



**mea**



***The Effects of the  
Financial Crisis  
on German Households:  
Did financial literacy help?***

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*Allianz-Oxford Pensions Conference 2010  
Oxford, 24 September 2010*

**A. Background: The crisis in Germany and the US**

**B. Simulation: Effects on private old-age provision**

1. *Short-run wealth losses*
2. *Long-run rates of return*
3. *Comparison to public pensions*

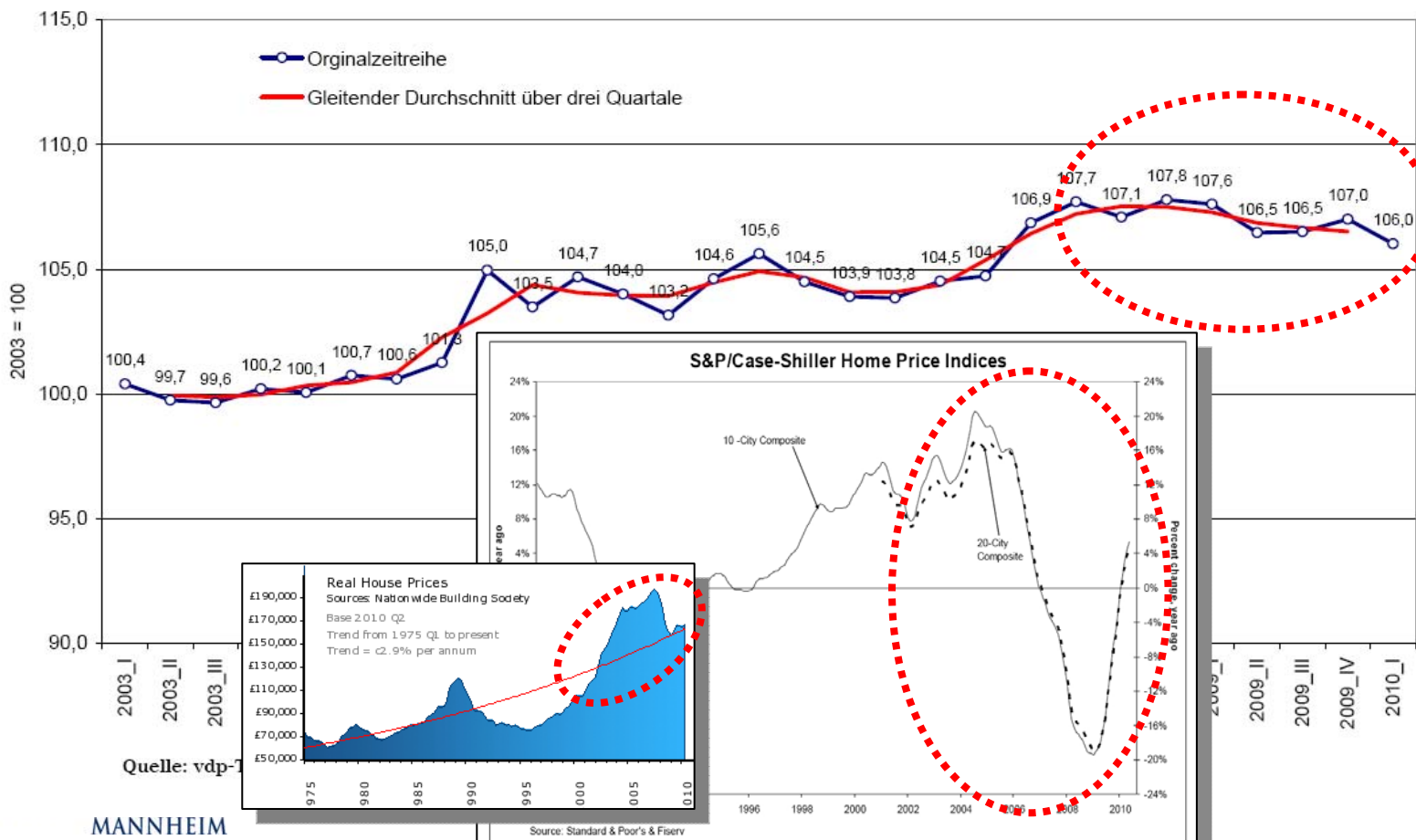
**C. SAVE-data: Self-assessment of being affected**

1. *Affected by losses in wealth and income, unemployment and general uncertainty*
2. *Reactions in saving and portfolio choice behavior*
3. *Reactions to stimulus packages*
4. *Financial literacy and the crisis*

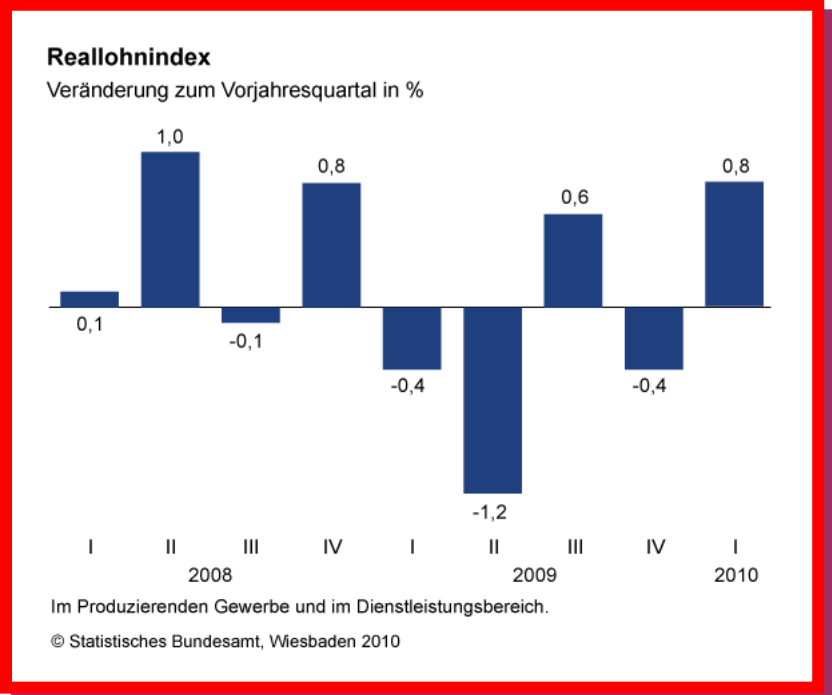
# A. Background: The crisis in Germany (vs. US/UK)

