# Do Financial Conglomerates Create or Destroy Economic Value?*

Markus M. Schmid[a,#] and Ingo Walter[b]

[a] *Swiss Institute of Banking and Finance, University of St. Gallen, CH-9000 St. Gallen, Switzerland*
[b] *Stern School of Business, New York University, New York, NY10012, USA*

**This version: 3 December 2007**

**Abstract**

This paper investigates whether functional diversification is value-enhancing or value-destroying in the financial services sector, broadly defined. Based on a U.S. dataset comprising approximately 4,060 observations covering the period 1985-2004, we report a substantial and persistent conglomerate discount among financial intermediaries. The study differs materially from earlier work on scope dimensions of financial institution structures. Our results suggest that it is diversification that causes the discount, and not that troubled firms diversify into other more promising areas. In addition, the discount applies to all financial services industries with the exception of investment banking and is stable over different combinations of financial activity-areas with the exception of commercial banking units combined with insurance companies and/or investment banking activities. Finally, our results reveal that geographic diversification per se is not associated with a significant discount. Although geographic diversity is value destroying in all financial services activity-areas when there are more geographic segments and the activities are distributed relatively evenly over these segments.

Keywords: Diversification; Focus; Organizational structure; Financial sector; Firm valuation

JEL Classification: G20, G32, G34

* We are grateful to Yakov Amihud, Stephen Brown, Maria Carapeto, Jean Dermine, William Greene, Phil Holmes, Jan Krahnen, Alexander Ljungqvist, Stefan Petry, Anthony Saunders, William Silber, Roy Smith, Lawrence White, and participants at a finance seminar at the University of Basel, the Center for European Policy Studies (CEPS) in Brussels, the 2007 EFMA annual meeting in Vienna, the 2007 EFA annual meeting in Ljubljana, and the 2007 German Finance Association meeting in Dresden for helpful comments. Special thanks are due to Daniel Hoechle for assistance with the data. Parts of this research were undertaken while Schmid was a visiting scholar at the Stern School of Business, New York University. We acknowledge financial support of the Freiwillige Akademische Gesellschaft (FAG), the Swiss National Science Foundation (SNF), and ECOSCIENTIA foundation. All errors are our own.
# Corresponding author. Address: Swiss Institute of Banking and Finance, University of St. Gallen, Rosenbergstrasse 52, CH-9000 St. Gallen, Switzerland, Phone: +41-71-222-10-94; Fax: +41-71-224-70-88.
*E-mail addresses*: markus.schmid@unisg.ch (M.M. Schmid), iwalter@stern.nyu.edu (I. Walter).

## I. Introduction

This paper attempts to ascertain whether or not functional diversification is value-enhancing or value-destroying in the financial services industry. The degree of diversification can change either as a financial services firm divests or acquires assets, or as it redirects its activity into new business segments. Additionally, its portfolio of activities can shift over time due to divergent growth rates in the existing business segments and can assume more or less diverse geographic patterns. In contrast to previous studies' focus on the banking sector alone,[1] we consider diversification across the entire range of financial intermediation functions – commercial banking, investment banking, insurance, asset management, and financial infrastructure services (clearance, settlement, payments, custody, etc.).

Recent years have seen a burgeoning of mergers and acquisitions in the financial services sector. Of approximately 360,000 M&A transactions in all industries valued at $27.5 trillion during 1985-2006 worldwide, approximately 126,000 transactions valued at $11.5 trillion (42 percent by value) involved the financial services industry.[2] These transactions presumably had as their principal objective increasing the value of the firms involved through some combination of revenue enhancement, improved operating efficiency, or risk reduction. All of the transactions either increased the respective firm's market share, defined functionally or geographically, or diversified its operations across financial functions or geographies (or both). Of the aforementioned financial-sector transactions, 21.4% by value were "cross-market," involving at least two areas of financial services activity, and about 8% were "cross-border" involving more than one country.

[1] See, for example, Laeven and Levine (2007).
[2] The data cover only transactions valued at $100 million or more. Source: Thomson Financial Securities Data Corporation.

Various arguments have been made in favor of diversification in marking the optimum institutional boundaries of financial services firms.[3] Among the most important are cost and revenue economies of scope, lower tax burdens as a result of tax-efficient intra-firm transactions, and more efficient internal as compared to external capital markets due to a better coordination across highly specialized activity lines, better monitoring and control of capital expenditures, sharing of managerial best-practices, etc., leading to better performance compared with specialized financial firms. Moreover, reduced bankruptcy risk due to less than perfectly correlated revenue streams across functions may result in improved debt ratings, higher debt capacity, higher share prices and lower WACC as compared to more specialized financial intermediaries. Finally, too-big-to-fail guarantees, provided by the public at zero or below-market cost through the central bank or public guarantee agency, may support the creditworthiness of the banking unit of a financial conglomerate and by extension the entire financial firm. Arguments that "bigger and broader is better" have found particular resonance in the strategies of financial firms based on the importance of information and transactions costs in financial intermediation and the potential for revenue economies of scope (cross-selling), and in turn the resultant LCFIs (large complex financial institutions) have been of great interest to those responsible for financial stability. Whether functional breadth creates or destroys economic value is of "special" importance in the financial services sector.

Arguments against diversification in financial intermediaries include cross-subsidization among business lines, which may result in an inefficient allocation of capital and reduced performance incentives in profitable businesses. Diversification may lead to overinvestment in low-NPV projects attributable to excess free cash-flow and unused borrowing capacity, as well as non-materiality of individual capital allocation errors in relation to firm's overall market value. Conflicts of interest among clients and activity-areas of financial

[3] For a detailed review of arguments for and against diversification in financial services firms, see Walter (2004), Chapter 3.

conglomerates may create incremental reputation risk, therefore higher debt costs and a lower share price. Whether the arguments for or against diversification and financial conglomerates dominate is a key issue in defining the strategies of financial intermediaries and the evolving architecture of national and global financial systems.

This paper attempts to contribute to the empirical literature on corporate finance and industrial organization related to financial intermediaries, which so far has been constrained by the lack of comparability of data on key variables (e.g., sales, operating income, etc.) between financial and non-financial firms.[4] By contrast, there is an extensive literature on the conglomerate discount for non-financial firms (e.g., Lang and Stulz, 1994; Berger and Ofek, 1995; Lins and Servaes, 1999; Campa and Kedia, 2002; Villalonga, 2004). Our study is in the tradition of Berger and Ofek (1995) in seeking to determine whether, based on a large U.S. dataset on firms engaged in financial intermediation functions comprising approximately 4,060 observations and covering the period 1985-2004, activity diversification is associated with a share price premium or discount. We extend the analysis by additionally including the geographic dimension of diversification (e.g., see Denis, Denis, and Yost, 2002), investigating differences between firms operating in different financial activity-areas, and testing whether certain combinations of these financial businesses are more likely to destroy value than others. We also account for the endogeneity of the diversification decision in our econometric analysis.

In contrast to the literature on non-financial firms, the literature on valuation of financial conglomerates is very limited. The only study comparable to ours is Laeven and Levine (2007). This study is confined to the banking industry and comprises 836 banks from 43 different countries. The authors use Tobin's q for financial conglomerates benchmarked against

[4] Nevertheless, 20.5% of all firms on the Compustat Industrial Annual File were classified as financial firms (SIC 6000-6999) in 1985, the beginning of our sample period. In 2004, the percentage of financial firms (NAICS 520000-529999) had increased to 24.2%. However, part of this increase may be due to changes in reporting guidelines from FASB and lifting of financial regulations throughout the sample period.

the q the same firms might have had based on the adjusted q values of specialized financial firms, they find strong evidence of a conglomerate discount which withstands a battery of robustness and sensitivity checks. The authors conclude that all diversification of bank-based financial services firms is fundamentally value-destroying. They attribute (but cannot confirm) this result to agency problems associated with financial conglomerate structures, and conclude that their findings definitively negate the existence of scope economies in such firms. However, in contrast to this paper the authors limit their analysis to banks as opposed to all types of financial intermediaries, and they do not examine the geographic dimension of diversification and the interaction between geographic and functional diversity. In addition, it is possible that their results are subject to survivorship bias.[5]

A number of earlier empirical studies have back-tested the impact of hypothetical combinations of stand-alone firms in different areas of financial intermediation, and have conducted event studies of broadening or focusing merger announcements as well as regulatory changes making possible increased scope. The literature investigating the existence of economies of scope in the financial services firms provides mixed evidence (e.g., Berger and Humphrey, 1992; Saunders and Walter, 1994; Mitchell and Onvural, 1995). More unequivocal results have been found with respect to the risk-reducing effects of corporate diversification: Santomero and Chung (1992), Boyd, Graham, and Hewitt (1993), and Saunders and Walter (1994) all report risk-reducing effects associated with diversifying activities, in particular for combinations of banking and insurance activities. However, in a recent paper focusing on US financial holding companies, Stiroh and Rumble (2006) find that diversification from lending into non-interest activities damages risk-adjusted performance. Robust statistical

[5] The total number of banks in their sample corresponds to the maximum of 836 bank observations in 2002 (the end of their sample period). Their use of Heckman's (1979) self-selection model may have a limited meaning when banks with poor (or at least those with the worst) performance are excluded from the sample. However, Laeven and Levine's results based on Heckman's two-step procedure are consistent with ours. Given its focus solely on the banking sector, the Laeven and Levine study is largely complementary to the broad-gauge financial-services focus of this study.

results show that any scope-related gains are more than offset by the higher volatility of these activities. With respect to U.S. legislation making possible the creation of multi-functional financial intermediaries, Lown, Osler, Strahan, and Sufi (2000) find that both commercial and investment bank stocks rose on announcement by President Clinton on October 22, 1999 that passage of the Gramm-Leach-Bliley Act was imminent. This finding is supported by Yu (2001) in an event-study of stock price reactions of U.S. financial services firms to the 1999 Act, concluding that the market reacted most favorably in the case of large securities firms, large insurance companies, and bank holding companies already engaged in some securities businesses (those with so-called "Section 20 subsidiaries" allowing limited investment banking activities) and suggesting that the market expected gains from product diversification possibly arising from cross-product synergies or perhaps extension of "too big to fail" guarantees.

Evidence from merger data includes Houston, James and Ryngaert (1999), who find that in-market (concentrating) mergers tend to create value upon announcement based on the U.S. financial services M&A deal-flow. Targets of in-market mergers gain and acquirers do not lose. In-market takeovers are expected to cut costs faster and more dramatically than market-extending acquisitions. Similarly, DeLong (2001a) finds that the market reacts positively to bank mergers that focus activities and geography, concluding that efficient acquirers tend to improve the efficiency of the merged entity more than other acquirers.

With respect to the geographic dimension of diversification, Cornett and Tehranian (1992) find that improvement is greater for bank mergers within U.S. states than between U.S. states, while Cornett, Hovakimian, Palia, and Tehranian (1998) find that mergers of partners headquartered in the same U.S. state earn higher returns than mergers with partners in different U.S. states. Houston and Ryngaert (1994) find that the market rewards financial services mergers where geographic overlap exists between acquirer and target. DeLong (2001b) finds no significant relation between long-term performance of bank mergers and geographic over-

lap between the two merged entities. Brewer, Jackson, Jagtiani, and Nguyen (2001) find that merger premiums increased by about 35 percent as a result of geographic deregulation, in this case the passage of the 1997 Riegle-Neal act, which eliminated geographic restrictions for U.S. banking operations.

Our results show a substantial and persistent conglomerate discount among financial intermediaries. Moreover, our results suggest that it is diversification that causes the discount, and not that troubled firms diversify into other more promising areas. We use instrumental variables regressions and Heckman's (1979) two-step procedure to control for the endogeneity of the diversification decision. Additionally, we investigate whether financial firms that diversify are already trading at a discount prior to the diversification, or whether their value decreases as a result of the diversification, by testing the relationship between changes in the degree of diversification and firm value. Our results suggest that it is diversification that causes the discount, and not that troubled firms diversify into other more promising areas.

We also investigate whether the conglomerate discount depends on the firms' main activity-area or on the specific financial activity-areas that are combined. Most importantly, there is a significant conglomerate discount in all three main activity-areas – i.e., credit intermediation, securities, and insurance. However, there is no conglomerate discount associated with investment banking. Diversification into non-financial activities is associated with a significantly higher discount than diversification within the financial services sector only in the case of securities firms. Interestingly, there is no significant difference in the conglomerate discount between different combinations of financial activity-areas with two notable exceptions: Combinations between commercial banking and insurance and combinations between commercial banking and investment banking show a significant permium.

Finally, we investigate the geographic dimension of diversification and find that geographic diversification in general (as measured by a dummy variable or the percentage of

sales stemming from non-domestic operations) is not associated with a discount. However, the results based on a Herfindahl-Hirschman index reveal that geographic diversity is value destroying when there are more geographic segments and when the activities are distributed relatively even over these segments.

