Simple Heuristics That Make Us Smart

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Can Ignorance Beat the Stock Market?

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A good name is better than riches.
Cervantes (Don Quixote)

How complex a decision tool does an investor need to construct a successful stock portfolio? How much privileged information must one obtain to accomplish this goal? The tools and information professional investment firms use for investment decisions are far beyond the ordinary person's reach. Furthermore, the value of expert advice has been questioned; in the words of billionaire Warren Buffet, "the only value of stock forecasters is to make fortune tellers look good" (1987, p. 40). In this chapter, we propose a fast and frugal heuristic that exploits a lack of knowledge, rather than using market-specific information or tools, to construct stock portfolios. In particular, we test whether an ignorance-based decision-making mechanism we call the recognition heuristic (described in chapter 2) can make money on the stock market. This heuristic relies on only one piece of information to make investment decisions: company name recognition. No privileged company information needs to be researched, no sophisticated analytical or numerical tools need to be employed; the only thing one needs is a beneficial degree of ignorance.

This chapter reports a competition between the recognition heuristic and five benchmarks for stock selection: mutual funds, market indices, chance or "dartboard" portfolios, individual investment decisions, and portfolios of unrecognized stocks. In this chapter more than any other in this book, we attempted a daring and financially perilous undertaking—throwing a lowly fast and frugal heuristic into the highly volatile, ostensi-

bly lucrative, and notoriously technical world of stock market investment. Will it survive? And will our money?

Investment Theory and Practice

Financial markets are notoriously unpredictable, and pose a challenge for a strategy as simple as the recognition heuristic. Given the tremendous rewards the stock market has to offer, theorists and practitioners have poured millions of hours and dollars into its prediction. Some have concluded that consistent success beating the market is not possible. Neoclassical economists, for instance, portray investors as unboundedly rational entities capable of forming rational expectations. This stance is captured in the efficient market hypothesis[1] (EMH), which maintains that agents cannot attain above-average returns in the long run (e.g., Lucas, 1980; Muth, 1961). In the words of Cootner (1967):

> If any group of investors was consistently better than average in forecasting stock price, they would bring the present price closer to the true value. Conversely, investors who were worse than average in forecasting ability would carry less and less weight. If this process worked well enough, the present price would reflect the best information about the future. (p. 80)

Despite early empirical challenges (e.g., Rozef & Kinney, 1976; Special Issue, *Journal of Financial Economics*, 1978), the EMH has been fully incorporated in the leading normative models, such as the widespread Capital Asset Pricing Model (e.g., Sharpe, 1964)—itself constituting the basis for modern portfolio (management) theory.

Many professional investment analysts, such as Soros (1994), have long doubted the realism and relevance of the efficient market hypothesis and have turned instead to technical trading models to exploit speculative opportunities. In fact, recent evidence suggests that technical trading models have been shown to yield small but significant returns (e.g., Brock et al., 1991). Furthermore, modern finance, based on the insights gained by behavioral economists (e.g., Arthur et al., 1997; DeBondt & Thaler, 1985; Shleifer & Summers, 1990; Thaler, 1992, 1993), has also started to recognize the limited usefulness of the EMH and begun to focus on how it is undermined by psychological expectations under bounded rationality.

Regardless of the shift in academic research, the actual performance of professionally managed investment funds indicates how difficult it is in the long(er) run to match or beat the market consistently. The track record of major U.S. investment management and mutual companies, for example, indicates that the vast majority of sophisticated experts perform

1. Specifically, EMH not only assumes that agents are fully rational but also that each agent knows that the other agents behave in such a manner.

worse than the market.[2] This sobering fact is a slap in the face of the sophisticated modeling employed by the financial industry. Indeed, almost 75% of the professionally managed U.S. stock funds performed below the Standard & Poor's 500 (S&P 500) performance criterion in 1996 (Kadlec, 1997).

