



**The Actuarial Profession**  
making financial sense of the future

# **SUBPRIME...**

Impacts for capital assessment

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**GIRO XXXV – September 2008, Sorrento**

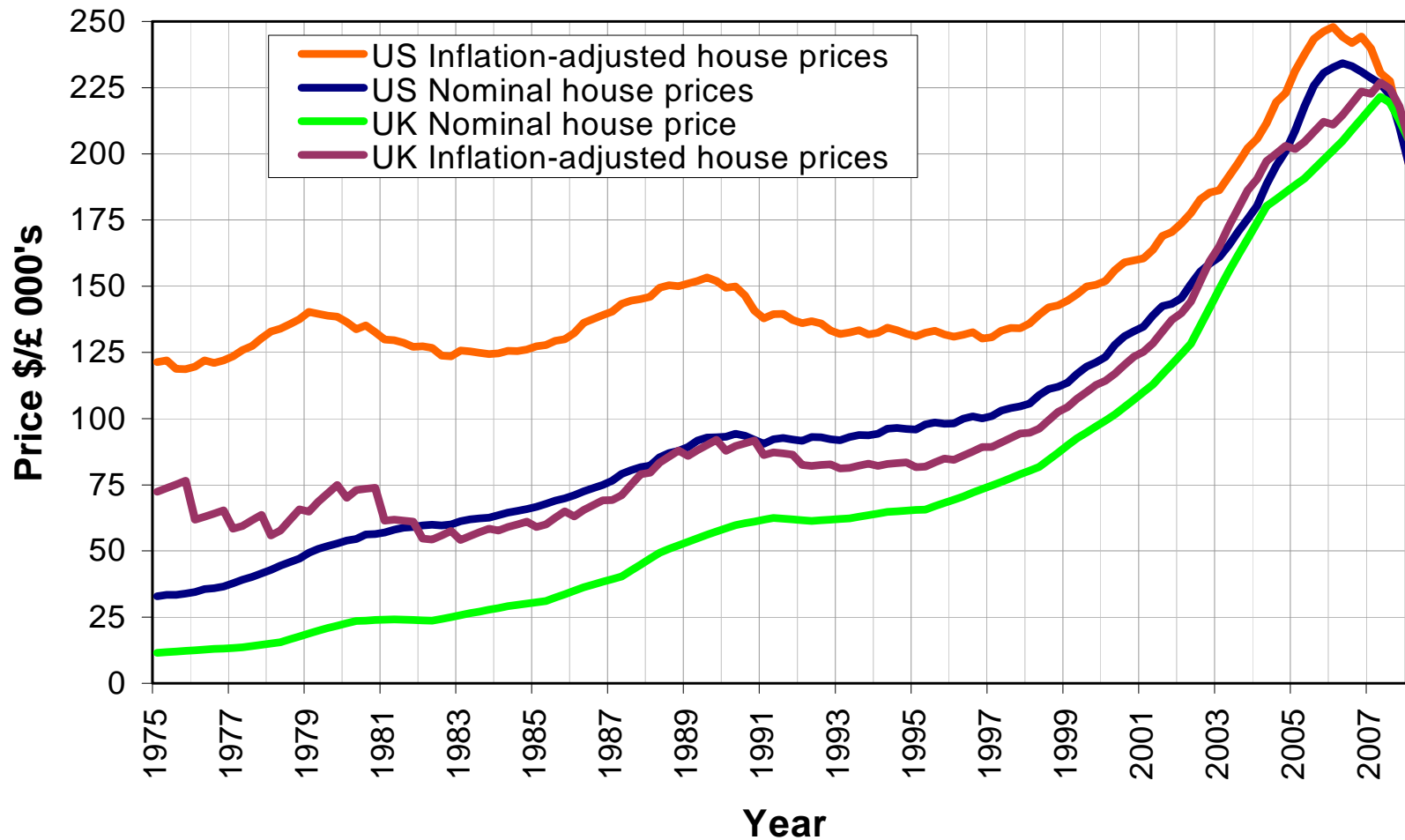
# Interesting numbers - Banks

- Fannie Mae / Freddie Mac
  - Recently placed in conservatorship under FHFA
  - Own or guarantee 50% US \$12,000b mortgage market
- 13 FDIC banks have failed since July 2007
  - 26 during Jan 2001-Jul 2007
  - 117 banks on FDIC “problem lenders” list
  - Predictions of 300 banks failing by 2011
- Lehman Bros had 158 year history, 1850-2008
  - Had weathered two World Wars and the Great Depression
- Several high-profile rescues of failing banks
  - Bear Stearns, Northern Rock, Countrywide, Washington Mutual, Merrill Lynch

