

Online Appendix (Not for Publication)

“Bank Consolidation and Systemic Risk: M&A During the 2008 Financial Crisis” by

Gregory D. Maslak and Gonca Senel

Appendix A Description of Systemic Risk Measures

A.1 Systemic Risk: Marginal Expected Shortfall

In our empirical analysis, the first way we measure the merger-related change in the exposure of an individual bank to systemic risk is by the use of the Marginal Expected Shortfall (MES). The MES measure was originally proposed by Acharya et al. (2017) and in general is defined as the negative average equity return of a bank conditional on the system as a whole doing poorly.¹ In this way, the MES represents the co-movement between the daily stock returns of an individual institution and the decline of the aggregate stock market, thereby capturing a firm’s market-based sensitivity or exposure to systemic risk.

More precisely, following Acharya et al. (2017), the MES used in this paper is defined as

$$MES_i^{5\%} = -\mathbf{E} \left[\frac{w_1^i}{w_0^i} \middle| I_{5\%} \right]$$

where the net equity return is calculated using the price ratio $\frac{w_1^i}{w_0^i}$ and $I_{5\%}$ is the set of days where the market experienced its worst 5% of outcomes for a given time period. Therefore, a firm’s MES in this paper is the negative average return of its equity during the 5% worst days of the overall market, where the market is proxied by the CRSP Value Weighted Index.²

Furthermore, Brownlees & Engle (2012) propose a dynamic version of the MES metric, extending the original model to account for time-varying volatility and correlation between a bank’s returns and the returns of the market. In this paper, we include the MES estimated

¹As is standard in the literature, with the MES measure losses are given a positive sign. Therefore, an increase in the systemic exposure of a bank is given by a positive change in the respective bank’s MES.

²The use of the CRSP Value Weighted Index as a market proxy follows the procedure outlined in Bisias et al. (2012). Weiss et al. (2014) use several different region specific bank sector indexes as the market portfolios in their computation of MES due to their international sample. The use of a bank specific sector index is worthy of consideration, but only captures the relationship between an individual institution and the banking sector as opposed to the broader economy.

using the static procedure outlined in Acharya et al. (2017) as well as the dynamic version, which is embedded in the SRISK measure. In addition to being a widely used measure in general, we incorporate the static MES to keep our analysis comparable to Weiss et al. (2014). Likewise, since this paper concerns the merger-related changes in a bank’s MES, we follow Weiss et al. (2014) and construct the Δ MES measure. The Δ MES is simply the difference between a bank’s post-merger and pre-merger Marginal Expected Shortfall. We define the pre-merger period starting 180 days and ending 11 days before the merger announcement and the post-merger period beginning 11 days after and ending 180 days after the completion of the merger.

$$\Delta MES_i^{5\%} = MES_{i; \left[+11; +180 \right]}^{5\%} - MES_{i; \left[-11; -180 \right]}^{5\%}$$

The construction of the pre- and post-merger periods is indeed arbitrary, but seeks to avoid any immediate confounding effects that the merger announcement and merger completion would have on the MES calculation.

A.2 Systemic Risk: SRISK

The second way we measure the merger-related change in the exposure of an individual bank to systemic risk is by the use of the SRISK measure. SRISK is defined as the expected capital shortfall of a financial institution conditional on a significant market decline. In this way, the capital shortfall experienced by a financial entity when the entire system is undercapitalized captures the individual firm’s exposure to systemic risk. The SRISK measure itself is a function of a firm’s size, its degree of leverage, and its dynamic MES. Thus, whereas both static and dynamic MES only take into account equity data, the SRISK metric combines market and balance sheet information to construct a measure of financial distress. The following section will expand upon the formal definition of the SRISK measure used in this paper, beginning with the dynamic MES input.

As previously mentioned, the MES measure was originally created by Acharya et al. (2017) and in general is defined as the negative average equity return of a bank conditional on a market decline below a given threshold. Brownlees & Engle (2012) propose a dynamic version of the MES metric, extending the original model to account for time-varying volatility and correlation between a bank’s returns and the returns of the market. The original static version is used by Weiss et al. (2014) and is the version of MES considered by Bisias et al. (2012)

while the dynamic MES, also known as the Long Run Marginal Expected Shortfall (LRMES), is used by Bostandzic (2014), Benoit et al. (2013), and by the NYU Stern Volatility Institute to compute SRISK. In this paper since we are interested in SRISK, we construct the LRMES using the standard GARCH-DCC estimation technique. The GARCH-DCC methodology is nonparametric and is widely employed in financial time-series data analysis due to its ability to capture time-varying volatility clustering (Brownlees and Engle (2017)).³

Therefore, let r_{it} and r_{mt} denote the i^{th} firm's and market returns respectively on day t and contain the following properties:

$$\begin{aligned} r_{mt} &= \sigma_{mt}\epsilon_{mt} \\ r_{it} &= \sigma_{it}\rho_{it}\epsilon_{it} + \sigma_{it}\sqrt{1 - \rho_{it}^2}\xi_{it} \\ (\epsilon_{mt}, \xi_{it}) &\sim F \end{aligned}$$

where the shocks $(\epsilon_{mt}, \xi_{it})$ are iid over time and have zero mean and zero covariance. Meanwhile the distribution of the residuals F is left unspecified and will be handled using a nonparametric approach. The two conditional standard deviations σ_{it} and σ_{mt} are obtained by the GARCH model while the conditional correlation ρ_{it} is obtained by DCC. Given these assumptions, the LRMES is then defined as:

$$LRMES_{it} = 1 - \exp(\log(1 - d) * \beta)$$

where $\beta = \rho_i \frac{\sigma_i}{\sigma_m}$ and d is the crisis threshold for the market index decline which has a standard value of 40% in the existing literature. Therefore, a firm's LRMES is the institution's expected equity loss when the market experiences a 40% decline over a given period where the market is proxied by the CRSP Value Weighted Index. The time horizon for the LRMES corresponds to the available price data and is taken for the pre- and post-merger periods that have already been defined.

With the construction of the LRMES, the SRISK measure can subsequently be calculated in the following manner:

$$SRISK_{it} = k * DEBT_{it} - (1 - k) * EQUITY_{it} * (1 - LRMES_{it})$$

³The codes for the GARCH-DCC estimation technique are available from Kevin Sheppard's MFE Toolbox as well as Benoit et al. (2013).

where k is the prudential capital requirement which is typically set to 8% for U.S. firms, $DEBT$ is the total liabilities lagged for one quarter as in Benoit et al. (2013) in order to take into account the difficulty of renegotiating debt in case of financial distress, $EQUITY$ as the current market capitalization of the firm, and $LRMES$ as the previously defined Long Run Marginal Expected Shortfall. As is standard in the literature, a positive SRISK indicates a firm’s capital shortfall in millions of dollars while a negative SRISK indicates a capital surplus.⁴

Moreover, the SRISK measure can be normalized by the firm’s market capitalization and is called NSRISK.

$$NSRISK_{it} = SRISK_{it}/EQUITY_{it}$$

In this way, the NSRISK is the proportional capital shortfall or surplus whereas SRISK is simply the level of capital. As recognized by Berger et al. (2016), without this normalization, the distribution of SRISK can be highly skewed towards larger firms. Lastly, since this paper concerns the merger-related changes in an acquiring bank’s risk, we calculate and then take the difference between a bank’s post-merger and pre-merger SRISK and NSRISK values.

A.3 Systemic Risk: Delta Conditional Value at Risk

We measure the merger-related change in the contribution of an individual bank to systemic risk by the use of the Delta Conditional Value at Risk (ΔCoVaR) metric as proposed by Adrian & Brunnermeier (2016). The intuition behind the ΔCoVaR measure is that it tests how an individual firm influences the overall market. It is important to note the difference in conditioning between the two types of systemic risk metrics used in this paper: ΔCoVaR measures the externality a single bank has on the system, while MES and SRISK capture how much the system impacts a single bank. Furthermore, as the name suggests, ΔCoVaR is the difference between two CoVaR values: the CoVaR conditional on the institution being in distress and the CoVaR in the median state of the institution. CoVaR itself is defined as the Value at Risk (VaR) of the financial system conditional on the well-being of an individual institution. The Value at Risk (VaR) simply measures the worst expected loss of an institution over a specific time interval at a given confidence level. Therefore, the ΔCoVaR measure captures the impact that a single financial institution potentially has on the welfare of the broader economy by comparing how the market reacts when the institution is in a median state with when it is

⁴The calculations of LRMES and SRISK in this paper are compared to the corresponding values listed on the NYU Stern Volatility Institute V-Lab website and are found to be similar.

in distress.

Following Adrian & Brunnermeier (2016), the Value at Risk (VaR) of institution i at the q percentile is defined as:

$$Pr(X^i \leq VaR_q^i) = q$$

where X_i is the loss of institution i for which the VaR_q^i is defined. The CoVaR of the financial system (j) conditional on the event ($X^i = VaR_q^i$), i.e., institution i 's losses attain its VaR value, is denoted by:

$$Pr(X^j \leq CoVaR_q^{j|i} | X^i = VaR_q^i) = q$$

Subsequently, institution i 's contribution to the risk of the system (j) is defined as:

$$\Delta CoVaR_q^{j|i} = CoVaR_q^{j|i} - CoVaR_{50\%}^{j|i}$$

Therefore, $\Delta CoVaR_q^{j|i}$ denotes the difference between the CoVaR of the financial system conditional on the distress of a particular financial institution i and the CoVaR of the financial system conditional on the median state of institution i . Thus, $\Delta CoVaR_q^{j|i}$ quantifies how much a single institution adds to overall risk in the system.

In order to estimate the $\Delta CoVaR_q^{j|i}$ measure, two CoVaRs for each state of a particular institution are calculated using the method of quantile regression. The joint distribution of X^i and X^j is estimated as a function of a set of state variables M_t to capture time variation. The systematic state variables M_{t-1} are lagged and consist of the following:

1. The change in the yield of 3-month US treasury bonds collected from the Federal Reserve Board's H.15 release.
2. The change in the yield spread between 10-year and 3-month US treasury bonds from the Federal Reserve Board's H.15 release.
3. A short term TED spread (the difference between the 3 month Libor rate and the 3 month secondary market T-bill rate) from the Federal Reserve Economic Data-FRED-Federal Reserve Bank of St. Louis website.
4. The change in credit spread calculated by taking the difference between long term bond composite and 10-year US treasury bonds obtained from the Federal Reserve Board's H.15 release.
5. The value weighted equity market return from CRSP.
6. The VIX volatility index from CBOE.
7. Real estate sector return (from the real estate companies with SIC code 65-66) in excess of the market financial sector return as proxied by the S&P 500 index.

The following two quantile regressions are run on weekly data:

$$X_t^i = \alpha^i + \gamma^i M_{t-1} + \varepsilon_t^i$$

$$X_t^j = \alpha^{j|i} + \beta^{j|i} X_t^i + \gamma^{j|i} M_{t-1} + \varepsilon_t^{j|i}$$

Having estimated the quantile regression parameters, the predicted values of VaR and CoVaR are:

$$VaR_t^i = \hat{\alpha}^i + \hat{\gamma}^i M_{t-1}$$

$$CoVaR_t^i = \hat{\alpha}^{j|i} + \hat{\beta}^{j|i} VaR_t^i + \hat{\gamma}^{j|i} M_{t-1}$$

Finally, $\Delta CoVaR_t^i$ for each institution is calculated as:

$$\begin{aligned} \Delta CoVaR_t^i(q) &= CoVaR_t^i(q) - CoVaR_t^i(50\%) \\ &= \hat{\beta}^{j|i} (VaR_t^i(q) - VaR_t^i(50\%)) \end{aligned}$$

Thus, in order to get an estimation of institution i 's contribution to systemic risk ($\Delta CoVaR_t^i$), the quantile regressions must be run twice: once for the desired distressed q (in this case $q = .05$) and once for median $q = 0.5$.⁵ Finally, the merger-related change in an acquiring bank's contribution to systemic risk is then simply the post-merger $\Delta CoVaR_t^i$ minus the pre-merger $\Delta CoVaR_t^i$.