The investment strategies of experts, despite their efforts to acquire and process the best possible information using the best financial modeling tools available, provide only average returns on a theoretical basis—and often worse ones in practice. In view of this evidence, is it possible, or even desirable, for "Joe Six-Pack" to invest his limited cognitive and financial resources in financial markets?

Ignorance-Based Investment Decisions

Since knowledge and expertise seem to be of less use in predicting the stock market than is commonly presumed and asserted, one has to wonder how an investment heuristic based on ignorance would fare. The recognition heuristic feeds on ignorance when it is systematically, rather than randomly, distributed. Originally, Goldstein and Gigerenzer (chapter 2) studied the recognition heuristic as a mechanism for two-alternative choice, and its formulation was simple: When choosing between two objects, and only one is recognized, choose the recognized object. A generalization of the recognition heuristic for choosing a subset of objects from a larger set, which can be applied to investment decisions, is: *When choosing a subset of objects from a larger set, choose the subset of recognized objects.*

For one individual, the recognition heuristic dictates choosing only the stocks he or she recognizes. When looking at the collective recognition of a group, as in our study, the strategy is to choose all the stocks recognized by a given percentage (e.g., 90%) of the group.

Putting the recognition heuristic to work requires a degree of ignorance (that is, a lack of recognition). For example, financial experts who recognize the names of all the major stocks cannot use the recognition heuristic to choose among those stocks. Entirely ignorant people who have not heard of any stocks at all, on the other hand, also cannot use the heuristic. Between these two extremes, a large contingent of people display what we call a "beneficial degree of ignorance."

To dare to pit the recognition heuristic against the challenges of the stock market is not necessarily a ruinous notion. We had two reasons to hope that the recognition heuristic would not fail utterly. First, consumers

2. Of course, this dismal performance is at least partly attributable to two recurring "cost" factors. First, funds need to be liquid, and not all money received for investment is invested in stocks but parked in cash accounts yielding few, if any, returns. Second, expert advice comes at a price, and many of the management fees levied are not at all, or only loosely, coupled to the success of the investment fund.

tend to choose products they have heard of—a behavior exploited by advertisers—and stocks are essentially "products" whose prices are determined by human choice. Second, several successful investment experts, such as Peter Lynch, have suggested that a lack of name recognition is grounds for eliminating a stock from consideration (Lynch, 1994). Can the recognition heuristic compete with the tools and knowledge of rational ivy-tower theorists and expensive Wall Street professionals in the hunt for stock market profits? More specifically, can stock portfolios be constructed that perform at least at the market level?

Company Recognition

We asked Germans and Americans to indicate which companies they recognized from those listed on the New York Stock Exchange (NYSE) and several German stock exchanges. A total of 480 people were surveyed concerning 798 companies, including the 500 companies of the American S&P 500 index (with the Dow 30 companies) and 298 German companies (with the Dax 30 companies). These people were grouped into one of four categories: American laypeople, American experts, German laypeople, and German experts. Laypeople were 360 pedestrians surveyed in downtown Chicago or Munich, each of whom provided recognition information for one-sixth of the total number of companies. Experts were 120 finance or economics graduate students interviewed at the University of Chicago or the University of Munich, each of whom provided recognition information for one half of the total set of companies. Table 3-1 shows the names of the companies that were recognized unanimously, for all groups. Figure 3-1 shows the number of companies recognized by a given percentage or more of the population. For instance, 8 German companies were recognized by 100% of the German laypeople, and 25 German companies were recognized by at least 90% of the German laypeople. One German company—Lufthansa—was recognized by 100% of the American experts, and only five by at least 90% of the American experts.

Which group recognized the most companies and which was most ignorant? American experts recognized the most company names, followed by American laypeople, German experts, and German laypeople. The fact that German experts recognized fewer companies than pedestrians in downtown Chicago may come as a surprise. Two possible reasons are the higher active participation of the American public in the stock market, and a larger number of American stocks than German stocks. The international recognition rates were the lowest: The American pedestrians surveyed, for instance, did not recognize a single German firm unanimously.

