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Security Market Imperfections in
Worldwide Equity Markets
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SECURITY MARKET IMPERFECTIONS IN
WORLDWIDE EQUITY MARKETS

edited by

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and

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DEDICATION

To Sandra with thanks for all the help and support on this project.
(WTZ)

To Susan – Thank you
(DBK)
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Preface

Are asset prices predictable or do current prices fully reflect underlying value? Does taking more risk lead to higher expected returns? To study this area, I organized a week long set of research seminars under the general theme ‘Worldwide anomalies and behavioral finance’ on May 8–13, 1995 at the Isaac Newton Institute for Mathematical Science on the campus of the University of Cambridge. This research program was followed by an institutional investor workshop on Saturday May 20th. This week’s activities formed part of the six-month Financial Mathematics Symposium held at the Newton Institute from January to June 1995. I organized this part of the program under the general direction of the financial mathematics seminar organizers Mark Davis, Stewart Hodges, Ioannis Karatzas and Chris Rogers. This volume consists of twenty-one original papers arising from this program. Most of the papers appearing here were presented in Cambridge with a few added to round out the volume.

The papers included are broadly concerned with the predictability of equity stock returns. This predictability is commonly referred to as security market imperfections, or fundamental and seasonal regularities, or anomalies. The research presented addresses the difficult question of the existence of true market imperfections versus changing risk. Such imperfections may be broadly categorised as cross sectional, where the aim is to predict the differences in returns of individual stocks or groups of stocks, and time series where the aim is to predict time periods in which particular indices such as small or large capitalized equities have high or low returns. The studies discuss many markets worldwide including the US, Japan, Asia, and Europe. They discuss the measurement of risk and prediction models that have been used by institutional investors. Several papers discuss the high returns of equities in January and the relationship of small and large capitalized stocks around the turn-of-the-year. The coverage also includes papers discussing the psychology of financial markets, closed end country funds, liquidity aspects, stock splits, the holiday, the turn-of-the-month, and US presidential election effects.

The seminar in Cambridge took place in the efficient and most pleasant facilities of the Isaac Newton Institute on the campus of the University of Cambridge. The staff of the Institute, particularly Anne Cartwright, Florence Leroy, the Associate Director John Wright and Director Michael Atiyah were most helpful before and during our pleasant stay in Cambridge. Financial mathematics seminar chairman Chris Rogers was most supportive and helpful throughout this activity. This programme was sponsored by the Isaac Newton Institute for Mathematical Science and the Program in Financial Modeling at the University of British Columbia.
I was pleased to have Donald Keim join me as a co-editor of this volume. Besides co-authoring the introduction with me, Don added his special insights gained from years of outstanding research to improve the papers in this volume as well as contributing five outstanding co-authored papers based on his own pioneering work. Our editor David Tranah has been most helpful and patient in the preparation of this volume. My research work in security market imperfections has been supported by the Social Science and Humanities Research Council of Canada, the Centre for International Business Studies at the University of British Columbia and the Frank Russell Company. Thanks go to Chris Hensel for his encouragement and our joint work, which is represented by three papers in this volume. Finally special thanks go to my wife Sandra Schwartz for much encouragement and help on the seminar in Cambridge and in the preparation of this volume.

William T. Ziemba
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Security Market Imperfections: An Overview

Donald B. Keim and William T. Ziemba

The area of academic and practitioner research in financial economics that has generated the most excitement and attracted the most attention over the past twenty years concerns the predictability of stock returns. Hundreds of papers have documented persistent cross-sectional and time series patterns in returns that are not predicted by existing theory. Academics have intense interest in these findings because the results question long-standing theories of how the markets price securities. Practitioners find the results intriguing because of the prospect of using them to design investment strategies to earn abnormal profits. Even individual investors have tuned into this literature, perhaps unwittingly, as they tilt their personal portfolios toward small cap or value stocks, or by attempting to exploit the January effect.

