



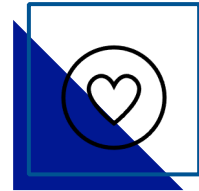
# PROSPECT THEORY

PROSPECT THEORY & STOCK RETURNS: AN EMPIRICAL TEST



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# An example of how we can apply Prospect theory to understand investors' behavior

## Prospect Theory and Stock Returns: An Empirical Test

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We test the hypothesis that, when thinking about allocating money to a stock, investors mentally represent the stock by the distribution of its past returns and then evaluate this distribution in the way described by prospect theory. In a simple model of asset prices in which some investors think in this way, a stock whose past return distribution has a high (low) prospect theory value earns a low (high) subsequent return, on average. We find empirical support for this prediction in the cross-section of stock returns in the U.S. market, and also in a majority of forty-six other national stock markets. (*JEL* D03)

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# A crucial ingredient

- ❖ A crucial ingredient in any model of asset prices is an assumption about **how investors evaluate risk**.
- ❖ Most of the available models assume that investors evaluate risk according to the expected utility framework. However, Kahneman and Tversky (1979)'s Prospect theory captures these risk attitudes more accurately.





## Research Question

Can models in which some investors evaluate risk according to prospect theory help us make more sense of the data on asset prices and asset returns?



# What this paper does

- ❖ The paper derives the predictions, for the cross-section of stock returns, of **a simple prospect theory-based model** and test these predictions in both U.S. and international data.

# A mental representation of risk

Decision making under prospect theory involves two steps:

- ❖ “**representation**”: the individual forms a mental representation of the gains and losses he associates with taking the risk.
- ❖ “**valuation**”: the individual evaluates this representation – this distribution of gains and losses -- to see if it is appealing.

# A mental representation of risk

- ❖ How do investors represent that stock in their minds?
- ❖ **This paper hypothesizes that** for many investors, their mental representation of a stock is **the distribution of the stock's past returns.**

# A mental representation of risk

- ❖ Some investors might see the past return distribution as a good and easily accessible proxy for the object they are truly interested in, namely, [the distribution of the stock's future returns](#).
- ❖ A natural mental representation of a stock's past return distribution is the distribution of its monthly returns over the previous five years in investment handbook (the data starting in July 1931 and ending in December 2010)

# “Valuation” & Prediction of the paper

- Stocks with **high** prospect theory values will have **low** subsequent returns, on average.
- While stocks with **low** prospect theory values will have **high** subsequent returns.
- The intuition is clear: stocks with high prospect theory values are appealing to some investors; these investors tilt toward these stocks in their portfolios, causing the stocks to become overvalued and to earn low subsequent returns.

# Prediction

- ❖ The prediction could hold more strongly among stocks more heavily traded by individual investors, for example, among **small-cap stocks**.
- ❖ This is because the behavior that underlies the prediction is relatively unsophisticated and is therefore likely a better description of what **individual investors** do than of what institutional investors do.

## Drawbacks- this paper assumes:

- ❖ That individuals evaluate **the return distribution of the stock itself**; more sophisticated investors would evaluate the return distribution of the overall portfolio.
- ❖ That the investors **evaluate the stock's past returns**; more sophisticated investors would try to forecast the stock's future returns, and would evaluate those.

# Result

- ❖ The coefficient on the stock's prospect theory value, averaged across all the monthly regressions, is significantly negative: stocks with higher prospect theory values have lower subsequent returns.
- ❖ The predictive power of prospect theory value for subsequent stock returns is stronger among **small-cap stocks** and stocks less subject to arbitrage – for example, among **illiquid** stocks and stocks **with high idiosyncratic volatility**.
- ❖ **Probability weighting & lottery-like gamble !!!**



# DANKE!

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