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ESG (Environment, Social and Governance) oriented strategies have become desirable among individual and institutional investors in recent years, corresponding with qualities desired by entrepreneurial employees, investors and community stakeholders. Consistent with a long-term, value-creating orientation, entrepreneurs forgo immediate rewards and devote enormous resources to advance their vision. It is this group that we study.

Our research concludes that entrepreneurial organizations develop stronger governance traits compared with “typical” companies. Perhaps, in part, because the cause represents more than financial rewards, entrepreneurial owners pursue a more focused perspective shared by key stakeholders.

Our analytics indicate that an Entrepreneur factor exists, and is one of the most significant factors in explaining excess returns. These entrepreneurs also contribute measurable ESG benefits. We provide a detailed analysis of an Entrepreneur Index, spanning several positive and negative economic cycles, that points to a consistent conclusion. Our evidence suggests investment managers, especially those interested in ESG, would be wise to partake in an entrepreneur approach.

Experienced investors hear claims of strategies providing both Environment, Social, and Governance (ESG) or Social, Responsible Investments (SRI) or impact

benefits *along with* strong stock returns. These so-called “double bottom line” offerings traditionally don’t achieve their goal. Frequently, their strategies yield hidden risks or factor exposures that appreciably offset promised benefits. As a result, investors hold a jaundiced or skeptical view of the investment manager declaring anything remotely resembling a “free lunch.”

We humbly submit that, in fact, investors can achieve both ESG and superior stock performance benefits. We don’t suggest that the criteria are distinct from each other or occur by coincidence. Rather, we argue that the same company selection criteria that elicit superior ESG characteristics also produce public companies with superior stock performance. In essence, we claim that leadership matters. Visionary leaders build entrepreneurial teams with a focused, collaborative culture and an organization that stands apart from others. They grow their firms in a manner that rewards members within the firm as well as participating stakeholders and families in the surrounding community.

Entrepreneurial firms grow organically, invest in research and development, spread financial success to key constituents, maintain leadership stability, and hold a high ownership stake in their ventures. Our analysis demonstrates that entrepreneurial leaders make a difference. They create companies with low environmental imprint, provide

social impact in their communities, and reap the booty from exceptional corporate governance. As a byproduct, shareholders receive exceptional stock returns.

ESG POPULARITY GROWS

In recent years, considerable attention has shifted to Environmental, Social, and Governance “ESG” strategies, with key investment groups—including institutional investors, high net worth (HNW) investors and investment consulting firms—all pursuing these strategies. No longer content to seek “return-only” investment themes, sophisticated individuals and institutional investors have begun to pursue alternative methodologies in placing their investable capital. Possibly motivated by the changing cultural norms that often drive specific investment mandates, they are focusing more on investment products and managers who demonstrate ESG competence.

This paper introduces an entrepreneur-inspired methodology and shows how an entrepreneurial cohort distinguishes itself on ESG criteria while also contributing significant risk-adjusted excess returns.¹ We attribute this excess performance to consistent patterns inherent in a rules-based selection process, and believe that ESG and performance characteristics are not random or independent events. Entrepreneurial leaders who champion their organizations create a culture that fosters growth and more efficient, effective operations.

¹ We cite Founder-CEO research in this and other sections of the paper, since many of the entrepreneurial companies included in this research include Founder-CEOs. In the past few years, an Entrepreneur-based Index (ER30) and corresponding rules-based ETF have come to market along with several Founder-CEO indexes. We examine public information from these indexes along with their associated methodology. In addition to the Entrepreneur 30 Index, there are also several other Entrepreneur-themed investment funds with public holdings and performance information available. We employ the Entrepreneur ER 30 Index and other public funds information to gather our data and draw conclusions. This paper makes reference to the broad term “Entrepreneur,” as it corresponds to the data available in the Entrepreneur Index. However, we note that there is more extensive, prior academic research on the narrower term “Founder-CEO.” Since many of the Founder-CEOs overlap the Entrepreneur Index, we are able to compare the Founder-CEO Index. For ease of discussion, we refer to the constituents in this paper utilizing the broader term “entrepreneurs” and stay consistent with Entrepreneur Indexes or portfolios to compare our results.

The ESG components are not by-products of this behavior—rather, they are also inherent in the same traits of company selection. These entrepreneurial publicly-traded companies are by no means without flaws. However, as we will show, the companies represented as a group and selected on a consistently applied rules-based approach, demonstrate significantly different characteristics than typical counterparts in similar benchmarks. The final result should be clear: Leadership matters and entrepreneurial companies exhibit superior talent.

LEADERSHIP MATTERS: CRITERIA THAT DISTINGUISH ENTREPRENEURIAL COMPANIES²

We explore the notion that leadership matters and employ an entrepreneur model to see if ESG benefits also accrue to investors. Academics and investment managers purport benefits of investing alongside Founder-CEOs/Entrepreneurs.³ Legendary Founder-CEOs such as Steve Jobs, Sam Walton, and Jeff Bezos (among others) have built extraordinary organizations that generate

² Leadership matters or at least *theoretically should* matter. Logic aside, the notion that quality leadership traits can be appropriately measured and correctly valued for the proper time period may be a separate issue. We recognize that CEOs may not always receive the credit (or blame) for company performance that is reported during their stay in office. Problems or solutions generated by a predecessor, or changing market conditions beyond the control of the CEO, often results in performance that is beyond the CEO's control. Moreover, the short duration of most CEOs of publicly-traded companies (as we show later) suggests that this exercise (allocating blame or credit) for performance while in office may be moot. We note that Founder-CEOs, unlike professional CEOs who are not the creators, have (traditionally) a much longer duration in their position. Moreover, we will show evidence of market-adjusted returns before and after the entrepreneurs depart office. In short, we attempt to support the argument that 1) leadership matters and 2) entrepreneurs provide strong ESG benefits in addition to above-average stock market performance.

³ Clearly, not all of the evidence is positive, though the preponderance of academic literature provides encouraging results. Research on Founder-CEOs by Johnson et al. (1985) shows a *positive* stock price reaction following the abrupt death of a corporate founder. Morck et al. (1988) find a negative effect associated with founders and market valuation (principally older firms). Research by Fahlenbrach (2009), Palia et al. (2008), Villalonga (2006), Adams et al. (2009), and Shulman (2010, 2017) shows a positive effect of Founder-CEOs and investment performance. It is evident from the more recent comprehensive studies that provide motivation for our Entrepreneur-ESG analysis.

exceptional personal and stakeholder wealth.⁴ In their companies' early formative years, these Founder-CEOs/Entrepreneurs were known to eschew corporate bureaucracy, subscribe to a vision of long-term leadership, cultivate organic company growth, and align executive compensation. They often assembled tight management teams with manageable debt levels that ensured key expansion projects were held within reach. As stewards of the firm, entrepreneurs appear driven by both economic and non-economic incentives. We presume that it is precisely these non-economic incentives that drive ESG benefits. Their entrepreneurial culture keeps costs lean, enabling the organization to expand its margins, retain key people, invest in long-term vision (R&D), employ more talent, and help build communities. These governance traits, in theory, should also contribute to superior economic performance for their organization and shareholders.

Academic arguments that favor entrepreneurs attribute success to their long-term orientation, longer tenure, higher ownership, younger firm age, higher relative expenditures on capital expenditures, and larger relative investments in research and development.⁵ Entrepreneurs may also be more likely to view the company as their life's achievement, providing additional non-economic motivation to help drive the organization to succeed.⁶ Further, entrepreneurial firms might be more productive to professional counterparts due to reduced agency costs, continuity with leadership, greater reliance on entrepreneur reputation, and higher degree

of firm-specific skills compared to non-entrepreneurial firms.⁷

Entrepreneurs who overcome early obstacles and persist after IPO often reward shareholders with strong stock returns.⁸ As an example, we cite the academic evidence that describes benefits of investing in Founder-CEOs over non-Founder-CEOs.⁹ The inspiration that we employ is based, in part, on these publications and the compelling evidence that suggests entrepreneurs may be beneficial to investors over an extended time period.¹⁰

⁷Gao and Jain (2011) provided an excellent overview of the theoretical development and hypotheses as to why Founder-CEO firms are likely to be more productive than non-Founder CEO firms. Fama and Jensen (1983), Nelson (2003), and Wasserman (2003) suggested that agency costs are lower in founder-run companies (implying founder led companies are anti agency cost). Aldrich (1979) and Fischer et al. (2004) discussed the importance of a Founder-CEO during the transition to a public company. Basu et al. (2009) noted that a newly public firm generally does not have its own reputation so it needs to rely more heavily on its founder to gain investor attention. Finally, Gao and Jain (2011) argued that Founder-CEOs are characterized by a higher need for achievement, stronger psychological attachment to their company, tighter economic ties, larger ownership stakes, longer investment horizons, and higher degrees of firm specific skills. These attributes contribute to the overall willingness and desire of Founder-CEOs to pursue long-term strategies at the expense of short-term results, with corresponding improvement in post-IPO performance. However, there is a counter-balance effect in play. Dobrev and Barnett (2005) discussed the increased likelihood that Founder-CEOs will leave an organization as it grows larger and matures, as their comparative skill set diminishes in value. By contrast, they found the opposite effect with professional CEOs.

⁸We provide detailed analytics, later in this paper, showing how a portfolio of US Large Cap Entrepreneurial public companies (rebalanced quarterly), outperforms a peer group of US Large Cap fund strategies.

⁹Gao and Jain (2011), Fahlenbrach (2009), and Shulman (2010), among others, provided evidence that shareholders of publicly-traded Founder-CEOs perform better than professional CEOs. Gao examined a five-year post IPO performance of 1963 IPOs from 1997–2000 and found that high-tech companies run by Founder-CEOs were more likely to outperform professional CEOs (especially when VCs were *not* involved). Companies in low-technology areas did not outperform during this time period. Fahlenbrach showed that Founder-CEO firms outperformed professional CEO firms by 8% per year and suggested that long-term investments in R&D, CAPEX, and other initiatives were largely responsible.

¹⁰In addition to the academic literature, we note that the investment methodologies of some investment firms, such as EntrepreneurShares, LLC, are to invest in what they deem to be "publicly traded entrepreneurial companies." A few factors they cite include the Founder-CEO variable.

⁴As we will see later, the returns to shareholders decline sharply after a key leader (Founder-CEO) departs the organization. The effect is especially distinct in the period 5–10 years before the Founder-CEO retires/departs.

⁵Fahlenbrach (2009) conducted a study of 2,327 large US publicly traded companies over the period 1992–2002 and found significant differences between Founder-CEO companies and successor-run companies. In particular, he identified differences in R&D, M&A, Capex, Debt/Assets, age, ownership, and stock performance. As we will see later, R&D as a percentage of sales is higher for entrepreneurs than non-entrepreneurs.

⁶Wasserman (2003) discussed how Founder-CEOs are different from professional CEOs. He notes that professional CEOs are older, have more years of prior work experience, are paid higher salaries, own significantly less of the company's equity, and have less control. Dobrev and Barnett (2005) also described the identity of organizational founders being closely aligned to their organization. Further, O'Reilly and Chatman (1986) discussed psychological bonds that link individuals to their organizations.

Entrepreneurial companies tend to favor managerial characteristics, behaviors, and leadership attributes that distinguish them from other companies. These may include a propensity to have Founder/CEOs at the top along with low executive turnover among senior managers.¹¹ Other salient attributes include family involvement, organic growth, strategic alliances, high ownership stake among key stakeholders, relatively low executive compensation, low SG&A, manageable debt, low dividend payout, expanding EBITDA margins, and above-average Return on Invested Capital (ROIC).¹²

We observe that entrepreneurial companies tend to concentrate in only a handful of sectors. This may be useful in characterization for ESG traits, particularly when discussing the environment. However, we believe there are many other areas that distinguish entrepreneurial from non-entrepreneurial companies. Many of these traits, we argue, are encompassed with an ESG categorization model.

ESG CHARACTERISTICS

In the absence of a standardized methodology of all criteria that comprise an Environment, Social, and Governance (ESG) approach, we propose a variety of measurable criteria to set forth a rules-based ESG Model. These include a variety of unique but readily available data that distinguish entrepreneurial from non-entrepreneurial companies. Each of these criteria will now be addressed, beginning with environment.

Environment [E]

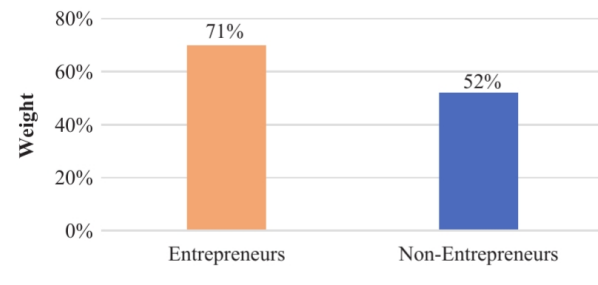
Entrepreneurial companies favor low impact sectors. There may be many ways to evaluate how a company affects the environment, but perhaps the easiest method is to simply assess the probability of a

¹¹We define “Founder” as the key individual or individuals who are/were with the company at inception or pre-revenue. In many cases there are discrepancies among databases such as Bloomberg, Capital IQ, and company websites, though for purposes of this research we employ Founder-CEO indexes that are publicly available. We note that some researchers such as Shulman (2010, 2017) provided an investment model of 15 “entrepreneurial” characteristics corresponding to an index of this grouping.

