The Impact of the Lehman Shock on the Strategic and Financial Decision-Making of Former Clients in M&A

Christian Fuat J. Ecer[1]

Harvard University, United States

Heidelberg University, Germany

December 31, 2020

Abstract: We examine the impact of the collapse of Lehman Brothers on the strategic and financial decision-making of its former clients in the M&A context. First, we investigate whether and how those clients changed their risk appetite in terms of strategic growth paths. Second, we analyze how firms' risk preferences in terms of deal size and willingness to pay have changed as a consequence of the demise of their former M&A advisor. In our event study, we implement difference-in-differences and fixed effects models for the periods six years prior to and six years after the collapse of Lehman. We find converging evidence that, after that event, this group showed a lower risk appetite in their strategic expansion paths and preferred smaller transactions while displaying less of a willingness to pay high premiums. Further, this group reduced its trust in external advice and was less likely to complete deals. We compare these behavioral patterns with comparable acquirers (other top investment banks' clients), finding that this group even increased its preference for large deals, paid higher premiums, and placed greater trust in external advice. We conclude that the Lehman shock changed the strategic and financial decision-making of acquirers with a direct relationship to the bank toward less risky M&A conduct, even as the risk appetite of their peers increased. These results offer supporting evidence to prior research on the effects of macroeconomic, natural, or personal-life shocks on decision-making and risk preferences of firms and top executives.

KEYWORDS: Behavioral Finance, Mergers & Acquisitions, Portfolio Decisions

JEL CODES: G34, G41, G11

[1]Ecer: Harvard GSAS, 1350 Massachusetts Avenue, Suite 350 Cambridge, MA 02138, USA; phone: +49170 28 755; email: fuatecer@fas.harvard.edu and fuat.ecer@awi.uni-heidelberg.de. I am grateful for the helpful comments by Malcolm P. Baker.

1. Introduction

The question of how formative experiences, such as macroeconomic crises like the Great Depression or early-life disasters, impact strategic and financial decision-making has received considerable attention in the corporate behavioral finance literature. Prior research shows that executives' exposure to macroeconomic events impacts their corporate finance strategy and risk preferences (Dittmar & Duchin, 2013, 2015; Graham & Narasimhan, 2004; Knüpfer et al., 2017; Malmendier & Nagel, 2011; Schoar & Zuo, 2017). Another stream of research shows the effect of personal life experiences on executives' decision-making in terms of corporate financial policies (Bernile et al., 2016; Cameron & Shah, 2015; Malmendier et al., 2011). In this chapter, we contribute insights into how the 2008 financial crisis impacted executives' strategic and financial decision-making in terms of M&A. More precisely, we examine how the collapse of Lehman Brothers impacted the strategic and financial decision-making of acquirers that were its former clients. The demise of this once-prestigious investment bank serves as a unique natural experimental setting: we investigate whether and to what degree former Lehman clients changed their strategic growth agendas in terms of cross-industry and cross-country acquisitions and how their appetite for large deals and willingness to pay changed.

M&A are among the largest investments that a firm will ever undertake. Thus, few strategic and financial decisions have such crucial importance for the success or failure of a firm as the decision to engage in M&A. Inspired by the framework established by Ansoff (1965), we define four different strategic growth paths for acquirers. First, acquirers can choose to expand the core business (*Core Expansion*) by acquiring firms that operate in the same sector and country of the firm's existing operations and headquarters location. Second, acquirers can decide to buy M&A targets in the same sector but in a different and thus complementary

country of operations (*Regional Expansion*). Third, they can choose to acquire firms in a different industrial sector but in the same country (*Product or Technology Expansion*). Finally, acquirers can diversify their business portfolio by taking over firms from a different industrial sector in a different country of operations (*Diversification*). In our analysis, we use this framework to investigate how the collapse of Lehman Brothers changed the strategic agenda of firms it had previously advised. Further, we investigate whether and how the financial decision-making of former Lehman clients changed with its collapse. More specifically, we analyze whether former Lehman clients changed their acquisition preferences in terms of deal size and willingness to pay in terms of EBITDA Multiples and Premiums. By investigating both strategic and financial decision-making, we derive converging evidence of these acquirers' general decision-making behavior, as these dimensions represent the two most important decision sets that are made by firms and thus their boards of directors. To summarize, our research investigates the following research questions:

1. *How did the risk appetite of former Lehman Brothers clients change after the Lehman collapse in terms of strategic decision-making?*
2. *How did the risk preference of former Lehman Brothers clients change after the Lehman collapse in terms of financial decision-making?*
3. *How did trust in external advice and ability or willingness to close deals change after the Lehman shock?*
4. *How did strategic and financial decision-making of peer acquirers who engaged other top investment banks change in terms of risk-taking?*

Our identification strategy relies on investigating the behavioral change of our treatment group by implementing difference-in-differences and fixed effects models. While *Former Lehman Clients* is defined as our treatment group, we measure the effects each has against two control groups. We implement *All Other Acquirers* in the relevant period as our first control group and *Other Former Top Investment Bank Clients* as our second control group. To understand the

extent to which the Lehman collapse may have affected the decision-making of not only former Lehman clients but also the entire group of acquirers who trusted top investment banks in general, we replicate our difference-and-differences and fixed effects models with *Former Other Top Investment Bank Clients* as our second treatment group and measure them against *All Other Acquirers* in each period. We explain our results, considering the impact of experience and external advice on strategic and financial decision-making.

2. Literature Review

2.1. The Impact of Formative Experiences on Strategic and Financial Decision-Making in M&A

The question of how experience impacts managerial decision-making has been the subject of a large body of research. Dittmar and Duchin (2015) study the effect of a manager's professional experience on corporate financial policy, finding that experience has a stronger influence when it is more recent and occurs during salient periods in a manager's career. Graham and Narasimhan (2004) examine whether experiences during the Great Depression had a lasting effect on corporate decisions, finding that the economic downturn affected the decision-making of executives in terms of the use of debt. They find that firms led by managers who experienced the Depression chose to carry relatively little debt. Xianjie et al. (2017) found that economic conditions at the time an auditor enters the labor market have a long-term impact on that person's decision-making. Auditors who started their careers during economic downturns issue audit adjustments more frequently. Knüpfer et al. (2017) trace the impact of formative experiences on portfolio choice in the context of the Finnish Great Depression (1991–1993). They found that adversely affected professionals are less likely to invest in risky assets; they observe a similar effect in private-life decisions, finding that individuals whose neighbors and

family members experience adverse circumstances also avoid risky investments. Malmendier and Nagel (2011) investigate whether individuals' experiences of macroeconomic shocks affect financial risk-taking, finding that individuals who have experienced low stock market returns throughout their lives report less of a willingness to take financial risks, are less likely to participate in the stock market, invest a lower fraction of their liquid assets in stocks if they participate at all, and are more pessimistic about future stock returns. They also found that recent experiences have a stronger effect. Schoar and Zuo (2017) show that managers who enter the job market during recessions have more conservative decision-making styles, such as lower investment in capital expenditure, less funding of research and development, a tendency toward cost-cutting, and lower leverage and working capital needs.

Malmendier et al. (2011) investigate how early-life experiences of managers impact their later decision-making and report that CEOs who grew up during the Great Depression are averse to debt and lean excessively on internal finance, while CEOs with military experience pursue more aggressive policies, including increasing leverage. Bernile et al. (2016) examine the effect of early-life disasters on CEO behavior, suggesting that CEOs who experience fatal disasters without extremely negative consequences to themselves lead firms that behave more aggressively. They found that these decision patterns manifest across decisions upon leverage, cash holdings, and acquisition activities, concluding that CEOs' disaster experiences have real economic consequences on firm riskiness and cost of capital. Cameron and Shah (2015) investigate whether experiencing a natural disaster affects risk-taking behavior, finding that individuals who have recently suffered a flood or earthquake exhibit greater risk aversion. Fernando et al. (2012) analyze whether firms derive value from investment banking relationships by studying how the Lehman collapse affected industrial firms that received underwriting, advisory, analyst, and market-making services from Lehman.

Traumatic events such as economic shocks, natural catastrophes, or highly negative life experiences not only have an impact on individual career choices and paths but also influence general strategic and financial decision-making behavior. In this chapter, we provide evidence showing how the Lehman collapse influenced its former clients in their strategic and financial M&A decision-making. Further, we compare the effects of the collapse of Lehman on the decision-making of acquirers who engaged a direct competitor of Lehman and are thus other top investment advisors. We investigate how the collapse of one leading investment bank affects the general perception of investment bank advice among corporate acquirers and their subsequent decision-making.

2.2. The Engagement of Advisors for Strategic and Financial Decision-Making in M&A

M&A decision-making is supported and influenced by external advisors. Throughout the process of identifying, analyzing, and negotiating an M&A transaction, financial advisors can be hired to facilitate the process by providing services and technical expertise in valuation, negotiation, and industry-specific factors. Advisor roles encompass M&A management, including the initiation and subsequent coordination of transaction parties' management meetings and negotiations, often as the counterpart to advisors on the other side of a transaction. In this role as orchestrator, the financial advisor usually also supports the coordination of other advisors, such as the client's legal, tax, or strategic advisors. Buy-side financial advisors support not only the identification of the M&A target but also deliver essential strategic and financial due diligence services, which refer to the validation of the seller's price expectation based on the management business case shared with the potential buyer.

Therefore, the motives to engage advisors are mainly to support strategic and financial decision-making. Chang et al. (2016a) identify M&A advisors' industry experience and market knowledge as key decision factors for firms in hiring them, supporting the effectiveness and

efficiency of strategic and financial decision-making of their clients. Servaes and Zenner (1996) suggest that the main motive for a firm to engage a financial advisor in M&A is to reduce transaction costs, aiming to capitalize on the advisor's prior industry and country experience.

With our event study, we contribute further evidence on how the relationship between the treatment group and buy-side advisors has changed. More precisely, we investigate whether and how the dramatic experience of Lehman's collapse altered not only strategic and financial decision-making, but also whether the treatment group lost trust in advisors in general after the collapse of the once-renowned investment bank.