- ▶ In Germany neither housing price bubble nor implosion

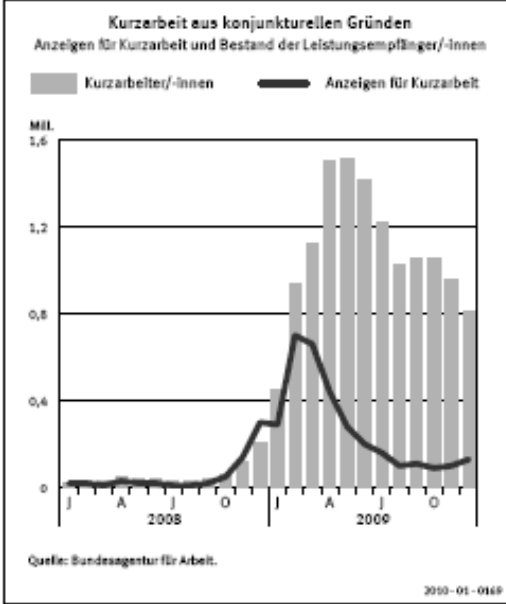
vdp-Preisindex für selbst genutztes Wohneigentum in Deutschland



# A. Background: The crisis in Germany (vs. US / UK)

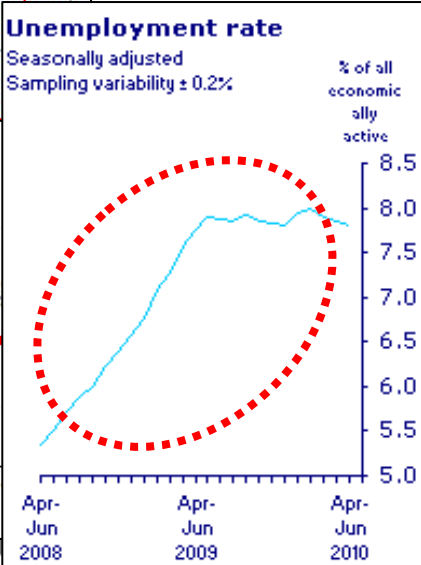
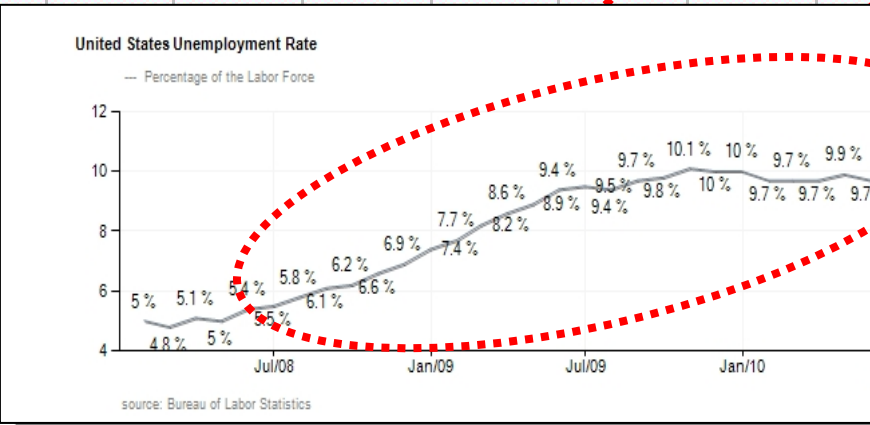


verbspersonen



6  
2002 2003

Quelle: Bundesage



## B: Simulation model

Effects of the financial crisis on private pension wealth

### *Basis:*

- *Portfolios of approx. 2500 SAVE-Households in 2008*

### *Multiplied with:*

- *Historic rates of return of the portfolio-component (counterfactual)*
- *Collapse of rates of return due to the crisis 2008-09 (crisis scenario)*

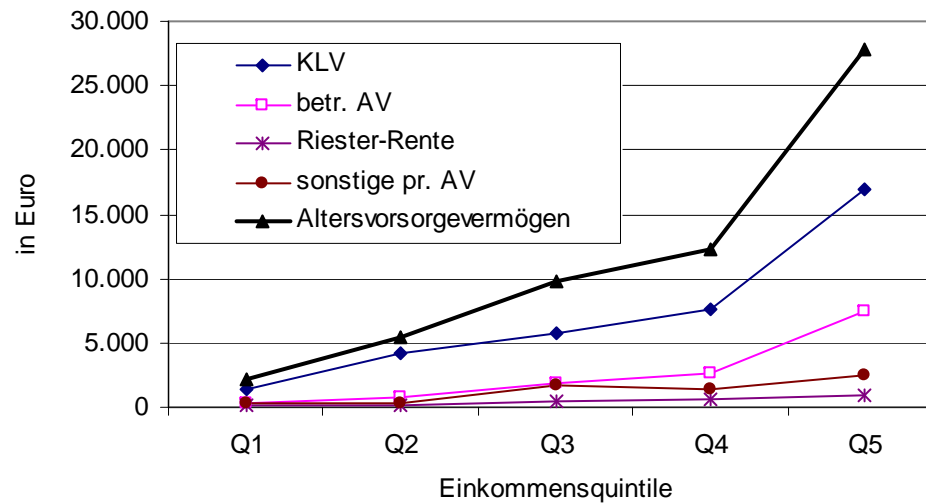
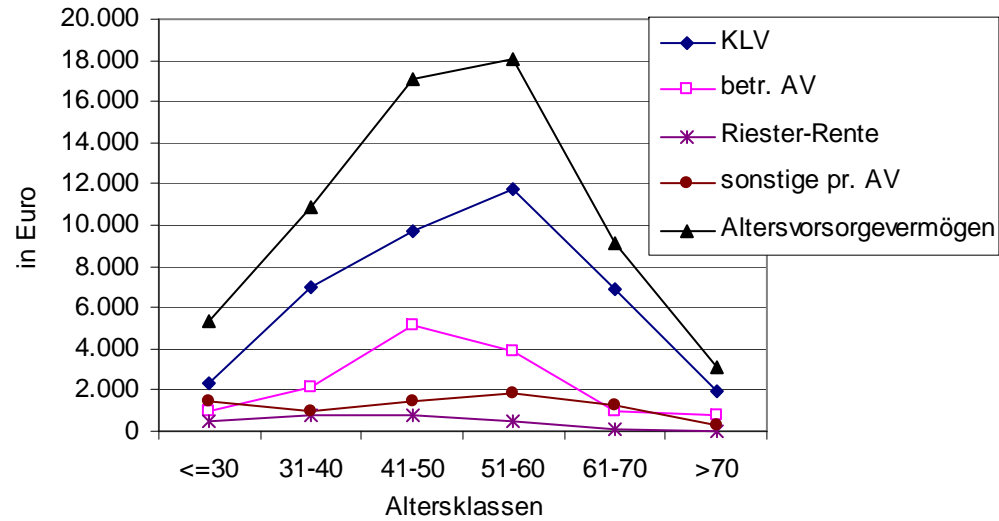
### *Result:*

