My research is in empirical finance, covering questions of asset pricing and investor behavior. Some of my work is explicitly behavioral, focusing on the effects of investor psychology on financial decisions and asset prices. Other work aims to understand frictions in financial markets, a topic which would have once been considered behavioral, but now is closer to the mainstream of asset pricing.

There are three parts of this broad agenda. The first relates to understanding how investors obtain and process information about firms. For a long time, the question of how investors receive information was either abstracted away from entirely (e.g. by assuming signals are received by all investors instantaneously), or modeled at a very high level (e.g. information diffuses slowly among investors). But as an empirical matter, how exactly are investors receiving and processing news, and what impact does this have on asset markets? My research explores the effects of information transmission through media coverage and private meetings, as well as investor biases in information processing.

The second line of research considers the nature and consequences of investor demand for dividends. The question of why companies pay dividends has been actively debated ever since Miller and Modigliani (1961) famously proved that unless taxes or frictions were present, dividend policy should be irrelevant to investors. My research explores how investors may have an overall demand for dividends, and finds evidence for this in the pricing of equities and the behavior of mutual fund managers.

The third line of research examines how people evaluate and respond to their investment performance, and the implications of this for trading behavior. The psychology of cognitive dissonance suggests that facing up to one’s investing mistakes is likely to be an uncomfortable process. Sometimes, investors respond by blaming the person to whom investing decisions were delegated. In other cases, investors transfer money between assets in order to avoid finishing an investing episode at a loss, an application of the theory of mental accounting. I document how these aspects of investor psychology can help explain trading choices.

1. Information Transfers in Financial Markets

Information processing has been at the heart of asset pricing ever since Fama (1970) discussed the idea of market efficiency. While much has been written on whether information is included in prices, the question of how exactly this process occurs has only been examined more recently. To shed light on this
issue, part of my work seeks to understand the role of information intermediaries in financial markets, and the mechanics of information transmission. At the mass communication level, many investors receive information about firms and market conditions from sources such as newspapers, television and newswires. The press enables investors to overcome limitations on their ability to acquire information and make sense of its relevance and trustworthiness. My research has explored how investors use media information in their decision-making, and the implications for asset prices and firm behavior. At the other extreme, investors also receive information through direct communication with each other and with the firm, through social networks and informal links. I contribute to this by examining the effects of private meetings between firms and investors, and what implications these meetings have for the informativeness of trades.

**Selective Publicity and Stock Prices** (2012, *Journal of Finance*) examines how media coverage affects the way investors interpret news stories, and how companies ‘market’ their news to affect prices. I look at the use by companies of investor relations (IR) firms. Investor relations is a subset of public relations, but dealing specifically with communications between companies, shareholders and the stock market. I find that IR firms ‘spin’ their clients’ news coverage, securing more coverage of positive press releases than negative press releases. The increased coverage of good news pushes up share prices in the short term. These prices increases are not permanent, as IR firm clients actually have lower returns around the release of earnings news. The intuition for the lower earnings returns is that if the positive media coverage raises investors’ expectations but doesn’t actually change the company’s operations, eventually investors will be disappointed. This disappointment sets in around hard information like earnings, which IR firms show no ability to spin.

My paper was the first to demonstrate that some companies appear to be deliberately influencing their media coverage, and that these actions affect prices. Media coverage involves in part a strategic firm-level choice, similar to disclosure, which the literature had not previously considered. The findings in the paper are consistent with investors (quite reasonably) interpreting media coverage as signifying that a story is more important or more trustworthy. However, investors do not seem to be able to distinguish between truly newsworthy articles and articles resulting from IR influence.

Given the multiple effects that media coverage can have, a natural question is whether media coverage actually improves overall investor decisions. I consider this in ‘Winners in the Spotlight: Media Coverage of Fund Holdings as a Driver of Flows’ (2014, *Journal of Financial Economics*), co-authored with Denis Sosyura and Eugene Soltes. We contrast two views of the media in financial markets. The
‘information’ view suggests that media coverage reduces the cost and difficulty of acquiring information, helping investors make more informed choices. The ‘attention’ view says that media coverage may simply shift investors’ attention towards glamorous and sensational stories without improving decisions. We examine this question in the context of how investors respond to information about mutual funds contained in mandated disclosures of the equity positions held by the fund. We document that investors allocate money to mutual funds based on the performance of fund holdings (over and above the performance of the fund itself), but only for holdings which recently received media coverage. In other words, if a fund holds shares in a high-profile failure like Enron, they get punished much more in outflows than if they held a stock with equally bad returns but no media coverage.

