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"Financial Performance and Stability in Private versus Newly-Public Banks"

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I. Introduction

The short- and long-run performance of newly-public firms is a topic of enduring importance to the study of capital markets and to regulators of the banking industry. The decision whether and when to go public is a critical event in the life cycle of a firm, with lasting implications for firm financial structure, scope and scale of operations, monitoring, and governance. At a market level, the apparent long-run underperformance of firms subsequent to their IPOs and the potential sources of that underperformance go to the heart of capital market efficiency. From the more focused perspective of banking regulators, understanding how performance patterns of newly-public financial institutions differ from those of other financial institutions allows for a more efficient allocation of scarce supervisory resources in both off-site monitoring and on-site examinations, supporting the safety and soundness of the banking system. All else equal, both underperformance and higher variability in performance increase the danger of financial distress by making acutely adverse outcomes more likely. A better understanding of the relationship between going public and the levels and stability of financial performance adds richer detail to our knowledge of the life cycle of financial institutions and allows regulators to allocate their scarce resources better.

The banking industry also provides opportunities for analyzing pre- and post-IPO performance that are absent in other sectors. IPOs are relatively common, and the industry is fairly homogenous, with intra-industry differences arising primarily from different emphases on taking deposits and making loans versus complex risk management (Allen and Santomero, 1998 and 2001). More importantly, unlike other firms, both publicly- and privately-held banks and bank holding companies (BHCs) must

submit periodic, consistent, detailed financial reports to their principal supervisors. The presence of data for all banks and BHCs allows for comparing the pre- and post-IPO performance of newly-public institutions against a natural control group that is unavailable in other industries, similarly situated financial institutions that choose to remain private. Ours is one of the first papers to exploit the unique availability of detailed data on privately-held firms to examine pre- and post-IPO performance in financial institutions, and so contributes toward developing an empirical understanding of the implications of the decision to go public within the banking sector.

Our findings indicate that in the two years prior to going public, IPO financial institutions tend to have higher returns on equity and assets and lower loan losses than firms in the control group, with no significant differences in financial instability. In the five years following their IPOs, newly-public firms no longer exhibit higher returns on equity or lower loan losses, and their returns on assets are significantly lower than those of the control firms. Following the IPOs, financial instability is significantly greater for IPO firms than control firms with regard to returns on assets and equity, asset growth rates, and equity-to-assets ratios. This combination of lower rates of return and greater financial instability suggests that in the years immediately following their IPOs, newly-public financial institutions warrant enhanced regulatory scrutiny. As discussed below, our paper's focus on pre- and post-IPO performance of banks and BHCs in terms of both levels and volatility extends a literature that has examined pre- and post-IPO performance levels but not volatility in banks and BHCs, and that has examined performance volatility in thrifts but not banks and BHCs.

II. Literature Review

Only one other study of which we are aware has made use of banking data on privately-held firms to study post-IPO performance. Rosen *et al.* (2005) empirically examine theories of why firms go public using data on 140 IPO banks and holding companies and a matched sample of privately-held control firms. They find that newly-public financial institutions are more likely than privately-held institutions both to acquire and be acquired by other firms. They also find that firm profitability, as measured by ROA and ROE, is significantly lower for IPO banks and holding companies than for their privately-held counterparts.

Our paper differs from Rosen *et al.* (2005) in two primary ways. First, while we and they use public and private financial institution data to analyze post-IPO performance levels, we also use it to explore another relevant concern to bank regulators: the effect going public has on the stability of post-IPO bank financial performance. Second, in constructing their control sample they use firm type (bank or holding company), geographic location, and asset size as matching criteria. We include these and additionally require that, where available, matched firms have the same supervisory rating as their IPO firms.

Houge and Loughran (1999) analyze banking data for firms that went public between 1983 and 1991 to explore long-run post-IPO performance using market-based measures, and so did not employ data on privately-held firms. They find that stock returns lag benchmarks for five years after the IPO, and that this underperformance was concentrated in large, fast-growing institutions. They argue that these results were evidence of "growth fixation," that is, the sample banks went public to grow even though

they were not in a position to deploy the new capital into profitable loans. This study, however, combined commercial banks, BHCs, and thrift institutions under the general heading of "banks."[1]

This is problematic because mutual thrifts went public *en masse* during the sample period to exploit defects in the deposit-insurance system (Esty, 1997). Many of these institutions were weakly capitalized in economic (as opposed to book) terms and poorly supervised by the Federal Home Loan Bank Board (Krosner and Strahan, 1996; White, 1991). Houge and Loughran's findings could therefore be skewed by troubled thrifts that went public as part of a "gamble on resurrection" strategy—a proposition already well established in the literature on the savings-and-loan debacle. Our extension of the sample period by over a decade allows us to exclude thrifts while maintaining a reasonable sample size.

Esty (1997) describes the different incentives for risk shifting under mutual thrifts, in which fixed and residual claims are not separable, versus stock thrifts, in which the claims are separable. In his analysis of mutual and stock thrifts over 1982-1988, he finds greater profit variability as measured by standard deviations in return on assets in stock thrifts than mutual thrifts. Our paper is clearly related in that we also address the relationship between organizational structure and firm performance volatility among financial institutions, but as described above we examine banks and holding companies while excluding the thrifts that are Esty's focus. Our findings that volatility is greater in newly-public firms are consistent with Esty's. However, the small number of conversions from mutual to stock thrifts that occurred during Esty's sample period,

[1] It should be noted that Houge and Loughran (1999) were not careless. They pooled the different firm types to confront sample-size issues.

combined with the brevity of the sample period, prevented him from analyzing how performance volatility changes subsequent to issuing stock. By making bank and holding company IPOs the starting points for constructing our dataset, we are able to analyze just such changes.