- *Pension wealth at different points in time*

By age:

- Share of stocks
- Smoothing

By income:

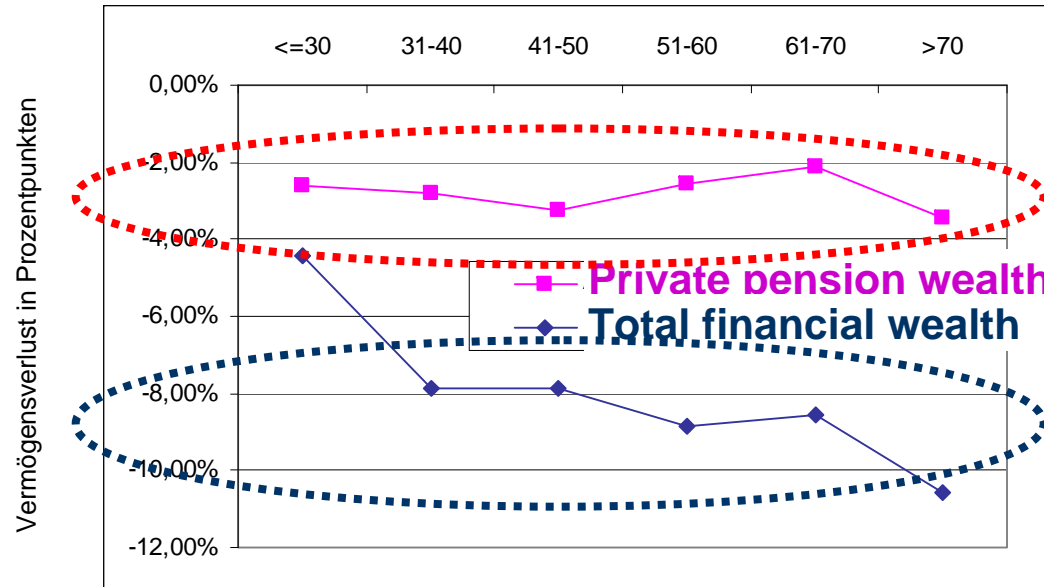




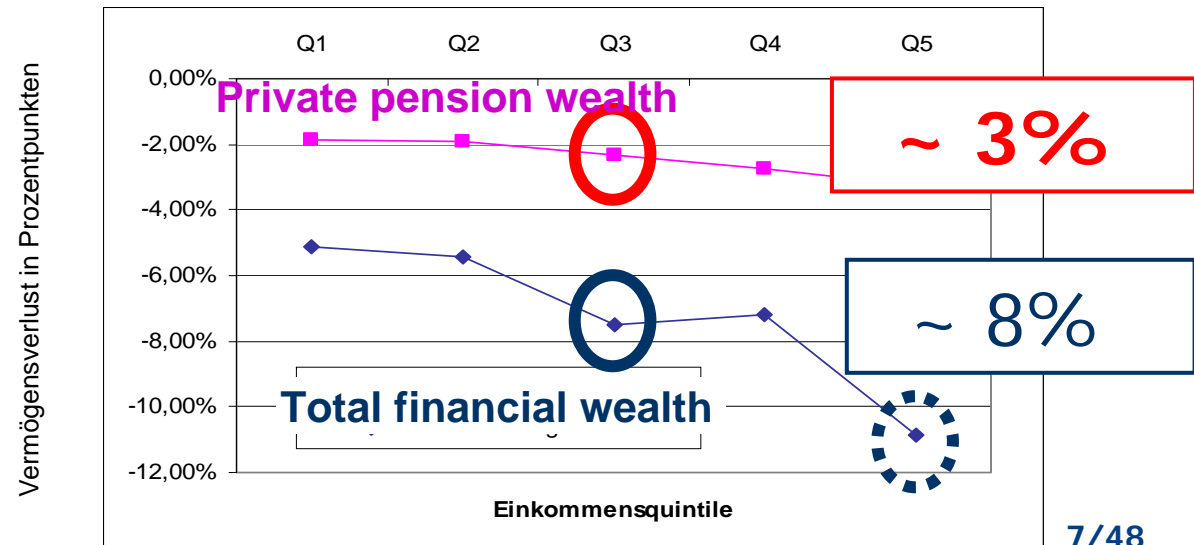
# 1. Short-term: One year wealth losses

By age:

Differences in wealth at the end of 2008 between reference und crisis scenario



By income:

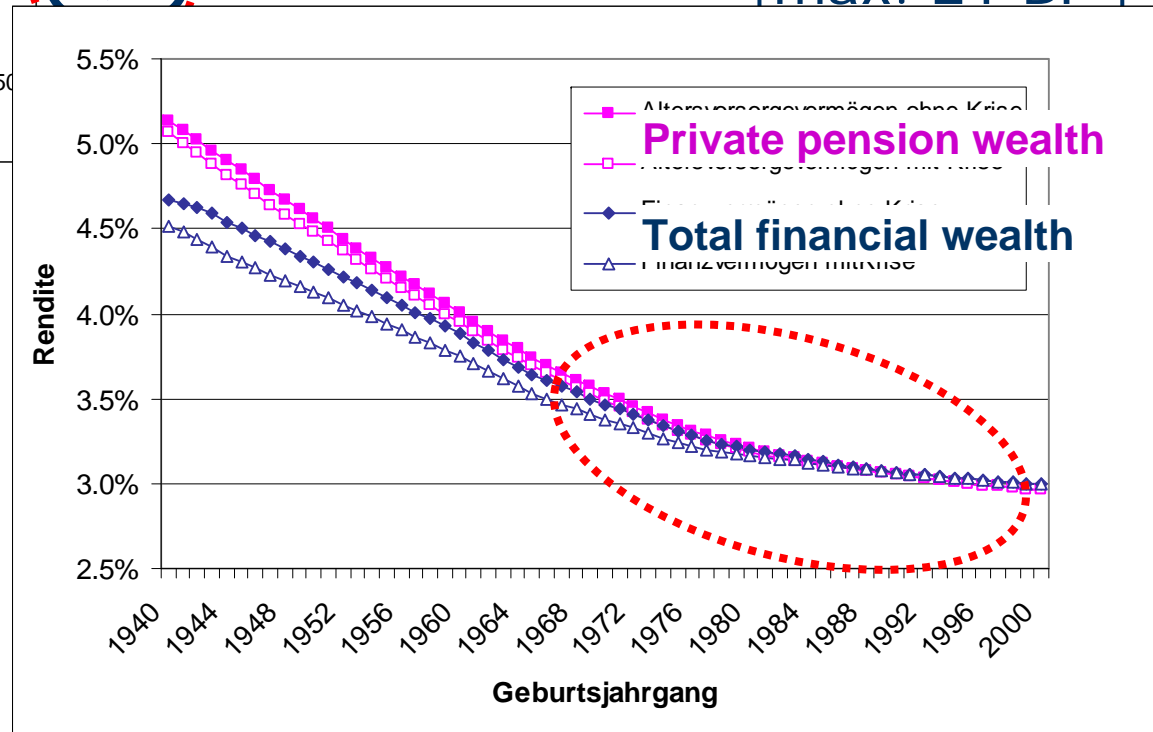
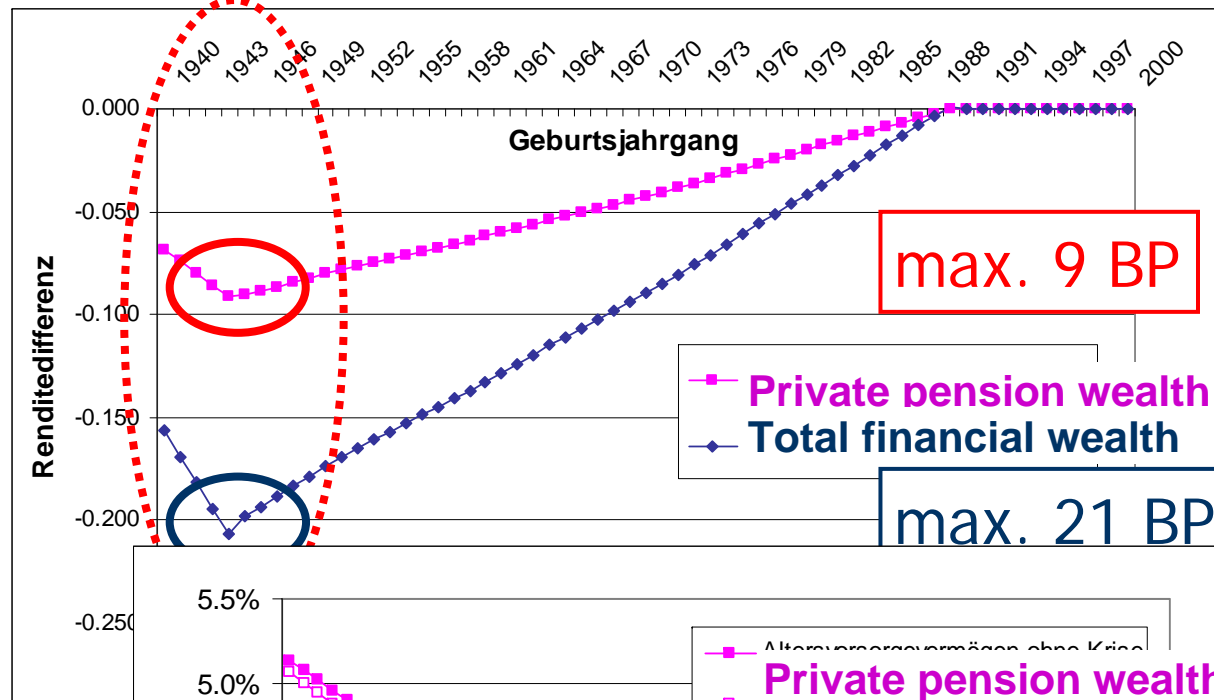