These findings arouse curiosity in such a diverse audience because, quite simply, they are not well understood. Although the best minds in financial economics have exerted considerable energy to explain them, most of these phenomena remain puzzles — imperfections (warts) in the perfect world that is so often depicted in the models used to describe equity markets. As such, these findings are often classified as anomalies, a term that can be traced to Thomas Kuhn (1970). Kuhn maintains that research activity in any normal science revolves around a central paradigm and that experiments are conducted to test the predictions of the underlying paradigm and to extend the range of phenomena it explains. Eventually, results are found that don’t conform to the paradigm. Kuhn [1970, pp. 52-53] terms this stage ‘discovery’: “Discovery commences with the awareness of anomaly, i.e., with the recognition that nature has somehow violated the paradigm-induced expectations that govern normal science” (emphasis added).

This book contains 21 new and original papers that collectively represent our current understanding of the nature of, and explanations for, these anomalies. One might view this volume as a sequel to the excellent collections in the 1983 JFE special issue and Dimson (1988) that first catalogued these phenomena in the 1980s and increased our awareness of them.

The plethora of research that has been generated over the succeeding years has important benefits. First, we now are able to provide substantial out-of-sample evidence to confirm the results presented earlier because of the additional years that have been added to sample period. Perhaps more importantly, the increased availability of reliable, machine-readable data sources
for equity returns in markets around the globe permits important 'independent' confirmation across equity markets. These markets have widely differing structures along the dimension of trading, taxes, and institutional investor participation and, thereby, provide valuable new insights into the nature of these phenomena.

The papers presented herein are arranged into three sections. The first section addresses cross-sectional patterns in stock returns, such as market capitalization (size) and value vs. growth. The second section deals with the time series predictability, with a particular focus on predictability relating to calendar turning points like the beginning of the year or the beginning of the week. The papers in the final section discuss the existence of both cross-sectional and time series predictability in a broad cross section of international equity markets—both developed and emerging. We now discuss each section and the papers in more detail.

1 The Cross Section of Stocks Returns

The capital asset pricing model (CAPM) has occupied a central position in financial economics for the 35 years since its original appearance. Given certain simplifying assumptions, the CAPM states that the rate of return on any security is linearly related to that security's systematic risk (or beta) measured relative to the market portfolio of all securities. Hence, according to the CAPM, the cross-sectional relation between return and risk can be expressed as

\[ E(R_i) = \alpha_0 + \alpha_1 \beta_i \]

If the model is correct and security markets are informationally efficient, security returns will on average conform to this linear relation. Persistent departures represent violations of the joint hypothesis that both the CAPM and the efficient market hypothesis (EMH) are correct.

The early empirical tests of the model in the 1960s and early 1970s did not unambiguously support the CAPM. As a result, researchers formulated alternative models. Many developed equilibrium models by relaxing the CAPM assumptions. For example, Maysers (1972) allows for non-marketable assets such as human capital, and Brennan (1970) and Litzenberger and Ramaswamy (1979) relaxed the no-tax assumption. However, others examined ad hoc alternatives to the CAPM. For example, Basu (1977) and Banz (1981) found that the ratio of price to earnings and the market capitalization of common equity, respectively, provided considerably more explanatory power than beta. These two seminal studies served as a springboard for much subsequent research that has confirmed the ability of ad hoc variables to explain cross-sectional differences in returns. Absent in this literature, though, is any
supporting theory to justify the choice of variables. Nevertheless, these findings collectively represent a set of stylized facts that stand as a challenge for alternative asset pricing models. The papers in this section address the more important contributions to these stylized facts.

The first paper in this section by Hawawini and Keim serves as an introduction to the cross-sectional evidence. The paper surveys the large quantity of research across a wide range of international equity markets on cross-sectional patterns in returns that has been produced over the past twenty years. The focus is on those variables whose relation with returns has proven to be most robust: market capitalization; ratio of book to market value; earnings yield; and price momentum. Hawawini and Keim report that, in the end, the debate on the interpretation of the significance of these variables boils down to two possibilities—the premia related to these variables represent either compensation for risk or evidence of an inefficient market. Although there is not much support for an inefficient market story (however, see the discussion in DeBondt below), Hawawini and Keim argue that the evidence in favor of a risk-factor story is not strong either. Indeed, some authors find that it is the variables themselves, and not the sensitivities to ‘risk factors’ associated with the variables, that drive the cross-sectional relation with returns. Further, Hawawini and Keim present some additional findings of their own: (1) the premia associated with the ad hoc variables derive primarily from the month of January; and (2) although the return premia associated with these variables are significant in most international markets, the premia are uncorrelated across markets. This prompts Hawawini and Keim to ask: If these return premia occur primarily in January and are uncorrelated across major international markets that are well-integrated, is it reasonable to characterize the premia as compensation for risk?

