

Online Appendix

**Risk Migration from the Banking Industry to the Real Economy:
An Examination of Spillover from Basel III**

Jing Wen

Graduate School of Business

Columbia University

April 2021

Table of Contents

Table A1: Falsification tests using 2007 as the pseudo proposal year of additional Basel III provisions..... 1

Table A2: Falsification tests using 2014 as the pseudo proposal year of additional Basel III provisions..... 2

Table A3: Falsification tests using \$150 billion as the pseudo asset-size cutoff for additional Basel III provisions..... 3

Table A4: Falsification tests using \$450 billion as the pseudo asset-size cutoff for additional Basel III provisions..... 4

Table A1: Falsification tests using 2007 as the pseudo proposal year of additional Basel III provisions

This table presents the results for falsification tests using 2007 as the pseudo proposal year of the additional Basel III provisions. Specifically, it presents results from estimating Equations [1] and [2]. I examine the effects of Base III on *LoanCosts* in Columns (1) and (2) and examine the effects of $\Delta RiskTaking$ in Columns (3) through (10). All variables are defined in Appendix A. α_{ij} represents the bank \times borrower fixed effect, which perfectly subsumes the stand-alone bank fixed effect and borrower fixed effect. α_{st} represents the industry \times year \times quarter (or industry \times year) fixed effect. Variables in Columns (1) and (3) are computed at the quarterly level, whereas variables in Columns (4) through (10) are at the yearly level. It is worth noting that Column (10) controls for the stand-alone borrower and bank fixed effects (rather than bank \times borrower fixed effect) due to limited number of observations for banks with R&D expenditures. Standard errors are clustered at the bank level. All continuous variables are winsorized at the top and bottom 1%. *T*-statistics are in parentheses. *, **, *** indicate statistical significance (two-sided) at the 0.1, 0.05, and 0.01 levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	SprdFee	LSize	OptV	AssetV	DTD	DEBITM	HHI	CAPEX	IntInv	R&D
Treat*Post	16.715	-0.044*	0.023	0.035*	-1.375*	0.001	0.013	0.170**	8.106	0.109***
	(1.45)	(-1.74)	(0.97)	(1.81)	(-2.12)	(0.04)	(0.50)	(2.10)	(0.38)	(2.92)
Treat	-3.226	-0.007	-0.016	-0.052**	-1.172**	0.066***	0.004	-0.006	16.149	0.022
	(-0.34)	(-0.82)	(-0.90)	(-2.64)	(-2.35)	(4.09)	(0.08)	(-0.17)	(1.47)	(0.65)
LogBankAsset	-38.601***	0.013	-0.009	-0.002	-1.434	0.042	-0.003	-0.119*	-1.760	-0.032**
	(-4.60)	(1.48)	(-0.50)	(-0.10)	(-1.20)	(1.35)	(-0.11)	(-1.97)	(-0.26)	(-2.74)
LogAsset	-23.598***	-0.056***	0.040***	-0.002	-1.832**	0.008	0.006	-0.261***	16.316***	-0.174***
	(-8.08)	(-7.63)	(6.53)	(-0.21)	(-2.76)	(0.26)	(0.82)	(-8.77)	(4.97)	(-9.88)
ROA	-498.378***	0.256***	-0.025	-0.047	-1.715	0.210	-0.090*	-0.665***	-5.701	0.317**
	(-4.19)	(3.32)	(-0.13)	(-0.91)	(-0.71)	(1.28)	(-1.98)	(-4.04)	(-0.14)	(2.68)
Leverage	99.675***	0.004	-0.024	0.098**	-2.644***	0.150	-0.007	0.285**	8.762	-0.006
	(4.42)	(0.24)	(-1.05)	(2.38)	(-3.83)	(1.26)	(-0.20)	(2.67)	(0.38)	(-0.11)
LogMaturity	-0.182	0.017***								
	(-0.08)	(8.42)								
LoanType	46.465***	-0.005								
	(16.28)	(-0.85)								
PriorRel	-4.425	-0.064*								
	(-0.14)	(-1.80)								
Borrower FE	/	/	/	/	/	/	/	/	/	Yes
Bank \times Borrower FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	/
Industry \times Year \times Quarter FE	Yes	Yes	Yes	/	/	/	/	/	/	/
Industry \times Year FE	/	/	/	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,447	8,447	3,035	2,859	2,295	1,631	3,502	4,149	2,982	1,840
Adj. R-Square	0.675	0.458	0.743	0.579	0.420	0.084	0.262	0.234	0.170	0.221

