

Malleability, Misrepresentation, Manipulation: The Rhetoric of Images in Economic  
Forecasting

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*Although we often hear that data speak for themselves, their voices can be soft and sly.*  
—Mosteller, Fienberg, & Rourke (Tufte, 1997, p. 4)

Fact, logic, and data drive the world of economics. Experts analyze past and current information in order to draw conclusions on possible future market behavior. In turn, investors read these interpretations and combine them with their own data collection, forming a personal belief and acting accordingly. These actions create more data, which the analysts then collect and examine, creating an interminable loop of information exchange. This unending interaction seems simple enough; however, the accuracy of economic forecasting is a testament to the true complexity of this analyst-data-investor matrix. A major source of uncertainty in the field of forecasting is the fact that, in order to convey pure data to investors in ways they can understand, a medium of communication must be used. The sheer volume of data being created each second cannot simply be passed to the investor for comprehension; the analyst must observe it, draw conclusions, and somehow deliver his or her “factual prediction” to the investor. It is in this transference from numbers and fact to visuals and argument that data speaks slyly.

A powerful example of this phenomenon occurs when viewing any visual image attributed to an economic forecast. Primarily, the transference of data to graphical representation is of great concern. Economic graphs are unique in the realm of visual images in that they convey an extremely large amount of concrete information using simple lines and values. Their ability to reduce complex theory into a simple visual concept certainly renders them as powerful rhetorical devices. However, this potency is often misused by those who purport to convey truth in forecasting. The strong logical

appeal of a graph can easily overshadow the content of an economic analysis, a dangerous effect in the hands of an analyst looking for one small piece of data in the insurmountable pile of information that exists and that grows constantly. Furthermore, many economic reporters and quasi-forecasters use nongraphical images in their clouded rhetoric, obscuring the financial analysis with a pathetic appeal. Clearly, visual rhetoric is a subtle yet potent source of manipulation in the economic realm. This practice of misrepresentation and misdirection with images abounds in financial literature, detracts from the truth value of economic prediction, and casts further doubt on the practice's merit.

Partly Cloudy, Mid 70s, Dow to 11,000:

The Imprecise Art of Graphics and Forecasting

*Unfortunately, the very virtues of graphics are their Achilles' heel.*  
—Richard P. Runyon (1981, p. 36)

In order to analyze the rhetorical potency and effects of graphical representations of economic data, a solid understanding of graph construction and use is needed. In economic literature, the prevailing type of graph is a line graph. This graph supposedly displays trends more efficiently; however, studies have found this misconception cannot be supported by any experimental data (Meyer, 1997). It seems that the industry found one way to display information and stuck with it, thus creating the genre of economic graph that is so prevalent in publications today. However, bar graphs—and to a lesser extent, pie charts—are used as well. Meyer's study finds that all of these forms of data depiction are less efficient than a table at conveying information, as their visual elements do not state numerical data explicitly (Meyer, Shinar, & Leiser, 1997). Simply put, it is

the very nature of graphs to simplify hard data into visual representation, and in this process exact data conveyance is lost.

Another fallacy of graphical representation is the lack of uniformity. Specifically focusing on the prevalent line graph, Richard Runyon (1981) explores the elasticity of the axes of a graph: “There are no universally agreed-upon methods of representing the relative lengths of the vertical and horizontal axes. Therefore, these axes are like rubber bands, ready to expand or contract on demand of the user” (p. 38). This presents a large problem in the display of economic graphs, as it is impossible to define a universal scale due to the amount of different data sets that are visually displayed. Analysts take this fact and run with it, scaling graphs in infinitely different ways in order to obtain the most rhetorically potent effect. While many might argue that graphs are not rhetorical devices, they can be reminded of Klaus Hentschel’s (2002) argument: that graphs are rhetorically potent in that they are trying to persuade the viewer that they are objective, relevant, and factual (p. 13).