Can the Recognition Heuristic Make Money?

To test the performance of the recognition heuristic on the stock market, we constructed two investment portfolios consisting of highly recognized

Table 3-1: Companies Recognized by All Participants. (G = German companies; US = U.S. companies)

German Laypeople		U.S. Laypeople		German Experts		U.S. Experts	
Allianz AG	G	Amoco	US	Adidas AG	G	Allstate Corp.	US
Bayerische Vereinsbank	G	Chrysler Corp.	US	American Express	US	American Express	US
Commerzbank AG	G	Coca-Cola Co.	US	BASF AG	G	Ameritech	US
Daimler Benz	G	Ford Motor Co.	US	Bayer AG	G	Avon Products	US
Dresdner Bank AG	G	General Mills	US	HypoBank	G	Bell Atlantic	US
Lufthansa	G	Hilton Hotels	US	Bayerische Vereinsbank	G	Black & Decker Corp.	US
Porsche AG	G	Maytag Corp.	US	Daimler Benz	G	Citicorp	US
Siemens AG	G	Sears Roebuck & Co.	US	Dresdner Bank AG	G	Coca-Cola Co.	US
				Escada AG	G	Dow Jones & Co.	US
				Karstadt AG	G	Eastman Kodak	US
				Kaufhof AG	G	Ford Motor Co.	US
				Lufthansa	G	Intel Corp.	US
				Microsoft Corp.	US	J.P. Morgan & Co.	US
				Münchener Rück.	G	Kmart	US
				Telekom AG	G	Lufthansa	G
				Volkswagen AG (VW)	G	Merck & Co.	US
						Merrill Lynch	US
						Morgan Stanley	US
						Procter & Gamble	US
						Southwest Airlines	US
						Whirlpool Corp.	US

