Our Scientific Approach To Investing

INVESTMENT PERSPECTIVE

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We invest in equities through a systematic process whose foundation is a scientific approach with theoretical underpinnings and empirical corroboration. When designing strategies, our focus goes beyond identifying securities with higher expected returns and includes all aspects of efficient implementation, such as turnover, opportunity costs and trading costs that can impact performance. Indexing has been a great innovation for investors, but it also has noteworthy limitations. Our strategies incorporate the positive aspects of indexing, like transparency, low turnover and broad diversification, with implementation techniques intended to help produce higher excess returns than an index-based approach.

Thousands of stocks trade every day across global equity markets and the discount rates (i.e., expected returns) for each of these stocks are set by investors through the prices upon which they agree to transact. Our knowledge of what drives differences in expected returns among securities has been advanced by decades of research pursuing an understanding of how markets price securities. Valuation theory helps explain which fundamental aspects, together with prices, influence expected stock returns. We use these insights to design strategies that put more weight in stocks with higher expected returns and exclude or underweight those stocks with lower expected returns. How we harness these insights depends on the desired level of diversification, but we feel they enable us to more precisely identify differences in expected returns compared to a broad-brush factor or smart beta approach. We believe this approach not only helps target companies with higher expected returns more efficiently, but also helps reduce any unnecessary costs, taxes, risks and tracking error related to holding securities that do not increase expected returns.

Our buy and sell decisions consider current stock prices alongside business fundamentals from company balance sheets, income statements and cash flow statements. This wholistic approach to the interaction between current stock prices and company financials differs from an index that rebalances only once or twice a year and may thereby rely on stale information from six months or even a year ago. We also pay close attention to when and how we trade in an effort to reduce transaction costs. We believe this results in strategies:

- based on sound underlying investment principles
- that use current prices and fundamentals to enhance expected returns
- with broad diversification and low expected turnover and trading costs

Valuation Theory Lays the Foundation

Our approach is based on market prices—instead of disputing a stock's current price, we assess the expected returns of a company given its current price. Investors assign discount rates via the prices they are willing to pay for a stock. How the market sets prices can be based on a multitude of factors, including differences in perceived opportunities, risks and/or preferences. Our goal is to identify companies with higher market-implied discount rates to build portfolios with higher expected returns. We achieve that most efficiently by applying *up-to-date research*.

Asset pricing is a field within academia that has developed tremendously over the last half-century. While our understanding of what drives differences in expected returns across stocks continues to evolve, our framework remains consistent. **Figure 1** shows a concise form of the valuation equation. The price of a company is based on the equity in that company (assets minus liabilities) plus its expected future cash flows discounted at some rate.

FIGURE 1

Simplified Valuation Equation

$$\text{Price} = \text{Equity} + \frac{\text{Profits}}{\text{Discount Rate}}$$

The model tells us the discount rate that investors demand is related to the stock price of a company, its equity and its profits. Accounting for all three variables—price, profits and book equity—via two independent ratios can help identify differences in expected returns among securities. Why two ratios? It is important to consider the information coming from the balance sheet (e.g., book value) together with flow information from the cash flow statement and income statement. Selecting companies using just one of the financial statements can produce problematic biases. It would not be prudent to buy a company by looking solely at its balance sheet or income statement. We need a ratio from both statements to obtain a wholistic view of company financials alongside its price. **Figure 2** highlights the two ratios we prioritize—book equity/price* and profits/book equity.

FIGURE 2

Key Ratios That Help Us Estimate Relative Value

$$\frac{\text{Equity}}{\text{Price}} \quad \text{AND} \quad \frac{\text{Profits}}{\text{Equity}}$$

What do the ratios tell us? Theory predicts that companies with higher equity/price (proxied by B/P or B/M) and higher profits/book equity (Prof) ratios should outperform companies with lower B/P and lower Prof ratios. Our goal is to target companies with high market-implied discount rates because they are a proxy for investors' expected/required rate of return. All else equal, a company with higher profits is expected to have a higher price. If its price is lower, resulting in a high equity/price ratio, then investors must be applying a higher discount rate (proxy for higher expected/required returns) to the company.

