistical significance), in the spirit of Benveniste et al. (1993).

⁹ We were unable to collect loan portfolio data for banks surrounding the Marine Midland event in 1975.
\[ A_{i,j} = b_0 + \sum_{k=1}^{K} b_k X_{k,i,j} + \varepsilon_{i,j} \quad \text{for } i = 1, \ldots, M, \]  

(4)

where \( A_{i,j} \) is the standardized three-day abnormal return of bank \( j \) relative to announcement \( i \), the \( X_k \) are individual bank characteristics representing risks in the banks’ loan portfolio, \( \varepsilon_{i,j} \) is a random disturbance term assumed to be distributed \( N(0, \sigma_{i,j}) \) and \( M \) is the number of announcements in the particular group. The loan exposure variables represented by the \( X_k \) are defined differently in the 1980s and 1990s to reflect the fact that, in the 1990s, data are available on the exposures in different states/regions as well as exposure to HLTs. In all composite “events” we also control for bank size. Eq. (4) is estimated using weighted least squares to account for the possibility of heteroskedasticity in the error term and with a subset of the \( b_k \) set to zero. Furthermore, we eliminate any banks that had confounding events (earnings, dividends, etc.) in a window of \( \pm 2 \) trading days around the given announcement. \(^{10}\) If the three-day abnormal return, \( A_{i,j} \), is systematically related to the appropriate independent variable(s), the reaction will be taken to be consistent with an information effect. If the three-day abnormal return, \( A_{i,j} \), has no systematic relation with any of the explanatory variables or is systematically related to an inappropriate set of variables, the observed contagion effect around that “event” will be consistent with a “pure contagion” effect.

5.2. The mid 1980s: The LDC crisis

The money-center bank dividend cuts of the mid 1980s consist of Crocker National in December 1983 and in June 1984, Continental Illinois in May 1984, BankAmerica in August 1985 and in January 1986, and Mellon Bank in April 1987. Both Crocker’s problems and Continental Illinois’ problems were well known at the time of their announced dividend cuts (as evidenced by the lack of reaction to their announcements). Therefore, we restrict our attention to the two dividend cuts of BankAmerica as well as the dividend cut of Mellon Bank. Investigating the problems of each of these banks around their dividend announcements led to the following observations. BankAmerica’s problems were closely related to the looming LDC crisis (see Hill, 1985; Schmitt and Tharp, 1986), although there were other weaknesses in BankAmerica’s loan

\(^{10}\) We also estimated each regression with the full sample of banks around each announcement and the results were very similar.
portfolio (such as its portfolio of California real-estate loans). Mellon’s problems were due to weakness in its energy and other commercial loans as well as problem loans to Brazil and Mexico (see Mitchell, 1987). For these reasons we combine the cuts of BankAmerica in 1985 and 1986 into one analysis and conduct a second analysis on Mellon’s announcement in isolation. Calendar timing is a secondary motivation for our choice of announcement groupings.

We estimate Eq. (4) around both of these groups of announcements where the variables, $x_k$, are defined as follows: $x_1$ is the dollar value of real-estate loans as a percentage of total assets (denoted by RE); $x_2$ is the sum of loans to Argentina, Mexico, Venezuela, and Brazil as a percentage of total assets (denoted by LDC); $x_3$ is the dollar value of commercial, financial, and industrial loans (non-real-estate) as a percentage of total assets (denoted CFI); $x_4$ is the dollar value of installment loans as a percentage of total assets (denoted INST); and $x_5$ is the log of the book value of assets. 11

The results of the estimation of Eq. (4) around the dividend cut announcements of BankAmerica in late 1985 and early 1986 are presented in Panel A of Table 4. The most dominant explanatory variable in this regression is the variable LDC. The abnormal returns of non-announcing banks are strongly negatively related to the exposure to LDC loans (the coefficient, $b_2$, is $-0.3416$ and is significant at the 5.0% level). The exposure to real-estate loans appeared to be of some concern to investors but the negative coefficient on RE is not significant. 12 It appears that the non-announcing banks whose loan portfolios most closely matched those of the announcing bank were those most susceptible to contagion effects.