¹²An Entrepreneur Index of 30 US Large Cap Stocks (ER30) is featured throughout this paper.

EXHIBIT 1

Info Tech, Healthcare, Consumer Discretionary Sector Weights



company residing in certain “high impact” sectors.¹³ For purposes of this assessment, “high impact sectors” will reference those with the strongest, negative influence on the environment, including strongest polluters, heaviest carbon footprint, largest energy consumption, etc. Participants have traditionally resided in Industrial, Utility, and Energy producing sectors. Though it could be argued that these industries have made great strides in reducing their negative effect on the environment, it would be difficult to contend they have less impact than service-oriented sectors such as information technology, consumer technology and health care.

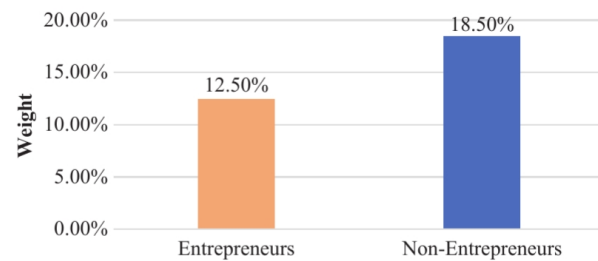
Entrepreneurial companies, largely due to ease of start-up and low capital requirements, exist primarily in three sectors: Information Technology, Health Care, and Consumer Discretionary. Exhibit 1 shows the sector representation of a US Large Cap Entrepreneurial Benchmark.¹⁴ Not surprisingly, most Entrepreneurial companies (71%) are located in the “low impact” sectors and comprise a much higher weight, compared to a

¹³For purposes of this article the term “high impact” refers to those sectors having a strong negative effect on the environment; “low impact” refers to the opposite. High impact sectors, or those companies in industrial sectors with negative impact to the environment, include those most responsible for pollution, carbon footprint, energy consumption, etc.

¹⁴The Entrepreneur Index benchmark, “Entrepreneur 30” (NYSE Ticker: ER30), represents the 30 largest entrepreneur companies based on market capitalization. The ER30 runs from January 2005 through the present; it is rebalanced quarterly and weighted on a scale adjusted market cap basis. This Index is utilized throughout this research and provides the basis for comparisons against Non-Entrepreneurial indexes. The rules-based methodology and 15 variables comprising the ER30 and corresponding ETF is encompassed in the registration prospectus.

EXHIBIT 2

Industrials, Energy, Utilities Sector Weights



Non-Entrepreneurial US Large Cap benchmark, which has 52% in the same sectors.¹⁵ By contrast, Exhibit 2 shows how Non-Entrepreneurial companies comprise a much more significant weight in high-impact environmental sectors such as Industrials, Energy, and Utilities. The US Large Cap Non-Entrepreneurial benchmark comprises a weight of 18.5% vs. 12.5% for the Entrepreneurial companies in the same market cap classification.¹⁶

The differential in weights for some sectors, such as Utilities, should not be surprising given the high capital cost requirements. As a practical point, there is difficulty finding *any* entrepreneurial companies in the Utility sector category. Overall, the distinctions in Environmental Impact between entrepreneurial companies and non-entrepreneurial companies should be clear. In the classification of Environmental Impact, entrepreneurial companies are clearly superior to non-entrepreneurial companies, simply by virtue of sector representation.

¹⁵ In August 2018 a US Large Cap Entrepreneur Index (Entrepreneur 30) held 43.5%, 14.8%, and 12.5% (70.8%), respectively, in the Information Technology, Consumer Discretionary, and Health Care sectors, compared to 25.6%, 12.8%, and 14.1%, respectively, for the Russell 1000 Index (52.5%).

¹⁶ These percentages compare a US Large Cap Entrepreneur Index (Entrepreneur 30) to the Russell 1000 Index in mid August 2018. Non Entrepreneurial companies held 10%, 5.6%, and 2.9% (18.5%), respectively, in the Industrial, Energy, and Utility sectors, compared to Entrepreneurs of 6.5%, 6%, and 0% (12.5%) in comparable sectors. Percentages vary during the year and over periods of time (based on rebalancing and cohort changes) but demonstrate that an Entrepreneur grouping has appreciably smaller weights in traditional high environment impact areas. In this particular case the difference represents almost a 50% premium in relative weight (18.5% vs. 12.5%) among the Non-Entrepreneurial Index. These weight differentials are comparable to a US Small Cap Entrepreneur benchmark compared to the Russell 2000 benchmark.

Social [S]

Entrepreneurial companies generate stronger job growth. There may be many areas in which entrepreneurial companies contribute to social welfare (e.g., contributions to charity events and corporate goodwill, employee outreach and team building exercises, education and training, etc.) but perhaps nowhere is it as easily measured as job growth. In the aggregate, given the abundance of corporate mergers and acquisitions, many large corporations actually diminish job growth through company takeovers and firings. By way of example, as of August 2018 more than 26,000 Merger and Acquisition (M&A) transactions were reported to be pending or completed for the year, with an estimated value of approximately \$2.7 trillion.

Given the number and size of these deals, many large companies would need to *fire* employees (rather than hire) in order to pay for the additional financing costs and to justify the transaction. Further, the types of jobs being lost presumably would be at the higher cost managerial level. Consequently, the social good of *creating* jobs rather than pursuing *mergers and acquisitions* becomes critically important in assessing social contributions and Impact.¹⁷ As we will see in this report, not only do entrepreneurial companies pursue organic growth more so than M&A activity compared to non-entrepreneurial companies, they also actually create jobs at a much faster pace. Entrepreneurial companies create a

¹⁷ As of August 15, 2018 there were over 26,446 Merger and Acquisition (M&A) transactions reported to be pending or completed for the year with an estimated value of approximately \$2.7 trillion. There were an additional \$921 Billion new transactions proposed to be completed later in the year. These amounts were approximately 50% above the record levels of 2017 which had \$285B pending, \$1.6T completed and \$134B proposed. Interestingly, in 2017 there was over \$1.2T withdrawn by August 2017 compared to only \$222B in August 2018. This implies that many more deals were being pushed through the system in 2018 (perhaps in anticipation of a window of opportunity closing fast). In total, there were 45,466 deals in 2017 that were pending, completed, terminated, proposed or withdrawn with an overall value of \$5.4 T associated. As the text explains, given the number and size of these deals, many large companies would need to *fire* employees (rather than hire) to pay for the additional financing costs and to justify the transaction. Further, the types of jobs being lost would presumably be at the higher cost managerial level. Consequently, the social good of *creating* jobs rather than pursuing *mergers and acquisitions* becomes critically important in assessing social contributions and Impact.

EXHIBIT 3

Job Growth—Entrepreneur Index vs. S&P 500

	2017 Jobs	2016 Jobs	2015 Jobs	2014 Jobs	2013 Jobs	2012 Jobs	2011 Jobs
Total S&P 500	25,388,304	25,111,324	24,936,072	24,089,513	23,583,010	22,906,913	22,305,385
YoY Growth	1.10%	0.70%	3.51%	2.15%	2.95%	2.70%	
3 Year Annualized Growth Rate	1.77%						
5 Year Annualized Growth Rate	2.08%						
ER30 Jobs in S&P 500 (17 Companies)	1,192,459	922,596	734,872	636,882	544,529	476,167	426,026
YoY Growth	29.25%	25.55%	15.39%	16.96%	14.36%	11.77%	
3 Year Annualized Growth Rate	23.25%						
5 Year Annualized Growth Rate	20.15%						
S&P without ER30	24,195,845	24,188,728	24,201,200	23,452,631	23,038,481	22,430,746	21,879,359
YoY Growth	0.03%	-0.05%	3.19%	1.80%	2.71%	2.52%	
3 Year Annualized Growth Rate	1.05%						
5 Year Annualized Growth Rate	1.53%						

disproportionate amount of the job growth in the global economy and with it, stronger communities.

Exhibit 3 shows the job growth for the S&P 500 versus the entrepreneurial companies within the S&P 500.¹⁸ The job growth data for the Entrepreneur 30 Index over the past five years increased from an estimated 476,167 jobs in 2012 to 1,192,459 jobs at the end of 2017. By contrast the job growth for the S&P 500 increased from 22,906,913 to 25,388,304 over the same time period. The S&P 500 Index provided, on average, approximately 1.77% to 2.08% job growth over the past three- and five-year periods, respectively. By contrast, the Entrepreneurial companies within the S&P 500 grew jobs by an average of 23.25% (three-year period) and 20.15% (five-year period). Notably, the job growth for the S&P 500, without the Entrepreneur 30 Index, drops to approximately 1% for the three-year time period (from 1.77%) and drops to approximately 1.5% for the five-year time period (from approximately 2.1%).¹⁹

¹⁸The 17 Entrepreneurial companies within the S&P 500 were determined by examining the Entrepreneur 30 Index (that takes the 30 largest Entrepreneurial companies within the Russell 1000) and selecting those that are also included within the S&P 500. The number of companies at time of research may vary from year to year, but over the life of the Index has approximated 15–22 companies. The job growth estimates for this analysis were based on the most recent index constituents for the Entrepreneur 30 Index and the S&P 500 Index.

¹⁹The Dow Jones Industrial Average, one of the most prominent of all indexes, experienced virtually no (0%) job growth over the same 2012–2017 time period.

Further, when we compare revenue growth, profit growth, and research and development (R&D) growth, it becomes clear how different the entrepreneurial firms are from the average S&P 500 or Dow Jones Industrial 30 Index companies. As our exhibits demonstrate, only a handful of companies within the S&P 500 have contributed to the job growth, and those that are classified as “Entrepreneurial” have contributed a disproportionate amount. The panel at the bottom of Exhibit 3 validates how the S&P 500 job growth, without entrepreneur company participation, drops appreciably.²⁰

Exhibits 4 and 5 show how entrepreneurial companies have much stronger revenue growth than a variety of US Large Cap Indexes. By way of comparison, the basket of 30 entrepreneurial companies is shown relative to the Russell 1000 Index, the S&P 500 Index, and the Dow Jones Industrial Index. As one of the leading indexes, the S&P 500 provides a useful comparison. The Dow Jones Industrial Average provides an additional benchmark with a 30-stock concentration (similar to ER 30), and the Russell 1000 Growth was selected since its sector weightings provide the closest fit to the ER 30.²¹ As Exhibit 5 shows, the ER30 averages revenue growth

²⁰As the panel at the bottom of Exhibit 3 shows, the three-year job growth for the S&P 500 drops from 1.77% to 1.05% and the five-year job growth rate drops from 2.08% to 1.53%. Clearly, this is a significant decline for only 17 companies (out of approximately 500 in total).

²¹As we will show later, the sector weightings for the ER 30 and the Russell 1000 match very closely. The historical correlation, over varying time periods, tends to exceed 90%.

EXHIBIT 4

Revenue Growth—Entrepreneur Index vs. S&P 500

Revenues	2017 Revenues	2016 Revenues	2015 Revenues	2014 Revenues	2013 Revenues	2012 Revenues	2011 Revenues
ER30	506,167	401,216	335,367	297,670	254,704	217,052	184,087
YoY Growth	26.16%	19.63%	12.66%	16.87%	17.35%	17.91%	
Russell 1000	13,144,902	12,190,967	11,890,352	12,071,985	11,626,053	11,300,441	10,809,762
YoY Growth	7.82%	2.53%	-1.50%	3.84%	2.88%	4.54%	
S&P 500	11,321,443	10,537,769	10,282,069	10,447,796	10,103,192	9,899,332	9,481,621
YoY Growth	7.44%	2.49%	-1.59%	3.41%	2.06%	4.41%	
S&P 500—No ER30	10,857,563	10,171,321	9,979,443	10,186,661	9,880,039	9,707,906	9,319,990
YoY Growth	6.75%	1.92%	-2.03%	3.10%	1.77%	4.16%	
Dow Jones	2,839,258	2,695,836	2,746,268	2,796,726	2,789,862	2,808,998	2,721,182
YoY Growth	5.32%	-1.84%	-1.80%	0.25%	-0.68%	3.23%	

EXHIBIT 5

Extended Revenue Growth—Entrepreneur Index vs. S&P 500

Revenues	3 Year Growth	5 Year Growth	
ER30	19.36%	18.45%	*Annualized
Russell 1000	2.88%	3.07%	*Annualized
S&P 500	2.71%	2.72%	*Annualized
S&P 500—No ER30	2.15%	2.26%	*Annualized
Dow Jones	0.50%	0.21%	*Annualized

over 18% per year (five-year basis) whereas the other indexes approximate 0% to 3% growth.

Exhibits 6, 7, 8, and 9 provide a perspective on R&D growth for the same cohorts as well as profit growth. As these exhibits make clear, the entrepreneurial companies are appreciably stronger than their benchmark peers. Whereas entrepreneurial companies averaged R&D growth of 27.2% to 29.5% for the past three to five years, the other US Large Cap benchmarks averaged between 5.3% to 9.9% over similar time periods. Further, Exhibits 8 and 9 show how publicly traded entrepreneurial companies averaged approximately 21% profit growth over the past five years compared to benchmarks with -1.3% (Dow Jones) to 5.8% (Russell 1000).