The prevalent reaction to the collected cross-sectional findings, both from the practitioner audience and from a surprisingly large segment of the academic audience, is that the CAPM (and by extension beta) is ‘dead’ and variables like size and book-to-market represent far more accurate estimates of the risks for which investors should be compensated. Like Hawawini and Keim, Kothari and Shanken take exception to this interpretation of the results. They maintain that many observers tend to ignore positive evidence on the importance of beta and over-emphasize the importance of book-to-market. They argue that even the most widely cited results on the ‘insignificance’ of beta can just as likely be interpreted as being consistent with the market factor being important and relevant. They go on to show that alternative estimates of beta can significantly explain cross-sectional variation in returns. Although they find evidence of a significant book-to-market effect for their sample period, they also find that the book-to-market effect is not uniformly significant for all stocks (it does not appear to be present for large-
cap stocks). In the end, they caution that the popular acceptance of size and book-to-market as risk factors is premature.

While most economic models rely on rational human behavior, a growing number of financial economists are attempting to explain the observed patterns in returns with ‘behavioral’ models. In these models market participants often exhibit irrational behavior and make investment decisions that violate central axioms of rationality such as transitivity and dominance. In these models, investors are often overconfident about their own abilities; or they overreact to private information but under-react to public information. DeBondt provides a comprehensive survey of this rapidly growing literature, and makes a strong case that such investor behavior can translate to momentum and mean reversion in stock returns. He illustrates these concepts empirically in the context of the profitability of contrarian and momentum strategies in international equity markets, and concludes that the data support the behavioral models.

As the above papers attest, the debate concerning the cross-sectional pattern in returns has focused on the question of whether the size premium and the value premium represent compensation for risk or evidence of an inefficient market (investor irrationality). In the context of the size effect, Berk questions this focus, arguing instead that the size effect is not an anomaly at all. Berk maintains that the only scenario in which the size effect is an anomaly is if it can be shown to be inconsistent with the theoretical model of asset pricing. Using simple valuation principles, however, he argues that “any theory (e.g., the CAPM) that successfully explains any cross-sectional variation in expected returns must also predict an inverse relation between expected return and market value (i.e., the size effect).” Thus, the size effect is not an anomaly. Berk provides empirical results consistent with this view, and in the end concludes that while the development of factor models based on size (or book-to-market) ‘might be useful in helping to explain the cross-section of stock returns, such models provide no information on the underlying economic cause of the variation.’

A characteristic of these cross-sectional patterns in returns is that their magnitude varies considerably over time. For example, the value premium, although positive on average when measured over long time periods, is often negative (growth outperforming value) over consecutive years. Indeed, we are currently in the midst of a four-year period during which value has consistently under-performed growth in US and European markets. There are many possible explanations for such cyclicality, ranging from the notion that the premia are indeed risky to the existence of cycles in investor behavior. Dimson and Marsh provide a discussion of these issues in the context of the size effect in the UK. After providing an extensive historical perspective on the UK size premium, they document its reversal precisely at the time when
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it was originally publicized and when investment companies were formed to exploit the premium. A similar reversal is also noted for the US size premium by Booth and Keim in this volume. Although Dimson and Marsh speculate on the possible causes for such a reversal, they are unable to conclude that it is attributable to the increasing participation of institutional investors in the markets for small-cap stocks. They correctly point out that even though the size premium has been negative recently, one must conclude that the size effect is still alive and well—small stocks continue to behave differently than large stocks.

As is often noted in the papers referenced in this volume, the stocks that display the most interesting return patterns—usually small-cap, low-price stocks—are the most thinly traded or illiquid stocks. Much has been written that theoretically links infrequent trading with average stock returns, return autocorrelations, and estimated betas. Foerster and Keim empirically document the amount of non-trading that is exhibited by stocks with different market capitalization. They find that non-trading is a pervasive phenomenon among small-cap stocks during the time periods studied in the size effect literature. Their paper also serves as a useful bridge to the next section of the book on time series and seasonal patterns in returns as Foerster and Keim also document a distinct relation between non-trading and the calendar turning points that are associated with unexplained returns.