III. Data

We use the SDC Platinum new issues database from Thompson Financial Securities Data to identify banks and BHCs with firm-commitment IPOs over 1981-2002. Combining this information with regulatory financial statements (Call reports and FR Y-9C reports for banks and BHCs, respectively) yields 138 institutions that went public between 1983 and 2002, 76 BHCs and 62 banks.[2] Table 1 breaks down these institutions by year of the IPO and by firm type. More banks went public in the decade of the 1980s than the 1990s. This observation may reflect two facts. First, over time banks have increasingly organized as BHCs, with stock issued by the parent company.[3] Second, the general distress of the banking industry in the 1980s may have led both banks and BHCs to seek public funding. BHC IPOs were also very common in the 1980s, particularly in the years 1986 and 1987. In the decade of the 1990s, the year 1998 stands out with 15 BHCs going public. The Congress passed the Financial Modernization Act in 1999

[2] Note that the following analysis is restricted to institutions in our dataset. Between 1981 and 2002 there were a total of 185 BHC IPOs and 85 bank IPOs. Due to regulatory data limitations, we only analyze a fraction of these.

[3] There are multiple incentives for a bank to organize as a BHC. Forming a BHC allows a banking organization to hold bank stock, among other assets, provide umbrella oversight in a parent-subsidiary structure, achieve greater financial flexibility (through tax benefits, operation efficiencies), engage in non-banking activities (those that are financial in nature or closely related to banking) and serve as a funding vehicle (by using the BHC credit rating for less costly affiliate funding).

expanding the universe of BHC non-banking activities. Many BHCs may have gone public the year before to take advantage of these activities.[4]

We restrict our sample to banks and BHCs, even though 230 thrifts also undertook IPOs during this time period. The majority of the IPOs by thrifts in our time frame occurred during the savings and loan crisis of the 1980s, raising the probability that a substantial number of these were distressed firms that went public in an attempt to maintain solvency (Esty, 1997). The extreme circumstances and motivations of these thrifts suggest that they are not usefully comparable to our sample banks and BHCs, and are therefore omitted.

To test hypotheses regarding post-IPO performance, we constructed control samples of institutions that are similar to the IPO firms at the time of their IPOs, but that did not go public. For each IPO firm, we identify the privately-held firm that:

- is the same type of firm (bank or BHC),
- has headquarters in the same geographic location (U.S. state),
- (where available) has the same overall supervisory rating in the quarter of the IPO, and
- is closest in asset size in the quarter of the IPO.

Our inclusion of supervisory rating data is unique in the literature comparing private and newly-public financial institutions. There are at least two reasons to believe, a priori, that financial soundness (as judged by an institution's regulatory agency) is a relevant consideration in selecting as appropriate a privately-held control firm as possible for a given sample IPO firm. First, supervisors consider the overall health of the

[4] It is beyond the scope of our paper to directly address why banks go public so we limit ourselves to observations consistent with events broadly affecting the banking industry.

institution when assigning a composite rating, including dimensions otherwise difficult to measure like the quality of the bank's management. Second, Rosen et al. (2005) find that banks and BHCs that have recently gone public are more likely to acquire or be acquired than similar private counterparts, suggesting that going public can be part of a larger merger strategy. At the time of a merger, a financial institution files a merger application with the Federal Reserve System. Good supervisory standing is one of the criteria for merger approvals.

We match banks based on their composite CAMELS rating. State and federal bank supervisors use the CAMELS rating system to "grade" safety and soundness. Under this system, at least once every 18 months examiners make on-site assessments of capital protection (C), asset quality (A), management competence (M), earnings strength (E), liquidity-risk exposure (L), and market-risk sensitivity (S). We match BHCs on their composite BOPEC rating.[5] Each component stands for: Bank subsidiaries (B), Other non-bank subsidiaries (O), Parent control (P), Consolidated Earnings (E), Consolidated capital (C). For both ratings, each component is graded with an integer ranging from 1 (best) to 5 (worst). A composite is also awarded for overall condition. In general, institutions with 1 or 2 supervisory rating composites are considered satisfactory. Those with 3, 4, or 5 ratings are considered unsatisfactory and subject to supervisory sanctions.

Of the 138 IPO banks and BHCs for which we are able to locate regulatory financial statements, supervisory ratings are available at the time of the IPO for 81. For these 81, the privately-held control firms are matched by all four criteria listed above.

[5] Effective January 1, 2005, the Federal Reserve System implemented a new rating system to evaluate BHCs, replacing the former BOPEC rating system. This change does not affect our estimations.

For the remaining 57, the privately-held control firms are matched by firm type, state, and asset size. In what follows, we perform our analyses both on the set of 81 firms matched to control firms using all four criteria ("small sample"), and on the set of 138 firms matched using either three or four criteria, depending on the availability of supervisory rating ("large sample"). Neither sample is clearly superior to the other. Although the control firms in the small sample can credibly be taken to be better matches than the privately-held firms identified without using supervisory rating as a criteria, requiring a match by supervisory rating does eliminate over 40 percent of the IPO firms. The large sample more completely represents the population of banks and BHCs that went public over the sample period, but the likelihood that our results could be driven by financial soundness differences not captured by other variables is greater. Because the choice of the more appropriate sample is not clear, in what follows we present results based on both samples.