If we identify a company with a low price relative to its equity without considering its profitability, we cannot distinguish whether its price is relatively low because the company has low profitability or a high implied discount rate. Companies that trade at a low price, yet have low profitability, should not be expected to deliver enhanced performance. Including them or overweighting them in a portfolio can introduce costs, taxes and risks without an expected benefit. Valuation theory concludes that both variables matter jointly in determining differences in expected returns across companies. This is also corroborated by empirical data going back decades in U.S., non-U.S. developed and emerging markets (Wahal and Repetto, 2020).

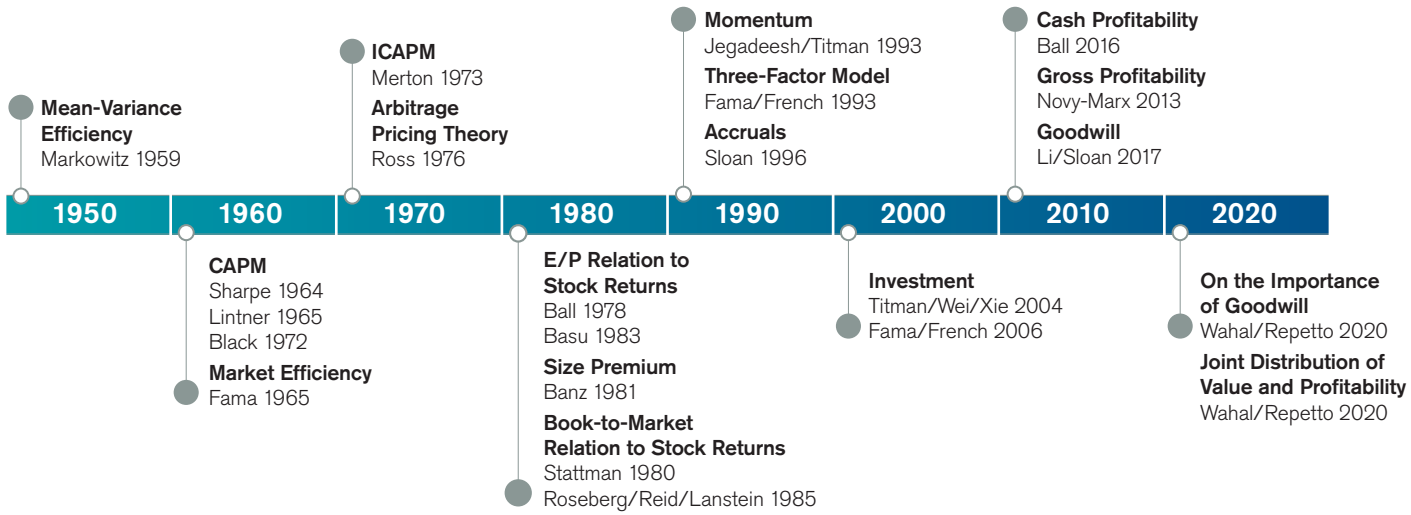
Data Talks

The empirical side of asset pricing research has also advanced considerably over the last half-century. **Figure 3** shows some of the most important enhancements to empirical and theoretical asset pricing. Before citing specific empirical research, it's worth taking a step back to review the motivation behind single- and multi-factor models.

*Book equity/price is also commonly referred to as book equity/market equity or book-to-market in academic literature. We can't agree on a favorite and at times we use them interchangeably. We apologize in advance.

FIGURE 3

Research Milestones in Empirical and Theoretical Asset Pricing



Asset pricing models have a simple objective: to identify what drives stock returns. Take the capital asset pricing model (CAPM), a single-factor model from the early 1960s. The CAPM simply says individual stock returns are proportional to broad market movements.

Investment strategies evolved as more research and information became available. Multi-factor models, as the name implies, use more than one factor to help explain differences in stock returns. For example, HML (High Minus Low) and SMB (Small Minus Big) are famous factors from Eugene Fama and Kenneth French's 1993 Three-Factor Model paper. HML is a factor or portfolio that is long high book-to-market (value) stocks and short low book-to-market (growth) stocks. SMB is long small-cap stocks and short big- (large-) cap stocks.

Factors are a great research tool for analyzing historical stock returns, and asset pricing models use these factors to provide a framework for how markets work and what drives returns. Let's go back to the theory that tells us we should expect high-B/P and high-Prof companies to outperform low-B/P and low-Prof stocks. **Figure 4** shows returns of various stock portfolios formed by B/P and Prof over an 80-year period.

