Underwriting Insurance and Risk of Bank Holding Companies

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Gramm-Leach-Bliley Act (GLBA) 1999

- Repealed Glass-Steagall Act of 1933
- Allowed mergers between various kinds of financial institutions.
- Also allowed banks to offer insurance services and vice versa.

GLBA - 1999

- Many studied the effect of Gramm-Leach-Bliley Act (GLBA) 1999 on investment banking /trading activities of banks:
  - Sherman (2009)
  - Bordo (2008)
  - Eichengreen (2008)
  - Yang (2017)
  - Chen, Huang and Zhang (2017)

Banks and Insurance Underwriting

- GLBA also allowed insurance underwriting by bank.
- Risk Mgnt. for Banks and Insurers have some fundamental differences.
- So far this topic has not been studied.
- This is the focus of our study.

Research Question

- Do BHCs with insurance underwriting (aka FHCs) differ from BHCs without insurance underwriting in terms of Risk Management?
  - are there spillover benefits that accrue to FHCs underwriting insurance over their comparable BHCs
- Did FHCs perform differently from BHCs during the financial crisis?
  - whether these discretionary elements translate to a lower probability of default for the FHCs

Literature Review

- Johnston and Madura (2000) :
  - GLBA had a positive affect on stock prices of financial institutions
- Carow (2001)
  - Life insurance and large banks more positively affected
- Fields, Fraser and Kolari (2007a)
  - Bidders in bank-insurance mergers have positive stock price response
- Fields, Fraser and Kolari (2007b)
  - CEO ownership is associated with bank-insurance mergers stock price response

OVERALL: Bancassurance model seem viable in the U.S.

Literature Review (contd..)

- Risk adjusted returns of diversified banks did not improve
  - De Young and Rice (2004)
  - Stiroh and Rumble (2006)
  - Yaeger et al (2007)
- Chang and Elyasiani (2015)
  - the effect of insurance activities on risk-adjusted returns is generally negative
- DeYoung, Evanoff, and Molyneux (2009)
  - M&A have gradually declined

Risk Management

Banks

- Bank can change their Assets with relative ease
  - Investment vs. Loans
  - Securitize Loans
  - Sell or Buy Investments
- Liabilities are short-term
  - NPV(Liab.) is insensitive to interest rate changes
- Risk Management focuses on earnings volatility
- Risks are simpler and short-term.

Insurance

- Assets for Insurers are highly regulated
- Liabilities are very long term
  - NPV(Liab.) highly sensitive to interest rate changes
- Risk Management focuses on revaluing liabilities
- Risks are long term and difficult to find natural hedges.

Research Question

- Whether FHCs differ from comparable BHCs
  - Discretionary Accruals
  - Default Risk
- Does Risk Governance has any impact on discretionary Accruals and Default Risk
- Did FHCs perform differently during the financial crisis?

We Find

- FHCs and BHCs with similar interest risk, profitability, and cost efficiency
  - differ on Discretionary Loan Loss Provisions
  - but not on Default Risk
- FHCs and BHCs with similar interest risk, profitability, and cost efficiency have
  - Have similar Bad Loans ratio before financial crisis
  - BUT
  - FHCs have much smaller Bad Loans ratio during the financial crisis.

Data-FHC

- Large BHCs (Assets > $500million)
- Headquartered in the U.S.
- 2003Q1- 2006Q4
  - 2003 when the insurance underwriting data became available
  - 2007 when the real estate prices began a rapid decline
  - 216 unique FHCs with 1726 Observations.

Data – matched BHC

- Insurers differ from banks in duration of their assets and liabilities
- Therefore, we find one-to-one matches for FHCs
- Use Propensity score
- Match each period
- Match on
  - profitability (ROA)
  - cost efficiency (cost to income ratio)
  - repricing gap
- Matches found for 193 FHCs with 1312 obs.

Measures

- Risk Management Discretion:
  - Discretionary Loan loss provision
- $$LLP_{it} = \beta_1(LNTA)_{it} + \beta_2(\Delta NPL)_{it} + \beta_3(LLA)_{it} + \beta_4(REtoTL)_{it} + \beta_5\,(C\&ItoTL)_{it} + \beta_6(DepInstnstoTL)_{it} + \beta_7\,(AgritoTL)_{it} + \beta_8\,(ConstoTL)_{it} + \beta_9\,(FrgntoTL)_{it} + \beta_{10}(LoanConc)_{it} + Quarter\ dummies_t + \varepsilon_{it}$$
  - Realized Capital Gains

$$RSG_{it} = \alpha_1(LNTA)_{it} + \alpha_2(URSG)_{it} + \alpha_3(NetIntMargin)_{it} + Quarter\ dummies_t + \delta_{it}$$