The remainder of the paper is organized as follows. Section II outlines the sources of data, the sample selection procedure, and describes the variables. Sections III and IV present the descriptive statistics based on univariate analysis, which is followed by the results from multivariate regression analysis. Section V investigates whether the conglomerate discount differs between financial services activity-areas and whether certain combinations of financial activities are more likely to destroy value than others. Section VI examines whether geographic extension of financial firms' operations appear to create or destroy economic value. Section VII presents the conclusions.

## II. Sample selection and variables

### A. Sample selection

The sample consists of all financial firms (SIC 6000-6999 and NAICS 520000-529999) from 1985 to 2004, with data reported on both the Compustat Segment and Industrial Annual data files and total assets of at least $100 million. The data cover the broadly-defined US financial services sector – commercial banks and bank holding companies, insurance companies, asset managers and broker-dealers. We exclude years where more than 50% of a firm's sales *or* assets stem from segments outside the financial sector or are classified as investment trusts (SIC 6730-6733 and 6798 and NAICS 525900-525990).[6] We also exclude firms that are listed as American Depository Receipts (ADRs).[7] To examine whether diversi-

[6] Compustat defines sales for financial companies as follows: total current operating revenue plus net pretax profit or loss on securities sold or redeemed minus non-recurring income.

[7] This restriction leads to a decrease in sample size of 131 firm-year observations (3.1%) for the excess value measure based on sales and 100 firm-year observations (2.6%) for the excess value measure based on assets. The inclusion of these observations does not materially change any of our results.

fication increases or decreases corporate value, we use the excess value measure developed by Berger and Ofek (1995). For a firm to be included in our sample, all data necessary to calculate this excess value measure are required (see description below) leading to a final sample of 664 firms with a total of 4,060 firm-year observations when the excess value measure is based on sales and 652 firms and 3,812 firm-year observations when the excess value measure is based on assets.

During our sample period, the segment reporting changed from SIC to NAICS. Specifically, since 1998 firms report segment information based on NAICS. On Compustat's Segments file, SIC codes are available for the years 1985 to 2000 and NAICS codes are available from 1990 to 2004. In general, we use NAICS codes where available (i.e., from 1990 to 2004) and SIC otherwise. To account for possible changes in segment reporting due to the change from SIC to NAICS (and the replacement of SFAS 14 by SFAS 131), we perform two robustness checks: First, we construct sub-samples, which are exclusively based on SIC codes (from 1985 to 2000) and NAICS codes (from 1990 to 2004). Second, we split our sample period into two sub-periods based on whether firms report segment information based on SIC (1985 to 1997) under SFAS 14 or NAICS (1998 to 2004) under SFAS 131, respectively.[8]

**B. Measure of Excess Value**

To examine whether diversification increases or decreases corporate value, we use an excess value measure that compares a firm's value to its imputed value if its segments were operated as stand-alone entities (Berger and Ofek, 1995). Each segment of a diversified firm is valued based on the median sales (assets) multipliers for single-segment firms in that industry. As already indicated, sales for financial companies are defined as total current operating

[8] For all sub-samples and also when we use SIC codes where available and NAICS otherwise over the full sample, the results of the univariate as well as the multivariate analysis (Sections III and IV) are very robust. Therefore, we only report the results for the full sample based on NAICS codes where available (i.e., from 1990 to 2004) and SIC otherwise.

revenue plus net pretax profit or loss on securities sold or redeemed minus non-recurring income.

First, we calculate the imputed value for each segment by multiplying the segment's sales (assets) by the median ratio of the market value to sales (assets) for single-segment firms in the same industry. The industry median ratios are based on the narrowest NAICS/SIC grouping that includes at least five single-segment firms with complete data and total assets of at least $100 million.[9] Next, the imputed value of the firm is calculated as the sum of the imputed segment values. This number estimates the value of the firm if all of its segments were operated as stand-alone entities. Finally, excess value is calculated as the log of the ratio of a firm's value to its imputed value. A negative excess value indicates that a firm trades at a discount and a positive excess value implies that the firm trades at a premium.

Some of the segments of diversified firms in our sample have no NAICS or SIC codes assigned by Compustat. In contrast, most have a segment name, usually stated as "corporate and other", "eliminations", "corporate and unallocated", or a similar designation. We do not treat these segments separately, but rather attribute their sales (assets) proportionally to the remaining segments in order to sum to the correct figure for the firm's total sales (assets). Nevertheless, for some of the diversified firms in our sample the sum of all segment sales (assets) as provided by the Compustat Segment file disagrees with the respective firm total values from the Compustat Industrial Annual file. This problem is also noted by Berger and Ofek (1995), and we follow their approach by excluding observations for which the sum of the segment values deviates from the firm's total value by more than 25%. This procedure leads to a reduction in sample size of 243 (5.1%) and 158 (3.6%) observations, respectively, for the sales- and asset-based excess value measure. If the deviation is within 25%, we gross the firm's imputed value up or down by the percentage deviation between the sum of its seg-

[9] Using sales (and assets) multipliers, the imputed value for 40.4% of all segments are based on five-digit NAICS (four-digit SIC) codes, 28.4% on four-digit NAICS (three-digit SIC) codes, 26.8% on three-digit NAICS (two-digit SIC) codes, and 4.5% on two-digit NAICS (one-digit SIC) codes.

ments' sales (assets) and total firm sales (assets).[10] Finally, again following Berger and Ofek (1995), we exclude extreme excess values from the analysis – i.e., the actual value is either larger than four times the imputed or less than one fourth of the imputed value – which results in the loss of 428 (9.5%) and 411 (9.7%) firm-year observations for sales- and asset-based excess value measures, respectively. This procedure leads to a final sample size of 664 firms with a total of 4,060 firm-year observations for the sales-based excess value measure and 652 firms with a total of 3,812 firm-year observations for the asset-based excess value measure.

Finally, we construct a third alternative excess value measure which is based on both sales *and* assets. The underlying presumption behind this "hybrid" excess value measure is that in some activity-areas assets-multiples are more meaningful to measure valuation and in others sales-multipliers are more meaningful. Specifically, we presume that a lower standard deviation of the multipliers of focused firms in an industry implies a higher precision in measurement and therefore a more meaningful imputed segment value. Hence, we calculate for each segment of a firm the corresponding median sales- *and* asset-multipliers and use that with the lower scaled standard deviation to calculate the imputed value of a segment (again industry median ratios are based on the narrowest NAICS/SIC grouping that includes at least five single-segment firms with complete data and total assets of at least $100 million). To obtain the excess value measure we again calculate the imputed value of the firm as the sum of the imputed segment values. Finally, excess value is calculated as the log of the ratio of a firm's value to its imputed value.[11]

[10] Alternatively, we apply a stricter exclusion criterion and discard all observations for which the sum of the segment values deviates from the firm's total value by more than 5%. This restriction leads to the exclusion of additional 271 and 224 observations for the sales- and asset-based excess value measures, respectively. However, our results remain qualitatively unchanged (see Section IV. A. and Panel B of Table 5).

[11] We are grateful to Yakov Amihud for suggesting this alternative measure of excess value.

**C. Measures of Diversification**

We use a series of alternative measures of diversification. The first is a dummy variable which is equal to one if a firm reports more than one segment in Compustat's Segments data file. Earlier evidence (e.g., Lang and Stulz, 1994) suggests that firms with two or more segments have a lower firm value than firms with one segment, but that there is no further significant drop in firm value when one moves from firms with $j$ segments to firms with $j + 1$ segments, where $j \geq 2$.

To investigate whether this finding is also valid for our sample of financial firms, we alternatively use the number of segments reported by Compustat. Additionally, we use a sales- and asset-based Herfindahl-Hirschman index (HHI) following Lang and Stulz, (1994), Comment and Jarrell (1995), and Denis, Denis and Sarin (1997). These HHIs are computed as the sum of the squares of each segment's sales (assets) as a proportion of the square of total sales (assets) for the firm. For example, if a firm has only one segment, its HHI is equal to one and if it has 10 segments that each contribute 10 percent of the sales (assets), its HHI is equal to 0.1. Hence, the HHI decreases as the degree of diversification increases.

Prior research on non-financial firms (e.g., Berger and Ofek, 1995) revealed that only unrelated diversification (i.e., diversification at the two-digit SIC code level) is associated with a significant discount in firm value, and that there is no conglomerate valuation penalty for related diversification (i.e., diversification at the four-digit SIC level). We therefore investigate potential differences in the valuation effects associated with related and unrelated diversification. However, given that all of the focused firms in our sample are exclusively in the financial sector (NAICS 520000-529999 and SIC 6000-6999) and the majority of sales and assets of diversified firms are attributed to the financial sector as well, the distinction between related and unrelated diversification is not directly comparable to that in previous research carried out with respect to non-financial firms.

Specifically, we construct a dummy variable, which has a value of one if a firm reports more than one segment based on three-digit-level NAICS codes (two-digit-level SIC codes) to measure unrelated diversification, and a similar dummy variable, which has a value of one if a firm reports more than one segment based on five-digit-level NAICS codes (four-digit-level SIC codes) to measure related diversification. It is important to bear in mind that diversification takes place almost exclusively within the financial sector. However, 162 firm-year observations (4.0%) correspond to 49 different diversified firms with at least one segment outside the financial sector. Since in these cases the term "unrelated diversification" becomes comparable to that used in prior research on non-financial firms (where firms are often diversified even at the one-digit-level SIC or two-digit-level NAICS code), we additionally construct a dummy variable, which is equal to one if a firm is diversified at the three- (NAICS) or two-digit-level (SIC) *and* has at least one segment outside the financial sector.[12]

**III. Univariate Analysis**

We begin the univariate analysis by investigating whether diversified and focused firms differ with respect to a number of variables. Table 1 reports the mean and median (as well as tests for differences in means and medians) for all variables used in the study for diversified and focused firms separately. All firms reporting more than one segment are classified as diversified. With one exception (the median of the ratio of intangible to total assets), the differences in means and medians between diversified and focused firms are statistically significant at the 1% level for all variables. Most important, the three excess value measures are all significantly higher for focused than for diversified financial firms, which provides initial evidence of a diversification discount for financial conglomerates. Moreover, diversified

[12] We do not include activity-areas that are closely related to the financial sector such as funds, trusts, and other financial vehicles (NAICS 525, SIC 67), real estate (NAICS 531, SIC 65), and rental and leasing services (NAICS 532, SIC 73/75) in this dummy variable. Including these activity-areas increases the number of firm-year observations with diversification outside the financial sector to 366. However, the results on diversification into non-financial areas of activity (in Tables 5 and 9) remain largely unchanged when we include them (the only difference is explained in the corresponding text on Table 9).

firms are substantially larger (market value, sales, and assets), have higher leverage ratios (which is consistent with Lewellen, 1971), are less profitable (lower return on assets), and exhibit lower book-to-market and q ratios.

Table 2 gives an overview of the number of sample firms for each calendar year, along with the number (and percentage) of focused and diversified financial firms. The data show that the percentage of diversified firms in our sample decreases steadily from 53.2% in 1985 to 27.3% in 1996 and then rises again to 48.9% in 2004. Comment and Jarrell (1995) show a steady trend toward greater focus in non-financial firms over their sample period from 1979 to 1988. For example, in 1979, 38.1% of all firms in their sample reported one segment. In 1988, the percentage increased to 55.7%. Over the same period, the average number of segments reported dropped from 2.53 to 1.94. In a more recent study, Denis, Denis, and Yost (2002) find that the percentage of diversified firms in their sample of non-financial firms decreases from 26.3% in 1984 to 12.3% in 1997.

In general, the percentage of diversified firms in our sample of financial firms seems to be somewhat higher compared to non-financial firms prior to 1997. Unfortunately, the sample period in other research on non-financial firms usually ends in 1997 or earlier, even for recent studies (e.g., the sample periods in Campa and Kedia (2002), Fauver, Houston, and Naranjo (2004), and Ahn, Denis, and Denis (2006) end in 1996, 1995, and 1997, respectively). Consequently, we do not know whether the subsequent increase in the percentage of diversified firms is a general phenomenon or exclusively related to financial firms.

The results in Table 2 show a large jump in the percentage of diversified firms between 1997 and 1998 when SFAS 131 superseded SFAS 14 in the regulation of segment reporting and SIC was replaced by NAICS.[13] One of the major concerns that triggered these changes was an under-reporting of segments. In fact and consistent with our findings, Berger

[13] In addition, the US Gramm-Leach-Bliley Act of 1999 (GLB) eliminated functional barriers between commercial banking and insurance, and between commercial banking and investment banking.

and Hann (2003) show that the implementation of SFAS 131 has resulted in a greater number of segments being reported by non-financial firms. In unreported tests, we find that firms increasing the number of reported segments under SFAS 131 experience a substantial drop in excess value from 1997 to 1998 when the "hidden" diversification is revealed. This result is also consistent with Berger and Hann (2003) and holds when we exclude firms undertaking acquisitions in 1998 in order to obtain a "cleaner" reporting change sample. As diversification before and after the introduction of SFAS 131 might not be directly comparable, we check the robustness of our results by repeating all analyses for the pre-1998 and post-1997 subsamples. Our main results are robust to this sample segmentation and prevail in both subperiods. Therefore, we do not report them in the paper for reasons of brevity.

