Household Finance
Lessons and Challenges

Deborah Lucas
Northwestern University and NBER

ECB-CFS Conference on
Household Finance and Consumption
September 2008

Over the last three decades, the representative agent framework has come to dominate macro and finance.

An invaluable fiction for analyzing macro trends and general equilibrium effects…

But the rep. agent approach provides limited insight into the financial status and economic well-being of most people.

The field of “household finance” seeks to remedy this by looking beyond the representative agent.

"Household finance, by analogy with corporate finance, asks how households use financial instruments to attain their objectives."

John Campbell, AFA presidential address

The answers are subtle because household behavior and circumstances, like that of firms, varies widely.

A more nuanced picture of household finance is emerging thanks to:

(1) a growing body of individual and household level data

- *For the U.S.*
  - Survey of Consumer Finances (SCF)
  - Panel Study of Income Dynamics (PSID)
  - Statistics of Income Tax Panel
  - Health and Retirement Study (HRS)
  - Consumer Expenditure Survey (CEX)
  - Various administrative data sets
    - E.g., 401k plans, brokerage accounts, home mortgages, credit cards

(2) the efforts of researchers to collect, analyze, and interpret this data

- Including many of the people at this conference!

Still, there is much controversy, and the evidence is far from conclusive.

Outline of Talk

- What are the stylized facts?
- How important are investment mistakes?
- How can the study of household finance inform and improve public policy?
- Short data wish list

Challenge #1 is to present statistics in a way that provides a meaningful perspective

- How to take into account heterogeneity without being overwhelmed by it?

How much have stock market participation rates changed over time? Why?

How diversified are stockholders?

How important is stock holding for most households?

How important are “mistakes” like non-participation, limited diversification, and poor debt management?

The answers are quite sensitive to how you cut the data.

Increases in U.S. stock market participation rates accelerated in the 1990s but since then have moderated; median holdings are modest.

6. Direct and indirect family holdings of stock, by selected characteristics of families, 1995–2004 surveys

Percent except as noted

Family characteristic	Families with holdings				Median value among families with holdings (thousands of 2004 dollars)			
	1995	1998	2001	2004	1995	1998	2001	2004
All families	40.4	48.9	51.9	48.6	18.0	29.0	36.7	24.3

- "Participation puzzle" first emphasized by Bertaut (1994) and Bertaut & Haliassos (1995)

- **Median $ holding similar to median value of motor vehicles!**

Source: *Brian K. Bucks, Arthur B. Kennickell, and Kevin B. Moore, "Recent Changes in U.S. Family Finances: Evidence from the 2001 and 2004 Survey of Consumer Finances "*

What accounts for increased participation and increased diversification?

- In Curcuru, Heaton, Lucas, & Moore (2004), we find evidence in the SCF that the big drivers are:
  1. Employer move from defined benefit to defined contribution pension plans
  2. Availability of mutual funds

Table 3: How Stocks are Held (% of population)

YEAR	DIRECTLY OWNS MUTUAL FUND	ONLY OWNS EQUITY IN PENSION FUND	ONLY OWNS DIRECT EQUITY	OWNS EQUITY (ALL ACCOUNT TYPES)
1989	6.0	11.2	12.6	31.8
1992	8.4	14.9	11.1	36.7
1995	11.3	17.6	10.5	40.4
1998	15.2	20.2	10.4	48.9
2001	16.7	21.2	9.8	51.9

Tabulations are from the SCF, various years, and based on survey weights.

Table 9: Evidence on the Diversification of Stock Holdings

mean % of equity held in...	1989	1992	1995	1998	2001
brokerage accts	36.4	38.4	21.4	20.0	19.3
mutual funds	8.9	11.6	15.3	15.7	14.6
Trusts & managed accts	4.2	3.3	2.6	4.2	4.8
Defined contribution pensions	50.4	56.7	60.7	60.2	61.3
mean % own company stock/total	12.3	8.9	6.4	5.2	5.3