The estimation of Eq. (4) around the dividend cut announcement by Mellon Bank in 1987 is also presented in Panel A of Table 4. Mellon had its share of LDC problems but their main problem was the weakening of commercial loans, especially in energy (see Mitchell, 1987). We find that the contagion effect around the Mellon announcement in 1987 was significantly negatively related to the exposure to commercial loans ($b_3$ has a point estimate of $-0.1314$, significantly less than zero at the 1% level). Furthermore, the coefficient on LDC exposure is negative and significant at the 10% level of signifi-

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11 It should be noted that we also estimated Eq. (4) with several other variables on the right-hand side including the primary capital ratio (also the Tier 1 capital ratio for later time periods once that value was reported), the loan-loss provision, the allowance for loan losses, and the level of loan charge-offs. These other variables had little or no explanatory power in the regression and have been omitted from the analysis. The results are available from the authors upon request.

12 It should be noted that at this point in time banks did not report their exposure to real-estate loans by state or region. If we could isolate more clearly on the appropriate region (i.e., California), as we can in the 1990–91 time period, we suspect our results would be much stronger.
5.3. The 1990s: Weakening real-estate loans and highly levered transactions

The first portion of the 1990s sample consists primarily of dividend cuts by the large, Eastern money-center banks. These include Chase Manhattan, Bank

Table 4

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Panel A – The mid-1980s: the LDC debt crisis&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estimated equation:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>( a_i = b_0 + b_1 \text{RE}_i + b_2 \text{CFI}_i + b_3 \text{LDC}_i + b_4 \text{INST}_i + b_5 \log(\text{Assets}) + \epsilon_i )</td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>(-0.0201 \ (0.032))</td>
<td>(-0.5144 \ (0.563))</td>
</tr>
<tr>
<td>Real-estate</td>
<td>(0.0585 \ (1.020))</td>
<td>(0.0864^{*} \ (1.710))</td>
</tr>
<tr>
<td>Comm/Ind/Fin</td>
<td>(0.0678 \ (1.793))</td>
<td>(-0.1314^{**} \ (3.857))</td>
</tr>
<tr>
<td>LDC Exposure</td>
<td>(-0.3416^{**} \ (2.392))</td>
<td>(-0.3354^{*} \ (1.933))</td>
</tr>
<tr>
<td>Installment</td>
<td>(0.0053 \ (0.096))</td>
<td>(0.0012 \ (0.031))</td>
</tr>
<tr>
<td>log (Assets)</td>
<td>(-0.0002 \ (0.299))</td>
<td>(0.0015 \ (0.824))</td>
</tr>
<tr>
<td>(R^2)</td>
<td>(0.2266)</td>
<td>(0.5699)</td>
</tr>
<tr>
<td>(F\text{-Stat})</td>
<td>(2.754^{**})</td>
<td>(7.949^{***})</td>
</tr>
<tr>
<td>(N)</td>
<td>(53)</td>
<td>(36)</td>
</tr>
</tbody>
</table>

Panel B – The early 1990s: eastern and western money-center banks<sup>b</sup>  
Estimated equation:

\( a_i = b_0 + b_1 \text{NE}_i + b_2 \text{HLT}_i + b_3 \text{LDC}_i + b_4 \text{TEX}_i + b_5 \text{Cal}_i + b_6 \text{MW}_i + b_7 \log(\text{Assets}) + \epsilon_i \)

