

Linking Workplace Health Promotion Best Practices and Organizational Financial Performance

Tracking Market Performance of Companies With Highest Scores on the HERO Scorecard

Jessica Grossmeier, PhD, MPH, Ray Fabius, DO, Jennifer P. Flynn, MS, Steven P. Noeldner, PhD, Dan Fabius, DO, Ron Z. Goetzel, PhD, and David R. Anderson, PhD, LP

Objective: The aim of the study was to evaluate the stock performance of publicly traded companies that received high scores on the HERO Employee Health Management Best Practices Scorecard in Collaboration with Mercer[®] based on their implementation of evidence-based workplace health promotion practices. **Methods:** A portfolio of companies that received high scores in a corporate health and wellness self-assessment was simulated based on past market performance and compared with past performance of companies represented on the Standard and Poor's (S&P) 500 Index. **Results:** Stock values for a portfolio of companies that received high scores in a corporate health and wellness self-assessment appreciated by 235% compared with the S&P 500 Index appreciation of 159% over a 6-year simulation period. **Conclusions:** Robust investment in workforce health and well-being appears to be one of multiple practices pursued by high-performing, well-managed companies.

Numerous studies link employee health risks and diminished health to higher health care costs,¹⁻⁴ increased absence,^{2,5,6} and lower on-the-job productivity.^{2,7-13} Emerging research also associates lower employee well-being with higher turnover rates¹² and lower levels of engagement with work.¹⁴ As a result, a growing number of business leaders view investment in workforce health and well-being as a strategic investment in human capital.¹⁵

Lending credence to the idea that good health is good business, companies with the most effective workplace health promotion (WHP) programs report superior market performance, shareholder returns, and revenue per employee.^{16,17} This observation is one contributor to the development of the Parnassus Endeavor Fund (PARWX), a diversified US core equity fund that

Learning Objectives

- Become familiar with recent research linking investment in workforce health, safety, and productivity with the stock price of publicly traded companies.
- Describe the characteristics of the HERO Employee Health Management Best Practices Scorecard for assessing companies' implementation of evidence-based workplace health promotion (WHP) practices.
- Summarize the association between HERO Scorecard and organizational financial performance, and discuss the implications for workplace health and safety programs.

invests in large-capitalization companies that have been recognized as good employers to work for such as American Express, Google, and IBM.¹⁸ This fund was created in 2005 and has consistently outperformed the general stock market. The creation of this fund is evidence that traders find information about company investments in human capital meaningful, suggesting that they may also have an appetite for sources of information about company investments in workforce health and well-being. Further evidence is found in a movement to incorporate information about employer investments in workforce health, safety, and productivity into corporate responsibility reporting.¹⁹⁻²³ In summary, there are emerging indications that investments in workforce health and well-being are correlated with financial impacts and this evidence has garnered the attention of forward-thinking employers and members of the investment community. In response to this desire for information about investments in workforce health and well-being, additional strategies are needed to identify the companies implementing the level and type of WHP initiatives that align with a company's financial success.

One potential identification tool is the HERO Employee Health Management Best Practices Scorecard in Collaboration with Mercer[®] (HERO Scorecard), which has been correlated with health care cost reduction.²⁴ It has not yet been determined whether a company's use of the best practices detailed in the HERO Scorecard are related to the broader value proposition for investment in workforce health and well-being that may be reflected in the performance of its stock. A 2013 study conducted by Fabius et al¹⁶ was among the first to associate investments in workforce health, safety, and productivity with the stock price of publicly traded companies. That study drew from a pool of companies that were recognized by the American College of Occupational and Environmental Medicine (ACOEM) as investing in a "culture of health" at an exemplary level. The HERO Scorecard is broadly available to all employers in the United States, regardless of organization size, and tends to draw a larger, more representative sample of organizations that provide information about their use of best practices in workforce health and well-being.

The development of the HERO Scorecard and its predictive validity has been described in detail elsewhere,²⁴ but an overview is

From the Health Enhancement Research Organization (Dr Grossmeier), Edina, Minnesota; HealthNEXT (Dr Ray Fabius), Newtown Square, Pennsylvania; Mayo Clinic Global Business Solutions (Ms Flynn), Rochester, Minnesota; Mercer Health & Benefits, LLC (Dr Noeldner), New York, New York; Cooper University Hospital (Dr Dan Fabius), Camden, New Jersey; Truven Health Analytics (Dr Goetzel), Bethesda, Maryland; Johns Hopkins Bloomberg School of Public Health (Dr Goetzel), Washington, DC; and StayWell (Dr Anderson), St. Paul, Minnesota.

Funding for this study was provided by the Health Enhancement Research Organization (HERO) Research Partners which include contributions by Bravo Wellness, Kaiser Permanente, Prudential Financial, and StayWell.

Health Enhancement Research Organization; Mayo Clinic Global Business Solutions; Mercer Health & Benefits, LLC; Truven Health Analytics; and StayWell are members of HERO.

All authors assist employers in developing worksite health and well-being programs and this research supports this pursuit.

Authors Grossmeier, Fabius, Flynn, Noeldner, Fabius, Goetzel, and Anderson have no relationships/conditions/circumstances that present potential conflict of interest.

The JOEM editorial board and planners have no financial interest related to this research.

