Towards understanding household portfolios

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The questions

- Household savings gets channeled to investments.
- Makes it important to understand *where* households save
- Household decisions in the equity markets shape asset prices.
- In the neoclassical world, facts about the security were the only thing that mattered. Changed with behavioural finance.
  - Individuals make mistakes. This is costly for them.
  - But biases in investor behaviour can bubble up into asset prices.
- Makes it important to understand *how* households trade

Datasets in India

- CMIE Consumer Pyramids household survey data
- NSDL data on investor accounts

CMIE Consumer Pyramids

The survey

- Pan-India survey. The sample size was 158,624 households during 2015-16.
- Three waves in a year. Each wave consists of 4 months. About 39,500 households surveyed in each month.
- Broadest starta is *Homogenous Region*.
- This is set of neighbouring districts that have similar agro-climatic conditions, urbanisation levels and female literacy.
- Four main datasets
  - People of India: demographic details, religion, caste, occupation, education
  - Overall household income and expenditure
  - Sources of income
  - Details of expenditure
  - Household Amenities, Assets and Liabilities
  - Employment
  - Consumer sentiments

Household Amenities, Assets and Liabilities

- Whether households have access to basic amenities like electricity and water.
- Ownership eleven kinds of assets as of the date of the survey
- Purchase of these assets 120 days before the date of the survey, and intentions to buy them within 120 days after the date of survey.
- Outstanding investments in financial assets and land and intentions to invest in the next 120 days.
- Outstanding borrowing and sources and purposes of the borrowing.
- Savings and borrowings are a Y/N answer, no information on amounts.

Weights

- **HH weight**: ratio of the estimated number of households at the end of the month to the households in the sampling frame in that stratum in that month.
- **Adjustment for non response**: ratio of the households in the sampling frame in a stratum in the month to the accepted members in that stratum in that month.

Data set-up

- Data downloaded on NIPFP servers
- Stored in a SQL database
- Query the SQL database, and merge databases to create a complete profile of every respondent.

Snapshot of data

```
> nrow(data)
[1] 1600436
> length(unique(data$HH_ID))
[1] 205124
> table(data$MONTH)

Apr 2014 Apr 2015 Apr 2016 Apr 2017 Aug 2014 Aug 2015 Aug 2016 Dec 2014
   42631    38752    40170    40838    37826    39192    40406    37581
Dec 2015 Dec 2016 Feb 2014 Feb 2015 Feb 2016 Feb 2017 Jan 2014 Jan 2015
   38918    40502    40729    41319    39890    40325    39200    37864
Jan 2016 Jan 2017 Jul 2014 Jul 2015 Jul 2016 Jun 2014 Jun 2015 Jun 2016
   37938    38509    43935    40872    41465    42824    41124    40359
Mar 2014 Mar 2015 Mar 2016 Mar 2017 May 2014 May 2015 May 2016 Nov 2014
   44184    40508    40626    41415    36120    37478    37548    41835
Nov 2015 Nov 2016 Oct 2014 Oct 2015 Oct 2016 Sep 2014 Sep 2015 Sep 2016
   41124    41415    40759    40746    40325    37267    37648    38269
```

Assigning the wave

```
> data$wave <- NA
> data$wave[grep("Jan|Feb|Mar|Apr", data$MONTH)] <- 1
> data$wave[grep("May|Jun|Jul|Aug", data$MONTH)] <- 2
> data$wave[grep("Sep|Oct|Nov|Dec", data$MONTH)] <- 3
> table(data$wave)

     1      2      3
644898 479149 476389

> table(data$wyear)

2014-1 2014-2 2014-3 2015-1 2015-2 2015-3 2016-1 2016-2 2016-3 2017-1
166744 160705 157442 158443 158666 158436 158624 159778 160511 161087
```