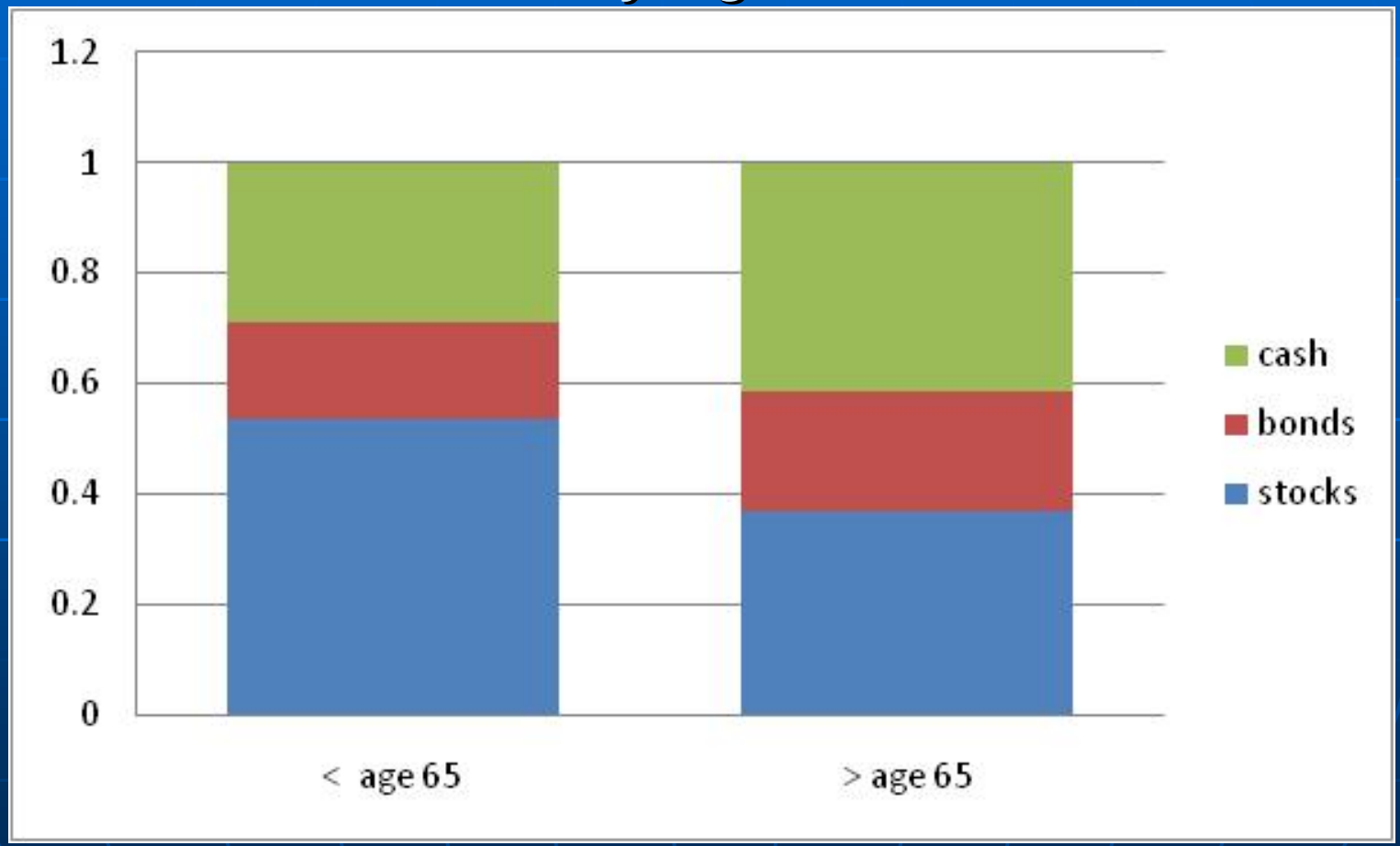
Table 7: Probit Regressions on Stock Ownership

	(1)		(2)		(3)		(4)		(5)		(6)	
Intercept	-4.40	(13.78)	-5.47	(15.92)	-4.96	(16.25)	-5.88	(17.93)	-4.22	(13.01)	-5.24	(15.04)
Age	-0.02	(8.46)	-0.01	(3.00)	-0.02	(9.04)	-0.01	(3.87)	-0.02	(8.45)	-0.01	(2.93)
Log(Income)	0.14	(5.01)	0.08	(2.60)	0.15	(5.53)	0.09	(3.01)	0.14	(4.89)	0.08	(2.43)
Log(Assets)	0.26	(10.63)	0.32	(11.93)	0.28	(11.78)	0.33	(12.75)	0.25	(10.34)	0.31	(11.59)
Num. Children	-0.02	(0.77)	-0.05	(1.77)	-0.03	(1.16)	-0.06	(1.82)	-0.01	(0.49)	-0.04	(1.43)
Married (Yes=1)	0.14	(2.09)	0.10	(1.40)	0.12	(1.76)	0.09	(1.27)	0.15	(2.22)	0.11	(1.53)
Yrs. Education	0.09	(8.41)	0.09	(7.62)	0.10	(9.13)	0.10	(8.23)	0.09	(8.36)	0.09	(7.45)
RE Equity/NW	0.005	(6.34)	0.004	(5.54)								
Mortgage/Fin. Wealth					0.003	(2.30)	-0.01	(3.46)				
House/Fin. Wealth									-0.01	(7.43)	-0.01	(6.93)
In DB Plan			-0.05	(0.59)			-0.06	(0.77)			-0.03	(0.33)
In DC Plan			1.34	(17.23)			1.38	(17.69)			1.34	(17.37)
Pseudo-R^2	0.28		0.35		0.27		0.35		0.28		0.36	

Tabulations are from the 2001 SCF. In all regressions the dependent variable is 1 if the household owns more than $500 in stock. All households with net worth > $10K are included. T-statistics are in parenthesis

How important are stocks?