FIGURE 4

Average Monthly Returns of U.S. Equities
(July 1940 - Dec. 2020)

Profits-to-Book	Book-to-Price			
	Low	2	3	High
High	1.16%	1.20%	1.44%	1.52%
3	0.96%	1.08%	1.19%	1.50%
2	0.82%	0.93%	1.06%	1.16%
Low	0.50%	0.83%	0.87%	1.00%

Sources: Avantis Investors, Sunil Wahal, CRSP/Compustat. Past performance is no guarantee of future results.

The higher returns in the top row (high Profits-Book) and far right-hand column (high Book-to-Price) support the theory. When looking at the returns diagonally, the difference stands out even more. The portfolio of high-B/P, high-Prof companies in the top-right corner beats the portfolio of low-B/P, low-Prof companies in the bottom-left corner by more than 1% per month during the period. As we would expect from the theoretical framework, these U.S. findings are also supported by out-of-sample data from non-U.S. developed and emerging markets.

In **Figure 5**, we show almost 20 years of data from non-U.S. markets, and spreads in returns between high-B/P, high-Prof companies and low-B/P, low-Prof companies are greater than 1.2% per month in large caps and 1.8% per month in small caps over the period. Both the fundamental rationale and empirical evidence supporting it give us confidence that these premiums should persist in the future. This framework serves as a road map that we believe enables us to increase expected returns* in a way that is both consistent and transparent, providing investors with portfolios that can be effective building blocks inside an asset allocation.

FIGURE 5

Joint High Book/Price and Profitability
Stocks Have Outperformed Globally

	Non-U.S. Developed July 2000 - Dec. 2020		Emerging Markets July 2000 - Dec. 2020	
	Large Caps	Small Caps	Large Caps	Small Caps
High-High	1.36%	1.30%	1.97%	1.82%
Low-Low	0.14%	-0.58%	0.24%	0.01%

Source: Avantis Investors and Sunil Wahal. See, for example, Sunil Wahal and Eduardo Repetto, "The Joint Distribution of Value and Profitability: International Evidence," November 30, 2020. Past performance is no guarantee of future results.

What's in a Proxy?

Valuation theory informs how we can combine prices and a wholistic set of company financials to form ratios that explain differences in expected returns. But determining the exact proxies to use for these ratios involves many important decisions.

CASH-BASED PROFITABILITY

Advancements in research on the relationship between profitability and expected returns have provided invaluable insights and informed our use of a cash-based operating profitability proxy to form strategies. When defined properly, a company's current profitability can tell us a lot about its future expected profitability. Robert Novy-Marx's seminal paper on profitability (2013) uses measurements higher in the income statement to produce more reliable estimates of a company's profits. Gross profits (revenue minus cost of goods sold [COGS]), as he discovered, is a better proxy to identify higher expected return securities than earnings because it excludes more non-recurring and discretionary items. Gross profits can readily be netted by selling, general and administrative expenses (SG&A) to give us operating profits, providing a comprehensive measurement of profitability across all sectors as companies in some sectors assign expenses through SG&A instead of COGS. In addition, netting the interest expense required to service company debt from operating profits also considers a company's leverage.

The latest research from Ray Ball (2016) builds on Novy-Marx's profitability work and operating profitability. It includes Richard Sloan's 1996 research on accruals, which suggests removing accruals from operating profits leads to more predictable future profits. From Ball (2016), the profitability premium (1963-2014) defined with operating profitability was 3.25% with a volatility of 6.39% and a t-stat of 3.65. The same premium defined with cash-based operating profitability was 4.88% with a volatility of 5.57% and a t-stat of 6.29 due to elimination of competing effects.

ADJUSTED BOOK-TO-MARKET

Ways to measure the equity-to-price ratio have also evolved based on research developments and changes in accounting standards. Book-to-Market, introduced by Stattman in 1980, became the main proxy to define "value" stocks. However, in the early 2000s, the measure of book value changed for companies engaged in M&A after the Financial Accounting Standards Board (FASB) issued its Statement of Financial Accounting Standards No. 142 that relaxed amortization requirements for a combined entity's goodwill following a merger. Empirical evidence revealed a meaningful rise in goodwill on balance sheets after FASB relaxed these amortization requirements.