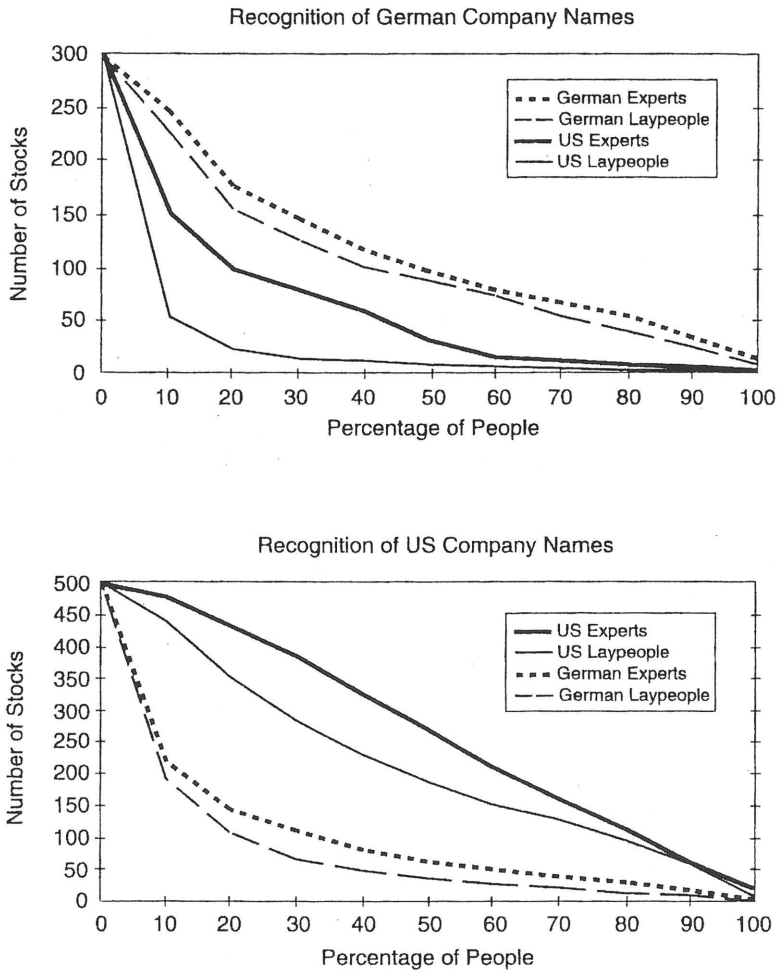

Figure 3-1: Recognition of stocks, in terms of the proportion of people recognizing the corresponding company names. For instance, 14 German company names were recognized by 100% of German experts, 33 company names were recognized by at least 90% of German experts, and so on.

companies, for each of the four groups. One portfolio consisted of highly recognized companies within the group's home country ("domestic recognition"), where we defined highly recognized companies as those recognized by 90% or more of the participants in a group. The other portfolio contained the 10 companies that each group recognized most often from the other country ("international recognition"). Thus there were a total of

eight recognition-based portfolios, as shown in figure 3-2. Recall that the recognition heuristic dictates investing in highly recognized stocks.

We analyzed the performance of recognition-based portfolios for 6 months from the completion date of the recognition test, December 13, 1996. The returns of the recognition-based portfolios were compared with the performance of (a) the stocks of unrecognized companies, that is, companies recognized by fewer than 10% of the participants, (b) market indices, (c) mutual funds, (d) chance portfolios, and (e) individuals' investment choices. Well before these results became known, two of us decided to put our money where our heuristic was, and bet a nontrivial amount of our savings on German stocks recognized by Munich pedestrians. Would we regret, for the rest of our days, betting our hard-earned money on the ignorance of laypeople?

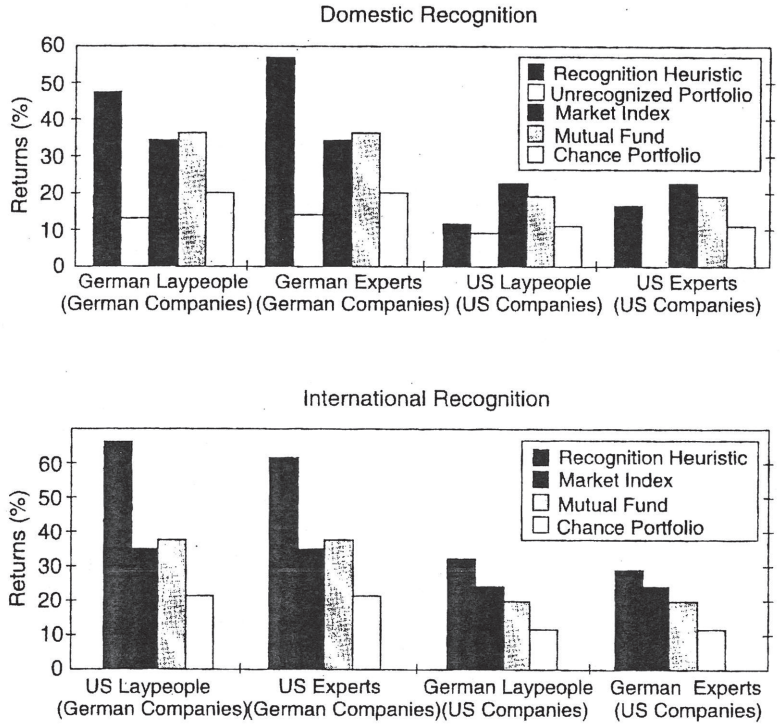

Figure 3-2: Performance of the recognition heuristic for the recognition of domestic and international stocks. Results are for the 6 months following the date of the recognition test, December 1996 to June 1997. For comparison, the performance of unrecognized stocks (0% to 10% recognition rates), market indices (Dow 30 or Dax 30), mutual funds (Fidelity Growth Fund or Hypobank Equity Fund), and chance portfolios (average returns of 5,000 randomly drawn portfolios) are shown.