## 2. Long-term: Life-time rate of return

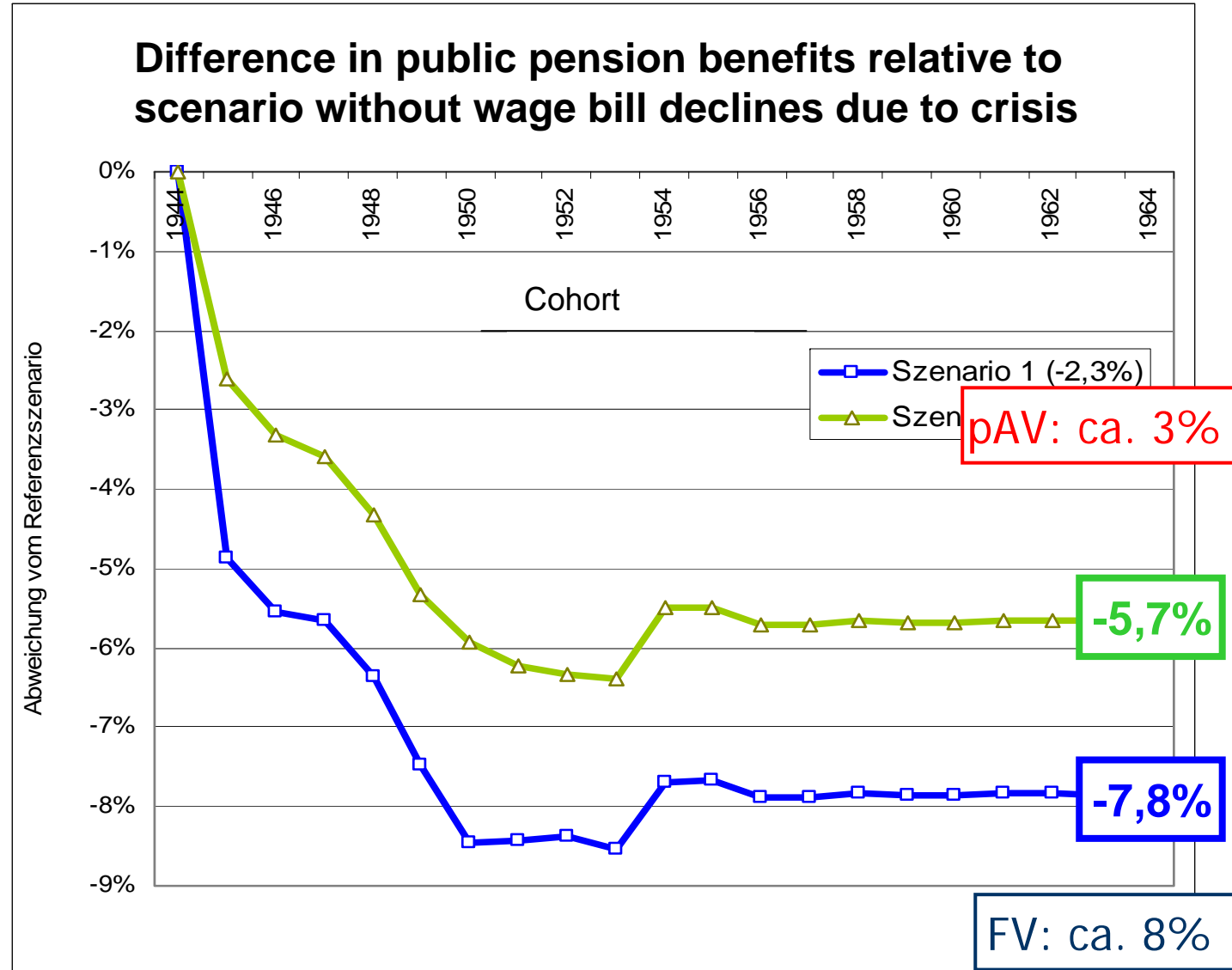


Difference:  
Reference scenario  
to crisis scenario

Level:  
Life-time rate of  
return of  
pension and  
total financial  
wealth



### 3. Comparison to public pensions

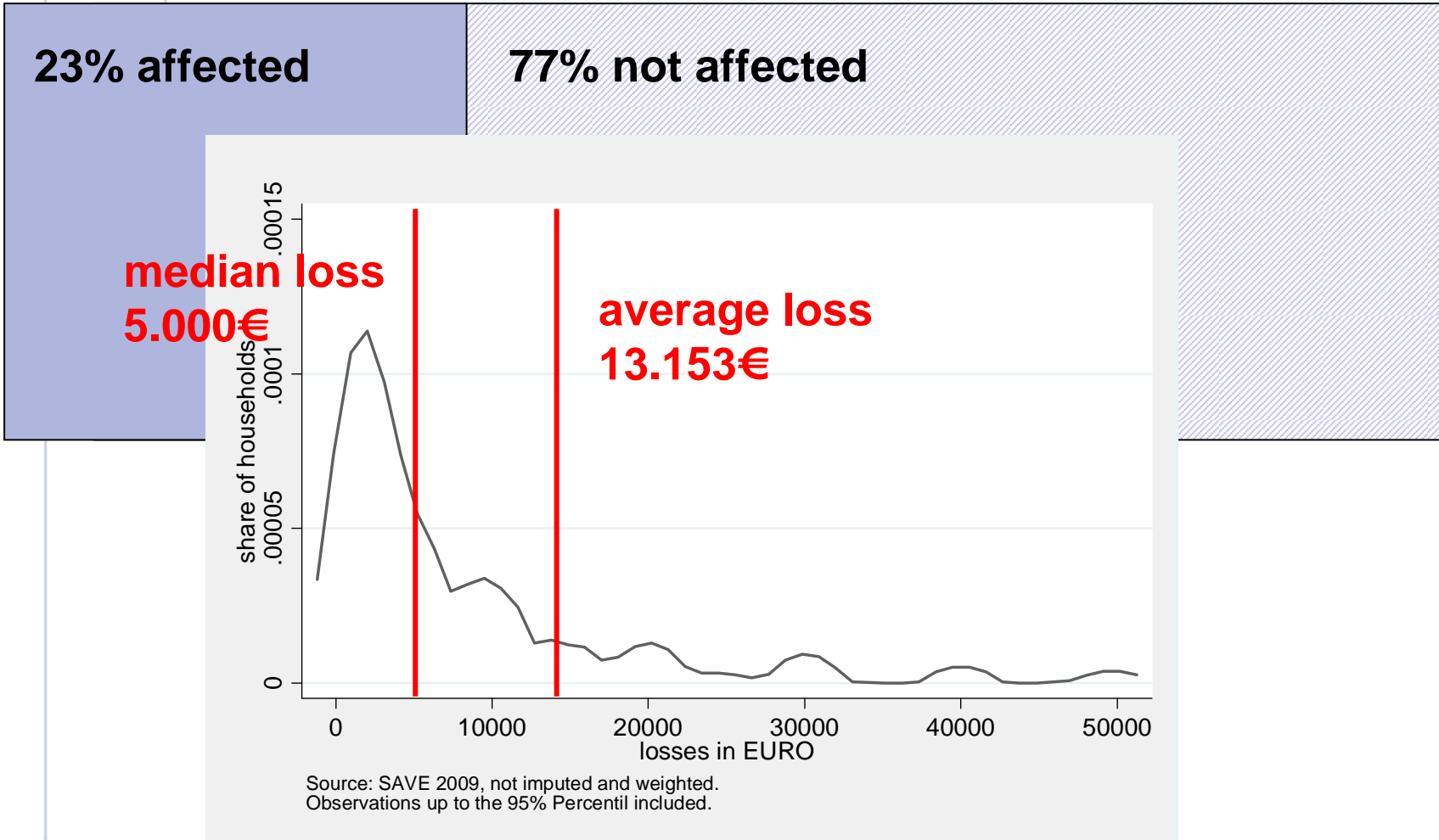


# C: SAVE-Data June 2009 (June 2010)

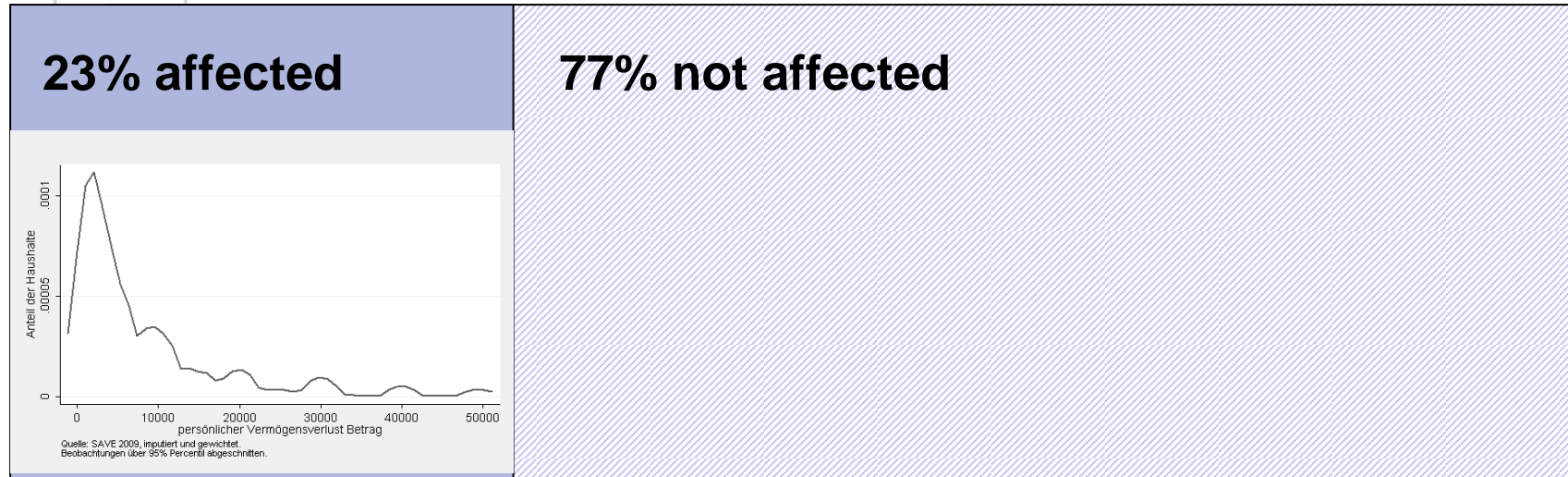
## Self-assessment of being affected

1. Affected by losses in wealth and income, unemployment and general uncertainty
2. Reactions in saving and portfolio choice behavior
3. Reactions to stimulus packages
4. Financial literacy and the crisis

# 1. Losses in wealth *self-assessed measure*



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**Average loss about 2.500€  