The performance variables used in this paper include ROA, ROE, equity-to-assets ratio, loan losses-to-assets, and asset growth rate. Our measurements for performance stability generally involve calculating the mean value over a given time period for one of the performance variables listed above, and dividing it by the standard deviation of that variable over the same time period. These stability variables were inspired by "Z-scores" which are calculated for a given time period as the sum of mean ROA and mean equity-to-assets ratio, divided by the standard deviation of ROA. This measure represents the number of standard deviations below the mean by which profits would need to fall to eliminate firm equity (Boyd and Runkle, 1993, De Nicolo, 2001).

In selecting the explanatory variables, we begin by identifying IPO firms versus control firms (IPO indicator). For the performance level regressions, we interact the IPO variable with indicators for the time periods before and after a firm's IPO (Pre-IPO and Post-IPO indicators). We separate banks from BHCs in our pooled estimation using a Bank indicator. For the control variables, we use the number of quarters since the firm charter date and the natural log of total assets to capture firm age and size effects. We use the efficiency ratio (the ratio of non-interest expense to interest income plus non-interest income minus interest expense) as a measure of operational efficiencies. Because our focus includes stability, we also utilize variables relevant to supervisory models for predicting ratings downgrades. Econometric models, like the CAMELS-downgrade model, support examinations by giving early warnings about impeding problems, thereby expediting supervisory intervention. Explanatory variables for the CAMELS-downgrade model were selected in the mid-1990s using judgment informed by literature surveys and examiner interviews (Gilbert *et al.* 2002). We include equity-to-total assets as a measure of leverage risk, book value of securities-to-assets as a measure of liquidity risk, and three credit-risk measures: chargeoffs-to-loans, commercial and industrial loans-to-assets, residential loans-to-assets.

Tables 2 and 3 report descriptive statistics for banks and BHCs in the small sample and large sample, respectively, that went public over 1983-2002. All variables use data from the quarter in which the IPO occurred. IPO BHCs have significantly higher residential loans-to-assets and ROA (for the large sample) ratios than IPO banks, and are quite younger. Median and mean (for the large sample) asset sizes are noticeably

larger in IPO BHCs than IPO banks, but the differences are not statistically significant. Both sets of IPO firms were in satisfactory supervisory standing at the time of the IPO.

Tables 4 and 5 provide descriptive statistics comparing IPO and control firms based on their financial data in the quarters of the IPOs (or, for control firms, the quarter in which their matched IPO firms had their IPOs). IPO firms have significantly higher asset growth rates and are significantly younger than the control firms. The difference in equity-to-assets ratios between IPO and control firms is statistically significant in the small sample, but not in the large sample. Control firms have mean asset sizes over two times higher than IPO firms, but the differences are not statistically significant and medians are much closer.

IV. Empirical Results

Tables 6 and 7 provide results from OLS regressions using the small and large samples, respectively, on the levels of our multiple performance measures over a period from two years before through five years after the IPO firms went public. In these and subsequent tables, the reported regressions do not include year dummies but they were included in unreported regressions and caused no substantive changes. The results in Table 6 indicate that in the two years prior to going public, IPO firms perform significantly better than control firms as measured by ROE and loan losses, and IPO firms have lower equity-assets. Following their IPOs, the performance advantages for IPO firms disappear, and IPO firms exhibit significantly lower ROA and higher equity-to-assets than control firms. These results, indicating underperformance by banks and BHCs subsequent to going public, are consistent with Rosen *et al.* (2005) and Houge and

Loughran (1999), and with broader findings of post-IPO underperformance in industries beyond banking. The "overperformance" in the pre-IPO period suggests that those firm managers who choose to take their firms public could reasonably expect that the infusion of additional capital would have profitable use, a scenario inconsistent with the growth fixation hypothesis. Results from Table 7, based on the large sample, are similar. The pre-IPO performance of firms going public is better than that of the control firms in most of the specifications. After the IPOs, the differences in performance collapse, although there is no statistically significant underperformance as in Table 6.

Results for the stability of the performance variables before and after the IPOs are provided in Tables 8-11. Recall that Z-score is the sum of mean ROA and mean equity-to-assets ratio, divided by the standard deviation of ROA, and the other stability variables are calculated as the mean value of ROA, ROE, equity-to-assets, chargeoffs-to-assets, or asset growth rate, divided by the standard deviation of that variable. A Z-score represents the number of standard deviations below the mean by which profits would need to fall to eliminate firm equity. The other stability variables are not as easily interpretable as Z-scores, but are useful indicators of performance stability over the specified time period. For all of these stability variables, a positive coefficient estimate indicates greater stability; a negative one greater volatility.

For Tables 8 and 9, the time period over which the means and standard deviations are calculated is the two years prior to the IPOs, for the small and large samples, respectfully. Independent variables are measured eight quarters prior to the IPO quarter. Neither table shows any indication that IPO firms have greater financial volatility than the control firms. Tables 10 and 11 uses stability measures calculated over the five years

following the IPOs, with independent variable values taken from the IPO quarters. For the post-IPO period, the negative and significant coefficient estimates on IPO in most specifications indicate greater financial instability on the part of the newly-public firms. Greater instability need not be a negative phenomenon – rapid increases in firm profitability would be reflected in our stability measures in the same manner as would rapid decreases. It is the combination of the finding of greater financial instability for IPO firms with the underperformance found in Tables 6 and 7 that increases the likelihood of acutely adverse outcomes among newly-public firms. These findings strongly suggest that supervisors concerned with the soundness and stability in the banking industry have good reason to focus greater scrutiny on institutions in the years following IPOs.