Liquid Assets of Stockholders by age

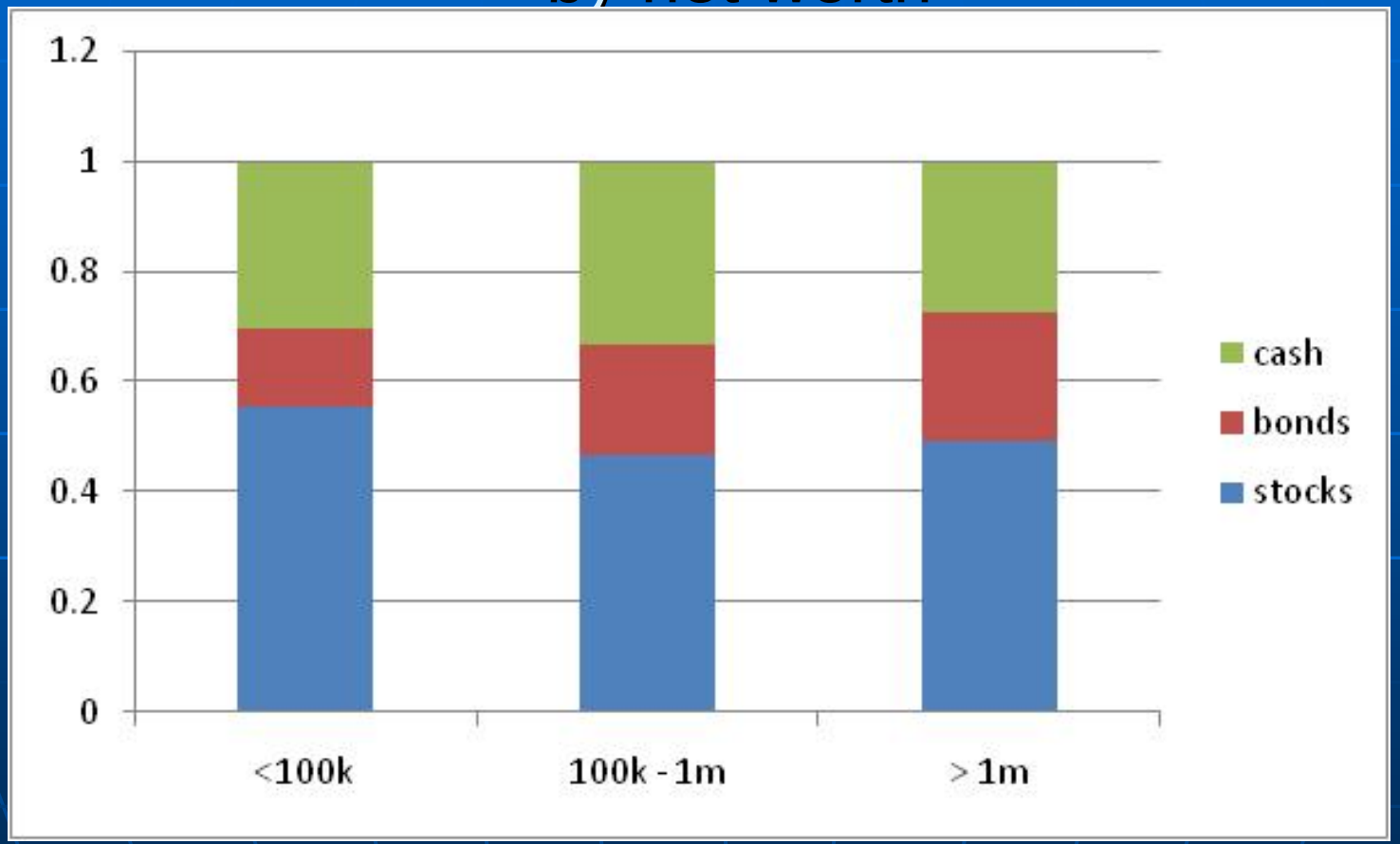


Source for this set of graphs: Heaton and Lucas (2000), based on SCF

Stock holdings > $500, net worth > $10,000

How important are stocks?

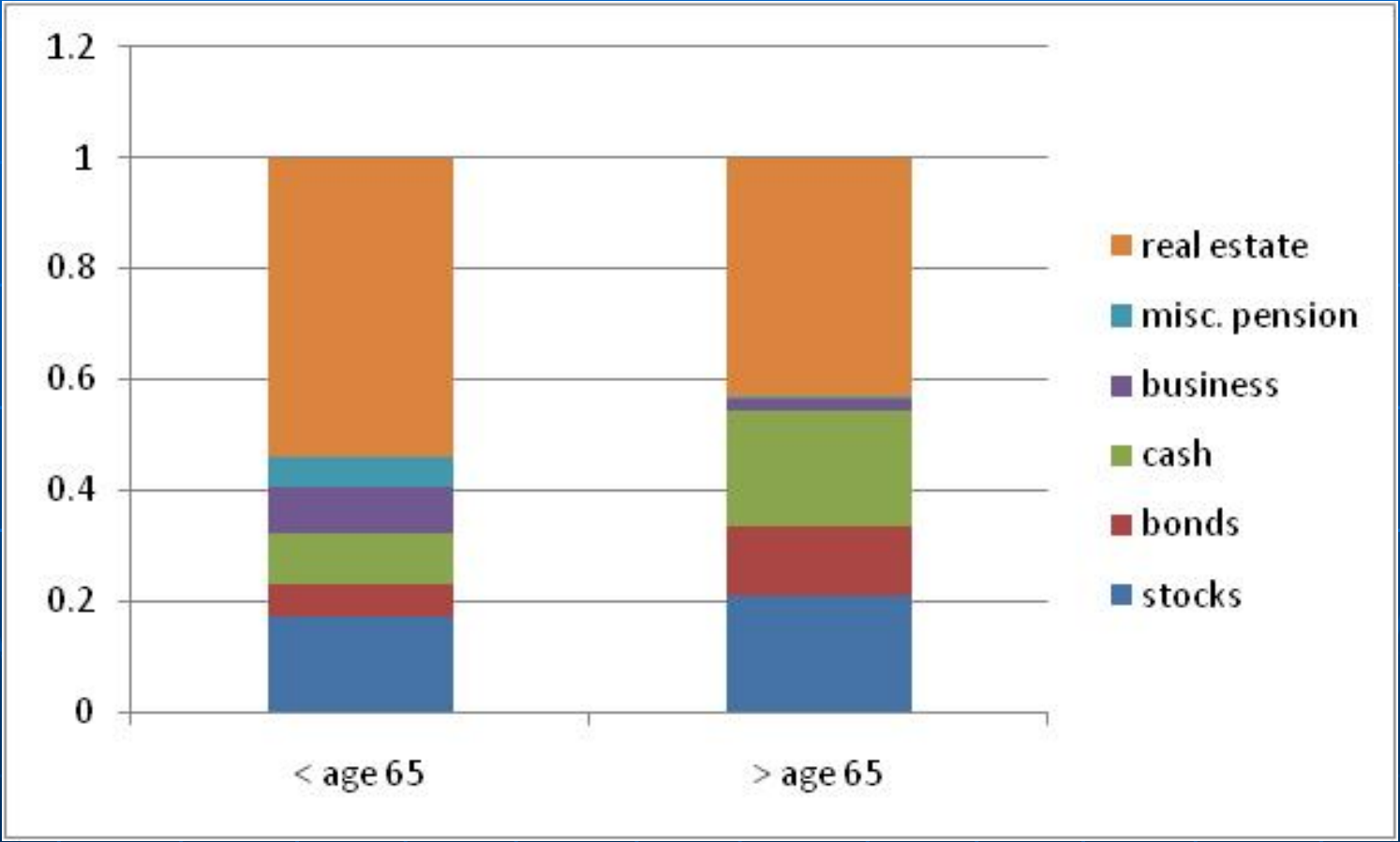
Liquid Assets of Stockholders by net worth



