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Aaron M. Cooper, CFA
Chief Investment Officer, Equities

Independent equity research: How we do it, and why it matters to investors

Our research team thrives in an entrepreneurial environment, opportunistically focused on developing differentiated insights.

Our process is a collaborative effort across the firm that emphasizes out-of-the-box critical thinking.

We look for global integration across a number of sectors to enhance the power of our research insights.

We proactively balance tenure with sector rotation and new hires to sharpen analytical skills and encourage new ideas.

At Putnam, we approach equity research as a process of focusing on what matters. For a given security, there can be hundreds of signs to read, but many of them may be side notes and distractions, while only a handful may be the key drivers of value creation. Our job as analysts is to boil down the complexity and identify those inputs that are most critical, to assess proactively and creatively the likelihood of divergences against consensus views, and to articulate a thesis that can have a positive impact on our clients' portfolios. Putting this mission into action successfully takes a lot of talent — both in the analysts we have cultivated internally and those we have attracted from outside the firm. And most importantly, it requires a culture that prizes analyst autonomy, but which also thrives on collaborative partnerships, supportive teamwork, and active debate. In this environment, we pursue our common goal of delivering the greatest possible value to our clients.

Focusing on what matters

Investors everywhere want to know, What drives stocks? At Putnam, we believe that over longer time frames, earnings matter most. Valuation — the relationship between price and earnings, or between price and free cash flow, to take two common examples that indicate a stock's relative "cheapness" — is rarely all that matters. Valuation needs to be coupled with improvements in a firm's business prospects — or a catalyst for realizing a higher valuation. Over longer periods of time, we believe stocks follow earnings; for that reason, we spend the bulk of our time trying to get the earnings picture right.

The next logical, but more difficult, question to answer is: What drives earnings? This is where we need to focus on the one element or handful of elements that we believe will have the biggest impact on a company's forward prospects. Consider the categories and specific items that fundamental analysts typically investigate (Figure 1). Any one of these areas could prove to be the most important point of focus, and more often than not, some combination of two to three of these items is what matters most.

Whatever the operative factor, being right about which one will be the main driver of future earnings gives the analyst a leg up on finding an earnings surprise, whether to the upside or downside. As two Putnam-affiliated researchers have shown, predicting earnings surprises can lead to powerful results (Figure 2). Breaking down the broad stock market, as measured by the Russell 3000 Index, into quintiles of earnings surprise between 1991 and 2008, Figure 2 shows that stocks with the largest positive year-over-year earnings increases relative to their forecasted earnings at the start of the year tended to perform dramatically better than stocks with negative earnings surprises. Consequently, successfully predicting big earnings surprises — and avoiding the largest negative-surprise stocks — appears to carry big potential rewards. Finding an earnings surprise early, before the surprise becomes a known quantity, can yield additional returns. Figure 3 shows how the potential rewards increase with the length of the forecast horizon. Being accurate in forecasting the biggest positive earnings surprises 12 months in advance, for example, could potentially deliver a much higher return than making the same forecast only three months in advance of the relevant earnings announcements. Said another way, having an insight too late can dramatically reduce an opportunity's reward potential.

The goal of independent research is thus made clear: Predicting significant changes in earnings early requires having a research edge. In other words, it requires developing an independent viewpoint that can go beyond the crowd of consensus opinion and adopt a longer time horizon. For this reason, we conduct independent research that focuses on a) what we believe matters most, and b) developing differentiated insights that help us gain a clear view of a company's earnings potential before the market sees it.

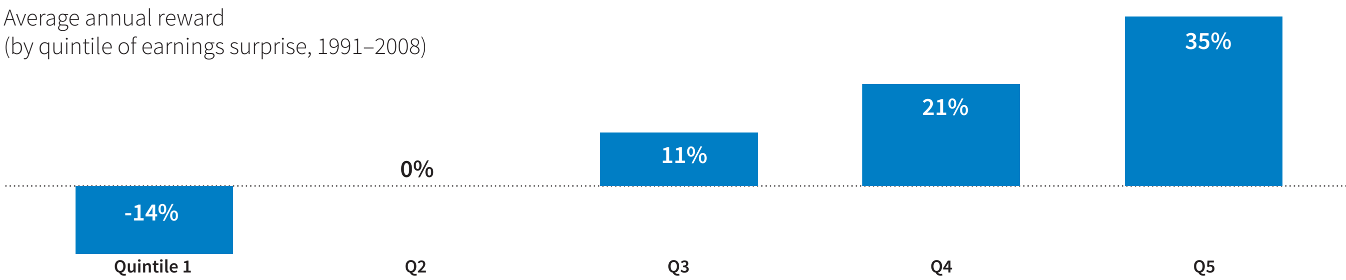
Figure 1

What drives earnings?