Finally, before switching to a multivariate setting, we investigate whether the conglomerate discount depends on the level of diversification (e.g., Lang and Stulz, 1994). The results are shown in Table 3 and report means and medians for all three excess value measures for different numbers of segments and for various values of the two HHIs. The results are consistent with those of Lang and Stulz (1994). There is a substantial drop in excess value between focused and diversified firms but once a firm is diversified, there is no additional discount associated with increasing the number of segments from two to three or more. Similarly, there is a substantial difference in excess value between firms with HHI values (sales- and asset-based) equal to one and firms with HHI values smaller than one, but only minor differences in excess value between firms with different HHI values less than one. The results for the sales-based HHI are shown in Panel B and for the asset-based HHI in Panel C of Table 3. For the sales-based HHI, there is a substantial drop in the sales-based, asset-based, and hybrid excess value (results for the latter two not reported) when a firm moves from one to two segments but no further discount beyond that. For the asset-based HHI, all three excess value measures (results for the latter two not reported) decrease nearly monotonically as the HHI

decreases. However, there is still a large jump when firms move from one to a value below one, and smaller changes thereafter.

## IV. Multivariate Regression Analysis

### A. Main results

In this section, we investigate the existence of a diversification discount for financial firms in a multivariate framework. We estimate pooled time-series cross-sectional regressions of excess value on our measures of diversification and a number of control variables. To eliminate a potential omitted-variables bias and control for the effect of unobserved variables that are constant over time as well as unobserved variables that are constant over firms, we include calendar-year dummy variables and firm fixed effects (the coefficients are not reported in the tables). Since the observations for one specific firm (for different years) are clearly not independent (within correlation), we compute cluster-robust standard errors and treat each firm as a cluster.

We include two control variables in our standard regression specification. The natural logarithm of total assets, *ln(Assets)*, is included to cover the possibility that the observed differences in firm value are due to differences in efficiency between small and large firms rather than to the degree of diversification. The second control variable, *Leverage*, might affect firm value based on the role of debt in helping to discourage the overinvestment of free cash flow by self-serving managers (e.g., Jensen, 1986; Stulz, 1990; Hart and Moore, 1995). Debt can also create value by giving the management an opportunity to signal its willingness to distribute cash flows and to be monitored by lenders. Empirically, McConnell and Servaes (1995) find that book leverage is positively correlated with firm value when investment opportunities are scarce, which is consistent with the hypothesis that debt alleviates the overinvestment problem. Besides this agency- related motivation for the inclusion of leverage as a control variable, leverage might be of a special importance to financial firms. For example, a well-

capitalized firm might have fewer incentives to engage in excessive risk-taking. Based on simple valuation models, we additionally include the return on assets as a measure of firm profitability.

Finally, to control for growth opportunities, we include the past growth in sales (assets) which is calculated as the average annual growth of sales (assets) over the past three years (e.g., Yermack, 1996). However, due to data availability the sample size substantially decreases when we include past growth in sales (or assets) resulting in 2,887 (2,719) firm-year observation on 489 (492) firms. Since our results are very robust to the inclusion of this additional control variables (and the resulting sample reduction), we generally report regressions without them.[14] An alternative measure of growth prospects would be Tobin's Q. However, Tobin's Q is calculated in a very similar manner as our dependent variable and therefore should not be included as an explanatory variable. When we include the widely used approximation of Tobin's Q, computed as the ratio of the market value of equity plus the book value of debt to the book value of total assets, it is not surprising that the coefficient is always positive and significant at the 1% level or better. The coefficients on the diversification variables, however, remain qualitatively similar even when Tobin's Q is included as an additional control variable.[15]

The results from estimating fixed effects panel regressions of the excess value measure based on sales (Panel A) and assets (Panel B), and the hybrid excess value measure based on sales *and* assets (Panel C) on measures of diversification and the two control variables are reported in Table 4. The results show that when we control for firm size, leverage, and profit-

[14] Results from regressions including the past growth in sales are reported in Panel A of Table 5.

[15] Lang and Stulz (1994) argue that specialized firms may have more trouble raising funds, and therefore exhibit a higher firm value than diversified firms because they are unable to exhaust available positive net present value projects. To control for this, we additionally include a dummy variable that is equal to one if a firm pays a dividend in the respective year and zero otherwise. The reasoning is that dividend-paying firms could invest more by cutting dividends and thus are unlikely to be capital-constrained. However, the coefficient on this variable is never estimated significant and the negative valuation effect of diversification remains qualitatively similar and significant at the 1% level in all specifications. Therefore, we do not report the results in a table.

ability diversified firms still trade at a discount of between approximately 9% (asset-based excess value measure) and 16% (sales-based excess value measure). Excess value is also related negatively to the number of segments and related positively to the Herfindahl-Hirschman indices, confirming a diversification discount.

With respect to the control variables, leverage is estimated to have a significantly negative effect on firm valuation. This result is somewhat surprising, since it contradicts Jensen's (1986) free cash flow hypothesis and might be related to well-capitalized firms having fewer incentives to engage in excessive risk-taking.[16] The coefficients on firm size and profitability are positive and insignificant for the sales-based and hybrid excess value measures. In contrast, firm size is estimated to have a significantly negative effect on firm valuation, while profitability is estimated to have a positive effect when the excess value measure is based on assets. These differences are related to the use of total assets in the computation of excess value, firm size and profitability. However, the coefficients on the diversification variables remain qualitatively similar, albeit somewhat reduced in the case of the dummy variable (Column 4).

Panel A of Table 5 reports the results from regressions including past growth in sales as an additional control variable for growth opportunities. Most importantly, the results indicate that growth opportunities have a positive and significant effect on firm value while all other coefficients remain qualitatively similar.[17] We also investigate whether the observed conglomerate discount documented so far is related to firm size and leverage by including interaction terms between the diversification dummy variable and firm size and leverage in the standard regression specification as reported in Column 1 of Table 4. Both interactions terms are estimated positively. None of them, however, is statistically significant at the 10% level or

[16] It is important to note that financial firms in general and banks in particular exhibit very high leverage ratios (see descriptive statistics in Table 1). More revealing results on the relation between leverage and firm value are provided in Section V where we split our sample based on the firms' main activity-areas.

[17] Alternatively, we include the past growth in assets, which is calculated as the average annual growth of assets over the past three years, and find similar results.

better. Therefore, we do not report the results in a table.

Panel B of Table 5 reports the results from reestimating Panel A of Table 4 when all observations for which the sum of the segments' sales deviates from the firm's total sales by more than 5% (see footnote 10 in Section II. B.). As noted, this restriction leads to a reduction in sample size of 271 observations (6.7%) while the results remain basically unchanged. In unreported tests, we reestimate all other analyses in this section based on these stricter exclusion rules and find them to be robust.

Prior research on non-financial firms (e.g., Berger and Ofek, 1995) showed that only unrelated diversification (i.e., diversification at the two-digit SIC level) is associated with a significant discount in firm value, while there are no penalties for related diversification (i.e., diversification at the four-digit SIC level). As noted in Section II, we construct the following variables to investigate this issue: 1) A dummy variable which is equal to one if a firm is diversified at the five- digit level for NAICS codes or the four-digit-level for SIC codes, intended to measure related diversification; 2) A dummy variable which is equal to one if a firm is diversified at the three-digit level for NAICS codes or at the two-digit-level for SIC codes (i.e., reports segments which differ at the three-digit level NAICS or the two-digit-level SIC codes). This variable aims to measure unrelated diversification; 3) A dummy variable, which is equal to one if a firm has at least one segment outside the financial services sector. As noted earlier, 162 firm-year observations (4.0%) correspond to financial firms with at least one segment outside the financial services sector.[18]

We find that of 1,643 diversified firm-year observations, 361 can be defined as related diversification (i.e., firms which are diversified at the five-digit level for NAICS codes or the four-digit-level for SIC codes) and 989 as unrelated diversification (i.e., firms which are diversified at the three-digit level for NAICS codes or the two-digit-level for SIC codes). 162

[18] As indicated in Section II, when we include activities related to the financial services sector such as funds, trusts, and other financial vehicles, real estate, and rental and leasing services in the dummy variable measuring diversification outside the financial services sector, the results remain very similar.

firm-year observations refer to firms which operate in at least one segment outside the financial sector.[19]

The results in Panel C of Table 5 show that, in contrast to non-financial firms, related *and* unrelated diversification seems to be associated with a similar discount for financial firms. Therefore we do not differentiate between related and unrelated diversification in the remainder of the paper. However, we do investigate whether the number of related and unrelated segments is significantly related to firm value: For all three "levels of relatedness," the coefficient on the number of segments is negative and statistically significant at the 10% level or better (not reported in a table).

Finally, we investigate whether diversification outside the financial sector is associated with a higher discount than diversification within the financial sector. The results in Column 9 show that the 49 firms (162 firm-year observations) with operations outside the financial sector exhibit a similar discount as the other diversified firms in our sample while the statistical significance is somewhat lower as compared to the coefficients on related and unrelated diversification due to a higher standard deviation. We repeat the analysis in Panel C for the excess value measure based on assets and the hybrid excess value measure. The results remain basically unchanged, and we do not report them in a table.[20]

**B. Robustness checks: Is the diversification decision endogenous?**

So far, our analysis shows that financial conglomerates trade at a discount as compared to focused firms in the financial sector in both univariate and multivariate tests. This raises the question of causality – whether firms that diversify are already trading at a discount

[19] We also use an additional measure of diversification aiming to measure a level of diversification between the standard measures of related and unrelated diversification: A dummy variable, which is equal to one if a firm is diversified at the four-digit level for NAICS codes or the three-digit-level for SIC codes. 1239 firm-year observations can be classified as diversified at this "in-between" level. The regression coefficients (not reported in a table) are very close to those reported for related and unrelated diversification in Panel C of Table 5.

[20] As a further robustness test we estimate the regression equations in Tables 4 and 5 based on weighted least squares where the weighting is based on total assets. The results remain basically unchanged. Therefore, we do not report them in a table.

prior to the diversification, or whether their value decreases as a result of the diversification. In fact, recent research on non-financial firms suggests that corporate diversification strategies are determined endogenously (e.g., Campa and Kedia, 2002; Villalonga, 2004). In this section, we undertake two alternative approaches to investigate this issue. First, we test whether a change in the degree of diversification is associated with a change in excess value. If diversified firms already trade at a discount before they diversify, this indicates that it is not diversification that causes the discount but that diversification might be a firm's reaction to poor performance.[21] Second, we follow Campa and Kedia (2002) and account for a potential endogeneity of the corporate diversification strategy by estimating instrumental variables regressions and Heckman's (1979) self-selection model.

We begin our analysis by investigating the distribution of changes in diversification over time. In unreported tests, we find changes in diversification and focus to be rather equally distributed in the financial services industry over the full sample period, although (as already shown in Table 2), an unusually large number of changes occurred in 1998 when segment reporting changed from SIC to NAICS. Overall, 56 firms increased the degree of diversification and 19 increased focus, while the averages over the 19 years from 1986 to 2004 are 10.47 and 8.21, respectively.[22]

In Table 6 we investigate whether diversified firms already trade at a discount before they diversify or whether a discount appears only after the diversification. Panel A reports means and medians for the sales-based excess value measure for up to three years before a change in diversification or focus. The results show that previously focused firms that diver-

[21] In fact, for non-financial firms Comment and Jarrell (1995) find that an increase in the degree of diversification is associated with a significant drop in stock returns while an increase in focus is associated with a substantial increase in stock returns – their results show that a change of 0.1 in the absolute value of a sales-based HHI is associated with a stock return of about 4%, and that adding or subtracting one business segment is associated with a difference in returns of about 5%.

[22] In percentage terms, 21.29% of all sample firms experience an increase in the degree of diversification in 1998 and 7.22% an increase in focus. The sample averages from 1986 to 2004 are 4.90% and 3.84%, respectively. However, when we exclude the year 1998 from the analysis in this section, the results remain qualitatively similar.

sify at some point during our sample period do not trade at a discount before diversification. Panel B reports the results of univariate OLS regressions of the change in excess value between years *t* and *t*-1 on a dummy variable, which is set equal to one if a previously focused firm diversifies (Column 1), a diversified firm increases the number of segments (Column 2), a diversified firm decreases the number of segments (Column 3), and a previously diversified firm refocuses (Column 4), respectively. Consistent with the findings of Comment and Jarrell (1995), we find that an increase in focus is positively related to firm value and a decrease in focus (or increase in diversification) is negatively related to firm value. The effect is stronger: (1) For previously diversified firms that become focused than for diversified firms that decrease the number of segments; and (2) for previously focused firms that become diversified than for diversified firms that increase the number of segments.[23]

In combination, the results in Panels A and B suggest that it is diversification that causes the discount, and not troubled firms diversifying into other, more promising areas. In contrast, focusing firms trade at a very large discount before they decrease the number of segments in which they were active, or become completely focused. This finding suggests that the increase in focus may be due to external pressure (e.g., by active shareholders).