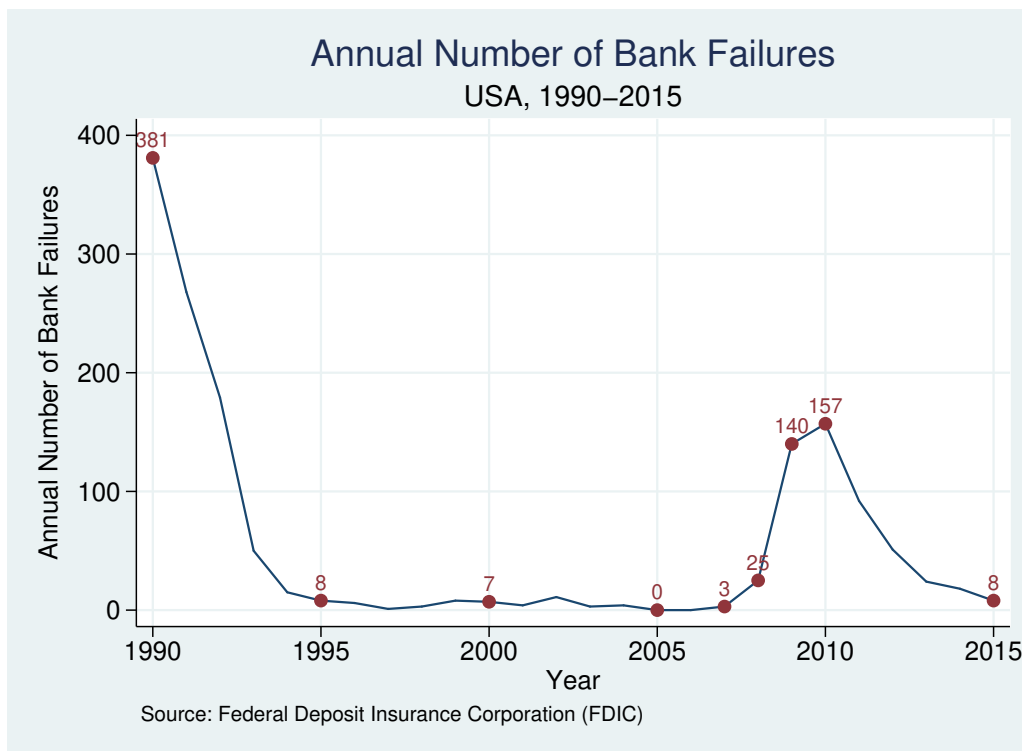
Appendix B Construction of Time Periods

For this paper, we consider the mergers that were announced and completed during the years 1990-2013 in order to remain consistent with the previous literature of Weiss et al. (2014) and Bostandzic (2014). In order to define which years constituted stable periods and which years the crisis, one natural way would be to use the official business cycle dates provided by the National Bureau of Economic Research (NBER). However, as noted in the main body of this paper, a serious drawback of this method is its inability to account for significant lags of bank failures that persisted in the system even after contractions technically ended according

⁵Equivalently, in our analysis, we use expected loss (negative of the returns) and corresponding quantile of distress which is $q = 0.95$ following Adrian & Brunnermeier (2016).

to the NBER dates. For example, the impact of the financial crisis continued beyond 2009 and we aim to include those lingering effects in our analysis. Therefore, we gather complementary data from the Federal Deposit Insurance Corporation (FDIC), analyzing the annual number of bank failures and the amount of annual bank failures by total assets. The following two graphs illustrate this data.

Figure 1: ANNUAL NUMBER OF BANK FAILURES

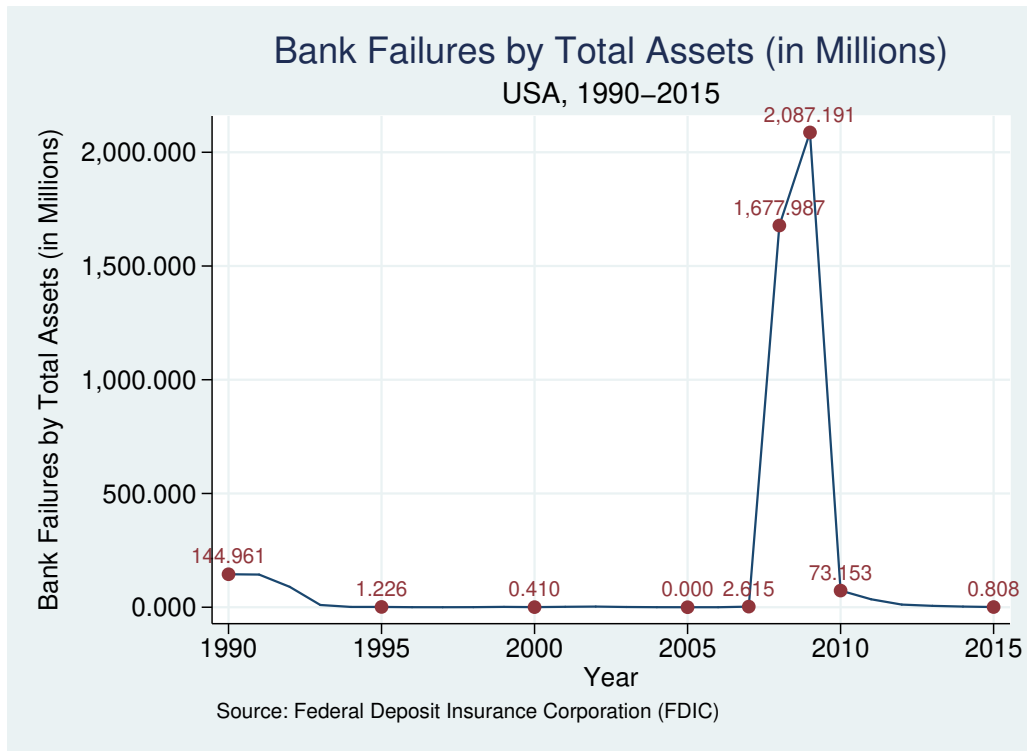


The first graph demonstrates the severe impact that the 2008 financial crisis had on the banking industry by the very large number of failures. Moreover, one can also see the lingering effects of the savings and loan crisis into the early years of the 1990s. For this reason, we are cautious about including the early years of the 1990s as a part of our stable period, therefore, we begin our sample at 1995 when the number of failures seem to be normalized.

In addition, one can observe a slight rise in bank failures surrounding the years of the dot-com crash; however, it appears that this crisis only had a very small effect on the banking industry. Due to this, we did not think it would be appropriate to consider bank M&A during the dot-com crash as a crisis as it was clearly not on the scale of the 2008 financial crisis. On this basis, the years surrounding the dot-com crash were included in the stable periods.

And lastly, looking at the second graph one can see bank failures by total assets. This is an especially important image that underscores the seriousness of the failures that occurred during the 2008 financial crisis. Using this data in conjunction with the number of failures, we

Figure 2: BANK FAILURES BY TOTAL ASSETS



decided to define the years of the crisis from 2007-2010. We designated 2010 as the end due to the drop back to relatively normal levels. In this way, we hoped to capture the impact of the 2008 financial crisis that persisted after 2009.

Appendix C Dynamics of the effects of Bank Mergers on Market-Adjusted Systemic Risk Measures

[Online Appendix C](#) contains graphs that track 90-day rolling-window averages for the relevant market-adjusted systemic risk measures (MES, NSRISK and ΔCoVaR). The first panel of each figure reflects the market-adjusted values using the PSM-matched control group, while the second panel utilizes the cap-weighted index control group. The figures include the averages during the crisis (blue) and stable (red) periods as well their corresponding 95 percent confidence intervals. The x-axis of each figure illustrates the months relative to the bank-merger announcement in which case “Month 0” implies the time of the announcement.