2 Seasonal Patterns in Stock Returns and Other Puzzles

At about the same time that Banz and Basu were documenting the cross-sectional patterns in returns related to size and E/P, other researchers were finding time series predictability in stock returns that violated the random walk model which maintains that past stock return history cannot be used to predict future stock returns. The most serious violations seemed to be associated with calendar timing points—the beginning of the year, the beginning of the month, the beginning of the week. For example, Rozell and Kinney (1976) found that NYSE stock market indexes displayed significantly higher returns in January than in the rest of the months, and Keim (1983) identified that this January seasonal was entirely a small stock phenomenon—large-cap stocks do not display a January seasonal. Cross (1973) and French (1980) documented a Monday effect whereby broad stock market indexes (e.g., the S&P 500) exhibit negative average returns on Mondays that are significantly lower than the other days of the week. Ariel (1987) showed that average returns for NYSE and AMEX stocks are positive only during the first half of every month, and that average returns in the first half of the month are signif-
icantly larger than the average returns in the second half of the month. And Ariel (1990) found that over one-third of the return accruing in the US stock market over the 1963–82 period was earned on the trading days preceding the eight holidays that result in market closings each year.

The papers in this section deal with these calendar-related patterns as well as several other puzzles. The first two papers address the durability and exploitability of the January effect, the phenomenon that Fama refers to as the ‘premier anomaly’ in his 1991 sequel to his classic 1970 paper on efficient markets. In the first paper in this section, Booth and Keim ask the question: Is there still a January effect? Awareness of the January effect, as well as institutional presence in the small cap markets, increased in the 1980s and 1990s after the publication of the papers describing the January effect. This led many authors to speculate that the forces of competitive markets would effectively eliminate the pattern. Using a fourteen-year out-of-sample period, Booth and Keim show that the January effect as described in the original research still exists. Specifically, the stocks in the smallest decile of market cap significantly outperform the stocks in the largest decile of market cap in January (although not in the remaining eleven months, on average.) Interestingly, the returns for a small-cap mutual fund, a benchmark series used by many academics and investment professionals, do not exhibit a January effect. Booth and Keim show that this is not due to the effect of large transactions costs associated with management of that portfolio of very liquid stocks. Rather, the lack of a January seasonal in the mutual fund returns is due to the exclusion of the lowest-price and lowest market-cap stocks from the portfolio, these being the stocks that exhibit the most pronounced January effect. They conclude that the January effect is alive and well, but difficult to capture in a portfolio of equities.

The search for alternative, lower-cost investment vehicles to capture the January effect motivates the paper by Hensel and Ziemba. Ever since the introduction of stock index futures trading in 1982, both individual and institutional investors have been using futures contracts based on underlying diversified portfolios of small-cap and large-cap stocks to try to capitalize on the January small stock premium. Not only do investments in futures positions provide exposure to indexes of equities, but they do so at very low cost. These features have attracted growing numbers of investors interested in exploiting the January size premium and, as Hensel and Ziemba report, these turn-of-the-year investments in stock index futures have been profitable. Hensel and Ziemba show that investors’ desire to get into their positions ahead of the next investor has led to increased pressure on index futures prices in the second half of December. This has resulted in an uncoupling of the theoretical relation between the futures prices and the underlying stock index price, such that the ‘January effect’ appears in the stock index futures
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pies in the second half of December before it appears in the underlying stock index values. Hensel and Ziemba argue that this December anticipation of the January effect can be profitably exploited, but not on a large scale because of the limited liquidity in the small-stock index futures market.

Turning to the more general turn-of-the-month effect, of which the turn-of-the-year effect is a special case, Hensel, Sick and Ziemba augment existing results in the literature with an exhaustive examination of daily returns for the S&P Composite Index for the period 1928–1996. They confirm previous results, showing that average S&P returns are positive in the first half of the month and significantly larger than the S&P returns in the second half of the month (which are on average negative.) They find that these results are stable across ten-year subperiods in their sample but find substantial differences in the pattern across months within the year. For example, the turn-of-the-month seasonal is much stronger in January, March, May and July in comparison with the other months; and May, September November had statistically significant losses in the last half of the month. They simulate investment strategies that exploit these cross-month differences and report profitable results.

