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BHC MERGERS WITH NONBANK FINANCIAL FIRMS--AN UPDATE

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Introduction

The purpose of this note is to briefly discuss an update of the Boyd, Graham, Hewitt results on bank holding company (BHC) entry into nonbank financial lines of business.[1]

That study was criticized on the grounds that the sample of securities firms was "small and unrepresentative." Moreover, the period covered by that study--1971 to 1984--did not include the more recent turbulent years for BHCs, particularly 1987. In response to that criticism we extended the sample period to include 1985, 1986, and 1987, and we expanded the number of sample firms in the securities industry as well as in the real estate and insurance agent/broker industries. The number of firms in the old and new samples is shown in Table 1, and the names of the securities firms in the old and new samples are listed in Exhibit 1.

The updated results clearly reflect the financial turmoil of recent years. What is remarkable about these new tests, however, is that the results are strikingly similar to those obtained in our earlier study. More than doubling the number of securities firms and including the 1985-1987 period does not overturn any important conclusion. Industry data still suggest that BHCs and insurance firms are in one (low) risk category, whereas securities and real estate firms are in another (high) risk category. In addition, the data still strongly suggest that BHC-securities combinations do not reduce the risk of BHC failure. Rather, they increase it. And, just as before, from a risk perspective the best merger partners for BHCs appear to be life insurance companies.

Industry Return and Risk Measures

Rate of return on equity. Median accounting rates of return on equity for most industries are about the same in the 1984 and 1987 samples (Table 2).[2] The only significant change is for real estate development where the median return falls from 10 percent in the 1984 sample to 3.5 percent in the 1987 sample.

Median market rates of return on equity show several significant changes between the two samples.[3] The median returns for property/casualty insurance firms and for insurance agents/brokers increase considerably between the 1984 and 1987 samples. On the other hand, the median returns for securities and real estate development firms decline significantly. The BHC industry median return is little changed, either on the accounting or market basis.

Z-score Risk Measure. Median accounting Z-scores for all seven industries decline (Z-score being inversely related to risk) between the 1984 and 1987 samples (Table 3). These changes unquestionably reflect the turbulence of financial markets in the mid-1980's. Although all Z-scores decline between the two periods, industry risk rankings are not much changed. With either sample, BHCs have the highest accounting Z-score followed by life insurance. With both samples, the lowest Z-scores belong to the two real estate industries.

Median market Z-scores indicate no systematic increase in risk between the 1984 and 1987 samples. But here too, industry risk ranking remains relatively stable. With either sample, the lowest risk industry is property/casualty insurance and the highest is real estate development. BHCs rank third lowest risk in both samples.

Merger Simulation Risk Measures

Following the same procedures used in reporting the results from the 1984 sample, we conducted both restricted and unrestricted merger simulations. In the unrestricted simulation, two firms are picked at random and the share of nonbank assets to consolidated assets is determined by the relative size of the two firms. The drawback of this approach is that it does not show the risk effects of varying nonbank shares. The restricted merger simulation addresses this problem. In a restricted merger, a predetermined nonbank asset-to-consolidated asset ratio is imposed on the merger. This process is repeated several times, each time for a different predetermined initial nonbank-to-consolidated asset ratio. The graphic result is a "risk frontier" that shows risk (the Z-score in this study) plotted against the average nonbank share of total assets.

Unrestricted Merger Risk. Median accounting Z-scores decline between the 1984 and 1987 samples in five of the six merged industries (Table 4). Only the BHC-other real estate mergers show a slight Z-score increase. It is not surprising that mergers of financial firms appear more risky with the 1987 sample, given the across-the-board decline in median Z-scores for all seven industries. What does not change between the 1984 and 1987 samples, however, are the findings that only the BHC-life insurance combinations produce a median Z-score that is higher than that of the unmerged BHC industry, and that the BHC-securities mergers result in the lowest Z-score among all six combinations.