Sales	Margins	Balance sheet	Other factors
• Product penetration in existing markets • New geographic markets • New business segments • Product pipeline • Macroeconomic factors	• Input or manufacturing costs • Marketing or labor costs • Price increases	• Changes in debt levels or interest exposure • Refinancing opportunities • Priorities for cash	• Conversion of earnings to free cash flow • Acquisition possibilities • Return of capital to shareholders • Management changes

Figure 2

Predicting earnings surprises can lead to powerful results

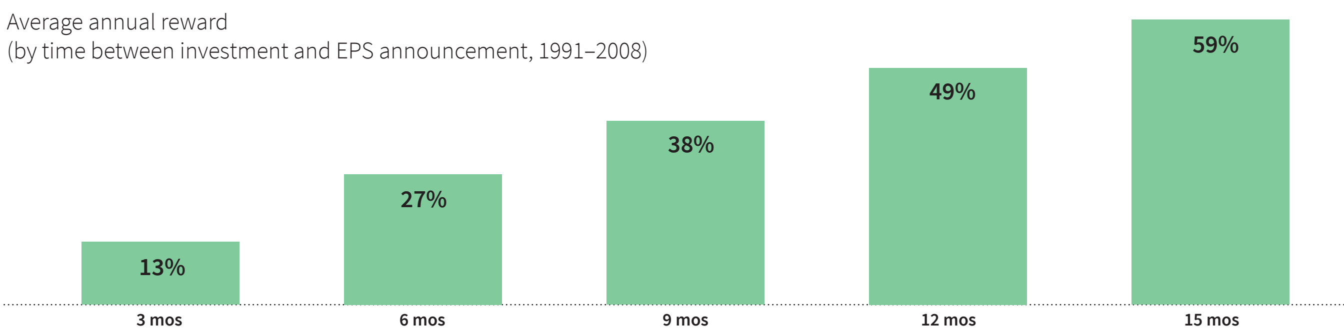


Quintile returns: Q1 = lowest surprise; Q5 = highest surprise.

Source: Sorensen, Ghosh, "Rewarding Fundamentals," *The Journal of Portfolio Management,* 2010.

Figure 3

Earlier anticipation of earnings surprises pays off



Source: Sorensen, Ghosh, "Rewarding Fundamentals," *The Journal of Portfolio Management,* 2010.

Getting beyond consensus: Putnam's philosophy and practice of opportunistic research

To pursue this mode of independent research, an expansive perspective is critical. Indeed, the ability to be opportunistic in our approach to research is at the heart of what we believe it means to be active managers. Sometimes, companies do not fit the "standard model" of a benchmark but are the most attractive investment opportunities on the horizon. We want our analysts to be, as much as possible, in a position to take advantage of such situations when they arise. Therefore, we empower analysts to look outside the list of stocks in their benchmark if they believe it may help them capitalize on better opportunities. A large-cap consumer analyst, for example, would have the opportunity to follow not only the largest companies in his or her sector, but also the smaller, lesser-known companies that might someday become household names.

Of course, differentiated research doesn't happen in a vacuum. Our analysts pay attention to virtually all of the companies in their coverage areas — seeing their management representatives at conferences and conducting a base level of research to determine where new opportunities might arise.

Differentiated research

Putnam has created a culture that values differentiated thinking. We encourage independent views and reward analysts for approaching stocks with unique perspectives. Because we allow for opportunistic, best-ideas research and focus on what matters for an individual company, we free up analysts to spend more time developing insights on the most powerful variables that they believe are the key drivers of earnings growth.

Beyond this, there are a number of areas where experience tells us that we can anticipate the market's missteps and consistently identify points where we can develop a differentiated view. The consensus, when it reflects short-term thinking or reactive, emotional behavior, frequently extrapolates immediate market conditions and thereby misses trend changes. This opens up opportunities for us to capitalize on some of the most powerful drivers of a company's earnings growth potential.