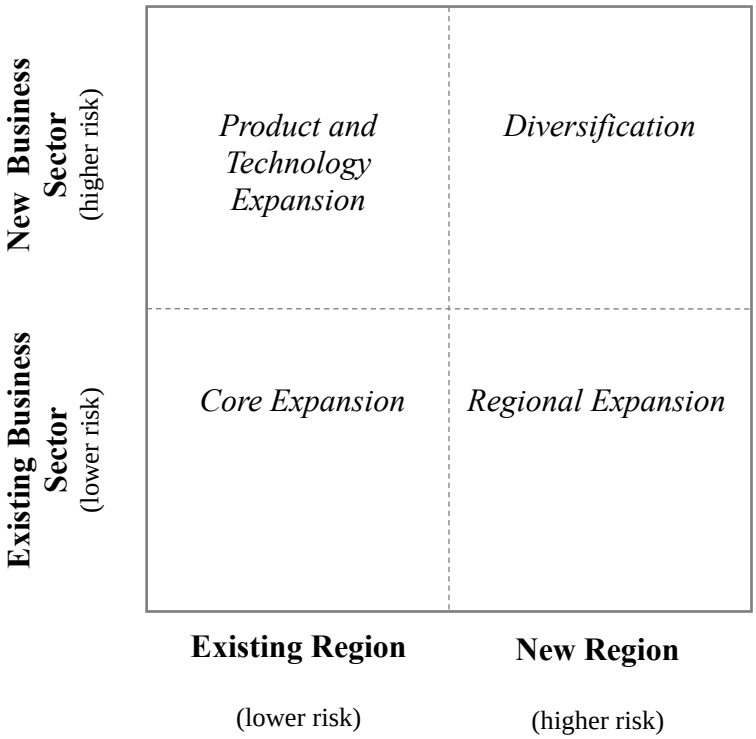
3. Theoretical Framework

3.1. Theoretical Framework for Strategic Decision-Making in M&A

The decision to acquire a firm or asset is driven by two central aspects: strategic and financial rationales (Haspeslagh & Jemison, 1991; Singh & Montgomery, 1987; Straub et al., 2012; Walter & Barney, 1990). Strategic decision-making is driven by the question, "Where to play?" (Lafley & Martin, 2013; Stanwick & Stanwick, 2001), considering strategic growth paths such as penetration of the core business, expansion into adjacent industries and geographies, and exploring new and emerging fields. The authors suggest M&A as one lever for successfully implementing corporate strategy. Grave et al. (2012) investigate how the global financial crisis has changed the landscape for M&A and suggest that companies have started to focus more intently on implementing M&A strategies that include gaining access to new geographies. Ansoff (1965) suggests a framework for strategic growth that comprises penetration and/or expansion of existing products and customer markets. Inspired by Ansoff's matrix, which primarily refers to organic strategic growth focused on products and customer markets, we

introduce the M&A growth matrix as an analytical framework to measure the key decision dimensions on which acquirers primarily base their strategic growth paths (see Figure 1.).

Figure 1. M&A Growth Matrix: Framework for Strategic Decision-Making in M&A



First, *Core Expansion* refers to growth via acquisitions of M&A targets that operate in the same sector and region, such as the takeover of a direct competitor. This mode allows acquirers to gain market share and eliminate competition and seeks to strengthen the core strategic positioning and improve bargaining power with suppliers and customers. For example, in 2005, Siegwerk, a German packaging ink supplier, acquired the Swiss group SICPA's packaging ink business. With this acquisition, Siegwerk gained significant market share in the packaging ink industry, becoming one of the top three suppliers in the world.

Second, *Product and Technology Expansion* defines the strategic mode for acquiring assets that operate in the same region but complement the acquirer in terms of products and services or with new technologies. The strategic rationale for this type of acquisition is to

broaden the portfolio of offerings to better meet customer needs in the domestic market. An example of this strategic mode is the acquisition of LinkedIn by Microsoft in 2016, which expanded the latter firm's product and technology portfolio with the world's leading professional social network.

Third, *Regional Expansion* refers to the strategic mode of acquiring assets that operate in the same business sector but are production facilities or sales operations in areas where the acquirer is not currently active. The rationale for this acquisition path is to expand a firm's regional footprint, gaining access to new customers but also hedging potential country risks, thus lowering risk exposure to country-related issues like political changes or new domestic regulations affecting the business model of the larger firm. Here, the acquisition of the Swiss chemical firm Syngenta by the Chinese chemical firm ChemChina is an example. ChemChina strengthened its geographical presence in Europe, increasing its proximity to European customers.

Fourth, *Diversification* is the most complex and thus riskiest strategic path. It refers to acquisitions of firms with a complementary product and/or technology portfolio and a complementary regional footprint. The strategic rationale is based on the ambition to "re-invent" or "refresh" the existing business model, often triggered by the anticipation of rapidly changing customer needs or macroeconomic trends threatening the core business.

3.2. Theoretical Framework for Financial Decision-Making in M&A

The decision to define the strategic growth path of the decision is woven into the question of which prices and premiums to pay to realize the envisioned growth ambition. The price and premium of an M&A target are driven by the size of that target, its profitability, and, as a consequence, its expected cash flow. In addition, the acquirer's expected revenue and cost synergies, its opportunity cost of capital, and confidence in the M&A target's long-term

business model and growth as reflected in the terminal growth rate are all key factors in the valuation process. Finally, the historical and current relative price levels paid for comparable transactions are relevant factors to consider when making a price decision in M&A. Therefore, to investigate financial decision-making, we consider the variables *Deal Size*, *Sales Absolute*, *EBITDA Margin*, *EBITDA Multiple*, and *Premiums* to measure the effects of the Lehman collapse on acquirers' preferences in terms of size of transactions and willingness to pay. The decision in favor of a large or small transaction is driven by the acquirer's preference for risk, as the opportunity for a big deal and thus larger absolute gains in areas like sales, profits, and cash flows also imply the threat of larger amounts of absolute losses rooted in unrealized synergies and/or overpayment. The acquirer's willingness to pay is reflected in the *EBITDA Multiples* and *Premiums* to which it agrees. Ultimately, the higher the willingness to pay, the more absolute synergies with the existing business the acquirer expects and/or the higher the confidence of the acquirer in the future cash flows of the business it is acquiring. Therefore, a preference for bigger deals and higher premiums reflects a preference for larger opportunities while accepting larger risks.

The strategic and financial dimensions represent the two key decision fields in M&A; thus, understanding how behavioral patterns changed in these dimensions will help reveal any change in a firm's policy in terms of inorganic growth. Below, we conduct an event study with data from Thomson Reuters SDC and implement difference-in-differences and fixed effects models to investigate whether and how the strategic and financial decision-making of former Lehman and other top investment bank clients changed as a consequence of the Lehman collapse on September 15, 2008.

4. Data and Methodology

4.1. Data

We used the Thomson Reuters SDC database on M&A transactions to gather all reported M&A transactions between 2002 and 2014, which represent the six years prior to and after Lehman's collapse. Data are sourced through direct deal submissions from global banking and legal contributors, coupled with extensive research carried out by a global research team that collected data from regulatory filings, corporate statements, media, and pricing wires. According to Thomson Reuters, more than 2,500 control validations occur at the point of data entry. Further, we focus on transactions with a deal size above $0.5M and exclude transactions with negative *EBITDA Margins* (technically defined below).[2]

4.2. Variables to Measure Strategic Decision-Making in M&A

The key variables of interest for measuring strategic decision-making in this study are *SameIndustrySameCountry*, *SameIndustryDifferentCountry*, *DifferentIndustrySameCountry*, and *DifferentIndustryDifferentCountry*; all four are binary indicators. *SameIndustry-SameCountry* is coded one when the acquirer took over a firm in the same industrial sector with its headquarters in the same country; otherwise, it is zero. This variable refers to the strategic mode *Core Expansion* as defined in our M&A growth matrix in Section 4.3. Similarly, *SameIndustryDifferentCountry* is coded one when the transaction was reported as an acquisition in the same industrial sector but a different headquarters country. This variable indicates the growth strategy *Regional Expansion* from our analytical framework. Acquisitions conducted with the strategic mode of *Product and Technology Expansion* in the same country

[2] Firms with a negative *EBITDA Margin* and negative *Sales Absolute* are excluded from our analysis because the *EBITDA Multiple* is not a robust valuation indicator for such assets. We exclude a total of 607 initiated transactions due to negative *EBITDA Margins* or *EBITDA Margins* larger than 1 and negative *Sales Absolute*.

as the buyer's headquarters refer to the variable *DifferentIndustrySameCountry*, which is coded one if that is the case; otherwise, it is zero. Finally, *DifferentIndustryDifferentCountry* is set at one for a transaction in a different industrial sector and a different country, indicating the strategic growth path *Diversification* in our M&A growth matrix. Besides these indicators, we further include *Acquirer Advisor Engagement* and *Deal Completion* as (binary) variables for investigating the strategic decision behavior of our treatment group. *Acquirer Advisor Engagement* is reported as one when a buy-side financial advisor was reported in the respective transaction; otherwise, it is zero. *Deal Completion* is reported as one when the transaction is reported as completed; otherwise, it is zero.