Figure 3: DYNAMICS OF MARKET-ADJUSTED MES FOR BANKS THAT MERGED DURING THE CRISIS VERSUS STABLE PERIODS

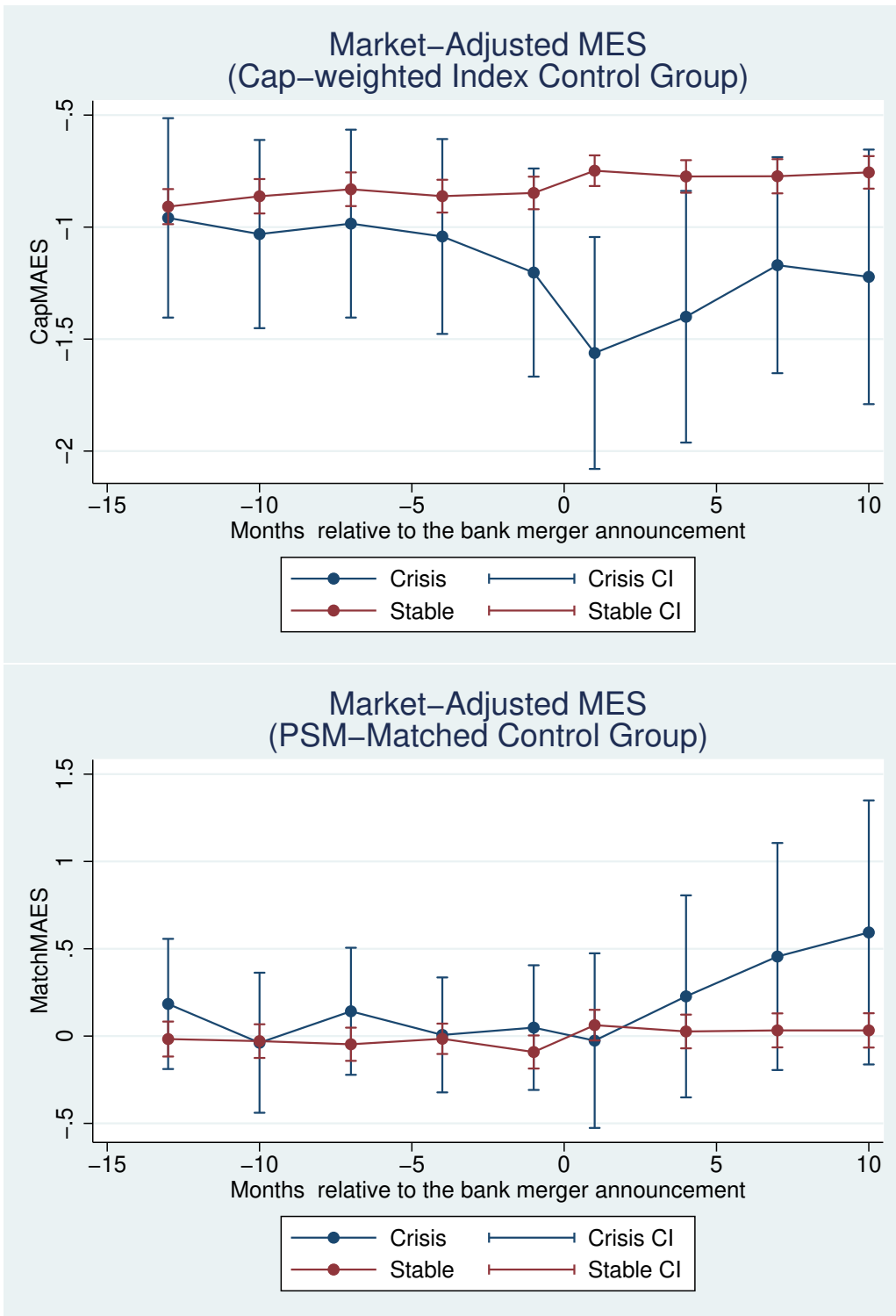


Figure 4: DYNAMICS OF MARKET-ADJUSTED NSRISK FOR BANKS THAT MERGED DURING THE CRISIS VERSUS STABLE PERIODS

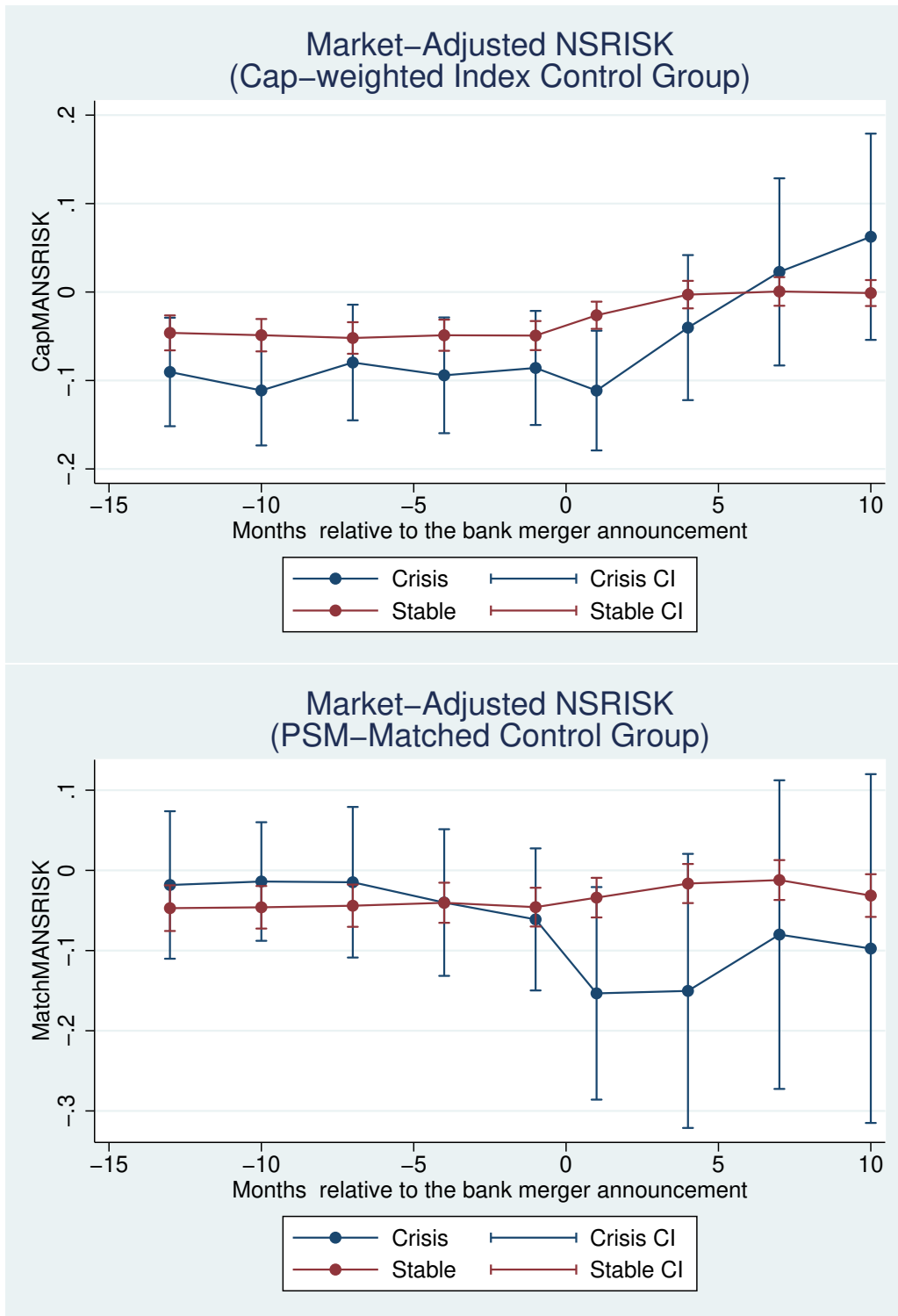
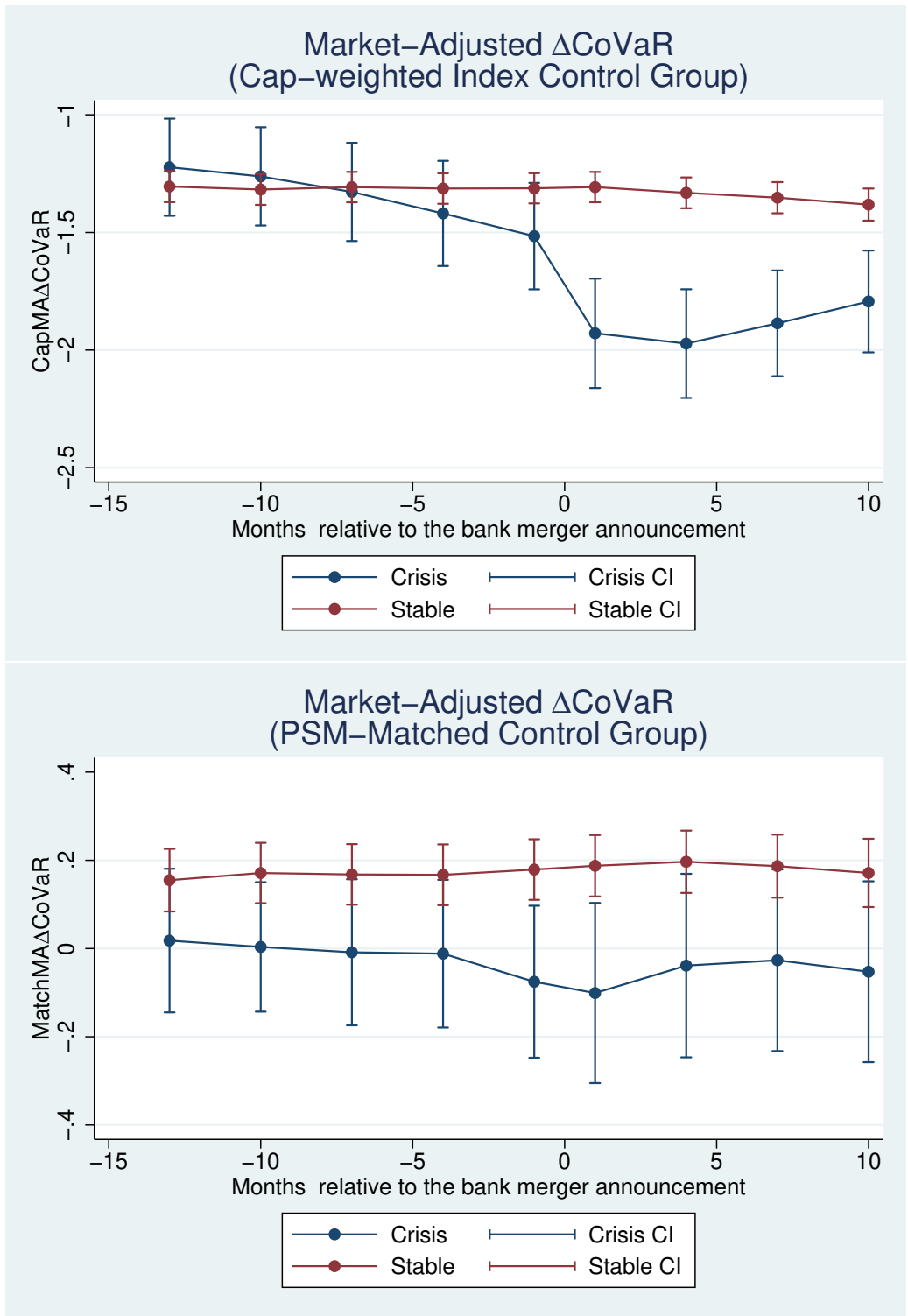


Figure 5: DYNAMICS OF MARKET-ADJUSTED ΔCoVaR FOR BANKS THAT MERGED DURING THE CRISIS VERSUS STABLE PERIODS



Appendix D Data and Sample Construction

D.1 provides detailed information on the construction of the balance sheet data for the acquirers, targets and the non-merging banks, which is used in the multivariate regression analysis. Moreover, in D.3, the details of propensity score matching procedure are presented.

D.1 Balance Sheet Data Construction

For acquirers, targets, and non-merging banks, we use CRSP/Compustat Merged data set.⁶ Specifically, we match the bank sample in Thomson One M&A data set with the CRSP/Compustat Merged data set with respect to banks' six digit CUSIP or issue CUSIP, depending on the availability. CRSP/Compustat Merged data set contains balance sheet data for all acquirers in the sample, except for a negligible few while target data is missing for some banks.⁷ For acquirers, we take all available balance sheet data from Compustat for banks that match the list of acquirers from the Thomson One sample. Similarly, for targets, we take all available balance sheet data from Compustat to create a single data set that matches the list of targets from the Thomson One sample.⁸ Lastly, to create the non-merging sample, we take balance sheet data for all banks from Compustat and, once again using the merger data from the Thomson One sample, remove all acquirers and targets. For all of the banks in the acquirer, target, and the non-merging samples, time series data is created by collecting balance sheet data for all years available.

⁶The CRSP/Compustat Merged database was accessed via Wharton Research Data Services (WRDS).

⁷In the older version of this paper, we have complemented CRSP/Compustat Merged data set with the WRDS Bank Regulatory database. However, when we took a deeper look and compared the data for the same variables, we found significant differences, and therefore decided to keep one data source, which is CRSP/Compustat.

⁸Since the collection of balance sheet data for the acquirers and the targets is separate, the case of excluding an acquirer who in turn is eventually acquired is avoided. When the data is combined into one file, we confirm that these banks are not counted twice.

D.2 Summary Statistics for the Explanatory Variables

Table 1: SUMMARY STATISTICS: EXPLANATORY VARIABLES FOR ACQUIRERS

	Mean	Std.Dev.	Min	Max	Obs.	Sample Obs.
Asset Growth	15.96	13.04	-19.81	106.24	1368	1190
Stock Price Growth	8.90	33.21	-78.77	154.29	1432	1190
Bank Size	7.71	1.53	4.50	12.05	1444	1190
ROA	0.99	0.48	-4.16	2.08	1467	1190
Liquidity	5.31	3.50	0.65	23.96	1466	1190
Tangibility	1.58	0.69	0.21	4.33	1469	1190
Loans Ratio	63.96	10.88	23.61	88.92	1479	1190
Non-performing Loans	0.73	0.85	0.00	8.00	1476	1190
Tobin's Q	106.53	5.97	94.13	126.18	1455	1190
Tier 1 Capital	11.40	3.34	5.22	25.80	1414	1190

Table 2: SUMMARY STATISTICS: EXPLANATORY VARIABLES FOR TARGETS

	Mean	Std.Dev.	Min	Max	Obs.	Sample Obs.
Asset Growth	6.64	9.59	-23.55	44.71	158	124
Stock Price Growth	37.56	44.36	-75.97	171.49	166	124
Bank Size	6.80	1.42	4.32	11.92	464	124
ROA	0.77	0.64	-3.06	2.08	470	124
Liquidity	5.04	3.75	0.67	23.26	463	124
Tangibility	1.44	0.82	0.23	4.26	469	124
Loans Ratio	64.01	12.25	24.20	88.94	468	124
Non-performing Loans	0.90	1.25	0.00	8.43	463	124
Tobin's Q	103.88	5.28	93.75	125.93	467	124
Tier 1 Capital	11.05	3.56	5.26	25.40	436	124