At the end of 2019, goodwill balances accounted for nearly 40% of aggregate book equity for U.S. listed companies per Wahal and Repetto (2020). Targeting high book-to-market companies without removing goodwill can lead to an unintentional bias toward companies active in M&A. Given current accounting standards, Wahal and Repetto further assert that adjustments to book value make intuitive sense if we want it to represent the equity in the company after a merger occurs.

Why is this intuitive? Goodwill is the premium an acquiring company pays beyond the fair value (market price) of the net assets of a target company. The expected future cash flows of the targeted company (discounted at a rate applied by the acquirer) end up driving the goodwill line item on the combined entity's balance sheet. This should not be considered equity; it is the discounted value of the profits of the acquired company and therefore should not be treated differently than the future profits of the acquiring company. Our modified book-to-market metric excludes goodwill from book value since we already capture future cash flows of the acquired company in our profitability metric of the combined entity. Without this adjustment, companies that have high levels of M&A activity by paying high prices for their target companies would have a large goodwill balance and therefore a high book-to-market ratio. This causes some of these firms to be misidentified as value companies, creating an adverse bias toward firms that engage in mergers and acquisitions. Several studies document the underperformance of companies involved in mergers (e.g., Asquith 1983, Agrawal et al. 1992, Mitchell and Stafford 1999, Loughran and Vijh 1997, Daniel and Titman 2006, Pontiff and Woodgate 2008), which reconcile with theory (Merton and Perold 1993).

Value and Profitability—Stronger Together

Our approach attempts to comprehensively capture what goes into a company's valuation. We do this by including an equity variable (adjusted book-to-market) and a flow variable (cash-based profitability) and combining them into a joint metric. We believe attempting to assess relative value or an expected return of a company by using one of the two is incomplete. As described earlier, it is the equivalent of trying to value a company without considering both the balance sheet and income statement. We believe using both together better informs differences in expected returns.

Novy-Marx's Quality Investing paper (2013) offers a useful comparison of value and profitability in assessing differences in discount rates, stating the "same economic reasoning that predicts the value premium thus also predicts a profitability premium, suggesting that the quality and value phenomena are two sides of the same coin." **Figure 6** illustrates this concept.

FIGURE 6

Value and Profitability: Two Sides of the Same Coin

$$\text{Company Price} = \frac{\text{Profits}}{\text{Discount Rate}}$$

Value: Lower Prices ⟶ Higher Discount Rate

Discount Rate = $\frac{\text{Profits}}{\text{Price}} = \frac{\$5}{\$100} = 5\%$

Discount Rate = $\frac{\text{Profits}}{\text{Price}} = \frac{\$5}{\$50} = 10\%$

Assumptions: Equity and profits held constant.

Profitability: Higher Profits ⟶ Higher Discount Rate

Discount Rate = $\frac{\text{Profits}}{\text{Price}} = \frac{\$5}{\$100} = 5\%$

Discount Rate = $\frac{\text{Profits}}{\text{Price}} = \frac{\$10}{\$100} = 10\%$

Assumptions: Equity and prices held constant.

Source: Avantis Investors.

Wahal and Repetto (2020) show the benefits of the joint equity/price and profitability metric beyond an equity/price "value" strategy or a profitability strategy, documenting improved Sharpe ratios for the joint value + profitability metric. This makes intuitive sense. If two companies have the same expected future profits and different prices, the company with the lower price must have a higher discount rate. Similarly, if two companies have the same prices but different expected future profits, the company with higher profitability must have a higher discount rate. Having a low price-to-equity alone is not sufficient to detect higher expected returns because a company's low price can be due to its low profitability. The price of such a company is not discounted, the price is low because it deserves to be low. A company with higher profitability is expected to have higher price-to-equity, but if the price is low, then we can infer a higher discount rate/higher expected return. These simple examples show the importance of having a wholistic view of companies to make investment decisions. We believe our joint metric combining adjusted book-to-market and cash-based profitability achieves this goal.

Our weighting schema uses this joint metric together with the company's total market capitalization, ranking each security in the universe from highest to lowest expected return. These rankings determine how much we want to overweight or underweight a security relative to its market cap weight. Joint weightings using equity and flow variables are a reliable way to assess differences in expected returns across stocks. The joint metric also helps reduce unintended biases toward certain sectors or companies with high levels of accruals and goodwill that could adversely affect the expected return profile of our strategies.