4.3. Variables to Measure Financial Decision-Making in M&A

The key variables of interest in this study for measuring financial decision-making are *Deal Size* (selling price), *Sales Absolute* (revenues), and *EBITDA Margin* (profitability). To construct a measure of relative deal pricing, we use *Deal Size* and the target's next twelve months' earnings forecast, *EBITDA Absolute*, in the year of the transaction. *EBITDA Absolute* is a profitability indicator defined by the absolute amount of earnings before interest, tax, and depreciation, and amortization (see Appendix 4A). *EBITDA Absolute* and *Deal Size* values are reported in U.S. dollars. We measure relative deal price using the *EBITDA Multiple*, defined as the ratio of *Deal Size* to *EBITDA Absolute* of the M&A target. This is a measure for indicating relative deal pricing in M&A transactions and is widely used in the M&A context and valuing businesses in general (Damodaran, 2005; Koller et al., 2010; Loughran & Wellman, 2011). The *EBITDA Multiple* allows for the comparison of negotiated deal terms regardless of the size of the M&A target. This is essential in our analysis, as we observe a high variation of transactions and firm sizes in our data set. Because of the highly skewed distribution of the *EBITDA Multiple*, we transform it into its logarithm, indicated by the

variable *EBITDA Multiple (Log)*, in our analyses. Finally, we define the premiums paid by acquirers, *Premium 1 Day*, *Premium 1 Week*, and *Premium 1 Month*, as the difference between the offer price and the target's closing stock price one day (one week, one month) before the original announcement date, all expressed as percentages. To account for outliers, we winsorize the premiums at the 1% and 99% levels. *Premiums* and *EBITDA Multiple* are our key variables for investigating the treatment group's willingness to pay.

Given the heterogeneity of our sample of transactions, we include an extensive set of control variables. These include the size of the M&A target, defined by the variable *Sales Absolute* and measured in U.S. dollars. We transform *Sales Absolute* into its logarithm, indicated by the variable *Sales Absolute (Log)*, because of its highly skewed distribution. Further, we use the profitability of the M&A target, defined by the variable *EBITDA Margin*, which is calculated by annual *EBITDA Absolute* over annual *Sales Absolute*. Finally, we include time, country, and industry fixed effects.

4.4. Design of Event Study

We set up our event study with three different specifications in terms of treatment and control groups. First, we construct the presence of former buy-side Lehman clients with a binary indicator. The variable *Former Lehman Client* is one if the acquirer engaged Lehman Brothers at least once as a buy-side advisor in the six years before September 15, 2008; it is zero otherwise. All acquirers indicated as *Former Lehman Clients* form Treatment Group 1. Second, we define the binary variable *All Other Acquirers*, which refers to acquirers that had not engaged Lehman in the six years before its collapse. The firms that make up *All Other Acquirers* are Control Group 1. The objective of this specification is to understand whether and how the behavior of former Lehman clients changed compared to all other acquirers, allowing them to derive general observations in a first step.

For our second experimental specification, we create the binary variable *Other Top IB Clients*, which is one for an acquirer that hired a top investment bank other than Lehman Brothers at least once in the six years before the Lehman bankruptcy. The top investment banks are Goldman Sachs, Morgan Stanley, JP Morgan, Merrill Lynch, Citi Group, Barclays, Credit Suisse, RBC Capital Markets, UBS, and Wells Fargo (Shobhit, 2019). We then designate all *Top IB Clients* as Control Group 2 and compare the behavioral change of *Former Lehman Clients* with *Top IB Clients*. The function of this specification is to understand how former Lehman clients' behavior changed compared to clients from other top investment banks.

Our third experimental setup defines *Top IB Clients* as Treatment Group 2 and *All Other Acquirers* as Control Group 2. With this analysis, we investigate differences in the behavior of other top investment banks compared to all other acquirers, allowing us to observe general behavioral changes.

Table 1. presents descriptive statistics for all variables used in this chapter. We summarize the data for the two time periods of our event study. Period 1 runs from September 15, 2002 to September 15, 2008, and Period 2 begins immediately after the collapse and runs from September 16, 2008 to September 15, 2014.

Table 1. Summary Statistics—Before and After Lehman Collapse

	September 15, 2002 to September 15, 2008					*September 16, 2008 to September 15, 2014*				
Variable	Obs.	Mean	Std. Dev.	Min.	Max.	Obs.	Mean	Std. Dev.	Min.	Max.
Strategic Growth Mode										
Core Expansion	8,598	0.279	0.448	0	1	6,335	0.26	0.439	0	1
Regional Expansion	8,598	0.1	0.3	0	1	6,335	0.102	0.302	0	1
Product and Technology Expansion	8,598	0.489	0.5	0	1	6,335	0.495	0.5	0	1
Diversification	8,598	0.132	0.339	0	1	6,335	0.143	0.35	0	1
Financial Transaction Profile										
Deal Size ($M)	8,598	762.66	2151.898	0.505	15025.07	6,335	702.646	1944.095	0.505	15025.07
Deal Size (Log)	8,598	4.548	2.168	-0.683	9.617	6,335	4.468	2.225	-0.683	9.617
EBITDA Multiple	8,598	20.701	51.557	0.003	917.582	6,335	18.809	54.13	0.001	978.167
EBITDA Multiple (Log)	8,598	2.277	1.153	-5.809	6.822	6,335	2.132	1.194	-6.908	6.886
Sales Absolute ($M)	8,590	707.325	1961.42	1.483	14426.23	6,330	777.189	2054.144	1.483	14426.23
Sales Absolute (Log)	8,590	4.728	1.979	0.394	9.577	6,330	4.958	1.888	0.394	9.577
EBITDA Margin	8,598	0.183	0.175	0.001	1	6,335	0.182	0.169	0.001	1
Premium 1 Day	4,904	21.221	33.472	-70.83	202.2	4,072	29.076	43.555	-70.83	202.2
Premium 1 Week	4,904	23.836	34.955	-71.43	212	4,076	31.238	44.722	-71.43	212
Premium 1 Month	4,900	26.974	37.466	-72.03	223.56	4,063	34.442	47.464	-72.03	223.56
Acquirer and Advisor Types										
Former Lehman Clients	8,598	0.138	0.345	0	1	6,335	0.098	0.297	0	1
Top IB Clients	8,598	0.487	0.5	0	1	6,335	0.461	0.499	0	1
Target Advisors	8,598	0.622	0.485	0	1	6,335	0.617	0.486	0	1
Acquirer Advisors	8,598	0.566	0.496	0	1	6,335	0.558	0.497	0	1
Target and Public Status										
Completed	8,598	0.83	0.375	0	1	6,335	0.822	0.382	0	1
Public	8,598	0.668	0.471	0	1	6,335	0.744	0.437	0	1
Subsidiary	8,598	0.121	0.326	0	1	6,335	0.117	0.322	0	1
Private	8,598	0.206	0.404	0	1	6,335	0.134	0.34	0	1
Deal Attitude										
Friendly	8,598	0.889	0.314	0	1	6,335	0.912	0.283	0	1
Neutral	8,598	0.051	0.219	0	1	6,335	0.019	0.135	0	1
Hostile	8,598	0.011	0.102	0	1	6,335	0.008	0.088	0	1
Other Attitude	8,598	0.049	0.217	0	1	6,335	0.061	0.24	0	1

Notes: We used the Thomson Reuters SDC Platinum database to gather all reported M&A transactions six years prior to and after the collapse of Lehman Brothers on September 15, 2008. Data are sourced through direct deal submissions from global banking and legal contributors, coupled with extensive research performed by a global research team that collected data from regulatory filings, corporate statements, media, and pricing wires with more than 2,500 control validations. To account for outliers, we winsorize the variables *Premium* (*1 day*, *1 week*, *1 month*) and *Deal Size* ($M). Further, we focus on transactions with a deal size above $0.5M and exclude transactions with negative *EBITDA Margins* but otherwise make use of the full data set.

Our sample includes 8,598 transactions and 6,335 transactions in Periods 1 and 2, respectively. In terms of acquirers' chosen strategic growth path, *Product and Technology Expansion* was the most frequent choice via M&A, involving approximately 48.9% and 49.5% of all transactions in the pre- and post-collapse time frames, respectively. *Core Expansion* was 27.9% and 26.0%, respectively. *Diversification* was 13.2% and 14.3% in Periods 1 and 2, respectively, and *Regional Expansion* accounted for 10.0% and 10.2% in the two time periods. In terms of financial profiles of transactions conducted, our sample includes an average *Deal Size* of approximately $762.66 million before and $702.65 million after Lehman collapsed. The size of the M&A targets was on average $707.33 million and $777.19 million, respectively, while *EBITDA Margins* were reported at an average of 18.3% for Period 1 and 18.2% for Period 2. *Premiums* paid on average in Period 1 ranged between 21% and 27%; they were 29%–34% in the six years after the collapse.

5. Identification Strategy and Main Results

5.1. Difference-in-Differences Methodology

To identify treatment effects, we implement our difference-in-differences model for the three specifications described in Section 4.4.4. We derive difference-in-differences estimates using OLS in repeated cross-sections of data on M&A clients with the support of top investment banks at least once six years before the collapse of Lehman Brothers, referring to our Treatment Group 1 and Control Group 1 in this period. We compare the results of the periods six years prior to and six years after the event. We estimate the following regression using OLS:

$$y = \beta_0 + \beta_1 dB + \delta_0 d2 + \delta_1 d2 * dB + u \quad (1),$$

where *y* is the dependent variable and *d2* is a dummy variable for the second period. The binary variable *dB* captures possible differences between the treatment and control groups before the

event. The coefficient of interest, δ_1, multiplies the interaction term, *d2 * dB*, which is the same as a dummy variable equal to one for those observations in the treatment group in the second period. The difference-in-differences estimate is as follows:

$$\hat{\delta} = (\bar{y}_{B,2} - \bar{y}_{B,1}) - (\bar{y}_{A,2} - \bar{y}_{A,1}) \quad (2)$$

On this basis, we specify our difference-in-differences as follows: our dependent variables *y* to analyze the behavioral change in terms of strategic decision-making are (1) *Core Expansion*, (2) *Regional Expansion*, (3) *Product or Technology Expansion*, and (4) *Diversification*. Further, we add (5) *Acquirer Advisor Engagement* and (6) *Deal Completion*. Our treatment variable is *Former Lehman Clients after Crisis*. We use the covariates *Sales Absolute (Log)* and *EBITDA Margin* and include the further deal-level controls *Deal Attitude* (friendly, neutral, hostile), *Target Public Status* (public, private), and *Form of the Transaction* (acquisition, merger, other form).