Clearly, entrepreneurial companies exceed non-entrepreneurial companies with higher job growth, revenue growth, profit growth, and R&D investment. This implies that entrepreneurial companies are helping build stronger organizations with more wages into the

economy, generating a greater economic multiplier effect (associated with stronger revenues and profits) as well as spurring the markets along with an R&D investment into the future. These benefits accrue not only to successful companies with improved company morale; the heightened revenues/profits/investments should also translate into upgraded community infrastructure, more vibrant neighborhoods, improved schools, and spillover to non-profits. Entrepreneurial companies create much, if not most, of the job growth among publicly traded companies, while non-entrepreneurial companies are leading the M&A infrastructure destruction.²² As we show below, though distinctions between entrepreneurial and non-entrepreneurial companies demonstrate large gaps when examining Environmental and Social Impact, it is actually Corporate Governance that provides the chief difference between the two groups.

Governance [G]

Entrepreneurial companies outshine with superior governance. Entrepreneurial leaders create corporate environments that look, feel, and behave differently. CEOs at entrepreneurial companies are both *younger and older*, and stay for a much longer time in the job. There is no prescribed time for when they are allowed to enter or leave their positions. They hold more

²²Though the exhibits below show the growth among US Large Cap companies, we can show similar results among US Small Cap Entrepreneurial companies (ranging from \$300 million to \$5 billion).

EXHIBIT 6

R&D Growth—Entrepreneur Index vs. S&P 500

R + D	2017 R + D	2016 R + D	2015 R + D	2014 R + D	2013 R + D	2012 R + D	2011 R + D
ER30	56,085	43,786	36,247	27,258	19,309	15,384	11,095
YoY Growth	28.09%	20.80%	32.98%	41.17%	25.51%	38.65%	
Russell 1000	344,615	313,437	287,751	259,683	238,024	224,258	211,587
YoY Growth	9.95%	8.93%	10.81%	9.10%	6.14%	5.99%	
S&P 500	317,607	288,312	265,283	239,812	221,083	209,815	198,902
YoY Growth	10.16%	8.68%	10.62%	8.47%	5.37%	5.49%	
S&P 500—No ER30	263,031	245,703	229,883	213,133	202,091	194,646	187,877
YoY Growth	7.05%	6.88%	7.86%	5.46%	3.82%	3.60%	
Dow Jones	99,429	96,627	90,041	83,380	77,975	76,618	77,790
YoY Growth	2.90%	7.31%	7.99%	6.93%	1.77%	−1.51%	

EXHIBIT 7

Compounded R&D Growth—Entrepreneur Index vs. S&P 500

R + D	3 Year Growth	5 Year Growth	
ER30	27.19%	29.53%	*Annualized
Russell 1000	9.89%	8.97%	*Annualized
S&P 500	9.82%	8.65%	*Annualized
S&P 500—No ER30	7.26%	6.21%	*Annualized
Dow Jones	6.04%	5.35%	*Annualized

stock ownership, earn less salary, surround themselves with key stakeholders within and outside the corporate walls, and are more careful with corporate debt. They are more likely to grow their companies organically, and when they do acquire other companies, are able to squeeze more value than non-entrepreneurial companies. They are more efficient with working capital and less likely to apply precious corporate cash to buy back stock. As an important byproduct of strong corporate governance, they also generate much stronger stock returns over an extended period of time.

We attribute these unique properties to be representative of the “Entrepreneur Factor.”²³ The exhibits below show distinct differences in Inside Ownership, Strategic Ownership, and Corporate Ownership between

²³ As we show later, entrepreneurial companies generate excess, risk-adjusted returns that cannot be attributed to traditional market factors (e.g., Size, Growth, Value, Sector, Country, etc.). This Entrepreneur Factor is adjusted after including all other market factors.

entrepreneurial and non-entrepreneurial companies. For example, in Exhibit 10 below, insiders within entrepreneurial companies held 13.6% ownership compared with only 5.98% for non-entrepreneurial companies. Non-entrepreneurial companies held less than half of the ownership. Moreover, entrepreneurial companies held 50% more strategic ownership, on a relative basis, or 24.2% versus only 16% for non-entrepreneurial companies.²⁴

Finally, it's clear that entrepreneurial companies are much less likely to use corporate cash to buy back stock of their companies as we see 11.70% non-entrepreneurial corporate ownership compared to only 4.66% for entrepreneurial companies. The ownership differences between entrepreneurial and non-entrepreneurial companies are very distinct. Perhaps not surprisingly, since insiders own a much higher percentage of the company stock, the percentage of internal directors is appreciably higher, 20.7% versus 14.6% (Exhibit 11). This suggests that internal directors are likely more vested in the strategic direction of their company as they have economic incentive to see their investment through to fruition.

Exhibits 12, 13, and 14 provide an insight on the manner in which entrepreneurial managers run their enterprises. As Exhibit 12 shows, entrepreneurs are more careful with debt levels (relative to debt) and hold a debt-to-revenue ratio of 1.21 vs 1.72 for non-entrepreneurial managers. Moreover, as Exhibits 13 and 14 show, entrepreneur managers are more likely

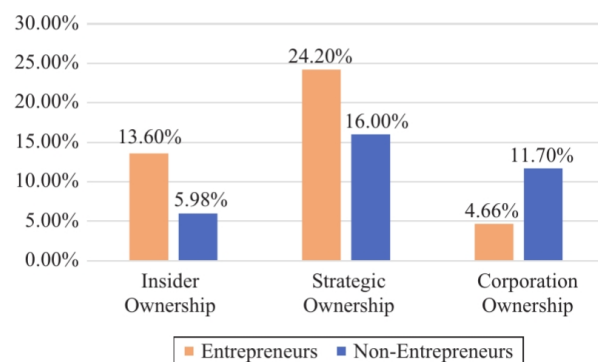
²⁴ For purposes of this report we include the Russell 3000 Index and select “Entrepreneurs” as companies represented in Entrepreneur US Large Cap and Small Cap funds.

EXHIBIT 8**Profit Growth—Entrepreneur Index vs. S&P 500**

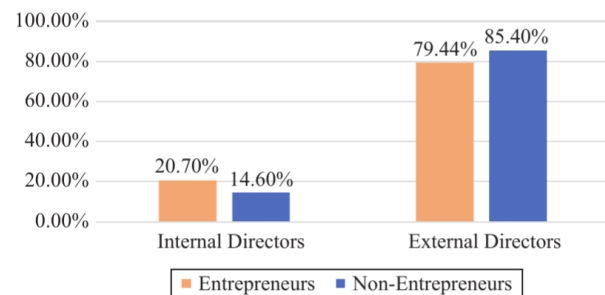
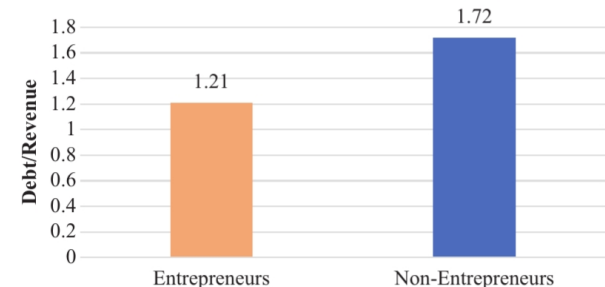
Profits	2017 NI	2016 NI	2015 NI	2014 NI	2013 NI	2012 NI	2011 NI
ER30	55,716	45,900	32,406	31,570	27,170	21,628	20,033
YoY Growth	21.39%	41.64%	2.65%	16.19%	25.63%	7.96%	
Russell 1000	1,160,148	1,028,326	938,316	1,058,500	1,058,642	875,978	943,667
YoY Growth	12.82%	9.59%	-11.35%	-0.01%	20.85%	-7.17%	
S&P 500	1,047,642	946,182	898,462	969,005	978,997	806,867	880,473
YoY Growth	10.72%	5.31%	-7.28%	-1.02%	21.33%	-8.36%	
S&P 500—No ER30	998,502	903,068	868,200	942,302	955,954	788,384	863,481
YoY Growth	10.57%	4.02%	-7.86%	-1.43%	21.25%	-8.70%	
Dow Jones	305,501	286,886	292,081	332,190	333,722	326,781	304,152
YoY Growth	6.49%	-1.78%	-12.07%	-0.46%	2.12%	7.44%	

EXHIBIT 9**Compounded Profit Growth—Entrepreneur Index vs. S&P 500**

Profits	3 Year Growth	5 Year Growth	
ER30	20.85%	20.83%	*Annualized
Russell 1000	3.10%	5.78%	*Annualized
S&P 500	2.64%	5.36%	*Annualized
S&P 500—No ENTR	1.95%	4.84%	*Annualized
Dow Jones	-2.75%	-1.34%	*Annualized

EXHIBIT 10**Insider, Strategic, and Corporate Ownership**

to stretch payables compared to non-entrepreneurs and are less likely to use valuable cash for dividends. Entrepreneurs hold a payables to receivables ratio of 6.95 (vs. 1.94) and have a dividend yield of 2.61% (vs. 3.36% for non-entrepreneurs).

EXHIBIT 11**Internal and External Directors****EXHIBIT 12****Debt to Revenue**

Exhibits 15, 16, 17, 18, and 19 provide important insights on key governance criteria of senior management. Exhibit 15 illustrates how Entrepreneur CEOs don't conform to standard criteria when it comes to the age when they start, the age they depart, how long they

EXHIBIT 13
Payable to Receivables

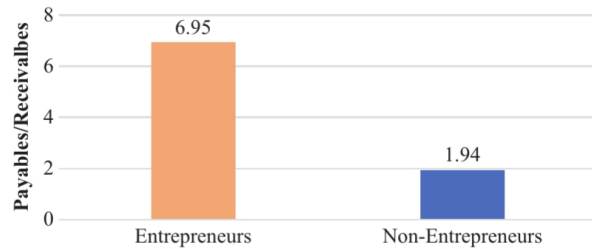


EXHIBIT 14
Average Dividend Yield

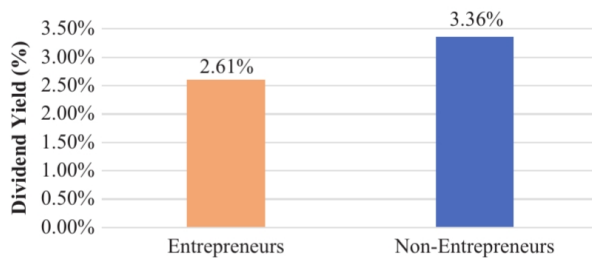
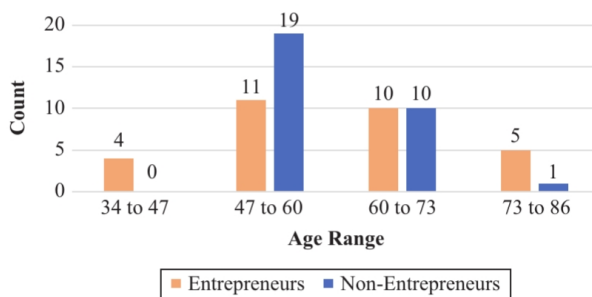


EXHIBIT 15
CEO Age Range



stay in the job, and how long their key Board members stay in their positions. Startling differences between entrepreneur and non-entrepreneur companies reveal important insights on corporate culture and governance.

Exhibit 15 shows the age range of CEOs among the Dow Jones Industrial Average and the Entrepreneur 30 US Large Caps.²⁵ As this exhibit shows, entrepreneurs

²⁵We also compared the age ranges of US Large and US Small Cap Entrepreneurs with the Russell 3000, and found very similar

EXHIBIT 16
CEOs under 40 Years Old

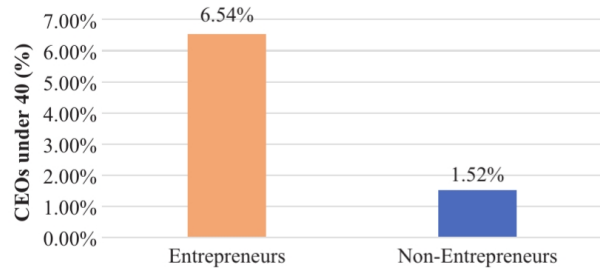


EXHIBIT 17
CEOs over 75 Years Old

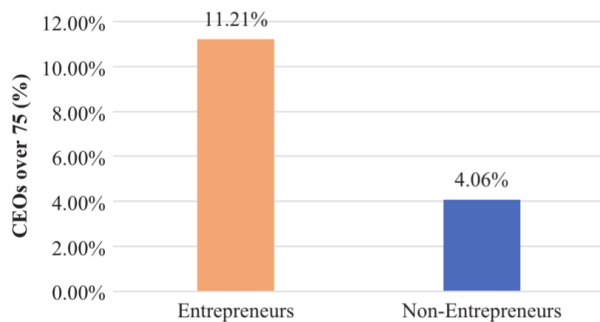
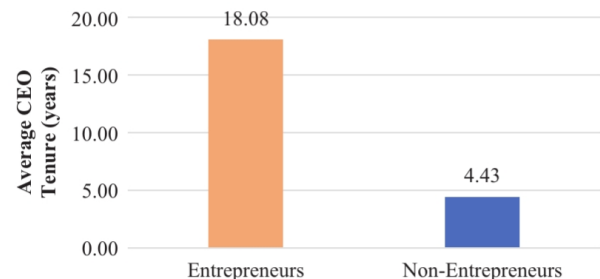


EXHIBIT 18
Average CEO Tenure

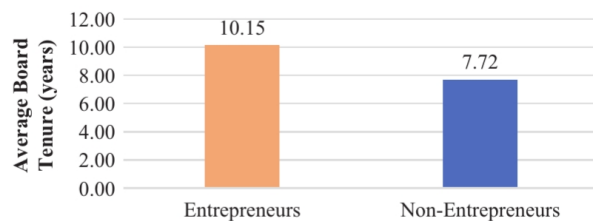


among US Large Cap Publicly traded companies begin as early as age 34 and stay until age 86. There were no non-entrepreneur CEOs in the Dow Jones below age 47 and only one above age 73. The vast majority

results. The ranges for the Dow Jones Industrial average compared to the ER30 provide a perspective of two indexes with similar market capital sizes and number of constituents.