In an interesting twist on the return differential between small-cap and large-cap stocks, Hensel and Ziemba analyze returns in the periods following US presidential elections won by Democratic presidents and by Republican presidents for the period 1928–1997. They find that the small-cap premium is significantly larger during Democratic administrations than in Republican administrations. This finding is attributable to significantly larger small stock returns in Democratic years, as average large-cap returns are statistically indistinguishable across Democratic and Republican administrations.

They also document that equity returns were substantially higher in the last two years, in comparison to the first two years, of both Democratic and Republican administrations. This effect seems to be related to the desire of the party in power to pursue favorable economic policies to gain reelection. Hensel and Ziemba investigate asset allocation strategies that are conditioned on the political affiliation of the occupant of the White House and find that those strategies outperform other more traditional asset mixes (e.g., a fixed 60–40 stock bond mix).

The last two papers in this section address long-standing puzzles in financial economics—the closed-end fund discount and the abnormally large ex-date returns associated with stock splits and stock dividends. In the first of these two papers, Minio-Paluello provides a comprehensive survey of the research documenting the closed-end fund puzzle. The puzzle here is that closed-end funds, which trade like shares on an exchange, typically trade at prices significantly lower than their NAV, a composite value reflecting the prices of the publicly-traded shares held in the fund. Because the NAV is
an observable and easily quantifiable value, it is puzzling that closed-end funds would trade systematically at a price other than NAV. Minio-Paluello provides a discussion of both the empirical literature that has documented this anomaly and the array of possible explanations that include agency costs (poor managerial performance, incentive-incompatible management fee structures) and costs associated with market imperfections (liquidity costs, ‘hidden’ tax liabilities associated with unrealized capital gains in the fund’s portfolio).

In the last paper in this section, Grinblatt and Keim investigate the puzzling ex-date behavior of stock splits and stock dividends. Stock splits and stock dividends are purely cosmetic events that do not affect the after-tax cash flows of firms, nor do they affect a shareholder’s personal taxes or proportionate ownership of the firm. Nevertheless, a large body of research has shown that stock splits and stock dividends affect shareholder returns in a significantly positive fashion on ex-dates. Grinblatt and Keim investigate a market microstructure explanation for this anomaly. Because of significant changes in investor buying and selling behavior around the ex-date for stock splits and stock dividends, Grinblatt and Keim find a disproportionate number of the trade prices surrounding the ex-date occur at the ask price. This tendency for stock prices to close at the ask on the ex-date can contribute to the abnormally large returns observed on that date, but that component of the return is illusory because speculators wanting to exploit the ex-date price movement cannot sell at the ask. Grinblatt and Keim decompose ex-date returns into an ‘intrinsic’ component and a microstructure component and find that even after elimination of the microstructure component (which is statistically significant), there remains an upward revision in the value of splitting firms around the ex-date. Thus, the puzzle is only partially solved.

3 International Evidence

The final section of the book surveys the evidence on the cross-sectional and time series patterns in returns in equity markets around the world. We can learn much about these phenomena by investigating their existence worldwide. As mentioned previously, the increased availability of reliable machine-readable data sources for equity returns in markets around the globe permits independent confirmation of the phenomena across boundaries that are defined not only by geographical, economic, and political distinctions, but also by differences in stock market trading mechanisms, financial institutions, and cultural idiosyncrasies. Such differences can provide valuable new insights into the nature of these phenomena and, hopefully, expedite the search for explanations.