Median market Z-scores for 1987 do not show a systematic change from the 1984 sample: some are higher and some are lower. But the relationship of the merged industries to the unmerged BHC industry remains essentially the same between the 1984 and 1987 samples. Mergers of BHCs with insurance firms tend to reduce risk vis-a-vis the BHC industry alone, while mergers of BHCs with securities firms tend to increase risk.

Restricted mergers. The Z-score risk frontiers generated by varying the initial share of nonbank assets in merged asset portfolios are depicted in Figures 1 through 6. Although there are some industry-specific differences between the 1984 and 1987 samples (the details of which are provided below), the overall picture is not much different. As might be expected, the levels of the accounting-based risk frontiers associated with the 1987 sample are mostly lower than 1984 because risk rose in every industry. Market-based risk frontiers in 1987 are higher for some industry combinations and lower for others reflecting the mixed industry risk results. However, the increased risk in the 1987 sample does not appear to have noticeably changed the shapes of the risk frontiers either with accounting or market data.

Mergers of BHCs and property/casualty insurers are shown in Figure 1. Accounting data for the 1987 sample (Fig. 1-b) indicate that an interior maximum (lowest risk point) occurs at a nonbank-asset share of about 3 percent, and that mergers containing up to about 9 percent nonbank assets are likely to reduce risk compared to the unmerged BHC industry. Both nonbank shares are higher than in the 1984 sample (Fig. 1-a). Market data for the 1987 sample (Fig. 1-d) show no change from the 1984 data (Fig. 1-c). They suggest that BHC mergers with property/casualty insurers would reduce risk regardless of nonbank share. Minimum risk occurs at a nonbank share of about 12 percent.

BHC mergers with life insurance companies are shown in Figure 2. The 1987 sample results further strengthen the argument that such mergers are risk reducing. Accounting data (Fig. 2-b) put the lowest risk point at about 20 percent nonbank share, up from 14 percent for the 1984 sample (Fig. 2-a). Moreover, the 1987 data show that the nonbank share of mergers could exceed 50 percent without raising risk above the unmerged BHC industry risk level. Market data for the 1987 sample (Fig. 2-d) show that risk is reduced regardless of the nonbank share--the same result that was obtained with the 1984 data (Fig. 2-c). With the 1987 data, minimum risk is achieved at a nonbank share of 40 percent, compared to about 14 percent with the 1984 data.

The risk frontiers derived from mergers between BHCs and insurance agents/brokers, securities firms, other real estate companies, and real estate development firms are depicted in Figures 3-6, respectively. Accounting data for both 1984 and 1987 samples (Panels a and b in each figure) show that for these four industries, the lowest risk is obtained at zero or near-zero nonbank share (i.e., no mergers are desirable). Market data from the 1987 sample (Panel d in each figure) provide similar conclusions. Interior maxima range from about 4 percent nonbank share for insurance agents/brokers to zero percent for securities firms. These interior maxima are not materially different from the 1984 sample (Panel c in each figure) except for insurance agents/brokers which showed an interior maximum share of about 18 percent in 1984.

Conclusion

The evidence from the updated and expanded 1987 sample strengthens our conclusions that mergers between BHCs and life insurance companies reduce risk, but that mergers between BHCs and securities firms increase risk. First, our conclusions are not affected by the financial turbulence in 1985-1987. The evidence suggests that the increased risk experienced by BHCs since 1985 was shared by other financial industries so that relative risk was not materially affected. Second, the results are not affected by increasing the sample size for the high risk securities and real estate industries.

Footnotes

[1]John H. Boyd, Stanley L. Graham, and R. Shawn Hewitt. "Bank Holding Company Mergers with Nonbank Financial Firms: Their Effect on Risk of Failure." Working Paper 417. October 1988.)

[2]Here and throughout we refer, for simplicity, to the "1984 sample" and the "1987 sample." More precisely, these are the sample periods ending in 1984 and 1987, respectively. Both samples begin in the same year, 1971.

[3]For a detailed methodology for the market rate of return and the Z-score, refer to our October 1988 study cited in footnote 1.