Address correspondence to: Jessica Grossmeier, PhD, MPH, Vice President, Research, Health Enhancement Research Organization, 7400 Metro Boulevard, Suite 270, Edina, MN 55439 (jessica.grossmeier@hero-health.org).

Copyright © 2015 American College of Occupational and Environmental Medicine

DOI: 10.1097/JOM.0000000000000631

provided here. The HERO Scorecard is a web-based inventory of WHP practices categorized into six domains including strategic planning, organizational and cultural support, programs delivered, program integration, participation strategies, and measurement/evaluation strategies. Staff responsible for managing and implementing an organization's WHP programs typically completes the Scorecard within 45 to 60 minutes. An accompanying User Guide advises employers to collaborate across multiple internal departments to ensure responses to the HERO Scorecard are an accurate representation of the organization's practices. The HERO Scorecard was initially developed in 2006 to serve as a guide for employers about evidence-based WHP practices. The HERO Scorecard has been updated several times since its initial launch to incorporate new research on practices tied to superior outcomes and new innovations in the WHP field. Although some practices listed on the HERO Scorecard are collected to track emerging trends, only the foundational evidence-based best practices are scored and summed to compute domain scores, as well as an overall best practice index score for the organization. Upon completion of the HERO Scorecard, respondents receive a report detailing their overall index score as well as section scores for each of the six scored domains. The highest maximum score is 200 points, and this score can be achieved by implementing all of the scored recommended practices.

PURPOSE

The purpose of the current study is to evaluate the stock performance of publicly traded companies that received the highest best practice index scores on the HERO Scorecard in comparison against average market performance, as represented by the Standard and Poor's (S&P) 500 Index. Drawing from study methods reported in a previously published study by Fabius et al,¹⁶ the current study used public information about historical company stock price to simulate investments in a portfolio of companies identified as having higher HERO Scorecard index scores. It relied on version 3.1 of the HERO Scorecard, which is the same version that was validated by Goetzel et al²⁴ in a 2014 study. The current study differs from Fabius et al's 2013 study in several ways. First, the initial sampling pool of companies is much larger because far more companies complete the HERO Scorecard rather than submitting an application for the ACOEM Corporate Health Achievement (CHAA) award and recognition program. Second, the HERO Scorecard provides a scale-level measure of best practices in WHP programs compared with a dichotomous measure of recognition (CHAA award winner or not). Third, the use of the HERO Scorecard index allows for a distinctive assessment with less emphasis on workplace safety and a greater emphasis on WHP efforts that also allows researchers to compare different cut points to include in the study sample. Finally, the current study uses a shorter performance window of 6 years rather than the longer investment span of 10 years used by Fabius et al.¹⁶ Use of a 6-year study period allows the current study to determine if investments in WHP programs are associated with superior financial performance in a shorter timeframe.

METHODS

Establishment of the Study Cohort and Investment Portfolio

The study sample was selected from the database of all organizations that completed version 3.1 of the HERO Scorecard ($n = 1284$ records). Each organization needed to be clearly identifiable with an organization name and could only be represented by a single HERO Scorecard (11 companies submitted a Scorecard more than once during the study period and only the most recently submitted Scorecard was retained for the study), reducing the potential sample pool to 1228 companies. Only HERO Scorecard

data submitted between the HERO Scorecard v3 launch in 2009 through the end of 2012 were included in the study, further reducing the sample pool to 745 organizations with HERO Scorecard overall index scores ranging from 10 to 197 points.

Two approaches were considered for identifying the threshold index score that designated an organization as using a superior level of recommended practices to promote employee health and well-being (hereafter referred to as high-scoring companies). The first approach relied on the index score that marked the 75th percentile or top quartile of the distribution, a rounded score of 125 points. The second approach relied on a previously published study validating the predictive validity of the HERO Scorecard, which linked companies with higher Scorecard index scores to superior health care cost trends from 2009 through 2012.²⁴ The mean Scorecard index score for the 33 companies in that study was 126. Because these two approaches yielded essentially the same threshold index score, this study used a cut point score of 125 to identify 166 "high-scoring" organizations for further consideration.

These 166 organizations with high HERO Scorecard scores were reviewed to identify publicly traded companies. Forty-six companies were publicly traded at some point during the study period, from January 1, 2009 through the last day of trading in 2014. One company was not included because it was sold in 2009, leaving 45 companies in the final study sample, that is, portfolio companies.

The 45 publicly traded portfolio companies were divided into four cohorts based on the year in which they completed the HERO Scorecard. Ten companies were identified as high-scoring companies in 2009. These companies formed the initial cohort with a simulated \$10,000 investment equally distributed among them commencing on the first day of trading in January 2009. Additional companies were added to the investment portfolio on the first day of trading in January of the three subsequent years including 11 companies added in 2010, 13 added in 2011, and 11 added in 2012. Although no additional companies were added after 2012, the simulated portfolio was continued through the last day of trading in 2014. Of the 45 companies in the portfolio, three were included for a truncated period because of their sale, merger, or becoming privately held before the end of the study period, leaving 42 companies at the conclusion of the study on December 31, 2014. Each January from 2009 to 2014, the portfolio was rebalanced so that each company in the portfolio received equal weighting in terms of the simulated investment amount. Of the three companies that were removed from the portfolio before the conclusion of the investment simulation, two were removed in 2013 and one was removed in 2014, leaving 42 companies in the portfolio on the final day of trading in 2014. Figure 1 provides a visual overview of the inclusion criteria used to identify study companies.