Stock holdings > $500,
net worth > $10,000

How important are stocks?

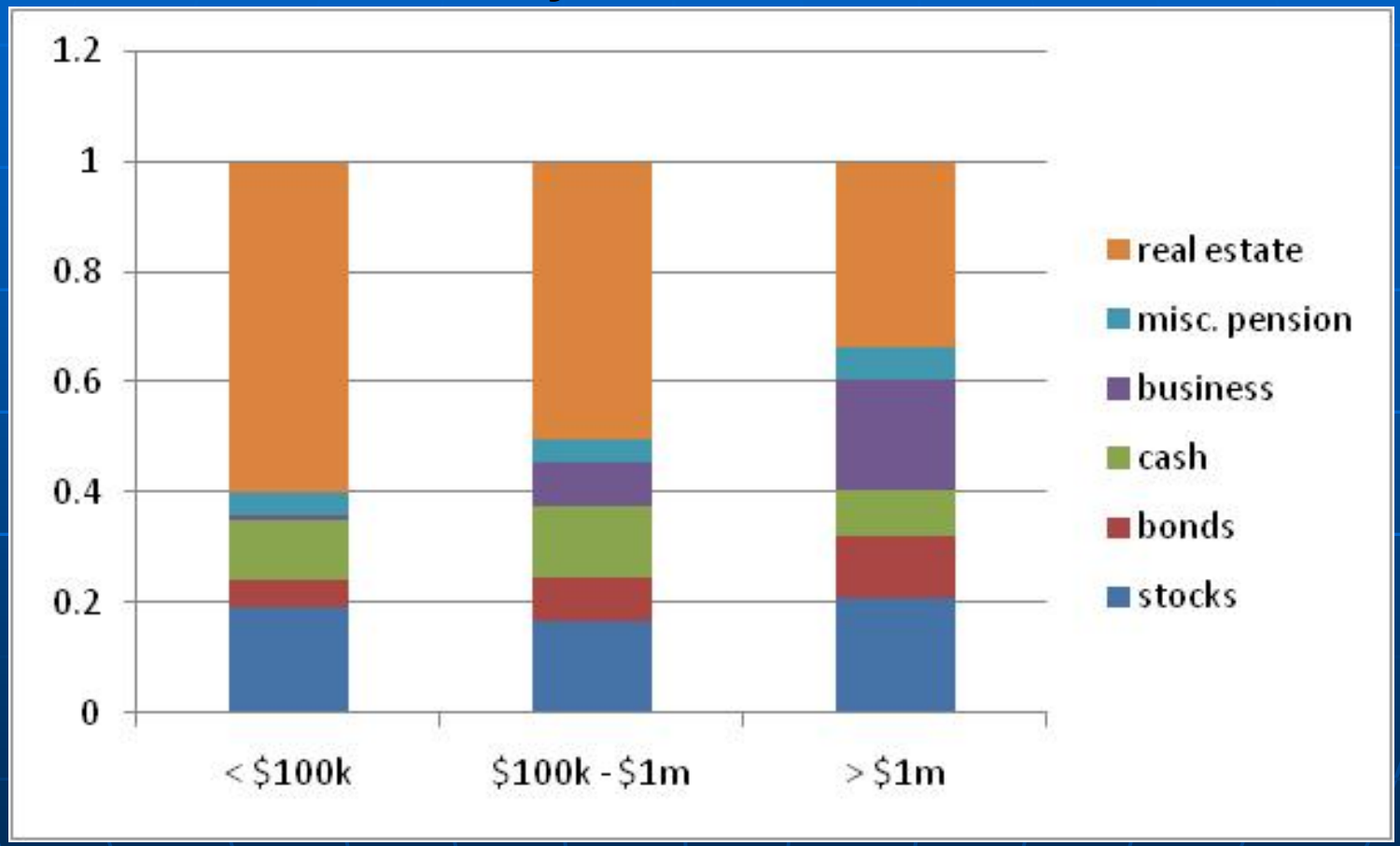
Financial Assets of Stockholders by age



Stock holdings > $500,
net worth > $10,000

How important are stocks?