Another potential concern regarding our results is that the documented diversification discount is due to conglomerates purchasing discounted target firms rather than diversification itself (e.g., Graham, Lemmon, and Wolf, 2002). We perform two simple tests in order to control for the effect of mergers on our results. First, we repeat the analysis in Panel A of Table 6 (previously focused firms diversifying) and exclude all observations which are associated with a merger of the company taking place in the same year. The results (reported at the end

[23] In unreported tests we also find that firms that increase focus experience a further significant increase in firm value over the subsequent year. In contrast, the change in excess value for focused firms that diversify remains negative for the following year but not statistically significant. Somewhat surprisingly, diversified firms increasing the number of segments experience a significant increase in excess value in the subsequent year, which exceeds the decrease in the previous year in economic as well as statistical terms. Hence, given that a firm is already diversified a further diversification may be value increasing on average.

of Panel A) remain basically unchanged indicating that focused firms that diversify without acquisition (i.e., by redirecting their business activities) do not trade at a discount before diversification but trade at a large (and significant) discount thereafter. Second, we repeat the analysis in Column 1 of Panel B and exclude increases in diversification which take place in years in which the firm undertakes at least one acquisition. Again the results remain qualitatively similar (the coefficient is -0.140 with a *p*-value equal to 0.022) indicating that the conglomerate discount in our sample is not due to the acquisition of discounted targets.

In a next step, we account for the potential endogeneity of the diversification variable by estimating instrumental variables regressions where the diversification dummy variable is instrumented. In the first stage, we regress the diversification dummy variable on all presumably exogenous variables in the excess value regression along with the predicted probability of being diversified – which is obtained from a probit regression of the diversification dummy variable on various instruments. Alternatively, we directly include all exogenous variables and instruments in the first step regressions (instead of using the predicted probability of being diversified). This latter model does not impose the (nonlinear) functional form of the probit model.[24] The choice of instruments is based on Campa and Kedia (2002): the log of total assets, leverage, a dummy variable whether the firm pays a dividend, return on assets, a dummy variable whether the firm belongs to the S&P500 index, a dummy variable whether the firm is listed at NYSE, the fraction of diversified firms and the fraction of sales accounted for by diversified firms in the industry, median industry q and its lagged value, the number of M&A transactions in a given year (financial sector only), the annual value of completed

[24] Following Campa and Kedia (2002), we also estimate both alternative models based on the (predicted) probability of diversifying (i.e., a dummy variable which is equal to one when a firms increases the number of segments and zero otherwise) instead of the (predicted) probability of being diversified in the first-step regressions. However, the results from all different specifications are qualitatively similar and therefore we do not report the results from these alternative specifications in a table.

M&A deals in the financial sector in a given year, and GDP growth and its lagged value.[25] We use the four-digit NAICS (three-digit SIC) codes to identify industries.

In the second stage, we regress the excess value measure on the fitted value from the first stage, a number of control variables, and a set of year dummy variables (which are not reported in the table). The results from the instrumental variables regressions including the predicted probability of being diversified in the first stage regressions are reported in Columns 1 and 2 and the results based on the specification directly including all exogenous variables and instruments in the first step regressions are reported in Columns 3 and 4 of Table 7. In Columns 2 and 4, we additionally include a dummy variable whether the firm is included in the S&P 500 index in the second-step regression and the past growth in assets in the first and second-step regressions. Most importantly, the results indicate that the conglomerate discount increases rather than decreases and is statistically significant at the 1% level in all four regression specifications.

Finally, we use Heckman's (1979) two-step procedure to control for the endogeneity of the diversification decision (e.g., see Campa and Kedia, 2002; Villalonga, 2004). In the first-step, we estimate a probit regression with a dummy variable whether the firm is diversified as the dependent variable. The choice of explanatory variables is the same as in the first-step probit regression of the instrumental variables approach. In the second stage, we regress the sales-based excess value measure on the dummy variable whether the firm is diversified, the log of total assets, leverage, and the self-selection parameter (lambda). The results in Panel B of Table 7 (Column 5) reveal that the coefficient on the diversification dummy variable remains negative and significant while the self-selection parameter is positive and insignificant. Alternatively, we repeat the analysis by modeling the decision to diversify rather than being diversified as the firms' endogenous choice (e.g., see Villalonga, 2004). Specifi-

[25] Data on the number and value of M&A transactions are from Thomson Financial's SDC (Securities Data Corporation) database, and data on GDP growth from NBER.

cally, in the first stage we estimate a probit regression with a dummy variable whether the firm diversified (i.e., increases the number of segments) as the dependent variable. The results in Column 6 reveal that the selection parameter (lambda) turns negative but remains insignificant while the coefficient on the diversification dummy variable remains basically unchanged.

Finally, we check the robustness of these results by using alternative explanatory variables in the first stage probit regression (e.g., a dummy variable whether the firm is included in the S&P financial instead of S&P500 index, lagged values of the log of total assets and return on assets) and using the three-digit NAICS (two-digit SIC) codes to identify industries, repeat the analysis for the asset-based excess value measure and the hybrid excess value measure, and omit the year dummy variables in the second-stage regression. However, the results change only immaterially. For brevity we do not report them in a table.

Summarizing, the results of the instrumental variables regressions and endogenous self-selection model confirm the existence of a diversification discount in financial conglomerates and reveal that, in contrast to non-financial firms, self-selection does not seem to drive the results.

## V. Combinations of financial activities

In this section we investigate whether the conglomerate discount depends on the firms' main activity-area or on the specific financial activity-areas that are combined. Our classification of the financial services activity-areas is necessarily based on the SIC and NAICS classification codes. We differentiate the following main activity-areas within the financial services sector: credit intermediation and related activities (NAICS 522, SIC 60/61), securities, commodity contracts, and other financial investments and related activities (NAICS 523, SIC 62), insurance carriers and related activities (NAICS 524, SIC 63/64). In addition, we consider commercial banking (NAICS 5221, SIC 602) and investment banking (NAICS 52311, SIC 6211) which are both subsets of the credit and securities activity-areas,

respectively. Finally, we classify the remaining segments into funds, trusts, and other financial vehicles (NAICS 525, SIC 67), real estate (NAICS 531, SIC 65), rental and leasing services (NAICS 532, SIC 73/75), and non-financial activities (i.e., all segments outside NAICS 520000-532999 and SIC 6000-6999).

Panel A of Table 8 reports the coverage of the financial services sectors by the sample firms conditional on the number of segments. The reported figures represent the number of firm-year observations with at least one segment classified as belonging the respective activity-area. The results in the first column show that the majority of our focused sample firms are insurance companies (1,226), followed by securities firms (584) and credit intermediaries (572). For the remaining 32 observations the financial activity-area indicated in Compustat's Segment database differs from the firm's industry classification as reported in Compustat's Annual database whereas our sample selection (SIC 6000-6999 and NAICS 520000-529999) is based on the latter.[26] For diversified firms the industry affiliation of the segments is roughly proportional.[27]

Panel B reports the number of diversified firm-year observations with at least one segment classified as belonging the corresponding financial sector conditional on the firms' main activity-area (there is no diversified firm with commercial banking assigned as the main activity-area). The results show that for all four main activity-areas, not all observations in fact include a segment within the firm's main activity-area. In general, the majority of the firms' segments are concentrated in the credit intermediation, securities, and insurance sectors with a clear emphasis in the firms' main activity-area. Perhaps as a consequence of the introduction of the US Gramm-Leach-Bliley Act of 1999 (GLB) eliminating functional barriers

[26] Hence, these 32 focused firms would be excluded from our sample based on their activity-area indicated in the Segment database. However, our results remain basically unchanged when we exclude them from our sample.
[27] The number of observations with at least one segment classified as commercial bank is surprisingly low – also when considered in relation to investment banking. In view of the fact that there is only one focused commercial bank in our sample, the imputed value of commercial banking segments are problematic since they are based on industry multipliers for credit intermediaries generally rather than only commercial banks.

between commercial and investment banking activities towards the end of our sample period, none of the diversified investment banks has a commercial banking segment. Rather the activities of diversified investment banks are concentrated within the securities and investment banking business as well as the insurance and real estate sectors. Another interesting finding is that more firms (in absolute and percentage terms) classified as security companies have a segment in the commercial banking area than do credit intermediaries although commercial banking is a sub-segment of credit intermediation.

As a next step, we repeat our multivariate analysis of Table 4 for sub-samples based on the firms' main activity-areas. The results are reported in Columns 1 to 4 of Table 9. Most importantly, there is a significant conglomerate discount in all three main activity-areas (credit intermediation, securities, and insurance). However, the discount is substantially smaller and insignificant for investment banks (Column 4) which are a subset of the securities firms in Column 2. A further result is that the negative effect of leverage on firm value documented in Tables 4, 5, and 7 is caused by the large number of insurance companies in the sample. For credit intermediaries and securities firms the effect of leverage is insignificant, and indeed for investment banks it is positive and significant at the 10% level. A possible reason for the negative valuation effect of leverage in insurance companies could be related to the role of insurance reserves in determining the ability of firms to book profitable underwriting business with relatively low loss probabilities. In contrast, in banks leverage is unlikely to have a comparable impact on the profitability of lending or fee-based business, especially when combined with the influence of deposit insurance and regulatory mandates. In addition, profitability as measured by the return on assets seems to affect firm valuation of insurance companies only but not credit intermediaries and securities firms.

In Columns 5 to 7, we investigate whether the valuation effect of diversification into non-financial activities depends on the firms' activity-area by including an additional dummy

variable whether the firm has at least one segment outside the financial services sector. The results show that diversification into non-financial activities is only associated with a significant increase in the discount in securities firms where the occurrence of this type of diversification is the lowest in absolute (21) and percentage terms (2.6% of the observations).[28] When we additionally include the segments calssified as funds, trusts, and other financial vehicles, real estate, and rental and leasing services (results not reported in a table), the coefficient on the non-financial segment dummy variable for securities firms turns insignificant as well, indicating that only diversification completely unrelated to the financial services industry is associated with an incremental discount when diversification in general is accounted for. In unreported tests, we find these results to be robust to the inclusion of additional control variables such as the past growth in sales, Tobin's Q, and a dummy variable whether the firm pays a dividend.

Finally, we investigate whether the discount depends on either leverage or firm size in certain financial services activity-areas by including interaction terms between the diversification dummy variable and leverage and the diversification dummy variable and firm size, respectively. However, none of the interaction terms is significant at the 10% level or better while the results on the other coefficients remain qualitatively unchanged. Therefore, we do not report the results in a table.

In Table 10, we investigate whether certain combinations of functional diversity are more likely to destroy value than others. We do this by constructing dummy variables for specific combinations of activity-areas covered by the firms' segments. We differentiate the three main activity-areas – credit intermediation, securities firms, and insurance. In addition, we separately consider commercial banking and investment banking activities. However, the re-

[28] The non-financial segments of security firms cover various different industries with the following three making up for the majority of observations: information services and data processing services (8) and publishing industries (5). The non-financial segments of credit intermediaries are located in similar industries while non-financial segments of insurance companies are most often classified as professional, scientific, and technical services (44), ambulatory health care services (22), and administrative and support services (13).

sults in Table 10 show that the (incremental) effect on the conglomerate discount due to specific activity-area combinations is generally insignificant. The two notable exceptions are combinations of commercial banks and insurance companies and combinations between commercial and investment banks. The coefficient on both dummy variables is significantly positive and larger in absolute terms than the negative coefficient on the diversification dummy variable indicating a premium associated with these activity-area combinations.[29] In unreported tests, we reestimate the regressions in Table 10 by including dummy variables measuring exclusive combinations of these activity-areas, i.e., firms with segments in the indicated industries only. However, the results are qualitatively similar to those reported in Table 10 although the number of industry combinations is substantially reduced to less than half of those in Table 10. Therefore, we do not report them in a table for the sake of brevity.

We additionally look at the importance of the relative size of the segments by including dummy variables whether the smaller of two segments amounts to 10% (20%) or less of the firms sales or assets. For firms with more than two segments, we consider the intervals of the Herfindahl-Hirschman index as used in Panels B and C of Table 3. In both cases, there is no evidence that the conglomerate discount depends on the relative size of the segments, i.e., the distribution of sales or assets over the segments once the diversification dummy variable is accounted for. Finally, we investigate whether this result is symmetric or whether it depends on the relative size of the combined activity-areas, i.e, whether the valuation effect differs between a combination of a large credit intermediation segment with a small insurance segment and a combination of a large insurance segment with a small credit intermediation segment. The results again indicate that there are no significant differences in the valuation effect and therefore are not reported in a table.

[29] As already mentioned, there is only one focused commercial bank in our sample and therefore segments of diversified firms classified as commercial banks are benchmarked against focused firms in the credit business more broadly defined. If commercial banking activities are in general associated with higher firm values than other activities within credit intermediation, this valuation differences might be responsible for the results in Columns 4 and 5 of Table 10.