<table>
<thead>
<tr>
<th>Variable name</th>
<th>Eastern MC Banks</th>
<th>Western MC Banks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>(0.7557 \ (1.628))</td>
<td>(-0.0622 \ (0.139))</td>
</tr>
<tr>
<td>NE exposure</td>
<td>(-0.0472 \ (0.487))</td>
<td>(0.2144 \ (1.414))</td>
</tr>
<tr>
<td>HLT exposure</td>
<td>(-0.3058^{**} \ (2.112))</td>
<td>(0.0653 \ (0.421))</td>
</tr>
<tr>
<td>LDC exposure</td>
<td>(-0.2497 \ (1.358))</td>
<td>(-0.2877 \ (1.021))</td>
</tr>
<tr>
<td>TEXAS exposure</td>
<td>(-0.8989^{***} \ (3.701))</td>
<td>(-0.0987 \ (0.313))</td>
</tr>
<tr>
<td>California exposure</td>
<td>(-0.0986 \ (0.513))</td>
<td>(-0.575^{*} \ (1.898))</td>
</tr>
<tr>
<td>Midwest exposure</td>
<td>(0.0285 \ (0.615))</td>
<td>(-0.0616 \ (1.410))</td>
</tr>
<tr>
<td>Log (Assets)</td>
<td>(-0.0010^{**} \ (2.549))</td>
<td>(0.0002 \ (0.636))</td>
</tr>
<tr>
<td>(R^2)</td>
<td>(0.1641)</td>
<td>(0.1459)</td>
</tr>
<tr>
<td>(F\text{-Stat})</td>
<td>(4.991^{**})</td>
<td>(1.488)</td>
</tr>
<tr>
<td>(N)</td>
<td>(186)</td>
<td>(69)</td>
</tr>
</tbody>
</table>

<sup>a</sup> Dividend cuts by BankAmerica (1985, 1986), and Mellon (1987).

<sup>b</sup> Dividend cuts by chase, Chemical, Bank of Boston (twice), Citicorp (twice), Manufacturer’s Hanover, and Security Pacific.

* Significant at the 10% level.

** Significant at the 5% level.

*** Significant at the 1% level.

Once again the contagion effect is strongest among those banks with exposure to the problems of the announcing bank. In short, the evidence favors an “information” effect over a “pure contagion” effect in the sample of events in the 1980s.
of Boston, and Chemical in late 1990, as well as Citicorp and Manufacturers Hanover in early 1991. These banks were cutting dividends for the first time in 50 years and hence these cuts sent shock waves through the financial system. According to the popular press, the major weaknesses in the loan portfolios of the Eastern money-center banks were due to souring real-estate markets in the East, particularly in New York City and New England (see Bleakley, 1990a,b; Suskind, 1990; Hilder, 1991). However, it was also apparent that regulators were severely scrutinizing HLT loans, in particular LBO loans (see Megginson et al., 1995; Hilder, 1991). This seems to be the area that investors were focusing on as well. Furthermore, Chemical was heavily laden with Texas real-estate loans after its acquisition of Texas American Bankshares in 1989. At the time of the cuts of Chase and Bank of Boston in September of 1990, all eyes turned to Chemical as the next money-center bank likely to cut its dividend (see Bleakley, 1990a). It is reasonable that a dividend cut by Chemical, or merely the fear of a dividend cut by Chemical, could send a signal about the quality of Texas loans which were already very high up on the troubled list.

The results of this portion of the analysis are presented in Panel B of Table 4. Here the $x_k$ will be defined as follows: $x_1$ is the amount of real-estate exposure in New England/New York/New Jersey as a percentage of total assets; $x_2$ is the exposure to HLT loans as a percentage of total assets; $x_3$ is the exposure to LDC loans as a percentage of total assets; $x_4$ is the exposure to real-estate loans in Texas as a percentage of total assets; $x_5$ is the exposure to real-estate loans in California; $x_6$ is the exposure to real-estate loans in the Midwest; and $x_7$ is the log of the book value of assets. The contagion effect for the Eastern money-center bank composite event is significantly related to HLT loan exposure (the coefficient on HLT is $0.3058$, significant at the 5% level) but is unrelated to any real-estate exposure, other than Texas, or any other loan category. Finally, the contagion effect is strongest for larger banks since the coefficient on bank size is negative and significant at the 5% level. The weakness of the association between the contagion effect and Eastern real-estate exposure (NY/NJ/NE) is somewhat surprising but otherwise it is apparent that the results point to an “information” effect rather than a “panic” because

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13 In this portion of the analysis we will also analyze the second cut of Bank of Boston in 1991 as well as the 1991 omission by Citicorp in October and the dividend cut of Security Pacific in March. We place Security Pacific’s cut in this group for the following reason: although Security Pacific is clearly a Western bank it was in trouble because of HLT loans, not Western real-estate or other regional loans. In fact at the time of the dividend cut announcement it actually re-affirmed the quality of its California real-estate portfolio (see King, 1991a).