How Does the Recognition Heuristic Compare with Choosing Unrecognized Companies?

The investment portfolio of German stocks based on the collective recognition of the 180 German laypeople resulted in a gain of 47% in the 6 months of the study.[3] The portfolio based on the unrecognized companies yielded a gain of only 13%. Figure 3-2 shows that this superior performance of domestic recognition holds in each of the four groups, laypeople and experts, German and American. The performance of the recognition heuristic was particularly strong in the two most ignorant groups, German laypeople and experts. For German experts, it reached a return of 57%, compared to 14% for the unrecognized stocks. Across all domestic tests, the average return of the portfolios built using the recognition heuristic was more than three times higher than those built from unrecognized stocks.

How Does the Recognition Heuristic Compare with Market Indices?

Recognized stocks outperformed unrecognized ones, but this may be of little interest to the investor whose main interest is beating the market. Performance of the overall market is commonly measured by indices such as the Dow 30 for American stocks and the Dax 30 for German ones. During our 6-month investigation, the Dax increased 34%. However, the sum of the prices of the 30 stocks constituting the Dax rose 41% over the same period. Hence, the stocks making up the Dax 30 index actually performed better than the Dax index; this is possible because the index is weighted to reflect the overall market development. The stock prices for the 298 German companies increased 24%. In the same period the Dow 30 increased by 23%, whereas the 30 companies in the Dow rose 8% and all 500 American stocks in our study increased by 10%. It appears that the Dow index may be difficult to attain.

Can the recognition heuristic come close to the Dow and Dax market indices? We tested this by tracking the performance of domestic recognition and international recognition. As figure 3-1 illustrates, domestic recognition rates are higher than their international counterparts.

Domestic Recognition The investment portfolio of German stocks based on the recognition of the German laypeople outperformed the Dax 30 market index by 10%, based on a raw yield of 47% (figure 3-2). The portfolio

3. The portfolio returns were calculated as follows: raw score = (portfolio value t_1/portfolio value t_0) – 1 and the normalized score = ((portfolio value t_1/portfolio value t_0)/(market index t_1/market index t_0)) – 1. The price development for a handful of companies could not be tracked over the evaluation period and was therefore dropped from the analysis.

of German stocks based on the recognition of the German experts outperformed the market by 17%, with a stunning raw return of 57%.

How did the recognition portfolios for the two less-ignorant groups perform? The portfolio of highly recognized U.S. stocks based on U.S. laypeople's recognition made money, but fell 10% below the Dow 30 market index. The unrecognized stocks lost 12% in relation to the market. Similarly, the American experts' recognized stocks yielded a 16% return, 6% below the Dow 30, while the unrecognized stocks were a worthless investment, returning nothing.

International Recognition Since the recognition of company names varied widely among participants in the international comparison, we constructed portfolios with the 10 most recognized stocks, that is, on the basis of fixed numbers of stocks. We used the 10 most recognized companies instead of the 90% criterion because, as figure 3-1 shows, international recognition is so low that under some conditions there are no companies that 90% of the group recognized.

How well did the 10 most recognized American stocks chosen on the basis of German recognition do? The recognition heuristic, using international recognition, actually beat the Dow 30—a feat none of the other portfolios accomplished. The same result was obtained for the stocks recognized by German experts. The portfolio from the less knowledgeable German laypeople even did better than that of the German experts.

Was international ignorance beneficial when going the other way across the Atlantic? The 10 German stocks most recognized by American laypeople outperformed the market by 23%. Similarly, the top 10 portfolio based on U.S. experts' recognition greatly outperformed the market.

In all four cases of international recognition, the recognition heuristic beat the relevant market index. Furthermore, in all four cases the international recognition led to higher returns than domestic recognition, and the recognition of laypeople led to slightly more profitable portfolios than that of experts. In general it seems that the greater the degree of ignorance, the better it is for picking stocks.