Building on this graphical understanding, it is possible to explore graph use in the specific genre of economic forecasting. An extremely important finding with which to launch this exploration is that of Laster, Bennett, and Geoum (1999) in their paper “Rational Bias in Macroeconomic Forecasts.” Their study found that, although forecasters reach a consensus about the most likely future behavior of the stock market, their actual published analysis differs from that consensus in direct relation to the size of their income (p. 293). This conclusion has huge and pervasive implications for economics and finance: even though writers and forecasters may understand the possible range of market behavior, they choose to publish an extreme projection with which to gain attention, admiration, and affluence. Because so much data exists in this realm, these

predictions can be backed by seemingly factual graphs and images that in reality are irrelevant and conniving.

**[Adamson goes on to analyze graphical interpretations of data plots. He concludes this section with the following paragraph.]**

Overall, the rhetorical potency of an economic graph is truly astounding, and its vast range of depiction is strikingly unexpected. These base findings, combined with a selfish forecaster desiring rhetorical potency, lead to uncertainty for the individual investor. The result of the slough of misapplied and misrepresented data is that individual investors must be determined to gather their information from multiple sources in order to reduce their individual rhetorical potency. Because no true visual representation of data can actually exist due to the nature of graphs, the investors' quandary is further intensified; how are they able to distinguish truth through analyzing lots of untruth? Adding even more to the situation is the fact that many investors do not devote their entire life to this endeavor. Many spend limited time researching and making decisions on their investments. This situation is explored by Laster et al. (1999) as well, as their study found that part-time investors gravitate toward a forecaster whose past record has been more sensationally successful than others; in doing so, they cut off their other sources and limit themselves to believing one analyst whose past success may be the result of luck and whose extreme predictions are based on his or her desire for more notoriety (p. 293). Such dependence is not a solution to the rhetorical potency of graphs and the biased approach of the analysts who choose them.

What Goes Up: Case Studies of Irrational Exuberance  
and the Economic Pseudo-Graph

*Throughout the 1980s and 1990s, as the Dow Jones industrial average rose from below 800 to above 11,000, Wall Street analysts and financial journalists warned that stocks were dangerously overvalued and that investors had been caught up in an insane euphoria. They were wrong.*

—Glassman & Hassett (1999)

Although this 1999 quotation from the authors of “Dow 36,000” seems blatantly false in light of the recent economic slowdown, it seemed perfectly acceptable in the days of the late 1990s. Investors had enjoyed years of economic prosperity and were being inundated with reports of new technologies, new businesses, and new standards of profit from investing. What Federal Reserve Board Chairman Alan Greenspan ominously called “irrational exuberance” seemed to be a fabrication of the old-world economy that was scared of new levels of economic prosperity. However, the following years of recession would prove old-world economic theory correct, and many followers of the “new” economy were left to count their losses.

A rhetorically powerful result during these times of insane and unfounded economic prosperity was the inclusion of ill-formed, pseudo-graphical depictions of sustained market increase. Many of these graphs were inspired by the astonishing forecasts of “Dow 36,000” and other publications heralding the coming of the “new economy” in which steady increase would be interrupted only by mild corrections, generating wealth and happiness for all. These false depictions of markets infused

rhetorical elements into financial reporting and forecasting, no doubt persuading readers into a false sense of security. Figure 5 is a powerfully manipulative pseudo-graphical representation of Glassman and Hassett's irrational prediction published in the *San Francisco Chronicle* next to an article analyzing the writers' arguments. The graphic was the centerpiece of the front page of the financial section of the newspaper, and its depiction of a completely make-believe data set is ludicrous and manipulative. The image shows a steadily ascending pseudo-graph with a valiant adventurer gleefully viewing what is to come: a pinnacle of economic affluence, or the value of Dow 36,000. The rhetorical strategies put forth in this seemingly innocent depiction are plentiful and profound. The author of the image infuses strong appeal to the reader by setting a happy adventurer on the graph, and any stockholder perusing the page would certainly feel a certain connection to the investor-hero. Additionally, the pinnacle of 36,000 is set extremely high on the page; in fact, the peak breaks through the financial header and seems to promise further growth beyond