# Interesting numbers - Banks

- 100 security class actions (39 in '07, 61 in '08)
- Auction rate securities:
  - SEC investigating 20 banks
  - 5 banks already agreed to repurchase \$47b of ARS
- Write-downs exceed \$500b to date
  - Predicted to reach \$1,000 – 2,000b

# United States / UK House Prices



# Aside from Banks.....

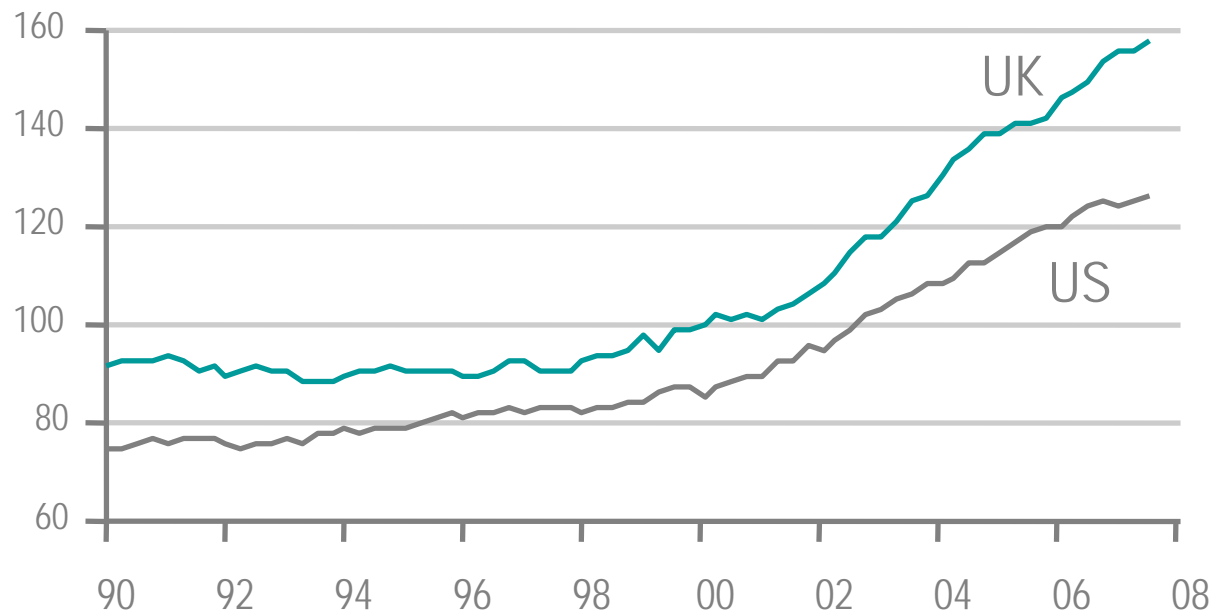
- Bond Insurers (“Monolines”)
  - Ambac \$1.5bn in new capital plus downgrades
  - MBIA \$2.6bn in new capital plus downgrades
- XL Re – June 30 2008 s/h capital \$8.8b
  - Paid \$1.775b to terminate \$64.6b of limit with SCA
  - \$2.875b in new capital (August 08)
- AIG
- \$423b US corporate bonds downgraded in 12m to 6/08
- US bankruptcy filings for year to 30/6/08
  - Consumer filings up 28.4% to 934k
  - Business filings up 41.6% to 34k

# Closer to home.....

- Not just a financial / professional lines issue
  - 115% increase in home accidental damage claims year on year
  - >100% increase in fraudulent yacht claims year on year
  - 83% increase in fraudulent travel insurance claims
  - 13.3% increase in fraudulent motor claims in last qtr
  - Recession –
    - violent crime could grow by 19% in 2008
    - theft and burglaries could rise by 7% in 2008 / 2% in 2009
  
- UK personal debt £1,449b
  - c £900b 5 years ago
  - c £550b 10 years ago

# Are there more problems to come?

Household debt as a % of disposable income



# Further credit losses?

- Alt-A mortgages
- Payment option mortgages
- Negative amortization mortgages
- Leveraged loans
- High yield bonds
- Credit card receivables
- Auto loan receivables
- Commercial real estate loans
- Construction loans
- Student loans
- Trade credit



# Direct Exposures – E&O and D&O

- Mortgage Brokers / Regional Banks / Surveyors
  - Allegedly 90% of subprime mortgages may involve fraud
  - Mis-selling issues / fraudulent lending / poor underwriting
  - Inflated valuations
  