Focus on the long term

Occasionally, the market loses sight of the fact that companies pass through discrete phases of investment and growth. When a company deploys capital into, say, a new international business segment, that might tend to weigh, for a time, on the company's profitability. Thus, when the market judges a company — as it frequently does — on lower-than-expected short-term earnings, it often overlooks that earnings may be depressed in the short term for good reason. Once the new business segment begins to grow, it could be an important factor contributing to an upward earnings trajectory.

In a highly macro-sensitive investment environment, many stocks may pass through a phase of being unduly punished by investor risk aversion. When markets overreact, it can imply a compelling opportunity for nimble investors.

It frequently happens, for example, that a stock suffers damage because its management team missed quarterly earnings by a fractional amount. The market puts the company in the penalty box on the theory that the management team has lost its credibility, and the stock therefore deserves a big discount. But then again, it can frequently be the case that a short-term disappointment is just that, not something to extrapolate to the intermediate- or long-term potential of the company. By focusing on the key drivers for earnings, we seek to circumvent the psychological propensity to adopt an emotionally driven stance in relation to short-term developments concerning specific stocks and company leadership.

Investigate whether controversy is misplaced

Controversy often plagues a stock and causes its price to decline. Sometimes this indicates a fundamental impairment of a firm's value. Other times such controversies are only temporary or are based on psychological factors that may be no more than blips in a firm's evolution. Being able to recognize whether controversy is deserved or misplaced can help the analyst locate investment opportunities. For example, analysts who focused on homebuilding companies a few years ago worried about everything from input costs of lumber and appliances to factors such as wage inflation, sales volumes, interest-rate fluctuations, loan growth, and trends in household formation. Many analysts were inclined to zero in on lumber costs, which rose by roughly 30% between October 2011 and April 2012, as the critical liability for homebuilders. But the implication of a negative impact on margin profiles across a large segment of the residential construction industry effectively obscured the presence of more important factors than input costs and margins. As little as 3% top-line growth, for example — indicating a 3% increase in the number of homes sold — could be shown to more than offset the impact of rising lumber costs. In other words, sales volume would be more likely to drive homebuilding stocks in succeeding quarters, which argued for focusing one's analysis on prospects for revenue growth.

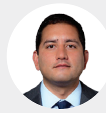
Think globally

Sometimes an industry evolves beyond the research model that covers it. Consider the case of financial exchanges. Sell-side equity research in this area is divided regionally between Asia, Europe, and the United States, with little or no overlap. These regional boundaries, while they make sense for research specialization in other sectors, tend to ignore the global nature of many companies in the financial exchange industry.

The recent history of exchange consolidation highlights this issue well. In many cases, asset managers who bought stocks of U.S. or European exchanges in the early 2000s — before these companies merged into or were acquired by other exchanges in their respective regions — made enormous profits for their shareholders. But if in 2005 you were an analyst focused solely on European exchanges, you might not have realized that the product mix of Euronext, a pan-European stock exchange, tied in very well with that of the NYSE. Consequently, you may not have anticipated that the NYSE would buy Euronext two years later, generating a significant return for Euronext shareholders. And again, if in March 2012 you had asked a U.S. analyst whether the Chicago Mercantile Exchange (CME) might be interested in buying the London metals exchange, he or she likely would not have been able to offer deep insight. In fact, the CME took part in a bidding war for the London exchange, underscoring how regionally defined research on exchanges is poorly equipped to anticipate industry change.

> "The consensus, when it reflects short-term thinking or reactive, emotional behavior, frequently extrapolates immediate market conditions and thereby misses trend changes."

Collaboration and confidence



Neil Desai
Portfolio Manager, Analyst
(Internet, IT services)

Di Yao
Portfolio Manager, Analyst
(semiconductors, hardware)

Minute details in a company's publicly disclosed financials are often not well accounted for in the growth models of our competitors and sell-side analysts. Tracking market share by geography in the mobile phone market, for example, can give us an edge on where the opportunities cluster or are relatively rarer. To do this effectively and with confidence, moreover, takes a globally collaborative effort.

Though one of us [Di Yao] is based in Singapore and the other [Neil Desai] in Boston, we participate in a weekly global technology call, together with other colleagues, to discuss the tightly integrated — but extremely global — technology supply chain. New data points are fed into our industry-wide and company-specific models, constantly enriching the foundation of our understanding of specific companies and improving our ability to assess the potential impact of new data on short- and long-term company prospects. This collaborative due diligence on a highly interrelated industry like technology serves two purposes: It helps make or break confidence in particular stocks, and more creatively, it can lead to new insights that we might not have discovered or felt as strongly about if we worked solely on our own.

