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Insurance Business Diversification and Systemic Risk

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1. Introduction

(*MetLife, Inc. v. Financial Stability Oversight Council, 2016*)

2. The Impact of Business Diversification on Systemic Risk

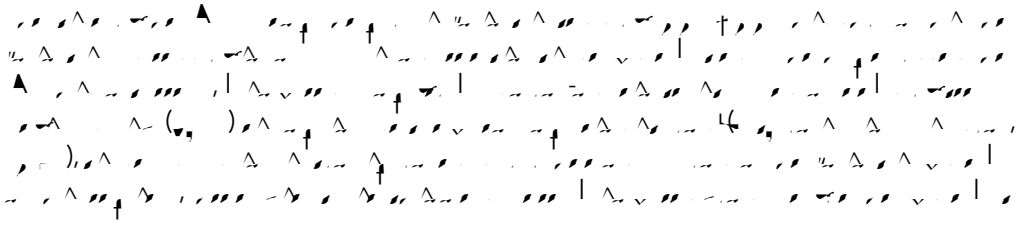

Table 1: Volatility and Correlation of Premium and Claim Cash Flows

$$CoVaR_q = CoVaR_{r = VaR(q)} - CoVaR_{r = VaR(\quad)} \qquad (\quad)$$

E

Table 2: Descriptive Statistics

BAN				
INS				
NoFin				

4. Empirical Analysis

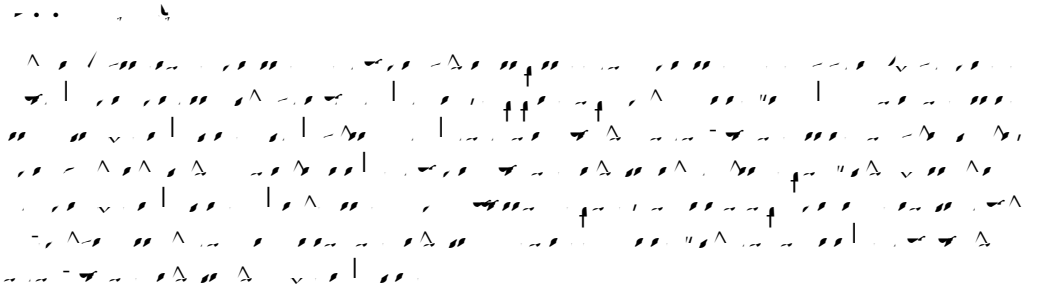

Table 3: OLS Panel Regression

Table 4: Systemic Risk Minimizing Life Insurance Business Allocation *α**

*			

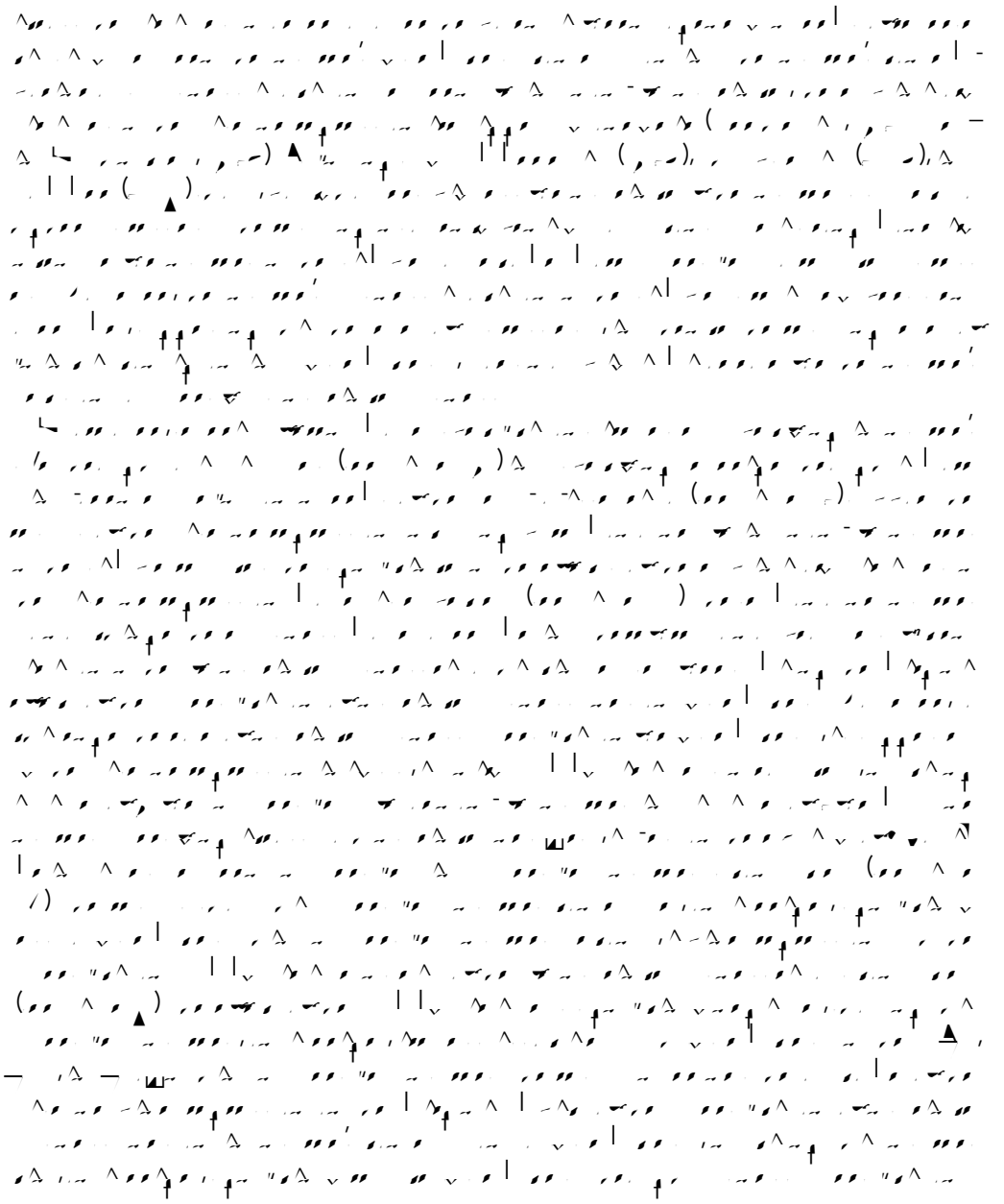

Table 6: Robustness Check with Diversification Dummy

	D		
	C (1)	C (2)	C (3)
Diversification	**	*	**
	( )	( )	( )
Total Assets	***	***	***
	( )	( )	( )

Leverage	--		
	( )	( )	( )
Non-Core Activities	--		
	( )	( )	( )
Net-Claims Ratio			
	( )	( )	( )
RoI			
	( )	( )	( )
RoE			
	( )	( )	( )

*** **

5. Conclusion

Appendix

A. C F

Table 7: Variables and Data Sources for the Cash Flow Analysis

	D	D

A. C E L

$$R = \alpha R_L + (1 - \alpha) R_{NL} \qquad (1)$$