Process and Analysis

The study cohorts described above were used to create a simulated investment portfolio of publicly traded companies from the top quartile scores in the HERO Scorecard normative database. Relying on publicly available historical stock price information, the performance of the simulated portfolio was tracked against the S&P 500. The following three techniques were used for analysis. First, the initial investment of \$10,000 was divided evenly across each of the companies in the portfolio as of January 2009 and rebalanced each January thereafter among all companies in the portfolio at that point in time. Rebalancing is a financial technique that significantly diminishes one company's exceptional influence, which can unduly bias the whole portfolio. Second, dividends gained for the simulated investment portfolio and the S&P 500 were reinvested quarterly for both the HERO Scorecard and the S&P 500 portfolios. This reinvestment technique took advantage of

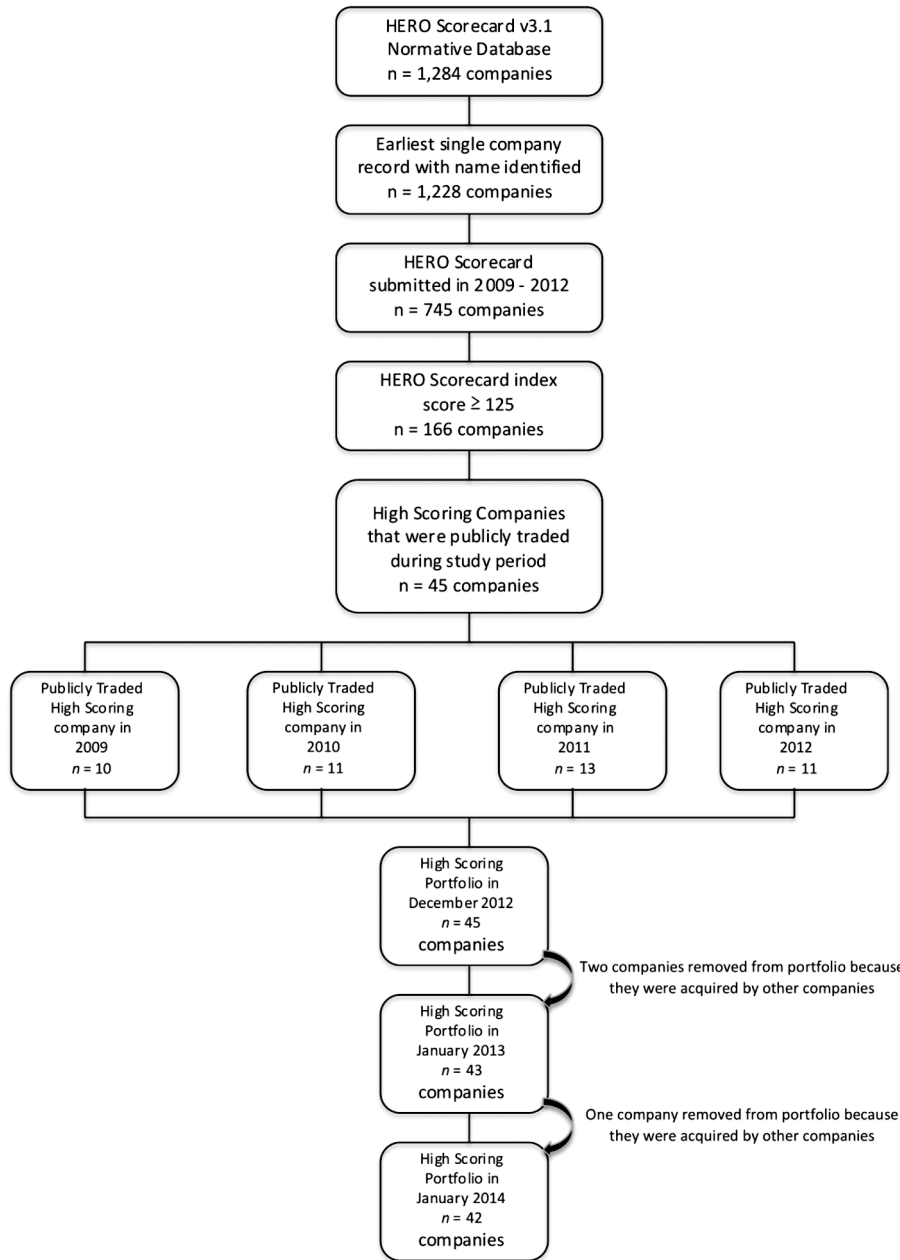


FIGURE 1. Study inclusion criteria.

a more sophisticated financial toolset and differentiates this study from the 2013 study by Fabius et al,¹⁶ which did not reinvest dividends. Third, simulation procedures relied on the latest version of several financial modeling tools, a significant advancement from the largely manual process used by Fabius et al¹⁶ which allowed for greater auditing and validation. The tools render exception lists if any stock is not continuously traded during the study period, and they identified and validated the four companies that were initially publicly traded in the high-scoring portfolio but experienced financial transitions requiring their elimination from, or shortened their inclusion in, the portfolio. In addition, during the annual rebalancing of the portfolio, the percentage of the total investment into each individual stock had to be the same and the total had to sum to 100%. This served as another way to verify that each stock was actively traded during the simulation period and that the rebalancing was accurate. In addition, the tools used allowed

calculations to demonstrate that the outperformance of the simulated portfolio of high-scoring health and wellness companies was not due to a particular predominant high-performing sector within it but rather the actual stocks selected.