EXHIBIT 19

Average Board Tenure



(approximately two-thirds) of US Large Cap non-entrepreneur CEOs are in the 47–60 age range, while only about one-third of entrepreneur CEOs are in this category. Almost a third of all entrepreneur CEOs are younger than 47 or older than 73, compared to only one Non-Entrepreneur CEO (above age 73).²⁶

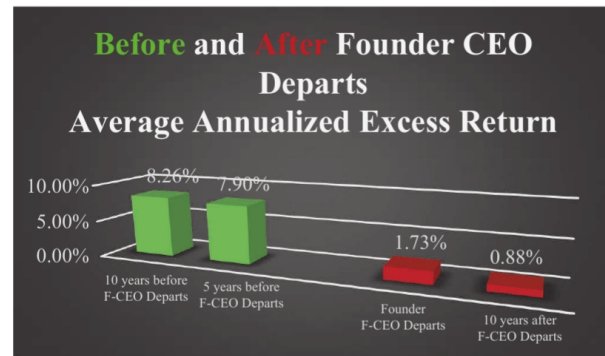
Exhibit 16 explores the likelihood of a corporate CEO's age being below 40 when incorporating smaller market cap companies. In Exhibit 16, we utilize the Russell 3000 and compare CEO ages of entrepreneurial and non-entrepreneurial companies. Exhibit 17 performs the same analysis (utilizing the same Russell 3000 database) for the age distribution of CEOs above age 75. The results are consistent. In the first grouping entrepreneurs are approximately four times (6.54% vs. 1.52%) more likely to be younger than 40, and in the second case are about three times more likely to be older than 75 (11.21% vs. 4.06%).

Exhibit 18 provides one of the most discerning facts distinguishing entrepreneur CEOs and non-entrepreneur CEOs. We compare the Entrepreneur 30 to the Dow Jones Industrial average and discover that the average duration of entrepreneur CEOs is 18.1 years, versus 4.4 years for non-entrepreneurs. Perhaps no other statistic displayed in this research is more revealing and more representative of governance distinction. Entrepreneurial CEOs have greater ownership stakes, appear to come and go as they please, and stay appreciably longer in their positions as CEO. This long duration makes them more likely to see their dream through to fruition, and offers an implied testimonial to their organizational commitment and legacy. Further, it demonstrates the likelihood that their effort represents more than just monetary interest. Exhibit 19 provides further evidence that entrepreneurial CEOs surround themselves with

²⁶ In 2017, two US Large Cap companies had a CEO at age 92, providing further evidence of this comment.

EXHIBIT 20

Before and after Founder CEO Departs Average Annualized Excess Return



Board members who also stay the course. The length of time among entrepreneurial Boards averages 10.2 years versus 7.7 years for non-entrepreneur Boards.

LEADERSHIP MATTERS: HOW COMPANIES PERFORM BEFORE AND AFTER FOUNDER-CEO DEPARTS

Since many of the entrepreneurs in this study are also Founder-CEOs, a seemingly obvious question examines the stock returns of a publicly-traded company on a before-and-after basis of a Founder-CEO departure from his/her firm.²⁷ Exhibit 20 provides an assessment for the 5-year period before and after departure as well as a 10-year period both before and after. In total, we examined 129 companies with 5-year performance and 38 companies with 10-year performance.²⁸ The results for both periods are very similar and significant. In the 5 or 10 years prior to departure the Founder-CEO company produces an annualized excess return (over market

²⁷ A Founder-CEO may depart for many reasons, including: retirement, death, acquisition, bankruptcy, merger, etc. To minimize bias, we include only the Founder-CEO companies in which we have a complete data set for periods both before and after the CEO departs.

²⁸ We used the publicly-available Founder-CEO Index "FCEO" and selected all of the companies with a Founder-CEO departure during the time of the index. The varying numbers reflect the time period of study with market-adjusted returns based on the Russell 1000 Growth Index (underlying base of Founder-CEO Index). The before-and-after returns represent "excess returns" adjusted for this Russell 1000 Growth Index.

benchmark) of approximately 8% (7.90% for the 5-year period and 8.26% for the 10-year period). By contrast, once the Founder-CEO leaves, the annualized excess return drops to 1.73% and 0.88% (for the 5- and 10-year periods, respectively). Notably, in the latter case, more than half of the 5-year excess return can be attributed to a single outlier situation. The differential between the period with the Founder-CEO and without is approximately 7% per year (excess return).²⁹ These results are striking and provide further support the notion that leadership matters. Having the right Founder-CEO can make an important difference.³⁰

It's important to acknowledge that "savvy managers" develop their portfolios by selecting factors from a plethora of options, including market capitalization, volatility, P/E ratios, and other criteria, there are relatively few options (ETFs or mutual funds) for investors to select investment managers on the basis of leadership criteria alone.³¹ Though the absence or infrequency of a management-based ETF does not, in itself, imply an investment dilemma, we provide compelling evidence that leadership does matter when running a large, publicly-traded company.³²

²⁹ The return differential is striking and statistically significant past the 1% level. In order to incorporate differing comparison periods, we applied market-adjusted returns (excess returns). Given the strong contrast in the return differential, we believe this research issue will gain more attention. Our future research report will show the numbers of mergers, acquisitions, bankruptcies, deaths, and retirements associated with the Founder-CEO departure and outcomes of each.

³⁰ Much of this insight was gleaned from Shulman (2017).

³¹ Investment expert Warren Buffett (among others) expends considerable energy in assessing the quality of management. He places great importance on the company management's concerns for shareholders and seeks behaviors that align with stakeholder interests. Despite the popularity of company management focus among active fund managers, few passive ETFs focus on management criteria, and even fewer, if any, address Smart Beta solutions for these management criteria. Solactiv and EntrepreneurShares are two firms that have a management-based, or Founder-CEO Index. Global X has issued a Founder-CEO ETF and EntrepreneurShares has a series of Entrepreneur Mutual Funds, Separately Managed Accounts (SMAs), and ETFs. BlackRock (iShares), one of the market leaders in Smart Beta methodologies, has 43 Smart Beta strategies with approximately \$70 billion in AUM, but no management-based ETF.

³² Leadership matters or at least *theoretically should* matter. Logic aside, the notion that quality leadership traits can be appropriately measured and correctly valued for the proper time period may be a separate issue. We recognize that company leaders may

In this paper, we introduce an Entrepreneur Factor, and rigorously test it relative to a comparative benchmark that includes many of the same holdings.³³ We show that significant ESG differences emerge with

not always receive the credit (or blame) for company performance that is reported during their stay in office. Problems or solutions generated by a predecessor, or changing market conditions beyond the control of the CEO, often result in performance beyond the control of the CEO. Moreover, the short duration of most CEOs of publicly-traded companies suggests that this exercise (allocating blame or credit) for performance while in office may be moot. We note that entrepreneurial CEOs, unlike professional CEOs who are not the creators, traditionally have a much longer duration in their positions. The length of time differential for an entrepreneurial vs. a non-entrepreneurial company CEO is appreciably higher. Moreover, we will later offer some evidence of market-adjusted returns before and after the entrepreneur departs office. In short, we argue that 1) proper leadership matters and 2) entrepreneurs provide evidence of "good" leadership traits in the form of superior ESG.

³³ Fama and French (1993) created a framework to address factor-based smart beta strategies. In their article, they were able to demonstrate how factors such as market capitalization and book to market equity enabled investors to generate higher returns than predicted by the capital asset pricing model. They propose a three-factor model that suggested Market, Size, and Value help explain much of the returns for a portfolio. Later Fama-French increased their Three-Factor Model to a Five-Factor Model that also included Earnings and Investment (increase in book equity). Carhart (1997) attempted to improve upon the Fama-French Three-Factor Model by adding a Momentum Factor (creating a Four-Factor Model). In this paper, we explore the Fama-French factors as well as the incremental Momentum Factor by Carhart. For completeness, we also add at least 20 other factors provided by Bloomberg, to examine potential factor exclusions or omissions. Our motivation has been to identify as many unique, relevant factors as possible. Earlier academic reviews surmised that what we deemed to be an "entrepreneur" factor was likely already encompassed in factors such as "growth," "momentum," earnings, or some other well-explored category. We find that the "entrepreneur" factor by far dominates the explanatory analysis over the corresponding time period. We surmise that characteristics embedded in the entrepreneur factor may help clarify distinctions in ESG. For example, entrepreneurial leaders may assemble a unique governance or incentive structure that generates returns beyond expectations [Leland and Pyle (1977)]. Board composition, hiring practices, growth financing/trajectory, employee compensation/ownership, share classes/voting rights, SG&A expenses, management attributes, etc., may all share some systematic commonalities with entrepreneurial leaders. Theoretically, any implied benefits or pricing anomalies should be priced away over time. However, it is possible that there are a series of complex factors underlying or encompassed within entrepreneurial companies that generates unusual or difficult-to-predict surprises (earnings, growth, productivity, etc.) that have not yet been discovered.

relatively modest adjustments, on the basis of portfolio selectivity, and return differences become more pronounced as well.

The spirit behind the entrepreneur selection process stems from developing academic research, emerging fund managers who specialize in this expertise, and the investment logic portending the hypothesis that if leadership actually does indeed matter, it would most likely occur with entrepreneurs who have a greater likelihood of control, economic and personal incentives, ability to exert vision on governance issues (stewardship), and an extended (unimpeded) job tenure to see his/her vision through to completion.³⁴ Continuing the logic further, we note that if an Index of Entrepreneurs provides superior risk-return benefits relative to a peer benchmark, as well as superior ESG benefits, then a “Smart Beta” solution develops from the opportunity to overweight those companies within the benchmark. The overall result would then yield comparable risk characteristics (as the benchmark) with superior risk-adjusted returns

and ESG traits.³⁵ We conclude that though this approach does not work in all time periods, across all market conditions, it appears to be effective in economic environments favoring growth-oriented stocks and, in particular, specific investment sectors.³⁶

CAN ESG PORTFOLIOS ALSO PROVIDE STRONG STOCK RETURNS?

We examine our Entrepreneur-ESG Model and compare it to a similar basket of US Large Cap stocks. Since it is our desire to assess whether or not publicly traded US Entrepreneurial companies are also providing excess risk-adjusted returns, we select a benchmark index with comparable security constituents. The index with the longest investment track record, with a comparable US Large Cap Growth-oriented focus and a correlation to our Entrepreneur 30 Index above 0.90, is the Vanguard Growth (VUG).³⁷ We select the Vanguard Growth Index (ticker: VUG) as it provides the “best fit” among US Large Cap Growth Indexes/ETFs based on overall characteristics to our Entrepreneur 30 Index (e.g., highest

³⁴ Citations below in this paper discuss the merits of entrepreneur research. We have already shown that among the largest entrepreneur and non-entrepreneur companies, Founder-CEOs have appreciably higher average durations in their jobs (as CEO), higher ownership levels, higher R&D investments, better results with M&A, and stronger revenue growth while in office. Moreover, as our study shows, periods before and after the existence of Founder-CEOs demonstrate a significant difference in relative risk-adjusted stock returns. While governance differences appear to be central to the heart of this research, the exact reasons for continued out-performance in the stock market are not clear (though likely stem from the list above). Theoretically, investors in the marketplace would observe this anomaly and price it away immediately. However, the results of our study show that returns are not symmetrical among constituents in the Founder-CEO basket. Like any other portfolio, results can be skewed by significant winners and/or losers. Performance distribution results (shown later) indicate significant difference between Founder-CEOs and the benchmark. We surmise that Founder-CEOs have inherent governance traits that make it possible to exceed market expectations year after year, as in cases such as Apple, Netflix, Amazon, Google, and Facebook. Our research extends beyond the simple ER30 of largest publicly-traded companies; we also include the basket of entrepreneur small capitalization companies and recognize that this basket includes organizations that may not have a Founder-CEO in place. We utilize the rules-based criteria and publicly-traded indexes and ETFs to compile our data and simply report the results as shown in the public marketplace. No other data besides publicly available information is required to complete this analysis.

³⁵ We recognize that the “outperformance” could be attributed to other factors or market conditions and, later in the paper, examine performance attribution across varying sectors and time periods. Moreover, in selecting a market benchmark, we first regress the return stream against a few market benchmarks holding comparable security populations (growth, large cap, etc.), and then select the benchmark with the highest correlation for comparative purposes. In determining any potential advantage to our security selection, we adjust for a number of factors including size, style, momentum, liquidity, yield, quality, volatility, and profitability. We note that other methodologies that disentangle stock returns, such as Jacobs and Levy (1988), might yield different results.