Exhibit 1

Securities Firms Included in the 1984 and 1987 Samples

	1984	1987
Advest Group, Inc.		X
American Express		X
Brown (Robert C.) & Co., Inc..		X
Bull & Bear Group		X
DCNY Corp.		X
Diversified Industries, Inc.	X	X
Dreyfus Corporation	X	
Edwards (A.G.), Inc.	X	X
Fidata Corp.	X	
First Boston, Inc.	X	X
First Medical Corp.		X
First of Michigan Capital Corp.		X
Hutton, (E.F.) Group, Inc.	X	
Integrated Resources, Inc.	X	X
Inter-Regional Financial Group, Inc.	X	X
Jefferies Group, Inc.		X
Kinnard Investments, Inc.		X
Legg Mason, Inc.		X
Merrill Lynch & Co., Inc.	X	X
Morgan Keegan, Inc.		X
Moseley Holding Corp.		X
Paine Webber, Inc.	X	X
Parliament Hill Corp.		X
Piper, Jaffrey, Inc.		X
Quick & Riley Group Inc.		X
Raymond James Financial Corp.		X
Republic Resources Corp.		X
Salomon Bros. (Phibro Salomon)	X	X
Stifel Financial Corp.		X
Ziegler Company, Inc.		X

Table 1

Number of Firms in 1984 and 1987 Samples, By Industry

	1984	1987
Property /Casualty Insurance	15	16
Life Insurance	30	30
Insurance Agents/Brokers	5	20
Securities	11	27
Other Real Estate	11	67
Real Estate Development	31	73
Bank Holding Companies	146	142

Table 2

Median Rate of Return on Equity, By Industry

Industry	(Accounting, in percent) 1984 Sample	1987 Sample	(Market, in percent) 1984 Sample	1987 Sample
Property/Casualty Insurance	13.4%	13.7%	15.8%	18.1%
Life Insurance	12.8	11.8	14.6	14.0
Insurance Agents/Brokers	20.0	19.3	10.2	15.2
Securities	16.5	15.5	28.7	16.9
Other Real Estate	0.7	1.7	15.5	14.3
Real Estate Development	10.0	3.5	20.1	13.2
Bank Holding Companies	13.1	13.2	15.6	15.9

Table 3

Industry Risk Characteristics

Median Z-Scores, By Industry

	Median Z (Accounting)		Median Z_m (Market)	
Industry	1984 Sample	1987 Sample	1984 Sample	1987 Sample
Property/Casualty Insurance	24.6	19.7	4.12	4.03
Life Insurance	36.8	28.1	3.91	3.97
Insurance Agents/Brokers	16.0	8.6	4.04	2.97
Securities	13.3	11.8	1.95	2.09
Other Real Estate	13.0	6.6	1.89	2.60
Real Estate Development	8.7	6.8	1.74	2.01
Bank Holding Companies	43.4	31.5	3.92	3.82

Table 4

Median Z-Scores and Nonbank-Asset Shares for Hypothetical Merged Firms

Industry[1]	Median Z (Accounting) 1984 Sample	Median Z (Accounting) 1987 Sample	Median Z_m (Market) 1984 Sample	Median Z_m (Market) 1987 Sample	Median Nonbank-Asset Share (Accounting, in percent) 1984 Sample	Median Nonbank-Asset Share (Accounting, in percent) 1987 Sample
Property/Casualty Insurance	25.3	22.9	5.14	4.70	38	34
Life Insurance	49.3	34.6	4.65	4.67	29	33
Insurance Agents/Brokers	33.3	30.9	5.47	4.67	9	4
Securities	24.9	22.1	3.28	3.69	21	15
Other Real Estate	28.8	30.4	3.60	4.30	3	1
Real Estate Development	37.9	27.8	3.98	4.07	6	2
Bank Holding Companies	43.4	31.5	3.92	3.82	--	--

[1]Each hypothetical industry includes 100 firms created by merging two randomly selected firms from our 1984 sample and 1,000 firms from our 1987 sample.