To investigate the behavioral change in financial decision-making, we specify our models similarly, except we use the dependent variables *Deal Size (Log)*, *Sales Absolute (Log)*, *EBITDA Margin*, *EBITDA Multiple (Log)*, and *Premium* (*1 day*, *1 week*, *1 month*) to investigate changes in terms of decision-making on M&A target profiles (size of deal, size of the target, and profitability of target) and the acquirer's willingness to pay. We replicate this model by implementing *Top IB Clients* as Control Group 2. Finally, we implement the model, using *Top IB Clients* as the treatment group and *All Other Acquirers* as the control group.

5.2. Difference-in-Differences Analysis

Implementing our first difference-in-differences model, we observe that the strategic decision-making of former Lehman clients (Treatment Group 1) was significantly different from all other acquirers in both periods. Table 2. shows that former Lehman clients preferred

Product and Technology Expansion and *Diversification* as their growth strategy both before and after the collapse of Lehman Brothers. Further, Treatment Group 1 invested significantly less in *Core Expansion* and *Regional Expansion*. While their strategic decision-making did not change significantly, we see that this group reduced its trust in external advice, as it significantly reduced its engagement of buy-side advisors after September 2008. Interestingly, the deal-closing ability of Lehman clients was significantly lower than all other acquirers in both periods. In terms of financial decision-making (Table 3.), we find that prior to the collapse, Lehman clients decided on significantly larger deals (*Deal Size*) with significantly higher *Sales Absolutes* and *EBITDA Margins* than all other acquirers. We also see that Lehman clients paid significantly higher premiums. However, the now-former Lehman clients significantly changed their financial decision-making in the M&A area after the bank collapsed. We find that this group of acquirers reduced its preference for larger deals and reduced its willingness to pay, which means significantly lower premiums.

These observations can be explained in that former Lehman clients maintained a strategic growth agenda but significantly reduced their openness to paying high prices. Therefore, the reduced willingness to pay after the collapse can be explained by the reduced use of financial advisors for transactions. From another perspective, this group of acquirers might have cut its appetite for risk-taking, which is in line with observations made by Malmendier and Nagel (2011), Graham and Narasimhan (2004), and Dittmar and Duchin (2015), who found that severe economic experiences affected top executives' risk appetite with regard to corporate financial policy.

In our second specification, we measured the behavioral change of former Lehman clients against Control Group 2 (*Former Top Investment Bank Clients*) to provide evidence of how behavioral patterns changed among comparable types of acquirers (Table 4.). Again, former Lehman clients decided strategically in favor of *Product and Technology Expansion* and *Diversification* and allocated significantly less investment to *Core Expansion* and *Regional*

Expansion. We again find that former Lehman clients used external advice significantly less for their acquisitions but were also less likely to close deals. Regarding financial decision-making, we see that former Lehman clients had a significantly lower preference for large M&A deals than did clients from other top investment banks. In addition, the willingness to pay of Lehman clients decreased significantly after its bankruptcy (Table 5.). This indicates that there was a significantly lower risk appetite among former Lehman clients in terms of strategic and financial decision-making. Again, this confirms evidence provided by prior research into other functions of corporate finance. In our third difference-in-differences model (Table 6.), we investigate behavioral changes among former top investment bank clients in comparison to all other acquirers in the respective period.

Table 2. Difference-in-Differences Model: Behavioral Change in Strategic Decision-Making of Former Lehman Clients —Control Group: All Other Acquirers

	Strategic Growth Paths					
	Core Expansion	Regional Expansion	Product and Technology Expansion	Diversification	Acquirer Advisor Engagement	Deal Completed
Before Lehman Collapse						
Control	0.279	0.051	0.553	0.118	0.092	0.832
Treated	0.088	-0.019	0.764	0.166	0.125	0.804
Difference	-0.191***	-0.070***	0.212***	0.048***	0.032**	-0.028**
(Treatment-Control)	(0.014)	(0.09)	(0.015)	(0.011)	(0.015)	(0.012)
After Lehman Collapse						
Control	0.256	0.048	0.564	0.131	0.072	0.828
Treated	0.055	-0.031	0.807	0.169	0.038	0.798
Difference	-0.201***	-0.079 ***	0.242***	0.037**	-0.034*	-0.030*
(Treatment-Control)	(0.019)	(0.013)	(0.021)	(0.015)	(0.020)	(0.016)
Difference in	-0.010	-0.010	0.030	-0.011	-0.067***	-0.002
Differences	(0.023)	(0.016)	(0.026)	(0.018)	(0.024)	(0.020)
Observations	14,920	14,920	14,920	14,920	14,920	14,920
R-squared	0.03	0.01	0.04	0.01	0.12	0.02

Notes: Entries show average treatment effects of difference-in-differences OLS model; standard errors are in parentheses. The dependent variables are *Core Expansion, Regional Expansion, Product and Technology Expansion, Diversification, Acquirer Advisor Engagement, and Deal Completed.* The treatment variable is *Former Lehman Clients Post-Crisis*, indicating those clients that engaged Lehman Brothers at least once in the period of six years before its collapse. The control group includes all other acquirers in the relevant period. We use the covariates *Sales Absolute (Log)* and *EBITDA Margin* and include further deal-level controls *Deal Attitude* (friendly, neutral, hostile), *Target Public Status* (public, private), and *Form of the Transaction* (acquisition, merger, other form). We analyze the behavioral change of former Lehman clients with regard to strategic M&A decisions in the six years after September 15, 2008. ***, **, and * denote significance at the 0.01, 0.05, and 0.1 levels, respectively.

Table 3. Difference-in-Differences Model: Behavioral Change in Financial Decision-Making of Former Lehman Clients—Control Group: All Other Acquirers

	Financial Profile of M&A Target				*Acquirer's Willingness to Pay*		
	Deal Size (Log)	Sales Absolute (Log)	EBITDA Margin	EBITDA Multiple (Log)	Premium 1 Day	Premium 1 Week	Premium 1 Month
Before Lehman Collapse							
Control	-0.320	3.803	0.230	3.000	22.414	24.996	30.751
Treated	-0.101	4.232	0.244	3.036	26.059	28.873	34.430
Difference	0.220***	0.429***	0.014***	0.037	3.645**	3.878**	3.679**
(Treatment-Control)	(0.220)	(0.054)	(0.05)	(0.034)	(1.589)	(1.645)	(1.751)
After Lehman Collapse							
Control	-0.530	4.089	0.234	2.903	31.769	33.872	39.658
Treated	-0.466	4.249	0.241	2.910	28.160	31.264	37.201
Difference	0.064	0.160**	0.007	0.008	-3.609*	-2.608	-2.457
(Treatment-Control)	(0.055)	(0.160)	(0.007)	(0.046)	(2.020)	(2.088)	(2.277)
Difference in	-0.156**	-0.268***	-0.007	-0.029	-7.254***	-6.485**	-6.136**
Differences	(0.069)	(0.091)	(0.009)	(0.058)	(2.567)	(2.654)	(2.829)
Observations	14,920	14,920	14,920	14,920	8,973	8,977	8,960
R-squared	0.65	0.21	0.03	0.12	0.03	0.02	0.02

Notes: Entries show average treatment effects of difference-in-differences OLS model; standard errors are in parentheses. The dependent variables are *Deal Size (Log)*, *Sales Absolute (Log)*, *EBITDA Margin*, and *Premiums* (*1 Day*, *1 Week*, *1 Month*). The treatment variable is *Former Lehman Clients Post-Crisis*, indicating those clients who engaged Lehman Brothers at least once in the six years before its collapse. The control group includes all other acquirers in that period. We use the covariates *Sales Absolute (Log)* and *EBITDA Margin* and include further deal-level controls *Deal Attitude* (friendly, neutral, hostile), *Target Public Status* (public, private), and *Form of the Transaction* (acquisition, merger, other form). We analyze behavioral changes in former Lehman clients with regard to financial decisions in M&A in the six years after September 15, 20008. ***, **, and * denote significance at the 0.01, 0.05, and 0.1 levels, respectively.

Table 4. Difference-in-Differences Model: Behavioral Change in Strategic Decision-Making of Former Lehman Clients—Control Group: Top IB Clients

	Strategic Growth Paths					
	Core Expansion	Regional Expansion	Product and Technology Expansion	Diversification	Acquirer Advisor Engagement	Deal Completed
Before Lehman Collapse						
Control	0.145	0.108	0.593	0.155	0.314	0.913
Treated	0.007	-0.002	0.810	0.185	0.242	0.857
Difference	-0.138***	-0.109***	0.217***	0.030**	-0.072***	-0.056***
(Treatment-Control)	(0.014)	(0.011)	(0.017)	(0.013)	(0.015)	(0.012)
After Lehman Collapse						
Control	0.134	0.085	0.607	0.174	0.279	0.915
Treated	-0.018	-0.015	0.844	0.189	0.151	0.848
Difference	-0.153***	-0.100***	0.237***	0.015	-0.128***	-0.067***
(Treatment-Control)	(0.019)	(0.015)	(0.022)	(0.017)	(0.020)	(0.016)
Difference in Differences	-0.015	0.010	0.020	0.015	-0.056**	-0.011
	(0.023)	(0.018)	(0.027)	(0.017)	(0.025)	(0.020)
Observations	7,100	7,100	7,100	7,100	7,100	7,100
R-squared	0.05	0.03	0.09	0.01	0.09	0.02

Notes: Entries show average treatment effects of difference-in-differences OLS model; standard errors are in parentheses. The dependent variables are *Core Expansion, Regional Expansion, Product and Technology Expansion, Diversification, Acquirer Advisor Engagement, and Deal Completed.* The treatment variable is *Former Lehman Clients Post-Crisis*, indicating those clients who engaged Lehman Brothers at least once in the six years before its collapse. The control group includes all acquirers advised by other top investment banks in that period. We use the covariates *Sales Absolute (Log)* and *EBITDA Margin* and include further deal-level controls *Deal Attitude* (friendly, neutral, hostile), *Target Public Status* (public, private), and *Form of the Transaction* (acquisition, merger, other form). We analyze behavioral changes among former Lehman clients (compared to peers) with regard to strategic decisions in M&A in the six years after September 15, 2008. ***, **, and * denote significance at the 0.01, 0.05, and 0.1 levels, respectively.