Incorporating Additional Information

Constructing strategies based a valuation framework that is empirically backed and using reliable proxies as inputs can serve investors well over the long term. However, we can further enhance strategies by considering additional well-documented effects that may impact expected stock returns. We believe investment and momentum are two effects we can account for to further improve the likelihood of delivering outperformance.

Investment

Titman, Wei and Xie (2004) showed that high-investment companies—those with high levels of asset growth—tend to underperform lower-investment companies. Their intuition was that companies tend to raise capital when their discount rates are low (meaning their prices are high relative to fundamentals) causing subsequent underperformance. These companies tend to be small growth companies. Studies as far back as Fama and French (1993) show small growth companies tend to underperform. More recent papers show this underperformance is associated with lower profitability companies. **Figure 7**, extracted from Table 2 of Fama and French's Five-Factor paper (2014), illustrates that companies with low book-to-market ratios, low profitability and high levels of investment have significantly lagged other small caps.

FIGURE 7

Average Monthly Excess Returns vs. One-Month U.S. Treasury Bills

Panel B: Portfolios Formed on Size, Book-to-Market and Investment				
Book-to-Market	Low	2	3	High
Low Investment	0.69	0.99	1.18	1.23
2	0.87	0.92	0.93	1.08
3	0.84	0.95	1.01	0.97
High Investment	0.39	0.75	0.87	1.01

Panel C: Portfolios Formed on Size, Operating Profitability and Investment				
Operating Profitability	Low	2	3	High
Low Investment	0.85	1.01	1.19	1.27
2	0.94	0.90	0.92	1.04
3	0.61	0.93	0.94	1.06
High Investment	-0.09	0.58	0.76	0.76

Source: Eugene F. Fama and Kenneth R. French. "A Five-Factor Asset Pricing Model." Fama-Miller Working Paper, (September 2014). Averages of monthly percent excess returns for portfolios formed on (i) Size, B/M, and OP, (ii) Size, B/M, and Inv, and (iii) Size, OP and Inv; July 1963 to December 2013, 606 months. At the end of June each year, t stocks are allocated to two Size groups (Small and Big) using the NYSE median market cap as breakpoint. Stocks in each Size group are allocated independently to four B/M groups (Low B/M to High B/M for fiscal year t-1), four OP groups (Low OP to High OP for fiscal year t-1) and four Inv groups (Low Inv to High Inv for fiscal year t-1) using NYSE breakpoints specific to the Size group. The table shows averages of monthly returns in excess of the one-month Treasury bill rate on the 32 portfolios formed from each of three sorts.

We exclude small companies with high prices relative to their equity, low levels of profitability and high asset growth that would have otherwise been eligible for purchase in the portfolios. We believe excluding these companies should add value over time since the excluded companies have low expected returns.

Momentum

Since Jegadeesh and Titman first published research on momentum effects in 1993, many empirical studies have formed a consensus that momentum is a significant driver of returns. Momentum suggests companies exhibiting positive (negative) returns relative to their peers will continue to outperform (underperform). While momentum portfolios in theory show strong outperformance relative to the market, in practice it can be costly to capture because companies don't typically exhibit positive or negative momentum for long periods. We seek to integrate momentum into our strategies by balancing the expected return benefits with the implementation costs.

Downward momentum can have negative effects on value strategies since stocks typically become high book-to-market (value) when prices decrease. On the other hand, a portfolio should benefit from stocks that have experienced positive momentum, since these securities are expected to continue increasing in price relative to their peers. Momentum can be managed effectively using a variety of different ranking periods (e.g., previous 12-month or previous three-month performance). We use two complementary measures in an effort to robustly manage momentum in our strategies.

The first approach delays the purchase of stocks with large negative six-month returns and avoids the sale of stocks with large positive six-month returns. This approach enables us to pursue momentum without an expected increase in turnover.

We complement the six-month momentum screen by lagging price in our book-to-market ratio, similar to how the HML factor is computed in many Fama/French studies. Strategies using book-to-market ratios with current price in the denominator cause a stock to be eligible for purchase the moment a meaningful price decrease causes it to become "value," which also creates exposure to negative momentum. An adjusted book-to-market ratio that lags price by three months helps mitigate these negative effects. Conversely, the same price lag delays the sale of securities that are increasing in price and exhibiting upward momentum. We believe combining the two momentum techniques improves the expected effects of momentum on the strategy without incurring additional turnover.