Appreciate the growth potential of new business models

When a company grows very fast, the market tends to assume that such growth cannot last. But fast growth can have real staying power — and remembering instances of that can shape contrarian insights. For example, watershed technology has a way of creating long runways for growth. Being sensitive to cases where that dynamic may be repeating itself can be a recipe for gaining an edge over consensus thinking.

Recalling the case of financial exchanges in the 1990s offers an excellent example. New technology created a new venue for doing business for companies like CME, which in 1992 opened the first global electronic trading platform for futures contracts. Brokerage analysts following the company were used to looking at slower-growth banks, for which balance-sheet analysis was critical. But this made them struggle to understand that CME was becoming a much higher growth, non-balance-sheet business with exceptional cash flow generation. The company sustained a 35% annual growth rate for 15 years, and it took many years before the market began to believe in the long-term opportunity of electronic trading.

Being familiar with that history can be a help in understanding dynamics in other industries today. Online travel offers a good example. Companies in this area have caused the swift obsolescence of brick-and-mortar travel agents, and in some cases, have risen from penny stock obscurity to multi-billion-dollar companies in less than a decade. For certain companies, 50% annual growth for five years running has consistently surprised to the upside; the fact that online agents sit between Internet and travel companies means that their business characteristics and growth potential may not be well understood by analysts without proper perspective.

Balancing conviction with flexibility

By digging deeply into the details of a specific company or industry, and with our focus on developing insights that are different than the market's implied views, we seek to arrive at an unemotional approach to each decision point.

That does not preclude our feeling passionate about specific insights or stocks, but we believe it is equally important to be flexible enough to change an investment thesis as it is to identify opportunities to increase our positions. That is, we take calculated risks, being vocal about our highest-conviction ideas while remaining able and willing to articulate when and why a positive assessment has changed. We view it as a sign of analytical strength to change one's views upon further work, and we aim to take any hesitation related to fear of reversing views out of the decision-making equation.

Communicate early and often

In our approach to equity research, discussion and debate are the lifeblood of our process. It is not enough to develop a good idea, vet it with a few colleagues, and update our analytical models. Ideas will remain abstract unless they are acted upon, and to inspire action we have to share our ideas broadly at the firm. For that reason, we have developed a robust framework for communication that enables us to communicate our research early and often — both in the form of our proprietary online research publishing system and, most importantly, through face-to-face dialogue with portfolio managers. What's more, we reward our analysts for having an impact with their ideas. The analyst who has an insight but isn't able to convert his or her colleagues into believers — whether that means believing enough to buy or to sell a position — is only doing half the necessary task. Differentiated ideas need to find their way into portfolios to have an impact for our clients.

In addition to written research, the primary venues for sharing ideas broadly at the firm are morning meetings. Investment colleagues from the fixed-income and asset-allocation groups are also encouraged to attend. As a result, analysts and portfolio managers who collectively represent a wide variety of investment styles and cross-asset focus gather daily to discuss company-specific research, critical market developments, and key risks on the horizon that may concern specific companies, industries, economies, or regions. With 43 equity analysts covering eight different sectors in a domestic, international, or global capacity (Figure 4), these meetings are designed to strike a balance to ensure they are well attended across disciplines but also small enough to encourage active debate.

Figure 4

Putnam Research at a glance

Sector	U.S. equity analysts	International equity analysts	Global equity analysts	Fixed-income analysts	TOTAL
Consumer	4	4	0	7	15
Energy and basic materials	0	0	0	7	7
Financials	1	3	2	2	8
Health care	3	1	0	4	8
Industrials	2	2	1	4	9
Natural resources	1	0	3	1	5
Technology, media, and telecommunications	2	2	1	5	10
Utilities	2	2	0	2	6
Analysts	14	13	7	19	53
Small cap/SMID cap/convertibles	7	3	0	0	10
Total number of analysts	21	16	7	19	63

As of 3/31/17. Sum of analysts will differ from total due to analyst coverage overlap. Includes emerging-market equity analysts. Only includes corporate and municipal analysts.

