

September 2022

## DONALD B. KEIM

215-898-7685  
215-898-6200 (fax)  
keim@wharton.upenn.edu  
<http://finance.wharton.upenn.edu/~keim/>

Finance Department  
The Wharton School  
University of Pennsylvania  
Philadelphia, PA 19104

### EDUCATION

Ph.D. Finance/Economics, University of Chicago, 1983.  
M.B.A. Finance, University of Chicago, 1980.  
B.S.B.A., Bucknell University, 1975.

### TEACHING AND RESEARCH EXPERIENCE

John B. Neff Professor Emeritus of Finance, University of Pennsylvania, 2021-.  
John B. Neff Professor of Finance, University of Pennsylvania, 1998-2021.  
Professor of Finance, University of Pennsylvania, 1994-1998.  
Associate Professor of Finance, University of Pennsylvania, 1988-1994.  
Assistant Professor of Finance, University of Pennsylvania, 1982-1988.  
Visiting Professor of Finance, INSEAD, 1994, 1996-1998, 2004.  
Lecturer in Finance, Loyola University of Chicago, 1981-1982  
Research Associate, Research Division, Federal Deposit Insurance Corporation, 1978.

### PUBLISHED PAPERS

#### Journal Articles:

Passive-Aggressive Trading: The Supply and Demand of Liquidity by Mutual Funds, with Susan Christoffersen, David Musto and Aleksandra Rzeknik, *Review of Finance*, 2022.

Identification using Russell 1000/2000 index assignments: A discussion of methodologies, with Ian R. Appel and Todd A. Gormley (Oct 2020), forthcoming, *Critical Finance Review*.

First to “Read” the News: News Analytics and High Frequency Trading, with Bastian Von Beschwitz and Massimo Massa, *Review of Asset Pricing Studies*, 2019

Standing on the Shoulders of Giants: The Effect of Passive Investors on Activism, with Ian R. Appel and Todd A. Gormley, *Review of Financial Studies*, 2019.

Simplifying Choice in Defined Contribution Retirement Plan Design: A Case Study, with Olivia Mitchell, *Journal of Pension Economics and Finance*, 2017

The Changing Nature of Institutional Stock Investing, with M. Blume, *Critical Finance Review*, 2017.

- Lead article in the issue.

Passive Investors, Not Passive Owners, with Ian R. Appel and Todd A. Gormley, *Journal of Financial Economics*, 2016.

- Winner of the 2015 Investor Responsibility Research Center Award.
- 2014 Marshall E. Blume Prize in Financial Research, Honorable Mention.

Packaging Liquidity: Blind Auctions and Transaction Efficiencies, with K. Kavajecz, *Journal of Financial and Quantitative Analysis*, 2005.

- Lead article in the issue.

The Relation between Stock Market Movements and NYSE Seat Prices, with A. Madhavan, *The Journal of Finance* 55, 2000.

An Analysis of Mutual Fund Design: The Case of Investing in Small-Cap Stocks, *Journal of Financial Economics* 51, 1999.

- Lead article in the issue.

The Cost of Institutional Equity Trades: An Overview, with A. Madhavan, *Financial Analysts Journal* (July/August 1998).

- Received a Graham & Dodd Award, Financial Analysts Federation, 1999.

Transactions Costs and Investment Style: An Inter-Exchange Analysis of Institutional Equity Trades, with A. Madhavan, *Journal of Financial Economics* 46, 1997.

- Lead article in the issue.
- Received the New York Stock Exchange Award, Western Finance Association, 1996.

The Upstairs Market for Large-Block Transactions: Analysis and Measurement of Price Effects, with A. Madhavan, *Review of Financial Studies* 9, 1996.

- Lead article in the issue.

Anatomy of the Trading Process: Empirical Evidence on the Behavior of Institutional Traders, with A. Madhavan, *Journal of Financial Economics* 37, 1995.

General Tests of Latent Variable Models and Mean Variance Spanning, with W. E. Ferson and S. R. Foerster, *Journal of Finance* 48, 1993.

- Nominated for Smith-Breeden Distinguished Paper, *Journal of Finance*, 1993

Risks and Returns of Investing in Real Estate: Evidence from a Real Estate Stock Index, with J. Gyourko, *Financial Analysts Journal* (September/October 1993).