RESULTS

The portfolio of publicly traded companies with high HERO Scorecard index scores (high-scoring portfolio) was well diversified (Table 1). Eight industry categories were represented including consumer discretionary, consumer staples, energy, financial services, health care, industrial, information technology, and utilities, as confirmed by financial analysis. (Industry categorization was based on the financial modeling tools used for the study simulation procedures.)

Company size ranged from 762 to 272,890 employees whose mean age was 42.8 years and 56% were male. Companies included

TABLE 1. Study Sample

Company Study ID	Year of Initial Investment [†]	Year Removed [‡]	Industry Type [‡]	No. of Employees [§]	Mean Age [§]	Percent Male [§]
01	2009		Information Technology	5,000	36	40
02	2009		Consumer Discretionary	4,000	27	10
03	2009		Consumer Staples	7,739	43	59
04	2009		Financial Services	4,259	45	41
05	2009		Health Care	22,495	43	49
06	2009		Utilities	16,000	45	65
07	2009	2014	Information Technology	5,721	40	49
08	2009		Industrials	8,610	44	85
09	2009		Financial Services	20,300	42	48
10	2009		Utilities	4,755	47	70
11	2010		Consumer Discretionary	15,000	40	50
12	2010		Consumer Discretionary	27,298	39	42
13	2010		Information Technology	1,700	46	55
14	2010		Energy	27,000	49	65
15	2010	2013	Consumer Staples	7,588	40	60
16	2010		Consumer Staples	6,400	42	39
17	2010		Health Care	4,000	39	40
18	2010		Information Technology	**	**	**
19	2010		Health Care	3,890	44	40
20	2010		Industrials	31,111	46	66
21	2010		Health Care	22,000	43	50
22	2011		Health Care	9,600	43	48
23	2011		Industrials	149,441	47	75
24	2011		Consumer Staples	17,023	44	60
25	2011		Health Care	2,673	44	27
26	2011		Information Technology	44,010	43	76
27	2011		Industrials	5,567	47	90
28	2011		Consumer Staples	29,790	**	**
29	2011		Consumer Discretionary	6,740	43	54
30	2011		Consumer Discretionary	272,890	42	64
31	2011		Health Care	23,871	41	54
32	2011		Financial Services	5,311	42	30
33	2011		Industrials	65,000	47	74
34	2011		Industrials	5,324	48	68
35	2012		Consumer Staples	5,131	43	64
36	2012		Industrials	16,465	42	71
37	2012	2013	Information Technology	36,000	41	65
38	2012		Information Technology			
39	2012		Information Technology	10,000	42	**
40	2012		Consumer Staples	6,500	42	71
41	2012		Information Technology	762	42	50
42	2012		Consumer Discretionary	18,800	41	50
43	2012		Information Technology	15,000	46	66
44	2012		Health Care	13,000	45	63
45	2012		Health Care	32,196	41	31

^{*}Companies were added to the investment portfolio in January of the year the company achieved the high score on the HERO Scorecard, with the exception of company #38, which did not become publicly traded until 2012.

[†]Companies were removed from the investment portfolio in January of the year they were assumed by another company (#7 and #15) or moved to privately held status (#37). All other companies remained in the portfolio until the last trading day of 2014.

[‡]Industry type was based on categorization attributed by study financial modeling tools.

[§]Information was based on self-report in HERO Scorecard tool.

**Information was not reported by the individual that completed the HERO Scorecard.

TABLE 2. Descriptive Statistics for Study Population*

	Study Organizations (n = 45)	Study Ineligible Organizations (n = 1,183)
Age, yrs (mean, SD)	43 (3.67)	43 (4.42)
Male, %	56	51
Number of US employees (mean, SD)	23,516 (45,903)	7,120 (18,606)

SD, standard deviation.

*Data are mean (SD) or %.

TABLE 3. Prevalence of Most Common WHP Practices by HERO Scorecard Publicly Traded High-Scoring Companies