Table 3: SUMMARY STATISTICS: EXPLANATORY VARIABLES FOR NON-MERGING SAMPLE

	Mean	Std.Dev.	Min	Max	Obs.	Sample Obs.
Asset Growth	8.94	11.91	-172.14	130.11	8535	7030
Stock Price Growth	7.67	44.44	-95.11	1395.68	8982	7030
Bank Size	6.91	1.42	4.32	12.10	9666	7030
ROA	0.71	0.77	-4.16	2.11	9631	7030
Liquidity	5.41	4.02	0.65	24.34	9639	7030
Tangibility	1.58	0.82	0.21	4.36	9628	7030
Loans Ratio	65.23	12.31	23.66	89.09	9627	7030
Non-performing Loans	1.11	1.43	0.00	9.16	9607	7030
Tobin's Q	103.75	5.82	93.29	126.20	9622	7030
Tier 1 Capital	11.50	3.54	5.19	26.03	9165	7030

Table 4: SIZE DISTRIBUTION OF OVERALL BANKING SECTOR

	p25	p50	p75	p90	p95
1994	243.99	515.19	1637.52	7729.34	17632.10
1995	258.73	535.68	1563.45	7564.51	19933.50
1996	273.28	610.96	1695.78	7720.80	21246.60
1997	304.27	669.23	1938.24	8951.11	25315.40
1998	286.92	649.56	1964.34	7648.10	25806.26
1999	283.27	567.37	1753.82	7725.18	23921.32
2000	304.07	637.03	1886.27	8265.22	25687.83
2001	341.71	682.17	2041.91	8736.78	23015.00
2002	382.69	763.62	2285.37	9552.32	23884.71
2003	400.47	855.53	2433.97	10305.04	26963.11
2004	434.37	878.65	2709.09	10037.71	28687.81
2005	528.52	994.40	2885.02	10309.98	31446.79
2006	541.77	1048.22	2898.83	10571.82	31854.77
2007	556.82	1130.11	3200.19	11167.16	30579.82
2008	599.39	1226.07	3212.39	10976.60	22734.65
2009	631.50	1312.00	3221.87	11588.23	21257.20
2010	664.59	1400.16	3529.80	12465.62	24698.95
2011	673.33	1368.98	3790.01	13637.47	27567.90
2012	691.87	1448.18	4370.37	14927.20	34387.68
2013	742.48	1631.58	4787.07	17640.98	37628.36
2014	807.32	1864.42	5902.92	20747.27	39344.64

Table 5: TARGET DATA COMPARISON

Panel A: Target Asset Growth						
	p25	p50	p75	p90	p95	Obs.
<i>No Restriction</i>						
Crisis	-1.49	2.19	6.94	10.11	14.23	17
Stable	0.97	5.25	12.25	18.71	24.61	130
<i>Acquirer Assets ≤ 10000</i>						
Crisis	-2.75	0.29	4.67	9.48	9.51	12
Stable	1.21	4.82	11.29	18.21	24.48	95
<i>Acquirer Assets ≥ 10000</i>						
Crisis	4.21	6.94	10.11	14.23	14.23	5
Stable	-0.58	6.53	14.33	22.55	34.63	35
Panel B: Target Stock Price Growth						
	p25	p50	p75	p90	p95	Obs.
<i>No Restriction</i>						
Crisis	-8.33	17.47	41.67	55.32	64.78	17
Stable	17.97	33.43	65.98	90.87	130.88	137
<i>Acquirer Assets ≤ 10000</i>						
Crisis	9.27	25.37	47.74	55.32	64.78	12
Stable	17.97	33.62	62.30	100.70	130.88	105
<i>Acquirer Assets ≥ 10000</i>						
Crisis	-55.47	-54.84	21.38	24.73	24.73	5
Stable	19.09	30.19	67.82	89.90	123.14	32
Panel C: Target Assets						
	p25	p50	p75	p90	p95	Obs.
<i>No Restriction</i>						
Crisis	552.86	928.49	2545.81	7371.13	11120.50	48
Stable	306.09	656.22	1616.53	5930.78	14344.54	368
<i>Acquirer Assets ≤ 10000</i>						
Crisis	465.69	653.41	1110.95	1868.18	2898.83	32
Stable	256.79	449.18	884.00	1588.00	2339.12	248
<i>Acquirer Assets ≥ 10000</i>						
Crisis	1057.31	3621.61	6918.09	11120.50	150374.08	16
Stable	696.28	2205.49	6872.10	22523.60	35041.38	120

This table shows the changes in the acquirers' systemic risk. Crisis period consists of observations between years 2007-2010. The p-values are reported with respect to unequal variance (Welch) t-test. * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 6: TARGET DATA COMPARISON (CONTINUED)

Panel D: Target Return on Assets						
	p25	p50	p75	p90	p95	Obs.
<i>No Restriction</i>						
Crisis	0.20	0.61	0.90	1.17	1.21	48
Stable	0.59	0.89	1.16	1.38	1.52	373
<i>Acquirer Assets ≤ 10000</i>						
Crisis	-0.36	0.47	0.82	0.92	1.13	31
Stable	0.50	0.85	1.12	1.36	1.47	255
<i>Acquirer Assets ≥ 10000</i>						
Crisis	0.50	0.81	1.08	1.22	1.28	17
Stable	0.68	0.99	1.22	1.44	1.64	118
Panel E: Target Liquidity						
	p25	p50	p75	p90	p95	Obs.
<i>No Restriction</i>						
Crisis	2.21	3.41	5.78	10.45	10.94	49
Stable	2.58	4.17	6.01	10.88	12.75	365
<i>Acquirer Assets ≤ 10000</i>						
Crisis	3.07	4.19	7.34	10.62	11.42	32
Stable	2.54	4.24	6.34	10.88	12.18	248
<i>Acquirer Assets ≥ 10000</i>						
Crisis	1.96	2.21	2.40	4.30	6.85	17
Stable	2.60	3.85	5.61	10.91	14.10	117
Panel F: Target Tangibility						
	p25	p50	p75	p90	p95	Obs.
<i>No Restriction</i>						
Crisis	0.92	1.57	2.20	2.86	3.30	49
Stable	0.80	1.24	1.69	2.38	2.85	371
<i>Acquirer Assets ≤ 10000</i>						
Crisis	0.88	1.73	2.22	2.79	3.63	32
Stable	0.84	1.27	1.83	2.55	3.29	253
<i>Acquirer Assets ≥ 10000</i>						
Crisis	0.92	1.28	2.04	3.15	3.30	17
Stable	0.73	1.08	1.61	2.05	2.38	118

This table shows the changes in the acquirers' systemic risk. Crisis period consists of observations between years 2007-2010. The p-values are reported with respect to unequal variance (Welch) t-test. * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 7: TARGET DATA COMPARISON (CONTINUED)

Panel G: Target Loans Ratio						
	p25	p50	p75	p90	p95	Obs.
<i>No Restriction</i>						
Crisis	65.47	69.23	76.76	80.67	81.88	48
Stable	55.39	63.43	72.22	78.71	81.18	371
<i>Acquirer Assets ≤ 10000</i>						
Crisis	66.74	69.59	77.20	80.06	82.40	31
Stable	55.22	63.75	72.47	79.18	83.02	252
<i>Acquirer Assets ≥ 10000</i>						
Crisis	60.88	66.62	73.03	81.12	81.88	17
Stable	55.58	63.20	71.23	76.13	79.23	119
Panel H: Target Non-performing Loans Ratio						
	p25	p50	p75	p90	p95	Obs.
<i>No Restriction</i>						
Crisis	0.22	0.52	1.43	3.04	3.92	49
Stable	0.22	0.45	0.94	2.13	3.55	366
<i>Acquirer Assets ≤ 10000</i>						
Crisis	0.21	0.72	2.48	3.09	4.32	32
Stable	0.20	0.45	1.13	3.08	4.44	249
<i>Acquirer Assets ≥ 10000</i>						
Crisis	0.30	0.41	0.64	1.02	1.43	17
Stable	0.27	0.45	0.69	1.16	1.42	117
Panel I: Target Tobin's Q						
	p25	p50	p75	p90	p95	Obs.
<i>No Restriction</i>						
Crisis	98.05	101.03	105.82	109.03	109.36	49
Stable	100.25	103.40	107.37	110.89	112.80	368
<i>Acquirer Assets ≤ 10000</i>						
Crisis	97.33	99.43	103.99	107.07	108.69	32
Stable	99.57	102.20	105.79	109.21	111.43	250
<i>Acquirer Assets ≥ 10000</i>						
Crisis	101.87	104.77	108.48	110.41	113.49	17
Stable	102.25	106.30	109.19	112.80	116.31	118
Panel H: Target Tier-1 Capital Ratio						
	p25	p50	p75	p90	p95	Obs.
<i>No Restriction</i>						
Crisis	8.43	10.41	12.37	14.59	15.90	48
Stable	8.40	10.51	12.80	15.62	17.79	340
<i>Acquirer Assets ≤ 10000</i>						
Crisis	9.18	10.47	12.63	14.59	16.50	32
Stable	8.82	10.81	13.36	16.73	18.18	229
<i>Acquirer Assets ≥ 10000</i>						
Crisis	7.85	9.91	10.95	12.63	15.43	16
Stable	7.81	9.82	11.84	14.29	15.43	111

This table shows the changes in the acquirers' systemic risk. Crisis period consists of observations between years 2007-2010. The p-values are reported with respect to unequal variance (Welch) t-test. * p < 0.1, ** p < 0.05, *** p < 0.01.

D.3 Propensity Score Matching

We estimate propensity scores of each bank for each year based upon a logit regression similar to the one in ?? using the following specification:

$$\begin{aligned} \left(\frac{\Pr(\text{A Bank Being An Acquirer})}{1 - \Pr(\text{A Bank Being An Acquirer})} \right) &= \beta_0 + \beta_1(\text{Return on Assets}_{i,t}) \\ &+ \beta_2(\text{Liquidity}_{i,t}) + \beta_3(\text{Tangibility}_{i,t}) + \beta_4(\text{Loans Ratio}_{i,t}) \\ &+ \beta_5(\text{Non-performing Loans}_{i,t}) + \beta_6(\text{Tobin's Q}_{i,t}) \\ &+ \beta_7(\text{Tier-1 Capital}_{i,t}) + \beta_8(\text{Bank Size}_{i,t}) + \mu_{i,t} \end{aligned}$$

Banks are matched using Leuven & Sianesi's (2003) propensity-score-matching procedure using the nearest neighborhood method. For each merger, the sample from which the acquirer's non-merging bank match is chosen from consists of all banks that did not merge in that given year. In addition, we divide the sample into eight groups with respect to size and restrict matches to belong in the same group.

In addition, we remove merging/non-merging pairs for which the pre-merger extreme observations with respect to risk measures for the control group are not in line with those of the merging banks. In particular, we exclude the upper and lower 1% of the observations for the control group if the observation for the corresponding merging bank is not in the same percentile. The aim of this exclusion is to control for the poor matches resulting from propensity score matching.⁹

⁹A similar approach is used for the cap-weighted control group in order to exclude its extreme values.