Focus on changes that change your view

Chris Eitzmann
Portfolio Manager, Analyst
(chemicals, agriculture, metals and mining)

In my work, I travel all over the world to meet with companies, attend conferences, and visit worksites. Typically, the purpose of such travel is to gather new ideas for investment abroad, but frequently my travels also teach me something about things closer to home and lead me to investment ideas in the United States and Europe.

Follow the second derivative

An idea in calculus that is important to me as an investor is the notion of the second derivative, which means measuring how rates of change themselves are changing. Extending this concept into investing, I spend a lot of time looking for changes in growth rates and cost structures, and more importantly, how these changes can in turn impact the fundamentals of separate, but loosely related, companies. Identifying and understanding these embedded second derivatives before others do can have a meaningful impact on portfolio performance.

A couple of years ago, the global implications of declining Chinese coal prices were poorly understood. Few people had thought through how this particular commodity weakness would affect a wide range of other commodities and their cost curves. For example, the cost of producing nitrogen-based fertilizer in China was falling substantially as a result of the declining coal prices. Even fewer people had connected the dots between these changing conditions and the prospective profit margins of North American fertilizer companies. In our research, we try to look beyond the obvious and focus on questions that are one or two steps removed. This type of thought process helped us avoid companies that were negatively impacted by Chinese coal's non-obvious second derivatives and helped generate other investment ideas among the potential beneficiaries.

Collaborate to strengthen ideas

At our morning meetings, we focus on key drivers and value the concise expression of investment viewpoints, as well as a consistent highlighting of incremental analysis of best ideas and most highly owned names at the firm. We also carve out a designated time for analysts to deliver a "stock pitch" or an "unfinished idea." The stock pitch is an opportunity to lay out the supporting evidence behind key conclusions, building confidence in these points and therefore driving higher-conviction portfolio manager bets. It is also a valuable opportunity for cross-asset class communication, including active debate and constructive disagreements, typically with 5 to 10 investors in the room.

With "unfinished ideas," by contrast, we encourage analysts to go out on a limb with an idea that is not fully formed, to solicit feedback from others on how the idea might be more fully fleshed out, and to see whether others at the firm may already have relevant viewpoints. Because we value developing non-consensus views, we work hard at testing the differentiation, time horizon, and risk/reward potential of each new idea, and inviting the larger group to pool its collective knowledge and experience as a way of strengthening our ideas.

Tenure + talent

In addition to significant home-grown talent, we are proud that experienced analysts at major firms — attracted by our collaborative, entrepreneurial culture — have come to Putnam in recent years. We are also proud that we take a special interest in seeking out new talent with great prospects but relatively less experience. We want to fill our ranks with critical thinkers, thoughtful risk takers, and passionate, self-driven individuals — people with a strong work ethic and a clear desire to win, as well as a demonstrated track record of success. The 20-year veteran who is well known in the industry and the 5-year unknown but rising talent are frequently put on the scales, and what can easily tip the balance is talent rather than tenure.

Our goal is to strike the right balance between experience and insight, tenure and talent. Putnam's equity research organization includes many people with long experience working in investment management, but we are also interested in sourcing new talent — candidates who may have fewer years of experience, but whose abilities and conviction suggest to us that they will develop a strong track record of getting stocks right. Moreover, we seek consistently to renew our intellectual capital with creativity — putting a high value on candidates who can introduce us to new ways of looking at stocks.