Figure 1

PROPERTY/CASUALTY INSURANCE - BHC MERGER

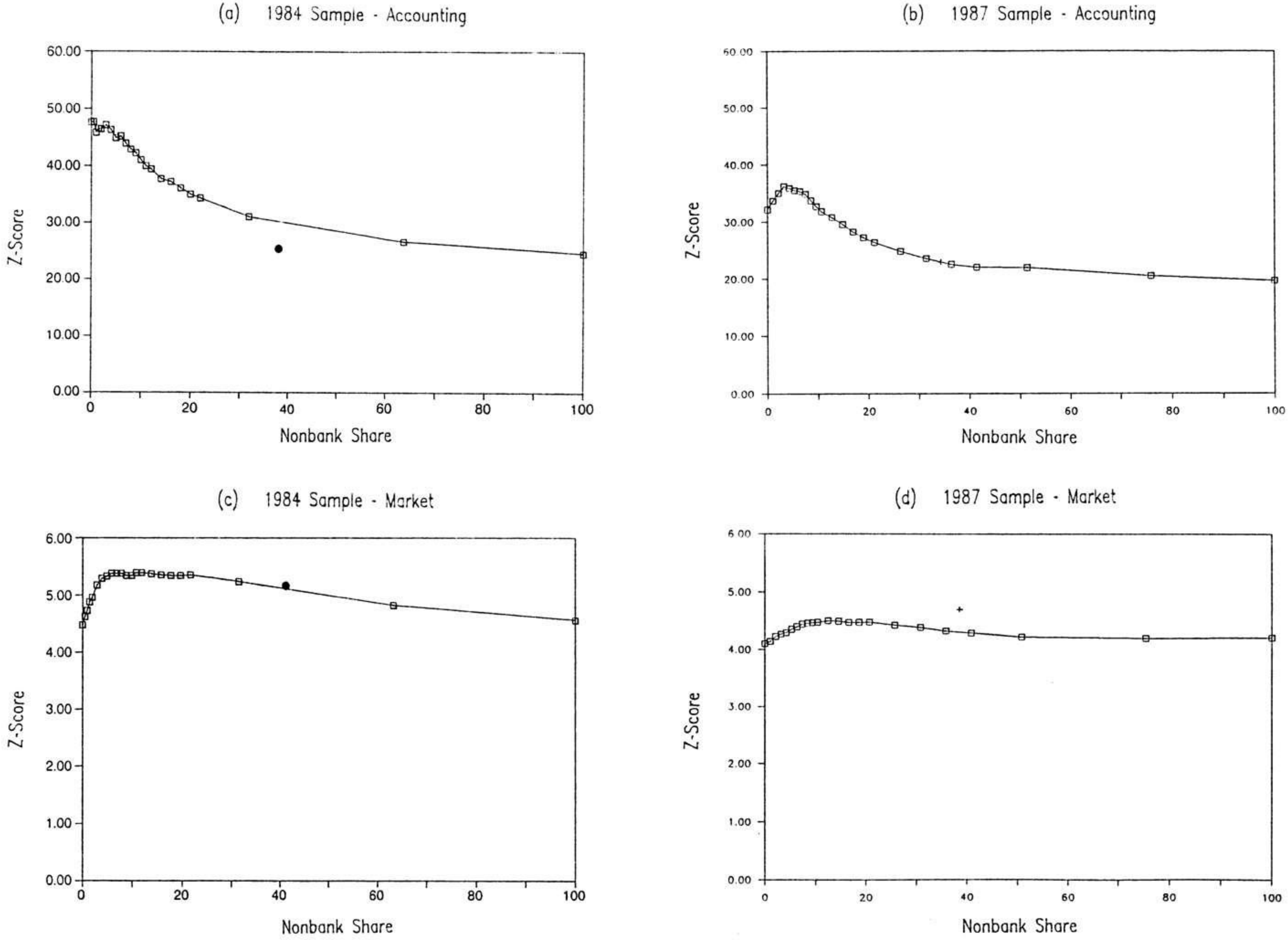