Measures

- Default Risk
  - Z-score

$$Z - score_{it} = \left(\frac{Avg(ROA) + Avg(BVEtoTA)}{STD(ROA)}\right)_{it}$$

  - Bad Loans / Assets

= (Total loans past due 90 days + Total loan-NonAccruals)/ Total Assets

- Risk Governance (Ellul and Yerramilli (2013)

Regression Models

$$ABSDISCLLP_{it}\ (ABSDISCRSG_{it}) = \beta_1(Tier1Cap)_{it} + \beta_2(Riskgov)_{it} + \beta_3(FHCdummy)_{it} +$$

$$\beta_4(Riskgov * FHCdummy)_{it} + \beta_5(RevHHI)_{it} + \beta_6(STDtoTA)_{it} + \beta_7(Incb4LLPRatio)_{it} +$$

$$Quarter\ dummies_t + \varepsilon_{it} \qquad (4)$$

$$Z - score_{it} = Int + \beta_1(Tier1Cap)_{it} + \beta_2(Riskgov)_{it} + \beta_3(FHCdummy)_{it} +$$

$$\beta_4(Riskgov * FHCdummy)_{it} + \beta_5(REtoTL)_{it} + \beta_6(TotRBCratio)_{it} + \beta_7(Incb4LLPRatio)_{it} +$$

$$+ \beta_8(NonIntRevHHI)_{it} + \beta_9(NetIntMargin)_{it} + Quarter\ dummies_t + \varepsilon_{it} \qquad (5)$$

Construction of Discretionary LLP

Dep Var	LLP			
	Coefficient	Std Error	t-stat	
LNTA	0.0001	0	2.29	b
ΔNPL	0.0296	0.0344	0.86	
LLA	0.3217	0.0482	6.68	a
REtoTL	-0.003	0.001	-2.98	a
C&ItoTL	-0.0019	0.0015	-1.27	
DepInstnstoTL	-0.0026	0.0032	-0.81	
AgritoTL	0.0028	0.0016	1.69	c
ConstoTL	0.0128	0.0022	5.89	a
FGLToTL	-0.0616	0.0484	-1.27	
LoanConc	0.0054	0.0015	3.75	a
Qrtr Dummies		Yes		
N	2448			
Adj R-square	0.6118			

Construction of Realized Capital Gains

Dep Var	**RSG**		
	Coefficient	Std Error	t-stat
LNTA	0	0	-1.14
URSG	0.083	0.0209	3.97
NetIntMargin	-0.011	0.0029	-3.79
Qrtr Dummies		Yes	
	2314		
	0.1947		

Disc LLP explained

Dep Var	ABSDISCLLP		
	Coefficient	Std Error	t-stat
Tier1Cap	0.009	0.003	3.04
Riskgov	0	0	-0.26
FHCDummy	-0.0013	0.0004	-3.65
Riskgov*FHCdummy	-0.0001	0	-2.26
RevHHI	0.0003	0.0008	0.45
STDtoTA	0.0012	0.0007	1.58
INCb4LLPRatio	0.0005	0.0012	0.44
Quarter Dummies	Yes		
N	2313		
Adj R-square	0.3827		

RCG explained

Dep Var	ABSDISCRSG		
	Coefficient	Std Error	t-stat
Tier1Cap	-0.0002	0.0006	-0.36
Riskgov	0	0	0.56
FHCDummy	-0.0001	0.0001	-1.2
Riskgov*FHCdummy	0	0	-2.91
RevHHI	0.0004	0.0002	2.2
STDtoTA	0.001	0.0003	3.67
INCb4LLPRatio	0.0006	0.0001	5.82
Quarter Dummies	Yes		
N	2313		
Adj R-square	0.3476		

