What Drive Banks' Abnormal Returns?

Xiaolou Yang, Peter Woodlock

Youngstown State University, USA

This study uses a modified present value framework to decompose the variance of returns of banks into the variance of contemporaneous expected returns and the variance of unexpected returns. The variance of unexpected returns accounts for most of the variance in total returns. When unexpected returns are decomposed into two components—cash-flow risk (fundamentals) and discount-rate risk (investor sentiment), cash-flow risk accounts for the major portion of unexplained risk, although discount-rate risk is also important. Moreover, the unexpected returns of banks fluctuate dramatically with changes in market conditions. In particular, the risk associated with cash-flow news is higher than the risk associated with discount-rate news during periods of economic expansion and easy monetary policy, while the variance of returns is more influenced by investor sentiments during periods of economic recession that are coupled with tightening monetary policies. Finally, the study shows that the relative importance of sentiment is higher for smaller banks than for larger ones.

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1. Introduction

The historic collapse of housing values in the U.S., and the subsequent losses in mortgages and mortgage-backed securities, has wreaked havoc on the capital position of both large and small financial institutions around the world. The recent bank panic suggests that the abnormal returns for banking industry can be significant and greater than those of other sectors of the economy. The market value of the global banking industry declined by more than one-half during 2008; the market capitalization of the largest U.S. commercial banks fell by approximately $630 billion in 2007-2008, a 65% reduction in value.

Analysis of bank risk has typically focused on the systematic components of risk from an arbitrage pricing perspective. Very little research exists on partitioning the volatility of total returns using a present value framework. Compared to the traditional arbitrage pricing structure, the advantage of a present value model framework is that it allows the expected discount rate to vary over time. This allows one to directly assess how the value of a bank fluctuates in response to changes in cash-flows and expected discount-rates. As such, the present value framework represents a new perspective for looking at the price movements in bank stocks.

This study examines bank risk by first decomposing total risk into the variance associated with contemporaneous expected returns and the variance of unexpected returns. Fluctuations in expected contemporaneous returns account for only a small portion of the variation in total returns. A significant amount of risk comes from the variance in the unexpected returns. Further decomposition of the variance in the unexpected returns into cash-flow risk and discount-rate risk allows one to distinguish between asset price movements driven by expected cash flows and movements driven by discount rates. This is important because investor sentiment can directly affect discount rates but cannot directly affect cash flows. Price movements that are associated with changing rational forecasts of cash flows may ultimately be driven by investor sentiment, but the mechanism must be indirect. [1]From a theoretical standpoint, the ability to distinguish between

[1] See Chui, Titman, and Wei, 2003, for an example of a model that incorporates such indirect effects

cash-flow and discount-rate movements allows for direct tests of how the fundamentalist view of investing and the sentimentalist view of investing affect unexpected returns in the banking industry.

A VAR process is used to decompose the variance of bank returns into the variance of contemporaneous expected returns and the variance of unexpected returns. The results reveal that the variance of contemporaneous expected stock returns accounts for only a minimal portion of the total variation in returns. What is found is that most of the variance in banking stock returns is associated with the variance of unexpected returns.

To look at cash flow and discount rate effects on the variance of bank returns, the unexplained variance of the residual returns (unexpected asset returns) associated with each equation in the VAR system was further decomposed into cash-flow risk (fundamentals) and discount-rate risk (investor sentiment). When the variance of total unexpected returns was decomposed, cash-flow risk was found to account for the major portion of unexplained risk although discount-rate risk was also an important determinant of unexpected risk components.

The unexpected returns of banks fluctuate dramatically relative to market conditions. Based on further empirical results, it is shown that the unexpected returns associated with cash-flow news are higher than those associated with discount-rate news during periods of economic expansion and easing monetary policies. In contrast, the unexpected returns associated with discount-rate news dominate those associated with cash-flow news during periods of economic recession and a tightening monetary policy.