Figure 2

LIFE INSURANCE - BHC MERGER

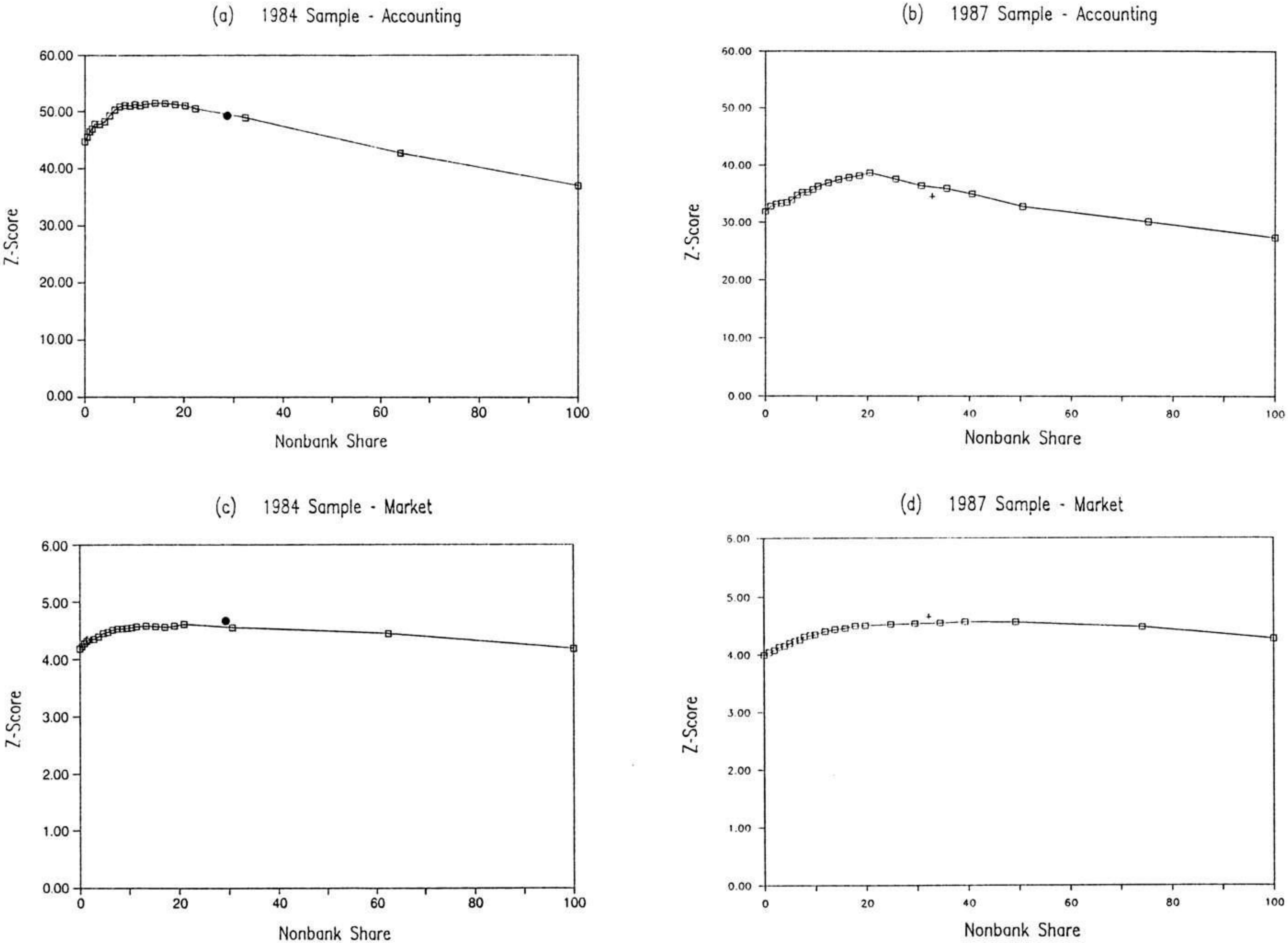

Figure 3