Trading—Don't Put All Your Eggs in One Basket

How we execute strategies over time is just as important as how we select and weight securities. The speed and frequency at which stock prices adjust necessitates a rules-based process with an appropriate mix of rebalancing and trading along with strong overarching governance. Our daily investment process compares current holdings to other potential buy candidates based on several key criteria to determine what to buy or sell. **Figure 8** provides a high-level summary that includes some of the criteria we consider at each stage of this process.

Our strategies are designed to be broadly diversified across individual securities and sectors. Diversification forms a sound basis for risk management and helps to reduce concentration risk. While diversification is meant to increase the reliability of outcomes, the larger pool of candidates also increases flexibility around which securities are eligible to trade when needed. We believe this flexibility translates to improved trade execution.

We focus on maintaining the desired strategy without introducing unnecessary turnover when we assess potential order candidates. Low turnover can be beneficial, but the type of turnover matters. Consider a low-turnover index fund that reconstitutes once a year and therefore concentrates all its turnover around that one day. While it has low turnover, it may not be the most efficient turnover as it is likely to demand a lot of liquidity over a short period. In between index reconstitution dates, this same index fund also makes investment decisions based on stale information and is unable to act on changes in prices and company financials that could impact expected returns.

We not only target low-turnover levels, but also spread trades across smaller amounts throughout the year. Information about expected returns changes daily, so an advantage of rebalancing and trading daily is the ability to use current market information to inform investment decisions and potentially improve the expected return profile of an investment strategy. Spreading trades throughout the year also reduces the daily amounts traded, which reduces the chance of adverse market impact and reduces expected trading costs.

Looking Forward

We believe our investment approach is well-suited for asset allocators. Our philosophy is rooted in financial theory and supported empirically. Our investment process focuses on efficiently applying that theory. This means systematically assessing differences in expected returns across securities to inform buy and sell decisions while also mitigating unnecessary risks and controlling costs.

Further, our framework for increasing expected returns is transparent enough to allow for ongoing inspection and verification. We are clear about which risks we are taking in our portfolios and why we are taking them, and we are conscious about what we can (and perhaps, just as importantly, cannot) control. We strive to remain at the forefront of incorporating sound academic research into our strategies to benefit investors as financial science continues to evolve. Most of all though, we will remain committed to developing well-diversified investment solutions at fair fees so that we can meet and exceed the needs of our clients over the long haul.

FIGURE 8

Highlights of Our Investment Process

Incorporates current market information to make investment decisions

Only generates orders that improve expected returns or diversification while considering costs, reducing expected turnover

Works with current market liquidity and monitors intraday activity

PHIL MCINNIS

As a vice president and Director of Investments, Phil meets regularly with financial advisors and institutions to explain Avantis Investors' capabilities. He also oversees marketing content development about the company's investment approach. Before joining Avantis Investors in 2019, Phil served as a vice president and Head of Portfolio Solutions at Dimensional Fund Advisors (DFA). In that role, he oversaw a team charged with developing content to explain DFA's investment approach and liaised with clients on topics related to asset allocation, manager evaluation and risk budgeting. Before DFA, Phil served as an investment consultant at Towers Watson (now Willis Towers Watson), working primarily with corporate and public defined-benefit and defined-contribution pension plans. Phil earned a bachelor's of business administration in finance from the Goizueta Business School at Emory University. He holds Series 7, 24 and 66 licenses.

DANIEL ONG, CFA

Daniel is a senior portfolio manager at Avantis Investors. He previously served as a senior portfolio manager and vice president at Dimensional Fund Advisors (DFA). His responsibilities over 14 years at DFA spanned managing international developed and emerging markets equity strategies to leading the emerging markets equity desk and engaging with clients. Before DFA, he was an account manager at Metropolitan West Asset Management and a structure analyst at Pacific Investment Management Co. Daniel is a Chartered Financial Analyst and earned a bachelor's degree in economics from the University of California and his master's degree in finance and accounting from the University of Chicago Booth School of Business.