	Study High-Scoring Organizations (n = 45)	Study Ineligible Lower-Scoring Organizations (n = 1,183)	Scorecard Possible Points
Total Scorecard score (mean, SD)	140 (13.48)	92 (39.63)	200
Strategic planning score (mean, SD)	8.2 (1.29)	5.4 (2.37)	11
Leadership engagement score (mean, SD)	22.4 (3.99)	17.1 (7.20)	33
Program management score (mean, SD)	14.5 (3.05)	10.9 (4.09)	22
Program score (mean, SD)	42.5 (4.50)	27.0 (12.77)	56
Engagement methods score (mean, SD)	45.3 (7.48)	27.6 (16.77)	67
Measurement/evaluation score (mean, SD)	7.4 (2.28)	4.6 (3.01)	11
Strategic planning practices			
Conducted assessment of employee health needs within the past two years	98%	65%	
Uses a population-based approach to EHM to address health needs of all employees	84%	40%	
Strategic planning process for EHM is very effective in the organization	20%	8%	
Leadership engagement and culture			
Senior leadership involvement in employee communications about EHM programs	78%	56%	
Senior leaders actively participate in EHM programs	78%	51%	
Corporate vision/mission statement supports a healthy workplace culture	53%	33%	
Senior leadership allocations of adequate budget for EHM resources and programs	91%	58%	
Managers and supervisors can articulate the link between employee health, productivity, and total economic value	4%	17%	
Managers and supervisors encourage employee participation in EHM programs	69%	51%	
Managers and supervisors actively participate in EHM programs	42%	28%	
Managers and supervisors receive reports with EHM participation metrics	29%	12%	
Organization has an organized network of employee champions or ambassadors at most worksites with formal internal communications and regular meetings	47%	29%	
Physical work environment has fitness centers, walking or biking trails	87%	59%	
Healthy food options provided in cafeterias, vending machines, at catered events	87%	65%	
Safe work environment provided including ergonomics	96%	83%	
Well-lit and accessible stairwells	93%	78%	
Quiet/relaxation areas	49%	32%	
Lactation rooms	87%	55%	
Flex-time or work-at-home policies	73%	52%	
Recognition and rewards for healthy behavior	78%	49%	
Allow participation in EHM activities during work time	84%	59%	
Program management practices			
EHM programs are coordinated with one or more other organizational programs (EAP, behavioral health, nurseline, occupational health, safety, disability, absence management, etc)	100%	89%	
Joint planning with internal and external stakeholders	56%	24%	
Written coordination plan and process flows for integration	51%	21%	
Communications refer individuals to other programs as appropriate	93%	58%	
Communications are fully integrated on EHM as a whole rather than on separate programs	44%	18%	
Claims data from multiple plans and sources are evaluated together to identify priorities and analyze results	73%	36%	
EHM vendors are required to share data to allow integrated reporting, predictive modeling, or outreach to employees	64%	31%	
EHM stakeholders are required to provide warm transfer of employees to other programs	60%	23%	
A dedicated position is in place to facilitate coordination among stakeholders	36%	22%	
EHM programs			
Health assessment	100%	75%	
On-site or near-site preventive health screenings	91%	61%	
Population-based health education	91%	67%	
Targeted, interactive lifestyle management/behavior modification programs	100%	74%	
Consumer medical decision support	93%	59%	
Programs to assist employees in managing chronic diseases or conditions	100%	77%	
Engagement methods			
Organization educates employees about health care consumerism	100%	82%	
Some type of incentive offered for participation in health assessment	98%	89%	
Measurement and evaluation practices			
EHM program performance data are communicated to senior management or other key stakeholders at least annually	89%	70%	
Data management and evaluation contributes very significantly to EHM program success	27%	15%	
Participant satisfaction data reviewed to inform EHM program improvements	78%	37%	
Program participation data reviewed to inform EHM program improvements	98%	70%	
Process evaluation data reviewed to inform EHM program improvements	64%	28%	
Population health/risk data reviewed to inform EHM program improvements	80%	47%	

TABLE 3. (Continued)

	Study High-Scoring Organizations (n = 45)	Study Ineligible Lower-Scoring Organizations (n = 1,183)	Scorecard Possible Points
Health care utilization and cost data analyzed to identify costly conditions and evaluate EHM impact on outcomes	89%	54%	
Productivity data used to evaluate EHM impact on health-related lost work time	40%	10%	
Quality of outcome evaluation is conducted by experts using a rigorous method such as matched comparison group and follow up data are compared with baseline data, with statistical control for demographic differences	31%	12%	
Some type of program evaluation data are collected to inform EHM program improvements	100%	83%	

Data are mean (SD) or %. All practices listed were implemented to a statistically greater degree by study companies based on chi-square tests ($P > 0.01$). EHM, employee health management; SD, standard deviation.

in the high-scoring portfolio were similar in employee age and sex to lower-scoring HERO Scorecard completers not included in the portfolio, but were much larger based on the total number of US employees reported (Table 2).

High-scoring portfolio companies reported using a very comprehensive approach to supporting employee health and well-being. Table 3 lists the prevalence of best practices that were used to a greater extent by portfolio companies than by lower-scoring Scorecard completers not included in the portfolio. High-scoring companies were far more likely than lower-scoring companies to report strong strategic planning practices; senior leadership engagement and cultural support for health; a rich and comprehensive set of programs that meet a diverse spectrum of health needs; and robust program evaluation and performance reporting (Table 3).

The high-scoring portfolio of publicly traded companies appreciated 235%, compared with the S&P 500 portfolio appreciation of 159%, over a trading period of 2009 through 2014 (Fig. 2).

Subanalysis reveals that the high-scoring portfolio outperformed the S&P 500 portfolio in 16 out of 24 (67%) quarters during the study period. (Results available upon request.) Subanalysis also demonstrated that the outperformance of the high-scoring portfolio can be attributed to stock selection and not sector performance or allocation of funds within the portfolio. (Results available upon request.) In addition, both portfolios produced comparable dividend yields; the high-scoring portfolio provided a dividend yield of 1.97% by the end of the study period, whereas the S&P 500 comparison portfolio provided a dividend yield of 1.95%.