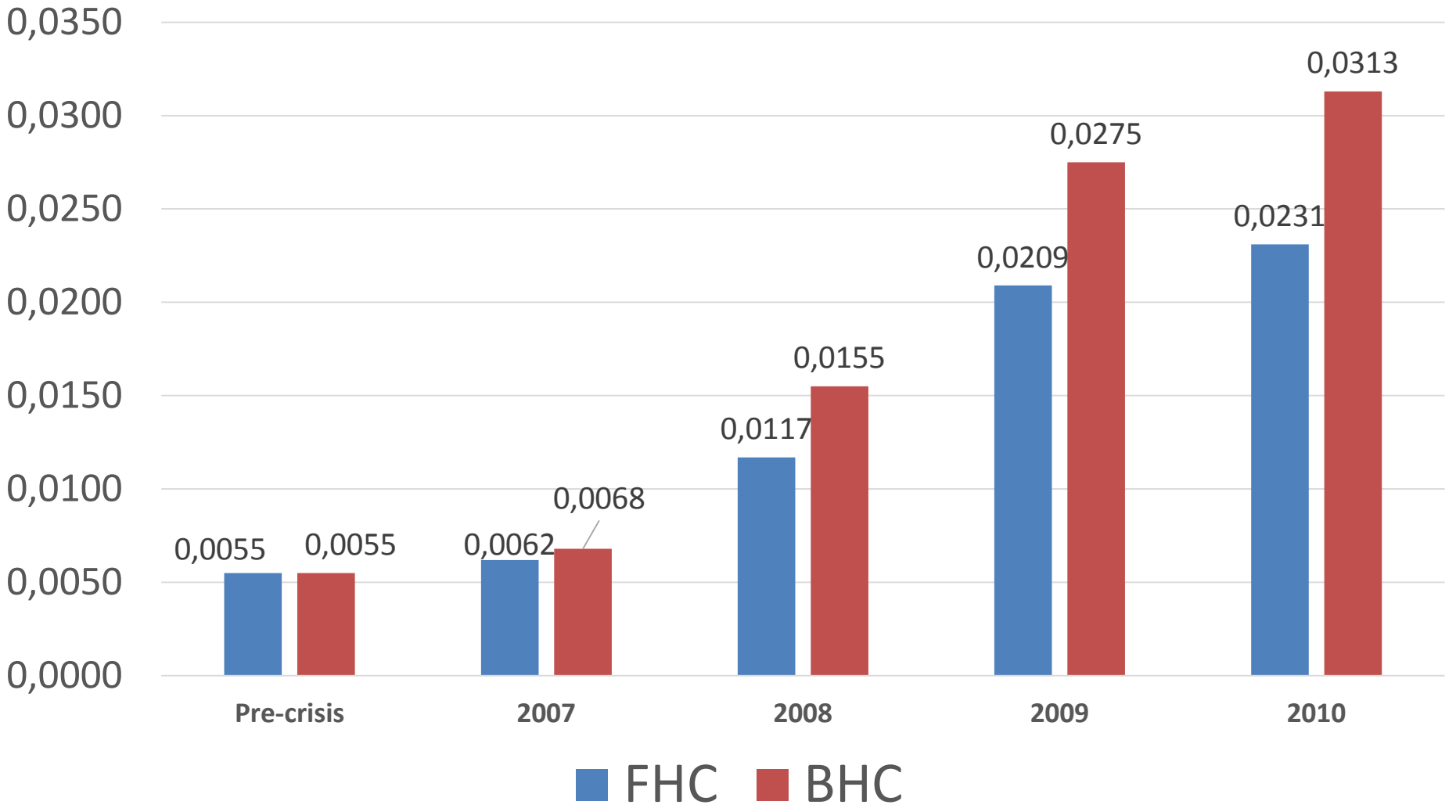
Z-score explained

Dep Var	Z-score Coefficient	Std Error	t-stat
Intercept	34.6575	10.7435	3.23
Tier1Cap	63.3434	51.3201	1.23
Riskgov	-0.5762	0.4548	-1.27
FHCDummy	3.8922	8.0108	0.49
Riskgov*FHCDummy	0.4786	0.4513	1.06
REtoTL	-8.9133	3.4489	-2.58
TOTRBCRatio	0.5535	0.2828	1.96
INCb4LLPRatio	-215.86638	49.1976	-4.39
NonIntRevHHI	-17.88509	6.901	-2.59
NetIntMargin	-265.83603	107.702	-2.47
Quarter dummies		Yes	
N	1124		
Adj R-square	0.0864		

Bad Loans / Assets

	FHC	BHC	Difference Statistically Significant at 5% level
Pre-crisis	0.0055	0.0055	NO
2007	0.0062	0.0068	Yes
2008	0.0117	0.0155	Yes
2009	0.0209	0.0275	Yes
2010	0.0231	0.0313	Yes

Bad Loan / Total Assets



Conclusions

- We study if insurance underwriting alters the behavior of FHCs compared to their BHC counterparts.
- FHCs have smaller magnitudes of discretionary loss provisions and realized gains/losses.
- Among FHCs, those with higher values of risk governance index (better governance) also tend to have decreased discretionary loss provisions and realized gains/losses.
- FHCs do not differ in their default risk estimates from the comparable BHCs
- BUT FHCs had lower Bad Loans to Assets ratios during the financial crisis.

Questions?