(Simulation: 2,600€, Bundesbank: 3.100€)**

- 
- **average loss in total net financial wealth: 3,6%**
  - **1,7% of gross financial wealth**

# 1. Losses in wealth

*self-assessed measure*

**9% of all households**



**at least losses of 10%**

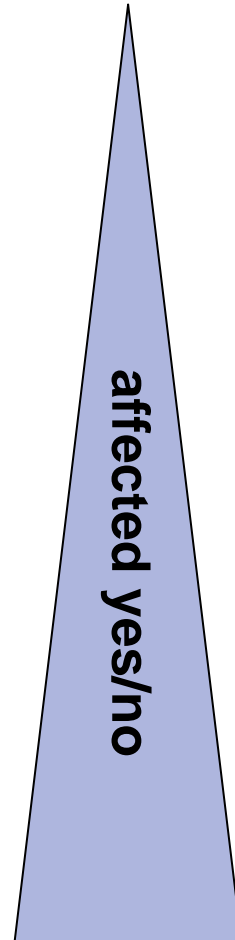
**2% of all households**



**at least losses of 50%**

# 1. Losses in wealth

*self-assessed measure*



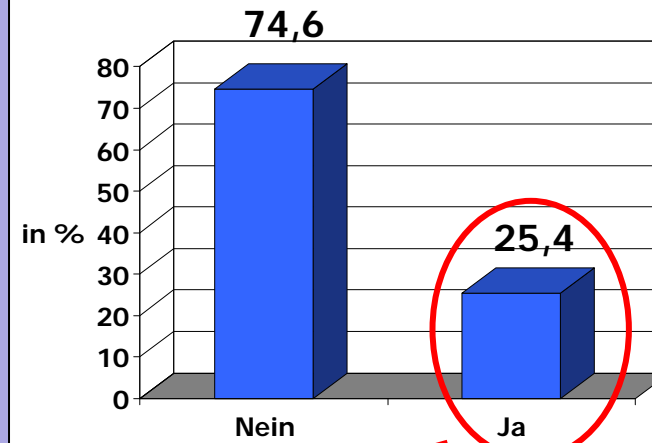
**low income**  
**low wealth**  
**young people**  
**worker**

**high income**  
**high wealth**  
**older people**  
**self-employed, civil servant**

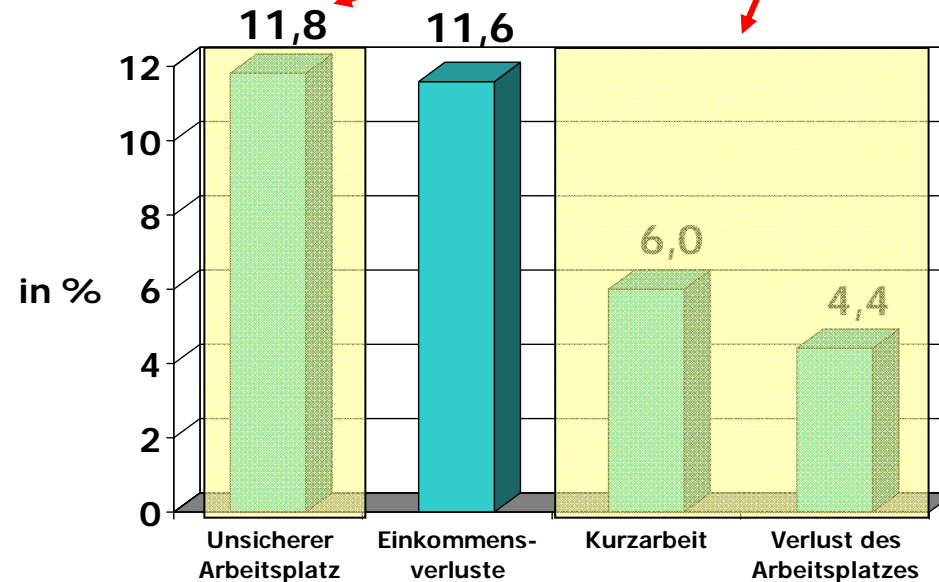


**Q. 138:** Apart from losses in wealth, are you and/or your partner affected by the financial and economic crisis through ...