V. Extensions

This paper is an early contribution to a quite small literature using the availability of financial data on publicly- and privately-held firms in the banking industry to examine the determinants and implications of the public/private decision. Much work remains to enable a richer understanding of the role of going public in the life cycle of financial institutions. One task to which we will turn involves charting the changes in firm financial variables through time before and after IPOs to develop a more finely detailed picture than our current division of pre- and post-IPO periods allows. We also plan to examine whether governance or monitoring issues, stemming either from a firm's primary regulatory agency or its concentration of ownership, has any influence on that picture. Other potential lines of research include exploring whether findings from the

more developed literature on de novo institutions are applicable to newly-public institutions. The expansion in both scale and scope of operations made possible by the infusion of capital into a newly-public institution arguably has parallels in the establishment of a newly-chartered institution, particularly if an IPO firm's managers uses that capital to open branches in new markets in which they have little previous experience. Lastly, and even though including year dummies in the above analyses did not substantially alter the results, we think it worthwhile to investigate more deeply whether and how IPOs in the 1980s differed from later IPOs.

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Table 1: IPOs by Year

This table shows the banks and BHCs from the SDC Platinum new issues database from Thompson Financial Securities Data with firm-commitment IPOs over 1983-2002 for which we have regulatory financial statements (Call reports and FR Y-9C reports for banks and BHCs, respectively). Although IPOs occur throughout the sample period, there is an obvious clustering in the mid-1980s and in 1998 (for BHCs). In future versions, we will examine whether our results differ depending on the year in which an IPO occurred.

Year	Bank IPOs	BHC IPOs
1983	3	0
1984	6	0
1985	5	0
1986	16	15
1987	6	10
1988	2	2
1989	2	2
1990	0	2
1991	1	2
1992	1	2
1993	3	9
1994	1	3
1995	1	2
1996	5	3
1997	3	4
1998	2	15
1999	2	4
2000	1	1
2001	0	0
2002	2	0
Total	62	76

Table 2: Descriptive Statistics – IPO Banks versus IPO Holding Companies – Small Sample
This table reports descriptive statistics for banks that went public over 1983-2002 versus BHCs that went public over the same time period, for IPO firms for which supervisory rating was available during the quarter of their IPOs. All variables use data from the quarter in which the IPO occurred. Assets equals total assets, measured in thousands of dollars. Asset growth rate equals total assets divided by total assets in the previous quarter. ROA equals net income divided by total assets. ROE equals net income divided by shareholders' equity. Equity-to-assets equals shareholders' equity divided by total assets. Chargeoffs-to-loans equals chargeoffs divided by total loans. C&I loans-to-assets equals commercial and industrial loans divided by total assets. Residential loans-to-assets equals residential real estate loans divided by total assets. Securities-to-assets equals book value of securities divided by total assets. Firm age equals the number of quarters since the charter date. Efficiency ratio is the ratio of non-interest expense to interest income plus non-interest income minus interest expense. Branches equals the number of branches for the firm. Rating equals a firm's overall CAMELS rating for banks and overall BOPEC rating for BHCs, with values ranging from 1 (the highest rating) to 5 (the lowest rating). Asterisks in the Means column for IPO BHCs indicate results from difference of means t-tests between IPO banks and IPO BHCs; *** and ** indicate significance at the 1 and 5 percent levels, respectively. IPO BHCs have significantly higher residential loans-to-assets ratios than IPO banks, and are significantly younger. Both sets of IPO firms were in satisfactory supervisory standing at the time of the IPO.

	IPO Banks			**IPO BHCs**		
	Mean	**Median**	**St. Dev.**	**Mean**	**Median**	**St. Dev.**
Assets	402,105	164,132	530,341	410,146	313,474	269,837
Asset growth rate	1.085	1.039	0.271	1.118	1.047	0.182
ROA	0.861	1.144	1.101	0.975	0.938	0.672
ROE	9.509	13.206	9.330	9.752	10.483	7.675
Equity-to-assets	10.604	9.444	4.095	9.882	8.982	2.803
Chargeoffs-to-loans	0.005	0.003	0.008	0.003	0.003	0.003
C&I loans-to-assets	15.712	14.485	10.735	13.141	11.961	7.318
Residential loans-to-assets	14.469	13.433	9.645	34.902***	35.583	15.320
Securities-to-assets	27.927	25.857	17.416	24.802	22.778	11.683
Firm age (in quarters)	133.276	97.000	135.426	38.635***	29.500	39.836
Efficiency ratio	70.652	63.923	21.590	72.101	67.725	44.408
Branches	8.176	4.000	7.601	10.844	9.500	6.340
Rating	2.000	2.000	0.655	1.942	2.000	0.461

Table 3: Descriptive Statistics – IPO Banks versus IPO Holding Companies – Large Sample

This table reports descriptive statistics for banks that went public over 1983-2002 versus BHCs that went public over the same time period, regardless of whether supervisory rating was available during the quarter of their IPOs. All variables use data from the quarter in which the IPO occurred. Variables are defined as in Table 2. Asterisks in the Means column for IPO BHCs indicate results from difference of means t-tests between IPO banks and IPO BHCs; *** and ** indicate significance at the 1 and 5 percent levels, respectively. IPO BHCs have significantly higher ROA and residential loans-to-assets ratios than IPO banks, and are significantly younger. Mean and median asset sizes are noticeably larger in IPO BHCs than IPO banks, but the difference is not statistically significant. Both sets of IPO firms were in satisfactory supervisory standing at the time of the IPO.