Summarizing, the results of this section indicate that there is a significant conglomerate discount across all three main financial services activity-areas, credit intermediation, securities, and insurance while there is no discount associated with diversified investment banks. Diversification into non-financial activities is only associated with a significantly higher discount than diversification within the financial services sector in the case of securities firms. Leverage has a negative and significant effect on firm value in insurance companies only. Finally, we find no significant difference in the conglomerate discount between different combinations of financial services activity-areas with the exception of industry combinations including commercial banks.

## VI. Geographic diversification

Recent research shows that not only functional diversification but also geographic diversification is associated with a lower market value (e.g., see Denis, Denis and Yost; 2002, Fauver, Houston and Naranjo, 2004). However, the empirical evidence is not conclusive. Bodnar, Tang, and Weintrop (1999), for example, find a slight premium associated with geographical diversification in their sample of U.S. non-financial firms covering the period 1984 to 1997. To our knowledge, there is no evidence so far on the relation between geographical diversification and firm value for financial intermediaries,[30] although DeLong (2001b) argues that an analysis of the geographic dimension of diversification is more interesting for financial than non-financial firms since – in contrast to most manufacturing firms – financial services firms require proximity to the client. The empirical analysis in this section aims to fill this gap by including the geographic dimension of diversification into our analysis. The rationale put forward for geographic diversification include: (1) Domestic or regional market saturation or competition-policy limits on further consolidation; (2) Better macro or financial restructuring

[30] However, there is some evidence on the announcement effect associated with focusing and diversifying bank mergers. DeLong (2001a), for example, shows for a sample of domestic U.S. mergers (where at least one firm is a bank) that bank mergers that focus both functional and geographic activities enhance firm value by roughly 3% while other mergers do not create value.

prospects in other geographic regions, helping to justify growth-stock valuations in equity markets; (3) The need for viable physical presence in major markets for wholesale financial services (e.g., fixed-income, primary and secondary equities, merger and acquisitions services) that have themselves become global and require continuous client coverage and execution; (4) The search for first-mover advantages as financial deregulation opens local markets to outside competitors; and (5) Reduction in firm-specific risk associated with operations across currencies as well as macro and financial environments that are not perfectly correlated. Possible value-destroying factors associated with geographic diversity include the cost of increased managerial and operational complexity, increased internal information and contracting costs, heightened regulatory and compliance costs, as well as greater exposure to sovereign risk.[31]

One problem with geographic segment data compiled by Compustat is that there is no requirement by either the Financial Accounting Standards Board or the Securities and Exchange Commission regarding the grouping for geographic areas (e.g., see Denis, Denis, and Yost, 2002). Therefore, some firms report segment data for different countries, others for different continents or geographic areas (e.g., Southeast Asia), while some firms report segment data for countries *and* continents. As a result, two firms with identical operations in the same countries might report them very differently, so that the number of geographic segments reported becomes a problematic measure of the degree of geographic diversification. As a proxy, Denis, Denis, and Yost (2002) use the percentage of sales (assets) from non-domestic operations. We use three alternative measures of geographic diversification: a dummy variable whether a firm reports more than one geographic segment, the percentage of sales from non-domestic operations, and an asset-based Herfindahl-Hirschman index.[32,33]

[31] For a discussion, see Walter (2004), Chapter 2.

[32] In our database, for 3,153 (out of 4,703) foreign segments the reported sales are zero. Since this number is only 13 (out of 6,320) for domestic segments, it suggests that financial firms regularly book sales from foreign operations as sales from domestic segments, and that this measure of geographic diversification may have lim-

To investigate whether the benefits of geographic diversification outweigh its costs, we employ the same multivariate framework we used in the analysis of functional diversification. Specifically, we add alternative measures of geographic diversification into the regression equation reported in Column 1 of Table 4. The results in Column 1 of Table 11 show that the dummy variable for geographic diversity indicates a small (statistically insignificant) premium, on average, while the coefficient on functional diversification remains negative and significant at the 1% level. In contrast, the coefficient on the HHI in Column 2 is positive and significant indicating that geographical diversity is value destroying when there are more geographic regions and the activities are distributed relatively evenly over these regions.[34]

As a next step, we reestimate these regressions for sub-samples based on the firms' main activity-area. The results in Columns 3 to 8 of Table 11 show differences in the valuation effect of geographic diversification between different financial industries. The dummy variable is positive and significant for credit intermediaries and insurance companies indicating a premium associated with geographic diversification. In contrast, geographically diversified securities firms show a large and significant discount. For all three main activity-areas, the HHI is estimated positive and significant at the 10% level, confirming the results in Column 2 that geographic diversification has a negative valuation effect when there are more geographic segments and the activities are distributed relatively evenly over these different geographic regions.

Finally, we investigate whether the valuation effect of geographic diversification depends on whether a firm is functionally diversified or focused by additionally including an

---

ited meaning. Asset figures, however, are available only for approximately one fourth of firm-years leading us to concentrate on sales figures.

[33] Another particularity in the data on geographic segments is that numerous firms report sales and/or assets figures of -0.01 for one segment. If the segment name applies to countries rather than continents or geographic areas, these segments often refer to Bermuda or a similar location – suggesting a letterbox company operated for tax reasons. Consequently, we do not treat these segments separately.

[34] The coefficient on the percentage of sales from non-domestic operations is always negative but never estimated significantly. Therefore, we do not report the corresponding results in a table for space reasons.

interaction term between functional and geographic diversification in the regression equations reported in Columns 1, 3, 5, and 7 of Table 11. Unreported results , however, show that the coefficient on the interaction term is never significant at the 10% level or better while the coefficients on functional and geographic diversification remains qualitatively unchanged.[35]

Summarizing, our results on the geographic dimension of diversification show that geographic diversification in general is not associated with a valuation discount. However, the results based on the Herfindahl-Hirschman index show that geographic diversity is value destroying when there are more geographic segments and the activities are distributed relatively evenly over these segments.

## VIII. Conclusions

Two of the enduring issues related to the industrial organization of financial intermediation relate to scale and scope. Is bigger better? Is broader better? The latter, in turn, can have either functional or geographic dimensions, or both. The pattern of global mergers and acquisitions in the financial services sector, broadly defined, suggests firm-level strategies based the presumptive benefits of scale and scope – benefits that are of interest as well to regulators charged with financial system efficiency, stability and competitiveness. Past research has focused on scale in financial intermediation, both in terms of firm-wide cost functions and at the level of individual activities. Much less research has focused on scope, with respect to both costs and revenues, in part because of the difficult empirical issues involved. This paper contributes to the debate on scope in financial intermediation by adding to the empirical evidence.

[35] As in the case of functional diversification, there is a structural break in the percentage of geographically diversified firms between the years 1997 and 1998 (and between 1998 and 1999). This was a likely consequence of a change in the reporting standards for geographic segments by the FASB in 1997 as well as the repeal of the McFadden Act and the Riegle-Neal Interstate Banking and Branching Efficiency Act, both passed in 1994. Hence, we check the robustness of the results in this section by re-estimating all regressions for the 1985-1997 and 1998-2004 sub-samples separately. However, the results (not reported in a table) remain qualitatively similar with the only notable exception being that the coefficient on the dummy variable whether the firm is geographically diversified in Column 7 is not quite significant at the 10% level anymore in both sub-periods.

We show that the impact of functional scope among financial intermediaries is predominantly value-destroying. On balance, we conclude that the negative elements present in financial conglomerates outweigh the positive elements, so that functional breadth impairs both competitive performance and shareholder value. This conglomerate discount applies in all three main financial activity-areas considered in this paper: credit intermediation, securities, and insurance. In contrast, there is no conglomerate discount evident in the case of firms operating primarily in investment banking. The reason may be equity market expectations for abnormally rapid growth in securitized financial intermediation as compared to intermediation via banks, especially after US functional deregulation in 1999 – growth differentials that are global and have been documented in McKinsey Global Institute (2007).

The conglomerate discount is also very stable over different combinations of financial services activity segments. Two notable exceptions are combinations of commercial banking units and insurance companies as well as combinations between commercial and investment banking activities which both exhibit a significant valuation permium. Finally, our results show that geographic diversification per se is not associated with a significant discount. However, geographic diversity is value destroying in all financial services businesses when there are more geographic segments and the activities are distributed relatively evenly over those segments.

The question remains why, given the evidence of a significant conglomerate discount associated with multifunctional financial services firms, management and boards of such firms persist in strategies rooted in the notion that broader is better. We posit that the rationale is similar to that historically associated with non-financial conglomerates, including improved earnings stability and the expectation of productive cross-selling, along with improved X-efficiencies and scale economies associated with common platforms, notably information technology. Survey-based research by Coyne, Mendonca, and Wilson (2004) suggests that

managers of financial services firms systematically overestimate both revenue and cost economies of scope when justifying M&A initiatives that lead to greater breadth of activity-areas. Such overestimation, along with behavioral characteristics such as strategic emulation, may be part of the story, coupled to boardroom dynamics and overreliance on management estimates. So far, however, there is no hard empirical evidence of the relationships involved. Nevertheless, we expect that large-sample studies such as ours, together with value-enhancing cases of breakups of multifunctional financial firms such as ABN Amro in 2007, will help document the valuation "headwind" that financial conglomerates face, and contribute to more firmly-anchored strategies in the financial services sector. Reliance on market discipline to sort out value-accretive and value-destructive firm strategies also strengthens the case for regulatory neutrality and a level playing field in determining the optimum strategic architecture of financial firms.

## References


Ahn, S., Denis, D.J., Denis, D.K., 2006. Leverage and investment in diversified firms. Journal of Financial Economics 79, 317-337.

Berger, A.N., Humphrey, D.B., 1992. Measurement and efficiency issues in commercial banking. In: Griliches, Z. (Ed.), Output measurement in the service sector. Chicago: University of Chicago Press.

Berger, P.G., Hann, R., 2003, The impact of SFAS No. 131 on information and monitoring, Journal of Accounting Research 41, 163-223.

Berger, P.G., Ofek, E., 1995. Diversification's effect on firm value. Journal of Financial Economics 37, 39-65.

Bodnar, G.M., Tang, C., Weintrop, J., 1999. Both sides of corporate diversification: The value impacts of geographic and industrial diversification. Working Paper, Johns Hopkins University.

Boyd, J., Graham, S., Hewitt, R.S., 1993. Bank holding company mergers with non-bank financial firms: Effects on the risk of failure. Journal of Financial Economics 17, 43-63.

Brewer, E., Jackson, W., Jagtiani, J., Nguyen, T., 2000. The price of bank mergers in the 1990s. Federal Reserve Bank of Chicago Economic Perspectives, March.

Campa, J.M., Kedia, S., 2002. Explaining the diversification discount. Journal of Finance 57, 1731-1762.

Clark, J.A., 1995. Economies of scale and scope at depository financial institutions: A review of the literature. Federal Reserve Bank of Kansas City Economic Review 73, September-October, 16-33.

Comment, R., Jarrell, G.A. 1995. Corporate focus and stock returns. Journal of Financial Economics 37, 67-87.

Cornett, M.M., Tehranian, H., 1992. Changes in corporate performance associated with bank acquisitions. Journal of Financial Economics 31, 211-234.

Cornett, M.M., Hovakimian, G., Palia, D., Tehranian, H., 2003. The impact of the manager-shareholder conflict on acquiring bank returns. Journal of Banking and Finance 27, 103-131.

Coyne, K.P., Mendonca, L.T., Wilson, G., 2004. Can banks grow beyond M&A? McKinsey Quarterly, 27 April.

DeLong, G., 2001a. Stockholder gains from focusing versus diversifying bank mergers. Journal of Financial Economics 59, 221-252.

DeLong, G., 2001b. Focusing versus diversifying bank mergers: Analysis of market reaction and long-term performance. Working Paper, CUNY.

Denis, D.J., Denis, D.K., Sarin, A., 1997. Agency problems, equity ownership, and corporate diversification. Journal of Finance 52, 135-160.

Denis, D.J., Denis, D.K., Yost, K., 2002. Global diversification, industrial diversification, and firm value. Journal of Finance 57, 1951-1979.

Fauver, L., Houston. J.F., Naranjo, A., 2004. Cross-country evidence on the value of corporate industrial and international diversification. Journal of Corporate Finance 10, 729-752.

Graham, J., Lemmon, M., Wolf, J., 2002, Does corporate diversification destroy value?, Journal of Finance 57, 695-720.

Hart, O., Moore, J., 1995. Debt and seniority – An analysis of the role of hard claims in constraining management. American Economic Review 85, 567-585.

Heckman, J., 1979. Sample selection bias as specification error. Econometrica 47, 153-161.

Houston, J., James, C., Ryngaert, M., 2001. Where do merger gains come from? Bank mergers from the perspective of insiders and outsiders. Journal of Financial Economics 60, 285-331.

Houston, J., Ryngaert, M., 1994. The overall gains from large bank mergers. Journal of Banking and Finance 18, 1155-1176.

Jensen, M., 1986. Agency costs of free cash flow, corporate finance, and takeovers. American Economic Review 76, 323-329.

Laeven, L., Levine, R., 2007. Is there a diversification discount in financial conglomerates? Journal of Financial Economics 85, 331-367.