Figure 5. A manipulative example of “truth” represented through false graphics and insidious rhetorical appeals. From “Up, Up, and Away: Two New Books See Remarkable Stock Market Growth but Differ on How Long It Will Take to Get There,” by Arthur M. Louis, December 7, 1999, *San Francisco Chronicle*, p. D1.

the scope of even the front page of the newspaper. Regardless of the magnitude of the rise, however, the author depicts a journey that is far from insurmountable and far closer to guaranteed. The ride from 10,000 to 36,000, according to this pseudo-graph, will be obstructed by only a few short blips and bumps along the way. When combined with strong logos appeals—such as an article glorifying the current market upswing, all but guaranteeing continued growth through the next decade, and a boldface title likening the economy’s increase to some aerial ascension—what investor wouldn’t be untruthfully misled as to the future of the economy? While it is true that no forecaster could have predicted the downturn that the market is now suffering, it would take a complete fool to assume that never again would the market experience decline; it is a fundamental law of finance that the economy fluctuates, and no new industries or exuberant investing can change that fact. This axiom is blatantly ignored in the image, which, due to the nature of

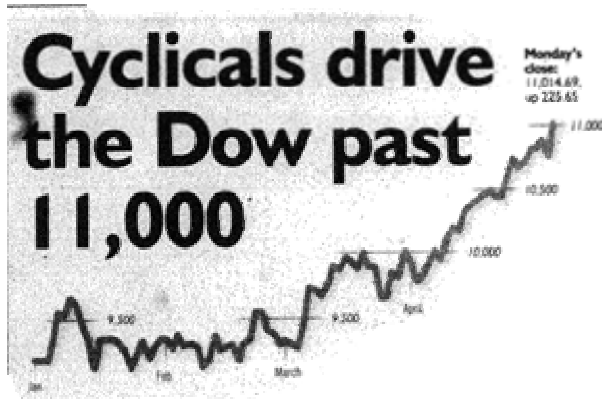


Figure 6. Its merit highly questionable, its rhetoric highly potent. From “Cyclicals Drive the Dow Past 11,000,” by Tom Walker, May 4, 1999, *Atlanta Journal-Constitution*, p. 1F.

visuals, undoubtedly leaves a stronger mark on the reader than any analysis provided in the article.

In this time of economic absurdity spanning the late 1990s to the year 2000, pseudo-graphs were not

limited to artistic depictions. In fact, many instances of more concrete, more believable, and therefore more rhetorically potent misrepresentations popped up across the country. A strong example of the pseudo-

graph, infused with more logos appeals due to its more “factual” depiction of the market’s performance, appeared in the *Atlanta Journal-Constitution* on May 4, 1999 (see Figure 6). Although seemingly more factual than Figure 5, this image uses graphical tweaking and a general abandonment of the rules of truthful data display to spew rhetoric to the reader. The primary problem with the graph is its lack of axes; in fact, this image is just a line put on a page with no reference to scale except a few haplessly placed dates and numbers. The effect of this pseudo-graph, however, is a strong factual appeal to readers: they see numbers, and they see a line, so they see fact. The depiction shows an upswing of great proportions, but it is in relation to nothing except the large heading declaring a new Dow Jones record. The subtle rhetoric this graph exudes is extremely detrimental to an investor’s sense of reality. It includes a basic manipulation of the trust

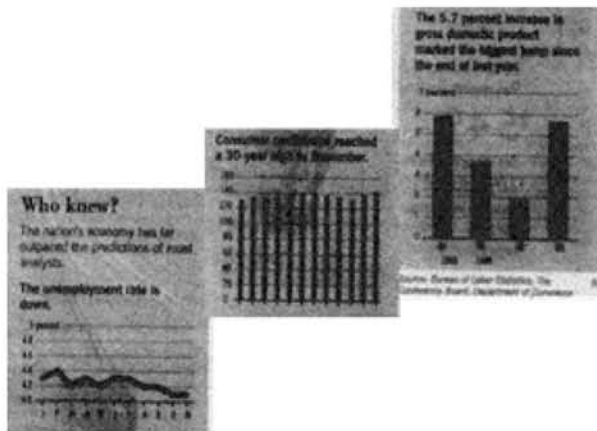


Figure 7. Three poor graphs that supposedly support bull market predictions. From “Economists Predict More Good Times; but Considering Their Past Record, Who Believes Them? ’98 Consensus Was Way Off,” by Dunstan Prial, December 31, 1999, *St. Louis Post-Dispatch*, p. C1.

most investors have in data displays as truthful representations of market behavior. If these displays are so malleable and potent, they cannot be truly objective and truthful.