- Money Centre / Investment Banks / CDO Managers / Hedge Funds
  - Improper margin calls
  - Flawed valuation of underlying assets
  - Poor underwriting / structuring of Capital Markets position
  - Fraudulent conveyance / breach of contract on loan servicing

# Direct Exposures – E&O and D&O

- Trustees/Pension Funds
  - Breach of fiduciary duty
- Rating Agencies
  - Failure to properly rate investment
- Financial Guarantors Insurers
  - Mortgage indemnity
  - Credit wrap asset backed securities
- Regulatory investigation of all aspects

# Secondary Exposures

- Resulting financial distress puts pressure on...
  - **Personal lines, SMEs etc**
    - Fraudulent claim rates expected to increase
    - Increased propensity to make small claims
    - Arson rates expected to increase
  - **Property insurance, FI crime etc**
    - Theft & burglary rates expected to increase
  - **Med Bens, EL, WCA, PHI, PPI etc**
    - Sickness rates expected to increase
    - Unemployment rates also expected to rise
  - **GL, PL, EL, etc**
    - Expenditure on maintenance and safety upgrades slows down
    - More “Slip & Trip” claims expected

# Assets – Invested

- Credit spreads increase
  - AAA Corporate spreads nearly trebled from 65bp to ~180bp
  - Impact generally greater for less strongly rated bonds
  - Portfolio value could easily fall by 10% or more
- Equity markets have also slumped
  - S&P 500 down >20% since July 2007
  - FTSE 250 down >25% since July 2007
- Possibility of direct losses from any CDO holdings
- Investments in other financial institutions?

# Assets – Non-Invested

- Reinsurance complications might follow?
  - Coverage arguments / basis risk (esp. cas clash)
  - Credit risk / extreme cashflow risk
  - Downgrades impacting bad debt reserves
  - Potential need to replace RI markets mid-term or at renewal
- Insolvencies in debtors
  - E.g. MGA with premium retained to fund claims

# Capital Markets

- Capital markets hurting even more...
  - What does this do to cost and availability of capital?
- Re/insurers with capital backing from Lehman?
- Ability of re/insurance industry to recapitalise after major event
  - FHCF has spent \$224m for put option to issue \$4b bond to Berkshire Hathaway at 5.6% of par following a major cat
- Impact on investors appetite for cat bonds?

# Implications for Capital Modelling

- This is not a 1 in 200 insurance event
- Many different areas at the same time
  - Worst case on subprime losses for FI = worst case for PI, D&O, PPI, attritional motor / domestic property etc?
  - Both sides of the balance sheet
- Capture difference between mean- and tail-correlation?
- Model major events & overlay impact on “usual” loss distributions?

# EXAMPLE scenario test

- Treat each component as fully additive, for example
  - Load +10 - 15% on all your personal lines loss ratios?
  - Assume 50% increase in insolvencies (D&O, trade credit)?
  - Assume 300 bank insolvencies & \$1.6t total writedowns (FI, PI)?
  - Assume additional 30% drop in housing value (PI, credit)?
  - Assume additional 20% drop in equity values?
  - Assume additional 15% drop in corporate bond values?
  - Assume your largest single reinsurer defaults?



# EXAMPLE scenario test

- Compare to 1 in 20 to 1 in 50 year results from your ICA model
  - Stress your assumptions – double your estimate?
  - What if it coincided with a major nat cat?
- Does this sit well?
  - If not, take a closer look at your ICA...

# The next big thing.....

- What next?
  
- ICA model should anticipate extreme event potential
  - Did your model anticipate anything with the widespread impact of sub-prime and the credit crunch?
  - Are you being 'imaginative enough' when scenario testing in the context of capital / balance sheet events?
  - How are you modelling tail correlations?
  - How are you correlating with assets / reinsurance?
  
- Correlation or Causation?

# Conclusions

- The world is changing at an ever-increasing pace
- The past is not sufficient to predict the future
- We need to use our imagination
- We should have sold our houses in spring 2007

# Questions

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- 020 7623 5500

# Useful Links

- List of losses plus writedowns, capital raised by bank:  
<http://www.bloomberg.com/apps/news?pid=20601206&sid=aSA5c5wow9mc&refer=realestate>
- Organised & factual web-site of useful links  
<http://www.creditwritedowns.com/2008/05/credit-crisis-timeline.html#Escalating%20Losses>
- Leaked government briefing memo on recession crime rate rises  
<http://www.timesonline.co.uk/tol/news/politics/article4653093.ece>
- UK personal debt statistics  
<http://www.creditaction.org.uk/debt-statistics.html>