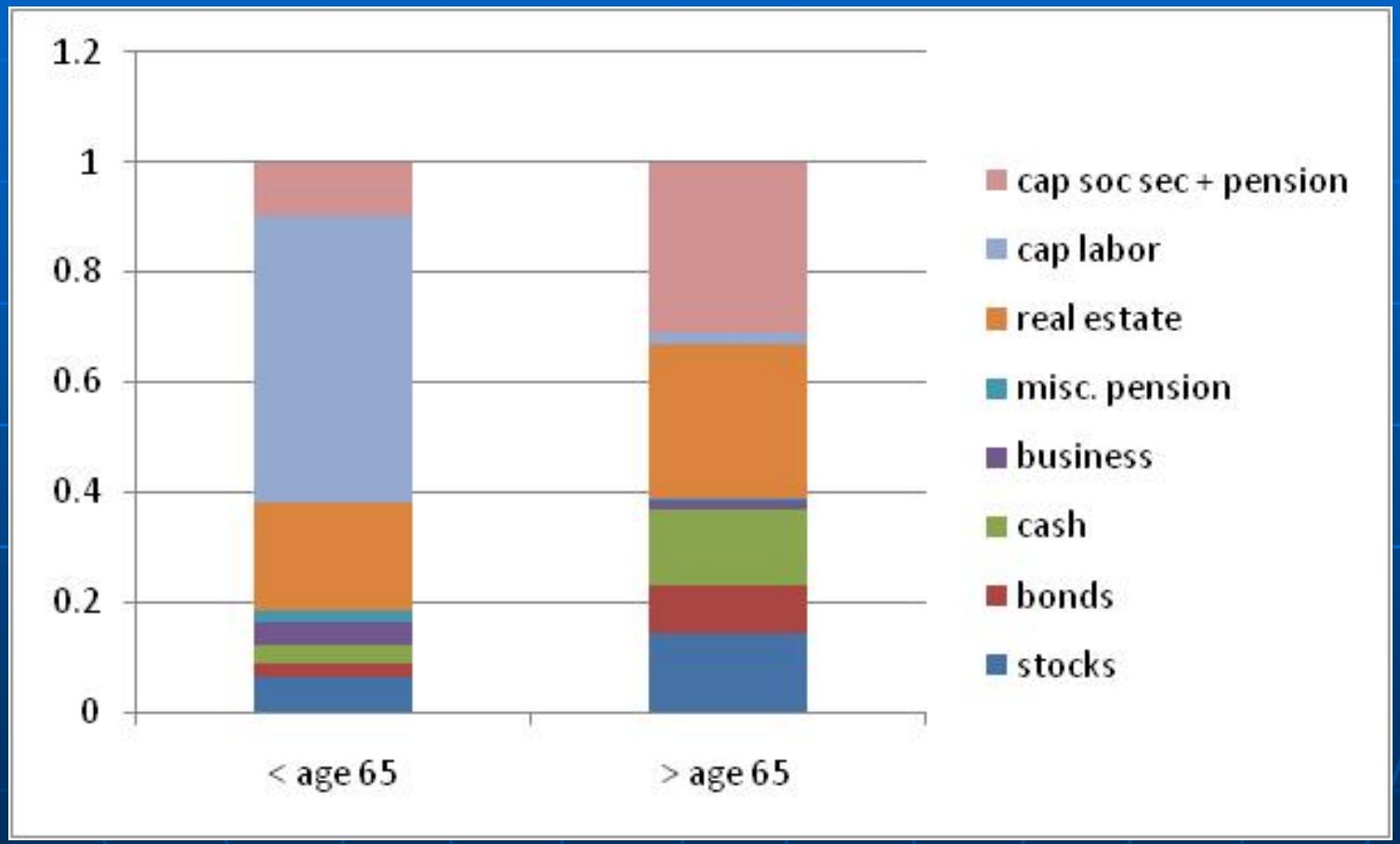
Financial Assets of Stockholders by net worth



Stock holdings > $500,
net worth > $10,000

How important are stocks?