It was assumed that companies included in the study implemented their self-reported WHP practices by January of the year they submitted the HERO Scorecard regardless of the month they self-reported their practices. Researchers familiar with WHP program implementation cycles are aware that employers often

enhance or implement changes to their WHP program design concurrent with annual health benefits enrollment periods, which occur in the fourth quarter of the prior year for many employers. A sensitivity analysis was conducted to determine if the results would differ based upon adding a company to the high-scoring portfolio in January of the year subsequent to a fourth-quarter HERO Scorecard submission date. The results did not differ materially from the findings reported above.

DISCUSSION

Although it is acknowledged that the relationship between WHP best practices—as indicated by the HERO Scorecard—and stock market performance must only be considered to be correlational (not causative), it is notable that the HERO Scorecard high-scoring portfolio substantially outperformed the S&P 500 Index during the study timeframe. Furthermore, to see such a substantial difference in market performance over the relatively short time period used in this study (6 years) suggests that investing in WHP best practices may be one component of a comprehensive and effective business strategy. These outcomes also demonstrate that the HERO scores of publicly traded companies may be used as one of several tools to inform investment decisions. For the companies analyzed, traders would have more than doubled their investment by the end of 2014 if they chose to invest in the high-scoring companies as opposed to investing in the S&P 500.

At least one other study suggests that the stocks of publicly traded companies with best-practice WHP programs perform better than the average market. Fabius et al¹⁶ found that companies recognized as having a strong culture of health and safety outperformed the S&P 500. Although the present study also used simulation and past market performance methodology, the HERO Scorecard analysis included dividend reinvestment, a shorter study timeframe, more advanced financial modeling, and a larger, more diverse group of companies in its analysis. These additional factors contributed to a more robust analysis of the impact of WHP on a company’s market performance. Although it should be emphasized that there are a myriad of factors that influence the stock price of a company, as well as acknowledging that high-performing companies may be more inclined to invest in WHP, these studies suggest that investors may be well served to consider a company’s investment in WHP best practices as one of multiple factors in determining which stocks may have a more positive market performance compared with standard indices.

The modeling methodology used in this study represents a conservative approach by rebalancing the portfolio at the beginning of each year. This approach reduces the likelihood that an individual high-performing company could exert untoward influence on the performance of the portfolio at large. As a consequence, the

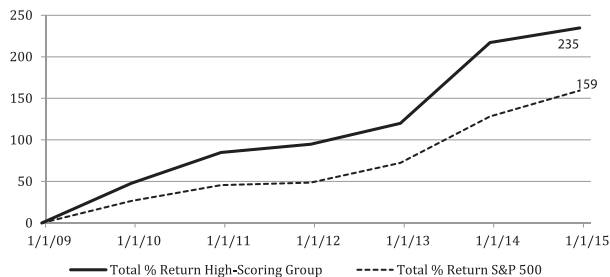


FIGURE 2. Relative performance of HERO Scorecard high-scoring portfolio compared with S&P 500—percent return.

portfolio's outperformance is a measure of the collective appreciation of effective WHP organizations. Some portfolios outperform because they are weighted in sectors that outperform. An analysis demonstrated that the HERO Scorecard portfolio's performance was determined largely from the individual stocks selected rather than the sector weightings. (Results available upon request.)

This study adds to existing research that supports the value of the HERO Scorecard, and suggests that companies seeking to effectively manage their bottom line consider investing in WHP best practices in addition to other high-performance strategies. The HERO Scorecard validation study²⁴ reported companies that had a greater number of WHP best practices (ie, scored higher) were able to "bend the health care cost curve" and together they demonstrated a -1.6% health care cost trend over 3 years compared with lower-scoring companies that had essentially a flat trend. Reduced health care spending may influence a company's profitability because the majority of large and mid-sized companies are self-insured and, thus, may contribute to a higher valuation by stock analysts and investors.

Analysis of the HERO Scorecard database has identified a number of WHP best practices that may influence employee health care costs, on-the-job performance, and engagement with the company. Best practices associated with better performance on these outcomes include having a multiyear strategy with metrics and targets for success, implementing evidence-based programs, integrating programs into the organization, active and visible senior leadership support, and a culture that supports and encourages good health.^{25,26} Similarly, Table 3 demonstrates that companies included in the present study, when compared with those that were excluded based on lower HERO Scorecard results, scored higher in each Scorecard domain, indicating they incorporated more of the identified best practices in their WHP programs.

A number of studies have demonstrated that organizations reporting WHP best practices experienced lower health care cost trends,²⁷⁻³⁰ absenteeism,³¹⁻³³ presenteeism,³² and employee turnover.¹⁷ Lower health care costs and more productive employees appear to contribute to companies' overall competitive advantage in the marketplace and, thus, make those companies more attractive for investment. Future research is needed to investigate the relationship between WHP best practice use and other business outcomes such as employee engagement and job satisfaction.