D.4 Correlation Coefficients for the Explanatory Variables

Table 8: CORRELATION COEFFICIENT MATRIX: DATA FOR ACQUIRERS

Dependent variable:	Asset Growth	Stock Price Growth	Bank Size	Return on Assets	Liquidity	Tangibility	Loans Ratio	Non-performing Loans	Tobin's Q	Tier 1 Capital
Asset Growth	1.000									
Stock Price Growth	-0.010	1.000								
Bank Size	-0.150	-0.053	1.000							
ROA	-0.086	-0.026	0.208	1.000						
Liquidity	0.084	0.060	-0.055	-0.006	1.000					
Tangibility	0.087	-0.067	-0.214	-0.034	0.157	1.000				
Loans Ratio	0.046	-0.079	-0.085	0.000	-0.216	0.067	1.000			
Non-performing Loans	-0.140	0.054	-0.018	-0.302	0.012	0.022	0.069	1.000		
Tobin's Q	0.135	-0.332	0.225	0.518	0.044	0.022	0.012	-0.320	1.000	
Tier 1 Capital	-0.026	0.007	-0.291	0.113	0.159	0.177	-0.137	0.095	-0.003	1.000

Table 9: CORRELATION COEFFICIENT MATRIX: DATA FOR TARGETS

Dependent variable:	Asset Growth	Stock Price Growth	Bank Size	Return on Assets	Liquidity	Tangibility	Loans Ratio	Non-performing Loans	Tobin's Q	Tier 1 Capital
Asset Growth	1.000									
Stock Price Growth	-0.096	1.000								
Bank Size	0.016	-0.047	1.000							
ROA	0.295	-0.126	0.131	1.000						
Liquidity	-0.129	0.139	-0.046	-0.063	1.000					
Tangibility	0.036	0.002	-0.096	-0.053	0.079	1.000				
Loans Ratio	0.011	0.018	-0.158	0.009	-0.106	0.109	1.000			
Non-performing Loans	-0.329	0.146	-0.081	-0.519	0.133	0.106	0.098	1.000		
Tobin's Q	0.344	-0.218	0.332	0.504	0.024	0.016	-0.055	-0.369	1.000	
Tier 1 Capital	0.018	0.006	-0.250	0.102	0.199	0.085	-0.123	-0.045	-0.034	1.000

D.5 FDIC-Assisted Mergers and TARP Recipient Banks

D.5.1 Troubled Asset Relief Program (TARP) Recipient Bank Sample Construction

We obtain the list of TARP recipient banks from the TARP Transactions Report on the US Department of Treasury website. Specifically, we use the report dated 25 December 2015. We find 738 transactions, some of which include multiple transactions with the same bank. This data only includes the name and the state of the bank without any other identifier. In order to obtain the RSSD ID of these banks, we match the list of TARP recipient banks with the Summary of Deposits (SOD) dataset that is available on the FDIC website (<https://www7.fdic.gov/sod/dynaDownload.asp?barItem=6>). SOD dataset includes banks' branch names, locations (both at the city and state level), and their RSSD IDs. We merge SOD datasets between 2007 and 2012 to obtain a full representation of bank names and their RSSD IDs. Even though most of the TARP payments are given to the bank holding companies, since some branches also received the TARP payments directly, we (fuzzy) match our TARP recipient bank sample with the SOD dataset at the branch and BHC level separately.

Moreover, we use the National Information Center (NIC) (<https://www.ffiec.gov/NPW>) and the Ibanknet website (<https://www.ibanknet.com/scripts/callreports/filist.aspx?type=tarp>) to check the correctness of the RSSD ID matches individually. After obtaining the bank name-RSSD ID matches for the TARP recipient banks, we match these banks with the ones in the NY Fed link table data using the RSSD ID. For the banks that do not match with respect to RSSD ID, we also conduct fuzzy match with respect to bank name and use the National Information Center (NIC) (<https://www.ffiec.gov/NPW>) to check the correctness of the RSSD ID-permco matches individually. This method provides us 284 RSSD ID-permco pairs for the TARP recipient bank dataset.

D.5.2 FDIC Assisted Merger Sample Construction

The failed bank list is obtained from the FDIC Failure Transaction Database, which consists of the failed banks, their acquirers, and the transaction closing dates. We match these transactions with the mergers in our sample using the acquirer and target names and the merger announcement dates. Next, we use the NIC website to check the correctness of the merger information. This method provides us 26 FDIC-assisted mergers in our overall merger sample.

D.6 Tests of Equal Variance Between Samples

MES

Equal Variance Test for Δ MES		
	Std. Dev.	Obs.
Stable	1.486	1389
Crisis	3.695	162
All	1.861	1551

H_a : ratio < 0 H_a : ratio > 0
 $\Pr(F < f) = 0.0000$ $\Pr(F > f) = 1.0000$
 H_a : ratio $\neq 1$
 $2 \Pr(F < f) = 0.0000$

Equal Variance Test for Δ CapMAES		
	Std. Dev.	Obs.
Stable	1.376	1372
Crisis	3.513	153
All	1.750	1525

H_a : ratio < 0 H_a : ratio > 0
 $\Pr(F < f) = 0.0000$ $\Pr(F > f) = 1.0000$
 H_a : ratio $\neq 1$
 $2 \Pr(F < f) = 0.0000$

Equal Variance Test for Δ MatchMAES		
	Std. Dev.	Obs.
Stable	1.651	973
Crisis	3.164	129
All	1.891	1102

H_a : ratio < 0 H_a : ratio > 0
 $\Pr(F < f) = 0.0000$ $\Pr(F > f) = 1.0000$
 H_a : ratio $\neq 1$
 $2 \Pr(F < f) = 0.0000$

NSRISK

Equal Variance Test for Δ NSRISK		
	Std. Dev.	Obs.
Stable	0.185	1282
Crisis	0.437	148
All	0.232	1430

Ha: ratio < 0 Ha: ratio > 0
 Pr(F < f) = 0.0000 Pr(F > f) = 1.0000
 Ha: ratio \neq 1
 2 Pr(F < f) = 0.0000

Equal Variance Test for Δ CapMANSRISK		
	Std. Dev.	Obs.
Stable	0.170	1266
Crisis	0.371	137
All	0.202	1403

Ha: ratio < 0 Ha: ratio > 0
 Pr(F < f) = 0.0000 Pr(F > f) = 1.0000
 Ha: ratio \neq 1
 2 Pr(F < f) = 0.0000

Equal Variance Test for Δ MatchMANSRISK		
	Std. Dev.	Obs.
Stable	0.203	876
Crisis	0.651	111
All	0.293	987

Ha: ratio < 0 Ha: ratio > 0
 Pr(F < f) = 0.0000 Pr(F > f) = 1.0000
 Ha: ratio \neq 1
 2 Pr(F < f) = 0.0000

ΔCoVaR

Equal Variance Test for Change in ΔCoVaR		
	Std. Dev.	Obs.
Stable	0.426	1181
Crisis	0.875	140
All	0.512	1321

Ha: ratio < 0 Ha: ratio > 0
Pr(F < f) = 0.0000 Pr(F > f) = 1.0000
Ha: ratio \neq 1
2 Pr(F < f) = 0.0000

Equal Variance Test for Change in CapMA ΔCoVaR		
	Std. Dev.	Obs.
Stable	0.417	1174
Crisis	0.860	121
All	0.496	1295

Ha: ratio < 0 Ha: ratio > 0
Pr(F < f) = 0.0000 Pr(F > f) = 1.0000
Ha: ratio \neq 1
2 Pr(F < f) = 0.0000

Equal Variance Test for Change in MatchMA ΔCoVaR		
	Std. Dev.	Obs.
Stable	0.286	663
Crisis	0.515	102
All	0.326	765

Ha: ratio < 0 Ha: ratio > 0
Pr(F < f) = 0.0000 Pr(F > f) = 1.0000
Ha: ratio \neq 1
2 Pr(F < f) = 0.0000

Appendix E Additional Analyses

E.1 Difference-in-Differences Analysis with More Details

Table 10: DIFFERENCE-IN-DIFFERENCES ANALYSIS FOR MES

	Stable Obs.	Stable	Crisis Obs.	Crisis	Risk Difference	p-value
<i>No Restriction</i>						
Δ MES	1389	0.163	162	1.008	-0.845***	(0.004)
Δ CapMAES	1372	0.101	153	-1.092	1.193***	(0.000)
Δ MatchMAES	973	0.118	129	-0.129	0.247	(0.386)
<i>Acquirer Assets ≤ 10000</i>						
Δ MES	1041	0.165	126	0.555	-0.391	(0.177)
Δ CapMAES	1028	0.143	118	-1.509	1.653***	(0.000)
Δ MatchMAES	793	0.156	107	-0.304	0.459	(0.153)
<i>Acquirer Assets ≤ 10000 & Target Assets ≥ 100</i>						
Δ MES	578	0.209	76	0.657	-0.448	(0.176)
Δ CapMAES	570	0.135	71	-1.767	1.902***	(0.000)
Δ MatchMAES	437	0.151	63	-0.521	0.672**	(0.038)
<i>Acquirer Assets ≤ 10000 & Target Assets ≥ 150</i>						
Δ MES	471	0.183	71	0.488	-0.304	(0.366)
Δ CapMAES	465	0.137	66	-1.774	1.911***	(0.000)
Δ MatchMAES	360	0.140	59	-0.588	0.729**	(0.033)
<i>Acquirer Assets ≤ 10000 & Target Assets ≥ 250</i>						
Δ MES	340	0.231	60	0.497	-0.266	(0.472)
Δ CapMAES	336	0.148	55	-1.443	1.590***	(0.000)
Δ MatchMAES	262	0.141	49	-0.648	0.789**	(0.024)
<i>Acquirer Assets ≥ 10000</i>						
Δ MES	289	0.181	31	2.872	-2.691***	(0.006)
Δ CapMAES	288	0.00122	31	0.156	-0.155	(0.687)
Δ MatchMAES	180	-0.0501	22	0.721	-0.771	(0.190)
<i>Acquirer Assets ≥ 10000 & Target Assets ≥ 100</i>						
Δ MES	203	0.112	24	2.983	-2.872***	(0.011)
Δ CapMAES	203	-0.0790	24	0.377	-0.456	(0.292)
Δ MatchMAES	135	-0.108	16	0.607	-0.715	(0.269)
<i>Acquirer Assets ≥ 10000 & Target Assets ≥ 150</i>						
Δ MES	198	0.115	24	2.983	-2.868***	(0.011)
Δ CapMAES	198	-0.0891	24	0.377	-0.466	(0.282)
Δ MatchMAES	131	-0.128	16	0.607	-0.735	(0.257)
<i>Acquirer Assets ≥ 10000 & Target Assets ≥ 250</i>						
Δ MES	184	0.139	24	2.983	-2.845***	(0.012)
Δ CapMAES	184	-0.0909	24	0.377	-0.468	(0.281)
Δ MatchMAES	121	-0.123	16	0.607	-0.729	(0.260)

This table shows the changes in the acquirers' Marginal Expected Shortfall (MES). Crisis period consists of observations between years 2007-2010. The p-values are reported with respect to unequal variance (Welch) t-test. * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 11: DIFFERENCE-IN-DIFFERENCES ANALYSIS FOR NSRISK

	Stable Obs.	Stable	Crisis Obs.	Crisis	Risk Difference	p-value
<i>No Restriction</i>						
Δ NSRISK	1282	-0.00187	148	0.186	-0.188***	(0.000)
Δ CapMANSRISK	1266	0.0315	137	-0.0943	0.126***	(0.000)
Δ MatchMANSRISK	876	0.0175	111	-0.134	0.151**	(0.016)
<i>Acquirer Assets ≤ 10000</i>						
Δ NSRISK	974	0.00816	116	0.145	-0.137***	(0.000)
Δ CapMANSRISK	961	0.0448	107	-0.130	0.175***	(0.000)
Δ MatchMANSRISK	701	0.0280	90	-0.147	0.175**	(0.013)
<i>Acquirer Assets ≤ 10000 & Target Assets ≥ 100</i>						
Δ NSRISK	535	-0.00217	72	0.155	-0.157***	(0.001)
Δ CapMANSRISK	530	0.0401	66	-0.150	0.190***	(0.000)
Δ MatchMANSRISK	388	0.0213	55	-0.176	0.197**	(0.028)
<i>Acquirer Assets ≤ 10000 & Target Assets ≥ 150</i>						
Δ NSRISK	435	0.000243	68	0.146	-0.145***	(0.001)
Δ CapMANSRISK	430	0.0445	62	-0.146	0.191***	(0.000)
Δ MatchMANSRISK	318	0.0315	52	-0.183	0.215**	(0.024)
<i>Acquirer Assets ≤ 10000 & Target Assets ≥ 250</i>						
Δ NSRISK	315	-0.00474	57	0.109	-0.113**	(0.016)
Δ CapMANSRISK	310	0.0411	51	-0.169	0.210***	(0.000)
Δ MatchMANSRISK	230	0.0374	44	-0.191	0.228**	(0.018)
<i>Acquirer Assets ≥ 10000</i>						
Δ NSRISK	285	-0.0379	31	0.319	-0.357***	(0.002)
Δ CapMANSRISK	282	-0.0135	30	0.0330	-0.0465	(0.527)
Δ MatchMANSRISK	175	-0.0244	21	-0.0792	0.0547	(0.718)
<i>Acquirer Assets ≥ 10000 & Target Assets ≥ 100</i>						
Δ NSRISK	200	-0.0500	24	0.308	-0.358***	(0.004)
Δ CapMANSRISK	197	-0.0199	23	0.00852	-0.0284	(0.691)
Δ MatchMANSRISK	132	-0.0358	16	-0.218	0.183	(0.240)
<i>Acquirer Assets ≥ 10000 & Target Assets ≥ 150</i>						
Δ NSRISK	195	-0.0500	24	0.308	-0.358***	(0.004)
Δ CapMANSRISK	192	-0.0211	23	0.00852	-0.0297	(0.679)
Δ MatchMANSRISK	128	-0.0358	16	-0.218	0.182	(0.241)
<i>Acquirer Assets ≥ 10000 & Target Assets ≥ 250</i>						
Δ NSRISK	181	-0.0484	24	0.308	-0.356***	(0.005)
Δ CapMANSRISK	178	-0.0192	23	0.00852	-0.0277	(0.699)
Δ MatchMANSRISK	119	-0.0277	16	-0.218	0.191	(0.222)