# Appendix A – Bank losses 20/8/08

Firm	Writedown & Loss	Capital Raised
Citigroup Inc.*	55.1	49.1
Merrill Lynch & Co.	51.8	29.9
UBS AG	44.2	28.1
HSBC Holdings Plc	27.4	3.9
Wachovia Corporation	22.7	11
Bank of America Corp.	21.2	20.7
IKB Deutsche Industriebank AG*	15.1	12.5
Washington Mutual Inc.	14.8	12.1
Royal Bank of Scotland Group Plc	14.6	23.8
Morgan Stanley	14.4	5.6
JPMorgan Chase & Co.*	14.3	9.5
Deutsche Bank AG	10.6	3.2
Credit Suisse Group AG	10.4	2.7
Barclays Plc*	10.1	18.3
Wells Fargo & Company	10	4
Lehman Brothers Holdings Inc.	8.2	13.9
Credit Agricole S.A.	7.9	8.7
Fortis	7.3	7.1
Bayerische Landesbank*	7.1	0
HBOS Plc	7	7.4
ING Groep N.V.*	6.8	4.7
Societe Generale	6.7	9.6
Canadian Imperial Bank of Commerce*	6.3	2.8
Mizuho Financial Group Inc.	5.9	0
National City Corp.	5.4	8.9
Other banks	98.5	55
<b>Total</b>	<b>503.8</b>	<b>352.5</b>

<http://www.bloomberg.com/apps/news?pid=20601206&sid=aSA5c5wow9mc&refer=realestate>

# Appendix B – Bank job losses 27/05/08

Firm	Positions Cut	% of Headcount
Citigroup	15,900	4.30%
Bear Stearns	9,159	66
Royal Bank of Scotland	7,200	3.2
UBS	7,000	8.8
Lehman Brothers	6,390	23
Merrill Lynch	5,220	8.3
Morgan Stanley	4,440	9.4
JPMorgan Chase	4,100	2.3
Bank of America	3,650	1.7
Washington Mutual	3,000	6.5
SunTrust	2,400	7.6
Northern Rock	2,000	40
HSBC	1,650	0.5
WestLB	1,530	25
Goldman Sachs	1,500	4.7
Wachovia**	1,443	1.2
Credit Suisse	1,320	2.7
Other banks	5,354	
<b>Total</b>	<b>83,256</b>	

<http://www.bloomberg.com/apps/news?pid=conewsstory&refer=conews&tkr=BAC:US&sid=aVNn65DbkVeE>

# Appendix C – Bank insolvencies

## FDIC Bank Insolvencies

Bank Name	Closing Date
Silver State Bank, Henderson, NV	September 5, 2008
Integrity Bank, Alpharetta, GA	August 29, 2008
The Columbian Bank and Trust, Topeka, KS	August 22, 2008
First Priority Bank, Bradenton, FL	August 1, 2008
First Heritage Bank, NA, Newport Beach, CA	July 25, 2008
First National Bank of Nevada, Reno, NV	July 25, 2008
IndyMac Bank, Pasadena, CA	July 11, 2008
First Integrity Bank, NA, Staples, MN	May 30, 2008
ANB Financial, NA, Bentonville, AR	May 9, 2008
Hume Bank, Hume, MO	March 7, 2008
Douglass National Bank, Kansas City, MO	January 25, 2008
Miami Valley Bank, Lakeview, OH	October 4, 2007
NetBank, Alpharetta, GA	September 28, 2007

## Other Major Insovenancies

Northern Rock  
 Bear Sterns  
 Roskilde Bank  
 IKB

Nationalised by UK Government  
 Purchased by JP Morgan/Chase  
 Bailed out by Danish Government  
 Purchased by KfW



# Appendix D – Ultimate credit loss

- International Monetary Fund      \$945 b  
[http://www.ft.com/cms/s/0/78249530-05a0-11dd-a9e0-0000779fd2ac.html?nclick\\_check=1](http://www.ft.com/cms/s/0/78249530-05a0-11dd-a9e0-0000779fd2ac.html?nclick_check=1)
- John Paulson      \$1,300b  
[http://www.bloomberg.com/apps/news?pid=20601110&sid=a\\_dAvx5tof.o](http://www.bloomberg.com/apps/news?pid=20601110&sid=a_dAvx5tof.o)
- Bridgewater Associates      \$1,600b  
<http://www.bloomberg.com/apps/news?pid=newsarchive&sid=ap5JLfJQyahs>
- Nouriel Roubini      \$1,000 – 2,000b  
    *“closer to \$2tn”*  
[http://online.barrons.com/article/SB121763156934206007.html?mod=9\\_0031\\_b\\_this\\_weeks\\_magazine\\_main](http://online.barrons.com/article/SB121763156934206007.html?mod=9_0031_b_this_weeks_magazine_main)