What Does the Stock Market Tell Us About Real Estate Returns, with J. Gyourko, *AREUEA Journal* 20, 1992.

- Summarized in the CFA Digest, Summer 1993.

Returns and Volatility of Low-Grade Bonds: 1977-1989, with M. E. Blume and S. Patel, *Journal of Finance* 46, 1991.

- Reprinted in P. Gaughan, *Readings in Mergers and Acquisitions* (Blackwell Publishers, 1994).

Realized Returns and Defaults on Low-Grade Bonds: The Cohorts of 1977 and 1978, with M. E. Blume, *Financial Analysts Journal* (March/April 1991).

Risks and Returns of Low-Grade Bonds: An Update, with M. E. Blume, *Financial Analysts Journal* (September/October 1991).

A New Look at the Effects of Firm Size and E/P Ratio on Stock Returns, *Financial Analysts Journal* (March/April 1990).

Trading Patterns, Bid-Ask Spreads and Estimated Stock Returns: The Case of Common Stocks at Calendar Turning Points," *Journal of Financial Economics* 25 (1989).

Earnings Yields, Market Values and Stock Returns, with J. Jaffe and R. Westerfield, *Journal of Finance* 44 (1989).

The Behavior of Intraday Stock Index Future Prices, with M. Smirlock, *Advances in Futures and Options Research* 2 (1987).

Lower-Grade Bonds: Their Risks and Returns, with M. E. Blume, *Financial Analysts Journal* (July/August 1987).

- Lead/cover article in the issue.

Daily Stock Returns and Size-Related Premia: One More Time, *Journal of Portfolio Management* 13 (Winter 1987).

Predicting Returns in the Stock and Bond Markets, with R. F. Stambaugh, *Journal of Financial Economics* 17 (1986).

- Referenced by *Nobel Prize Committee's Scientific Background*, for Economics Prize in 2013.
- Reprinted in T.C. Mills, *Forecasting Financial Markets* (Edward Elgar, UK 2001).

The CAPM and Equity Return Regularities, *Financial Analysts Journal* (May/June 1986).

- Lead/cover article in the issue.
- Received the Graham & Dodd Award, Financial Analysts Federation, 1987.

Dividend Yields and the January Effect, *Journal of Portfolio Management* 12 (Winter 1986).

Dividend Yields and Stock Returns: Implications of Abnormal January Returns, *Journal of Financial Economics* 14 (1985).

- Award for Contributed Paper, Institute for Quantitative Research in Finance, 1983.

A Further Investigation of the Weekend Effect in Stock Returns, with R. F. Stambaugh, *Journal of Finance* (May 1984).

Stock Return Seasonalities and the "Tax-Loss Selling" Hypothesis: Analysis of the Arguments and Australian Evidence, with P. Brown, A. Kleidon and T. Marsh, *Journal of Financial Economics* 12 (1983).

- Reprinted in R. Ball, P. Brown, F. Finn and R. Officer, *Share Markets and Portfolio Theory* (University of Queensland Press, 1995).

Size-Related Anomalies and Stock Return Seasonality: Further Empirical Evidence, *Journal of Financial Economics* 12 (1983).

- Lead article in the issue.
- Referenced by *Nobel Prize Committee's Scientific Background*, for Economics Prize in 2013.
- Reprinted in A. Lo, Ed., *Market Efficiency: Stock Market Behavior in Theory and Practice* (Edward Elgar, London, 1997).
- Summarized in the CFA Digest, Winter 1984.
- Received Trefftz Award, Western Finance Association, 1982.

**Book:**

*Security Market Imperfections in Worldwide Equity Markets*, Keim, D.B. and W. Ziemba, eds., Cambridge University Press, 2000.

**Other:**

Financial Market Anomalies (Chapter for the New Palgrave Dictionary of Economics, 2<sup>nd</sup> Ed.) (2008)

The Cross Section of Common Stock Returns: A Review of the Evidence and Some New Findings, with G. Hawawini, in Keim, D.B. and W.T. Ziemba, *Security Market Imperfections in Worldwide Equity Markets* (Cambridge University Press, 2000).

- Awarded the Roger F. Murray Prize, Institute for Quantitative Research in Finance, 1996.

Stock Splits and Stock Returns for OTC Stocks: The Effects of Investor Trading and Bid-Ask Spreads, with M. Grinblatt, in Keim, D.B. and W.T. Ziemba, eds., *Security Market Imperfections in Worldwide Equity Markets* (Cambridge University Press, 2000).