- ▶ income losses
- ▶ loss of job
- ▶ working short-time
- ▶ insecure job situation
- ▶ nothing



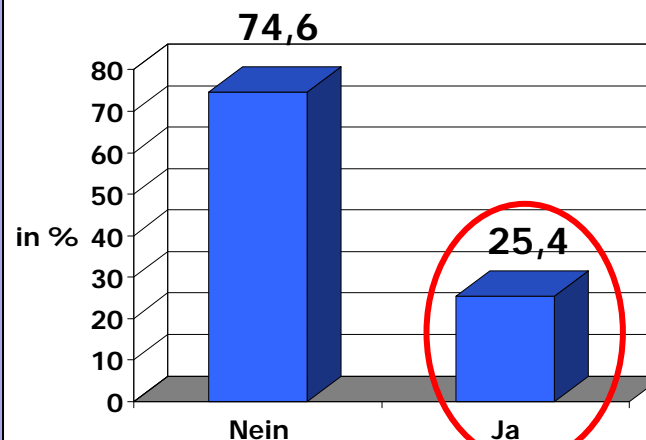
- ▶ low income
- ▶ low wealth



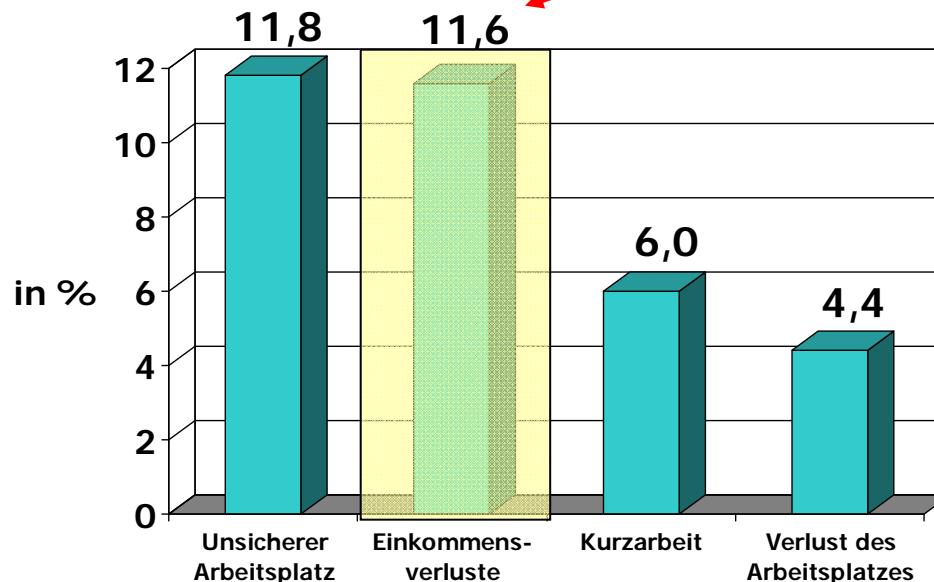


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- ▶ high income
- ▶ high wealth



## 2. Reactions to the crisis

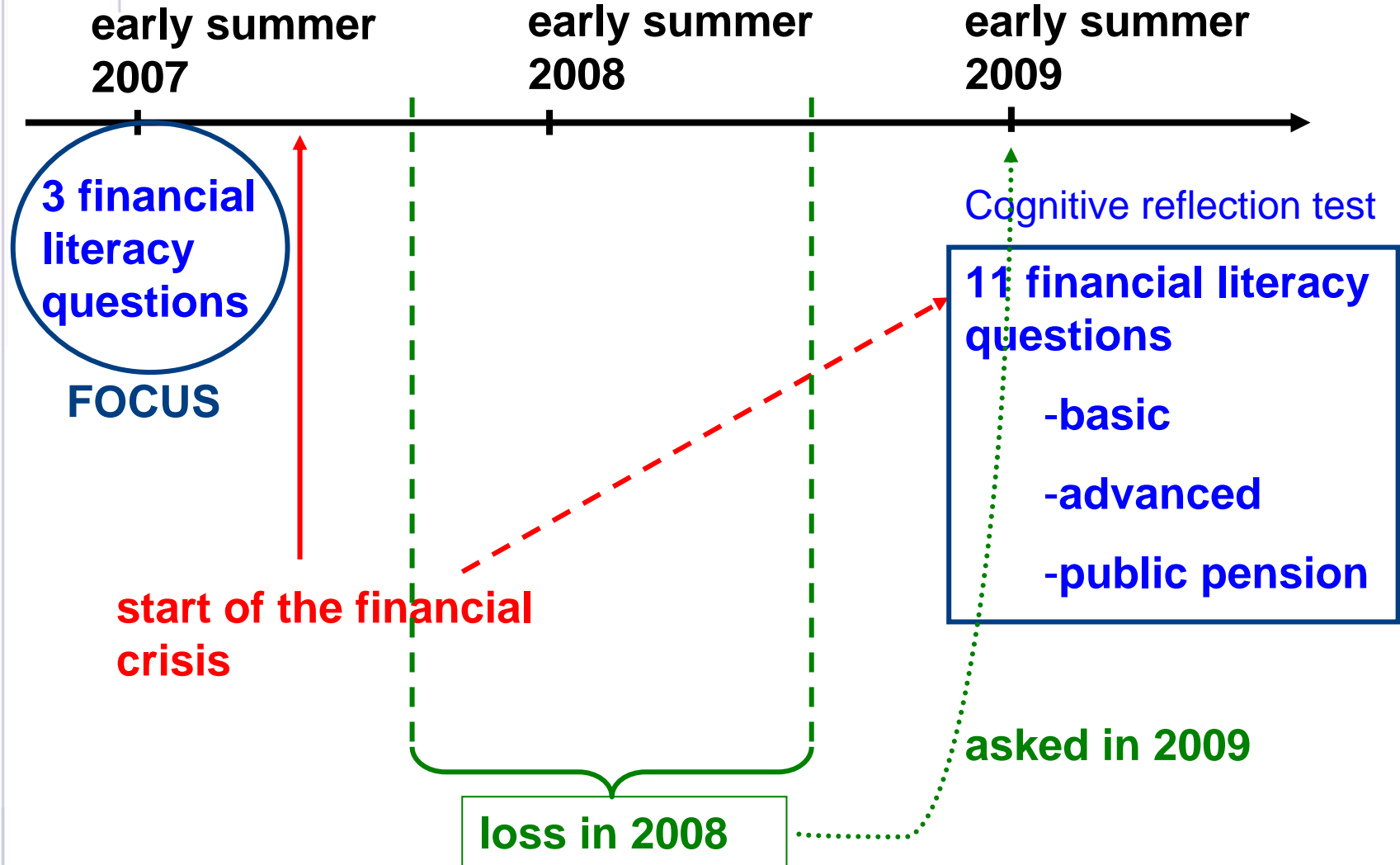
- ▶ **25%** of households **sold assets** which were affected by loss in value
  - ▶ Especially low income households spent the sales returns for consumption
  
- ▶ **8%** of households **changed their portfolio** (regardless of actual loss in value).
  - ▶ Mainly towards „safe & liquid assets“ such as saving accounts, checking accounts und cash.