This study also examines the possible size effects on the valuation of banks' stock returns. In particular, the relative importance of cash flow news is lower for smaller banks than for larger ones. This result implies that smaller firms are likely associated with greater information asymmetry, thus more sensitive to changes in investor sentiment. Such a result is consistent with the significant momentum effect in the REITs' stocks that dominated the samples used by the Chui, Titman, and Wei (2003), and Hung and Glascock (2008) studies.[2] What is suggested by the findings of this paper is that the momentum effect found for the REITS was driven by both stock fundamentals and investor sentiment. We believe that determining which of the two, fundamentals or sentiment, is the more important force is an important contribution to the banking literature.

The paper is organized as follows. The next section describes the methodology. Sample and data treatment are discussed in section three. Empirical results are presented in section four, followed by concluding remarks.

2. The Basic Framework and Estimation Process

The methodology used in this paper is similar to the log-linear dividend-ratio model of Campbell and Shiller (1988) and Campbell (1991). For the aggregate stock market, Campbell (1991) finds that the price variances caused by discount rate changes are larger than those caused by changes in cash flows. Applying the methodology to firm-level data, Vuolteenaho (2002) concludes that firm-level returns are primarily affected by cash flow news. He also finds that the co-movement of the stock returns driven by expected return changes is much stronger than that driven by cash flows, implying that the latter can be diversified away. In addition, Campbell and Vuolteenaho (2004) show that the prices of value stocks are more sensitive to cash flow news while the prices of growth stocks are more affected by changes in discount rates. Finally, Campbell, Polk, and Vuolteenaho (2007) present evidence that price movements in growth stocks are not purely driven by sentiment.

[2] Chui, Titman and Wei (2003) use the factor model based on Fama and French (1992) and Jegadeesh and Titman (2001) find the momentum effect is stronger for larger and more liquid REITs and is especially strong after 1992. Wei and Yang (2011) find Hung and Glascock (2008) find evidence that REITs' momentum can be explained by both market conditions and dividend growth and that the tax law change in 1992 partially explains the greater momentum after 1992.

The methodologies used in previous studies vary in their choices of state variables. This study utilizes firm-level data that allows for cross-sectional variation. Formally, the fundamental equation used in this paper is:

$$r_{t+1} \equiv \log(P_{t+1} + D_{t+1}) - \log(P_t) \tag{1}$$

where P and D denote stock price and dividends, respectively, and the lower-case letter represents the log transform of a given stock's rate of return. Using a first-order Taylor expansion around the mean log dividend-price ratio, $\overline{(d_t - p_t)}$, I get:

$$r_{t+1} \approx k + \rho p_{t+1} + (1-\rho)d_{t+1} - p_t \tag{2}$$

where $\rho \equiv 1/(1+\exp\overline{(d_t - p_t)})$ and $k \equiv -\log(\rho) - (1-\rho)\log(1/\rho - 1)$. Applying a terminal condition, $\lim_{j\to\infty} \rho^j (d_{t+1} - p_{t+1}) = 0$, taking expectation, and subtracting the current dividend one gets:

$$p_t - d_t = \frac{k}{1-\rho} + E_t \sum_{j=0}^{\infty} \rho^j [\Delta d_{t+1+j} - r_{t+1+j}] \tag{3}$$

where Δd denotes log dividend growth. Substituting (3) into the approximate return equation yields:

$$r_{t+1} - E_t r_{t+1} = (E_{t+1} - E_t)\sum_{j=0}^{\infty} \rho^j \Delta d_{t+1+j} - (E_{t+1} - E_t)\sum_{j=1}^{\infty} \rho^j r_{t+1+j} \tag{4}$$

where E_t is the expectation formed at the end of period *t*, r_{t+1} represents the log of the real return on an asset held from the end of period *t* to the end of period *t+1*, d_{t+1} is the log of the real dividend paid during period *t+1*, Δ denotes a one-period backward difference, and $(E_{t+1} - E_t)$ represents a revision in expectations given that new information arrived at time *t+1*. The parameter ρ is a constant and is constrained to be smaller than 1.

The main insight of equation (4) is that if the unexpected return on an asset is negative given that expectations are internally consistent, then it follows that either the future growth in cash flows (dividends) is expected to decrease, the expected future returns (discount rate) on an asset will increase, or both. Intuitively, this equation implies that unexpected stock returns are driven by changes in expectations of future cash flows or changes in discount rates, or both. For instance, an increase in expected future cash flows is accompanied by asset price increases, whereas an increase in discount rates is accompanied by lower asset prices, while the confluence of an increase in future cash flows and a decrease in discount rates should be accompanied by higher prices.