Setting the weights

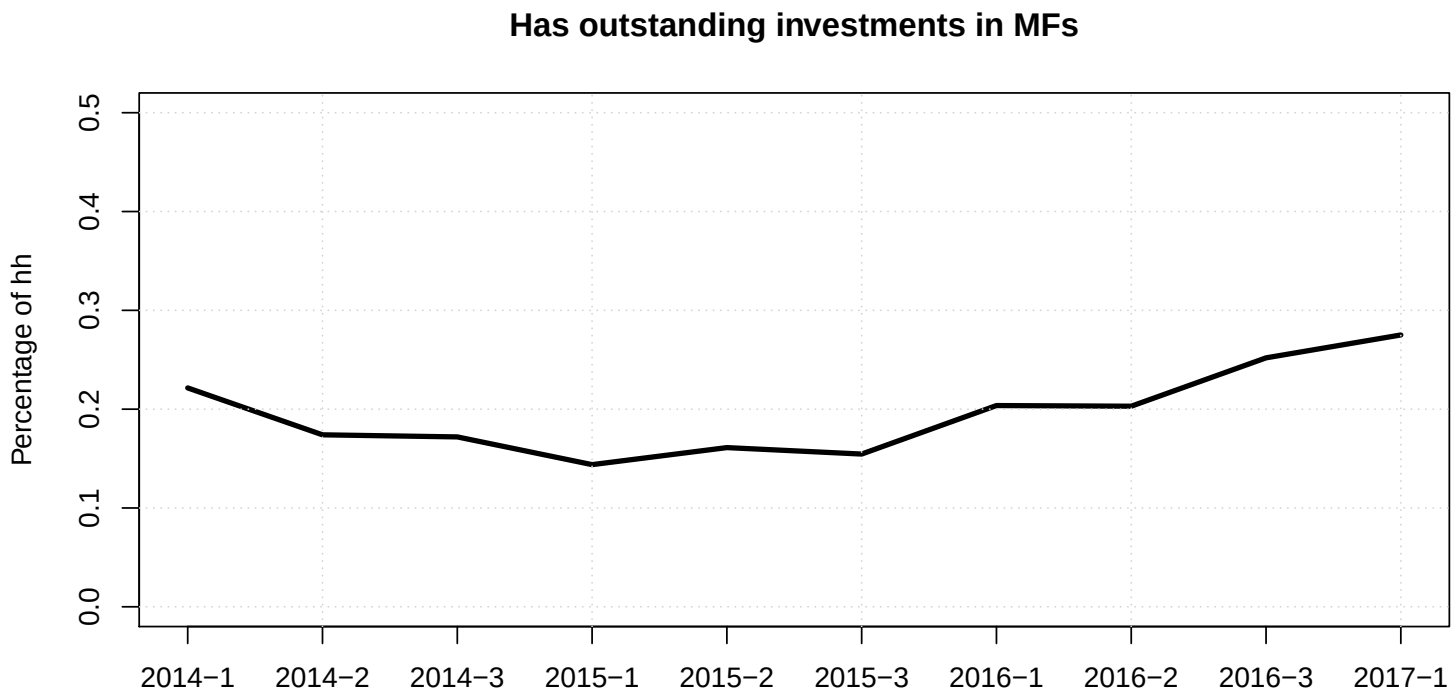
```
> data$weight <-(data$HH_WEIGHT_STATE_REGTYPE_SAMPLE_MONTHLY *
>                  data$NON_RESPONSE_FACTOR_HH_STATE_REGTYPE_MONTHLY)
> options(survey.lonely.psu= "adjust")

> savingsWt = svydesign(id = ~HH_ID, strata = ~STATE_REGTYPE,
>                       weight = ~weight, data = data,
>                       nest= TRUE)
```

Proportion of households with outstanding investments

The data is as of Wave 1 (Jan, Feb, Mar, April), 2017.

Instrument	Mean	SE
Real estate	0.84	0.001
Gold	0.77	0.002
Fixed deposits	0.72	0.002
Life insurance	0.36	0.02
Provident funds	0.06	0.001
Mutual funds	0.002	0.002
Listed shares	0.001	0.0001

Has there been an increase in mutual fund investments?



Current research

- Characterise household portfolios: how do they vary with income, demographics, religion, occupation etc.
- Understand changes in household portfolios over time.
- What drives participation in equity markets?

NSDL

The dataset

- All securities that are traded on exchanges are settled in electronic dematerialised form at depositories.
- We have access to information about holdings of securities at the National Securities Depository Limited (NSDL).
- The available fields are
  - Date of account opening
  - State and district of the account
  - Daily holdings of stocks
  - Class of investor: institution (such as banks, corporations, mutual funds, FIIs, FPIs, etc.) or individuals.

Data set-up

- Data rests on servers at NSDL
- We send code to NSDL on FTP through FRG
- Code is executed by them, a log file is sent back