Lang, L.H.P., Stulz, R.M., 1994. Tobin's q, corporate diversification, and firm performance. Journal of Political Economy 102, 1248-1280.

Lewellen, W., 1971. A pure financial rationale for the conglomerate merger. Journal of Finance 26, 521-537.

Lins, K., Servaes, H., 1999. International evidence on the value of corporate diversification. Journal of Finance 54, 2215-2239.

Lown, C.S., Osler, C.L., Strahan, P.E., Sufi, A., 2000. The changing landscape of the financial services industry: What lies ahead? Federal Reserve Bank of New York Economic Policy Review, October, 39-55.

McConnell, J., Servaes, H., 1995. Equity ownership and the two faces of debt. Journal of Financial Economics 39, 131-157.

McKinsey Global Institute, 2007. Mapping the global capital markets: Third annual report. Available at: http//www.mckinsey.com/mgi/publications/third_annual_report/index.asp.

Mitchell, K., Onvural, N., 1996. Economies of scale and scope at large commercial banks: Evidence from the Fourier Flexible Functional Form. Journal of Money, Credit and Banking 28, 178-199.

Santomero, A., Chung, E.J., 1992. Evidence in support of broader bank powers. Financial Markets, Institutions, and Instruments 1, 1-69.

Saunders, A., Walter, I., 1994. Universal banking in the US. Oxford University Press, New York.

Servaes, H., 1996. The value of diversification during the conglomerate merger wave. Journal of Finance 51, 1201-1225.

Stiroh, K.J., Rumble, A., 2006. The dark side of diversification: The case of US financial holding companies. Journal of Banking and Finance 30, 2131-2161.

Stulz, R., 1990. Managerial discretion and optimal financing policies. Journal of Financial Economics 26, 3-27.

Villalonga, B., 2004. Does diversification cause the diversification discount? Financial Management 33, 5-27.

Walter, I., 2004. Mergers and acquisitions in banking and finance. Oxford University Press, New York.

Walter, I., 2005. Conflicts of interest and market discipline in financial services firms. In: Borio, C., Hunter, W.C., Kaufman, G.G., Tsatsaronis, K. (Eds.), Market discipline across countries and industries. Cambridge, MA: MIT Press.

Yermack, D., 1996. Higher market valuation of companies with a small board of directors. Journal of Financial Economics 40, 185-211.

Yu, L., 2002. On the wealth and risk effects of the Glass-Steagall overhaul: Evidence from the stock market. Working Paper, New York University.

**Table 1: Comparison of focused and diversified firms**

| | Focused | | | Diversified | | | Difference | |
|---|---|---|---|---|---|---|---|---|
| | Mean | Median | N | Mean | Median | N | Mean | Median |
| Excess value (sales) | -0.030 | 0.000 | 2417 | -0.188 | -0.209 | 1643 | 0.158*** | 0.209*** |
| Excess value (assets) | 0.004 | 0.000 | 2478 | -0.194 | -0.170 | 1436 | 0.198*** | 0.170*** |
| Excess value (hybrid) | -0.017 | 0.000 | 2439 | -0.173 | -0.190 | 1643 | 0.157*** | 0.190*** |
| Number of segments | 1.000 | 1.000 | 2417 | 2.884 | 3.000 | 1643 | -1.884*** | -2.000*** |
| Herfindahl (sales) | 1.000 | 1.000 | 2417 | 0.664 | 0.645 | 1601 | 0.337*** | 0.356*** |
| Herfindahl (assets) | 1.000 | 1.000 | 2339 | 0.658 | 0.639 | 1454 | 0.342*** | 0.361*** |
| Total assets | 4469.657 | 580.340 | 2417 | 17743.180 | 3227.630 | 1643 | -13273.523*** | -2647.290*** |
| Sales | 734.302 | 203.360 | 2417 | 3565.509 | 943.900 | 1643 | -2831.207*** | -740.540*** |
| Leverage | 0.683 | 0.743 | 2411 | 0.774 | 0.813 | 1643 | -0.091*** | -0.070*** |
| Market value of company | 3816.569 | 419.924 | 2417 | 7349.805 | 1342.898 | 1643 | -3533.236*** | -922.974*** |
| Market-to-book value | 1.845 | 1.263 | 2411 | 1.502 | 1.193 | 1643 | 0.342*** | 0.070*** |
| Q | 1.484 | 1.117 | 2411 | 1.237 | 1.048 | 1643 | 0.247*** | 0.069*** |
| Return on assets | 0.041 | 0.030 | 2417 | 0.025 | 0.019 | 1643 | 0.016*** | 0.012*** |
| Dividend dummy variable | 0.658 | 1.000 | 2417 | 0.825 | 1.000 | 1643 | -0.167*** | 0.000*** |
| Intangible to total assets | 0.065 | 0.001 | 2020 | 0.059 | 0.012 | 1196 | 0.006 | -0.011*** |

This table presents mean and median values and the number of observations (*N*) for all variables used in the study for single- (focused) and multi-segment (diversified) firms separately. All firms reporting more than one segment (with differing SIC or NAICS codes) are classified as diversified. The equality of means is tested using a standard *t*-test and the equality of medians using a non-parametric Mann-Whitney test. ***/**/* denotes statistical significance at the 1%/5%/10% level.

**Table 2: Sample overview by calendar year**

| Year | Focused | Focused (%) | Diversified | Diversified (%) | N |
|---|---|---|---|---|---|
| 1985 | 22 | 46.81% | 25 | 53.19% | 47 |
| 1986 | 76 | 53.90% | 65 | 46.10% | 141 |
| 1987 | 80 | 52.63% | 72 | 47.37% | 152 |
| 1988 | 77 | 51.33% | 73 | 48.67% | 150 |
| 1989 | 75 | 52.08% | 69 | 47.92% | 144 |
| 1990 | 71 | 54.62% | 59 | 45.38% | 130 |
| 1991 | 93 | 61.59% | 58 | 38.41% | 151 |
| 1992 | 113 | 63.48% | 65 | 36.52% | 178 |
| 1993 | 161 | 67.36% | 78 | 32.64% | 239 |
| 1994 | 181 | 67.04% | 89 | 32.96% | 270 |
| 1995 | 205 | 69.97% | 88 | 30.03% | 293 |
| 1996 | 230 | 72.56% | 87 | 27.44% | 317 |
| 1997 | 213 | 69.38% | 94 | 30.62% | 307 |
| 1998 | 144 | 54.75% | 119 | 45.25% | 263 |
| 1999 | 121 | 54.26% | 102 | 45.74% | 223 |
| 2000 | 112 | 53.59% | 97 | 46.41% | 209 |
| 2001 | 111 | 53.62% | 96 | 46.38% | 207 |
| 2002 | 104 | 52.00% | 96 | 48.00% | 200 |
| 2003 | 115 | 52.75% | 103 | 47.25% | 218 |
| 2004 | 113 | 51.13% | 108 | 48.87% | 221 |
| Sum | 2417 | | 1643 | | 4060 |

This table reports the number and percentage of focused firms in the sample, the number and percentage of diversified firms in the sample, and the number of total observations (*N*) for each sample calendar year. All firms reporting more than one segment (with differing SIC or NAICS) codes are classified as diversified.

**Table 3: Mean and median excess value for various degrees of diversification**

| | | | | | | |
|---|---|---|---|---|---|---|
| Panel A: Number of Segments | | | | | | |
| | | 1 | 2 | 3 | 4 | ≥5 |
| Excess Value (Sales) | Mean | -0.0300 | -0.1891 | -0.1776 | -0.2047 | -0.1851 |
| | Median | 0.0000 | -0.2023 | -0.1904 | -0.2119 | -0.2748 |
| | Obs. | 2417 | 795 | 486 | 222 | 140 |
| Excess Value (Assets) | Mean | -0.0251 | -0.1709 | -0.1707 | -0.1768 | -0.1973 |
| | Median | 0.0000 | -0.1832 | -0.2013 | -0.2296 | -0.2432 |
| | Obs. | 2339 | 668 | 452 | 220 | 133 |
| Excess Value (Hybrid) | Mean | -0.0226 | -0.1643 | -0.1768 | -0.1904 | -0.1452 |
| | Median | 0.0000 | -0.1824 | -0.1867 | -0.2054 | -0.2373 |
| | Obs. | 2439 | 795 | 488 | 221 | 139 |
| Panel B: Sales-based Herfindahl-Hirschman Index (*HS*) | | | | | | |
| | | 1 | 0.8≤*HS*<1 | 0.6≤*HS*<0.8 | 0.4≤*HS*<0.6 | *HS*<0.4 |
| Excess Value (Sales) | Mean | -0.0304 | -0.2087 | -0.1526 | -0.1776 | -0.2040 |
| | Median | 0.0000 | -0.2281 | -0.1623 | -0.1902 | -0.2636 |
| | Obs. | 2420 | 490 | 405 | 539 | 164 |
| Panel C: Asset-based Herfindahl-Hirschman Index (*HA*) | | | | | | |
| | | 1 | 0.8≤*HA*<1 | 0.6≤*HA*<0.8 | 0.4≤*HA*<0.6 | *HA*<0.4 |
| Excess Value (Assets) | Mean | -0.0248 | -0.1348 | -0.1776 | -0.1771 | -0.2636 |
| | Median | 0.0000 | -0.1446 | -0.2116 | -0.1834 | -0.2817 |
| | Obs. | 2344 | 432 | 367 | 499 | 151 |

This table reports mean and median values of the excess value measures based on sales and assets, and the hybrid excess value measure for different numbers of segments (Panel A) and for various values of the Herfindahl-Hirschman indices (Panels B and C).

**Table 4: Fixed effects panel regressions of the sales-, asset-based and hybrid excess value measures**

| Dependent Variable | Excess Value (Sales) | | | Excess Value (Assets) | | | Excess Value (Hybrid) | | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| Intercept | 0.295 * | 0.380 ** | 0.047 | 0.687 *** | 0.738 *** | 0.367 ** | 0.257 | 0.330 ** | 0.018 |
| | (1.916) | (2.429) | (0.256) | (5.669) | (6.102) | (2.308) | (1.643) | (2.072) | (0.097) |
| Diversified | -0.155 *** | | | -0.092 ** | | | -0.130 *** | | |
| | (-3.874) | | | (-2.499) | | | (-3.148) | | |
| Number of Segments | | -0.049 *** | | | -0.045 *** | | | -0.044 ** | |
| | | (-2.902) | | | (-2.932) | | | (-2.465) | |
| Herfindahl (Sales) | | | 0.292 *** | | | | | | 0.278 ** |
| | | | (2.746) | | | | | | (2.505) |
| Herfindahl (Assets) | | | | | | 0.345 *** | | | |
| | | | | | | (3.275) | | | |
| ln(Assets) | 0.012 | 0.004 | 0.002 | -0.067 *** | -0.068 *** | -0.071 *** | 0.016 | 0.010 | 0.008 |
| | (0.600) | (0.183) | (0.090) | (-4.172) | (-4.214) | (-4.527) | (0.824) | (0.499) | (0.423) |
| Leverage | -0.564 *** | -0.568 *** | -0.557 *** | -0.365 *** | -0.364 *** | -0.351 *** | -0.556 *** | -0.560 *** | -0.549 *** |
| | (-3.276) | (-3.282) | (-3.172) | (-3.222) | (-3.203) | (-3.110) | (-3.042) | (-3.040) | (-2.949) |
| ROA | 0.152 | 0.136 | 0.129 | 0.697 *** | 0.699 *** | 0.711 *** | 0.164 | 0.151 | 0.146 |
| | (0.658) | (0.587) | (0.555) | (4.637) | (4.637) | (4.665) | (0.690) | (0.635) | (0.613) |
| R-squared (within) | 0.032 | 0.025 | 0.026 | 0.079 | 0.079 | 0.085 | 0.023 | 0.019 | 0.021 |
| F-test | 6.570 *** | 5.161 *** | 4.847 *** | 19.653 *** | 20.838 *** | 21.281 *** | 4.910 *** | 4.054 *** | 3.982 *** |
| | (0.000) | (0.000) | (0.001) | (0.000) | (0.000) | (0.000) | (0.001) | (0.003) | (0.003) |
| Firms | 664 | 664 | 664 | 669 | 669 | 669 | 664 | 664 | 664 |
| N | 4,054 | 4,054 | 4,012 | 3,898 | 3,898 | 3,880 | 4,054 | 4,054 | 4,012 |

This table reports estimates from fixed effects regressions of the excess value measure based on sales (Columns 1-3), assets (Columns 4-6), and both (Columns 7-9) on different measures of diversification and control variables. We include the following explanatory variables: a dummy variable whether the firm reports more than one segment on Compustat's Segments tape (Diversified), the number of reported segments (Number of Segments), a sales- and an asset-based Herfindahl-Hirschman index (HHI) computed as the sum of the squares of each segment's sales (assets) as a proportion of total sales (assets) for the firm (Herfindahl (Sales) and Herfindahl (Assets)), the natural logarithm of total assets (ln(Assets)), book leverage (Leverage), and return on assets (ROA). The standard errors (in parentheses) are based on the cluster-robust variant of the Huber-White sandwich estimator, which accounts for the dependence of observations within clusters (different year-observations for one specific firm). An *F*-test is performed for the simultaneous significance of all coefficients (except the constant). ***/**/* denotes statistical significance at the 1%/5%/10% level.