Direct Evidence of Non-Trading of NYSE and AMEX stocks, with S. Foerster, in Keim, D.B. and W.T. Ziemba, eds., *Security Market Imperfections in Worldwide Equity Markets* (Cambridge University Press, 2000).

High Stock Returns Before Holidays: International Evidence and Additional Tests, with A. Cervera, in Keim, D.B. and W.T. Ziemba, eds., *Security Market Imperfections in Worldwide Equity Markets* (Cambridge University Press, 2000).

Is There Still a January Effect?, with D.G. Booth, in Keim, D.B. and W.T. Ziemba, eds., *Security Market Imperfections in Worldwide Equity Markets* (Cambridge University Press, 2000).

Security Market Imperfections: An Overview, with W.T. Ziemba, in Keim, D.B. and W.T. Ziemba, *Security Market Imperfections in Worldwide Equity Markets* (Cambridge University Press, 2000).

Beta, Size and Price/Book: Three Risk Measures or One?, with Gabriel Hawawini, in *The Complete Finance Companion* (Pitman Publishing, London, 1998)

On the Predictability of Common Stock Returns: World-Wide Evidence, with G. Hawawini, in Jarrow, R.A., V. Maksimovic, and W.T. Ziemba, eds., *Finance* (North Holland, 1995).

The Myths and Reality of Low-Grade Bonds, with M. E. Blume, in *Proceedings of the Conference of the International Federation of Scholarly Associations of Management*, 1992.

Risk and Return Characteristics of Lower-Grade Bonds: 1977-1987, with M. Blume, in E. I. Altman, ed., *The High Yield Debt Market* (Dow Jones-Irwin, 1990).

Pricing Patterns in Stock Index Futures, with M. Smirlock, in F. Fabozzi and G. Kipnis, eds., *The Handbook of Stock Index Futures and Options* (Dow Jones-Irwin, 1989).

Earnings Yield and Size Effects, in S. J. Taylor, et al., eds., *A Reappraisal of the Efficiency of Financial Markets* (Springer-Verlag, 1989).

Discussion of "An Investigation of Daily Seasonalities in the Greek Equity Market" by Condoyanni, O'Hanlon and McLeay, in S. J. Taylor et al., eds., *A Reappraisal of the Efficiency of Financial Markets* (Springer-Verlag, 1989).

Stock Market Regularities: A Synthesis of the Evidence and Explanations in E. Dimson, ed., *Stock Market Anomalies* (Cambridge University Press, 1988).

- Reprinted in S. Lofthouse, *Readings in Investments* (John Wiley and Sons, 1994).

Defending Junk Bonds, with M. E. Blume, *The Corporate Board* (November/December 1985).

Empirical Regularities in Stock Returns Involving Day, Size and Season, with W. E. Ferson, *Proceedings of the Seminar on the Analysis of Security Prices*, Center for Research in Security Prices, Chicago, May 1984.

## UNPUBLISHED WORKING PAPERS

Is the Tail Wagging the Dog? The Effect of Active Holdings on Passive Investor's Attention, with I. Appel, T. Gormley, Jun Mok Kim, and Chaehee Shin (Oct 2021).

Institutional Investors and Stock Market Liquidity: Trends and Relationships, with M. Blume (Aug 2012)

Stale or Sticky Stock Prices? Non-Trading, Predictability, and Mutual Fund Returns, with M. Blume (January 2008)

Real Estate as an Asset Class: Evidence from the U.S. Equity REIT Market, with J. Gyourko (March 2005)

The Costs of Trend Chasing and the Illusion of Momentum Profits (December 2002)

Intraday Spreads, Returns, and Variances: Tests of the Informed Trader Hypothesis, with S. Foerster and D. Porter (April 1990)

The Valuation of Callable Bonds, with M. E. Blume (August 1988)

## RESEARCH IN PROGRESS

Active Investors and Passive Investing, with Todd Gormley and Jiaen Li

Corporate Financial Decisions and Employee Risk Preferences, with Louis Yang and Ben Zhang

Heterogeneity in Institutional Investment Preferences: Implications for Stock Market Liquidity, with I. Appel, M. Blume, and T. Gormley

The Behavior of REIT Returns Before, During and After the Financial Crisis.