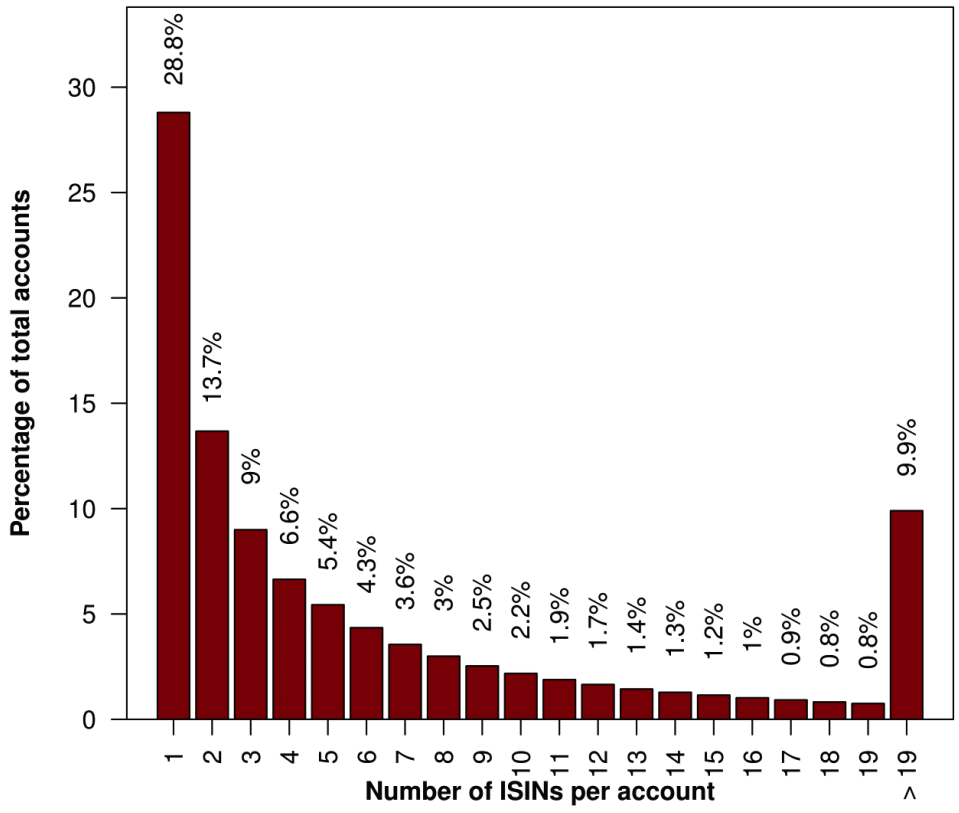
Equity participation

As of December 2015

Accounts	Number (in million)
Registered	24.6
Active (holds at least one ISIN)	13.6
Registered PAN IDs	14.9
Active PAN IDs	10.4
Retail Active PAN IDs	4.8

Source: Direct participation in the Indian equity market: First estimates of some basic facts, by Anurag Dutt, Renuka Sane and Susan Thomas, In: Ajay Shah's blog, 11 November, 2016.

Diversification



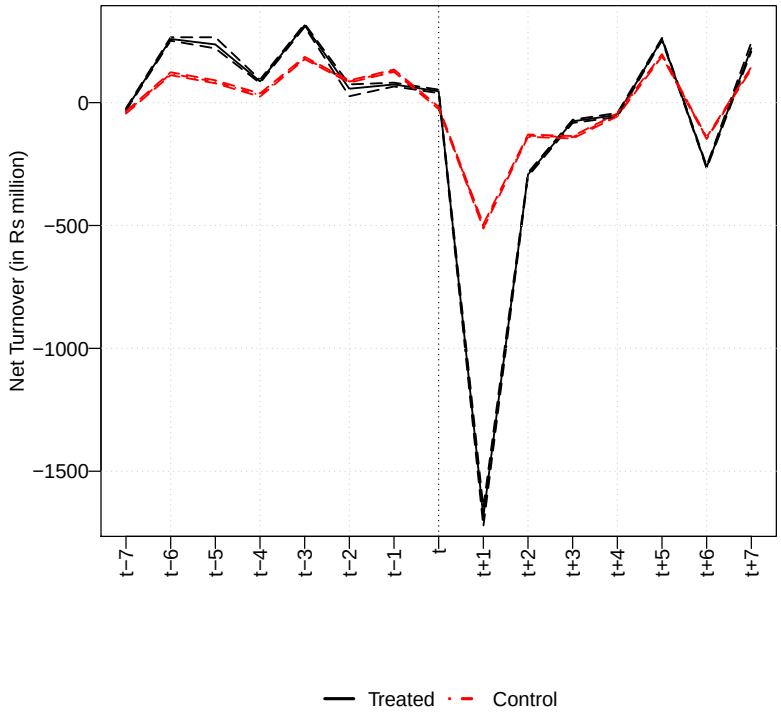
- Around 29% of accounts hold just one known public equity ISIN
- More than 50% of accounts hold less than three known public equity ISINs.

Source: Direct participation in the Indian equity market: First estimates of some basic facts, by Anurag Dutt, Renuka Sane and Susan Thomas, In: Ajay Shah's blog, 11 November, 2016.

Fraud and investor behaviour

- Are investors with direct exposure to stock market fraud more likely to decrease their participation (take cash out of their portfolios) in the stock market than investors with no direct exposure to fraud?
- Is this behaviour restricted to the stock in question, or is there an effect on other stocks?
- Is the reaction to fraud only an immediate response or does it persist over longer horizons?
- Use the Satyam scandal as an exogenous event to evaluate these questions.

Trading around the Satyam event



- Treated investors cashed out almost 10.6 percentage points of their overall portfolio relative to control investors post the crisis.
- The cashing out was largely restricted to the bad stock.
- Over the period of a month, there was no difference in the trading behaviour of the treated and control investors.

Stock Market Participation in the aftermath of an accounting scandal , Renuka Sane. IGIDR Working paper WP-2017-006, July 2017.

Current research: Entry and exit of accounts

- What drives entry into markets? How does this vary with market returns? How does this vary with districts?
- When do accounts close down?
- Do accounts close down after trading losses?
- Do the dormant accounts close down?

Way forward

Way forward

- Exciting new field. Very little is known about savings and investment of households in India.
- For the first time, we can characterise *participation* decisions of household
- For the first time, we can understand *trading* behaviour of retail investors. This is cutting edge by world standards.

Look forward to collaborations!