$$= (D - \mu_R) \Phi(z) + \sigma_R \phi(z)$$

$$= (D - \mu_R) \Phi(z) + \sigma_R z \Phi(z)$$

$$= \Phi(z) \qquad (2)$$

Table 9: Variables and Data Sources for the Baseline Regression

D		
E		

Table 10: List of Insurers in the Baseline Regression Sample from 2 –2 2

Table 11: Geographic Distribution of Insurers in the Baseline Regression Sample

G	F	
		%
T		%
		%
		%

A E

Table 12: State Variables for ΔCoVaR Estimation

	D
T	T
T	
& (&)	
( )	

G B (BA)

RoI	**	**	***
	( )	( )	( )
RoE			
	( )	( )	( )

Table 16: OLS Panel Regression: Europe

	D		
	C	C	C
	(1)	(2)	(3)
Life	*	*	*
	( )	( )	( )
Life	*	*	*
	( )	( )	( )
Total Assets	***	***	***
	( )	( )	( )
Leverage			
	( )	( )	( )
Non-Core Activities			
	( )	( )	( )
Net-Claims Ratio		*	
	( )	( )	( )
RoI			
	( )	( )	( )
RoE			
	( )	( )	( )

Table 17: OLS Panel Regression: Mature Markets

	D		
	C	C	C
	(1)	(2)	(3)
Life	*	**	*
	( )	( )	( )
Life	*	**	*
	( )	( )	( )
Total Assets	***	***	***
	( )	( )	( )
Leverage			
	( )	( )	( )
Non-Core Activities	**		
	( )	( )	( )
Net-Claims Ratio			
	( )	( )	( )
RoI	--	--	
	( )	( )	( )
RoE	--		--
	( )	( )	( )

* ** ***

Table 18: OLS Panel Regression: Emerging Markets

	D		
	C	C	C
	(1)	(2)	(3)

	( )	( )	( )
Net-Claims Ratio			
	( )	( )	( )
RoI		*	
	( )	( )	( )
RoE			
	( )	( )	( )