Order Size, Trade Breakup and Price Impact: Theory and Empirical Evidence on the Trading Decision, with A. Madhavan

## GRANTS

Morgan Stanley Equity Market Microstructure Research Program, 2003.

Institute for Quantitative Research in Finance, 1984, 1992, and 1999.

Research Foundation, University of Pennsylvania, 1990.

Geewax-Terker Research Program in Financial Instruments, 1988-97.

Research Foundation of Institute of Certified Financial Analysts, 1987.

Center for Research in Security Prices, 1981 and 1982.

**AWARDS**

2015 Investor Responsibility Research Center Award, for "Passive Investors, Not Passive Owners"  
 Marshall E. Blume Prize (Honorable Mention), for "Passive Investors, Not Passive Owners," 2015.  
 Keynote Address, Inquire Europe and Inquire UK Joint Conference, Hamburg, 2006.  
 Graham & Dodd Award, Association for Investment Management and Research, 1999.  
 Roger F. Murray Prize, The Institute for Quantitative Research in Finance, for "The Cross Section of  
 Common Stock Returns: A Synthesis of the Evidence and Explanations," 1996.  
 New York Stock Exchange Award, for "Transactions Costs and Investment Style: An Inter-Exchange  
 Analysis of Institutional Equity Trades," Western Finance Association, 1996.  
 Smith-Breeden Distinguished Paper Nomination for "General Tests of Latent Variable Models and Mean  
 Variance Spanning," *Journal of Finance*, 1993.  
 Graham & Dodd Award, Financial Analysts Federation, 1987.  
 Award for Contributed Paper, Institute for Quantitative Research in Finance, 1983.  
 Trefftz Award for best PhD paper, Western Finance Association, 1982.  
 Washington (DC) Society of Investment Analysts Award, 1977.

**OTHER**

Director, Rodney L. White Center for Financial Research, Wharton School, 2009-2020.  
 Member, Policy Board, WXPB, Public Radio station, University of Pennsylvania, 2020- .  
 Member, Advisory Board, Wharton Research Data Services, 2005-2021.  
 Member, Academic Advisory Board, FTSE Group, 2009-current.  
 Member, Investment Committee, Univ of Penn. Tax-Deferred Retirement Plan, 2009-2018.  
 Member, Advisory Board, Innovation Center, Vanguard Group, 2017-2018.  
 Member, Editorial Board, Wharton SiriusXM Business Radio, 2013-2015.  
 Program Committee, European Finance Association Meetings, 1996-2021.  
 Program Committee, Western Finance Association Meetings, 1992-95, 2000-2020.  
 Program Committee, European Financial Management Association Meetings, 2008-09, 2011-21.  
 Program Committee, American Finance Association Meetings, 1989, 1999.  
 Program Committee, Financial Management Association Meetings, 1994.  
 Member, Nominating Committee of the American Finance Association, 2000.  
 Inaugural Director, Jacobs Levy Center for Quantitative Financial Research, Wharton, 2011-2014.  
 Senior Fellow, Wharton Financial Institutions Center, 1997-2011.  
 Co-chair of (Micro) Recruiting Committee, Wharton Finance Department, 2009-2010, 2018-2019.  
 Wharton Fellows Fund: Academic Advisor, Board of Overseers, 1993-2001.  
 Ph.D. Placement Coordinator, Wharton Finance Department, 1990-1993.  
 Coordinator, Annual Conference of the Rodney White Center for Financial Research, 1991.  
 Coordinator of academic program, Wharton Investment Management Conference, 1990 and 1991.  
 Member, Best Execution Task Force, Assn for Investment Mgmt and Research, 2001-2002  
 Consultant, SummerHaven Investment Management, 2016-2019.  
 Consultant, Dimensional Fund Advisors, 1985-2012.  
 Visiting Scholar, Dimensional Fund Advisors, Santa Monica, CA, Summer 1990, Summer 1997.  
 Scientific Advisory Board, ITG, New York, NY, 2001-2003.  
 Academic Advisory Board, Brandywine Asset Management, Wilmington, DE, 1993-2000.  
 Member, Academic Advisory Council, Provident Capital Management, Phila., PA, 1983-1986.  
 Internship, Office of the Chief Accountant, Federal Home Loan Bank Board, Wash., DC, 1977.  
 Accountant, J. E. Brenneman Contracting Engineers, Philadelphia, PA, 1975-1976.