This table shows the changes in the acquirers' NSRISK. Crisis period consists of observations between years 2007-2010. The p-values are reported with respect to unequal variance (Welch) t-test. * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 12: DIFFERENCE-IN-DIFFERENCES ANALYSIS FOR ΔCoVaR

	Stable Obs.	Stable	Crisis Obs.	Crisis	Risk Difference	p-value
<i>No Restriction</i>						
Change in ΔCoVaR	1181	-0.00120	141	0.446	-0.447***	(0.000)
Change in CapMA ΔCoVaR	1174	0.0326	121	-0.458	0.491***	(0.000)
Change in MatchMA ΔCoVaR	663	0.0262	102	-0.0406	0.0667	(0.204)
<i>Acquirer Assets ≤ 10000</i>						
Change in ΔCoVaR	871	-0.0131	108	0.299	-0.312***	(0.000)
Change in CapMA ΔCoVaR	865	0.0460	94	-0.614	0.660***	(0.000)
Change in MatchMA ΔCoVaR	532	0.0149	84	-0.0960	0.111**	(0.036)
<i>Acquirer Assets ≤ 10000 & Target Assets ≥ 100</i>						
Change in ΔCoVaR	483	-0.000992	66	0.292	-0.293***	(0.002)
Change in CapMA ΔCoVaR	480	0.0421	59	-0.516	0.558***	(0.000)
Change in MatchMA ΔCoVaR	277	0.0227	49	-0.122	0.145**	(0.041)
<i>Acquirer Assets ≤ 10000 & Target Assets ≥ 150</i>						
Change in ΔCoVaR	397	-0.00957	61	0.277	-0.287***	(0.005)
Change in CapMA ΔCoVaR	394	0.0508	54	-0.495	0.545***	(0.000)
Change in MatchMA ΔCoVaR	232	0.0146	45	-0.0955	0.110	(0.135)
<i>Acquirer Assets ≤ 10000 & Target Assets ≥ 250</i>						
Change in ΔCoVaR	293	-0.00698	52	0.242	-0.249**	(0.032)
Change in CapMA ΔCoVaR	290	0.0574	45	-0.372	0.430***	(0.000)
Change in MatchMA ΔCoVaR	173	0.0386	39	-0.115	0.154**	(0.048)
<i>Acquirer Assets ≥ 10000</i>						
<i>& Target Assets ≥ 100</i>						
Change in ΔCoVaR	262	0.0357	28	1.038	-1.002***	(0.000)
Change in CapMA ΔCoVaR	261	0.0223	24	0.0910	-0.0687	(0.603)
Change in MatchMA ΔCoVaR	131	0.0720	18	0.218	-0.146	(0.368)
<i>Acquirer Assets ≥ 10000 & Target Assets ≥ 150</i>						
Change in ΔCoVaR	188	0.0462	21	1.059	-1.012***	(0.004)
Change in CapMA ΔCoVaR	187	0.0236	19	-0.0418	0.0654	(0.632)
Change in MatchMA ΔCoVaR	104	0.0543	12	0.225	-0.171	(0.391)
<i>Acquirer Assets ≥ 10000 & Target Assets ≥ 250</i>						
Change in ΔCoVaR	185	0.0527	21	1.059	-1.006***	(0.004)
Change in CapMA ΔCoVaR	184	0.0253	19	-0.0418	0.0671	(0.623)
Change in MatchMA ΔCoVaR	103	0.0580	12	0.225	-0.167	(0.401)
<i>Acquirer Assets ≥ 10000 & Target Assets ≥ 250</i>						
Change in ΔCoVaR	173	0.0375	21	1.059	-1.021***	(0.003)
Change in CapMA ΔCoVaR	172	0.0214	19	-0.0418	0.0632	(0.644)
Change in MatchMA ΔCoVaR	97	0.0533	12	0.225	-0.172	(0.389)

This table shows the changes in the acquirers' ΔCoVaR . Crisis period consists of observations between years 2007-2010. The p-values are reported with respect to unequal variance (Welch) t-test. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

E.2 Placebo Tests for Difference-in-Differences Analysis

Table 13: DIFFERENCE-IN-DIFFERENCES ANALYSIS (PLACEBO) FOR MES

	Stable Obs.	Stable	Crisis Obs.	Crisis	Risk Difference	p-value
<i>No Restriction</i>						
Δ MES	1180	0.346	371	-0.0492	0.395***	(0.000)
Δ CapMAES	1163	-0.155	362	0.420	-0.575***	(0.000)
Δ MatchMAES	828	0.130	274	-0.0353	0.165	(0.131)
<i>Acquirer Assets ≤ 10000</i>						
Δ MES	888	0.271	279	0.00108	0.270***	(0.004)
Δ CapMAES	874	-0.187	272	0.488	-0.674***	(0.000)
Δ MatchMAES	673	0.153	227	-0.0519	0.205	(0.106)
<i>Acquirer Assets ≤ 10000 & Target Assets ≥ 100</i>						
Δ MES	503	0.335	151	0.0135	0.321**	(0.011)
Δ CapMAES	494	-0.261	147	0.548	-0.809***	(0.000)
Δ MatchMAES	385	0.0823	115	0.0116	0.0707	(0.642)
<i>Acquirer Assets ≤ 10000 & Target Assets ≥ 150</i>						
Δ MES	416	0.267	126	0.0764	0.191	(0.166)
Δ CapMAES	409	-0.314	122	0.616	-0.930***	(0.000)
Δ MatchMAES	322	0.0185	97	0.102	-0.0835	(0.620)
<i>Acquirer Assets ≤ 10000 & Target Assets ≥ 250</i>						
Δ MES	313	0.350	87	-0.0168	0.367**	(0.021)
Δ CapMAES	307	-0.247	84	0.548	-0.795***	(0.000)
Δ MatchMAES	242	0.0127	69	0.0321	-0.0194	(0.919)
<i>Acquirer Assets ≥ 10000</i>						
Δ MES	238	0.675	82	-0.236	0.911***	(0.000)
Δ CapMAES	238	-0.0474	81	0.204	-0.251**	(0.025)
Δ MatchMAES	155	0.0304	47	0.0453	-0.0149	(0.937)
<i>Acquirer Assets ≥ 10000 & Target Assets ≥ 100</i>						
Δ MES	168	0.666	59	-0.298	0.963***	(0.000)
Δ CapMAES	168	-0.0866	59	0.128	-0.215*	(0.083)
Δ MatchMAES	115	-0.00723	36	-0.113	0.106	(0.592)
<i>Acquirer Assets ≥ 10000 & Target Assets ≥ 150</i>						
Δ MES	164	0.678	58	-0.289	0.967***	(0.000)
Δ CapMAES	164	-0.0895	58	0.105	-0.194	(0.117)
Δ MatchMAES	112	-0.0267	35	-0.116	0.0895	(0.659)
<i>Acquirer Assets ≥ 10000 & Target Assets ≥ 250</i>						
Δ MES	152	0.740	56	-0.274	1.014***	(0.000)
Δ CapMAES	152	-0.0901	56	0.107	-0.197	(0.128)
Δ MatchMAES	103	-0.0112	34	-0.116	0.105	(0.607)

This table shows the placebo test results regarding the changes in the acquirers' Marginal Expected Shortfall (MES). Crisis period consists of observations between years 2002-2005. The p-values are reported with respect to unequal variance (Welch) t-test. * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 14: DIFFERENCE-IN-DIFFERENCES ANALYSIS (PLACEBO) FOR NSRISK

	Stable Obs.	Stable	Crisis Obs.	Crisis	Risk Difference	p-value
<i>No Restriction</i>						
Δ NSRISK	1087	0.0161	343	0.0221	-0.00600	(0.554)
Δ CapMANSRISK	1060	0.0186	343	0.0210	-0.00241	(0.802)
Δ MatchMANSRISK	757	-0.00225	230	0.00957	-0.0118	(0.431)
<i>Acquirer Assets ≤ 10000</i>						
Δ NSRISK	831	0.0209	259	0.0288	-0.00796	(0.485)
Δ CapMANSRISK	809	0.0266	259	0.0293	-0.00267	(0.816)
Δ MatchMANSRISK	607	0.00658	184	0.0133	-0.00668	(0.697)
<i>Acquirer Assets ≤ 10000 & Target Assets ≥ 100</i>						
Δ NSRISK	469	0.00807	138	0.0449	-0.0368**	(0.018)
Δ CapMANSRISK	458	0.0125	138	0.0409	-0.0284*	(0.062)
Δ MatchMANSRISK	349	-0.00807	94	0.0150	-0.0230	(0.342)
<i>Acquirer Assets ≤ 10000 & Target Assets ≥ 150</i>						
Δ NSRISK	389	0.0123	114	0.0458	-0.0335**	(0.048)
Δ CapMANSRISK	378	0.0132	114	0.0442	-0.0310*	(0.061)
Δ MatchMANSRISK	290	-0.00541	80	0.0258	-0.0312	(0.261)
<i>Acquirer Assets ≤ 10000 & Target Assets ≥ 250</i>						
Δ NSRISK	294	0.00754	78	0.0317	-0.0242	(0.207)
Δ CapMANSRISK	283	0.00571	78	0.0318	-0.0261	(0.172)
Δ MatchMANSRISK	219	-0.00412	55	0.0200	-0.0241	(0.454)
<i>Acquirer Assets ≥ 10000</i>						
Δ NSRISK	238	-0.00240	78	-0.00425	0.00185	(0.935)
Δ CapMANSRISK	234	-0.00902	78	-0.00920	0.000180	(0.991)
Δ MatchMANSRISK	150	-0.0380	46	-0.00524	-0.0327	(0.280)
<i>Acquirer Assets ≥ 10000 & Target Assets ≥ 100</i>						
Δ NSRISK	168	-0.0137	56	-0.00513	-0.00861	(0.752)
Δ CapMANSRISK	164	-0.0197	56	-0.00884	-0.0108	(0.556)
Δ MatchMANSRISK	113	-0.0660	35	-0.0214	-0.0446	(0.165)
<i>Acquirer Assets ≥ 10000 & Target Assets ≥ 150</i>						
Δ NSRISK	164	-0.0124	55	-0.00588	-0.00652	(0.814)
Δ CapMANSRISK	160	-0.0210	55	-0.00911	-0.0119	(0.524)
Δ MatchMANSRISK	110	-0.0665	34	-0.0222	-0.0444	(0.178)
<i>Acquirer Assets ≥ 10000 & Target Assets ≥ 250</i>						
Δ NSRISK	152	-0.00528	53	-0.0105	0.00519	(0.858)
Δ CapMANSRISK	148	-0.0177	53	-0.0112	-0.00649	(0.742)
Δ MatchMANSRISK	102	-0.0585	33	-0.0250	-0.0336	(0.333)