INSURANCE AGENT/BROKER - BHC MERGER

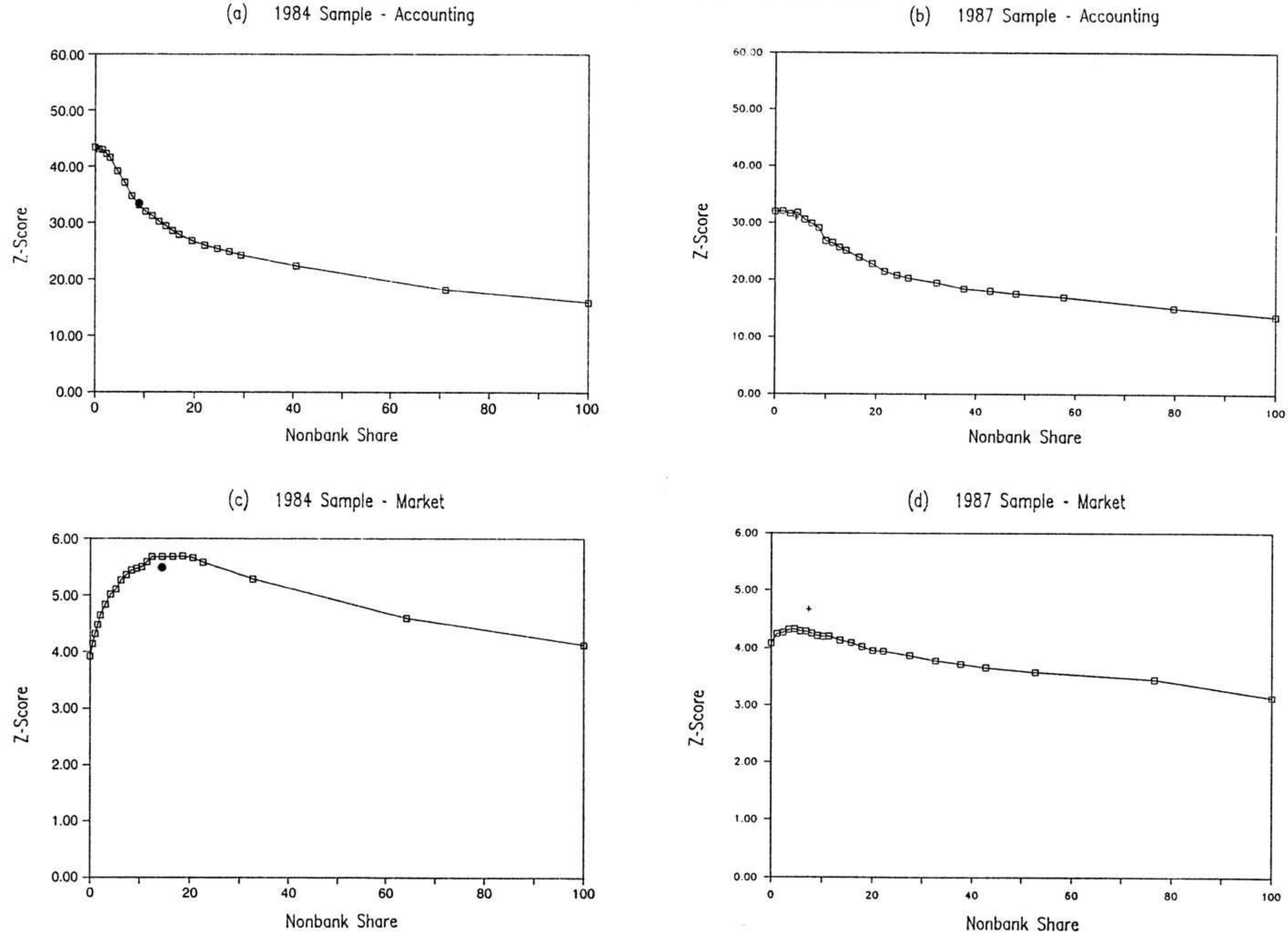

Figure 4