Table A2: Falsification tests using 2014 as the pseudo proposal year of additional Basel III provisions

This table presents the results for falsification tests using 2014 as the pseudo proposal year of the additional Basel III provisions. Specifically, it presents results from estimating Equations [1] and [2]. I examine the effects of Base III on *LoanCosts* in Columns (1) and (2) and examine the effects of $\Delta RiskTaking$ in Columns (3) through (10). All variables are defined in Appendix A. α_{ij} represents the bank \times borrower fixed effect, which perfectly subsumes the stand-alone bank fixed effect and borrower fixed effect. α_{st} represents the industry \times year \times quarter (or industry \times year) fixed effect. Variables in Columns (1) and (3) are computed at the quarterly level, whereas variables in Columns (4) through (10) are at the yearly level. It is worth noting that Column (10) controls for the stand-alone borrower and bank fixed effects (rather than bank \times borrower fixed effect) due to limited number of observations for banks with R&D expenditures. Standard errors are clustered at the bank level. All continuous variables are winsorized at the top and bottom 1%. *T*-statistics are in parentheses. *, **, *** indicate statistical significance (two-sided) at the 0.1, 0.05, and 0.01 levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	SprdFee	LSize	OptV	AssetV	DTD	DEBITM	HHI	CAPEX	IntInv	R&D
Treat*Post	-4.930	-0.013*	0.023	0.009	-0.883*	0.036*	0.007	0.074	9.518	0.031
	(-0.64)	(-1.72)	(1.68)	(0.53)	(-1.93)	(1.96)	(0.34)	(1.36)	(1.20)	(0.67)
Treat	2.323	0.002	-0.049***	-0.060**	-0.784	-0.015	0.006	-0.017	14.841**	-0.043
	(0.29)	(0.19)	(-3.87)	(-2.32)	(-1.05)	(-1.25)	(0.12)	(-0.28)	(2.14)	(-1.12)
LogBankAsset	-36.685***	-0.004	0.013	0.031	-2.123**	0.059**	-0.003	-0.030	-0.322	0.001
	(-4.72)	(-0.29)	(0.97)	(1.14)	(-2.68)	(2.20)	(-0.18)	(-0.73)	(-0.02)	(0.08)
LogAsset	-22.333***	-0.055***	0.037***	0.001	-1.877**	0.007	-0.001	-0.319***	11.033***	-0.180***
	(-5.78)	(-10.67)	(9.57)	(0.10)	(-2.91)	(0.27)	(-0.17)	(-9.13)	(5.62)	(-15.25)
ROA	-486.620***	0.250***	0.154	-0.073*	-2.398	0.253	-0.106**	-0.781***	-7.314	-0.056
	(-4.02)	(3.63)	(1.34)	(-1.91)	(-1.25)	(1.16)	(-2.30)	(-4.65)	(-0.17)	(-0.71)
Leverage	91.940***	-0.001	0.002	0.132***	-2.506**	0.150	0.033	0.191**	-1.998	-0.019
	(7.15)	(-0.04)	(0.19)	(6.38)	(-2.93)	(0.98)	(0.92)	(2.43)	(-0.12)	(-0.22)
LogMaturity	-1.099	0.018***								
	(-0.47)	(9.69)								
LoanType	46.985***	-0.004								
	(18.32)	(-0.72)								
PriorRel	122.533**	-0.014								
	(2.28)	(-0.26)								
Borrower FE	/	/	/	/	/	/	/	/	/	Yes
Bank \times Borrower FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	/
Industry \times Year \times Quarter FE	Yes	Yes	Yes	/	/	/	/	/	/	/
Industry \times Year FE	/	/	/	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,517	8,517	2,993	2,941	2,438	1,624	3,495	4,006	2,958	1,853
Adj. R-Square	0.686	0.472	0.741	0.591	0.438	0.241	0.283	0.326	0.156	0.257