Figure 5

We look for the right mix of career and rotating analysts

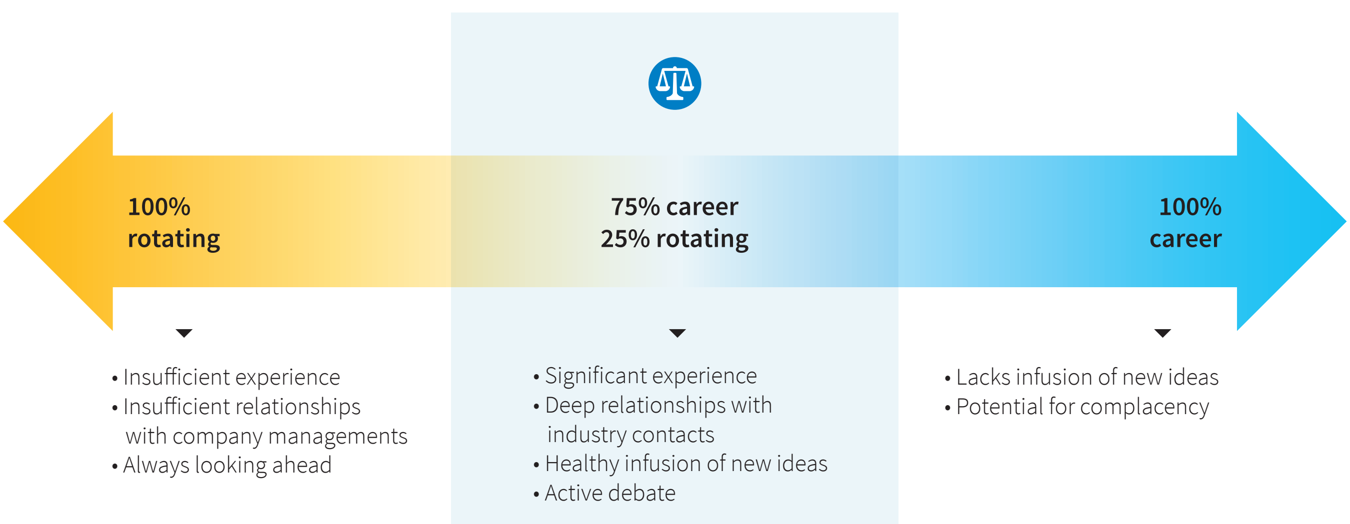


Figure 5 offers a schematic of our philosophy relative to experience and creativity. The point of balance provides us with the best opportunity to serve investors and to keep our analysts motivated and excited. With approximately 75% of our analysts in "career" positions and the remainder of our team rotating among different sectors, we seek to anchor the collective research experience of the firm in deeply embedded relationships with industry contacts. At the same time, we constantly want to refresh this knowledge base with forward-looking thinkers who themselves are being asked to consider whether a rotating or career path makes the most sense for them over the long term.

Both career and rotating positions, moreover, offer high-performing analysts many opportunities to manage money. We work with analysts to help them choose their path, based on their career goals and our views on how we can collectively have the greatest impact for our clients.

Putnam's Equity Associate Program: Building our research ranks

For buy-side firms seeking new analyst talent, it is standard practice to recruit at top-tier undergraduate schools and gradually introduce the most promising individuals to incrementally rising levels of responsibility. That is, analysts-in-training generally work their way up through several years of an apprentice associateship — but without being responsible for autonomous stock coverage. At Putnam, we differentiate our Equity Associate Program for recent undergraduates by giving them a level of real autonomy. First and foremost, we recognize that the goal of such a program is to build the future ranks of our research team. But rather than shield our associates from wholly participating in our asset management business, we ask each associate to bear real responsibility for his or her work, with appropriate input and oversight from seasoned investors.

Going global with a purpose

Jacquelyne J. Cavanaugh
Portfolio Manager, Analyst
(investment banks, insurance)

Some industries with a domestic focus are not very fertile ground for finding an investment surprise. Large U.S. banks are a case in point. While there may be significant money to be made in this area, there are fewer inefficiencies to exploit. In other words, a significant amount of value can be unlocked by focusing on less well-covered names.

Banks, exchanges, and asset managers in less developed financial markets in Asia, for example, are simply less well known and less well covered relative to their U.S. and European counterparts. Of course, there are challenges, from linguistic barriers to regulatory differences and distance, but if you can get past these obstacles, international companies may offer a relatively inefficient and underexplored area of excess-return potential.

Approximately five months into the program — after progressing through an intensive "boot camp" in which we introduce associates to financial analysis and Putnam's research standards — we give each associate responsibility for making stock picks. Specifically, we assign a universe of small- to mid-cap coverage to each associate and give him or her sole research responsibility in that arena. This sets our associates up for two and a half years of hands-on experience in which they are responsible for knowing their stocks inside out, building analytical models, participating in morning meetings, and making recommendations that will have real consequences. By enabling associates to establish track records in this way, we encourage them to have some skin in the game and to collaborate with portfolio managers and the rest of the research organization on a daily basis.

We are interested in aspiring analysts who can take an entrepreneurial research role. We also seek to make the best choices possible — for both our analyst candidates and our clients alike — when we decide to promote associates to our ranks of full-time analysts at the firm. Ultimately, the best way we know to accomplish these goals and build our team with individuals who can thrive in our investment organization is to make our associates authentic members of our research group and foster the broadest possible confidence in our analyst selection process.