As a control, we also calculated the performance of portfolios based on the top 20 and top 30 recognized stocks, for the four international tests. Figure 3-3 shows that in each of these four groups, stocks with higher recognition rates lead to higher returns.

How Does the Recognition Heuristic Compare with Managed Funds?

We have tested the recognition heuristic against the market and unrecognized stocks, and so far it has done well, winning in all of four comparisons against unrecognized stocks, and in six out of eight comparisons to market indices. How will a heuristic based on a lack of recognition fare when compared to the tools and knowledge of professional portfolio man-

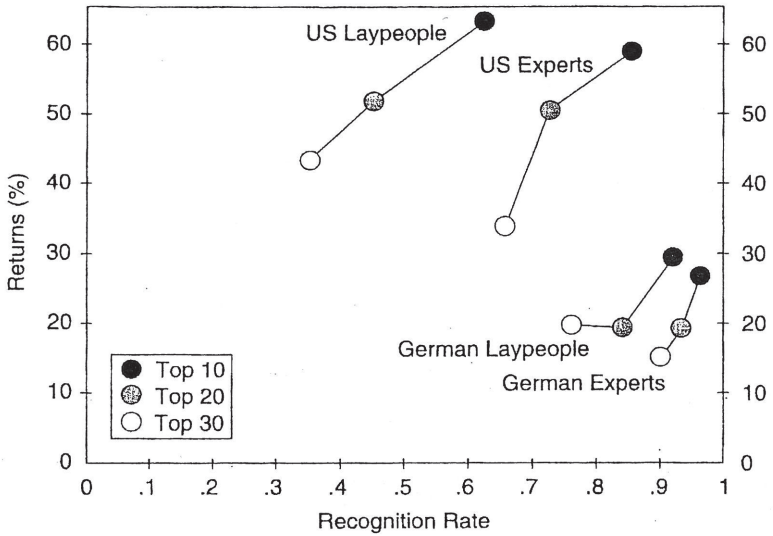

Figure 3-3: International recognition rates vs. returns. There is a direct relationship between the recognition rate and the returns, in each of the four groups. The top 10 are the 10 most recognized stocks from the international perspective (see figure 3-2). When this set is expanded to include the top 20 or 30 most recognized stocks, recognition rates necessarily decrease, and returns follow.

agers? Two major mutual funds, the American-based Fidelity Blue Chip Growth Fund and the German Hypobank Investment Capital Fund, served as benchmarks for the recognition heuristic. The Fidelity fund increased by 19% and the Hypobank fund increased by 36% over the December-to-June period.

Figure 3-2 shows that the recognition heuristic beats managed funds in six of the eight possible tests. For instance, the collective ignorance of 180 pedestrians in downtown Munich was more predictive than the knowledge and expertise of American and German fund managers. Again we see that international ignorance was even more powerful than domestic ignorance. In addition, the two most ignorant groups, German laypeople and experts, gained the most from their beneficial ignorance.

How Does the Recognition Heuristic Compare With Random Stock Portfolios?

Recall that according to the efficient market hypothesis, one should not be able to beat consistently a portfolio of randomly drawn stocks. For instance, the *Wall Street Journal*'s renowned investment column has suggested repeatedly that random stock picks, operationalized via a highly sophisticated dartboard mechanism, often outperform expert picks. We constructed 5,000 random portfolios consisting of 10 stocks from both the American and German markets and valued them for the December-to-June period. Figure 3-2 shows the average returns of the random portfolios: 22% for German stocks and 11% for American ones. The recognition heuristic beats the random portfolio performance in seven of the eight possible tests, and matches it in the remaining one. The recognition heuristic turned out to be far better at stock selection than chance.

How Does the Recognition Heuristic Compare With Individuals' Investment Choices?