Development of reliable stock price data bases in many ‘developed’ markets
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(e.g., France, Germany, Japan, UK) in the 1980s led to a flurry of ‘anomaly’ research activity in those markets into the early 1990s. Much of that evidence has been synthesized in Hawawini and Keim in this volume for the cross-sectional patterns and in Hawawini and Keim (1995) and Ziemba (1994) for the time series patterns. Although this section of the book contains surveys of results in several developed markets (Canada, Italy and Japan), we focus our coverage on emerging markets. Thus, this section includes papers devoted to two of the smallest European markets (Finland and Turkey), a paper that investigates the size and value premium in each of the markets represented in the International Finance Corporation’s Global Index of emerging markets, a paper devoted to both cross-sectional and time series anomalies in Asian emerging stock markets, and a paper that extends Ariel’s (1990) evidence of a holiday effect to seventeen non-US markets worldwide.

In the first paper in this section, Athanassakos and Foerster provide a comprehensive survey of the empirical evidence on stock returns on the Toronto Stock Exchange. Athanassakos and Foerster first provide a useful overview of the Canadian economic environment, tax treatment of income, and the returns on stocks, long-term bonds and short-term bills that covered much of this century. They then discuss seasonal patterns in stock returns (weekend and turn-of-the-year effects), cross-sectional patterns in returns (size and value effects), and the relation between stock market performance and election cycles (cf. Hensel and Ziemba in this volume for the US evidence). Despite differences in taxation and institutional/market structures between Canada and the US, Athanassakos and Foerster find that the anomalous patterns are similar in the two markets. They also posit a time series model of expected returns as a function of inflation, slope of the yield curve, and default risk and report that a simple tactical asset allocation model based on the results outperforms a buy-and-hold equity strategy.

Canestrelli and Ziemba focus on seasonal anomalies in the Italian stock market. To illustrate these patterns for Italy, they use the returns (without dividends) for the COMIT index of all securities traded on the Milan Stock Exchange for the 1974–93 period. Canestrelli and Ziemba examine the weekend, turn-of-the-month, turn-of-the-year, monthly and holiday patterns in Italian stock returns and find statistically significant evidence for each of these phenomena during their sample period.

There are two papers that investigate stock return predictability in Japan. In the first of them, Comolli and Ziemba examine calendar-related anomalies for two equity indexes composed of stocks on the Tokyo Stock Exchange. The interesting angle here is that Comolli and Ziemba examine the 1990–94 period, an out-of-sample period not included in the previous literature on Japanese equity markets, particularly Ziemba (1991). Thus, the findings represent independent observations useful to test the robustness of previous
results. On the flip side, however, the short sample period may make it difficult to draw precise conclusions because the statistical tests will have low power. Comolli and Ziemba find that most of the anomalies that existed in the Japanese equity market in earlier periods (e.g., the turn-of-the-month effect, the January effect, the Golden week effect, the holiday effect) were still evident in equity returns in the 1990-94 period, but were not statistically significant (largely due to the small number of observations.) Because of the elimination of Saturday trading during the 1990-94 period the Japanese day-of-the-week effect bears a closer resemblance to the pattern observed in the US – average returns are lowest on Mondays and highest on Fridays for the TOPIX index.

Schwartz and Ziemba examine the Japanese equity markets from a cross-sectional perspective, in the spirit of the papers described in Hawawini and Keim that use variables like market capitalization and price-earnings ratios to separate stocks into high expected return vs. low expected return categories. Schwartz and Ziemba develop a model using thirty firm characteristics (ranging from market cap to book-to-market ratio to dividend yield to earnings growth to price momentum) to rank stocks on expectations of prospective returns. Using these rankings, they construct long-short portfolios (long the stocks with highest expected returns, short the lowest expected returns) and test the model’s results in a hold out sample period. Consistent with the results for simpler models using only size and/or value growth characteristics, Schwartz and Ziemba report abnormal returns for their long-short portfolio simulations.

Founded in 1986, the Istanbul Stock Exchange is one of the world’s youngest stock markets. Muradoglu provides an introduction to the exchange with a discussion of the history of its development, the market structure and operation, the investor base, trading and microstructure issues, and the integration of the Turkish stock market with other developed markets. The primary objective in the paper, though, is describing the risk and return characteristics of Turkish stocks and investigating the existence of both cross-sectional and time series patterns in Turkish stock markets. Muradoglu reports that many of the cross-sectional and time series patterns found in developed markets are also evident during the brief history of the Istanbul Stock Exchange. However, the reader is appropriately cautioned that in the volatile and ever-changing environment of emerging markets, past performance is not always an accurate forecast of future performance.