14 Hilder (1991) points out that Citicorp, Manufacturer’s Hanover, and Security Pacific all posted large losses “…caused largely by big provisions for possible losses on commercial real-estate and leveraged buy-out loans”. He goes on to cite “pressure from regulators to bolster capital”.
the contagion effect is correlated with the exposure to HLT loans, the dominant problem at the dividend-cutting banks.

After the dividend cuts of the Eastern money-center banks in late 1990 and early 1991 the Western money-center banks followed suit in the rest of 1991. These included First Interstate in July, Continental in August, Security Pacific in October, and Wells Fargo in December. We examine the First Interstate and Continental events concurrently because California real-estate was the dominant problem at these banks (see Bleakley, 1991; King, 1991b). The October dividend omission of Security Pacific was announced contemporaneously with the dividend omission of Citicorp. Furthermore, Security Pacific was at the time involved in merger negotiations with BankAmerica (see Lipin, 1991). For this reason the announcement should be viewed as tied in with the planned merger (the reaction to the announcement was in fact very positive) and we therefore omit it from our analysis of the Western bank dividend cuts. However, it was analyzed as one of the Eastern money-center bank announcements because the Citicorp dividend cut was announced contemporaneously. In analyzing these events, the $x_k$ will be defined in the same way as for the Eastern banks.

The results of the estimation of Eq. (4) for these announcements are also presented in Panel B of Table 4. The weakness in California real-estate was not apparent earlier but came to light later in 1991 and investors devalued California banks accordingly when First Interstate and Continental cut their dividends in July and August, respectively. We find a negative coefficient on the California exposure variable (significant at the 10% level) in the estimation of Eq. (4). No other variables have explanatory power in the regression. This is consistent with the view that the weakness of the California real-estate market was a problem plaguing the dividend-cutting banks. Finally, in a separate analysis of the Wells Fargo dividend cut in December of 1991 we see that the announcement was treated as good news for the California banks (consistent with the market’s reaction in Wells’ stock price (see King, 1991c). In particular, the spillover effect is shown to be positively related to California real-estate exposure and marginally significant at the 10% level (not shown in the table).

In summary, we consistently find evidence of the market’s ability to assess the information revealed by dividend cuts and identify the banks most exposed to the problems of the dividend-cutting banks. Therefore, we conclude that the observed contagion effects are consistent with informed pricing.

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15 Continental is a Midwestern money-center bank. However, most of Continental’s woes in 1991 were from the deteriorating California real-estate market, a problem more associated with Western banks (see Bleakley, 1991).
6. Conclusion

Bank insiders possess large amounts of private information because of their incentive to monitor loan customers. If different banks monitor the same loan customers, or if at least borrowers are similar across different banks, then private information is likely to be correlated across banks. If outsiders are aware that private information is positively correlated across banks but are unsure of the exact nature of the correlation, there will be a tendency for outsiders to “panic” in reaction to bad news, i.e., bank stocks will be bid down regardless of their financial condition. On the other hand, if outsiders are familiar with the nature of the correlation of private information across banks, they will process the bad news and correctly re-price the equity of affected banks. From a public policy standpoint, contagion (or intra-industry) effects are something to be concerned about only if there is a tendency for investors to panic.

We test for and analyze contagion effects stemming from announcements of dividend cuts by money-center banks. We document contagion effects in both non-announcing money-center banks and large regional banks, although the effect in the later is considerably smaller in magnitude. Furthermore, the documented contagion effect is not consistent with a “panic” on the part of investors. By examining the circumstances surrounding each dividend cut separately, we are able to show that the observed contagion effect is systematically related to risks common to both announcing and non-announcing banks such as exposure to troubled LDCs, weak real-estate markets, and highly leveraged transactions. Our results are a testament to the efficiency of the financial markets and the ability of investors to assess information as it is made public.

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References