	IPO Banks			**IPO BHCs**		
	Mean	**Median**	**St. Dev.**	**Mean**	**Median**	**St. Dev.**
Assets	344,256	128,834	746,511	431,318	320,227	279,211
Asset growth rate	1.125	1.039	0.339	1.116	1.046	0.180
ROA	0.502	1.002	1.517	0.951**	0.968	0.650
ROE	3.297	11.945	45.791	9.386	10.399	7.397
Equity-to-assets	13.396	8.990	15.356	10.441	9.424	3.310
Chargeoffs-to-loans	0.005	0.003	0.008	0.003	0.002	0.003
C&I loans-to-assets	15.472	13.983	9.974	12.887	11.833	7.913
Residential loans-to-assets	13.000	11.922	10.802	34.882***	34.566	16.339
Securities-to-assets	22.869	22.293	15.976	24.756	21.881	13.038
Firm age (in quarters)	142.581	91.500	143.829	28.197***	20.000	36.520
Efficiency ratio	156.640	68.984	526.081	69.619	66.567	38.555
Branches	7.778	3.500	7.566	10.342	9.000	6.274
Rating	2.000	2.000	0.655	1.942	2.000	0.461

Table 4: Descriptive Statistics – IPO Firms versus Privately-Held Control Firms – Small Sample

This table reports descriptive statistics for IPO firms that went public over 1983-2002 versus a matched sample of privately-held control firms, with matches based on firm type (bank or BHC), geographic proximity, supervisory rating and asset size. All variables use data from the quarter in which the IPO occurred (or, in the case of private firms, the quarter in which the IPO of its matched newly-public firm occurred). Variables are defined as in Table 2. Asterisks in the Means column for control firms indicate results from difference of means t-tests between IPO firms and control firms; *** and ** indicate significance at the 1 and 5 percent levels, respectively. IPO firms have significantly higher asset growth rates and equity-to-assets ratios, and are significantly younger than the control firms. Both IPO firms and the privately-held control firms were in satisfactory supervisory standing at the time of the IPO.

	IPO Firms			**Privately-Held Control Firms**		
	Mean	**Median**	**St. Dev.**	**Mean**	**Median**	**St. Dev.**
Assets	406,952	272,804	390,999	882,847	277,269	4,407,465
Asset growth rate	1.104	1.045	0.223	1.024***	1.020	0.048
ROA	0.930	1.022	0.863	0.966	1.014	0.855
ROE	9.656	10.876	8.309	11.020	12.699	19.793
Equity-to-assets	10.169	9.310	3.367	8.293***	7.744	3.185
Chargeoffs-to-loans	0.004	0.003	0.006	0.005	0.003	0.008
C&I loans-to-assets	14.162	12.957	8.855	12.658	10.694	8.862
Residential loans-to-assets	26.785	25.501	16.664	26.908	26.315	16.151
Securities-to-assets	26.043	25.112	14.207	26.955	25.371	15.472
Firm age (in quarters)	72.519	33.000	97.546	119.654**	51.000	148.061
Efficiency ratio	71.525	66.567	36.872	66.463	65.476	11.098
Branches	9.918	9.000	6.846	10.529	6.000	13.694
Rating	1.963	2.000	0.535	2.000	2.000	0.592

Table 5: Descriptive Statistics – IPO Firms versus Privately-Held Control Firms – Large Sample

This table reports descriptive statistics for IPO firms that went public over 1983-2002 versus a matched sample of privately-held control firms, with matches based on firm type (bank or BHC), geographic proximity, supervisory rating (where available) and asset size. All variables use data from the quarter in which the IPO occurred (or, in the case of private firms, the quarter in which the IPO of its matched newly-public firm occurred). Variables are defined as in Table 2. Asterisks in the Means column for control firms indicate results from difference of means t-tests between IPO firms and control firms; *** and ** indicate significance at the 1 and 5 percent levels, respectively. IPO firms have significantly higher asset growth rates and are significantly younger than the control firms. Both IPO firms and the privately-held control firms were in satisfactory supervisory standing at the time of the IPO.

	IPO Firms			**Privately-Held Control Firms**		
	Mean	**Median**	**St. Dev.**	**Mean**	**Median**	**St. Dev.**
Assets	387,787	258,708	562,943	1,050,796	211,052	4,898,241
Asset growth rate	1.121	1.044	0.281	1.031***	1.028	0.049
ROA	0.726	0.991	1.184	1.211	1.030	3.653
ROE	6.341	10.527	32.806	19.202	13.353	94.337
Equity-to-assets	11.919	9.367	11.161	9.872	7.740	10.909
Chargeoffs-to-loans	0.004	0.002	0.006	0.005	0.003	0.007
C&I loans-to-assets	14.147	12.254	9.032	12.848	10.593	9.460
Residential loans-to-assets	23.941	20.144	17.633	24.162	23.156	16.481
Securities-to-assets	23.813	22.087	14.552	25.160	23.890	15.072
Firm age (in quarters)	79.587	30.500	114.899	114.226**	42.000	150.077
Efficiency ratio	112.033	67.957	369.261	70.464	66.921	39.639
Branches	9.518	8.000	6.755	10.056	5.500	13.436
Rating	1.963	2.000	0.535	2.000	2.000	0.592

Table 6: Performance Levels before and after IPOs – Small Sample

This table reports the results of OLS regressions of the level of various performance measures over a period from two years before through five years after an IPO. The sample includes only IPO and control firms that could be matched by supervisory rating in the IPO quarter. Variables are defined as in Table 2. Each regression contains an unreported constant term. Results from unreported specifications that include year dummies are not substantively different. White (1980) robust standard errors appear in parentheses under the coefficient estimates. Significance levels of 1, 5 and 10 percent are represented by ***, ** and *, respectively. Prior to their IPOs, IPO firms perform significantly better than control firms, as measured by ROE and loan losses, and have lower equity-to-assets. After their IPOs, the performance advantages for IPO firms disappear, and IPO firms exhibit significantly lower ROA and higher equity-to-assets than control firms.