* ** ***

A. C :

Table 19: Correlation Coefficients of the Explanatory Variables

	L -C I D - -C
A L I A L A E	
	- - -
	- - -
	- - -
	- -
	-
	- -
	-
	- -

Table 20: Robustness Check: Size as Total Liabilities

	D		
	C	C	C
	(1)	(2)	(3)
Life	**	**	***
	( )	( )	( )
Life	**	**	***
	( )	( )	( )

Table 23: t-test on the Equality of Scaled ΔCoVaR Mean Values

		D	
BAN	[illegible]	[illegible]	***
INS	[illegible]	[illegible]	***
NoFin	[illegible]	[illegible]	***

[illegible]

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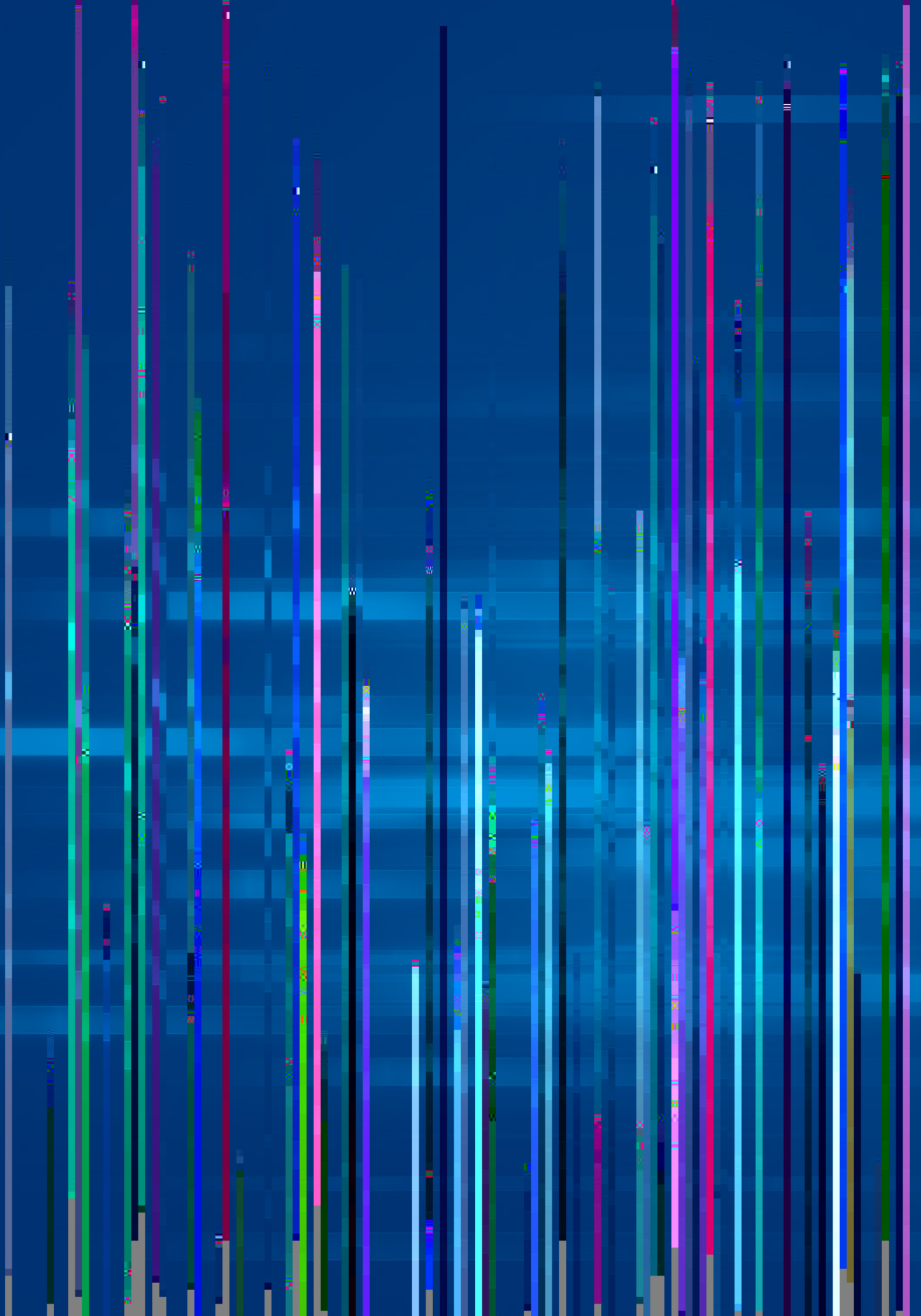
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