Campbell (1991) defines the two return components as cash-flow news, N_{cf}, and expected-return news, N_t as:

$$N_{cf} \equiv (E_{t+1} - E_t)\sum_{j=0}^{\infty} \rho^j \Delta d_{t+1+j} \quad \text{and} \quad N_r \equiv (E_{t+1} - E_t)\sum_{j=1}^{\infty} \rho^j r_{t+1+j} \tag{5}$$

$$\upsilon_{t+1} = N_{cf,t+1} - N_{r,t+1} \tag{6}$$

Where υ_{t+1} is the unexpected component of the stock return, $N_{cf,t+1}$ represents news about cash flows, and $N_{r,t+1}$ represents news about future returns (discount rate).

We use the above model to estimate the cash-flow news and discount-rate news series using a vector autoregressive (VAR) model in the manner of Vuolteenaho (2002). This VAR methodology first estimates the terms $E_t r_{t+1}$ and $(E_{t+1} - E_t)\sum_{j=1}^{\infty} \rho^j r_{t+1+j}$ and then uses the realization of r_{t+1} and equation (4) to back out the cash-flow news. Influence on stock price follows a VAR (vector autoregressive) system, with $z_{i,t+1}$ being a vector of firm-specific state variables describing firm *i* at time *t*. The first element of $z_{i,t+1}$ is firm i's market-adjusted log return, the second is book-to-market ratio, and the third is the return on equity. An individual firm's state vector is assumed to follow a linear law:

$$z_{i,t+1} = \Gamma z_{i,t} + \mu_{i,t+1} \tag{7}$$

where $\mu_{i,t+1}$ represents unexpected stock returns or shocks and Γ consists of point estimates of the VAR transition matrix. Define $e1' \equiv [1 \quad 0 \quad \dots \quad 0]$ and $\lambda \equiv \rho\Gamma(I - \rho\Gamma)^{-1}$. Provided that the process in equation (7) generates the data, the cash-flow and discount-rate news are linear functions of shocks, as follows:

$$\begin{aligned} N_{dr,t+1} &= e1'\lambda\mu_{t+1} \\ N_{cf,t+1} &= (e1' + e1'\lambda)\mu_{t+1} \end{aligned} \tag{8}$$

In equation (8), $e1'\lambda$ captures the long-run significance of each individual VAR shock to discount-rate expectations. The greater the absolute value of a state variable's coefficient in the return prediction equation, the greater the weight the variable receives in the discount-rate-news formula. More persistent variables should also receive more weight.

Equation (8) is important because it implies that we do not need to observe cash flows to calculate N_{cf}. They can be calculated from estimates of the VAR process. We can also use the expressions in equation (8) to decompose the variance of unexpected asset returns υ_{t+1} into the cash-flow risk(N_{cf}), discount-rate risk (N_r), and a covariance term.

The Generalized Method of Moments is used to jointly estimate the VAR coefficients and the elements of the variance-covariance matrix of VAR innovations. This estimation procedure allows conditional heteroskedasticity and possible serial correlation in the error terms of the VAR process.

3. Sample and Data Treatment

The sample period in this study is between 1971 and 2010. Stock prices and dividends were taken from the Center for Research on Security Prices' (CRSP) monthly stock tape. The firm-level data came from CRSP and COMPUSTAT. The CRSP monthly stock file contains stock prices, shares outstanding, and returns for NYSE, AMEX, and NASDAQ stocks. The COMPUSTAT monthly research file contains accounting information for publicly traded firms.

In the study, the risk-free rate is proxied by a rolled-over one-month Treasury-bill rate, obtained the Federal Reserve Bank of St. Louis' web-site. Banks with less than two years of continuous variables were excluded to reduce potential survivor bias due to COMPUSTAT backfilling the data.