	ROA	**ROE**	**Equity-to-assets**	**Chargeoffs-to-loans**	**Asset growth rate**
IPO * Pre-IPO	0.045	3.837***	-1.221***	-0.001*	-0.157
	(0.029)	(0.733)	(0.264)	(0.001)	(0.188)
IPO * Post-IPO	-0.039*	-0.252	0.274*	-0.000	-0.187
	(0.022)	(0.525)	(0.161)	(0.000)	(0.203)
Bank	-0.157***	-0.256	-0.168	-0.005*	0.474
	(0.063)	(0.630)	(0.498)	(0.003)	(0.472)
ln(Assets)	0.053***	-0.646	-0.840***	0.000	0.064
	(0.020)	(0.650)	(0.140)	(0.000)	(0.061)
C&I loans-to-assets	-0.017***	-0.260***	-0.047	-0.000	0.005
	(0.004)	(0.043)	(0.032)	(0.000)	(0.006)
Residential loans-to-assets	-0.006***	-0.015	-0.084***	-0.000***	0.006
	(0.003)	(0.017)	(0.021)	(0.000)	(0.006)
Securities-to-assets	-0.004*	-0.031	-0.026	-0.000**	0.001
	(0.002)	(0.020)	(0.022)	(0.000)	(0.002)
Firm age	0.000	-0.008*	-0.005***	0.000	-0.001
	(0.000)	(0.004)	(0.001)	(0.000)	(0.001)
Efficiency ratio	-0.021***	-0.566***	0.002	0.000***	0.002
	(0.003)	(0.126)	(0.013)	(0.000)	(0.002)
Observations	3600	3600	3600	3541	3545
R^2	0.4179	0.5592	0.0984	0.0472	0.0033

Table 7: Performance Levels before and after IPOs – Large Sample

This table reports the results of OLS regressions of the level of various performance measures over a period from two years before through five years after an IPO. The sample includes IPO and control firms regardless of whether they could be matched by supervisory rating in the IPO quarter. Variables are defined as in Table 2. Each regression contains an unreported constant term. Results from unreported specifications that include year dummies are not substantively different. White (1980) robust standard errors appear in parentheses under the coefficient estimates. Significance levels of 1, 5 and 10 percent are represented by ***, ** and *, respectively. Prior to their IPOs, IPO firms perform significantly better than control firms, as measured by ROA, ROE and loan losses, and have lower equity-to-assets. After their IPOs, the performance advantages for IPO firms disappear, and IPO firms exhibit higher equity-to-assets than control firms.

	ROA	**ROE**	**Equity-to-assets**	**Chargeoffs-to-loans**	**Asset growth rate**
IPO * Pre-IPO	0.112*	5.511**	-2.402***	-0.002***	-0.032
	(0.065)	(2.744)	(0.322)	(0.001)	(0.068)
IPO * Post-IPO	-0.015	-7.675	0.175	-0.001***	-0.071
	(0.063)	(7.308)	(0.151)	(0.000)	(0.088)
Bank	-0.314***	-19.135	-0.875***	-0.002	0.227
	(0.093)	(12.535)	(0.350)	(0.002)	(0.221)
ln(Assets)	0.061	-2.969	-1.989***	0.001***	0.030
	(0.047)	(4.337)	(0.175)	(0.000)	(0.033)
C&I loans-to-assets	-0.021***	0.293	-0.203***	0.000	0.001
	(0.004)	(0.533)	(0.029)	(0.000)	(0.002)
Residential loans-to-assets	-0.017***	0.192	-0.108***	-0.000**	0.002
	(0.003)	(0.336)	(0.017)	(0.000)	(0.003)
Securities-to-assets	0.006	0.217	-0.091***	-0.000***	0.000
	(0.004)	(0.217)	(0.020)	(0.000)	(0.001)
Firm age	0.001***	0.055	-0.012***	-0.000***	-0.001
	(0.000)	(0.037)	(0.001)	(0.000)	(0.000)
Efficiency ratio	-0.009**	-0.146	0.002	0.000**	0.000
	(0.004)	(0.171)	(0.008)	(0.000)	(0.000)
Observations	7219	7219	7219	7050	6981
R^2	0.1019	0.0020	0.1760	0.0498	0.0015

Table 8: Performance Stability over the Two Years before IPOs – Small Sample

This table reports the results of OLS regressions of the stability of various performance measures over the two year period before an IPO. The sample includes only IPO and control firms that could be matched by supervisory rating in the IPO quarter. Z-score is calculated as the sum of mean ROA and mean equity-to-assets ratio divided by the standard deviation of ROA, calculated using quarterly data for the two year period before the IPO (or, in the case of control firms, the IPO of its matched newly-public firm). Each other dependent variable is calculated as the mean of the listed performance measure divided by its standard deviation calculated using quarterly data for the two year period before the IPO (or, in the case of control firms, the IPO of its matched newly-public firm). Independent variables are measured eight quarters before the IPO (or, in the case of private firms, the IPO of its matched newly-public firm). Variables are defined as in Table 2. Each regression contains an unreported constant term. Results from unreported specifications that include year dummies are not substantively different. White (1980) robust standard errors appear in parentheses under the coefficient estimates. Significance levels of 1, 5 and 10 percent are represented by ***, ** and *, respectively. Prior to their IPOs, IPO firms do not exhibit significantly different volatility from control firms in any of the performance measures.

