The Disposition Effect in Boom and Bust Markets

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Executive Summary

- ➢ The disposition effect (DE), namely investors' tendency to sell winners more frequently than losers, is one of the most explored behaviors in finance
- ➢ The disposition effect is a time dependent phenomenon and moves countercyclical to the market
- ➢ The observed selling behavior is entirely driven by the increased gain realization in bust periods
- ➢ Both channels, preferences and beliefs, affect the strength of the disposition effect
- ➢ Using primarily data from boom periods, existing literature underestimates the DE

1. Motivation

- Most papers are **based on boom market data** (Odean, 1998; Barber & Odean, 2000; Grinblatt & Keloharju, 2001) and thus implicitly assume the DE to be **constant over the business cycle**
- **Proposed drivers of the DE**, preferences and beliefs, **vary with macroeconomic cycles**
  - Investors' risk aversion increases in bust periods (Cohn et al., 2015, Kuhnen and Knutson, 2011)
  - Investors' expectations are affected by crises (Malmendier and Nagel, 2011; Greenwood and Shleifer, 2014)

➢ **Is the disposition effect constant over time or does it change in boom and bust markets?**

2. Data and Sample Description

- Trading and portfolio holdings of 100,000 retail investors from Germany from 2001 to 2015

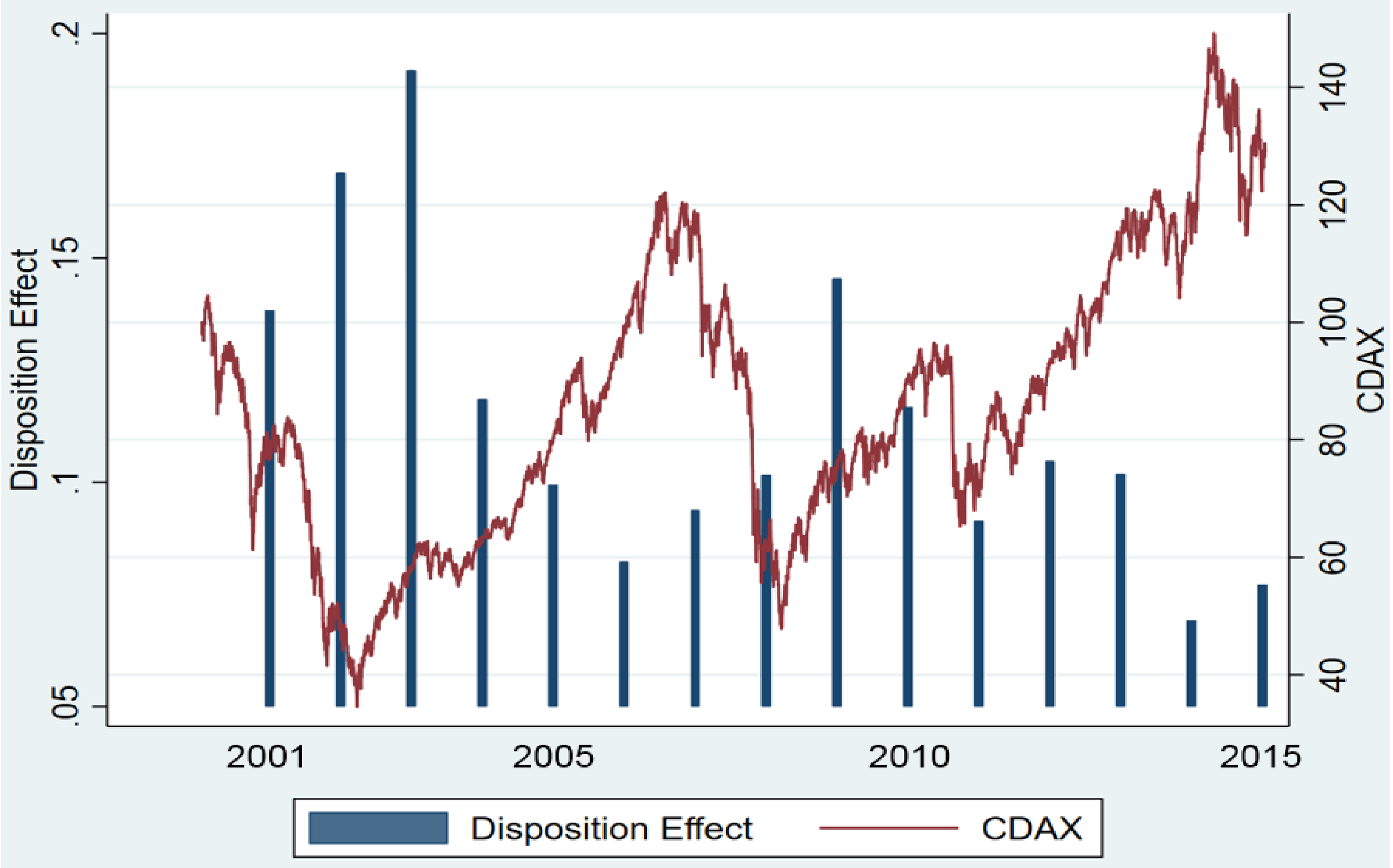
	Boom	Bust
Sample Split		
Accounts	80,860	69,439
Observations	11,633,923	6,646,570
Portfolio Level		
Avg. # of monthly trades	3.07	3.12
PF holdings at a gain (%)	38.07	20.73
PF holdings at a loss (%)	61.93	79.27
Investor Level		
Age (Year)	52	53
Wealth (€)	45,400	46,400