Table 5. Difference-in-Differences Model: Behavioral Change in Financial Decision-Making of Former Lehman Clients—Control Group: Top IB Clients

	Financial Profile of M&A Target				*Acquirer's Willingness to Pay*		
	Deal Size (Log)	Sales Absolute (Log)	EBITDA Margin	EBITDA Multiple (Log)	Premium 1 Day	Premium 1 Week	Premium 1 Month
Before Lehman Collapse							
Control	-0.182	4.633	0.243	3.259	25.012	28.501	36.802
Treated	-0.222	4.330	0.236	3.083	27.440	31.013	38.295
Difference	-0.040	-0.303	-0.007	-0.176***	2.427	2.512	1.493
(Treatment-Control)	(0.042)	(0.058)	(0.006)	(0.034)	(1.508)	(1.580)	(1.685)
After Lehman Collapse							
Control	-0.290	4.912	0.253	3.199	36.074	39.288	47.024
Treated	-0.557	4.327	0.234	2.962	29.514	33.319	40.787
Difference	-0.267***	-0.585***	-0.019**	-0.237***	-6.559***	-5.969***	-6.236***
(Treatment-Control)	(0.055)	(0.096)	(0.007)	(0.045)	(1.934)	(2.025)	(2.162)
Difference in	-0.227	-0.282***	-0.012	-0.062	-8.987***	-8.481***	-7.729***
Differences	(0.069)	(0.096)	(0.009)	(0.056)	(2.436)	(2.551)	(2.721)
Observations	7,100	7,100	7,100	7,100	4,633	4,632	4,626
R-squared	0.66	0.16	0.03	0.16	0.04	0.04	0.04

Notes: Entries show average treatment effects of difference-in-differences OLS model; standard errors are in parentheses. The dependent variables are *Deal Size (Log)*, *Sales Absolute (Log)*, *EBITDA Margin*, and *Premiums* (*1 Day*, *1 Week*, *1 Month*). The treatment variable is *Former Lehman Clients Post-Crisis*, indicating those clients who engaged a top investment bank at least once in the six years before Lehman's collapse. The control group includes all acquirers advised by other top investment banks in that period. We use the covariates *Sales Absolute (Log)* and *EBITDA Margin* and include further deal-level controls *Deal Attitude* (friendly, neutral, hostile), *Target Public Status* (public, private), *Form of the Transaction* (acquisition, merger, other form). We analyze behavioral changes among former Lehman clients (compared to peers) with regard to financial decisions in M&A in the six years after September 15, 2008. ***, **, and * denote significance at the 0.01, 0.05, and 0.1 levels, respectively.

Table 6. Difference-in-Differences Model: Behavioral Change in Strategic Decision-Making of Former Top Investment Bank Clients—Control Group: All Other Acquirers

	Strategic Growth Paths					
	Core Expansion	Regional Expansion	Product and Technology Expansion	Diversification	Acquirer Advisor Engagement	Deal Completed
Before Lehman Collapse						
Control	0.256	0.045	0.572	0.127	0.102	0.836
Treated	0.118	0.089	0.617	0.176	0.271	0.868
Difference	-0.138***	0.044***	0.045***	0.049***	0.169***	0.032***
(Treatment-Control)	(0.010)	(0.007)	(0.012)	(0.08)	(0.011)	(0.009)
After Lehman Collapse						
Control	0.220	0.059	0.581	0.140	0.102	0.831
Treated	0.113	0.076	0.623	0.188	0.227	0.872
Difference	-0.107***	0.017**	0.042***	0.047***	0.126***	0.041***
(Treatment-Control)	(0.012)	(0.08)	(0.013)	(0.009)	(0.012)	(0.010)
Difference in	0.031**	-0.027***	-0.003	-0.002	-0.043***	0.009
Differences	(0.015)	(0.010)	(0.016)	(0.011)	(0.015)	(0.012)
Observations	14,920	14,920	14,920	14,920	14,920	14,920
R-squared	0.02	0.01	0.02	0.001	0.14	0.02

Notes: Entries show average treatment effects of difference-in-differences OLS model; standard errors are in parentheses. The dependent variables are *Core Expansion, Regional Expansion, Product and Technology Expansion, Diversification, Acquirer Advisor Engagement*, *and Deal Completed*. The treatment variable is *Former Top Investment Bank Clients Post Crisis*, indicating those clients who engaged a top investment bank at least once in the six years before Lehman collapsed. The control group includes all other acquirers in the relevant period. We use the covariates *Sales Absolute (Log)* and *EBITDA Margin* and include further deal-level controls *Deal Attitude* (friendly, neutral, hostile), *Target Public Status* (public, private), and *Form of the Transaction* (acquisition, merger, other form). We analyze behavioral changes among former top investment bank clients with regard to strategic decisions in M&A in the six years after September 15, 2008. ***, **, and * denote significance at the 0.01, 0.05, and 0.1 levels, respectively.

Table 7. Difference-in-Differences Model: Behavioral Change in Financial Decision-Making of Former Top Investment Bank Clients—Control Group: All Other Acquirers

	Financial Profile of M&A Target				*Acquirer's Willingness to Pay*		
	Deal Size (Log)	Sales Absolute (Log)	EBITDA Margin	EBITDA Multiple (Log)	Premium 1 Day	Premium 1 Week	Premium 1 Month
Before Lehman Collapse							
Control	-0.202	3.568	0.235	3.064	23.668	26.507	32.250
Treated	0.378	4.825	0.277	3.456	27.680	31.004	38.333
Difference	0.579***	1.256***	0.043***	0.392***	4.012***	4.497***	6.083***
(Treatment-Control)	(0.030)	(0.037)	(0.004)	(0.025)	(1.163)	(1.203)	(1.281)
After Lehman Collapse							
Control	-0.461	3.864	0.237	2.959	31.998	34.251	40.605
Treated	0.231	5.065	0.286	3.398	36.698	39.823	46.778
Difference	0.692***	1.201***	0.050***	0.439***	4.700***	5.572***	6.173***
(Treatment-Control)	(0.034)	(0.042)	(0.04)	(0.029)	(1.260)	(1.303)	(1.389)
Difference in	0.112***	-0.055	0.007	0.047	0.688	1.075	0.090
Differences	(0.042)	(0.054)	(0.006)	(0.036)	(1.617)	(1.672)	(1.782)
Observations	14,920	14,920	14,920	14,920	8,973	8,977	8,960
R-squared	0.66	0.29	0.05	0.15	0.03	0.03	0.03

Notes: Entries show average treatment effects of difference-in-differences OLS models; standard errors are in parentheses. The dependent variables are *Deal Size (Log)*, *Sales Absolute (Log)*, *EBITDA Margin*, and *Premiums* (*1 Day*, *1 Week*, *1 Month*). The treatment variable is *Former Top Investment Bank Clients Post-Crisis*, indicating those clients who engaged a top investment bank at least once in the six years before Lehman collapsed. The control group includes all other acquirers in the respective period. We use the covariates *Sales Absolute (Log)* and *EBITDA Margin* and include further deal-level controls *Deal Attitude* (friendly, neutral, hostile), *Target Public Status* (public, private), and *Form of the Transaction* (acquisition, merger, other form). We analyze behavioral changes among former top investment bank clients with regard to financial decisions in M&A in the six years after September 15, 2008. ***, **, and * denote significance at the 0.01, 0.05, and 0.1 levels, respectively.

We find that, prior to the collapse, this group allocated significantly more investments to *Regional Expansion, Product and Technology Expansion,* and *Diversification* than all other acquirers, who preferred *Core Expansion* as their growth strategy. With the collapse of Lehman Brothers, the strategic decision-making behavior of former top investment bank clients shifted toward a less risky profile. We find that this group significantly increased their investment in the lower risk growth path (*Core Expansion*) while decreasing their activities in riskier growth strategies like *Regional Expansion*. We also find that buy-side advisors were engaged less frequently after the collapse, potentially indicating a more general trend to reject external advice. In terms of deal-closing capabilities, former top investment bank clients performed significantly better in both periods. As to financial decision-making, we observe that former top investment bank clients even increased their appetite for large deals and their willingness to pay premiums, which stands in sharp contrast to the behavior of our other treatment group, the former Lehman clients. This contrast shows that there is a significant difference in how experiencing (or not experiencing) Lehman's failure impacted comparable firms in their post-collapse financial risk-taking preferences (Table 7.).

With the three different specifications of our difference-in-differences model, we conclude that former Lehman clients reduced their risk appetite both strategically and financially. At the same time, we see that their peers that were clients of other top investment banks slightly reduced their risk appetite in terms of growth paths but did so while demonstrating a greater preference for larger and thus riskier deals and being willing to pay significantly higher premiums. To further investigate these observations, we implement fixed effects models in an effort to establish a robustness test of our causal interpretations.

5.3. Fixed Effects Model Methodology

As a second approach to analyze causal effects, we implement a fixed effects model that allows the individual-specific effects α_i to be correlated with the regressor *x*; we include α_i as intercepts. Each individual has a different intercept term and the same slope parameters:

$$y_{it} = \alpha_i + x_{it}\beta + u_{it} \quad (3),$$

where α_i (*i*=1….*n*) is the unknown intercept for each entity (*n* entity-specific intercepts), y_{it} is our dependent variable, with i = entity and t = time; x_{it} represents one independent variable, while β is the coefficient for that independent variable, and u_{it} is the error term. We can recover the individual-specific effects after estimation as

$$\hat{\alpha}_i = \bar{y}_i - \bar{x}'_i\hat{\beta} \quad (4)$$

More precisely, the individual-specific effects are the leftover variation in the dependent variable that cannot be explained by the regressor.

To estimate the effect of the collapse of Lehman Brothers on the strategic decision-making behavior of its former clients, we specify our model as follows. The dependent variables are *(1) Core Expansion*, *(2) Regional Expansion*, *(3) Product or Technology Expansion*, and *(4) Diversification*. Further, we add *(5) Acquirer Advisor Engagement* and *(6) Deal Completion*.