Our evidence suggests the main effect of media coverage is to increase investor attention. Investors ignore valuable information such as the actual trades made by the fund, while reacting to cues associated with salience, such as whether the company name was featured in the headline. By rewarding funds who report holding shares with high past returns, investors create undesirable incentives for fund managers to distort their holdings to contain media-covered winners just prior to reporting dates. We find evidence that funds do this, but do not suffer any observable penalty in outflows. Overall, the results suggest that media coverage does not necessarily improve decision-making, but can cause investors to focus on irrelevant, attention-grabbing stories.

In ‘Managerial Control of Business Press Coverage’ (Working Paper), co-authored with Eugene Soltes, we examine the determinants of media coverage in order to understand how much managers can control the press coverage they receive relative to the effects of forces outside their control. We find that managers are able to increase the probability of receiving press coverage by issuing press releases during business hours, rather than outside business hours. Other managerial actions, such as choice of press wire service and increasing the access available to reporters, do not seem to affect coverage. The largest determinants of media coverage, however, are factors outside the firm’s immediate control – how surprising the underlying news is, and fixed firm factors such as size and industry.

In my paper ‘What Are We Meeting For? The Consequences of Private Meetings with Investors’ (2015, Journal of Law and Economics, forthcoming), co-authored with Eugene Soltes, I consider the question of information transfers occurring in private meetings between investors and senior management at firms. After the passage of Regulation Fair Disclosure by the SEC in 2000, firms were prohibited from selectively disclosing material information to some investors without informing the whole market. Despite this, managers of public companies still spend significant time meeting privately with investors,
raising the question of what exactly is being conveyed in these meetings. We examine this issue using a unique dataset of all private meetings over a 6 year period between firm senior management and investors, obtained from a mid-sized NYSE-listed company. We find evidence consistent with these meetings conveying valuable information to investors. Investors who met with management in a given quarter have trades that are unusually correlated when compared with investors who don’t attend such meetings, as meeting participants tend to buy at the same time or sell at the same time. Moreover, investors display significantly greater timing ability in their trades during quarters when they meet with the firm. Both effects are consistent with meetings conveying valuable information.

Perhaps most surprisingly, the effect of meetings varies considerably across investor types, with the improvement in trading being mainly limited to hedge funds that meet with the firm, but not mutual funds or pension funds. This suggests one of two possibilities. Either hedge funds are unusually skilled in getting valuable private information from the company, or hedge funds are better able to analyze the same set of information, perhaps due to having greater skill. Our results raise questions of considerable policy importance about the efficacy of current regulations, as the current legal concept of ‘material information’ does not seem to contemplate the possibility of information that is material to one set of investors but not others.

Finally, I also explore how information is actually processed by investors once it is received, in ‘Being Surprised by the Unsurprising: Earnings Seasonality and Stock Returns’ (3rd round revise and resubmit, Review of Financial Studies), co-authored with Sam Hartzmark, Eugene Soltes and Tom Chang. In this paper, we examine the pricing of seasonal patterns in firm earnings. Many firms have earnings which are consistently higher at some points in the year than others. From an information point of view, these regular seasonal patterns are predictable and ought to not be surprising to investors. Nonetheless, we document that firms with historically larger earnings in one quarter of the year (“positive seasonality quarters”) have high abnormal returns when those earnings are usually announced. These high returns do not seem to be compensation for increased risk. Instead, there appears to be increased surprise in positive seasonality quarters, as evidenced by analysts having more positive forecast errors.

We provide a variety of evidence that the returns are related to investors overweighting recent information at the expense of more stale information when forming estimates of future earnings, consistent with the representativeness heuristic of Tversky and Kahneman (1973). If a firm has large Christmas sales which it announces in March, on average investors will have seen three announcements with lower earnings before the next March announcement. If the low earnings are overweighted,
investors will be somewhat too pessimistic for the next positive seasonal quarter. Overall, this shows how biases in information processing can cause markets to misprice firm events.