**Table 5: Fixed effects regressions of the sales-based excess value measure: Additional controls, related vs. unrelated diversification, and sample restrictions**

| | Dependent Variable: Excess Value based on Sales | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Panel A: Past growth in assets | | | Panel B: 5% tolerance threshold | | | Panel C: Related vs. unrelated Diversification | | |
| | (1) | (2) | (3) | (7) | (8) | (9) | (4) | (5) | (6) |
| Intercept | 0.191 | 0.304 | -0.150 | 0.252 | 0.342** | -0.043 | 0.330** | 0.339** | 0.346** |
| | (0.988) | (1.555) | (-0.679) | (1.595) | (2.150) | (-0.223) | (2.142) | (2.171) | (2.212) |
| Diversified | -0.182*** | | | -0.177*** | | | | | |
| | (-4.075) | | | (-4.155) | | | | | |
| Number of Segments | | -0.068*** | | | -0.053*** | | | | |
| | | (-3.647) | | | (-2.986) | | | | |
| Herfindahl (Sales) | | | 0.392*** | | | 0.345*** | | | |
| | | | (3.382) | | | (2.989) | | | |
| Diversified (related) | | | | | | | -0.105** | | |
| | | | | | | | (-2.107) | | |
| Diversified (unrelated) | | | | | | | | -0.112*** | |
| | | | | | | | | (-2.729) | |
| Non-financial Segment | | | | | | | | | -0.122* |
| | | | | | | | | | (-1.940) |
| ln(Assets) | 0.032 | 0.023 | 0.021 | 0.018 | 0.008 | 0.007 | 0.000 | -0.001 | -0.002 |
| | (1.393) | (0.950) | (0.917) | (0.925) | (0.435) | (0.367) | (0.019) | (-0.037) | (-0.127) |
| Leverage | -0.664*** | -0.662*** | -0.653*** | -0.561*** | -0.562*** | -0.556*** | -0.577*** | -0.551*** | -0.574*** |
| | (-2.950) | (-2.936) | (-2.885) | (-3.423) | (-3.393) | (-3.282) | (-3.342) | (-3.149) | (-3.292) |
| ROA | 0.016 | 0.016 | 0.030 | 0.073 | 0.058 | 0.049 | 0.121 | 0.132 | 0.123 |
| | (0.047) | (0.047) | (0.087) | (0.309) | (0.246) | (0.207) | (0.522) | (0.566) | (0.529) |
| Past Sales Growth | 0.045*** | 0.047*** | 0.046*** | | | | | | |
| | (2.757) | (2.926) | (2.728) | | | | | | |
| R-squared (within) | 0.056 | 0.050 | 0.052 | 0.034 | 0.025 | 0.028 | 0.021 | 0.025 | 0.022 |
| F-test | 7.062*** | 6.431*** | 5.500*** | 7.532*** | 5.431*** | 5.140*** | 3.881*** | 5.146*** | 4.255*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.004) | (0.000) | (0.002) |
| Firms | 489 | 489 | 489 | 652 | 652 | 652 | 664 | 664 | 664 |
| N | 2,887 | 2,887 | 2,852 | 3,783 | 3,783 | 3,741 | 4,054 | 4,054 | 4,054 |

Panel A reports estimates from fixed effects regressions of the excess value measure based on sales on different measures of diversification and control variables. We include the following explanatory variables: a dummy variable whether the firm reports more than one segment on Compustat's Segments tape (Diversified), the number of reported segments (Number of Segments), a sales-based Herfindahl-Hirschman index computed as the sum of the squares of each segment's sales as a proportion of total sales for the firm (Herfindahl (Sales)), the natural logarithm of total assets (ln(Assets)), book leverage (Leverage), return on assets (ROA), the average sales growth over the last three years (Past Sales Growth). In Panel B, we exclude all observations for which the sum of the segment values of sales or assets deviates from the firm's total value by more than 5% (instead of the 25% used in the remainder of the paper and as explained in Section II. B.). Panel C reports estimates from fixed effects regressions of the excess value measure based on sales on different measures of related and unrelated diversification and control variables. The measures of diversification are defined as follows: A dummy variable which is equal to one if a firm is diversified at the five- digit level for NAICS codes or the four-digit-level for SIC codes (Diversified (related)), a dummy variable which is equal to one if a firm is diversified at the three-digit level for NAICS codes or at the two-digit-level for SIC codes (Diversified (unrelated)), and a dummy variable which is equal to one if a firm has at least one segment outside the financial services sector (Non-financial segment). The standard errors (in parentheses) are based on the cluster-robust variant of the Huber-White sandwich estimator, which accounts for the dependence of observations within clusters (different year-observations for one specific firm). An *F*-test is performed for the simultaneous significance of all coefficients (except the constant). ***/**/* denotes statistical significance at the 1%/5%/10% level.

**Table 6: The valuation effect of changes in diversification and focus**

Panel A: Descriptive Statistics

| | Excess Value | Excess Value (*t*-1) | Excess Value (*t*-2) | Excess Value (*t*-3) |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Previously focused firms diversifying | | | | |
| Mean | -0.100 | 0.029 | 0.050 | 0.019 |
| Median | -0.113 | 0.000 | 0.018 | -0.005 |
| Obs. | 106 | 105 | 90 | 73 |
| Diversified firms increasing the number of segments | | | | |
| Mean | -0.100 | -0.009 | -0.125 | -0.085 |
| Median | -0.187 | -0.060 | -0.172 | -0.220 |
| Obs. | 93 | 93 | 74 | 72 |
| Diversified firms decreasing the number of segments | | | | |
| Mean | -0.146 | -0.213 | -0.187 | -0.249 |
| Median | -0.140 | -0.237 | -0.209 | -0.218 |
| Obs. | 107 | 107 | 95 | 87 |
| Previously diversified firms focusing | | | | |
| Mean | -0.156 | -0.321 | -0.244 | -0.287 |
| Median | -0.236 | -0.324 | -0.255 | -0.274 |
| Obs. | 49 | 49 | 44 | 37 |
| Previously focused firms diversifying (acquisitions excluded) | | | | |
| Mean | -0.113 | 0.034 | 0.028 | -0.005 |
| Median | -0.125 | 0.000 | 0.040 | -0.017 |
| Obs. | 63 | 63 | 54 | 43 |

Panel B: Univariate Regressions of Δ Excess Value

| | Focused Firms Diversifying | Diversified Firms Diversifying | Diversified Firms Focusing | Diversified Firms becoming Focused |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Intercept | -0.011 * | -0.012 ** | -0.017 *** | -0.017 *** |
| | (0.078) | (0.045) | (0.006) | (0.004) |
| Coefficient | -0.124 ** | -0.078 * | 0.084 ** | 0.182 ** |
| | (0.016) | (0.060) | (0.045) | (0.016) |
| R-squared | 0.002 | 0.001 | 0.001 | 0.003 |
| Firms | 574 | 574 | 574 | 574 |
| N | 3420 | 3420 | 3420 | 3420 |

Panel A of this table reports mean and median values of the sales-based excess value measure for years *t*, *t*-1, *t*-2, and *t*-3 for previously focused firms diversifying in year *t*, diversified firms increasing the number of segments in year *t*, diversified firms decreasing the number of segments in year *t*, and previously diversified firms refocusing in year *t*. Panel B reports the results of univariate OLS regressions of the change in excess value between years *t* and *t*-1 on a dummy variable, which is equal to one if a previously focused firm diversifies (Column 1), a diversified firm increases the number of segments (Column 2), a diversified firm decreases the number of segments (Column 3), and a previously diversified firm refocuses (Column 4). The numbers in parentheses are *p*-values for two-sided tests. ***/**/* denotes statistical significance at the 1%/5%/10% level.

**Table 7: Instrumental variables and Heckman two-step regressions of the sales-based excess value measure**

| | Dependent Variable: Excess Value based on Sales | | | | | |
|---|---|---|---|---|---|---|
| | Panel A: Instrumental variables regressions | | | | Panel B: Heckman selection model | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Intercept | -0.321 *** | -0.472 *** | -0.329 *** | -0.500 *** | -0.403 ** | -0.228 * |
| | (-2.642) | (-3.240) | (-2.748) | (-3.525) | (-2.214) | (-1.701) |
| Diversified | -0.391 *** | -0.310 ** | -0.413 *** | -0.385 ** | -0.236 *** | -0.247 *** |
| | (-2.623) | (-1.990) | (-2.655) | (-2.431) | (-6.051) | (-6.500) |
| ln(Assets) | 0.097 *** | 0.103 *** | 0.099 *** | 0.111 *** | 0.102 *** | 0.094 *** |
| | (4.553) | (4.215) | (4.584) | (4.564) | (5.917) | (7.231) |
| Leverage | -0.559 *** | -0.591 *** | -0.558 *** | -0.588 *** | -0.536 *** | -0.547 *** |
| | (-5.071) | (-4.058) | (-5.210) | (-4.241) | (-5.469) | (-5.698) |
| ROA | -0.104 | 0.068 | -0.110 | 0.055 | -0.098 | -0.092 |
| | (-0.465) | (0.223) | (-0.482) | (0.180) | (-0.970) | (-0.893) |
| S&P 500 | | 0.139 * | | 0.139 * | | |
| | | (1.655) | | (1.683) | | |
| Past Assets Growth | | 0.058 *** | | 0.056 *** | | |
| | | (3.071) | | (3.151) | | |
| Lambda | | | | | 0.062 | -0.005 |
| | | | | | (1.169) | (-0.136) |
| R-squared | 0.075 | 0.112 | 0.087 | 0.134 | 0.093 | 0.092 |
| F-test | 4.480 *** | 6.022 *** | 4.761 *** | 6.280 *** | 23.416 *** | 23.084 *** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Firms | 657 | 485 | 657 | 485 | 657 | 657 |
| N | 3,987 | 2,881 | 3,987 | 2,881 | 3,987 | 3,987 |

This table reports estimates from instrumental variables regressions (Panel A) and Heckman (1979)'s self-selection model (Panel B) for the excess value measure based on sales. We include the following explanatory variables in the second-stage regressions: a dummy variable whether the firm reports more than one segment on Compustat's Segments tape (Diversified), the natural logarithm of total assets (ln(Assets)), book leverage (Leverage), return on assets (ROA), a dummy variable whether the firm belongs to the S&P500 index (S&P 500), and past growth in assets over the last three years (Past Assets Growth). The first-stage regressions (not reported) include the following explanatory variables/instruments: the log of total assets, leverage, a dummy variable whether the firm pays a dividend, return on assets, dummy variables whether the firm belongs to the S&P500 index and whether it is listed at NYSE, the fraction of diversified firms and the fraction of sales accounted for by diversified firms in the industry, median industry Q and its lagged value, the number of M&A transactions in a given year (financial sector only) and the annual

value of completed deals, and GDP growth and its lagged value. In Panel B, the selection variable in the first-stage regression is a dummy variable whether the firm is diversified (Column 5) or a dummy variable whether the firm diversifies, i.e., increases the number of segments (Column 6). Lambda is the self-selection parameter. The standard errors (in parentheses) in Columns 1 to 4 are based on the cluster-robust variant of the Huber-White sandwich estimator, which accounts for the dependence of observations within clusters (different year-observations for one specific firm). An *F*-test is performed for the simultaneous significance of all coefficients (except the constant). ***/**/* denotes statistical significance at the 1%/5%/10% level.