	Z-score	**ROA**	**ROE**	**Equity-to-assets**	**Chargeoffs-to-loans**	**Asset growth rate**
IPO	15.054	1.723	0.331	4.743	0.130	2.011
	(10.078)	(1.357)	(1.799)	(3.999)	(0.329)	(3.563)
Bank	3.675	-0.399	1.095	-9.941	-1.382**	-0.311
	(17.576)	(2.460)	(4.321)	(6.415)	(0.562)	(4.678)
ln(Assets)	6.931	1.317*	1.452	-2.949*	0.575***	0.509
	(5.005)	(0.704)	(0.987)	(1.740)	(0.163)	(1.242)
C&I loans-to-assets	-0.484	-0.078	-0.039	0.054	-0.094***	-0.238
	(0.566)	(0.093)	(0.094)	(0.140)	(0.029)	(0.156)
Residential loans-to-assets	0.359	0.032	0.109	0.129	-0.043**	0.283**
	(0.475)	(0.074)	(0.098)	(0.097)	(0.021)	(0.136)
Securities-to-assets	0.355	0.007	0.035	-0.025	-0.069***	0.031
	(0.349)	(0.051)	(0.055)	(0.083)	(0.019)	(0.102)
Firm age	0.076	0.012*	0.007	0.071***	0.003	0.044**
	(0.050)	(0.007)	(0.008)	(0.018)	(0.003)	(0.020)
Efficiency ratio	-0.159	-0.027	-0.024	-0.074**	-0.006*	-0.051**
	(0.108)	(0.018)	(0.016)	(0.035)	(0.003)	(0.026)
Observations	116	116	116	116	114	116
R^2	0.1331	0.1637	0.1398	0.1801	0.3046	0.1929

Table 9: Performance Stability over the Two Years before IPOs – Large Sample

This table reports the results of OLS regressions of the stability of various performance measures over the two year period before an IPO. The sample includes IPO and control firms regardless of whether they could be matched by supervisory rating in the IPO quarter. Z-score is calculated as the sum of mean ROA and mean equity-to-assets ratio divided by the standard deviation of ROA, calculated using quarterly data for the two year period before the IPO (or, in the case of control firms, the IPO of its matched newly-public firm). Each other dependent variable is calculated as the mean of the listed performance measure divided by its standard deviation calculated using quarterly data for the two year period before the IPO (or, in the case of control firms, the IPO of its matched newly-public firm). Independent variables are measured eight quarters before the IPO (or, in the case of private firms, the IPO of its matched newly-public firm). Variables are defined as in Table 2. Each regression contains an unreported constant term. Results from unreported specifications that include year dummies are not substantively different. White (1980) robust standard errors appear in parentheses under the coefficient estimates. Significance levels of 1, 5 and 10 percent are represented by ***, ** and *, respectively. Prior to their IPOs, IPO firms do not exhibit significantly different volatility from control firms in any of the performance measures.

	Z-score	**ROA**	**ROE**	**Equity-to-assets**	**Chargeoffs-to-loans**	**Asset growth rate**
IPO	8.162	0.806	-0.376	1.501	0.124	-0.719
	(8.672)	(1.170)	(1.520)	(3.531)	(0.270)	(3.083)
Bank	6.296	0.052	0.860	-5.892	-1.189**	2.407
	(16.486)	(2.331)	(4.089)	(6.285)	(0.517)	(4.394)
ln(Assets)	8.639**	1.489***	1.469*	-1.160	0.535***	1.140
	(3.991)	(0.567)	(0.791)	(1.225)	(0.141)	(0.971)
C&I loans-to-assets	-0.006	-0.017	0.084	0.144	-0.068***	-0.089
	(0.492)	(0.075)	(0.112)	(0.136)	(0.024)	(0.132)
Residential loans-to-assets	0.452	0.041	0.121	0.230**	-0.028	0.397***
	(0.428)	(0.066)	(0.096)	(0.102)	(0.019)	(0.133)
Securities-to-assets	0.472	0.025	0.072	0.050	-0.051***	0.122
	(0.292)	(0.043)	(0.048)	(0.084)	(0.017)	(0.094)
Firm age	0.059	0.010*	0.010	0.054***	0.003	0.034**
	(0.041)	(0.005)	(0.009)	(0.015)	(0.002)	(0.015)
Efficiency ratio	-0.107	-0.023	-0.016	-0.054*	-0.004	-0.038*
	(0.086)	(0.016)	(0.015)	(0.029)	(0.003)	(0.023)
Observations	144	144	144	144	142	144
R^2	0.1257	0.1740	0.1533	0.1348	0.3024	0.2010

Table 10: Performance Stability over the Five Years after IPOs – Small Sample
This table reports the results of OLS regressions of the stability of various performance measures over the five year period following an IPO. The sample includes only IPO and control firms that could be matched by supervisory rating in the IPO quarter. Z-score is calculated as the sum of mean ROA and mean equity-to-assets ratio divided by the standard deviation of ROA, calculated using quarterly data for the five year period following the IPO (or, in the case of control firms, the IPO of its matched newly-public firm). Each other dependent variable is calculated as the mean of the listed performance measure divided by its standard deviation calculated using quarterly data for the five year period following the IPO (or, in the case of control firms, the IPO of its matched newly-public firm). Independent variables are measured in the quarter of the IPO (or, in the case of private firms, the IPO of its matched newly-public firm). Variables are defined as in Table 2. Each regression contains an unreported constant term. Results from unreported specifications that include year dummies are not substantively different. White (1980) robust standard errors appear in parentheses under the coefficient estimates. Significance levels of 1, 5 and 10 percent are represented by ***, ** and *, respectively. Following their IPOs, IPO firms exhibit significantly greater volatility than control firms in ROA, ROE, equity-to-assets, and asset growth rate.