The data treatments below follow those of Vuolteenaho's (2002). The log firm-level return is the monthly log return on a bank's common stock. Delisting returns are included if they are available. A log transformation of a bank's stock return can yield extreme values. Because of this, the data was winzorized to include only those bank returns equaling between 1percent and 99 percent.

For the log book-to-market equity ratio, the current market equity was calculated by multiplying the end of month stock price by the number of shares outstanding. If a bank's current market equity was unavailable, I computed the bank's current market equity by increasing the bank's lagged market equity for its historical returns excluding dividends. If the bank's book to equity was not available, I used liquidation value. Moreover, if the bank's short and/or long-term deferred taxes were available, they were added to book equity. If both items were missing, the last period's book equity plus earnings less dividends was used as a proxy of book equity. If neither earnings nor book equity was available, the book-to-market ratio was assumed to be unchanged, and the book to equity ratio was computed using last period's book-to-market ratio and this period's market equity.

The log return on equity was computed by dividing current period earnings by last period's book equity.[3] Negative or zero book equity values were treated as missing. Again, to avoid extreme values, I winsorized the ratios to include those between 1percent and 99 percent.

Table 1 displays the summary statistics for bank size (log of total assets), log returns, book-to-market ratio and return on equity. These statistics include information from 82 banks[4], with total observations equaling 10,946. I partitioned banks into two groups—small banks versus large banks. In particular, all banks were ranked based on total asset value. The banks in the top one third of the distribution were classified as large banks, and the banks in the bottom one third were classified as small banks (Gertler and Gilchrist, 1994). There were a total of 3621 observations for the large banks and 3056 observations for the small banks. Appendix I provides a complete list of the banks included in the sample.

Table 1
Descriptive Statistics

		Full Sample	Large banks	Small banks
Size	Mean	5.728	7.851	3.015
	Std	2.994	1.607	1.998
r	Mean	0.336	0.034	0.032
	Std	0.008	0.006	0.007
BM	Mean	-0.245	-0.276	-0.205
	Std	0.603	0.413	0.772
ROE	Mean	0.038	0.034	0.032
	Std	0.006	0.006	0.006

Note: r is the monthly log return on a bank's common stock. BM is the log book-to-market equity ratio. ROE is the log return on equity.

4. Empirical Results

Table 2 reports the coefficients of the VAR application with a one period time lag using pooled panel data that were estimated using the optimal least squares approach.

Table 2
Cross-sectional VAR Parameter Estimates

	$r_{i,t}$	$BM_{i,t}$	$ROE_{i,t}$	R^2	F-value	DW
$r_{i,t+1}$	0.0658	0.0015	1.0637	57.28%	1369.16	2.021
	(0.023)	(0.000)	(0.043)			
	(9.315)	(5.823)	(40.532)			
$BM_{i,t+1}$	1.5639	0.8528	-2.5369	73.82%	3015.21	2.079
	(0.981)	(0.036)	(0.819)			
	(8.746)	(75.587)	(-6.512)			
$ROE_{i,t+1}$	0.1321	-0.0016	0.8428	68.28%	2311.25	2.158
	(0.135)	(0.000)	(0.023)			
	(5.286)	(-4.372)	(46.386)			

Note: r is the monthly log return on a bank's common stock. BM is the log book-to-market equity ratio. ROE is the log return on equity. The heteroskedasticity-corrected standard errors are reported in the parentheses. R-square, F-value and Durbin-Watson statistics are also reported.

[3] I followed Vuolteenaho's 2002 for data treatment.
[4] SIC code of 6020, 6035, 6036, 6311, 6552, 9995 are considered as banks.

The first three columns show the regression coefficients for the stock return equation, the book-to-market ratio equation, and the return on equity equation. These coefficients form the VAR companion matrix . Heteroskedasticity-corrected standard errors are reported in parentheses. The fourth column reports the corresponding and column five and six reflect F-values and Durbin-Watson statistics.

The R^2 statistic for the stock return equations is 57.28%. The other two equations have an of 73.82% and 68.28% respectively, indicating that stock returns, book-to-market ratios and return on equity follow a fairly persistent process. The coefficient estimates indicate that returns are high when a bank's prior period stock returns, book-to-market (B/M) ratio and ROE are high. The book-to-market ratio is strongly persistent as shown in the book-to-market equation. Also as shown, the book-to-market ratio is negatively associated with ROE and positively related to return. As for ROE, it also demonstrates a high degree of persistence. This may be explained by short-term earnings momentum. ROE tends to be high when prior return is high and book-to-market is low.