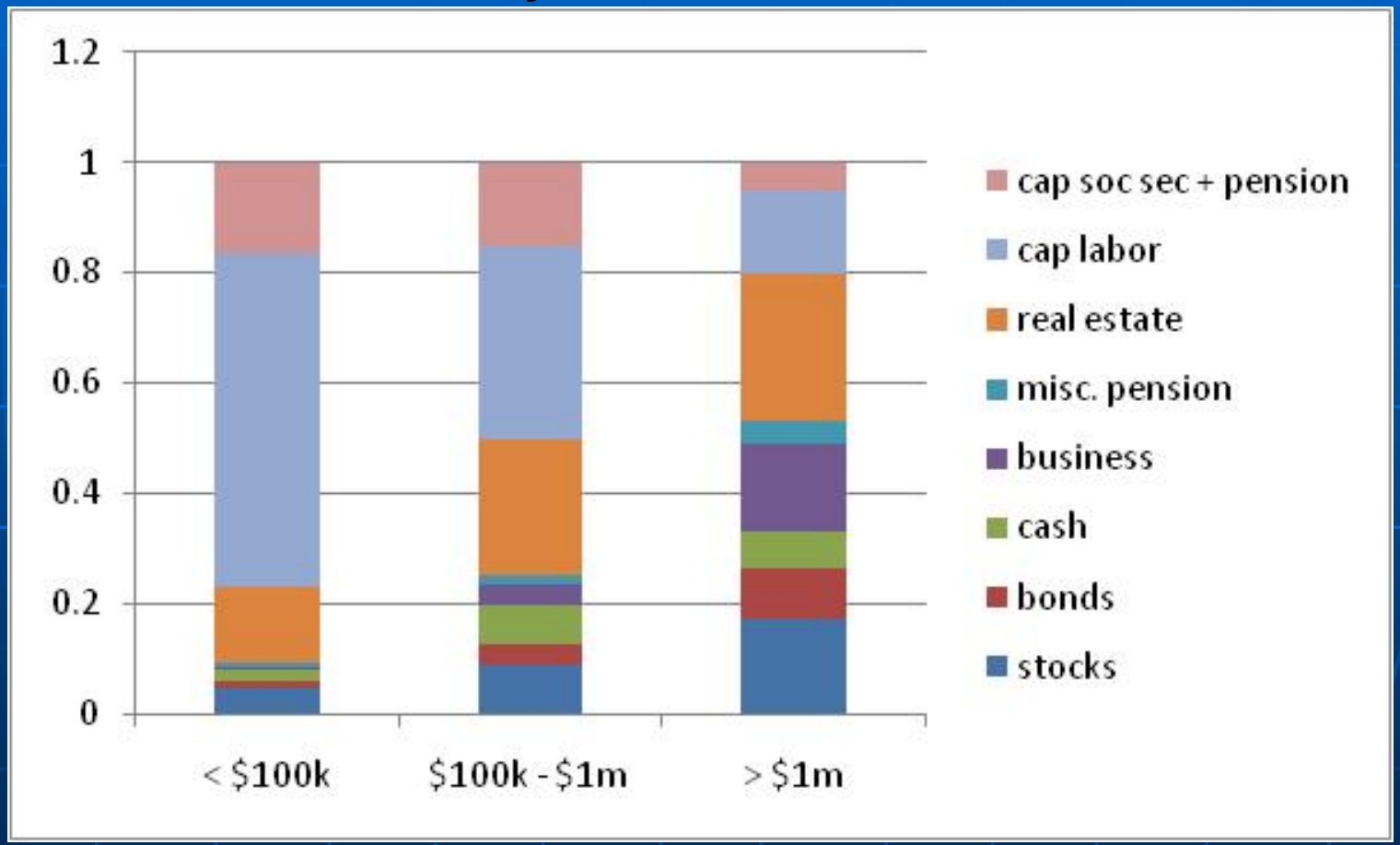
Total Assets of Stockholders by age



Stock holdings > $500,
net worth > $10,000

How important are stocks?

Total Assets of Stockholders by net worth



Stock holdings > $500,
net worth > $10,000

Behavior in Light of Theory

- Simple theory is too simple
- Overall, behavior seems consistent with modern theories that take frictions into account
  - Hubbard, Skinner, Zeldes (1995) on income support programs
  - Saito (1995) and **many others** on fixed costs
  - **Many** authors on the importance of background risks (labor, housing, business)
  - Benzoni, Colin-Dufresne, Goldstein (2007) on long-run correlation of labor income and market returns
- Younger and poorer households participate less
- Even well-off households may have good reasons to curtail stockholdings, or not fully diversify.

Evidence on Mistakes

- A growing body of evidence suggests that many consumers make financial mistakes. The litany includes:
  - Incomplete or naive diversification
  - Local bias
  - Large holdings of employer stock
  - Excessive trading
  - Location of taxable assets
  - Poor debt management (e.g., suboptimal mortgage refinancing, excess credit card debt)

Evidence on Mistakes

- Much of the most striking evidence is found in administrative data by researchers in behavioral finance

Author	Title
Barber & Odean	Boys will be boys; gender overconfidence and common stock investment
Barber & Odean	Trading is hazardous to your wealth…
Choi, Laibson, Madrian, Metrick	DC pensions: plan rules, participant decisions, and the path of least resistance
Choi, Laibson, Madrian	$100 bills on the sidewalk: suboptimal saving in 401(k) plans
Coval and Moskowitz	Home bias at home: local equity preference in domestic portfolios
Benartzi and Thaler	Naïve diversification strategies in DC saving plans
Woodward	A study of closing costs for FHA mortgages
Brown, Liang, Weisbenner	401(k) Matching Contributions in Company Stock…

Putting Mistakes in Perspective

- Survey data can provide a valuable *quantitative* perspective on how pervasive errors are.

- Example 1: Bilias, Georgarakos, Haliassos (2008)
  - Do households trade too much or too little?
  - Use PSID and SCF data to look at household portfolio inertia
  - Find that relatively few households have brokerage accounts
  - Those that do trade a lot, consistent with findings of behavioral literature
  - However, wealth in brokerage accounts is a small fraction of their wealth, so overtrading is not too costly

Putting Mistakes in Perspective

- Example 2: Calvet, Campbell, and Sodini (2006)
  - Find that wealthier and more financially sophisticated households invest more aggressively, but that they are more efficient investors.
  - Suggest that less aggressive investors may be following a good rule-of-thumb to avoid complicated financial investments.

Putting Mistakes in Perspective

- Example 3: Vissing-Jorgensen (2008 discussion of Lusardi and Tufano)
  - Rough calculations on aggregate costs of alleged household mistakes in debt management

Credit card mistakes:

- Paying off credit card too slowly (holding >3 months of income in taxable checking/savings/money market accounts/MMMF):

Year	Total excess low-int. assets	% with excess low-int. assets	...and CC balances	Mean $ mistake per year	Aggr. mistake per year
2004	$912B	19.9%	5.8%	$321	$1.8B
2001	$1,008B	20.6%	5.4%	$303	$1.6B
1998	$631B	17.5%	4.3%	$228	$1.0B

Bounced check fees:

- Bounced check fees (year 2000): 251M bounced checks×$26 per check=$6.5B.

How Important are Mistakes?

Mortgage mistakes:

- Suboptimal refinancing, Campbell (2006):

Year	% of mortgage value	Total mortgages	Aggr. mistake per year
2003	1.07%	\$6,461B	\$69B
2001	0.66%	\$5,066B	\$33B
1999	0.43%	\$4,233B	\$18B
1997	0.53%	\$3,634B	\$19B

- Paying off mortgage too slowly (holding >3 months of income in taxable checking/savings/money market accounts/MMMF):

Year	Total excess low-int. assets	% with excess low-int. assets	...and mortgages	Mean \$ mistake per year	Aggr. mistake per year
2004	\$912B	19.9%	9.5%	\$1,521	\$16.3B
2001	\$1,008B	20.6%	9.5%	\$1,615	\$16.2B
1998	\$631B	17.5%	7.8%	\$1,422	\$11.3B

How Important are Mistakes?