SECURITIES - BHC MERGER

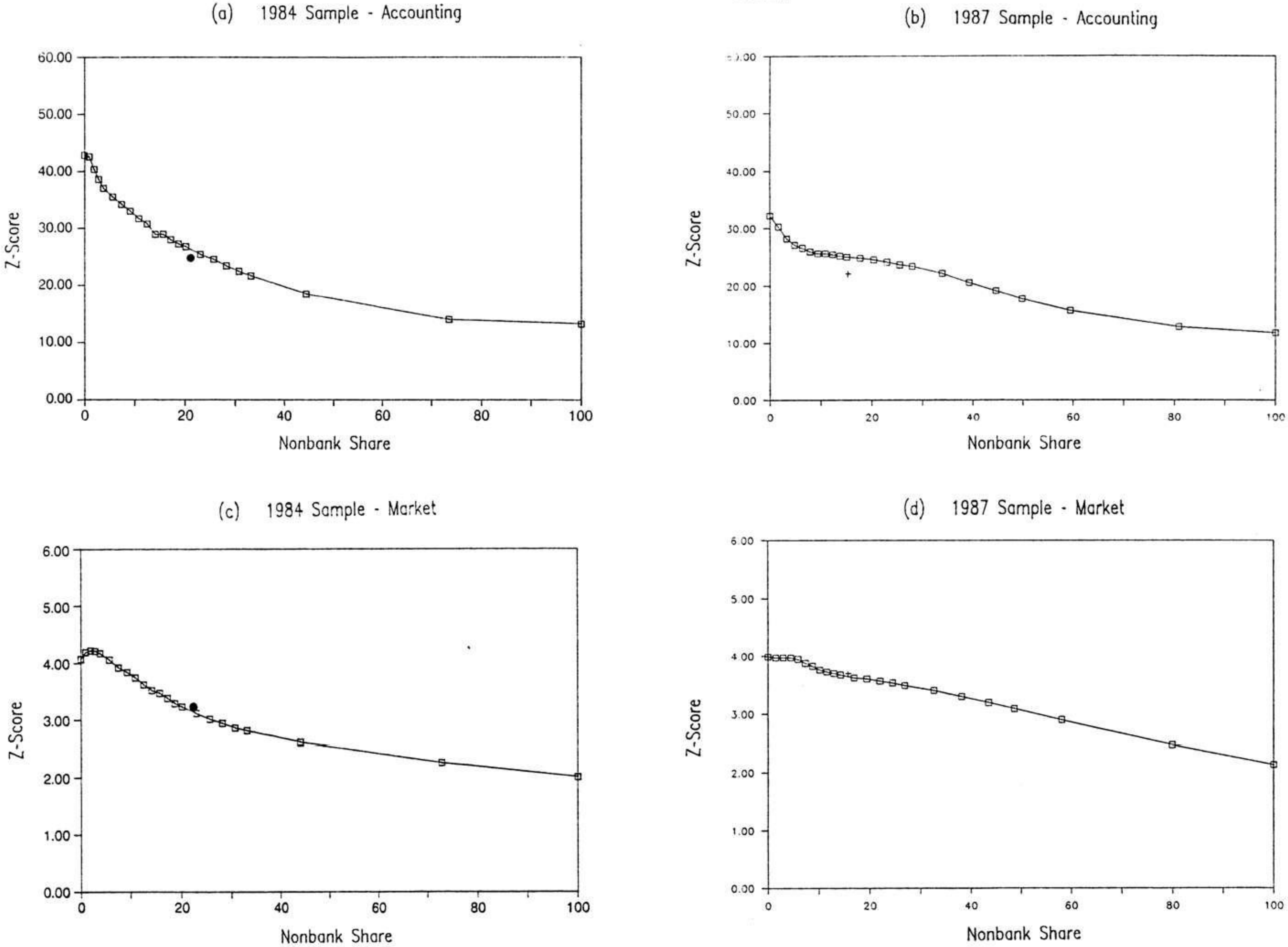

Figure 5

OTHER REAL ESTATE - BHC MERGER