We use the covariates *Sales Absolute (Log)* and *EBITDA Margin* and include the further deal-level controls *Deal Attitude* (friendly, neutral, hostile), *Target Public Status* (public, private), and *Form of the Transaction* (acquisition, merger, other form). Further, we use fixed effects variables for the acquirer, period (month), industry of the M&A target, and country of the target's headquarters. Similarly, we estimate the effect of the collapse of Lehman Brothers

on the financial decision-making behavior of former Lehman clients, implementing this specification with several dependent variables—*Deal Size (Log)*, *Sales Absolute (Log)*, *EBITDA Margin*, *EBITDA Multiple (Log)*, and *Premium* (*1 day*, *1 week*, *1 month*)—to investigate changes in terms of decision-making on M&A target profiles (size of deal, size of target, and profitability of target) and the acquirer's willingness to pay. We replicate this model by implementing *Top IB Clients* (Control Group 2). Finally, we implement the model using *Top IB Clients* as Treatment Group 2 and *All Other Acquirers* as Control Group 2.

5.4. Fixed Effects Model Analysis

Table 8. presents the results of the fixed effects analysis comparing the strategic decision-making of former Lehman clients to all other acquirers in the relevant period. Our findings support the results of our difference-in-differences analysis in the previous section. While former Lehman clients significantly reduced their appetite for acquisitions in core business and regional expansion, M&A targets that would expand those clients' product and technology portfolios were especially prioritized in their growth agendas. Further, we find confirming results in terms of the reduced use of buy-side advisors and a significantly lower deal completion rate. In Table 9., we show that former Lehman clients reduced their focus on large deals and paying high premiums. However, the results in this model do not show the statistical significance that was observed in the difference-in-differences model.

In Table 10., we define other former top investment bank clients as a control group to the treatment group of former Lehman clients. We find confirming results that former Lehman clients channeled their growth paths toward *Product and Technology Expansion*, while significantly reducing their investments in *Core Expansion*, *Regional Expansion*, and *Diversification*.

We also find confirming results that former Lehman clients significantly reduced their hiring of buy-side advisors and decreased their deal-making ability. In terms of financial

decision-making (Table 11.), we find confirming results that former Lehman clients significantly reduced their aspirations for big deals and large M&A targets and significantly lowered their willingness to pay high *Premiums* and *EBITDA Multiples*.

Table 12. presents behavioral changes in strategic decision-making among former top investment bank clients in comparison to all other acquirers in this period. With this analysis, we aim to understand how powerful the impact of Lehman's downfall was on the decision-making behavior of its main competitors' clients. Confirming our results from the difference-in-differences model, we find that this group of acquirers significantly reduced its inorganic growth in *Core Business* while focusing on acquisitions in *Product and Technology Expansion* and *Diversification*. Interestingly, we find that former top investment bank clients increased their engagement of buy-side advisors and showed significantly better performance in terms of completing deals. Table 13. presents the biggest difference in the behavior of clients from former top investment bank clients. The firms in this group increased their appetite for large deals, meaning large M&A targets with high *EBITDA Margins*, and significantly increased their willingness to pay high premiums compared to their behavior before the collapse of Lehman Brothers.

The implementation of our identification strategy with difference-in-differences and fixed effects models provided converging results showing that former Lehman clients reduced their appetite for risky transactions in terms of strategic growth paths, transaction size, and willingness to pay high premiums and *EBITDA Multiples*.

Table 8. Fixed Effects Model: Behavioral Change in Strategic Decision-Making of Former Lehman Clients—Control Group: All Other Acquirers

	Strategic Growth Paths					
	Core Expansion	Regional Expansion	Product and Technology Expansion	Diversification	Acquirer Advisor Engagement	Deal Completed
Former Lehman Clients Post-Crisis	-0.796***	-0.717***	0.683***	0.072	-0.115**	-0.144**
	(0.077)	(0.104)	(0.057)	(0.063)	(0.056)	(0.065)
Sales Absolute (Log)	-0.015**	0.060***	-0.027***	0.025***	0.273***	-0.028***
	(0.007)	(0.009)	(0.006)	(0.008)	(0.007)	(0.008)
EBITDA Margin	0.421***	0.428***	-0.667***	0.150**	0.715***	0.058
	(0.065)	(0.081)	(0.063)	(0.076)	(0.066)	(0.079)
Target Advisor Engagement	-0.097***	-0.135***	0.143***	-0.029		0.518***
	(0.037)	(0.049)	(0.034)	(0.042)		(0.042)
Acquirer Advisor Engagement	0.016	0.164***	-0.098***	0.011		0.406***
	(0.040)	(0.049)	(0.037)	(0.045)		(0.045)
TA x AA	0.160***	0.011	-0.116**	-0.004		-0.154***
	(0.052)	(0.066)	(0.048)	(0.059)		(0.059)
Deal-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year, Industry, and Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.144	-1.953***	-0.115	-1.778***	-2.239***	2.613***
	(0.431)	(0.346)	(0.444)	(0.333)	(0.450)	(0.489)
Observations	14,920	14,920	14,920	14,920	14,920	14,920

Notes: Entries show coefficients of the OLS fixed effects model; standard errors are in parentheses. The dependent variables are *Core Expansion*, *Regional Expansion*, *Product and Technology Expansion*, *Diversification*, *Acquirer Advisor Engagement*, *and Deal Completed*. We use the covariates *Sales Absolute (Log)* and *EBITDA Margin* and include the further deal-level controls *Deal Attitude* (friendly, neutral, hostile), *Target Public Status* (public, private), and *Form of the Transaction* (acquisition, merger, other form). Further, we use fixed effects variables for the acquirer, period (year), industry of the M&A target, and country of the target's headquarters. We analyze the behavioral change of former Lehman clients with regard to strategic M&A decisions in the six years after September 15, 2008. ***, **, and * denote significance at the 0.01, 0.05, and 0.1 levels, respectively.

Table 9. Fixed Effects Model: Behavioral Change in Financial Decision-Making of Former Lehman Clients—Control Group: All Other Acquirers

	Financial Profile of M&A Target			*Acquirer's Willingness to Pay*			
	Deal Size (Log)	Sales Absolute (Log)	EBITDA Margin	EBITDA Multiple (Log)	Premium 1 Day	Premium 1 Week	Premium 1 Month
Former Lehman Clients Post-Crisis	-0.073	0.142**	0.002	-0.084*	-1.954	-0.983	-0.790
	(0.054)	(0.071)	(0.007)	(0.046)	(2.012)	(2.080)	(2.217)
Sales Absolute (Log)	0.707***			-0.187***	-1.414***	-1.483***	-1.958***
	(0.006)			(0.005)	(0.245)	(0.253)	(0.270)
EBITDA Margin	3.313***	-1.753***		-1.641***	-12.804***	-13.406***	-15.433***
	(0.062)	(0.081)		(0.053)	(2.551)	(2.642)	(2.817)
Target Advisor Engagement	0.885***	0.869***	0.008*	0.341***	9.498***	9.514***	10.381***
	(0.033)	(0.043)	(0.004)	(0.029)	(1.466)	(1.516)	(1.615)
Acquirer Advisor Engagement	0.516***	0.821***	0.005	0.349***	-0.426	1.123	2.233
	(0.037)	(0.049)	(0.005)	(0.032)	(1.586)	(1.640)	(1.751)
TA x AA	0.035	0.227***	0.008	0.019	0.105	-0.625	-1.940
	(0.047)	(0.062)	(0.006)	(0.041)	(1.979)	(2.047)	(2.183)
Deal-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year, Industry, and Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.903***	0.827***	0.184***	2.606***	2.478	16.869	32.105*
	(0.125)	(0.165)	(0.017)	(0.108)	(16.471)	(17.039)	(18.272)
Observations	14,920	14,920	14,933	14,920	8,973	8,977	8,960

Notes: Entries show coefficients of the OLS fixed effects model; standard errors are in parentheses. The dependent variables are *Deal Size (Log)*, *Sales Absolute (Log)*, *EBITDA Margin*, and *Premiums* (*1 Day*, *1 Week*, *1 Month*). We use the covariates *Sales Absolute (Log)* and *EBITDA Margin* and include further deal-level controls *Deal Attitude* (friendly, neutral, hostile), *Target Public Status* (public, private), and *Form of the Transaction* (acquisition, merger, other form). Further, we use fixed effects variables for the acquirer, period (year), industry of the M&A target, and country of the target's headquarters. We analyze behavioral changes of former Lehman clients with regard to financial M&A decisions in the six years after September 15, 2008. ***, **, and * denote significance at the 0.01, 0.05, and 0.1 levels, respectively.

Table 10. Fixed Effects Model: Behavioral Change in Strategic Decision-Making of Former Lehman Clients—Control Group: Top IB Clients

	Strategic Growth Paths					
	Core Expansion	Regional Expansion	Product and Technology Expansion	Diversification	Acquirer Advisor Engagement	Deal Completed
Former Lehman Clients Post-Crisis	-0.654***	-0.820***	0.701***	-0.040	-0.430***	-0.234***
	(0.082)	(0.108)	(0.061)	(0.068)	(0.062)	(0.072)
Sales Absolute (Log)	0.021*	0.044***	-0.032***	-0.011	0.257***	-0.055***
	(0.011)	(0.013)	(0.010)	(0.012)	(0.011)	(0.013)
EBITDA Margin	0.552***	0.358***	-0.740***	0.164	0.906***	-0.151
	(0.105)	(0.120)	(0.097)	(0.112)	(0.110)	(0.124)
Target Advisor Engagement	-0.065	-0.285***	0.188***	-0.046		0.665***
	(0.075)	(0.088)	(0.061)	(0.072)		(0.076)
Acquirer Advisor Engagement	0.214***	0.170**	-0.277***	0.067		0.531***
	(0.077)	(0.081)	(0.064)	(0.074)		(0.078)
TA x AA	0.071	0.149	-0.124	0.061		-0.300***
	(0.093)	(0.106)	(0.079)	(0.092)		(0.098)
Deal-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year, Industry, and Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-1.237***	-1.803***	0.651*	-1.457***	-1.845***	2.178***
	(0.397)	(0.413)	(0.378)	(0.335)	(0.519)	(0.535)
Observations	7,100	7,100	7,100	7,100	7,100	7,100

Notes: Entries show coefficients of the OLS fixed effects model; standard errors are in parentheses. The dependent variables are *Core Expansion*, *Regional Expansion, Product and Technology Expansion, Diversification, Acquirer Advisor Engagement, and Deal Completed.* We use the covariates *Sales Absolute (Log)* and *EBITDA Margin* and include the further deal-level controls *Deal Attitude* (friendly, neutral, hostile), *Target Public Status* (public, private), and *Form of the Transaction* (acquisition, merger, other form). Further, we use fixed effects variables for the acquirer, period (year), industry of the M&A target, and country of the target's headquarters. We analyze behavioral changes of former Lehman clients (compared to peers) regarding strategic M&A decisions in the six years after September 15, 2008. ***, **, and * denote significance at the 0.01, 0.05, and 0.1 levels, respectively.