How good are experts and laypeople at picking stocks in which to invest? Who will assemble the better portfolios, laypeople or experts? We asked the German experts and laypeople to identify up to 10 stocks that they would pick for investment purposes from the lists of companies in the recognition test. We assembled portfolios of the 10 most often selected German and American stocks chosen by German experts and laypeople.

The German laypeople tended to pick highly recognized German stocks for investment; the average recognition rate of their 10 most selected stocks was .80. Experts, however, opted for less recognized German stocks, with an average recognition rate of .48. The recognition heuristic makes a clear prediction here: The group that picks more highly recognized stocks should enjoy the greater return. Indeed, the laypeople's stock picks achieved a staggering return, whereas the experts' picks actually lost money (figure 3-4).

For the Germans' picks of 10 American stocks, the average recognition rate was lower (.27) and did not differ between experts and laypeople. Consequently, both portfolios of international picks performed much worse than the portfolios of recognized stocks in figure 3-2. Again, the stock picks of the laypeople outperformed those of the experts by a wide margin (figure 3-4).

From Recognition to Riches?

Can a fast and frugal heuristic that exploits patterns of ignorance rather than substantial knowledge make money on the stock market? For the period investigated, we have obtained the following results:

1. Portfolios of highly recognized stocks outperformed the portfolios of unrecognized stocks. This result was replicated in all four domestic tests (figure 3-2) and in all four international tests, where portfolio returns increased with their average recognition rates (figure 3-3).
2. In tests of international recognition, the recognition heuristic per-

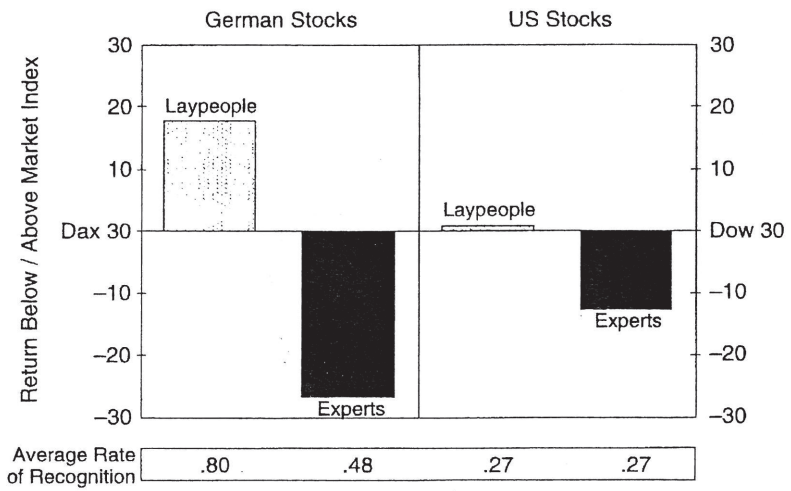

Figure 3-4: Stock-picking performance of German laypeople and experts on the two markets. The returns above or below the corresponding market index were calculated by (1 + raw change in portfolio)/(1 + raw change in market index) − 1.

formed above the market indices for each of the four conditions: American stock recognition by German laypeople and experts and German stock recognition by American laypeople and experts. These international tests indicate that the fewer companies a group recognizes, the better the recognition heuristic performs. Domestic recognition in Germany outperformed the Dax, but in the United States domestic recognition did not beat the Dow. Thus, in six out of eight tests, the recognition heuristic outperformed the market indices, often by a large margin.

3. In comparison with two major managed funds, the American Fidelity Blue Chip Growth Fund and the German Hypobank Investment Capital Fund, the recognition heuristic performed better in six out of eight tests.

4. The average return of random stock portfolios was consistently below the returns achieved by the recognition heuristic. This result held in seven out of eight tests (with the remaining one matching).

5. When people's investment choices followed the recognition heuristic, their portfolio earned a very impressive return above the Dax. In the three other cases, where the stocks picked had a low average recognition, returns were much lower. Experts picked stocks with low recognition rates, which performed dismally.