Using a relatively short timeframe, this study demonstrated that there is a distinct difference in market performance between publicly traded companies using a high number of WHP best practices compared with a standard market index. Analysis also showed there are significant differences in the use of a range of WHP best practices for high-scoring HERO Scorecard organizations versus lower-scoring organizations. These distinctions may provide new insights to investors seeking additional tools to inform their investment decisions, as well as to those interested in supporting employee health as a vehicle for driving business performance.

Limitations and Thoughts on Future Research

This study is correlational and findings cannot be interpreted as causative without further research. It is possible that companies that invest in the health and well-being of their workforce also invest in workforce training programs, institute more effective business practices, and implement other strategies to a greater degree than companies that invest less in workforce health and well-being. If this is the case, investments in workforce health and well-being may be a useful proxy for other types of highly effective business practices. Although there is good reason to speculate that WHP practices contributed to some degree to company financial performance, many factors must be taken into account to isolate the unique contribution of WHP practices on study findings. It was beyond the scope of this study to determine the extent to which high-scoring

companies also invested in other practices associated with high-performance companies, and this is an area of opportunity for future research. Researchers involved in this study also recognize that many factors influence stock market performance including market demand for a company's products and services, brand identity, and other market forces. Future research on high-performing companies should seek to illustrate the specific practices and market forces that are most highly associated with company financial success inclusive of but not limited to investing in the health and well-being of its employees.

Another potential research design for future consideration is to pair high-scoring companies with lower-scoring companies in similar industries with similar workforce characteristics and similar business practices, and then compare their stock performance. Such a design would attempt to hold as many factors in common between the matched companies with the exception of investment in workforce health and well-being programs so that greater confidence could be attributed to role of WHP programs as a differentiating factor contributing to superior company financial performance.

The self-reported nature of the data is an additional reason to interpret these findings cautiously. The HERO Scorecard can be completed by any member of an organization, and there are no verification procedures in place to determine the accuracy of responses submitted. It is unlikely but conceivable, for example, that a person would complete the Scorecard based on the kind of programs and practices they wish to have in place in the future as a way to establish a benchmark goal for their organization. A User Guide is provided for respondents to guide their completion of the Scorecard, which suggests that multiple members of an organization work collaboratively to prepare their HERO Scorecard responses so the data represent multiple perspectives within an organization. Such a collaborative process, however, is not required or verified. Future research using the HERO Scorecard data may consider incorporating a verification procedure to authenticate the accuracy of the data submitted.

Another limitation to consider is sample size. The initial HERO Scorecard portfolio consisted of only 11 companies; therefore, a company's exceptional performance in 2009 might have had an undue influence on the performance of the entire portfolio. The initial investment was divided equally across all 11 companies and rebalanced annually thereafter to reduce the potential for outliers to influence study results. Attribution analyses indicate study results were not due to exceptional performance of any one sector. In addition, the current study comprised only a 6-year investment window and it is possible that our results would have differed if run for a longer period of time.

CONCLUSIONS

This study adds to the growing evidence that investment in workforce health and well-being is one facet of high-performing, well-managed companies. Many other factors likely contributed to the stock performance of the high-scoring companies and it is important to recognize that the association between the use of evidence-based WHP practices and company financial performance demonstrated in this study is correlational and not causal. Even so, this relationship may be of interest to business leaders including the CEO, CFO, and CHCO (chief human capital officer). In addition, quantified measures of company investments in workforce health and well-being such as the HERO Best Practice Scorecard may be of interest to the investment community as an additional tool among many that inform investment decisions.

REFERENCES

1. Goetzel RZ, Pei Z, Tabrizi MJ, et al. Ten modifiable health risk factors are linked to more than one-fifth of employer-employee health care spending. *Health Aff (Millwood)*. 2012;31:2474-2484.