- *Tentative conclusions*
  - For the most part, the jury is still out on how much these costs matter
    - we need more analysis, less religion
  - Shouldn't lose sight of the big issues
    - 1st order: Are people saving enough?
      - 2nd order: how are they allocating assets?
    - 1st order: Is it better to rent or buy?
      - 2nd order: are they refinancing optimally?
    - 1st order: Are people insured against catastrophic risks?

Implications for Policy

- First do no harm!
  - Data suggests caution: In a complex world, regulation and program structure can have unintended consequences

2. Reasons respondents gave as most important for their families' saving, distributed by type of reason, 1995–2004 surveys

Percent

Reason	1995	1998	2001	2004
Education	10.8	11.0	10.9	11.6
For the family	2.7	4.1	5.1	4.7
Buying own home	5.1	4.4	4.2	5.0
Purchases	12.8	9.7	9.5	7.7
Retirement	23.7	33.0	32.1	34.7
Liquidity	33.0	29.8	31.2	30.0
Investments	4.2	2.0	1.0	1.5
No particular reason	.8	1.3	1.1	.7
When asked for a reason,				

e.g., Retirement is just one of many reasons households save

Implications for Policy

- Simple policy changes can make a big positive difference, e.g.,
  - Default options in pension plans
  - Rule change on own-company-stock matching contributions
- More broadly, the study of household finance helps to inform the design of products and social institutions
  - Public and private pensions
  - Mortgage and other debt products
  - Financial disclosure and education

How Household Finance Can Inform Policy
two last examples…

Poterba, Rauh, Venti, Wise (2005)

"Lifecycle asset allocation strategies and the distribution of 401(k) retirement wealth"

- The shift from DB to DC pensions could have profound implications for the distribution of wealth among retirees
  - Also pertains to debate over stock-based social security returns
- Use data on investment and saving behavior (various strategies) + simulated returns to see what future wealth distributions might look like.

How Household Finance Can Inform Policy

two last examples…

Susan Woodward (2008)

"A Study of Closing Costs for FHA Mortgages"

- A careful analysis based on data from national sample of 7,560 FHA-insured, 30-year fixed-rate home purchase loans closed in 2001.

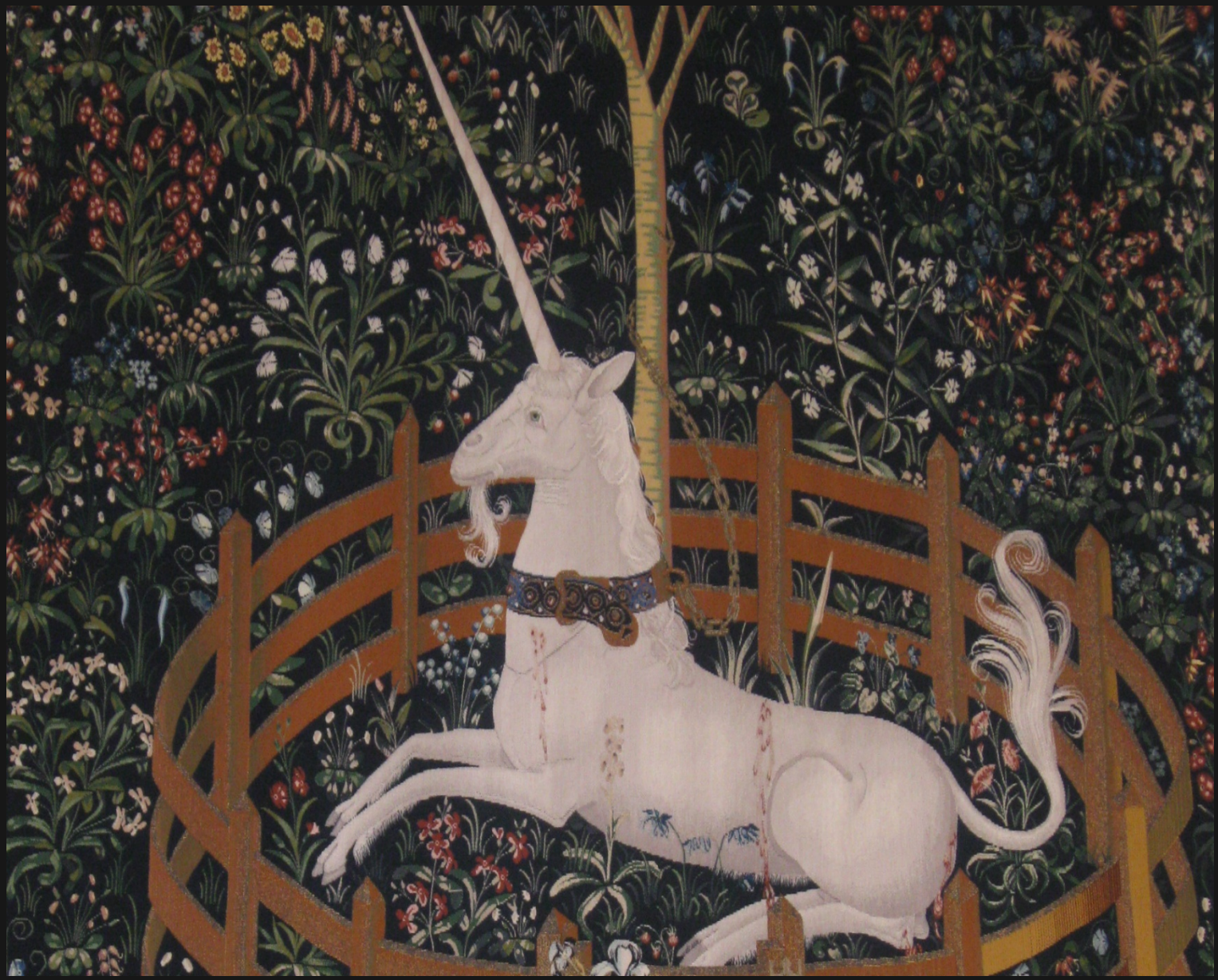
- After controlling for legitimate cost factors, total loan fees still vary significantly…case made for simpler products
  - Loans made by mortgage brokers cost $300 to $425 more than those made by direct lenders, all else equal.
  - African-Americans pay $415 more and Latino borrowers pay $365 more for their loans, controlling for other borrower differences on average.
  - College graduates are charged $1100 less than those who did not go to college at all, other things equal.