This table shows the the placebo test results regarding the changes in the acquirers' NSRISK. Crisis period consists of observations between years 2002-2005. The p-values are reported with respect to unequal variance (Welch) t-test. * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 15: DIFFERENCE-IN-DIFFERENCES ANALYSIS (PLACEBO) FOR ΔCoVaR

	Stable Obs.	Stable	Crisis Obs.	Crisis	Risk Difference	p-value
<i>No Restriction</i>						
Change in ΔCoVaR	980	0.122	342	-0.171	0.293***	(0.000)
Change in CapMA ΔCoVaR	953	-0.0960	342	0.217	-0.313***	(0.000)
Change in MatchMA ΔCoVaR	541	0.0132	224	0.0271	-0.0139	(0.573)
<i>Acquirer Assets ≤ 10000</i>						
Change in ΔCoVaR	726	0.0789	253	-0.144	0.223***	(0.000)
Change in CapMA ΔCoVaR	706	-0.123	253	0.271	-0.394***	(0.000)
Change in MatchMA ΔCoVaR	433	-0.00110	183	0.00179	-0.00289	(0.905)
<i>Acquirer Assets ≤ 10000 & Target Assets ≥ 100</i>						
Change in ΔCoVaR	411	0.100	138	-0.162	0.262***	(0.000)
Change in CapMA ΔCoVaR	401	-0.112	138	0.251	-0.364***	(0.000)
Change in MatchMA ΔCoVaR	240	0.00266	86	-0.00401	0.00667	(0.836)
<i>Acquirer Assets ≤ 10000 & Target Assets ≥ 150</i>						
Change in ΔCoVaR	342	0.0981	116	-0.176	0.274***	(0.000)
Change in CapMA ΔCoVaR	332	-0.105	116	0.244	-0.350***	(0.000)
Change in MatchMA ΔCoVaR	204	-0.00488	73	0.00129	-0.00617	(0.864)
<i>Acquirer Assets ≤ 10000 & Target Assets ≥ 250</i>						
Change in ΔCoVaR	264	0.0996	81	-0.195	0.295***	(0.000)
Change in CapMA ΔCoVaR	254	-0.0854	81	0.266	-0.352***	(0.000)
Change in MatchMA ΔCoVaR	161	0.00198	51	0.0362	-0.0343	(0.437)
<i>Acquirer Assets ≥ 10000</i>						
Change in ΔCoVaR	209	0.285	81	-0.260	0.545***	(0.000)
Change in CapMA ΔCoVaR	204	0.0108	81	0.0715	-0.0607	(0.163)
Change in MatchMA ΔCoVaR	108	0.0706	41	0.140	-0.0694	(0.373)
<i>Acquirer Assets ≥ 10000 & Target Assets ≥ 100</i>						
Change in ΔCoVaR	151	0.304	58	-0.257	0.561***	(0.000)
Change in CapMA ΔCoVaR	148	-0.0122	58	0.0936	-0.106**	(0.039)
Change in MatchMA ΔCoVaR	83	0.0648	33	0.0901	-0.0253	(0.735)
<i>Acquirer Assets ≥ 10000 & Target Assets ≥ 150</i>						
Change in ΔCoVaR	149	0.306	57	-0.240	0.546***	(0.000)
Change in CapMA ΔCoVaR	146	-0.00992	57	0.0931	-0.103**	(0.047)
Change in MatchMA ΔCoVaR	82	0.0695	33	0.0901	-0.0206	(0.784)
<i>Acquirer Assets ≥ 10000 & Target Assets ≥ 250</i>						
Change in ΔCoVaR	139	0.310	55	-0.262	0.572***	(0.000)
Change in CapMA ΔCoVaR	136	-0.0149	55	0.0891	-0.104*	(0.055)
Change in MatchMA ΔCoVaR	77	0.0734	32	0.0696	0.00381	(0.960)

This table shows the placebo test results regarding the changes in the acquirers' ΔCoVaR . Crisis period consists of observations between years 2002-2005. The p-values are reported with respect to unequal variance (Welch) t-test. * p < 0.1, ** p < 0.05, *** p < 0.01.

E.3 Breakdown of $\Delta\text{CapMANSRISK}$

Table 16: BREAKDOWN OF NSRISK OLS REGRESSIONS

	ΔNSRISK		$\Delta\text{CapNSRISK}$		$\Delta\text{CapMANSRISK}$	
	(1)	(2)	(3)	(4)	(5)	(6)
Crisis	0.078*** (0.022)	0.171*** (0.040)	0.278*** (0.017)	0.455*** (0.034)	-0.201*** (0.021)	-0.285*** (0.036)
Crisis x Pre-merger CapMANSRISK	-0.148*** (0.046)	-0.146 (0.112)	0.255*** (0.036)	0.275** (0.128)	-0.403*** (0.045)	-0.420*** (0.084)
Stock Price Growth	-0.002*** (0.000)	-0.002*** (0.000)	-0.001*** (0.000)	0.000 (0.000)	-0.002*** (0.000)	-0.002*** (0.000)
Bank Size	-0.015*** (0.005)	-0.011* (0.007)	-0.007* (0.004)	-0.008** (0.004)	-0.009* (0.005)	-0.003 (0.005)
ROA	0.011 (0.017)	0.028 (0.020)	0.016 (0.014)	0.061*** (0.017)	-0.005 (0.017)	-0.033* (0.019)
Liquidity	-0.000 (0.002)	0.000 (0.002)	-0.001 (0.002)	0.002 (0.001)	0.001 (0.002)	-0.001 (0.002)
Tangibility	0.004 (0.010)	0.007 (0.013)	0.001 (0.007)	0.003 (0.008)	0.003 (0.009)	0.004 (0.012)
Loans Ratio	0.002** (0.001)	0.001* (0.001)	0.001* (0.000)	-0.000 (0.000)	0.001 (0.001)	0.002*** (0.001)
Non-performing Loans	-0.025*** (0.008)	-0.019 (0.018)	-0.025*** (0.006)	-0.023*** (0.007)	-0.001 (0.008)	0.004 (0.017)
Tobin's Q	0.000 (0.001)	-0.003 (0.002)	0.003*** (0.001)	-0.001 (0.001)	-0.003** (0.001)	-0.002 (0.002)
Tier 1 Capital	0.002 (0.002)	0.003 (0.002)	-0.003* (0.002)	-0.004*** (0.002)	0.005** (0.002)	0.008*** (0.002)
Constant	0.015 (0.154)	0.192 (0.197)	-0.329*** (0.119)	-0.043 (0.100)	0.343** (0.149)	0.235 (0.191)
Year Fixed Effects	No	Yes	No	Yes	No	Yes
Bank Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
N	1096	1096	1102	1102	1096	1096
R^2	0.199	0.257	0.294	0.467	0.163	0.241

This table shows the multivariate regression results for $\Delta\text{CapNSRISK}$, ΔNSRISK , and $\Delta\text{CapMANSRISK}$, where $\Delta\text{CapMANSRISK} = \Delta\text{NSRISK} - \Delta\text{CapNSRISK}$. Year fixed effects are included. Robust standard errors clustered by bank are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 17: BREAKDOWN OF NSRISK HECKMAN SELECTION MODEL REGRESSIONS

	Δ NSRISK		Δ CapNSRISK		Δ CapMANSRISK	
	(1)	(2)	(3)	(4)	(5)	(6)
Crisis	0.085** (0.036)	0.191*** (0.043)	0.277*** (0.032)	0.456*** (0.035)	-0.192*** (0.031)	-0.265*** (0.037)
Crisis x Pre-merger CapMANSRISK	-0.159 (0.113)	-0.156 (0.115)	0.208 (0.133)	0.230* (0.132)	-0.367*** (0.090)	-0.386*** (0.089)
Stock Price Growth	-0.003*** (0.000)	-0.002*** (0.000)	-0.001*** (0.000)	0.000 (0.000)	-0.002*** (0.000)	-0.002*** (0.000)
Bank Size	-0.027*** (0.008)	-0.022*** (0.009)	-0.007 (0.005)	-0.009** (0.004)	-0.020*** (0.007)	-0.013* (0.007)
ROA	0.008 (0.020)	0.025 (0.022)	0.020 (0.018)	0.061*** (0.018)	-0.011 (0.019)	-0.035* (0.020)
Liquidity	-0.001 (0.002)	-0.000 (0.003)	-0.001 (0.002)	0.001 (0.002)	0.000 (0.002)	-0.002 (0.003)
Tangibility	-0.001 (0.014)	0.003 (0.014)	0.002 (0.010)	0.004 (0.009)	-0.003 (0.014)	-0.000 (0.014)
Loans Ratio	0.002** (0.001)	0.001** (0.001)	0.001** (0.000)	-0.000 (0.000)	0.001 (0.001)	0.002** (0.001)
Non-performing Loans	-0.020 (0.017)	-0.015 (0.019)	-0.024*** (0.008)	-0.024*** (0.008)	0.004 (0.017)	0.009 (0.018)
Tobin's Q	-0.002 (0.002)	-0.005** (0.002)	0.003* (0.001)	-0.001 (0.001)	-0.004** (0.002)	-0.004* (0.002)
Tier 1 Capital	0.000 (0.002)	0.002 (0.002)	-0.003 (0.002)	-0.005*** (0.002)	0.003 (0.002)	0.006*** (0.002)
λ	-0.086*** (0.033)	-0.082** (0.032)	-0.002 (0.020)	-0.011 (0.018)	-0.084*** (0.029)	-0.071** (0.029)
Constant	0.465 (0.297)	0.601** (0.305)	-0.259 (0.171)	0.034 (0.169)	0.723*** (0.263)	0.568** (0.282)
Year Fixed Effects	No	Yes	No	Yes	No	Yes
Bank Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
N	11933	11933	11933	11933	11933	11933
R^2	0.213	0.271	0.292	0.462	0.163	0.236

This table shows the multivariate regression results for Δ CapNSRISK, Δ NSRISK, and Δ CapMANSRISK, where Δ CapMANSRISK = Δ NSRISK - Δ CapNSRISK. We control for selection bias using Heckman's two-step estimator by including the inverse Mills ratio obtained from the first-stage probit regression. Year fixed effects are included. Robust standard errors clustered by bank are in parentheses. * p < 0.1, ** p < 0.05, *** p < 0.01