2. Goetzel RZ, Long SR, Ozminkowski RJ, Hawkins K, Wang S, Lynch W. Health, absence, disability, and presenteeism cost estimates of certain physical and mental health conditions affecting U.S. employers. *J Occup Environ Med.* 2004;46:398–412.
3. Goetzel RZ, Anderson DR, Whitmer RW, Ozminkowski RZ, Dunn RL, Wasserman J. The relationship between modifiable health risks and health care expenditures. An analysis of the multi-employer HERO health risk and cost database. *J Occup Environ Med.* 1998;40:843–854.
4. Yen LT, Edington DW, Witting P. Corporate medical claims cost distributions and factors associated with high-cost status. *J Occup Med.* 1994;36:505–515.
5. Gifford B. Modifiable health risks and illness absence from work: evidence from the panel study of income dynamics. *J Occup Environ Med.* 2013;55:245–251.
6. Schultz AB, Edington DW. The association between changes in metabolic syndrome and changes in cost in a workplace population. *J Occup Environ Med.* 2009;51:771–779.
7. Alavinia SM, Molenaar D, Burdorf A. Productivity loss in the workforce: associations with health, work demands, and individual characteristics. *Am J Ind Med.* 2009;52:49–56.
8. Burton WN, Chen CY, Conti DJ, Schultz AB, Edington DW. The association between health risk change and presenteeism change. *J Occup Environ Med.* 2006;48:252–263.
9. Grossmeier J, Mangen DJ, Terry PE, Haglund-Howieson L. Health risk change as a predictor of productivity change. *J Occup Environ Med.* 2015;57:335–347.
10. Leijten FRM, van den Heuvel SG, Ybema JF, van der Beek AJ, Robroek SJW, Burdorf A. The influence of chronic health problems on work ability and productivity at work: a longitudinal study among older employees. *Scand J Work Environ Health.* 2014;40:473–482.
11. Pelletier B, Boles M, Lynch W. Change in health risks and work productivity over time. *J Occup Environ Med.* 2004;46:746–754.
12. Sears LE, Shi Y, Coberley CR, Pope JE. Overall well-being as a predictor of health care, productivity, and retention outcomes in a large employer. *Pop Health Manag.* 2013;16:397–405.
13. Shi Y, Sears LE, Coberley C, Pope JE. The association between modifiable well-being risks and productivity: a longitudinal study in pooled employer sample. *J Occup Environ Med.* 2013;55:353–364.
14. MacLeod D, Clarke N. The Evidence: Wellbeing and Employee Engagement. Engage for Success. May 2014. Available at: <http://www.slideshare.net/engage4success/wellbeing-and-employee-engagement-the-evidence-whitepaper>. Accessed June 8, 2015.
15. HERO. Exploring the Value Proposition for Workforce Health. HERO HPP Study Committee. February 2015. Available at: http://hero-health.org/wp-content/uploads/2015/02/HPP-Business-Leader-Survey-Full-Report_FINAL.pdf. Accessed on May 1, 2015.
16. Fabius R, Thayer RD, Konicki DL, et al. The link between workforce health and safety and the health of the bottom line: tracking market performance of companies that nurture a “culture of health”. *J Occup Environ Med.* 2013; 55:993–1000.
17. Towers Watson/National Business Group on Health. 2013/2014 Staying@ Work Survey Report: The Business Value of a Healthy Workforce. Available at: <https://towerswatson.com>. Accessed May 1, 2015.
18. Parnassus Investments. *Parnassus Endeavor Fund Fact Sheet*. Available at: <http://www.parnassus.com/downloads/funds/EndeavorFund-FactSheet.pdf>. Accessed June 3, 2015.
19. Creelman D, Boudreau J. When investors want to know how you treat people. *Harvard Business Review*. February 10, 2015. Available at: <https://hbr.org/2015/02/when-investors-want-to-know-how-you-treat-people>. Accessed June 15, 2015.
20. Kahn T. Employers urged to invest in their human capital. *Business Day Live*. February 18, 2015. Available at: <http://www.bdlive.co.za/business/health-care/2015/02/18/employers-urged-to-invest-in-their-human-capital?service=print>. Accessed May 8, 2015.
21. Loeppke RR, Hohn T, Baase C, et al. Integrating health and safety in the workplace: how closely aligning health and safety strategies can yield measurable benefits. *J Occup Environ Med.* 2015;57:585–597.
22. Malan D. Healthy Reporting and a Healthy Bottom Line: Why Comprehensive Health Metrics Should Be Incorporated into Corporate Responsibility Reporting. Available by contacting author at: http://www.justmanaging.co.za/contact_us.htm. Accessed May 8, 2015.
23. Tromp B. Everyone wins with healthy fourth bottom line. *Sunday Independent*. March 22, 2015. Available at: <http://www.iol.co.za/business/opinion/everyone-wins-with-healthy-fourth-bottom-line-1.1835405#.VU0qis5Nvwz>. Accessed May 8, 2015.
24. Goetzel RZ, Henke RM, Benevent R, et al. The predictive validity of the HERO Scorecard in determining future health care cost and risk trends. *J Occup Environ Med.* 2014;56:136–144.
25. Goetzel RZ, Henke RM, Tabrizi M, et al. Do workplace health promotion (wellness) programs work? *J Occup Environ Med.* 2014;56:927–934.
26. HERO. HERO Employee Health Management Best Practices Scorecard in Collaboration with Mercer (2014 Annual Report). Available at: http://hero-health.org/wp-content/uploads/2014/11/2014_Scorecard_Annual_report.pdf. Accessed May 1, 2015.
27. Fries JF, Bloch DA, Harrington H, Richardson N, Beck N. Two-year results of a randomized controlled trial of a health promotion program in a retiree population: the Bank of America study. *Am J Med.* 1993;94: 455–462.
28. Grossmeier J, Seaverson ELD, Mangen DJ, et al. Impact of a comprehensive population health management program on health care costs. *J Occup Environ Med.* 2013;55:634–643.
29. Health Project. *C. Everett Koop National Health Awards*. Available at: www.the.healthproject.com. Accessed June 8, 2015.
30. Henke RM, Goetzel RZ, McHugh J, Isaac F. Recent experience in health promotion at Johnson & Johnson: lower health spending. *Health Aff (Millwood)*. 2011;30:490–499.
31. Eischen B, Gold D, Grossmeier J. Fairview Alive—an integrated strategy for enhancing the health and well-being of employees. *J Workplace Behav Health.* 2005;20:263–279.
32. Mitchell RJ, Ozminkowski RJ, Serxner S. Improving employee productivity through improved health. *J Occup Environ Med.* 2013;55:1142–1148.
33. Serxner SA, Gold DB, Anderson DR, Williams D. The impact of a worksite health promotion program on short-term disability usage. *J Occup Environ Med.* 2001;43:25–29.