Like the Istanbul Stock Exchange, the Helsinki Stock Exchange in Finland is one of the smallest in Europe. As is the case for emerging markets generally, the infrequent trading that is characteristic for most stocks on the Helsinki Exchange make estimation of risk measures, return autocorrelations and portfolio mean returns difficult; and drawing statistical inferences based
on such estimates can be challenging. Nevertheless, there is a large body of empirical research that has been conducted on the Finnish markets and Martikainen provides a comprehensive survey of this work. While the primary focus of the paper is on equities, Martikainen also gives extensive coverage to the markets for stock index derivatives. After a discussion of the institutional structure, market trading mechanisms and other microstructure issues for both the equity and derivative markets, Martikainen surveys the evidence for both cross-sectional and calendar-related patterns. He finds that most of the anomalies identified in major markets also are evident in Finnish markets – there are significant day-of-the-week, turn-of-the-month, and January effects, as well as a significant size premium and value premium.

The paper by Patel extends the evidence of cross-sectional patterns in stock returns to the 22 markets represented in the International Finance Corporation’s Global Index of emerging markets. Patel examines the relation between stock returns and pre-determined characteristics like price-to-book ratio, price-to-earnings ratio, and market capitalization. He finds evidence of significant size and value premia in most of the emerging markets, results that provide added confirmation of the robustness of these unexplained premia. Patel finds that although the premia are significant in the separate markets, they are uncorrelated across markets, a result similar to that reported in Hawawini and Keim in this volume for developed markets. Finally, and from a more practical perspective, Patel finds that sector-neutral small-cap and value portfolios strategies—that is, portfolios that are constrained to diversify across economic sectors to mimic the sector weightings of the local composite market index—are less risky and outperform unconstrained (naive) small-cap and value strategies.

In the paper by Koh and Wong, the research focus is narrowed to just the emerging stock markets in Asia. They include Hong Kong, Malaysia, Philippines, Singapore, South Korea, Taiwan and Thailand in this category. Koh and Wong provide a comprehensive discussion of the evidence on the January effect, the day-of-the-week effect, the holiday effect, and the size and value premia in these markets. Similar to most of the other papers described here, they find that these phenomena are surprisingly robust across the markets they examine that reflect widely varying trading mechanisms and economic environments. One exception is the January effect which is evident in only two of the markets surveyed – Malaysia and Singapore. Interestingly, neither of these countries imposes taxes on capital gains, the reason most often used to explain the January effect.

The last paper in the volume, by Cervera and Keim, also narrows the focus, but this time by focusing on only one anomaly. Cervera and Keim examine the holiday effect for a sample of seventeen non-US markets for the period 1980–94. Consistent with research referenced above, they find
that stock market indexes worldwide tend to exhibit significantly higher (5.5 times higher) than average returns on the trading days preceding holidays that result in market closure. The Netherlands is the only market in which pre-holiday returns are lower than the average return over all days; the effect is strongest, on average, for non-European markets. Cervera and Keim are unable to provide an explanation for the holiday effect, but they do provide evidence consistent with a partial explanation. They find that a large component of the international holiday effect is due to large returns preceding holidays that are common to most countries, a finding consistent with a common global market factor in increasingly integrated worldwide markets. However, after accounting for this common effect, a significant holiday effect remains.

4 What’s next?

The objective of this volume is to report what we currently know about ‘anomalies’ in equity markets around the world. We feel it has accomplished that objective. Unfortunately, the explosion of research that has focused on these stock price irregularities also serves to remind us just how incomplete our understanding of these phenomena is. Yes, we have substantially more documentation about the behavior of the phenomena than we did ten years ago, but it is not obvious that we are much closer to explanations for them. Invoking Kuhn’s *Structure of Scientific Revolutions* once again, it is at this stage in the research cycle that researchers’ focus should be on explanation rather than further documentation. How long until the shift to a new paradigm is complete? It is no easier to predict when we will have alternative theories that explain the empirical regularities than it is to predict tomorrow’s closing value of the S&P 500 index. What we can safely predict is that the coming years will witness a continuing stream of research in this area and, eventually, a better understanding of the causes of the phenomena.

References

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