Table 11. Fixed Effects Model: Behavioral Change in Financial Decision-Making of Former Lehman Clients—Control Group: Top IB Clients

	Financial Profile of M&A Target			*Acquirer's Willingness to Pay*			
	Deal Size (Log)	Sales Absolute (Log)	EBITDA Margin	EBITDA Multiple (Log)	Premium 1 Day	Premium 1 Week	Premium 1 Month
Former Lehman Clients Post-Crisis	-0.367***	-0.521***	-0.011	-0.323***	-3.993**	-3.355*	-3.397
	(0.053)	(0.074)	(0.007)	(0.045)	(1.925)	(2.014)	(2.148)
Sales Absolute (Log)	0.684***			-0.207***	-1.467***	-1.673***	-2.315***
	(0.009)			(0.007)	(0.318)	(0.333)	(0.355)
EBITDA Margin	3.114***	-1.658***		-1.594***	-22.153***	-23.992***	-28.413***
	(0.086)	(0.119)		(0.073)	(3.320)	(3.482)	(3.713)
Target Advisor Engagement	1.035***	0.741***	0.002	0.363***	9.233***	8.985***	9.728***
	(0.053)	(0.073)	(0.007)	(0.044)	(2.340)	(2.452)	(2.611)
Acquirer Advisor Engagement	0.674***	0.731***	0.011	0.434***	-0.073	1.485	3.226
	(0.058)	(0.080)	(0.008)	(0.049)	(2.409)	(2.523)	(2.694)
TA x AA	-0.008	0.322***	0.011	-0.006	0.780	0.436	-1.119
	(0.070)	(0.097)	(0.010)	(0.058)	(2.902)	(3.040)	(3.243)
Deal-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year, Industry, and Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-1.542***	1.274***	0.139***	2.491***	11.521	28.484	41.405**
	(0.172)	(0.240)	(0.024)	(0.145)	(16.919)	(17.720)	(18.968)
Observations	7,100	7,100	7,106	7,100	4,633	4,632	4,626

Notes: Entries show coefficients of the OLS fixed effects model; standard errors are in parentheses. The dependent variables are *Deal Size (Log)*, *Sales Absolute (Log)*, *EBITDA Margin*, and *Premiums* (*1 Day*, *1 Week*, *1 Month*). We use the covariates *Sales Absolute (Log)* and *EBITDA Margin* and include further deal-level controls *Deal Attitude* (friendly, neutral, hostile), *Target Public Status* (public, private), and *Form of the Transaction* (acquisition, merger, other form). Further, we use fixed effects variables for the acquirer, period (year), industry of the M&A target, and country of the target's headquarters. We analyze behavioral changes of former Lehman clients (compared to peers) with regard to financial M&A decisions in the six years after September 15, 2008. ***, **, and * denote significance at the 0.01, 0.05, and 0.1 levels, respectively

Table 12. Fixed Effects Model: Behavioral Change in Strategic Decision-Making of Former Top Investment Bank Clients—Control Group: All Other Acquirers

	Strategic Growth Paths					
	Core Expansion	Regional Expansion	Product and Technology Expansion	Diversification	Acquirer Advisor Engagement	Deal Completed
Top IB Clients Post-Crisis	-0.221***	0.021	0.081**	0.128***	0.316***	0.077*
	(0.035)	(0.042)	(0.032)	(0.039)	(0.034)	(0.040)
Sales Absolute (Log)	-0.009	0.057***	-0.028***	0.020**	0.260***	-0.031***
	(0.007)	(0.009)	(0.006)	(0.008)	(0.007)	(0.008)
EBITDA Margin	0.442***	0.415***	-0.665***	0.133*	0.671***	0.047
	(0.065)	(0.081)	(0.063)	(0.076)	(0.066)	(0.079)
Target Advisor Engagement	-0.091**	-0.139***	0.142***	-0.035		0.514***
	(0.037)	(0.049)	(0.034)	(0.042)		(0.042)
Acquirer Advisor Engagement	-0.091**	-0.139***	0.142***	-0.035		0.514***
	(0.037)	(0.049)	(0.034)	(0.042)		(0.042)
TA x AA	0.169***	0.016	-0.125***	-0.004		-0.151**
	(0.052)	(0.065)	(0.048)	(0.059)		(0.059)
Deal-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year, Industry, and Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.252	-1.723***	-0.244	-1.608***	-1.759***	2.782***
	(0.436)	(0.341)	(0.446)	(0.341)	(0.458)	(0.493)
Observations	14,920	14,920	14,920	14,920	14,920	14,920

Notes: Entries show coefficients of the OLS fixed effects model; standard errors are in parentheses. The dependent variables are *Core Expansion*, *Regional Expansion, Product and Technology Expansion, Diversification, Acquirer Advisor Engagement*, *and Deal Completed.* We use the covariates *Sales Absolute (Log)* and *EBITDA Margin* and include further deal-level controls *Deal Attitude* (friendly, neutral, hostile), *Target Public Status* (public, private), and *Form of the Transaction* (acquisition, merger, other form). Further, we use fixed effects variables for the acquirer, period (year), industry of the M&A target, and country of the target's headquarters. We analyze behavioral changes among clients of the top investment banks with regard to strategic M&A decisions in the six years after September 15, 2008. ***, **, and * denote significance at the 0.01, 0.05, and 0.1 levels, respectively.

Table 13. Fixed Effects Model: Behavioral Change in Financial Decision-Making of Former Top Investment Bank Clients—Control Group: All Other Acquirers

	Financial Profile of M&A Target			*Acquirer's Willingness to Pay*			
	Deal Size (Log)	Sales Absolute (Log)	EBITDA Margin	EBITDA Multiple (Log)	Premium 1 Day	Premium 1 Week	Premium 1 Month
Top IB Clients Post-Crisis	0.278***	0.934***	0.019***	0.190***	6.711***	7.397***	7.790***
	(0.032)	(0.040)	(0.004)	(0.027)	(1.165)	(1.204)	(1.284)
Sales Absolute (Log)	0.696***			-0.194***	-1.681***	-1.776***	-2.265***
	(0.006)			(0.005)	(0.249)	(0.257)	(0.274)
EBITDA Margin	3.275***	-1.820***		-1.667***	-13.918***	-14.628***	-16.722***
	(0.062)	(0.079)		(0.053)	(2.554)	(2.644)	(2.819)
Target Advisor Engagement	0.870***	0.790***	0.007	0.331***	9.114***	9.081***	9.918***
	(0.033)	(0.043)	(0.004)	(0.029)	(1.465)	(1.514)	(1.614)
Acquirer Advisor Engagement	0.504***	0.755***	0.003	0.341***	-0.850	0.637	1.713
	(0.037)	(0.048)	(0.005)	(0.032)	(1.585)	(1.639)	(1.749)
TA x AA	0.040	0.231***	0.008	0.023	0.312	-0.395	-1.689
	(0.047)	(0.061)	(0.006)	(0.041)	(1.976)	(2.043)	(2.179)
Deal-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year, Industry, and Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.433***	2.255***	0.213***	2.939***	15.363	30.717*	46.545**
	(0.134)	(0.173)	(0.018)	(0.115)	(16.569)	(17.135)	(18.373)
Observations	14,920	14,920	14,933	14,920	8,973	8,977	8,960

Notes: Entries show coefficients of the OLS fixed effects model; standard errors are in parentheses. The dependent variables are *Deal Size (Log)*, *Sales Absolute (Log)*, *EBITDA Margin*, and *Premiums* (*1 Day*, *1 Week*, *1 Month*).We use the covariates *Sales Absolute (Log)* and *EBITDA Margin* and include further deal-level controls *Deal Attitude* (friendly, neutral, hostile), *Target Public Status* (public, private), and *Form of the Transaction* (acquisition, merger, other form). Further, we use fixed effects variables for the acquirer, period (year), industry of the M&A target, and country of the target's headquarters. We analyze behavioral changes among clients of the top investment banks with regard to financial M&A decisions in the six years after September 15, 2008. ***, **, and * denote significance at the 0.01, 0.05, and 0.1 levels, respectively.

6. Discussion and Conclusion

While prior research has provided convincing evidence on how firms and top executives have changed their financial and investment behavior in areas like corporate finance policy and cash to adopt a less risky approach because of macroeconomic shocks, natural disasters, or personal traumas, we contribute evidence of how the Lehman collapse changed the strategic and financial decision-making of those with a direct business relationship with Lehman Brothers in the six years before its collapse. We find that former Lehman clients significantly reduced their appetite for large deals and had a lower willingness to pay, mirroring their reduced interest in taking risks. Interestingly, this group of clients maintained a strategic growth agenda by focusing on *Product and Technology Expansion* and *Diversification*. Therefore, we can conclude that former Lehman clients' decision behavior kept their strategic direction but did so on a smaller and thus less risky level.