**Table 8: Segment affiliation of sample firms conditional on the number of segments and main industry**

| Panel A: Number of Segments: | 1 | 2 | 3 | 4 | >=5 |
|---|---|---|---|---|---|
| Credit Intermediation | 572 | 140 | 164 | 101 | 39 |
| Commercial Banking | 1 | 25 | 7 | 17 | 14 |
| Securities, Commodity Contr., and other Financial Investm. | 584 | 210 | 132 | 81 | 70 |
| Investment Banking | 170 | 66 | 28 | 33 | 21 |
| Insurance | 1,226 | 597 | 428 | 192 | 127 |
| Funds, Trusts, and other Financial Vehicles | 23 | 10 | 28 | 21 | 12 |
| Real Estate | 8 | 31 | 23 | 23 | 15 |
| Rental and Leasing Services | 1 | 17 | 14 | 9 | 17 |
| Non-Financial Activities | 0 | 100 | 37 | 21 | 4 |
| Total | 2,417 | 1,196 | 861 | 498 | 319 |
| Firm-Years | 2,417 | 795 | 486 | 222 | 140 |
| Firms | 504 | 235 | 123 | 59 | 31 |

| Panel B: Main Industry: (Diversified Firms only) | Credit Intermediation | Securities, Commodity Contracts, and other Financial Investments | Investment Banking | Insurance |
|---|---|---|---|---|
| Credit Intermediation | 162 | 72 | 2 | 200 |
| Commercial Banking | 10 | 36 | 0 | 15 |
| Securities, Commodity Contr., and other Financial Investm. | 56 | 185 | 40 | 242 |
| Investment Banking | 23 | 82 | 36 | 37 |
| Insurance | 70 | 31 | 20 | 1,239 |
| Funds, Trusts, and other Financial Vehicles | 5 | 12 | 2 | 47 |
| Real Estate | 19 | 18 | 8 | 39 |
| Rental and Leasing Services | 21 | 8 | 0 | 28 |
| Non-Financial Activities | 41 | 21 | 0 | 99 |
| Total | 407 | 465 | 108 | 1,946 |
| Firm-Years | 167 | 202 | 42 | 1,243 |
| Firms | 43 | 48 | 16 | 201 |

Panel A of the table reports the coverage of the financial services sectors by the sample firms conditional on the number of segments (Panel A) and the firms' main industry (Panel B). The classification of the financial services industries is based on the SIC and NAICS classification codes. We differentiate the following sectors: credit intermediation and related activities (NAICS 522, SIC 60/61), commercial banking (NAICS 5221, SIC 602), securities, commodity contracts, and other financial investments and related activities (NAICS 523, SIC 62), investment banking (NAICS 52311, SIC 6211), insurance carriers and related activities (NAICS 524, SIC 63/64), funds, trusts, and other financial vehicles (NAICS(525, SIC67), real estate (NAICS 531, SIC 65), rental and leasing services (NAICS 532, SIC 73/75), and non-financial activities (i.e., all segments outside NAICS 520000-532999 and SIC 6000-6999). The reported numbers indicate the number of sample firms with at least one segment classified as belonging the corresponding financial sector. Panel B includes diversified firms only.

**Table 9: Fixed effects regressions of the sales-based excess value measure for sub-samples based on the firms' main financial sector**

| Dependent Variable: Excess Value based on Sales | | | | | | | |
|---|---|---|---|---|---|---|---|
| Financial Sector: | Credit | Securities | Insurance | Investment B. | Credit | Securities | Insurance |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Intercept | -0.554 | -0.288 | 0.726 *** | -1.328 ** | -0.548 | -0.255 | 0.721 *** |
| | (-1.339) | (-1.229) | (3.251) | (-2.354) | (-1.313) | (-1.104) | (3.215) |
| Diversified | -0.187 ** | -0.284 *** | -0.112 ** | -0.042 | -0.176 ** | -0.263 *** | -0.109 ** |
| | (-2.157) | (-3.049) | (-2.329) | (-0.210) | (-2.070) | (-2.724) | (-2.199) |
| Non-financial Segment | | | | | -0.034 | -0.321 *** | -0.032 |
| | | | | | (-0.285) | (-2.761) | (-0.386) |
| ln(Assets) | 0.080 * | 0.027 | -0.001 | 0.047 | 0.080 * | 0.021 | -0.001 |
| | (1.702) | (0.737) | (-0.046) | (0.791) | (1.709) | (0.589) | (-0.034) |
| Leverage | -0.012 | 0.157 | -1.065 *** | 1.199 * | -0.023 | 0.165 | -1.063 *** |
| | (-0.034) | (0.751) | (-3.320) | (1.968) | (-0.063) | (0.796) | (-3.306) |
| ROA | 0.276 | 0.165 | 0.974 ** | 0.099 | 0.277 | 0.170 | 0.977 ** |
| | (0.581) | (0.699) | (2.191) | (0.211) | (0.584) | (0.752) | (2.195) |
| R-squared (within) | 0.032 | 0.058 | 0.102 | 0.074 | 0.021 | 0.029 | 0.096 |
| F-test | 1.690 | 4.840 *** | 8.800 *** | 1.690 | 1.340 | 8.470 *** | 7.200 *** |
| | (0.155) | (0.001) | (0.000) | (0.179) | (0.249) | (0.000) | (0.000) |
| Firms | 162 | 133 | 346 | 31 | 162 | 133 | 346 |
| Obs. with non-Fin. Segm. | 41 | 21 | 99 | 0 | 41 | 21 | 99 |
| N | 714 | 808 | 2,469 | 179 | 714 | 808 | 2,469 |

This table reports estimates from fixed effects regressions of the excess value measure based on sales for sub-samples based on the firms's main activity-area within the financial services sector. We include the following explanatory variables: a dummy variable whether the firm reports more than one segment on Compustat's Segments tape (Diversified), the natural logarithm of total assets (ln(Assets)), book leverage (Leverage), and return on assets (ROA). Panel B additionally includes a dummy variable which is equal to one if a firm has at least one segment outside the financial services sector (Non-financial segment). The financial sectors are based on the SIC and NAICS classification codes and defined as follows: credit intermediation and related activities (NAICS 522, SIC 60/61), securities, commodity contracts, and other financial investments and related activities (NAICS 523, SIC 62), insurance carriers and related activities (NAICS 524, SIC 63/64), and investment banking (NAICS 52311, SIC 6211). The standard errors (in parentheses) are based on the cluster-robust variant of the Huber-White sandwich estimator, which accounts for the dependence of observations within clusters (different year-observations for one specific firm). An *F*-test is performed for the simultaneous significance of all coefficients (except the constant). ***/**/* denotes statistical significance at the 1%/5%/10% level.

**Table 10: Fixed effects regressions of the sales-based excess value measure including dummy variables for specific combinations of activities**

| Dependent Variable: Excess Value based on Sales | | | | | | | |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Constant | 0.302 ** | 0.285 * | 0.287 * | 0.298 * | 0.297 * | 0.295 * | 0.296 * |
| | (1.975) | (1.856) | (1.867) | (1.938) | (1.930) | (1.915) | (1.929) |
| Diversified | -0.161 *** | -0.162 *** | -0.151 *** | -0.157 *** | -0.155 *** | -0.156 *** | -0.156 *** |
| | (-4.045) | (-3.973) | (-3.746) | (-3.937) | (-3.877) | (-3.887) | (-3.907) |
| Credit & Securities | 0.082 | | | | | | |
| | (0.832) | | | | | | |
| Credit & Insurance | | 0.090 | | | | | |
| | | (1.366) | | | | | |
| Securities & Insurance | | | -0.045 | | | | |
| | | | (-0.804) | | | | |
| Com. Bank & Insurance | | | | 0.246 * | | | |
| | | | | (1.945) | | | |
| Com. Bank & Invest. Bank | | | | | 0.145 *** | | |
| | | | | | (4.351) | | |
| Invest. Bank & Insurance | | | | | | 0.075 | |
| | | | | | | (1.084) | |
| Credit & Securities & Insurance | | | | | | | 0.090 |
| | | | | | | | (0.838) |
| Lnassets | 0.011 | 0.013 | 0.013 | 0.012 | 0.012 | 0.012 | 0.012 |
| | (0.550) | (0.680) | (0.660) | (0.626) | (0.594) | (0.597) | (0.604) |
| Leverage | -0.565 *** | -0.569 *** | -0.561 *** | -0.573 *** | -0.567 *** | -0.563 *** | -0.566 *** |
| | (-3.300) | (-3.307) | (-3.261) | (-3.338) | (-3.287) | (-3.269) | (-3.295) |
| ROA | 0.144 | 0.158 | 0.149 | 0.161 | 0.153 | 0.155 | 0.154 |
| | (0.614) | (0.681) | (0.646) | (0.696) | (0.662) | (0.671) | (0.663) |
| R-squared (within) | 0.033 | 0.033 | 0.032 | 0.034 | 0.032 | 0.032 | 0.032 |
| F-test | 5.820 | 5.410 | 5.480 | 6.160 | 7.550 | 5.290 | 5.550 |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Number of Sector Pairs | 148 | 272 | 291 | 30 | 15 | 70 | 53 |
| Firms | 664 | 664 | 664 | 664 | 664 | 664 | 664 |
| N | 4,054 | 4,054 | 4,054 | 4,054 | 4,054 | 4,054 | 4,054 |

This table reports estimates from fixed effects regressions of the excess value measure based on sales on a dummy variable whether the firm reports more than one segment on Compustat's Segments tape (Diversified), a set of dummy variables for specific combinations of financial activity-areas, and controls. We include the following control variables: the natural logarithm of total assets (ln(Assets)), book leverage (Leverage), and return on assets (ROA). The financial sectors are based on the SIC and NAICS classification codes and defined as follows: credit intermediation and related activities (Credit; NAICS 522, SIC 60/61), securities, commodity contracts, and other financial investments and related activities (Securities; NAICS 523, SIC 62), insurance carriers and related activities (Insurance; NAICS 524, SIC 63/64), commercial banking (Com. Bank; NAICS 5221, SIC 602), and investment banking (Invest. Bank; NAICS 52311, SIC 6211). The standard errors (in parentheses) are based on the cluster-robust variant of the Huber-White sandwich estimator, which accounts for the dependence of observations within clusters (different year-observations for one specific firm). An *F*-test is performed for the simultaneous significance of all coefficients (except the constant). ***/**/* denotes statistical significance at the 1%/5%/10% level.

**Table 11: Fixed effects regressions of the excess value measure based on sales including variables for geographic diversification**

| Dependent Variable: Excess Value based on Sales | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Financial Sector: | All | All | Credit | Credit | Securities | Securities | Insurance | Insurance |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Intercept | 0.156 | -0.430 | -1.074 ** | -1.341 ** | -0.324 | -1.176 * | 0.614 ** | 0.192 |
| | (0.944) | (-1.611) | (-2.354) | (-2.483) | (-1.280) | (-1.828) | (2.439) | (0.484) |
| Diversified | -0.172 *** | -0.170 *** | -0.198 ** | -0.193 ** | -0.347 *** | -0.331 *** | -0.126 ** | -0.126 ** |
| | (-4.116) | (-4.043) | (-2.403) | (-2.174) | (-3.464) | (-3.110) | (-2.539) | (-2.538) |
| Geogr. Diversified | 0.047 | | 0.183 ** | | -0.182 ** | | 0.053 * | |
| | (1.581) | | (2.367) | | (-2.150) | | (1.721) | |
| Geogr. HHI (Assets) | | 0.615 *** | | 0.713 * | | 0.612 * | | 0.492 * |
| | | (3.205) | | (1.672) | | (1.655) | | (1.857) |
| ln(Assets) | 0.028 | 0.035 | 0.113 ** | 0.085 * | 0.044 | 0.074 * | 0.018 | 0.017 |
| | (1.300) | (1.640) | (2.265) | (1.899) | (1.180) | (1.758) | (0.643) | (0.605) |
| Leverage | -0.556 *** | -0.580 *** | 0.194 | 0.070 | 0.285 | 0.202 | -1.142 *** | -1.141 *** |
| | (-2.871) | (-3.054) | (0.548) | (0.212) | (1.236) | (0.910) | (-2.897) | (-2.910) |
| ROA | 0.187 | 0.193 | 0.409 | 0.202 | 0.381 | 0.304 | 0.846 * | 0.827 * |
| | (0.690) | (0.717) | (0.743) | (0.377) | (0.883) | (0.709) | (1.835) | (1.784) |
| R-squared (within) | 0.034 | 0.042 | 0.063 | 0.050 | 0.086 | 0.079 | 0.104 | 0.108 |
| F-test | 6.292 *** | 7.031 *** | 4.340 *** | 2.570 ** | 4.540 *** | 3.210 *** | 5.950 *** | 5.790 *** |
| | (0.000) | (0.000) | (0.001) | (0.029) | (0.001) | (0.009) | (0.000) | (0.000) |
| Geogr. Div. Firm-Years | 2,382 | 2,371 | 464 | 463 | 462 | 461 | 1,428 | 1,419 |
| Firms | 620 | 619 | 151 | 151 | 121 | 120 | 325 | 325 |
| N | 3,574 | 3,563 | 658 | 657 | 687 | 686 | 2,173 | 2,164 |

This table reports estimates from fixed effects regressions of the excess value measure based on sales on a dummy variable whether a firm is functionally diversified, a dummy variable whether a firm is geographically diversified (and alternatively an asset-based Herfindahl index constructed for geographic segments), and control variables. Columns 1 and 2 present the results from an analysis including all firm-year observations, Columns 3 to 8 for sub-samples based on the firms' main industry. The explanatory variables are defined as follows: a dummy variable whether the firm reports more than one product segment on Compustat's Segments tape (Diversified), a dummy variable whether the firm reports more than one geographic segment on Compustat's Segments tape (Geogr. Diversified), an asset-based Herfindahl-Hirschman index computed as the sum of the squares of each segment's assets as a proportion of total assets for the firm (Geogr. HHI (Assets)), the natural logarithm of total assets (ln(Assets)), book leverage (Leverage), and return on assets (ROA). The standard errors (in parentheses) are based on the cluster-robust variant of the Huber-White sandwich estimator, which accounts for the dependence of observations within clusters (different year-observations for one specific firm). An *F*-test is performed for the simultaneous significance of all coefficients (except the constant). ***/**/* denotes statistical significance at the 1%/5%/10% level.