³⁶ By definition, a risk-variable will not consistently provide returns in each and every period. As we show in the results section, results favor traditionally “entrepreneurial” growth sectors such as Information Technology, Health Care, and Consumer Discretionary. Most stock holdings in this article represent these sectors. By contrast, relatively few companies reside in the Utility, Telecommunication, and Materials sectors.

³⁷ In selecting a benchmark index to run risk-adjusted returns, it is important that both investment strategies have a similar focus and security composition. Otherwise, the statistical tests will be akin to comparing apples and oranges. The Vanguard Growth Index (VUG) has a historical correlation with the ER30 at 0.91 (or above) and comparable sector representation. Importantly, our scatterplot diagrams, performance histograms, and other criteria show relative performance against ALL US Large Cap Growth investment strategies existing on our Bloomberg, eVestment, or Morningstar databases.

correlation, composition, etc.).³⁸ Like the ER 30, the VUG's heaviest sector weights are in Information Technology, Consumer Discretionary, and Health Care, with a combined total weight of these three sectors being approximately 70%.³⁹

As prior exhibits already demonstrate how a basket of publicly-traded entrepreneurial companies provides stronger ESG characteristics than a typical US Large Cap benchmark, we now provide evidence for stronger risk-adjusted returns as well.⁴⁰ The entrepreneur model appears to work well in many market conditions but may fail significantly in others. Overall, the return performance seems to be successful much of the time and, we

believe, becomes much more likely to hold true over an extended period-of-time.⁴¹

We recognize that significant differences in sector weights can change the overall profile and total returns in a significant manner.⁴² However, we find that regardless of sector weights in the index at any point in time, performance differential (rewarding the Entrepreneur 30 Index) tends to favor three sectors: Information Technology, Health, and Consumer Discretionary.⁴³ Moreover, the Entrepreneur 30 Index tends to underweight Energy, Industrials, and Consumer Staples (where this index tends to underperform or hold relatively light weights). By comparison, most US Large Cap Growth Indexes also overweight the same sectors, and in fact, may hold higher weights.

HOW DID THEY PERFORM? RETURN SUMMARY

Exhibit 21 provides a summary of annualized returns comparing the Entrepreneur 30 Index to the Vanguard Growth Index for the period July 2005 through July 2018.⁴⁴ In each of the distinct periods,

⁴¹As we will discuss in the performance analytics section, the relative performance of the ER30 Index vs. benchmarks varies considerably across sectors. Much of the relative performance in generating alpha derives from a few sectors, including Information Technology, Health Care, and Staples. Interestingly, two of the worst-performing sectors for the Entrepreneur Index were Real Estate (which has a relative over weight) and Industrials (which is a relative under-weight).

⁴²The 30-stock portfolio in the ER30 Index is subject to wide variations in composition, with a one or two stock movement during rebalancing (e.g., dropping two health care stocks and adding two IT companies). By contrast, a 500-stock index would be less likely to experience strong shifts in sector weights. We realize that it might be preferable to utilize an Entrepreneur Index with many holdings, though the nature of such an objective, keeping true to a high level of data integrity, becomes impractical. We source entrepreneurs from a few data sources—Bloomberg and CapitalIQ—and are dependent on their constituents.

⁴³Despite Information Technology and Health Care being shown as (significant) underweight during the time period of the study, as we will see in the performance attribution section, much of the performance contribution comes from three key sectors: Information Technology, Health Care, and Consumer Discretionary.

⁴⁴This time period corresponds with a complete market cycle including the 2007–2009 stock market recession. The time period also corresponds with an actual performance track record implemented (along with other variables) in an “Entrepreneur Model” along with the Entrepreneur 30 Index (published and disseminated by Thomson Reuters). Data have been computed on the eVestment

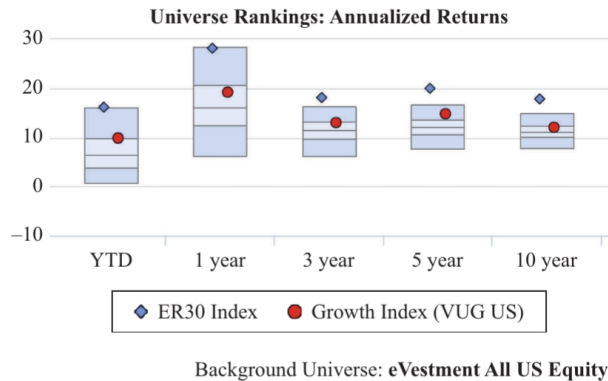
³⁸The Entrepreneur 30 Index has a relatively high correlation with the Vanguard Growth Index (0.91). Later in this paper we will show performance analytics and attribution relative to this benchmark. We considered using more popular indexes, such as S&P 500 Growth or Russell 1000 Growth, for comparison purposes. However, the ER30 Index has a lower correlation with the S&P 500 Growth Index and a slightly lower correlation with the Russell 1000 Growth Index. Furthermore, due to the complex data intensity of our Factor Analysis utilized on Bloomberg, we chose a US Large Cap Growth Index with fewer constituents than the S&P 500 Growth and Russell 1000 Growth to allow a more comprehensive factor analysis (shown later). Given all of the considerations involved, we believe the Vanguard Growth Index is an appropriate fit for our analysis.

³⁹As of early September 2018 the ER 30 Index holds 45.6% in IT, 17.6% in Cons. Disc. and 9.2% weight in HealthCare (total weight in the three sectors of 72.4%). By contrast, the VUG has 36.6% in IT, 21.3% in Cons. Disc., and 12.1% in HealthCare (total weight of 70%). Both indexes have relatively low dividend yields (0.5% for ER30 and 1.1% for VUG). From a descriptive statistic perspective, they are very close to being the same.

⁴⁰For purposes of analytical comparison, we utilize the S&P500 Growth Index, the Russell 1000 Growth Index, and the Vanguard Growth ETF (ticker: VUG). The Vanguard Growth ETF seeks to track the performance of the CRSP US Large Cap Growth Index, and has net assets of approximately \$30 billion, a very low expense ratio (.06%), and low turnover (10.7%). It has 310 holdings. We select this ETF as our factor analysis (as we discuss later) since it requires specific holdings (not a summary of returns) in order to properly compute the factor relationships (such as value, momentum, size, etc.). Moreover, given the intensive nature of the computations required for a detailed factor analysis over an extended period of time (including the 2008–2009 recession) we need an index with fewer than 500 securities to perform the computation from 2006 through 2017. (Bloomberg Analytics—one of the most detailed and powerful factor tools available in the marketplace—has data limitations on the number of computations it can provide.) Rather than select a broader market index (such as S&P 500 or Russell 1000 Growth) for a shorter time period (e.g., multiple periods of three-year duration), we decide to employ a US Large Cap Growth ETF, with slightly fewer stock holdings and a longer time period.

EXHIBIT 21

Summary of Annualized Period Returns July 2005 through July 2018



Source: eVestment, All US Equity Universe.

the ER30 Index outperforms the comparative benchmark along with most of the other US Large Cap Funds for the 1-year, 3-year, 5-year, and 10-year periods.⁴⁵ As we see from Exhibit 21, the ER 30 Index has a very strong relative performance record for each time period represented. This Index ranks among the top 1 percentile on the eVestment database of 3,287 comparison funds within the All US Equity Universe for almost all the time periods represented.⁴⁶ This return is well above the norm among all US equity funds and well above the annualized return for the benchmark fund.⁴⁷ During the entire 13-year period (2005–2018), the index provides considerably more total cumulative return than

database with US Large Cap Growth (VUG) as a benchmark universe.

⁴⁵ As a later exhibit makes clear, the performance differential between the ER30 and the VUG (or other comparable benchmarks) is very compelling.

⁴⁶ eVestment is a widely used database by the Financial Industry's top consultants and includes one of the most comprehensive sets of returns for investment professionals around the world. The database aggregates returns and provides analytic capabilities for computing traditional investment criteria such as alpha, beta, information ratio, tracking error, etc. The graphs, statistics, and benchmark data have been computed and/or supplied by eVestment.

⁴⁷ The number of comparison funds for the three-year period is 3,559 (top one percentile) and the number of comparison funds for the one-year period is 3,819 (top five percentile). Moreover, when compared within an eVestment database Universe of 819 US Large Cap Equity Funds, the Entrepreneur 30 Index ranks among the top one percentile for the five-year time period.

the benchmark.⁴⁸ Moreover, as the chart demonstrates, for virtually all periods shown, the ER30 appears to dominate the benchmark and other constituents in the category. However, as we see in the next exhibit, the ER30 does NOT dominate in every year. When it fails, it may do so in spectacular fashion. Consequently, in order for investors to enjoy the economic value of this strategy, it is important to do so for an extended period of time.

The summary of calendar year returns (Exhibit 22) provides an overview of the annualized returns of the ER30 Index relative to an eVestment All US Equity Universe of 3,799+ funds as well as the US Large Cap Fund benchmark.⁴⁹ The 30-constituent ER 30 Index generally performs in the top half of all funds in the database (11 out of 13 years shown), though it fell below average in 2014 and well below average in 2008. The recessionary year of 2008, in particular, represented a difficult period for the Entrepreneur 30 Index. The Index lost 49.95% (bottom five percentile among All US Equity Funds) in 2008 and fell at least 5% to 10% below average for most US equity funds and –6.85% below the US Large Cap Vanguard Growth benchmark (VUG) (–49.5% –43.1%). In 2014 the ER30 Index generated 8.83% (bottom half among 3,991 all US Equity funds in eVestment database) which was slightly below all US Equity Funds and the US Large Cap benchmark (VUG).

The ER 30 Index provides relative strength against most other US Equity Funds in years such as 2013, where it earns 54.14%, (top one percentile among 3,925 US Equity Funds); 2009, where it generates 65.75% (top one percentile among 4,331, All US Equity Funds); 2010, where it produces 29.81% (top 15 percentile); and 2015, where it returns 11.05% (top one percentile among 3,799 All US Equity Funds).⁵⁰ During the strong years for the

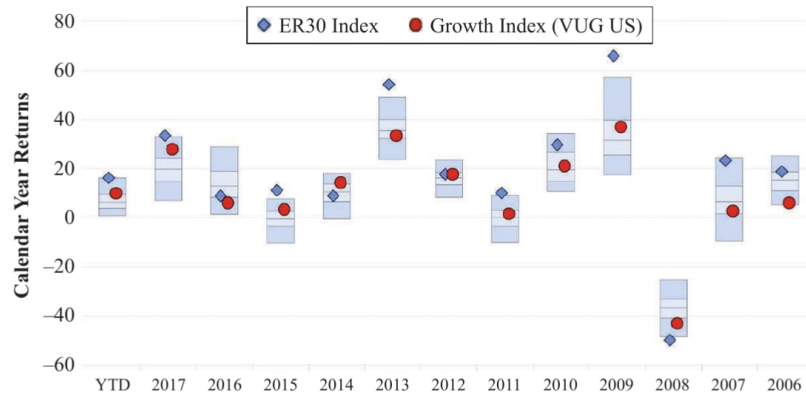
⁴⁸ As we will see in the Summary Return Exhibit, the ER 30 contributes more than three times the cumulative total return compared to the benchmark over the 2005 to 2013 time period.

⁴⁹ The number of funds in the All US Equity Universe range from 3,799 (2015) to 4,409 funds (2008).

⁵⁰ The ER30 Index ranks in the top 5 percentile among all US Equity Funds in 2015 and 2013 and top 10 percentile in 2009 and 2011. We note that against an eVestment Universe of 400+ US Large Cap Growth Funds, the Founder-CEO Index ranks in the top 10 percentile for four of the nine years shown, though it also falls in the bottom half of the percentile rankings four out of the nine years. The numbers for the eVestment database vary from year to year based on the number of constituent funds in existence with reported performance records.

EXHIBIT 22

Summary of Calendar Year Returns



Source: eVestment, All US Equity Universe.

ER30 Index of 2015, 2013, 2011, 2010, and 2009, the index outperforms the US Large Cap Growth benchmark (VUG) by 7.79%, (11.05% – 3.26%), 2.82% (54.14–33.32), 8.49% (9.98% – 1.49%), 8.86% (29.81% – 20.95%), and 28.91% (65.75% – 36.85%), respectively.

The annual returns shown in Exhibit 22 demonstrate the outperformance of the ER30 Index for most years of our study, though striking underperformance during the critical recessionary year of 2008. Overall, the strong performance of the ER30 Index, shown in Exhibit 21 on an absolute and relative basis, remains consistent with the year-by-year returns we observe in Exhibit 22.

The next Exhibit (Exhibit 23) includes some additional summary return information for the ER30 graph in Exhibit 21; the ER30 Index beats the Vanguard Growth Index benchmark for the: one-year, three-year and five-year periods. Further, Exhibit 23 shows how the ER30 Index completely dominates the comparative benchmark for total performance since its inception in January 2005. Since the beginning, the cumulative return for the ER30 Index is 640.19% through July 2018. By way of comparison, this is more than three times the Vanguard Growth Index return of 206.27%. Moreover, the average annualized excess returns over the entire period ranging from January 2005 through July 2018 is 7.60% higher (16.53% vs. 8.93%, respectively).⁵¹

⁵¹ Corresponding with this time period (January 2005 through July 2018), the investment firm EntrepreneurShares pro-

EXAMINING THE DISTRIBUTION OF RETURNS

Exhibit 24 shows how the ER30 Index has a greater likelihood of monthly returns at both ends of the distribution spectrum. Both extremes (greater than 6% monthly return or less than –6% monthly return) are more likely with the ER30 than with the Vanguard Growth Index. Out of the 163 monthly periods from January 2005 through July 2018, the ER30 Index provides 21 periods (12.9%) with monthly returns of 6% or more.⁵² This compares with only 12 periods of monthly returns of 6% or more for the comparative benchmark.