We also find that the Lehman shock did not have the same effect on these firms' peers: acquirers who engaged one of the other top investment banks. We observe that firms in this group slightly reduced their risk appetite in terms of strategic growth paths by directing their acquisitions toward lower-risk strategies like *Core Expansion*. However, unlike the former Lehman clients, this group of acquirers increased their appetite for large deals and significantly increased their willingness to pay high premiums. Therefore, we can not only conclude that the Lehman shock had a significantly different effect on comparable types of acquirers, but we also find that the direct relationship with the collapsed bank resulted in a difference in subsequent strategic and financial decision-making behavior. Former Lehman clients had their fingers burned. This conclusion is supported by findings that firms in this group significantly reduced their engagement with investment bankers after the collapse.

In the light of the findings presented in chapter 2 that advisors drive prices and potentially overreach in their ambition to close deals, the reduced risk appetite of former Lehman clients can be supported by the reduced use of external advice. This interpretation is supported by our findings that comparable acquirers preferred riskier financial profiles and were more willing to pay high premiums while also significantly increasing their engagement with external financial advisors. While our results provide insights into the general behavioral change of acquirers' strategic and financial decision-making behaviors, further experimental research is needed to identify the exact decision processes and risk preferences.

Appendix A: Definition of Terms

Term	Definition
Former Lehman Client	Corporate acquirer that engaged the investment bank Lehman Brothers at least once in the six years before its collapse on September 15, 2008.
Top IB Client	Corporate acquirer that engaged one of the top ten investment banks at least once in the six years before the collapse of Lehman Brothers on September 15, 2008. These banks are Goldman Sachs, Morgan Stanley, JP Morgan, Merrill Lynch, Citi Group, Barclays, Credit Suisse, RBC Capital Markets UBS, and Wells Fargo.
Target Advisor	Financial advisor(s) to the target company, its management, or board of directors on a transaction.
Acquirer Advisor	Financial advisor(s) to the acquirer's company, its management, or board of directors on a transaction.
Deal Size	Value of Transaction ($M): Total value of the consideration paid by the acquirer, excluding fees and expenses. The dollar value includes the amount paid for all common stock, common stock equivalents, preferred stock, debt, options, assets, warrants, and stake purchases made within six months of the announcement date of the transaction. Liabilities assumed are included in the value if they are publicly disclosed. Preferred stock is included only if it is being acquired as part of a 100% acquisition. If a portion of the consideration paid by the acquirer is common stock, the stock is valued using the closing price on the last full trading day prior to the announcement of the terms of the stock swap. If the exchange ratio of shares offered changes, the stock is valued based on its closing price on the last full trading date prior to the date of the exchange ratio change. For publicly listed targets in 100% acquisitions, the number of shares at the date of announcement is used.
EBITDA Multiple	A financial ratio that compares a company's enterprise value to its annual EBITDA; it is used to determine the value of a company and compare it to the value of similar businesses. A company's EBITDA Multiple provides a normalized ratio for differences in capital structure, taxation, and fixed assets and enables comparing disparate operations in different companies. The ratio takes a company's enterprise value (which represents market capitalization plus net debt) and compares it to the EBITDA for a given period.
Premium 1 Day	Premium of the offer price to target closing stock price one day before the original announcement date, expressed as a percentage.
Premium 1 Week	Premium of the offer price to target closing stock price one week before the original announcement date, expressed as a percentage.
Premium 1 Month	Premium of the offer price to target closing stock price four weeks before the original announcement date, expressed as a percentage.
Sales Absolute	Net sales represents sales receipts for products and services, net cash discounts, trade discounts, excise tax, and sales returns and allowances. Revenues are recognized according to applicable accounting principles.
EBITDA Absolute	Earnings before the deduction of interest, taxes, depreciation, and amortization. It is a non-GAAP calculation based on data from a company's income statement used to measure a company's operating profitability. Because EBITDA adds back to net income the non-cash accounting charges of depreciation and amortization and disregards interest paid on debt financing and income taxes on earnings, it is useful for measuring a company's operating cash flow and for comparing the profitability of companies with different capital structures and in different tax brackets. However, EBITDA does not measure and should not be confused with the actual cash flow of a company which accounts for interest paid on debt financing, income taxes, and other cash charges.
EBITDA Margin	EBITDA Absolute as a percentage of Sales Absolute.
Target Industry	Industry in which the M&A target operates.
Target Country	Country where the target company has its headquarters.
Acquirer Industry	Industry in which the acquiring company operates.
Acquirer Country	Country where the acquiring company has its headquarters.
Deal Status	Status of the transaction: (1) deal completed, (2) deal pending, (3) deal intended, (4) deal withdrawn, or (5) another deal status.
Form of Transaction	Scope of the transaction (e.g., full acquisition vs. acquisition of shares).

References

Ansoff, H. I. (1965). *Corporate strategy*. New York: McGraw Hill.

Bernile, G., Bhagwat, V., & Rau, P. R. (2016). What doesn't kill you will only make you more risk-loving: Early-life disasters and CEO behavior. *The Journal of Finance*, *72*(1), 167–206. https://doi.org/10.1111/jofi.12432

Cameron, L., & Shah, M. (2015). Risk-taking behavior in the wake of natural disasters. *The Journal of Human Resources*, *50*(2), 484–515. http://jhr.uwpress.org/content/50/2/484.short

Chang, X., Shekhar, C., Tam, L. H. K., & Yao, J. (2016a). Industry expertise, information leakage and the choice of M&A advisors. *Journal of Business Finance & Accounting*, *43*(1–2), 191–225. https://doi.org/10.1111/jbfa.12165

Chang, X., Shekhar, C., Tam, L. H. K., and Yao, J. (2016b). The information role of advisors in mergers and acquisitions: Evidence from acquirers hiring targets' ex-advisors. Working Paper. Paris: Organisation for Economic Co-Operation and Development. https://doi.org/10.17863/CAM.109

Damodaran, A. (2005). Valuation approaches and metrics: A survey of the theory and evidence. *Foundations and Trends in Finance*, *1*(8), 693–784. http://dx.doi.org/10.1561/0500000013

Dittmar, A., & Duchin, R. (2015). Looking in the rearview mirror: The effect of managers' professional experience on corporate financial policy. *The Review of Financial Studies*, *29*(3), 565–602. https://doi.org/10.1093/rfs/hhv051

Fernando, C. S., May, A. D., & Megginson, W. L. (2012). The value of investment banking relationships: Evidence from the collapse of Lehman Brothers. *The Journal of Finance, 67*(1), 235–270. https://doi.org/10.1111/j.1540-6261.2011.01711.x

Graham, J. R., & Narasimhan, K. (2004, January 15). *Corporate survival and managerial experiences during the Great Depression* [Paper presentation]. American Finance Association 2005 Annual Meeting, Philadelphia, PA, United States. https://dx.doi.org/10.2139/ssrn.489694

Grave, K., Vardiabasis, D., & Yavas, B. (2012). The global financial crisis and M&A. *International Journal of Business and Management, 7*(11), 56–66. https://doi.org/10.5539/ijbm.v7n11p56

Haspeslagh, P. C., & Jemison, D. B. (1991). The challenge of renewal through acquisitions. *Planning Review*, 19(2), 27–30. https://doi.org/10.1108/eb054320

Knüpfer, S., Rantapuska, E., & Sarvimaki, M. (2017). Formative experiences and portfolio choice: Evidence from the Finnish Great Depression. *The Journal of Finance*, *72*(1), 133–166. https://doi.org/10.1111/jofi.12469

Koller, T., Goedhart, M., & Wessels, D. (2010). *Valuation: Measuring and managing the value of companies* (6th ed.). Wiley Finance.

Lafley, A. G., & Martin, R. L. (2013). *Playing to win: How strategy really works*. Harvard Business Review Press.

Loughran, T., & Wellman, W. J. (2011). New evidence on the relation between the enterprise multiple and average stock return. *Journal of Financial and Quantitative Analysis*, *46*(6), 1629–1650. https://doi.org/10.1017/S0022109011000445

Malmendier, U., & Nagel, S. (2011). Depression babies: Do macroeconomic experiences affect risk-taking? *The Quarterly Journal of Economics*, *126*(1), 373–416. https://doi.org/10.1093/qje/qjq004

Malmendier, U., & Tate, G. (2005). CEO overconfidence and corporate investment. *The Journal of Finance*, *60*(6), 2661–2700. https://doi.org/10.1111/j.1540-6261.2005.00813.x

Malmendier, U., Tate, G., & Yan, J. (2011). Overconfidence and early-life experiences: The effect of managerial traits on corporate financial policies. *The Journal of Finance*, *66*(5), 1687–1733. https://doi.org/10.1111/j.1540-6261.2011.01685.x

Schoar, A., & Zuo, L. (2017). Shaped by booms and busts: How the economy impacts CEO careers and management styles. *The Review of Financial Studies*, *30*(5), 1425–1456. https://doi.org/10.1093/rfs/hhw111

Servaes, H., & Zenner, M. (1996). The role of investment banks in acquisitions. *The Review of Financial Studies*, *9*(3), 787–815. https://doi.org/10.1093/rfs/9.3.787

Singh, H., & Montgomery, C. A. (1987). Corporate acquisition strategies and economic performance. *Strategic Management Journal*, *8*(4), 377–386. https://doi.org/10.1002/smj.4250080407

Stanwick, P. A., & Stanwick, S. D. (2001). Designing your international M&A strategy. *Journal of Corporate Accounting & Finance*, *12*(6), 11–16. https://doi.org/10.1002/jcaf.1102

Straub, T., Borzillo, S., & Probst, G. (2012). Decision-making framework to analyze important dimensions of M&A performance. In S. Finkelstein & C. L. Cooper (Eds.),

Advances in Mergers and Acquisitions (pp. 199–235). Emerald Group. https://doi.org/10.1108/S1479-361X(2012)0000011013

Walter, G., & Barney, J. (1990). Management objectives in mergers and acquisitions. *Strategic Management Journal*, *11*(1), 79–86. https://www.jstor.org/stable/2486559

Xianjie, H., Kothari, S. P., Xiao, T., & Zuo, L. (2018). Long-term impact of economic conditions on auditors' judgment. *The Accounting Review*, *93*(6), 203–229. https://doi.org/10.2308/accr-520