2. Dividend Payments and Asset Prices

A long literature on payout policy has sought to understand why firms pay dividends, as opposed to other forms of distributing cash flows. Theories have focused on issues such as taxes, a need for income streams, and a general investor desire for dividends. The notion of an investor demand for dividends is discussed in theories of catering (e.g. Baker and Wurgler (2004), which posits an overall demand for dividends, due to psychology or institutional constraints) and clientele models (e.g. Elton and Gruber (1970), which posits different groups of investors with varying desire for dividends based on tax rates). I explore some of the asset pricing implications of demand for dividends, by providing evidence that such demand causes predictable fluctuations over time in the returns of dividend-paying stocks, and causes mutual fund managers to engage in trading strategies to artificially boost dividend yields.

My first paper in this area is ‘The Dividend Month Premium’ (2013, Journal of Financial Economics) co-authored with Sam Hartzmark. This follows a thread in the earnings seasonality paper, namely the pricing of recurring firm events. We document a new asset pricing anomaly whereby companies have unusually high returns in months where they are predicted to pay a dividend. We use the regular timing of past dividend payments to make forecasts of current payment. If the company paid a dividend 3, 6, 9 or 12 months ago, they are likely to pay a dividend this month, and they earn positive abnormal returns. These returns are unlikely to be compensation for risk, as the high returns only hold in dividend-paying months, but not other months. This implies that for risk to explain the results, firms must be riskier in the month of dividend issuance relative to other periods, not just riskier overall.

We argue that these abnormal returns are driven by an increase in demand from dividend-seeking investors in the lead-up to dividend payment. The best evidence for this comes from high returns in the interim period after the dividend announcement but before the dividend is allocated to shareholders (the ‘ex-day’). This interim time period has no news or uncertainty about the dividend (as it has already been announced), and does not involve dividend-related tax consequences. The returns are consistent with investors having a demand for dividends, leading to predictable price increases in the lead-up to dividend payment, and predictable drops in price afterwards.
Next, I explore why this underlying price pressure around dividend dates may be arising, by examining the actions of mutual fund managers, in the paper ‘Juicing the Dividend Yield: Mutual Funds and the Demand for Dividends’ (2015, Journal of Financial Economics), co-authored with Larry Harris and Sam Hartzmark. We examine whether mutual funds are responding to investor demand for higher dividends by purchasing stocks just before the dividend payment dates and selling them afterwards, a process we refer to as ‘juicing’. We provide evidence suggesting that this kind of juicing is indeed happening. There is a subset of funds which consistently pay much higher dividends than what would be predicted from their quarterly holdings of shares. This implies that they are trading in and out of dividend-paying stocks between the quarter-ends (when holdings are filed with the SEC).

This juicing behavior is surprising, because funds can generate the same income streams with better tax consequences by issuing a return of capital, making juicing costly to fund investors. This makes juicing puzzling under standard theories of dividends based on taxes or a need for income streams, and suggests a demand for dividends themselves. Whether or not individual investors are directly trading in and out of dividend-paying stocks, mutual funds are doing it on their behalf. The big unresolved questions are to what extent investors realize that juicing is occurring, and whether they would be unhappy if they did know. These questions are likely to be of some considerable regulatory importance.

3. Investor Psychology and Trading Behavior

A third strand of my research seeks to understand the psychology of how investors evaluate their investment performance and make trading decisions. Losses on assets tend to generate cognitive dissonance, which is the discomfort that people feel when they try to hold two contradictory ideas in their head at the same time, or when their beliefs and actions do not fit together. Investors generally think of themselves as clever people who make sensible decisions, a fact which seems at odds with having bought something that declined in value. Responding to losses also involves mental accounting (Thaler (1980)), the general process by which individuals keep track of and evaluate financial decisions. I use both theories to help understand the disposition effect, which is the tendency of traders to sell assets when they are at a gain, but hold on to them when they are at a loss. While the existence of the disposition effect is widely documented, my research sheds light on its cause, a question which has been unclear for some time. These papers help develop a theme not widely discussed in the literature, namely the psychology of investor self-image as a driver of trading decisions. In this view, changes in
wealth are important not just because of the money itself, but also because of how the money makes the investor feel about themselves and their decision-making.