At the other end, the ER30 Index clearly experiences more periods of –6% or less compared to the VUG benchmark. Further, extending the monthly distribution analysis to monthly returns exceeding +4%, we see that the ER30 Index accomplishes this feat more often than the Vanguard Growth Index.⁵³ The 30 stock, ER30 Index provides a greater likelihood (compared

duced a series of entrepreneur models that generated strong returns corresponding with this index.

⁵² In other words, the Founder-CEO Index provides a monthly return of 6% or more in 19 out of 108 months, or approximately 17.6% of all months. By contrast, the VUG US Large Cap benchmark provides a monthly return of 6% or more in 11 out of 108 months, or approximately 10.1% of the time.

⁵³ The strong performance of +4% months for the ER30 Index clearly contributes to the overall outperformance.

EXHIBIT 23

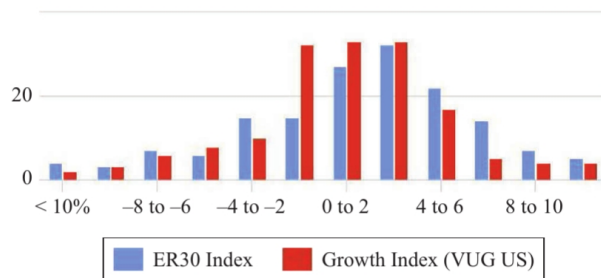
Summary of Return Information July 2005 through July 2018

Rish Analysis

Statistic	EntrepreneurShares: ER30 Index	Vanguard: Growth Index (VUG US)
YTD	16.15%	9.86%
1 Year Return	28.20%	19.22%
2 Year Return	25.89%	18.44%
3 Year Return	18.11%	13.00%
5 Year Return	19.99%	14.79%
Cumulative Return	640.19%	206.27%
Standard Deviation	18.98%	15.17%
Gain Deviation MAR (5%)	14.37%	10.73%
Loss Deviation MAR (5%)	12.81%	10.74%
Sharpe Ratio (FTSE 3 Mo. T-...	0.81	0.51
Growth of \$1000	\$7401.90	\$3062.66
Num of Negative periods	50	61
Num of Positive periods	107	96
Sortino Ratio RF (FTSE 3 Mo...	1.24	0.76

EXHIBIT 24

Distribution of Monthly Returns July 2005 through July 2018



Source: eVestment.

to a US Large Cap Growth benchmark) of generating very strong monthly returns, but also may be more likely to generate strong negative returns. Overall, this more extreme behavior contributes to a higher standard deviation of returns than the benchmark.⁵⁴ The distribution table of returns shows that monthly returns in the

⁵⁴ The wide dispersion of monthly returns corresponds with the higher standard deviation for the ER30 Index (19.72%) compared to the Vanguard Growth Index (17.31%). These statistics are shown in Exhibit 4.

middle range (+4% to -2%) occur more frequently with the Vanguard Growth Index than the ER30 Index.⁵⁵

Cumulative Returns and Peer Analysis

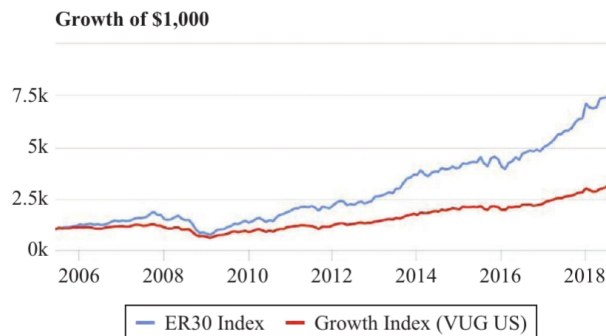
Exhibit 25 shows the cumulative returns and growth of a \$1,000 investment from index inception. The ER30 Index grows a \$1,000 investment more than 640.2% in 13.5 years, to \$7,402. The Vanguard Growth Index, on the other hand, appreciates the same investment 206.3%, to \$3,603. The line representing the ER30 Index provides a compelling pictorial illustrating a clear advantage over the US Large Cap Growth benchmark.

Exhibit 26 (shown below) provides peer comparisons with the ER30 Index. The ER30 Index provides a significant annual excess return over the Vanguard Growth Index. Compared with 2,679 All US Equity Funds in the eVestment database, the ER30 Index ranks in the top one percentile. In terms of total returns, the ER30 Index generates 16.53% (top one percentile) during the period from January 2005 through July 2018

⁵⁵ Exhibit 23 shows how the ER30 has 107 positive months and 56 negative months compared to the VUG that has 96 positive months and 61 negative months. The higher up capture for the ER30 corresponds with more positive months that also correspond with more positive extremes.

EXHIBIT 25

Cumulative Returns July 2005 through July 2018



Source: eVestment.

(Vanguard Growth total return for the same period was 8.93%) with a corresponding risk-adjusted alpha of 6.30% over the Vanguard Growth (top one percentile). The Information Ratio is 0.93 (top one percentile) for the ER30 Index and the Sharpe Ratio is 0.81 (top five percentile).⁵⁶

Exhibit 27 provides specific monthly returns for the ER30 Index, illustrating the variability in returns for each month between January 2005 and July 2018. Calendar year 2017 was the only year that produced positive returns every month; even in 2009 and 2013, very strong years when the ER30 Index provided exceptional returns, the index still experienced three months of negative returns. By contrast, 2008, a calendar year with extremely challenging economies, generated negative returns seven months out of the year. Investors should recognize that this strategy, not unlike other concentrated equity strategies, may be subject to market volatility.

⁵⁶The Information Ratio (IR) is measured as the excess returns of the portfolio (over a benchmark) divided by the tracking error (standard deviation of the difference between returns). Investors prefer a high information ratio (over a low ratio) as it implies the investor is being well compensated for additional risk. The Sharpe Ratio (SR) is similar to an information ratio, though in the former case the numerator of the ratio examines the excess returns of an asset's returns over the risk-free rate of return, and then divides this excess return by the asset's standard deviation of returns. Consequently, the IR measures the risk-adjusted return in relation to a benchmark (such as S&P 500 Index or Vanguard Growth Index) while the Sharpe Ratio measures outperformance relative to a risk-free rate of return (e.g., US Treasury Bill).

Exhibit 28 provides a scatterplot of the risk-returns of the ER30 Index, Vanguard Growth Index, and 2,679 other US Equity strategies in the eVestment database. The scatterplot applies annualized returns on the Y-axis and the associated standard deviation of returns on the X-axis. The Vanguard Growth Index is situated very close to the median intersects. Interestingly, the ER30 in the upper right quadrant suggests that within the eVestment database of 2,679 US Equity investment strategies, relatively few strategies offer a similar risk-return pattern. Most of the strategies in the database contain less risk, and only a handful offer more return. The ER30 Index appears to offer an attractive risk-return tradeoff for investors willing to assume above-average risk.⁵⁷

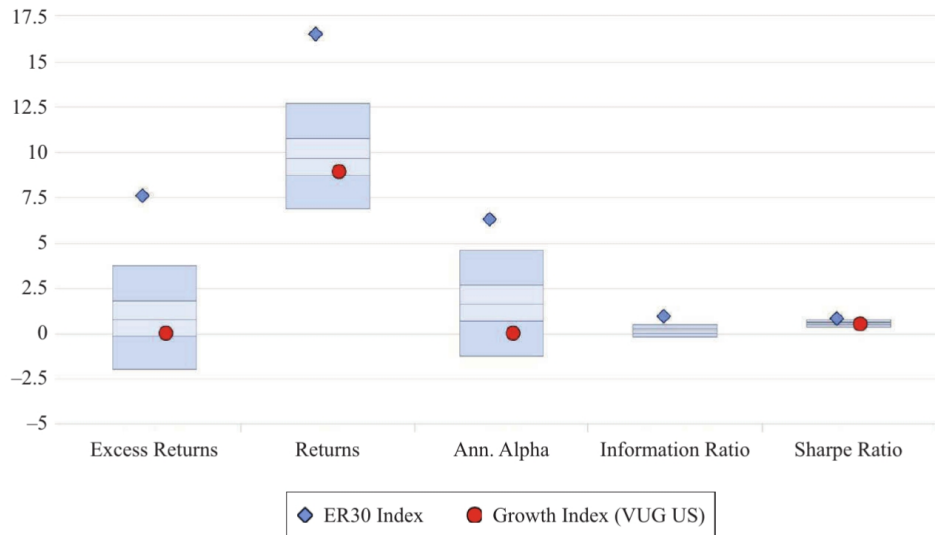
RISK ANALYTICS: HOW DID THE ER30 INDEX PERFORM?

Exhibit 29 provides the risk analytics for the ER30 Index relative to the Vanguard Growth Index. The benchmark provides a relatively high correlation (0.91) to the ER30 Index. The beta for the ER30 Index is above-average risk (1.14), which corresponds with the higher standard deviation (18.98%). The above-average up-capture (133.98%) and surprisingly low down-capture (98.40%) ratios associated with the ER30 Index appear generally consistent with the return distribution chart that illustrates how returns for the ER30 Index are more skewed to either a strong positive or negative distribution tail. The higher up capture (133.98%) and lower down capture (98.40%) provide an upward bias and appear consistent with a positive risk-adjusted alpha for the ER30 Index (6.30%) over the Vanguard Growth

⁵⁷The scatterplot shows the ER30 Index positioned in a manner with only a few investment options that provide superior returns with the same or less risk. Moreover, given the risk component (as measured by standard deviation of returns) there appear to be many investment options with greater risk and lower historical returns. Notably, there are some investment options with greater returns and less risk. Though there is obviously no guarantee that historical patterns will continue, to the extent that the risk-return tradeoff continues going forward, we can conclude that the Founder-CEO Index, at least in terms of this historical chart, appears to provide a compelling return given the risk level and alternative investment options. This presumption is consistent with charts in other sections of this paper that show relatively high excess returns, risk-adjusted alpha, Information Ratio and Sharpe ratio.

EXHIBIT 26

Peer Analysis July 2005 through July 2018



Source: eVestment, All US Equity Universe.

EXHIBIT 27

Monthly Returns

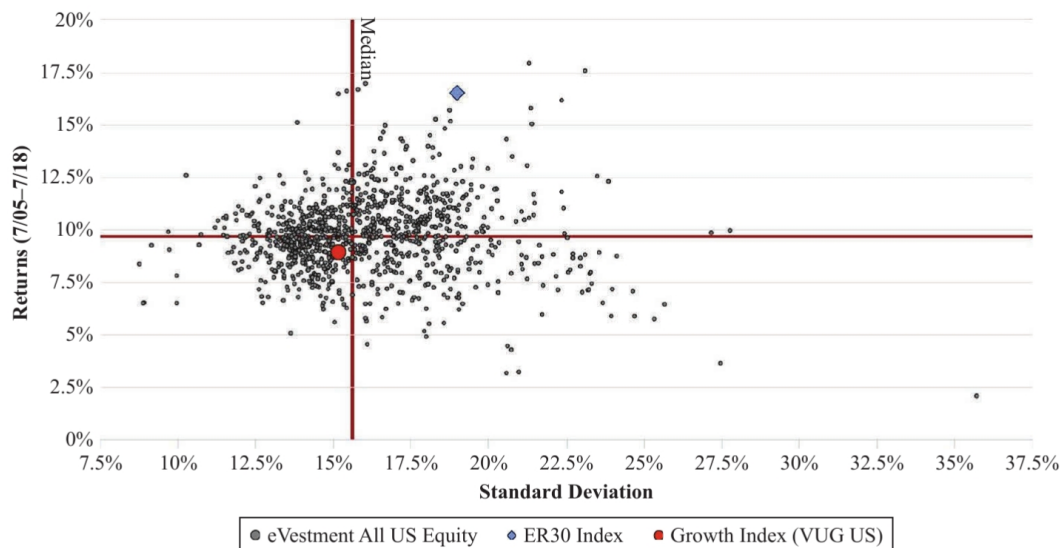
Historical Performance—Monthly Returns

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
2018	11.28%	-2.58%	-0.75%	0.79%	6.01%	0.72%	0.31%	—	—	—	—	—	16.15%
2017	4.25%	1.90%	2.38%	3.24%	4.11%	0.48%	2.86%	0.25%	2.15%	4.64%	2.50%	0.49%	33.35%
2016	-8.36%	-2.62%	7.61%	1.56%	4.70%	-2.58%	6.88%	1.13%	2.12%	-0.97%	1.64%	-1.56%	8.80%
2015	0.64%	5.26%	-0.91%	1.94%	0.68%	-0.42%	5.88%	-6.92%	-2.94%	9.37%	1.62%	-2.63%	11.05%
2014	0.19%	5.97%	-4.81%	-3.181%	4.55%	2.27%	-0.32%	4.82%	-2.06%	0.88%	2.55%	-1.74%	8.83%
2013	9.43%	0.35%	1.92%	2.57%	3.18%	-2.05%	8.79%	-0.12%	8.86%	6.28%	1.77%	3.84%	54.14%
2012	7.20%	6.36%	3.60%	-1.05%	-7.96%	2.57%	-1.59%	4.88%	2.49%	-3.92%	2.38%	2.41%	17.58%
2011	3.87%	5.76%	0.14%	3.65%	0.50%	-1.30%	3.20%	-4.75%	-6.97%	11.01%	-2.25%	-2.01%	9.98%
2010	-6.71%	4.61%	7.97%	3.87%	-5.71%	-7.33%	7.32%	-4.18%	14.16%	7.56%	2.13%	5.09%	29.61%
2009	-7.65%	-8.72%	12.98%	18.49%	3.09%	1.46%	9.40%	5.28%	9.52%	-1.71%	6.74%	6.11%	65.75%
2008	-12.47%	-2.91%	2.25%	7.04%	4.53%	-9.32%	-4.02%	0.79%	-13.92%	-21.32%	-16.23%	3.43%	-49.95%
2007	3.05%	-1.53%	0.29%	4.66%	4.25%	0.41%	1.04%	2.84%	8.99%	5.75%	-7.80%	0.08%	23.21%
2006	5.68%	-2.64%	3.13%	2.49%	-4.64%	2.85%	-3.45%	2.09%	4.35%	6.61%	4.60%	-2.98%	18.69%
2005	—	—	—	—	—	—	6.94%	-1.70%	3.59%	-0.16%	4.31%	2.25%	15.96%

Source: eVestment.