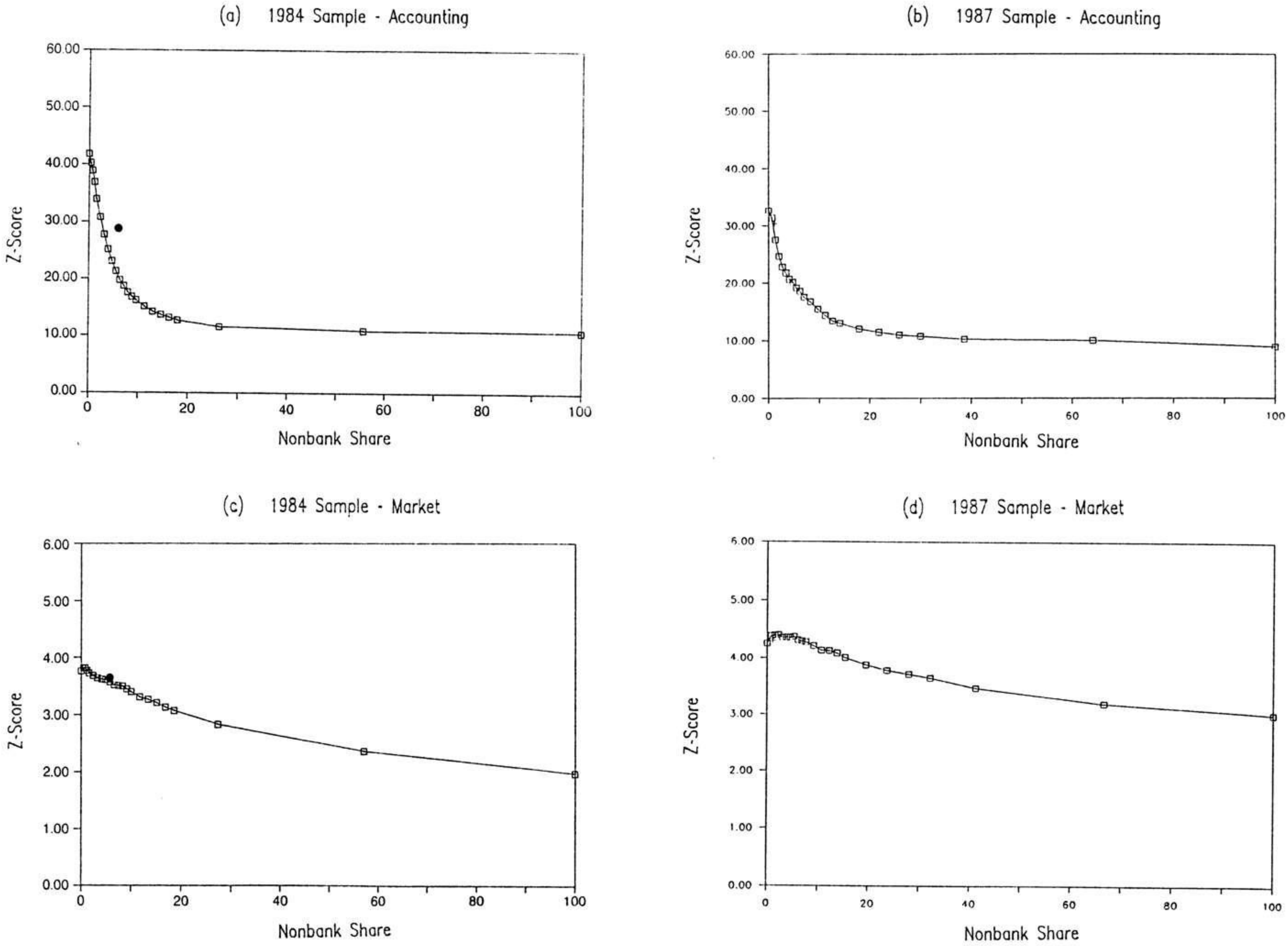

Figure 6

REAL ESTATE DEVELOPMENT - BHC MERGER