I argue that the disposition effect can be understood as being a response to the cognitive dissonance of losses. Investors are reluctant to sell assets at a loss because this would mean admitting that they were foolish for buying them in the first place. I tackle this problem from two angles. The first is in my paper ‘Efficiency and the Disposition Effect in NFL Prediction Markets’ (2012, Quarterly Journal of Finance), co-authored with Sam Hartzmark. In this paper, we examine an online betting market on NFL football games, and provide evidence consistent with traders exhibiting the disposition effect, as seen in patterns of reversal and subsequent momentum after scoring events. Finding the disposition effect in this market is difficult to reconcile with other existing theories of the disposition effect such as prospect theory or belief in mean reversion. It is however consistent with cognitive dissonance, as traders likely think that they are clever at gambling.

I provide direct evidence of the role of cognitive dissonance in driving the disposition effect in ‘Looking for Someone to Blame: Delegation, Cognitive Dissonance and the Disposition Effect’ (2015, Journal of Finance, forthcoming), co-authored with Tom Chang and Mark Westerfield. We explore the question of why investors in mutual funds, unlike nearly all other asset classes, do not exhibit a disposition effect, but instead give more money to winning funds and withdraw money from losing funds. This has been known in the mutual funds literature for a long time, but has received little discussion in the context of the disposition effect. We argue that finding a ‘reverse-disposition effect’ in mutual funds is consistent with cognitive dissonance. Investors generally do not want to sell at a loss because doing so means admitting they were foolish for buying the asset in the first place. But for assets that involve delegation to a portfolio manager (like mutual funds), investors can blame the fund manager for the poor returns instead of blaming themselves, and sell the fund as a way of punishing the manager.

Using data on individual trader accounts at a discount brokerage, we show that the reverse disposition effect is common across a wide range of delegated assets. Moreover, the different behavior appears to be driven by attributes of the asset class and not investor characteristics – the disposition effect in stocks and the reverse-disposition effect in funds hold for investors who hold both assets at the same time. Second, we conducted an experiment where undergraduate USC students traded stocks and mutual funds. We show that if the level of cognitive dissonance is increased, students display a larger disposition effect in stocks, but a larger reverse-disposition effect in funds. In addition, priming students to focus on the role of the fund manager (instead of themselves) increases the reverse-disposition effect...
in funds. The results have important implications for the money management industry, as investors do not treat returns they generate themselves and returns generated by a fund manager in the same way.

The cognitive dissonance generated by losses relates to the broader question of how to evaluate trades, a subject that involves the theory of mental accounting (Thaler (1980)). I explore the role of mental accounting in trading in the paper *Rolling Mental Accounts* (2015, Working Paper), co-authored with Cary Frydman and Sam Hartzmark. Much of the literature in this area has assumed that investors consider the performance of each stock separately, an assumption known as narrow framing. Under the cognitive dissonance example above, narrow framing implies that the gain or loss status of each stock is evaluated separately, rather than the performance of several stocks combined or the overall portfolio. In this view, buying a stock opens a mental account, and selling the stock closes the account and thus finishes the investing episode.

We argue that selling an asset does not always close the mental account, because it is not always the conclusion of the investing episode. Rather, investors may ‘roll’ an account by selling one asset and buying another in quick succession, treating the account as still being open with the money switched into the new asset. When investors sell one asset and quickly buy another (‘reinvestment days’), their choices of what to sell, what to buy, and how to trade the new asset are all consistent with them treating the new asset as a continuation of the old mental account. On reinvestment days, investors do not display a disposition effect, consistent with not experiencing the disutility that comes from closing a mental account. When trading the new asset, investors are more likely to sell once they have made a profit relative to the amount initially invested in the old asset. This suggests that the initial investment amount acts as a reference point, consistent with the account being rolled over. Investors who roll over positions at a loss also tend to switch into more volatile positions than when they roll at a gain, consistent with the previous losses making them exhibit risk-seeking behavior. Rolling a mental account is a way that investors avoid ending investing episodes at a loss, and sheds light an aspect of the psychology of responding to losses that previous theories have not contemplated.
References