Table 3
Variance Decomposition of Total Asset Returns

	Total Variance σ^2	Expected Risks σ_e^2	Unexpected Risks σ_u^2
All Bank Stocks	71.22	2.41	68.81
Small Banks	79.28	3.62	75.66
Large Banks	66.39	4.93	61.46
Easy Monetary Periods			
1985:1-1985:4	78.32	3.59	74.73
2002:3-2004:3	80.21	4.35	75.86
Tight Monetary Periods			
1973:4-1975:1	62.57	5.12	57.45
1981:3-1982:4	60.28	5.24	55.06
2008:2-2009:4	61.19	5.18	56.01

Note: In this table, the variance of returns was decomposed into a variance of contemporaneous expected asset return and a variance of unexpected asset return. The results are reported for full sample, small banks and large banks. In addition, the results of two periods of easy monetary and three periods of tight monetary are also reported.

The VAR process was used to decompose the return variance into a variance of contemporaneous expected asset returns and a variance of unexpected asset returns. The results of this decomposition are reported in table 3.

As shown in Table 3, the variance of contemporaneous expected asset returns accounts for only a minimal portion of the variation that was associated with the stock returns generated by each asset class. The full sample was then partitioned into small banks and large banks according to asset size. The valuation of returns was then assessed during different monetary and economic episodes. As shown, the volatility of the contemporaneous expected returns accounted for only 3.38% of the bank risk found for the entire sample, while only 4.57% (7.43%) of the total risk associated with small (large) banks' returns was due to the variation in expected returns. The amount of total risk arising from the variation in contemporaneous expected returns on small (large) stocks is similar to that of the returns in easy (tight) monetary episodes[5]. In summary, most of the variance of returns for each asset class is associated with the variance of unexpected asset returns. This result confirms the findings of Liu and Mei (1994), who find similar results for the non-banking industry.

Given that the variance of unexpected returns accounts for most of the variance in total returns, I further decomposed the unexplained variance of the residual term (unexpected asset returns) associated with each equation in the VAR system, denoted as σ^2, into two components—cash-flow

[5] All monetary episodes are defined according to the NBER.

risk and discount-rate risk. The results of this decomposition are reported in table 4.

Table 4
Large Banks vs. Small Banks

	Full Sample	Subsample	
		Large Banks	Small Banks
Variance Decomposition			
$Var(cf)$	0.4825	0.516	0.3915
	(0.29)	(0.31)	(0.18)
$Var(dr)$	0.3992	0.368	0.4323
	(0.72)	(0.35)	(0.35)
Variance Ratio			
$Var(cf)/Var(v)$	0.6681	0.6764	0.5986
$Var(dr)/Var(v)$	0.5523	0.4823	0.6610

Note: This table compares the variance decomposition of full sample, large banks and small banks. The table shows the ratios of cash flow news variance (and expected return news variance) to total unexpected return variance. The standard errors are reported in the parentheses.

4.1 Size Effect on Banks

The top panel of table 4 shows the variance of cash-flow news and the variance of discount-rate news. For easier interpretation, these two components are normalized using the variance of the unexpected returns found in the bottom panel. Column two reports the results for the full sample, while the third and fourth columns provide results for the large banks and the small banks respectively.

For the full sample, cash-flow risk accounts for a major portion, 0.6681, of the unexplained risk, while the discount-rate risk accounts for a smaller portion, 0.5523, of the unexplained risk. This result implies, on average, that a bank's returns are both cash-flow driven and discount-rate driven, with the cash-flow risk accounting for a more significant portion of the total unexplained risk than discount-rate risk.

For the large banks, the variance in cash-flow news accounted for 0.6764 of total risk, which is significantly larger than the variance caused by discount-rate news. For large banks, cash-flow risk dominates the discount-rate risk, implying that large banks, on average, are cash-flow news driven.