E.4 Multivariate Regression with Target Data

Table 18: OLS ANALYSIS

	$\Delta\text{CapMAES}$		$\Delta\text{CapMANSRISK}$		Change in CapMA Δ CoVaR	
	(1)	(2)	(3)	(4)	(5)	(6)
Crisis x Pre-merger CapMAES	-0.817*** (0.090)	-0.814*** (0.092)				
Crisis x Pre-merger CapMANSRISK			-0.801*** (0.059)	-0.780*** (0.056)		
Crisis x Pre-merger CapMA Δ CoVaR					-0.275** (0.116)	-0.286** (0.115)
Crisis	-1.197*** (0.359)	-1.168** (0.561)	-0.184*** (0.047)	-0.249*** (0.066)	-0.637*** (0.228)	-0.374 (0.239)
Stock Price Growth	-0.001 (0.004)	-0.004 (0.005)	-0.001*** (0.000)	-0.002*** (0.000)	0.001 (0.001)	0.001 (0.001)
Bank Size	0.029 (0.107)	0.016 (0.106)	-0.028** (0.013)	-0.014 (0.013)	0.032 (0.028)	0.045 (0.029)
ROA	-0.408 (0.402)	-0.679* (0.357)	0.048 (0.040)	0.023 (0.035)	-0.102 (0.069)	-0.120* (0.067)
Liquidity	0.024 (0.025)	0.023 (0.031)	0.002 (0.003)	-0.001 (0.003)	-0.006 (0.009)	0.005 (0.009)
Tangibility	-0.104 (0.176)	-0.024 (0.164)	-0.006 (0.021)	0.021 (0.018)	-0.103* (0.052)	-0.035 (0.044)
Loans Ratio	-0.004 (0.010)	-0.009 (0.010)	0.002** (0.001)	0.002** (0.001)	0.005 (0.003)	0.003 (0.002)
Non-performing Loans	-0.176 (0.153)	-0.281* (0.151)	0.003 (0.017)	-0.016 (0.015)	-0.025 (0.053)	-0.044 (0.040)
Tobin's Q	0.025 (0.024)	0.040 (0.029)	0.000 (0.003)	-0.001 (0.003)	0.008 (0.006)	0.001 (0.006)
Tier 1 Capital	0.022 (0.036)	0.041 (0.036)	0.006* (0.003)	0.010*** (0.003)	0.010 (0.010)	0.011 (0.009)
Target Bank Size	-0.013 (0.111)	0.011 (0.119)	0.004 (0.014)	0.000 (0.014)	0.059** (0.028)	0.040 (0.027)
Target ROA	0.132 (0.202)	0.049 (0.202)	0.051** (0.022)	0.028 (0.022)	-0.001 (0.051)	-0.023 (0.048)
Target Liquidity	0.014 (0.022)	0.012 (0.023)	-0.007*** (0.003)	-0.008*** (0.003)	-0.000 (0.007)	-0.001 (0.006)
Target Tangibility	-0.035 (0.192)	-0.082 (0.198)	0.022 (0.014)	0.013 (0.012)	0.018 (0.038)	-0.014 (0.037)
Target Loans Ratio	-0.007 (0.008)	-0.007 (0.008)	-0.001 (0.001)	-0.001 (0.001)	-0.003 (0.002)	-0.004* (0.002)
Target Non-performing Loans	0.129* (0.073)	0.079 (0.081)	0.007 (0.011)	-0.004 (0.010)	0.017 (0.030)	0.004 (0.025)
Target Tobin's Q	0.011 (0.026)	0.024 (0.030)	-0.002 (0.003)	-0.002 (0.003)	-0.014** (0.006)	-0.008 (0.007)
Target Tier 1 Capital	-0.033 (0.024)	-0.033 (0.027)	-0.003 (0.004)	-0.004 (0.004)	0.014* (0.007)	0.010 (0.007)
Constant	-2.722 (2.984)	-5.255 (3.762)	0.198 (0.297)	0.243 (0.370)	-0.177 (0.739)	-0.196 (0.706)
Year Fixed Effects	No	Yes	No	Yes	No	Yes
Bank Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
N	291	291	276	276	257	257
R ²	0.308	0.397	0.422	0.531	0.176	0.399

This table shows the multivariate regression results with target data for $\Delta\text{CapMAES}$, $\Delta\text{CapMANSRISK}$, and the change in CapMA Δ CoVaR. Year fixed effects are included. Robust standard errors clustered by bank are in parentheses. * p < 0.1, ** p < 0.05, *** p < 0.01.

E.5 Heckman Selection Model with Probit Distribution

E.5.1 Heckman Selection Model First Stage (Probit)

Table 19: HECKMAN SELECTION MODEL FIRST STAGE RESULTS
(PROBIT)

	(1)	(2)	(3)
Asset Growth	2.464***		2.351***
	(0.191)		(0.159)
Stock Price Growth	0.001***	0.002***	
	(0.000)	(0.001)	
Bank Size	0.238***	0.220***	
	(0.017)	(0.016)	
ROA	0.246***	0.173***	
	(0.066)	(0.050)	
Liquidity	-0.012*	-0.007	
	(0.006)	(0.006)	
Tangibility	0.079***	0.088***	
	(0.029)	(0.028)	
Loans Ratio	0.001	0.002	
	(0.002)	(0.002)	
Non-performing Loans	-0.017	-0.067***	
	(0.026)	(0.026)	
Tobin's Q	0.016***	0.027***	
	(0.005)	(0.004)	
Tier 1 Capital	0.017**	0.011	
	(0.008)	(0.007)	
Constant	-5.499***	-6.116***	-1.495***
	(0.504)	(0.487)	(0.036)
Bank Fixed Effects	Yes	Yes	Yes
N	7950	8513	9608
Pseudo R^2	0.133	0.096	0.045

This table shows the first-stage probit estimation results of the Heckman selection model. The first step estimates the likelihood of a bank to become an acquirer. The dependent variable is equal to one if a bank makes an acquisition in the relevant year, and zero otherwise. Similar to Srivastav et. al (2018), asset growth is a new variable intended to proxy for a bank's propensity to acquire, but not its risk after acquisition. It is computed as the two-year growth in bank assets prior to the year in which the acquisition was announced.

E.6 Heckman Selection Model with Logit Distribution

E.6.1 Heckman Selection Model First Stage (Logit)

Table 20: HECKMAN SELECTION MODEL FIRST STAGE RESULTS
(LOGIT)

	(1)	(2)	(3)
Asset Growth	4.415*** (0.352)		4.156*** (0.290)
Stock Price Growth	0.002** (0.001)	0.003*** (0.001)	
Bank Size	0.425*** (0.031)	0.394*** (0.030)	
ROA	0.547*** (0.117)	0.349*** (0.093)	
Liquidity	-0.021* (0.012)	-0.013 (0.012)	
Tangibility	0.155*** (0.053)	0.165*** (0.052)	
Loans Ratio	0.003 (0.004)	0.003 (0.004)	
Non-performing Loans	-0.040 (0.053)	-0.141** (0.055)	
Tobin's Q	0.025*** (0.009)	0.047*** (0.008)	
Tier 1 Capital	0.033** (0.015)	0.020 (0.014)	
Constant	-9.598*** (0.939)	-10.763*** (0.916)	-2.573*** (0.070)
Bank Fixed Effects	Yes	Yes	Yes
N	7950	8513	9608
Pseudo R^2	0.129	0.093	0.043

This table shows the first-stage logit estimation results of the Heckman selection model. The first step estimates the likelihood of a bank to become an acquirer. The dependent variable is equal to one if a bank makes an acquisition in the relevant year, and zero otherwise. Similar to Srivastav et. al (2018), Asset Growth is a new variable intended to proxy for a bank's propensity to acquire, but not its risk after acquisition. It is computed as the two-year growth in bank assets prior to the year in which the acquisition was announced

E.6.2 Heckman Selection Model Second Stage (Logit)

Table 21: HECKMAN SELECTION MODEL SECOND STAGE RESULTS (LOGIT)

	$\Delta\text{CapMAES}$		$\Delta\text{CapMANSRISK}$		Change in $\text{CapMA}\Delta\text{CoVar}$	
	(1)	(2)	(3)	(4)	(5)	(6)
Crisis x Pre-merger CapMAES	-0.503*** (0.185)	-0.501*** (0.185)				
Crisis x Pre-merger CapMANSRISK			-0.365*** (0.090)	-0.385*** (0.089)		
Crisis x Pre-merger $\text{CapMA}\Delta\text{CoVar}$					-0.278*** (0.053)	-0.269*** (0.053)
Crisis	-1.695*** (0.283)	-1.259*** (0.328)	-0.192*** (0.031)	-0.265*** (0.037)	-0.958*** (0.116)	-0.708*** (0.123)
Stock Price Growth	0.000 (0.002)	-0.000 (0.002)	-0.002*** (0.000)	-0.002*** (0.000)	0.001 (0.001)	0.000 (0.001)
Bank Size	0.033 (0.052)	0.053 (0.054)	-0.017*** (0.007)	-0.011 (0.007)	0.043*** (0.014)	0.039*** (0.014)
ROA	-0.048 (0.195)	-0.027 (0.206)	-0.003 (0.019)	-0.028 (0.021)	0.046 (0.040)	0.015 (0.039)
Liquidity	0.006 (0.018)	0.013 (0.019)	0.000 (0.002)	-0.002 (0.003)	-0.005 (0.005)	0.006 (0.005)
Tangibility	-0.033 (0.098)	-0.021 (0.099)	-0.001 (0.014)	0.001 (0.014)	-0.021 (0.026)	-0.014 (0.023)
Loans Ratio	-0.004 (0.006)	-0.003 (0.006)	0.001 (0.001)	0.002*** (0.001)	-0.000 (0.002)	0.000 (0.001)
Non-performing Loans	0.119 (0.075)	0.059 (0.085)	0.003 (0.017)	0.008 (0.018)	0.071*** (0.026)	0.054** (0.026)
Tobin's Q	0.015 (0.016)	0.004 (0.018)	-0.004** (0.002)	-0.004* (0.002)	-0.005 (0.004)	-0.005 (0.004)
Tier 1 Capital	-0.001 (0.019)	0.001 (0.020)	0.004 (0.002)	0.007*** (0.002)	0.004 (0.006)	0.004 (0.005)
λ	-0.220 (0.632)	-0.199 (0.639)	-0.178*** (0.069)	-0.146** (0.068)	0.002 (0.136)	-0.065 (0.120)
Constant	-1.271 (2.190)	-0.937 (2.330)	0.693*** (0.267)	0.531* (0.286)	0.123 (0.517)	0.036 (0.471)
Year Fixed Effects	No	Yes	No	Yes	No	Yes
Bank Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
N	11933	11933	11933	11933	11933	11933
R^2	0.099	0.142	0.161	0.235	0.170	0.380

This table shows the multivariate regression results of $\Delta\text{CapMAES}$, $\Delta\text{CapMANSRISK}$, and the change in $\text{CapMA}\Delta\text{CoVar}$. We control for selection bias using Heckman's Selection Model by including the inverse Mills ratio obtained from the first-stage logit regression. Year fixed effects are included. Robust standard errors clustered by bank are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

E.7 Ex-post Difference-in-Differences Analysis

Table 22: EX-POST DIFFERENCE-IN-DIFFERENCES ANALYSIS FOR THE ACQUIRERS, PRE- AND POST-CRISIS FIRST YEARS EXCLUDED

	Obs.	Crisis Non-merging	Obs.	Crisis Merging	Difference	p-value
Δ Asset Growth	217	-0.0965	87	-0.0586	-0.0379**	(0.041)
Δ Stock Price Growth	219	45.41	88	31.24	14.17*	(0.080)
Δ Bank Size	248	0.297	94	0.575	-0.278***	(0.000)
Δ ROA	242	-0.384	97	-0.364	-0.0198	(0.820)
Δ Return Volatility	259	0.162	99	0.0761	0.0860***	(0.003)
Δ Liquidity	242	2.140	97	1.125	1.015*	(0.064)
Δ Tangibility	239	0.0126	96	-0.0175	0.0301	(0.625)
Δ Loans Ratio	241	-4.252	97	-4.418	0.167	(0.888)
Δ Non-performing Loans	238	1.831	97	1.453	0.378**	(0.047)
Δ Tobin's Q	246	-7.902	96	-8.451	0.550	(0.279)
Δ Tier 1 Capital	209	1.879	90	1.731	0.149	(0.741)

This table shows the comparison of the performance of the acquirers that merged during the 2008 financial crisis with those that did not. For each variable reported below, $\Delta variable$ is calculated by subtracting the pre-crisis values from the post-crisis values where post-crisis values are defined for the year 2012 and pre-crisis values are defined for the year 2005. Crisis Non-merging group is defined as the banks that did not merge between years 2007 and 2010 whereas the Crisis Merging group defined as the banks that merged during those years. The p-values are reported with respect to unequal variance (Welch) t-test. * p < 0.1, ** p < 0.05, *** p < 0.01.