BIBLIOGRAPHY

Agrawal, Anup, Jeffrey F. Jaffe, and Gerson N. Mandelker. 1992. "The Post-Merger Performance of Acquiring Firms: A Re-examination of an Anomaly." *The Journal of Finance* 47, no. 4 (September): 1605-1621. https://doi.org/10.1111/j.1540-6261.1992.tb04674.x

Asquith, Paul, Robert F. Bruner, and David W. Mullins Jr. 1983. "The gains to bidding firms from merger." *Journal of Financial Economics* 11, no. 1-4 (April): 121-139. https://doi.org/10.1016/0304-405X(83)90007-7

Ball, Ray, Joseph Gerakos, Juhani T. Linnainmaa, and Valeri Nikolaev. 2016. "Accruals, cash flows, and operating profitability in the cross section of stock returns." *Journal of Financial Economics* 121, no. 1 (July): 28-45. https://doi.org/10.1016/j.jfineco.2016.03.002

Daniel, Kent and Sheridan Titman. 2006. "Market Reactions to Tangible and Intangible Information." *The Journal of Finance* 61, no. 4 (August): 1605-1643. https://doi.org/10.1111/j.1540-6261.2006.00884.x

Fama, Eugene F. and Kenneth R. French. 2014. "A Five-Factor Asset Pricing Model." Fama-Miller Working Paper, (September). https://dx.doi.org/10.2139/ssrn.2287202

Fama, Eugene F. and Kenneth R. French. 1993. "Common risk factors in the returns on stocks and bonds," *Journal of Financial Economics* 33, no. 1 (February): 3-56. https://doi.org/10.1016/0304-405X(93)90023-5

Jegadeesh, Narasimhan and Sheridan Titman. 1993. "Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency." *The Journal of Finance* 48, no. 1 (March): 65-91. https://doi.org/10.1111/j.1540-6261.1993.tb04702.x

Loughran, Tim and Anand M. Vijh. 1997. "Do Long-Term Shareholders Benefit From Corporate Acquisitions?" *The Journal of Finance* 52, (December): 1765-1790. https://doi.org/10.1111/j.1540-6261.1997.tb02741.x

Merton, Robert C. and André Perold. 1993. "Theory of Risk Capital in Financial Firms." *Journal of Applied Corporate Finance* 6, no. 3 (Fall): 16-32. https://doi.org/10.1111/j.1745-6622.1993.tb00231.x

Mitchell, Mark L. and Erik Stafford. 1999. "Managerial Decisions and Long-Term Stock Price Performance." CRSP Working Paper, no. 453 (October). https://dx.doi.org/10.2139/ssrn.94137

Novy-Marx, Robert. 2013. "The other side of value: The gross profitability premium." *Journal of Financial Economics* 108, no. 1 (April): 1-28. https://doi.org/10.1016/j.jfineco.2013.01.003

Pontiff, Jeffrey and Artemiza Woodgate. 2008. "Share Issuance and Cross-sectional Returns." *The Journal of Finance* 63, no. 2 (April): 921-945. https://doi.org/10.1111/j.1540-6261.2008.01335.x

Sloan, Richard. 1996. "Do Stock Prices Fully Reflect Information in Accruals and Cash Flows about Future Earnings?" *The Accounting Review* 71, no. 3. (July): 289-306. https://www.jstor.org/stable/248290

Titman, Sheridan, K.C. John Wei and Feixue Xie. 2004. "Capital Investments and Stock Returns." *Journal of Financial and Quantitative Analysis* 39, no. 4, (December): 677-700. https://doi.org/10.1017/S0022109000003173

Wahal, Sunil and Eduardo Repetto. 2020. "On the Importance of Goodwill," *Avantis Investors Investment Perspective* (May). https://www.avantisinvestors.com/content/avantis/en/insights/on-the-importance-of-goodwill.html

Wahal, Sunil and Eduardo Repetto. 2020. "The Joint Distribution of Value and Profitability: International Evidence." (November 30). Available at SSRN: https://dx.doi.org/10.2139/ssrn.3739571

*Expected Returns: Valuation theory shows that the expected return of a stock is a function of its current price, its book equity (assets minus liabilities) and expected future profits, and that the expected return of a bond is a function of its current yield and its expected capital appreciation (depreciation). We use information in current market prices and company financials to identify differences in expected returns among securities, seeking to overweight securities with higher expected returns based on this current market information. Actual returns may be different than expected returns, and there is no guarantee that the strategy will be successful.

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