Table A3: Falsification tests using \$150 billion as the pseudo asset-size cutoff for additional Basel III provisions

This table presents the results for falsification tests using \$150 billion as the pseudo asset-size cutoff for additional Basel III provisions. Specifically, it presents results from estimating Equations [1] and [2]. I examine the effects of Base III on *LoanCosts* in Columns (1) and (2) and examine the effects of $\Delta RiskTaking$ in Columns (3) through (10). All variables are defined in Appendix A. α_{ij} represents the bank \times borrower fixed effect, which perfectly subsumes the stand-alone bank fixed effect and borrower fixed effect. α_{st} represents the industry \times year \times quarter (or industry \times year) fixed effect. Variables in Columns (1) and (3) are computed at the quarterly level, whereas variables in Columns (4) through (10) are at the yearly level. It is worth noting that Column (10) controls for the stand-alone borrower and bank fixed effects (rather than bank \times borrower fixed effect) due to limited number of observations for banks with R&D expenditures. Standard errors are clustered at the bank level. All continuous variables are winsorized at the top and bottom 1%. *T*-statistics are in parentheses. *, **, *** indicate statistical significance (two-sided) at the 0.1, 0.05, and 0.01 levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	SprdFee	LSize	OptV	AssetV	DTD	DEBITM	HHI	CAPEX	IntInv	R&D
Treat*Post	15.487* (1.89)	-0.015 (-1.68)	0.019 (1.05)	0.030* (1.99)	-1.016** (-2.79)	0.006 (0.21)	0.045 (1.61)	0.132** (2.81)	-0.717 (-0.08)	0.069* (1.96)
Treat	0.711 (0.08)	0.025* (2.01)	-0.003 (-0.26)	-0.072*** (-3.73)	-0.206 (-0.36)	0.036*** (3.79)	0.011 (0.57)	-0.032 (-0.68)	-13.366 (-0.63)	-0.036 (-1.42)
LogBankAsset	-35.825*** (-4.06)	-0.009 (-0.60)	0.004 (0.28)	0.018 (0.70)	-2.519** (-2.68)	0.070*** (3.57)	-0.005 (-0.37)	-0.047 (-1.06)	0.795 (0.06)	-0.001 (-0.05)
LogAsset	-25.035*** (-6.04)	-0.055*** (-9.14)	0.042*** (10.52)	-0.001 (-0.09)	-1.731** (-2.76)	0.026 (0.75)	0.001 (0.16)	-0.284*** (-9.26)	15.950*** (6.21)	-0.170*** (-10.36)
ROA	-515.584*** (-4.31)	0.223*** (3.64)	0.086 (0.73)	-0.081 (-1.73)	-1.575 (-0.76)	0.308 (1.36)	-0.080** (-2.26)	-0.734*** (-5.12)	-3.159 (-0.06)	0.064 (0.58)
Leverage	91.978*** (6.24)	0.011 (0.68)	-0.017 (-1.24)	0.105*** (3.31)	-2.173** (-2.89)	0.202 (1.68)	0.014 (0.38)	0.199** (2.10)	4.409 (0.21)	-0.040 (-0.57)
LogMaturity	-2.462 (-0.94)	0.019*** (8.01)								
LoanType	47.012*** (15.85)	-0.006 (-1.01)								
PriorRel	19.133 (0.45)	-0.051 (-0.98)								
Borrower FE	/	/	/	/	/	/	/	/	/	Yes
Bank \times Borrower FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	/
Industry \times Year \times Quarter FE	Yes	Yes	Yes	/	/	/	/	/	/	/
Industry \times Year FE	/	/	/	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,906	8,906	3,144	3,099	2,528	1,725	3,641	4,293	3,097	1,931
Adj. R-Square	0.682	0.460	0.748	0.581	0.444	0.244	0.285	0.263	0.147	0.245