For small banks, cash-flow news continues to be an important contributor to total risk. However, in contrast to the large banks, the discount-rate risk is now higher than the cash-flow risk. This is consistent with the Baker and Wurgler (2006) findings which suggest that smaller firms' stocks tend to be more influenced by sentiments. Baker and Wurgler suggest that this tendency might be attributed to the greater subjectivity found in small stocks' valuations or the greater barriers to arbitrage. The finding of this study confirms that this result holds as well for the banking industry, where it is found that investors in small banks are more likely to be affected by changes in investor sentiment than investment fundamentals.

4.2 Market Effect on Banks

Since banks have outperformed the market persistently over the past fifteen years with much higher price earnings ratios compared to other industries, I expect that that an investor's valuation of a given bank will depend on market conditions. To study this conjecture, cash-flow ratios, as well as discount-rate ratios, were identified and measured in periods of economic recession and expansion. I have focused especially on the recessions (expansions) accompanied with tight (easy) monetary policy.

Three economic recessions were examined: 1973:4-1975:1, 1981:3-1982:4 and the recent subprime financial crisis during 2008:2-2009:4. These three recessions were preceded by a clear tightening of monetary policy. In addition two periods of economic expansion: 1985:1-1985:4 and 2002:3-2004:3 were also analyzed. According to the Federal Reserve fiscal policy report on interest rates, during these two periods, the US experienced a period of loose money.

Table 5
Economic Recessions vs. Expansions

	Market Conditions				
	Easy Monetary Episodes		Tight Monetary Episodes		
	85:1-85:4	02:3-04:3	73:4-75:1	81:3-82:4	08:2-09:4
	Variance Decomposition				
$Var(cf)$	0.5053	0.5142	0.3645	0.3431	0.3318
	(0.18)	(0.31)	(0.38)	(0.28)	(0.32)
$Var(dr)$	0.3891	0.3833	0.4786	0.4855	0.4812
	(0.19)	(0.85)	(0.32)	(0.41)	(0.45)
	Variance Ratio				
$Var(cf)/Var(v)$	0.6871	0.6962	0.5385	0.5181	0.5133
$Var(dr)/Var(v)$	0.5291	0.5190	0.7071	0.7332	0.7416

Note: This table compares the variance decomposition of easy monetary episodes verses tight monetary episodes. The table shows the ratios of cash flow news variance (and expected return news variance) to total unexpected return variance. The standard errors are reported in the parentheses.

The empirical results are reported in Table 5. As shown in the table, the ratios are considerably different according to market conditions. More specifically, when the market conditions are affected by easy monetary policy, the variance found for the cash-flow ratio is significantly higher than the variance found for the discount-rate ratios. In particular, in the period of 1985:1-1985:4, cash-flow risk accounted for 0.6871 of total risk, while discount-rate risk accounted for 0.5291 of total risk. Similarly in the 2002:3-2004:3 period, cash-flow risk accounted for 0.6962 of total risk while discount-rate risk accounted for 0.5190 of total risk. Overall, cash-flow risks dominated discount-rate risks during easy monetary episodes.

However, the results are quite different when market conditions change. Specifically, during periods of tight monetary policy, discount-rate news dominated cash-flow risks. For example, the variance ratio of discount-rate news is 0.7071, 0.7332 and 0.7416 respectively for the three tight monetary episodes, with these ratios being much higher than the variance ratio found for cash-flows. This result indicates that bank returns were more influenced by investor sentiment during these tighter monetary periods. This makes intuitive sense since in tight monetary periods banks are more likely to make more of their money on interest rate spreads than on loan volume. Investor sentiment related to these spreads would therefore seem to be more important to investors during these periods than in periods when loan volumes are the more important driver of bank profits.

5. Summary and Conclusions

This study provides a new perspective on the nature of bank risk by decomposing the variance of returns using the present-value model of Campbell (1987, 1991). Campbell's approach seems especially applicable to banks since it allows the discount rate to vary through time in conjunction with a vector autoregressive process.