	Z-score	**ROA**	**ROE**	**Equity-to-assets**	**Chargeoffs-to-loans**	**Asset growth rate**
IPO	-10.222	-1.673*	-3.188**	-8.353**	0.209	-21.558*
	(8.455)	(1.005)	(1.569)	(4.075)	(0.253)	(11.720)
Bank	2.016	-0.047	-2.376	0.600	-1.487	5.264
	(8.672)	(1.003)	(2.880)	(2.883)	(0.974)	(7.344)
ln(Assets)	4.035	0.897*	1.991*	0.686	0.646**	4.827
	(4.046)	(0.506)	(1.140)	(2.145)	(0.292)	(5.444)
C&I loans-to-assets	-0.678	-0.063	-0.119	-0.033	-0.062***	0.053
	(0.477)	(0.058)	(0.087)	(0.148)	(0.019)	(0.279)
Residential loans-to-assets	0.641**	0.093**	0.075	0.213	-0.035	0.530
	(0.329)	(0.038)	(0.091)	(0.135)	(0.026)	(0.392)
Securities-to-assets	0.671*	0.055	-0.030	0.311	-0.041*	0.918
	(0.392)	(0.043)	(0.075)	(0.246)	(0.021)	(0.782)
Firm age	0.027	0.007*	0.029	0.005	0.010	-0.005
	(0.033)	(0.004)	(0.020)	(0.012)	(0.007)	(0.033)
Efficiency ratio	-0.170***	-0.031***	-0.025	-0.042***	0.000	-0.015
	(0.054)	(0.007)	(0.016)	(0.015)	(0.006)	(0.046)
Observations	145	145	145	145	144	145
R^2	0.1333	0.1777	0.1891	0.0870	0.2746	0.0666

Table 11: Performance Stability over the Five Years after IPOs – Large Sample
This table reports the results of OLS regressions of the stability of various performance measures over the five year period following an IPO. The sample includes IPO and control firms regardless of whether they could be matched by supervisory rating in the IPO quarter. Z-score is calculated as the sum of mean ROA and mean equity-to-assets ratio divided by the standard deviation of ROA, calculated using quarterly data for the five year period following the IPO (or, in the case of control firms, the IPO of its matched newly-public firm). Each other dependent variable is calculated as the mean of the listed performance measure divided by its standard deviation calculated using quarterly data for the five year period following the IPO (or, in the case of control firms, the IPO of its matched newly-public firm). Independent variables are measured in the quarter of the IPO (or, in the case of private firms, the IPO of its matched newly-public firm). Variables are defined as in Table 2. Each regression contains an unreported constant term. Results from unreported specifications that include year dummies are not substantively different. White (1980) robust standard errors appear in parentheses under the coefficient estimates. Significance levels of 1, 5 and 10 percent are represented by ***, ** and *, respectively. Following their IPOs, IPO firms exhibit significantly greater volatility than control firms in Z-score, ROA, ROE, equity-to-assets, and asset growth rate.

	Z-score	**ROA**	**ROE**	**Equity-to-assets**	**Chargeoffs-to-loans**	**Asset growth rate**
IPO	-10.915*	-1.545**	-2.911***	-6.411***	-0.199	-15.366**
	(6.057)	(0.721)	(1.056)	(2.585)	(0.210)	(7.092)
Bank	-7.882	-0.752	-1.920	-2.398	-0.922	4.459
	(7.951)	(0.961)	(2.011)	(2.463)	(0.659)	(5.320)
ln(Assets)	3.667	0.982***	1.644***	0.552	0.713***	3.111
	(2.830)	(0.319)	(0.596)	(0.894)	(0.204)	(1.973)
C&I loans-to-assets	-0.823**	-0.085**	-0.098**	-0.047	-0.043***	-0.054
	(0.417)	(0.043)	(0.049)	(0.087)	(0.013)	(0.125)
Residential loans-to-assets	0.186	0.022	0.021	0.078	-0.029*	0.464**
	(0.271)	(0.030)	(0.066)	(0.078)	(0.018)	(0.204)
Securities-to-assets	0.597*	0.053	-0.007	0.214	-0.029*	0.631
	(0.324)	(0.033)	(0.059)	(0.143)	(0.017)	(0.445)
Firm age	0.031	0.007**	0.022*	0.007	0.006	-0.006
	(0.023)	(0.003)	(0.013)	(0.009)	(0.004)	(0.024)
Efficiency ratio	0.004	0.000	0.000	-0.001	0.002	0.004
	(0.004)	(0.000)	(0.001)	(0.002)	(0.002)	(0.005)
Observations	240	240	240	240	235	240
R^2	0.1347	0.1693	0.1815	0.0800	0.2308	0.0683