In addition to depictions of the Dow Jones, many publications started to include superfluous data predictions to enforce the commonly held belief that the market was going up and would stay up in the years to come. The *St. Louis Post-Dispatch*

included three such graphs of questionable construction alongside a New Year's Eve article that presented various forecasts for the year to come (see Figure 7). While each of these are factors in the direction of the economy, this convergence of data represents the ability of forecasters to use any graph in any way they desire in order to make a point. Countless economic variables could have been graphed, but instead these three were chosen; the reason is that they might possibly support further economic growth. Regardless of the merit of the variables, the depiction of this data is extremely poor. The first graph, on the unemployment rate (left side), is a textbook example of manipulating the axes in order to increase the visual impact of a graph. The vertical values of the graph are extremely small, and the overall change in unemployment is a small drop of 0.3%. Additionally, the unemployment rate is a cyclical variable, meaning that its value fluctuates naturally and somewhat independently of market performance; therefore, this data should not be displayed to support an economic forecast of prosperity, and it certainly should not be displayed so poorly.

The second graph likewise misses the mark in its construction. Here, the graph constructor decided to adhere to Runyon's (1981) rules of zero-point graph construction (one in which every possible vertical value is displayed on the graph), which has the effect of reducing the accuracy of the bar chart (p. 40). A far more prudent choice would have been to depict this statistic as a line graph, notify the reader of liberties taken with the vertical axis, and display the data more precisely. The third and final graph depicts the growth in gross domestic product (GDP) of the last quarter. This graph is scaled more accurately so that the reader can see fluctuations, but a growth in GDP does not directly translate to a stronger market performance. All together, these three graphs presented together provide a confused display of data that shifts its approach to axis scale,

relevance, and precision throughout the visual exploration. This visual is most detrimental to an investor who looks at the data, cannot fully understand what is being displayed, and so takes the claims of future prosperity on face value. This is the sad effect of poorly displayed economic graphs: that those who view them, if somewhat inexperienced, will assume them to be true and assimilate their claims into their mental library of investing maxims.

**[Adamson goes on to explore the media’s manipulation of visual rhetoric via finance-related newspaper photographs. He concludes this section with the following paragraph.]**

All in all, the depiction of images and graphs during the overvalued period of the past decade was extremely rhetorical in nature, leaving investors to sift through misinformation and irrational misprojection. This unwarranted lack of objectivity led to the inability of financial advisors and investors alike to see the looming market drawback, and was a major cause for persistent optimism and myopia in the coming year of total volatility and uncertainty.

Hope Against Data: A Case Study of Futile Visuals in the Transitioning Economy

*Most analysts believe that tech stocks will continue to dominate the market as long as the Federal Reserve sticks to its policy of fighting inflation with higher interest rates.*  
—Tom Walker (2000d)

The transitional period that followed the historic growth of the late 1990s was one of extreme volatility. Despite the evident weakness in the economy, analysts such as Tom Walker of the *Atlanta Journal-Constitution* kept heralding the coming of a “new

economy,” one in which technology stocks would continue to increase despite the strong sell-off of many other industries. This departure from orthodox economic teachings represented a shortsighted attempt by analysts and investors to ignore the telltale signs of a drawback, continue their rash optimism, and force market growth regardless of whether it was justified. Naturally, these articles were combined with rhetorically potent visuals that appealed to the reader logically and pathetically in order to maintain optimism throughout the investing world.