Data Wish List

- Campbell (2006) suggests five attributes of an ideal data set:
  1. Cover a representative sample of entire population
  2. Measure total wealth and break it down into relevant categories
  3. Sufficient disaggregation between asset classes
  4. High degree of accuracy
  5. Panel instead of a series of cross-sections

Data Wish List

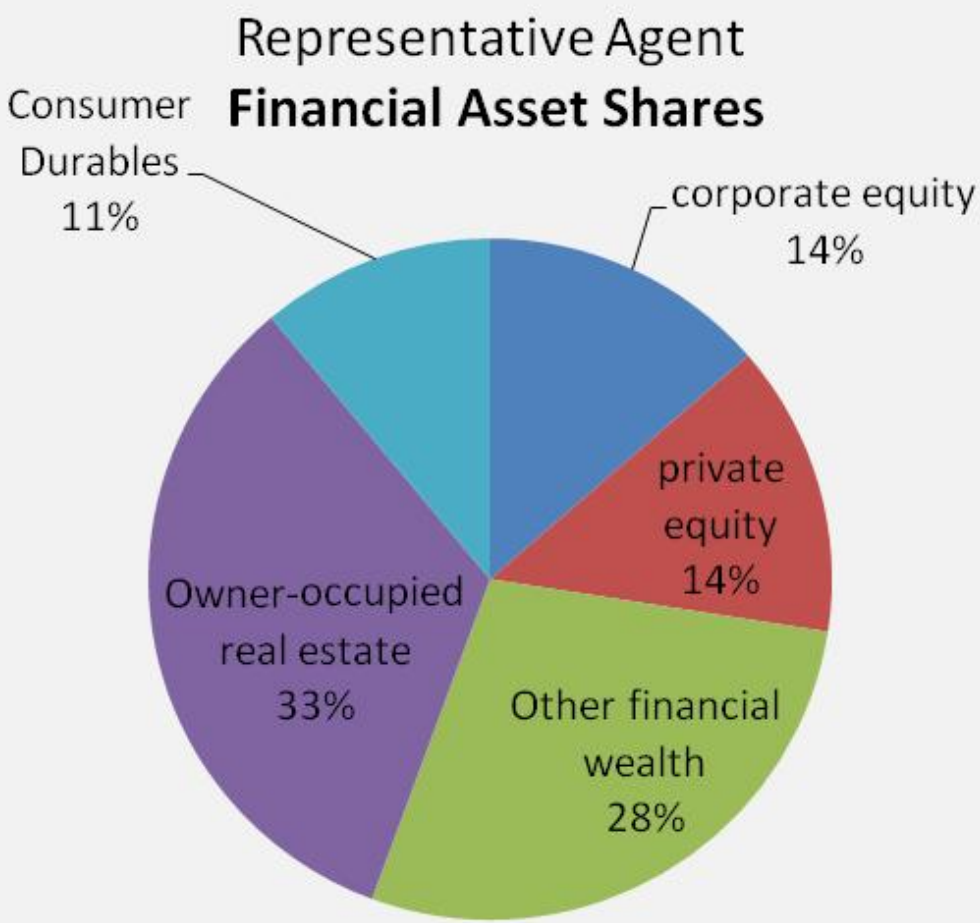
- Additional items:
  1. Details on insurance coverage
     - E.g., types of annuities, long-term care, health…
  2. Questions on expectations
     - E.g., expected bequests, family transfers, government transfers
  3. Large as possible sample size (SCF polls only 5,400 households!)
  4. Release updates in as timely a manner as possible



representative agent at rest

LEFTOVERS

- How to avoid mistaken inferences from just looking under the street lamp?
- Add more street lamps!


Representative Agent
Financial Asset Shares
Consumer Durables 11%
corporate equity 14%
private equity 14%
Other financial wealth 28%
Owner-occupied real estate 33%

Income growth has been moderate for the middle class

5. Here are selected percentiles of the income distribution for the past four surveys, in 2004 dollars:

Percentile of income	1995	1998	2001	2004
20	15,100	16,100	17,900	18,900
40	28,100	30,600	32,800	33,900
60	45,600	49,400	54,700	53,600
80	73,800	79,100	87,600	89,300
90	101,100	108,900	126,600	129,400

Source: *Brian K. Bucks, Arthur B. Kennickell, and Kevin B. Moore, "Recent Changes in U.S. Family Finances: Evidence from the 2001 and 2004 Survey of Consumer Finances "*