Table A4: Falsification tests using \$450 billion as the pseudo asset-size cutoff for additional Basel III provisions

This table presents the results for falsification tests using \$450 billion as the pseudo asset-size cutoff for additional Basel III provisions. Specifically, it presents results from estimating Equations [1] and [2]. I examine the effects of Base III on *LoanCosts* in Columns (1) and (2) and examine the effects of $\Delta RiskTaking$ in Columns (3) through (10). All variables are defined in Appendix A. α_{ij} represents the bank \times borrower fixed effect, which perfectly subsumes the stand-alone bank fixed effect and borrower fixed effect. α_{st} represents the industry \times year \times quarter (or industry \times year) fixed effect. Variables in Columns (1) and (3) are computed at the quarterly level, whereas variables in Columns (4) through (10) are at the yearly level. It is worth noting that Column (10) controls for the stand-alone borrower and bank fixed effects (rather than bank \times borrower fixed effect) due to limited number of observations for banks with R&D expenditures. Standard errors are clustered at the bank level. All continuous variables are winsorized at the top and bottom 1%. *T*-statistics are in parentheses. *, **, *** indicate statistical significance (two-sided) at the 0.1, 0.05, and 0.01 levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	SprdFee	LSize	OptV	AssetV	DTD	DEBITM	HHI	CAPEX	IntInv	R&D
Treat*Post	8.714 (1.22)	-0.012** (-2.29)	0.031*** (3.22)	0.016 (1.03)	-0.442 (-0.63)	0.040* (1.87)	0.023 (1.31)	0.092* (1.81)	12.972*** (3.00)	0.024 (0.56)
Treat	-32.885** (-2.22)	0.025* (2.02)	-0.021 (-1.00)	0.011 (0.47)	0.934 (1.54)	-0.033 (-1.09)	-0.002 (-0.26)	-0.024 (-0.73)	-10.157 (-1.46)	-0.016 (-0.47)
LogBankAsset	-29.407*** (-4.52)	-0.013 (-1.13)	0.007 (0.44)	0.003 (0.19)	-2.693** (-2.92)	0.076*** (3.37)	-0.001 (-0.03)	-0.039 (-0.95)	-2.187 (-0.17)	-0.001 (-0.03)
LogAsset	-24.233*** (-6.76)	-0.055*** (-9.51)	0.043*** (10.59)	-0.002 (-0.19)	-1.756** (-2.78)	0.029 (0.84)	0.001 (0.27)	-0.282*** (-9.40)	16.471*** (6.45)	-0.170*** (-10.18)
ROA	-518.781*** (-4.30)	0.223*** (3.68)	0.084 (0.70)	-0.080 (-1.71)	-1.630 (-0.79)	0.310 (1.38)	-0.081** (-2.26)	-0.736*** (-5.08)	-2.132 (-0.04)	0.068 (0.63)
Leverage	91.210*** (6.06)	0.011 (0.72)	-0.019 (-1.38)	0.108*** (3.36)	-2.162** (-2.86)	0.199 (1.67)	0.015 (0.40)	0.198* (2.07)	3.269 (0.15)	-0.040 (-0.56)
LogMaturity	-2.410 (-0.91)	0.019*** (8.00)								
LoanType	46.945*** (16.19)	-0.006 (-0.99)								
PriorRel	23.728 (0.56)	-0.055 (-1.05)								
Borrower FE	/	/	/	/	/	/	/	/	/	Yes
Bank \times Borrower FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	/
Industry \times Year \times Quarter FE	Yes	Yes	Yes	/	/	/	/	/	/	/
Industry \times Year FE	/	/	/	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,906	8,906	3,144	3,099	2,528	1,725	3,641	4,293	3,097	1,931
Adj. R-Square	0.682	0.460	0.748	0.580	0.444	0.245	0.285	0.263	0.148	0.244