With the present-value model, total risk is first decomposed into the variance of contemporaneous expected asset returns and the variance of unexpected asset returns. From this partitioning, the variance of unexpected bank returns was found to account for most of the variance in the banks' total returns. Given this result, the unexplained variance of asset returns was further decomposed into two components: cash-flow risk and discount-rate risk. The importance of these two sources of stock-return variation was then examined in the context of contemporaneous differences in bank size and cross-period changes in monetary policy.

When the variance of the total unexpected returns was decomposed, cash-flow risks were found to account for the major portion of the unexplained risk, although discount-rate risk was also an important contributor to unexpected risk. It was also found that the unexpected returns of the banks fluctuated dramatically relative to market conditions. The risk of cash-flow news was shown to be higher than the risk of discount-rate news during periods of economic expansion and easy monetary policy, while the variance of discount-rate news dominated the variance associated with cash-flow news during economic recessions and a tightening monetary policy.

Size effects also appear to be present. It is found that the risk associated with cash flow news tends to be less for smaller banks than for larger ones. This result is sensible since smaller firms are more dependent on yield spreads than the larger banks and they are less able to generate the loan volumes that the large banks can generate. In addition, investors in small banks face greater information asymmetry, and thus, these investors would be expected to be more sensitive to changes in investor sentiment.

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Appendix I: Bank List

1.	Anchor Bancorp Inc/WI	2.	Investors Financial Services Corp
3.	Associated Banc-corp	4.	Irwin Financial Corp
5.	Astoria Financial Corp	6.	Jefferies Group Inc
7.	Bancorpsouth Inc	8.	JPMorgan Chase & Co
9.	Bank Mutual Corp	10.	Keycorp
11.	Bank of America Corp	12.	Lehman Brothers Holdings Inc
13.	Bank of Hawaii Corp	14.	Marshall & Ilsley Corp
15.	BB&T Corp	16.	Merrill Lynch & Co Inc
17.	Bear Stearns Companies Inc	18.	Morgan Stanley
19.	Boston Private Finl Holdings	20.	Nara Bancorp Inc
21.	Brookline Bancorp Inc	22.	National City Corp
23.	Cascade Bancorp	24.	New York Cmnty Bancorp Inc
25.	Cathay General Bancorp	26.	Northern Trust Corp
27.	Central Pacific Financial CP	28.	PNC Financial SVCS Group Inc
29.	Citigroup Inc	30.	Popular Inc
31.	City National Corp	32.	Privatebancorp Inc
33.	Colonial Bancgroup	34.	Prosperity Bancshares Inc
35.	Comerica Inc	36.	Provident Bankshares Corp
37.	Commerce Bancshares Inc	38.	SLM Corp
39.	Corus Bankshares Inc	40.	South Financial Group Inc
41.	Countrywide Financial Corp	42.	State Street Corp
43.	Cullen/Frost Bankers Inc	44.	Sterling Financial Corp/WA
45.	Dime Community Bancshares	46.	Susquehanna Bancshares Inc
47.	Downey Financial Corp	48.	SVB Financial Group
49.	East West Bancorp Inc	50.	Synovus Financial Corp
51.	Fannie Mae	52.	TCF Financial Corp
53.	First Bancorp P R	54.	Trustco Bank Corp/NY
55.	First Commonwlth Finl CP/PA	56.	UCBH Holdings Inc
57.	First Finl Bancorp Inc/OH	58.	Umpqua Holdings Corp
59.	First Finl Bankshares Inc	60.	United Bankshares Inc/WV
61.	First Midwest Bancorp Inc	62.	United Community Banks Inc
63.	Firstmerit Corp	64.	Wachovia Corp
65.	Flagstar Bancorp Inc	66.	Washington Mutual Inc
67.	Franklin Bank Corp	68.	Wells Fargo & Co
69.	Fremont General Corp	70.	Westamerica Bancorporation
71.	Glacier Bancorp Inc	72.	Wilmington Trust Corp
73.	Goldman Sachs Group	74.	Wilshire Bancorp Inc
75.	Greater Bay Bancorp	76.	Wintrust Financial Corp
77.	Hanmi Financial Corp	78.	Zions Bancorporation
79.	Hudson City Bancorp Inc	80.	Huntington Bancshares
81.	Independent Bank Corp/MI	82.	Indymac Bancorp Inc