3. Methodology

- DE = PGR – PLR
  - PGR = Gains realized over all gains
  - PLR = Losses realized over all losses

$$Sale_{ijt} = \beta_0 + \beta_1 Gain_{ijt} + \beta_2 Boom_t + \beta_3 Gain_{ijt} * Boom_t$$

4. Main Result



- DE moves countercyclical to the market index
- This is entirely driven by the increased PGR in bust periods

(in %)	Boom	Bust	Difference
PGR	18.90	23.90	**5*****
PLR	13.48	13.30	-0.18
DE	5.42	10.6	**5.18*****

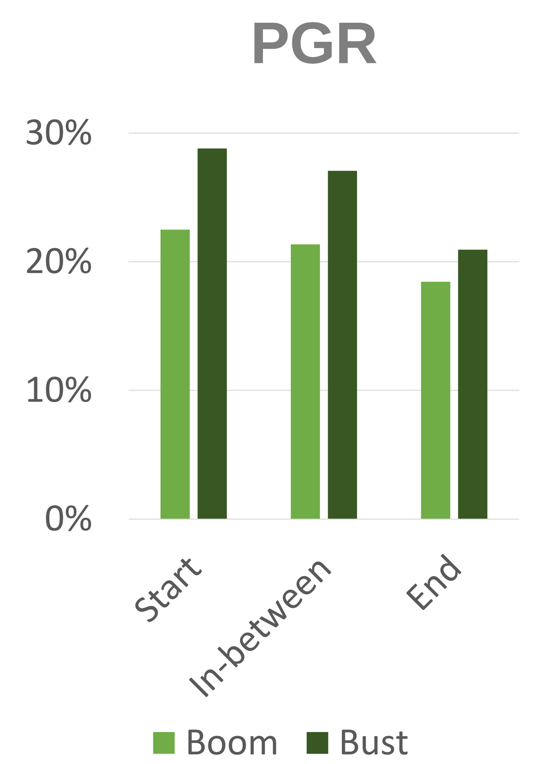
5. Preference Channel

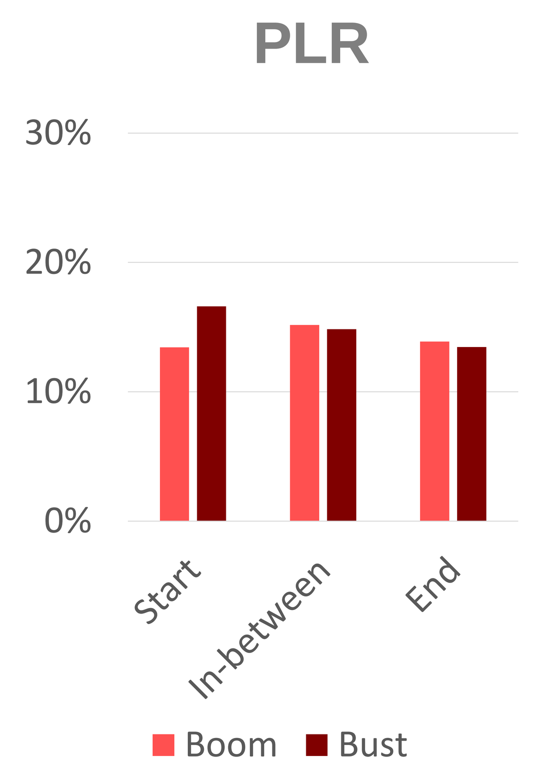
- If **risk aversion increases** in bust periods:
  - ➢ Investors should be likely to realize gains in bust than in boom periods for any given magnitude of the gain
  - ➢ Magnitude effect (i.e. gain magnitude and PGR are positively correlated) is stronger in bust periods
  - ➢ There should be no effect on PLR

	PGR (in %)		PLR (in %)	
Magnitude	Boom	Bust	Boom	Bust
Worst	13.6	15.6	11.9	10.8
Best	17.6	23.2	9.6	9.2

6. Belief Channel

- If investors become **pessimistic** in bust periods
  - ➢ Within a bust period, PGR and PLR should be highest at the beginning
  - ➢ Across boom and bust, PGR and PLR should be higher at the beginning of bust than at the beginning of a boom period
- If investors become **optimistic** in boom periods
  - ➢ Investors start riding the bubble, i.e. PGR and PLR rather stable





7. Robustness

- The overall PF value affects the disposition effect (Engelberg et al., 2018) and PF value and market cycles are positively correlated
  - ➢ Our effect survives even when we control for the portfolio-driven DE
- Effect robust against several market cycle measures (e.g. NBER) and fixed effect models

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