The predictive power of the recognition heuristic corroborates the notion that a lack of recognition can contain implicit knowledge as powerful as explicit knowledge. The superiority of international over domestic recognition and the superiority of laypeople over experts in stock picking supports the notion that a certain degree of ignorance can be a virtue.

How does the recognition heuristic do so well in the stock market? Strategic management and marketing research suggests a positive correlation between market share and firm profitability (e.g., Buzzell et al., 1975, and for a review, Ramanujam & Venkatraman, 1984). Thus, companies with the dominant market share are most likely to become both recognized and profitable. Another link to profitability is core competence, that is, "the collective learning in the organization, especially how to coordinate diverse production skills and integrate multiple streams of technologies" (Hamel & Prahalad, 1994, p. 82). Honda, for example, is generally portrayed as possessing a core competence in engines, which are featured in a variety of products, such as cars, lawn mowers, boat engines, and power generators. There seems to be evidence that core competence is linked to above-average performance (e.g., Hamel & Prahalad, 1994; Prahalad & Hamel, 1990). If there is a further link between core competence and company name recognition, an issue itself worthy of further research, it may explain why recognized companies are more profitable.

Another link between recognition and stock performance may exist. Professional fund managers seem to employ name recognition as if it were a fundamental indicator for stock valuation. Joerg-Viggo Mueller, investment relations manager at Hugo Boss AG, for example, is quoted as saying, "Boss shares are not blue chips [i.e., stocks from the most well-established corporations]—yet analysts often position us as if we were" (Deutsche Börse, 1997, p. 35). That is, members of the investment community attribute a higher quality to Hugo Boss shares than is warranted by strict fundamental analysis. Similarly, Manfred Ayasse, information relations manager at Porsche, suggests that "like consumers, investors cannot resist the 'good vibes' associated with a car like Porsche" (Deutsche Börse, 1997, p. 35). So, although investment professionals may not be able to apply the recognition heuristic themselves (since they recognize virtually all market firms), they may consider public name recognition as part of a stock's value. Names have value, as reflected in the explicit pricing of good will and evidenced by countless court cases over corporate name ownership.

The impressive performance of recognition-based portfolios was obtained in a strong bull market. We do not yet know how well these results would generalize to other periods, such as a decreasing bear market. One explanation for the recognition heuristic's good performance is that it is picking "big" firms, which are known to do well in up markets. This hypothesis can be tested in a down market, where big firms generally do more poorly than the market indices. If recognized stocks perform above big firms in upswings, and do not suffer as much in downturns, then we will have evidence distinguishing recognition effects from big-firm effects.

At least in the upswing period we have considered, the recognition-based portfolios outperformed the summed returns of the big firms of the Dax and Dow, giving us partial indication that these effects are distinct.

Would the logic of the recognition heuristic be spoiled when companies become recognized because of bad press, such as when the public learns of an oil company from news of an oil spill? One might expect such a stock to perform poorly. However, financial markets are fast and stock prices quickly adjust for expected losses in earning power. Once the bad news hits the mass media outlets, share prices may even increase because the bad news has been taken into account by insiders and the uncertainties with respect to future earnings have been reduced or even eliminated. Hence, "ignorant" investors recognizing a company by way of adverse news may in fact disproportionally benefit.

Ignorance Can Be Informative

In this chapter, we have taken a bold step into the unknown, throwing a heuristic fueled by ignorance onto the trading floor. The striking returns generated by recognition-based portfolios substantiate evidence in the previous chapter that the recognition heuristic can make accurate inferences in real-world domains. For the period considered here, at least, the recognition knowledge of pedestrians turned out to be more profitable than the considered opinions of mutual fund experts. The stock market may be a complex real-world environment in which lack of recognition is not completely random, but rather systematic and informative. In investments, there may be wisdom in ignorance.