EXHIBIT 28

Scatterplot Returns



Source: eVestment, All US Equity Universe.

EXHIBIT 29

Risk Analytics

Performance statistics—All Market

Benchmark	Alpha	Corr (R)	Beta	Tracking Err	Excess Rtn	Info Ratio	Returns	Bench Rtn	Bat Avg	Std Dev	Bench Std Dev	Up Mkt Capture	Down Mkt Capture	Beta T-Stat	R ²
Vanguard: Growth Index (VUG US)	6.30%	0.91	1.14	8.15%	7.60%	0.93	16.53%	8.93%	0.62	18.98%	15.17%	133.98%	98.40%	27.32	0.83

Source: eVestment.

Index.⁵⁸ Clearly, the overall benefits of more frequent positive periods (corresponding with strong returns as shown in Exhibit 23) more than offset the above-average negative returns during this period of study.⁵⁹

⁵⁸ The up capture of 133.98% implies that when the S&P rises by 100%, the ER30 Index rises by 133.98%. When the S&P declines by 100%, the down capture implies that the ER30 Index declines by 98.40%. The unequal nature of the increases versus the decreases favors a positive bias to the ER30 Index. Moreover, as the next footnote describes, the larger number of positive vs. negative periods provides a net benefit to the ER30 strategy. Presumably, if the study had been conducted during a severe downturn in the market, the results could be much more negative and potentially detrimental to the investor.

⁵⁹ The Founder-CEO Index has 107 positive and 50 negative periods during the January 2005–July 2018 examination period.

PERFORMANCE ATTRIBUTION: WHERE ARE RETURNS GENERATED? ASSET ALLOCATION OR SECURITY SELECTION?

The ER30 Index provides performance of 593.02% during the time period July 2005 through July 2018, compared to 193.48% for the US Large Cap (VUG) benchmark. Excess return is 399.54%. As we see in Exhibit 30, the performance attribution of the ER30 Index is concentrated in three primary sectors: Information Technology, Health Care, and Consumer

Consequently, the upward bias of positive periods over negative periods, coupled with an exaggerated benefit (with strong periods being relatively stronger than the negative periods) combine for a net benefit to this investment strategy.

1) View ▾ 2) Actions ▾ 13) Settings ▾ 14) Trade Simulation ▾											Portfolio & Risk Analytics				
Intraday		Holdings		Characteristics		Tracking Error/Volatility		VaR		Scenarios		Performance		Attribution	
Main View		Summary													
ENTREPRENEUR 30 INI ▾		vs VANGUARD GR ▾		by GICS Sectors ▾		in USD ▾		Time Custo ▾		07/29/05 ▾		07/31/18 ▾			
Model		Total Return		Unit		Percentage									
Name		Port	Avg %	Wgt Bmrk	+/-	Port	CTR Bmrk	+/-	Port	Tot Rtn Bmrk	+/-	Tot Attr	Alloc	Selec	
ENTREPRENEUR 30 INDEX.CSV		100.00	100.00	0.00	593.02	193.48	399.54	593.02	193.48	399.54	399.54	399.54	81.93	317.59	
Information Technology		30.78	29.64	1.14	241.61	84.42	157.19	1,777.28	332.31	864.57	168.24	11.00	157.59		
Consumer Discretionary		27.92	15.67	12.25	198.93	49.64	149.30	681.50	308.94	372.56	112.62	20.84	91.78		
Financials		8.46	8.59	-0.13	49.50	-3.87	53.37	350.89	7.78	352.11	60.23	16.52	43.72		
Health Care		7.35	13.05	-5.70	46.82	23.00	23.83	327.41	220.91	106.49	18.49	2.27	16.20		
Consumer Staples		3.05	9.78	-6.73	16.18	16.54	-0.36	285.36	165.57	119.79	11.28	1.57	9.71		
Stocks		3.99	3.77	0.23	3.46	-4.91	8.36	1.81	179.60	-181.41	14.22	5.59	8.63		
Materials		0.26	2.34	-2.08	2.80	4.67	-1.87	57.16	246.64	-189.48	0.66	-1.08	1.74		
Energy		5.29	-4.90	10.39	-3.65	1.26	-4.91	33.32	58.40	-23.08	9.25	8.19	1.06		
Telecommunication Services		0.33	0.00	0.34	2.92	0.17	2.75	57.99	28.45	29.54	2.48	1.61	0.00		
Bonds		0.00	0.00	0.00	0.00	0.00	0.00	2.26	-2.26	0.00	0.05	0.05	0.00		
Cash		0.00	0.10	-0.10	0.00	0.00	0.00	0.00	0.00	-0.27	-0.27	0.00	0.00		
Utilities		0.00	0.14	-0.14	-0.01	0.01	0.01	-20.78	20.78	0.44	0.44	0.44	0.00		
Real Estate		7.00	2.97	4.03	17.62	6.77	10.85	167.76	199.68	-31.92	4.35	10.61	-6.26		
Industrials		5.57	8.96	-3.40	16.82	15.79	1.02	118.48	183.24	-64.84	-2.49	4.61	-7.10		

(149.30% of the 399.54%), Financials (53.37%) and Health Care (23.83%). Continuing with the performance attribution analysis, Exhibit 30 illustrates how the ER30 Index does not gain excess returns from sectors such as Consumer Staples (−0.36%), Energy −4.91%), or Materials (−1.87%).

Most of the weight of the index resides in four sectors (Consumer Discretionary, Information Technology, Health Care, and Financials); the strongest return differentials between ER30 and VUG are: Information Technology ($1,177.28\% - 332.31\% = 844.97\%$), Consumer Discretionary ($681.50\% - 308.94\% = 372.56\%$), Financials ($359.89\% - 7.78\% = 352.11\%$), and Health Care ($327.41\% - 220.91\% = 106.49\%$).

When evaluating the performance of the ER30 Index, we surmise that in addition to the market model, there likely are other factors that can explain the 399+% excess return. Since our ER30 Index has a strong bias toward three sectors and a strong orientation toward growth, and represents relatively large companies, we test for these factors. We analyze our data against a well-known factor model to assess the attribution of returns.⁶¹

⁶¹ Given the strong growth orientation of the ER30 Index and its heavy sector concentration, we thought it likely that a growth or sector factor might negate much of the selection effect of the ER30 Index. As the factor analysis demonstrates, the ER30 selection factor is, by far, the most dominant factor among the 20+ factors we examine.

EXHIBIT 31

Fama-French Three-Factor Model



EXHIBIT 32

Fama-French Three-Factor Model



Source: Bloomberg.

Exhibits 31 and 32 show the Total Active Return of our ER30 Index versus the Fama-French Three-Factor Model (1993). This model (FFM) examines Market, Value, and Size,⁶² providing a useful tool in assessing performance streams perceived to contain “excess,

risk-adjusted” returns. In our assessment, we select two performance periods; the first (2006–2015) represents a series of returns consisting of both positive and negative periods.⁶³ The Fama-French Three-Factor Model

⁶²The Fama-French 3 Factor Model (see reference) is well represented in academic literature and provides a solid basis to assess key factors in portfolio returns.

⁶³Unfortunately, due to the intensity of computations utilizing Factor analysis with portfolios holding many positions over an extended period of time, we are limited to approximately 9 years of assessment. We used this limitation as an opportunity to highlight a

EXHIBIT 33

Factor Analysis: Carhart Model



Source: Bloomberg.

(Exhibit 31), shows how the Selection Effect (Entrepreneur Factor) represents 151.30%, the U.S. Value Factor represents -13.27%, the U.S. Market Factor provides -0.42%, and U.S. Size Factor represents 14.05% of the excess return. This means out of the total 137.65% Active Return shown, the Fama-French model accounts for -13.65% ($137.65\% - 151.30\% = -13.65\%$). This is a highly unusual assessment as it implies that the factors associated with the Fama-French Three-Factor Model not only do not contribute to the explanation for the excess return, but actually *reduce* the excess return. Based on this analysis, at least for the enclosed time period with this data, it appears that the Entrepreneur factor is, by far, the most dominant factor.⁶⁴

comprehensive time period with both positive and negative Market returns (both before-and-after the recession) as well as a time period that was primarily positive. Consequently, we selected the two data periods shown in Exhibits 31 and 32.

⁶⁴This factor analysis includes the three Fama-French factors along with the new potential factor, "Selection Effect." The Selection Effect represents the unique selection of the entrepreneur companies and corresponds with the entrepreneur factor. It is, by far, the most significant factor. However, this test does not include all factors that have been previously identified. Moreover, it is possible that the factor analysis would vary over a differing time period or with other market capitalizations or geographic regions. Since a factor test can be influenced by varying time periods, other established factors, or unknown criteria, it is important to test for varying time periods, market capitalizations, geographic regions, and theoretically significant variables.

Exhibit 32 applies the same test utilizing a different time period (12/31/08 through 12/29/17) and provides differing results. The FFM no longer provided a negative contribution. The total active return is 329.91% and the Selection Effect (Entrepreneur Factor) represents 217.84%. Size (20.80%), Value (-29.74%), and Market (-0.71%) are the key FFM Factors, with the differential not being readily explained.

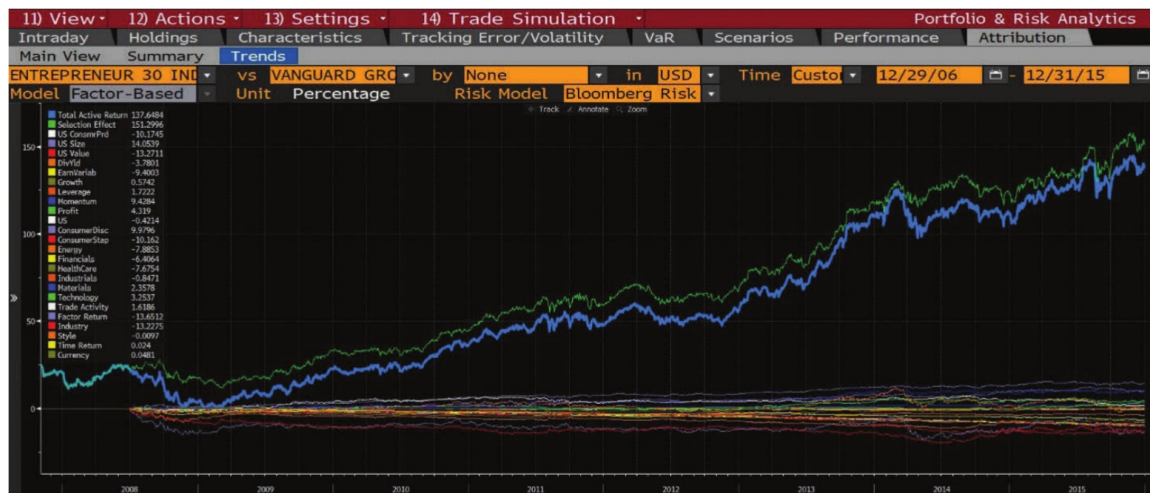
Since we recognize that the model in Exhibits 31 and 32 might be limiting, we utilize the Carhart (1997) Model, which builds upon the Fama-French Three-Factor Model by introducing the Momentum Factor. It is shown in Exhibit 33.⁶⁵

With the Carhart Model we examine the data for the same time period as the Fama-French Three-Factor Model (12/29/06 through 12/31/15), and add the Momentum Factor. As we see in Exhibit 33, the results are the same for Total Active Return (137.65%), Entrepreneur Factor (151.30%), Size Factor (14.05%), Value Factor (-13.25%), and Market Factor (-0.42%). Momentum becomes the third most significant factor (after Entrepreneur and Size) at 9.43%. Again, consistent with Exhibit 31, the Entrepreneur Factor is, by far, the most significant factor in the analysis. We note that the Momentum factor of 9.43% provides an improvement

⁶⁵We ran the Carhart model for the same time periods as the Fama-French Three-Factor Model but only show the first time period, as the second analysis appears redundant.