## STUDENT DISSERTATIONS AND THESES

PhD Students Supervised (Initial Placement) (\* indicates I was chair of the committee):

- 1985 Doug McCann (CUNY – Baruch College)
- 1986 Suk Ho Sonu (CUNY - Baruch College)
- 1987 Stephen Foerster\* (University of Western Ontario)
- 1987 Michael Vilbert (US Air Force Academy)
- 1988 Sam Thomas (Case Western)
- 1993 Edward Nelling\* (Georgia Tech)
- 1994 Mark Roomans\* (JP Morgan)
- 1998 Susan (Kerr) Christoffersen (McGill)
- 1998 Spencer Martin (Ohio State)
- 1999 Lubos Pastor (University of Chicago)
- 2004 Shane Underwood (Rice Univ)
- 2010 Marcelo Maia (Brazil)
- 2013 Lucy Jin (Analytic Investors)
- 2013 Edmund Lee\* (Univ of Delaware)
- 2014 Bastian von Beschwitz (Federal Reserve Board)
- 2015 Ian Appel (Boston College)
- 2022 Ewelina Zurowska (Blackrock)

Advisor on 93 undergraduate or MBA thesis projects (210 students).

## JOURNAL ACTIVITIES

Co-Editor, *European Finance Review* (1999-2003)

Associate Editor, *Journal of Financial and Quantitative Analysis* (1993-2000).

Referee for:

*American Economic Review*

*Journal of Accounting and Economics*

*Journal of Banking and Finance*

*Journal of Business*

*Journal of Business and Economic Statistics*

*Journal of Finance*

*Journal of Financial Economics*

*Real Estate Economics*

*Review of Financial Studies*

## SELECTED MEDIA COVERAGE

### ***First to Read the News***

“High Frequency Trading: Profiting from News,” *Knowledge@Wharton*, April 15, 2014  
<http://knowledge.wharton.upenn.edu/article/high-frequency-trading-profiting-news/>

“First to ‘read’ the news: News analytics and institutional trading,” VOXEU.com, July 2, 2015.  
<http://www.voxeu.org/article/stock-prices-and-high-frequency-news-analytics>

“Inaccurate News Analytics: When Robots Get Things Wrong,” AllAboutAlpha.com, Aug 28, 2018.  
<http://www.allaboutalpha.com/blog/2018/08/28/inaccurate-news-analytics-when-robots-get-things-wrong/>

### ***Passive Investors, Not Passive Owners***

“Passive Investors, Not Passive Owners,” The Harvard Law School Forum on Corporate Governance and Financial Regulation, January 21, 2015.  
<http://blogs.law.harvard.edu/corpgov/2015/01/21/passive-investors-not-passive-owners/>

“‘Passive’ Investors Play Key Role in Swaying Corporate Governance Choices,” *Bloomberg BNA*, February 2, 2015. <http://www.bna.com/study-passive-investors-n17179922657/>

“Passive Investors May Not Be So,” *Market Talk* – Dow Jones Institutional News, March 4, 2015.

“Measuring the effects of passive investor aggression,” *The Daily Deal*, March 9, 2015.

“Passive, but Powerful: How Index Funds Exercise Their Clout,” *Morningstar News* and *Knowledge@Wharton*, April 23, 2015.  
<http://knowledge.wharton.upenn.edu/article/passive-but-powerful-how-index-funds-exercise-their-clout/>  
<http://www.morningstar.com/advisor/t/104560668/passive-but-powerful-how-index-funds-exercise-their-clout.htm>

“Why Peltz Didn’t Have Icahn’s Apple Touch: Activist’s failure to win a board seat at DuPont might have had something to do with the incentives of passive investors,” *Wall Street Journal*, May 22, 2015.  
<http://www.wsj.com/articles/why-peltz-didnt-have-icahns-apple-touch-1432322488>

“America’s Most Popular Investment May Be Toxic,” *Fortune*, December 30, 2015.  
<http://fortune.com/2015/12/30/index-funds-toxic/>

“Passive investors are good corporate stewards,” *Financial Times*, January 19, 2016.  
<http://www.ft.com/cms/s/0/c4e7a4f6-be8a-11e5-846f-79b0e3d20eaf.html#axzz4ASGWNBNt>