### 3. Reactions to policy measures

- ▶ About 65% of households claim that they did not profit from the stimulus packages
  - ▶ Pensioner versus households with children
- ▶ At most 74% of households claiming to profit from the stimulus packages spent the additional income mainly on consumption.
  - ▶ Thus the saving rate from this additional income is most likely higher than the normal saving rate (26%).

# 4. Financial literacy and the crisis

Tabea Bucher-Coenen



## Financial Literacy SAVE 2007

- ▶ Suppose you had €100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?

- ▶ More than € 102
- ▶ Exactly € 102
- ▶ Less than € 102

**correct answer (sample 2007): 90%**

- ▶ Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, would you be able to buy more, less or exactly the same as today with the money in this account?

- ▶ More than today
- ▶ Exactly the same
- ▶ Less than today

**correct answer (sample 2007): 89%**

- ▶ True or false? Buying a company stock usually provides a safer return than a stock mutual fund.

- ▶ True
- ▶ False
- ▶ Do not know / refuse to answer

**correct answer (sample 2007): 63%**

**all correct: 54%**

## Financial Literacy 2007 and losses in wealth

Financial Literacy 2007 all answers right		losses yes in %	mean of losses	share of wealth lost	conditional on loss	
					mean of losses	share of wealth lost
No (46%)	↓ 10.9%	761	1.3%	7424	↑ 13.0%	
Yes (54%)	↓ 28.9%	4164	2.2%	15040	↑ 7.9%	
Total		20.5%	2562	1.7%	13153	9.2%

- ▶ Higher financial literacy is positively correlated with the probability of a household to be affected by wealth losses.
- ▶ If a household suffered wealth losses, higher financial literacy is correlated with a smaller share of wealth lost.

## Cognitive abilities

- ▶ A bat and a ball cost 110 cents in total. The bat costs 100 cents more than the ball. How much does the ball cost?  
**naive answer: 67%**  
**correct answer: 21%**
- ▶ If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets?  
**naive answer: 33%**  
**correct answer: 42%**
- ▶ In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake?  
**naive answer: 33%**  
**correct answer: 46%**

# Losses in wealth and cognitive abilities

- ▶ Same correlation found for cognitive abilities:

CRT	losses yes in %	share of wealth lost*
0	14.1%	10.4%
1	18.9%	13.4%
2	29.4%	8.8%
3	29.2%	3.9%
Total	20.5%	9.2%

*\*conditional on loss*

- ▶ ... and extensive financial literacy questions in 2009.

## Financial Literacy 2007 and realized losses

What did you do with the assets that lost value?	Financial Literacy 2007 all answers right		Total
	No (46%)	Yes (54%)	
I/we kept the assets	64.1%	78.9%	75.2%
I/we sold some of the assets	11.6%	11.6%	11.6%
I/we sold all of them	24.4%	9.5%	13.2%
Total	100.0%	100.0%	100.0%

What did you do with the assets that lost value?	CRT				Total
	0	1	2	3	
I/we kept the assets	69.8%	75.6%	77.5%	79.3%	75.2%
I/we sold some of the assets	9.8%	8.7%	12.4%	15.6%	11.6%
I/we sold all of them	20.5%	15.7%	10.1%	5.1%	13.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

- ▶ Higher financial literacy / cognitive abilities are negatively correlated with the probability of a realizing wealth losses.

## Probit „financial loss“

	1	2	3
Cognitive abilities	0.12 [0.03]***	0.06 [0.03]*	0.06 [0.03]*
Financial Literacy 07	0.61 [0.07]***	0.46 [0.07]***	0.45 [0.08]***
Age: 35 and younger		-0.04 [0.12]	-0.06 [0.12]
Age: 51-65		0.22 [0.09]**	0.23 [0.09]***
Age:66 and older		0.21 [0.09]**	0.23 [0.09]**
Ln financial wealth		0.13 [0.02]***	0.12 [0.02]***
Risk preferences			0.09 [0.01]***
Gender, east, income, rural, education	No	Yes	Yes
Observations	2012	2012	2012

Robustness in brackets: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

1. Households with high financial literacy report losses more frequently, holding demographics, wealth and cognitive ability equal.

## OLS: Loss in 2009/wealth in 2007

	OLS 1	OLS 2	OLS 3
Share of bonds	-0.03 [0.03]	-0.04 [0.03]	-0.01 [0.04]
Share of stocks	0.1 [0.04]**	0.09 [0.04]**	0.1 [0.04]**
Share of other assets	-0.02 [0.05]	-0.02 [0.05]	0.00 [0.05]
Cognitive abilities		-0.02 [0.01]**	-0.02 [0.01]**
Financial Literacy 07		-0.03 [0.03]	-0.03 [0.03]
Low schooling			Ref.
Intermediate schooling			-0.03 [0.02]
High schooling			0.00 [0.02]
Financial Advisor			-0.02 [0.02]
Gender, east, rural, age	No	No	Yes
Observations	417	417	417

2. Individuals with high financial literacy lose a smaller fraction of their wealth.

# Probit: Realized loss

	1	2
Cognitive abilities	-0.05 [0.06]	-0.05 [0.06]
Financial Literacy 07	-0.37 [0.16]**	-0.36 [0.16]**
Age: 35 and younger	0.21 [0.26]	0.23 [0.26]
Age: 51-65	0.18 [0.19]	0.18 [0.19]
Age: 66 and older	0.44 [0.20]**	0.45 [0.20]**
Ln financial wealth	-0.03 [0.03]	-0.03 [0.03]
Risk preferences	-0.02 [0.03]	-0.02 [0.03]
Budget Restriction		0.12 [0.19]
Unemployment		-0.4 [0.51]
Gender, east, income, rural, education	Yes	Yes

3. Individuals with low financial literacy report to realize their losses more frequently.

# Conclusions

- ▶ The crisis has **permanent effects** on both private funded and public pay-as-you-go pension wealth
  - ▶ The effects are, in principle, **symmetric**
  - ▶ Private wealth declined by between 3 - 8%
  - ▶ Public “pension wealth” declined by 5,5 - 8%
- 
- ▶ German households realized little of this: a majority of more than **60% of the German households claim to be not affected at all by the crisis.**
  - ▶ Only few **households reacted** by changing saving and/or portfolio behavior
  - ▶ **The stimulus packages** did not “arrive” at the majority of households; if so, they increased savings more than in proportion
  - ▶ **Financially literate households** were more often affected by losses, but lost less (given a loss) and didn’t sell at bottom of trough