Welcoming new talent: Putnam's Equity Associate Program

Putnam's Global Equity Research team boasts dozens of industry experts who provide unique insights to our portfolio management teams. Renewing and deepening this analyst bench is the important task of our Equity Associate Program.

Real responsibility comes with the territory

Our program gives recent graduates a rare opportunity to take an active role at a major firm. And with this substantial responsibility, we encourage our analysts to act autonomously, structuring their own day and determining how they will conduct their research. We had one associate who, in her first six months in the program, traveled to China so she could meet with company managements face-to-face.

Typically, we ask associates to cover a number of small- and mid-cap companies. Assignments have included companies like LinkedIn, GoDaddy, and Shake Shack, as well as lesser known names in far flung areas of the global markets. Whichever companies associates are assigned, the broader research team will be looking to them for their insights on the names they cover.

Intensive summer internships

Complementing the 3-year Associate program is a 10-week internship — one for undergrads and one for MBAs. For the latter, high-achieving MBAs are given responsibility to cover 5 to 7 stocks. On the merits of their work, they may be offered a full-time analyst position at the end of the 10 weeks. For the undergrads, the students work on an industry project as well as three individual stock pitches. The challenge for interns is not only to develop insights but also to persuade their investment colleagues to heed their calls. Over time, we've brought numerous full-time associates and analysts into Putnam through our Associate and Internship programs.

All of Putnam's new analyst talent development occurs within a strong network of support. Associates and interns work closely with their supervisors, but each also benefits from working with a formally assigned mentor. When you add to that a robust sense of camaraderie and group cohesion, Putnam's programs foster a professional, supportive community that we think is second to none.

Building our bench

Kate Lakin
Co-Director of Equity Research

Every year, we hire a small number of recent undergraduates into our three-year Equity Associate Program, which is a robust introduction to the analyst's primary role of providing fundamentally driven equity analysis. A key point of differentiation for our program is that our associates are fully in charge of research on the stocks they are assigned with a sub-sector, just as any full-time analyst would be.

Conclusion

In our view, the highest-quality research comes from focusing on what matters most and finding a competitive difference. We intentionally do not measure the quality of our research by the number of stocks we follow. To us, this is a simple signal of valuing quantity over quality — or worse, a sign of thinking that quantity *means* quality.

At Putnam, quality is everything, from the highly considered balance of tenure and talent we seek to sustain in our research organization to the communicative value of each research note that an equity associate or long-tenured analyst distributes to colleagues at the firm. We achieve the highest quality possible, we believe, if we find the right stocks, identify the key drivers of their earnings success, and pursue the handful of ideas where we can build the highest level of conviction at the firm. We emphasize that analysts should take a highly targeted, efficient approach to their research responsibility — to dig deeper into the handful of companies that our research suggests offer the greatest potential for a differentiated insight.

If we can develop differentiated insights on key drivers on a consistent basis, then we can be in a better position to generate meaningful outperformance. And that — while it is no formula for assured success — is the best way we know to meet or exceed the expectations of our clients and shareholders.

Cross-asset class collaboration

Paul D. Scanlon, CFA
Co-Head of Fixed Income,
Portfolio Manager

At Putnam, our research analysts follow a wide range of sectors and companies across the fixed-income and equity markets, and frequently there is overlap in the specific companies we research. We find that fixed-income and equity perspectives complement each other very well. On the fixed-income side, analysts are attuned to balance sheets and cash flows, and are highly proficient at dissecting capital structures, bond indentures, and loan documents. On the equity side, analysts tend to be focused on understanding growth trajectories, earnings outlooks, and stock valuations. When both sides collaborate, we can have a more comprehensive perspective on a company or sector — whether the views diverge from or reinforce each other.

The communication across asset classes is especially robust at Putnam. Equity and fixed-income professionals are frequent participants in each other's internal meetings — which is made easier by the fact that the bulk of our analysts work in the same building and in close proximity. In meetings with visiting executives, Putnam equity and debt analysts achieve a richer dialogue by engaging in different lines of questioning.

Having both groups of analysts collaborate closely has proven to be mutually beneficial. There have been times, for example, when the stock market has priced a company as if it had a meaningful probability of going bankrupt, but the liquidity prospects and access to capital have looked much better from a fixed-income perspective. Alternatively, the credit markets may signal fundamental issues as spreads widen, even as equity prices remain stable. Either dynamic can stimulate a discussion about the merits of buying or exiting a position.

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