“Bill Ackman Runs an Anti-Index Fund,” *BloombergView.com*, Jan. 27, 2016.  
<https://www.bloomberg.com/view/articles/2016-01-27/bill-ackman-runs-an-anti-index-fund>

### ***Standing on the Shoulders of Giants***

“The Effect of Passive Investors on Activism,” The Harvard Law School Forum on Corporate Governance and Financial Regulation, May 2, 2016.  
<https://corpgov.law.harvard.edu/2016/05/02/the-effect-of-passive-investors-on-activism/>

“Hedge Fund Blues and Digital Dollars,” *Bloomberg View*, May 3, 2016.  
<https://www.bloomberg.com/view/articles/2016-05-03/hedge-fund-blues-and-digital-dollars>



“The Happy Marriage of Activist and Passive Investors,” *Reuters*, May 4, 2016.

<http://www.reuters.com/article/us-markets-saft-idUSKCN0XV2PJ>

“Index Funds Are Good Corporate Governors: Who Knew?” *Morningstar*, May 17, 2016

<http://news.morningstar.com/articlenet/article.aspx?id=754057>

“Why Passive Investing Increases Corporate Activism,” *Knowledge@Wharton*, June 7, 2016.

<http://knowledge.wharton.upenn.edu/article/passive-investing-increases-corporate-activism/>

“Index Funds Influence Activist Investors,” American Association of Individual Investors, July 6, 2016

<http://www.aaii.com/journal/article/index-funds-influence-activist-investors>

“Insider Traders and Active Managers,” *Bloomberg View*, October 4, 2016.

<https://www.bloomberg.com/view/articles/2016-10-04/insider-traders-and-active-managers>

“It’s Getting Harder to Keep the Barbarians at the Gate,” Bloomberg Markets, February 1, 2017

<https://www.bloomberg.com/news/articles/2017-02-01/lazard-s-jim-rossman-studies-shareholding-to-help-fight-activists>

“Indexers, Activists and Tax Robots,” Bloomberg View, February 2, 2017

<https://www.bloomberg.com/view/articles/2017-02-02/indexers-activists-and-tax-robots>

### ***Simplifying Choices in Defined Contribution Retirement Plan Design***

Streamlined DC Investment Menu Could Save Participants Millions,” *PlanSponsor.com*, December 30, 2015.

<http://www.plansponsor.com/Streamlined-DC-Investment-Menu-Could-Save-Participants-Millions/>

“Streamlining the Plan Menu,” *PlanSponsor.com*, February 2016

(<http://www.plansponsor.com/MagazineArticle.aspx?id=6442517937>)

“Are Too Many Choices Costing 401(k) Holders?” *The Wall Street Journal*, February 7, 2016

(<http://www.wsj.com/articles/are-too-many-choices-costing-401-k-holders-1454900917?tesla=y>)

“Simplifying Choices in DC Plans,” *Money Management Intelligence* (Institutional Investor), March 3, 2016

([link](#))

“To Save Wisely for Retirement, Sometimes Less Choice is Best.” *Knowledge@Wharton*, May 5, 2016.

<http://knowledge.wharton.upenn.edu/article/to-save-wisely-for-retirement-sometimes-less-choice-is-best/>

“401(k) Investment Options: Less is More,” *Squared Away Blog* of Center for Retirement Research at Boston College, June 30, 2016

<http://squaredawayblog.bc.edu/squared-away/401k-investment-options-less-is-more/>

“Where Do Donald Trump and Hillary Clinton Stand on Retirement?” *Institutional Investor*, Aug 29, 2016

[http://www.institutionalinvestor.com/Article.aspx?ArticleID=3581601&LS=EMS1309382&utm\\_medium=email%20alerts&utm\\_campaign=Investors%20Weekly%202013&utm\\_content=2016\\_09\\_08&utm\\_source=ems%20email#.V9HGTnq2VBo](http://www.institutionalinvestor.com/Article.aspx?ArticleID=3581601&LS=EMS1309382&utm_medium=email%20alerts&utm_campaign=Investors%20Weekly%202013&utm_content=2016_09_08&utm_source=ems%20email#.V9HGTnq2VBo)

### ***Other***

“Calendar-Based Trading System Pays Off over Time,” *The Street*, July 2, 2019

<https://www.thestreet.com/markets/calendar-based-trading-system-pays-off-over-time-15007986>