EXHIBIT 34

Complete Factor Analysis: 30 Factors Including Entrepreneur



Source: Bloomberg.

from the prior model, though there still remains a considerable amount of return that is being attributed to the Entrepreneur factor. We decide to next examine a more complete factor model (on Bloomberg) that incorporates virtually every known factor. The results may be surprising to many seasoned professional investors, and might very well be a major empirical finding in academic literature.⁶⁶

THE ENTREPRENEUR FACTOR—TESTING AGAINST ALL OTHER FACTORS

In an attempt to be exhaustive in the search for other explanatory factors in assessing the 137.65% excess returns, we utilize the Bloomberg Factor Model and include virtually every style, sector, country, currency, time weighted, and other factors available. Besides the three Fama-French factors and Momentum from Carhart model, we incorporate 30 potential Factors: Total Active Return, Factor Return (summary), Selection Effect (attributed to Entrepreneur Model), Equity return, Country, US Market, Industry,

Consumer Discretionary, Consumer Staples, Energy, Financials, Health Care, Industrials, Materials, Utilities, Communication, Technology, STYLE (summary), Dividend Yield, Earnings Variable, Growth, Leverage, Momentum, Profit, Size, Trade Activity, Value, Volatility, Currency, Time return.⁶⁷ We show the results in Exhibit 34.

As Exhibit 34 reveals, the Total Active Return, Selection Effect (Entrepreneur Factor), and other major factor influences do not change. With all of the other major factors included in the analysis, the Entrepreneur factor is still, by far, the most dominant during our period of study (2006–2015). Further, we observe that after the Entrepreneur factor, size and momentum are important, but many other well-known factors are not.⁶⁸

⁶⁷ In total we examined 30 different factors in an attempt to help evaluate the total active return. We utilized the capabilities of Bloomberg's analytic tool to see if the Entrepreneur factor might be encompassed within another factor. As we will show, the Entrepreneur variable during the time of our study has been extremely helpful in explaining excess returns.

⁶⁸ We ran tests for other time periods and found the Entrepreneur factor equally significant and dominant. Only for very short periods around the time of 2008–2009 recession did the Entrepreneur factor not demonstrate excellence with performance. In virtually all other periods longer than three years, the Entrepreneur factor emerges as significant. Potential investors or researchers can confirm

In our analysis, we assessed the factors contributing to the Total Active Return during the period 12/29/2006 through 12/31/2015. The complete period shows very strong capital market appreciation, though clearly during parts of this economic cycle the market experiences a strong decline.

As Exhibit 34 makes clear, during the nine-year period 12/29/2006 through 12/31/2015, the ER30 Index outperforms the Vanguard Growth Index benchmark by 137.65%. The Selection Effect or ER30 Index is, by far, the dominant factor. No other factor among the other 29 comes close. Of the 137.65% total active return, the Selection Effect (ER30 Index) helps explain 151.30%. This means that ALL of the remaining factors combined equal -13.65%! Other significant factors include U.S. Size (14.05%), Consumer Staples (-10.16%), Consumer Discretion (9.98%), U.S. Value (-13.27%), Volatility (-5.29%), Technology (3.25%), Health Care (-7.68%), Earnings (-9.40%), all Industries (-13.23%), Currency (0.05%), Growth (0.57%), all Style (-0.01%), Energy (-7.89%), Profit (4.32%), Dividend Yield (-3.78%), and Leverage (-1.72%). Again, all of the factors other than the Selection Effect (ER30) sum to approximately -13.65%. (Total Active Return of 137.65% equals the Selection Effect of 151.30% - 13.65% for all Other Factors.) These results are very compelling—and likely will be very surprising to many investors and academics.

We surmise from this analysis that the Entrepreneur factor may very well be a significant factor over other extended time periods, but leave it to other researchers to explore further.⁶⁹

these tests independently by downloading the ER30 Index from Bloomberg (or eVestment or Morningstar) and running the factor test separately for varying time periods. The results and conclusions should match our assessment.

⁶⁹This challenge should not be taken lightly. Though it is easy to suggest a longer time period, the complexity to correctly assemble a thorough 20+ year or 30+ year sample would be an enormous undertaking. In order to avoid a self-selection bias, each publicly traded firm needs to be checked (individually) for a variety of criteria that can be extremely time-consuming. Since no current database currently holds this data from inception, it is a very manual process. Many firms disappear due to takeovers, bankruptcies, mergers, delisting, etc. Moreover, even current records show inconsistencies among the top four or five useful databases (Bloomberg, FactSet, Capital IQ, SEC Company disclosures, company web sites). Preparing the nine-year database of entrepreneurs likely required more than 1,000 hours. Going back in time 20+ years would take well over 3,000 hours and many missing data points are likely to exist.

BUILDING THE ESG PORTFOLIO

There are essentially two different paths a fund manager might pursue when utilizing the ER30 Index to build a US Large Cap Portfolio with ESG and Excess, Risk-Adjusted Return Characteristics:

- 1) Buy the ER30 Index and replace part (or all) of a US Large Cap ESG Portfolio with these constituents. The fund manager can create an ESG portfolio by increasing the weights of ER30 securities that are likely present in an existing ESG Model Portfolio or ETF basket.
- 2) Build an ESG oriented portfolio starting with the ER30 Index and then add securities to help complete sectors that are under-represented by the ER30 Index.

Both paths are very simple. The fund manager simply needs to purchase one or two indexes. If the fund manager only buys the ER30 Index, the portfolio will experience greater volatility relative to a more comprehensive set of holdings, such as the S&P 500 Index or Russell 1000 Growth Index (owing to 30 stocks vs. 500 or 1000), but will likely generate greater returns than the benchmarks over a longer time period. The second approach requires the fund manager to initiate the portfolio with the ER30 Index, assess the relative sector weightings, and then fill the sector shortfall with other securities to match the benchmark index.

If the investor actually holds all the securities in an S&P 500 or Russell 1000 Growth Index, the fund manager can overweight the 30 securities in the ER30 Index and reduce all of the other securities in the index on a pro rata basis. Since the ER30 Index is an adjusted market weight index, the active share for each security in the final portfolio will likely be higher than the original benchmark, though this will vary depending on the market cap of each security.⁷⁰ Given

⁷⁰Active share refers to the weight of a security within a portfolio relative to the weight of the security in the comparable benchmark. Securities that have high active share have a disproportionate impact in the performance of a portfolio relative to the benchmark. The portfolio benefits from high active share when its key holdings perform well (above the average security in the benchmark); conversely, when securities with high active share perform poorly, the portfolio will have a greater likelihood of underperforming its benchmark.

the 30 stock equal-weighted composition of the ER30 Index, the composition of the index relative to the Vanguard Growth Index, or other more popular US Large Growth Indexes such as the S&P 500 Growth Index or Russell 1000 Growth Index, may vary widely.⁷¹ Notably, the similarity in the sector composition of the ER30 Index relative to the Vanguard Growth Index, S&P 500 Growth Index, or Russell 1000 Growth Index should not appreciably alter the sector exposure. The sector weights of the ER30 relative to the S&P 500 Index will create a larger deviation owing to differences in growth orientation. The final weights of each security in the portfolio will hinge on the level of risk/return the fund manager desires.⁷²

PORTFOLIO RECOMMENDATIONS

In situations where a Fund Manager has significant Assets Under Management (AUM) and seeks exposure

⁷¹ As discussed earlier, the ER30 Index has a disproportionate weight in three key sectors: Information Technology, Consumer Discretionary, and Health Care. As of September 2018, the ER30 Index had 72% in those three sectors. However, owing to its growth orientation, Vanguard Growth is heavily weighted in the same three sectors. As of September 2018 the Vanguard Growth Index also has approximately 70% in IT, Cons. Disc, and Health Care; the S&P 500 Growth has 76% and the Russell 1000 Growth Index has approximately 73%. Consequently, the distinction is not as significant as one might anticipate. By contrast, the S&P 500 Index (not growth) only has 53% in IT, CS, and HC. Therefore, a tighter benchmark for an ESG portfolio would be for portfolio managers who are seeking an ESG approach for their US Large Cap Growth portfolio to select from among the ER30 Index, Vanguard Growth Index, Russell 1000 Growth Index, or S&P 500 Growth Index.

⁷² Since the Entrepreneur 30 Index has a Growth and Sector bias (e.g., Consumer Discretionary, IT, etc.), the fund manager should decide whether or not market conditions favor Growth or the Entrepreneur Sector bias. In the event the fund manager chooses a passive path, without preference, then the implied risk assumption will be that the portfolio will succeed during market conditions that favor growth (and sector preferences) and underperform during periods of value or whenever sectors diverge from ER30 patterns (Utilities, Materials, Industrials, etc.). Over an extended period of time, it appears that the decision to overweight an Entrepreneur Index generates excess returns, but again, this presumes that periods going forward will be similar to the 2006–2015 period. If the fund manager holds a basket of the individual securities, then the most effective path for minimizing tracking error to the benchmark would be to eliminate purchases in the IT, Cons Discretionary, and Health Care sectors and replace with the Entrepreneur 30 basket. Otherwise, the higher weights in those three sectors would create significant tracking error risk.

to ESG traits, it may make sense to simply dedicate a portion of a US Large Cap Equity allocation to a passively managed ER30 Index. The risk characteristics are clearly identified and can be monitored in an ongoing manner with relatively straightforward parameters. As this paper demonstrates, when market conditions favor growth or market appreciation, the ER30 Index tends to outperform its US Large Cap benchmark. The Index outperforms peer benchmarks by a wide margin over the nine-year analysis, encompassing both very strong and negative market conditions. The ER30 Index outperforms a US Large Cap Growth benchmark as well as most US Equity funds during the time period of study. In some years, the ER30 Index did so in spectacular fashion. However, to be clear, the ER30 Index also performs very poorly in some years. Fortunately, the ratio of bad-to-good performance is not symmetrical; strong performance occurs more frequently and in a stronger fashion relative to the weak performance. Consequently, most key analytics including excess returns, risk-adjusted returns, risk-adjusted alpha, information ratio, Sharpe ratio, and up-capture suggest that the ER30 Index has compelling data to support a decision to include in a portfolio basket.⁷³

SUMMARY

The case for the ESG Portfolio implementing an ER30 Index appears extremely compelling. Companies managed by entrepreneurs appear to produce more significant ESG influence in the marketplace (smaller negative effect on the environment, more job growth and investment in the community, and superior corporate governance) as well as superior stock market performance when entrepreneurs are present. The detailed factor analysis and quantitative analytical output provide further support. Results suggest that a US Large Cap fund that shifts larger weights to companies led by entrepreneurs can enhance portfolio performance over an extended period of time in exchange for a relatively modest increase in risk. The overall portfolio will likely see an increase in standard deviation of returns along with an increase in down-capture.

⁷³ As added support, at least one active fund manager, EntrepreneurShares LLC, utilizes the ER30 Index in implementing its active fund strategy. This passive variable, coupled with other proprietary factors, enables it to achieve its fund performance.

However, the corresponding increase in excess returns, risk-adjusted alpha, information ratio, Sharpe ratio, and up-capture should more than compensate for the additional risk exposure. Moreover, ESG benefits may be equally impressive.

Incremental trading costs associated with quarterly rebalancing have not been factored into this analysis and, as investment professionals realize, trading costs could be significant. However, given the trading volume and liquidity of US Large Cap securities, we do not anticipate much variation for an ESG portfolio utilizing our suggested index. Moreover, as our analysis shows, there are periods of time when market factors go against our strategy and result in portfolio underperformance. If such an event occurs then alpha generation will be lost, though typically only for a brief duration.

The ER30 Index has recently become available in the marketplace, though this is the first study to document the actual index.⁷⁴ Managers can simply craft a ER30 Separately Managed Asset (SMA) strategy around the ER30 Index and complement the holdings with a separate US Large Cap Index in the corresponding benchmark (e.g., S&P 500, S&P 500 Growth, or Russell 1000 Growth). Alternatively, fund managers who chose to research and create their own index can glean SEC disclosure documents, build their own ER30 set of holdings, and invest alongside existing US Large Cap holdings. In either situation, the intent and implementation should be the same. Fund managers weight companies run by entrepreneurs in a more concentrated manner (than currently applied) and assume risk exposures associated with this decision.⁷⁵

Incorporating an ER30 Index overweight in a US Large Cap portfolio utilizes a logical argument coupled with strong analytical support. We provide strong evidence that leadership matters: Companies run by entrepreneurs yield stronger performance while the entrepreneurs are in power, and that excess performance cannot easily be explained away by other well-known style or sector factors. But buyers beware. Investors who

follow an ESG-sensitive portfolio employing higher weights to entrepreneur-run companies should not expect to generate superior performance every year. Our analysis reveals that return patterns vary greatly from year to year. However, for investors willing to embrace a modest increase in risk and hold their strategy for an extended period, our results demonstrate that the incremental risk may well be worth it.

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⁷⁴EntrepreneurShares, LLC currently supplies entrepreneur indexes and investment strategies associated with them.

⁷⁵Clearly, some investment managers may choose to eschew the ESG approach and simply invest in a concentrated set of entrepreneur stocks for an extended period of time. Such an approach obviously embraces more risk than a diversified ESG portfolio, though it potentially rewards the investor with superior risk-adjusted returns over the prevailing time period.

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