An interesting phenomenon that emerged during this period was the disappearance of the pseudo-graph we explored previously and a transition to logical graphs that tried to explain why market setbacks were irrelevant in the profit-making juggernaut that was the technological revolution. Often times, these graphs were misleading in their construction or content. A striking example of this logos-driven visual supplement occurred in an article published in the *Atlanta Journal-Constitution* on March 17, 2000 (see Figure 10). This graph was labeled “Old and New Get Closer,”

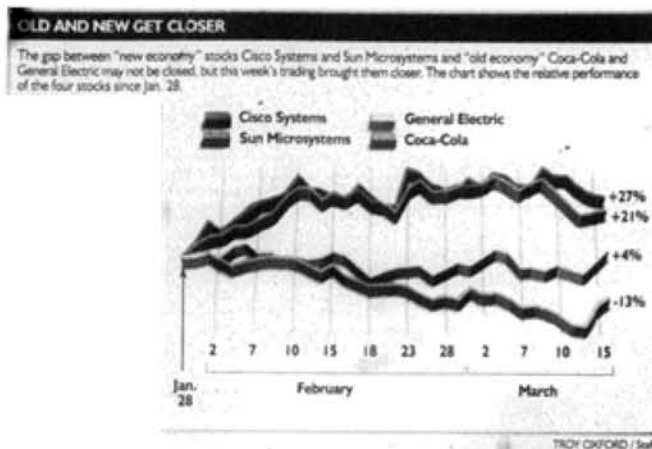


Figure 10. “Old” and “new” markets are really just four random companies. From “Market Feeds on Itself,” by Tom Walker, March 17, 2000, *Atlanta Journal-Constitution*, p. 1F.

insinuating that the data displayed is an argument for the reconvergence of “old” and “new” markets, which would in theory cause a newfound stability from which more market increase could ensue. In fact, the graph depicts only the stock prices of four firms: newer firms Cisco Systems and Sun Microsystems,

and the older Coca-Cola and General Electric. The graph seems to show a market convergence, when in actuality it shows what could be a totally uncorrelated and random convergence of four firms' stock percentages. Another important point to note is that this graph was published next to an article that quotes a few experts stating that the gap between "old" and "new" is increasing and that gap could be very worrisome for the economy (Walker, 2000d). Regardless of these quotations, the arrangement of the article is optimistic, and the visual supplement completely contradicts the cited testimonies. Moreover, because of its apparent factuality due to the inherent logos appeal of graphs, the visual sends a potent rhetorical spin on the actual content of the article that it supplements.

**[Adamson continues with an analysis of rhetoric behind bear market images in the media. He concludes the essay with the following section.]**

If It Looks Good, They Will Believe It:

The Continued Manipulation of Data and Images in the Financial Realm

*There are many paths that one can follow that will cause deteriorating quality of our data displays.*

—Howard Wainer (1984, p. 146)

Visual rhetoric saturates financial literature. Periodicals are the most notorious, and no doubt, most widely distributed, source of this detrimental trend in economic reporting and forecasting. Not only do graphs manipulate due to their very nature as malleable entities, but the sheer volume of data that our society collects and the frequency with which it is amassed allows any forecaster to pick and choose his or her

graph to suit the hypothesis. In addition, many publications use subtle pathetic appeals through photographs; establish unfounded connections by placing data and images in close proximity; and generally use visuals to cloud, rather than support, their argument.

Although visuals would be much more useful in this field as supplemental and solely factual elements, the nature of graphs and images leads to this detrimental, inescapable rhetorical push, and analysts use this to their advantage. The direction of this inevitable force is up to the biased forecaster, trying his or her hardest to gain publicity in order to make more money. These rhetorical advances should not be included in economic writing, but their vice remains their virtue: they simplify complex data into comprehensible, albeit condensed, visual information. In order to avoid being manipulated, the reader of economic images should be extremely careful and skeptical while analyzing any article with a visual attached. Each image has rhetorical potency, and it is necessary for the reader to gain his or her information from multiple sources in order to reduce the individual rhetorical potency of each source. The data of financial literature and economic forecasting will always speak slyly, with self-serving goals in mind; with an understanding of the manipulative power of images, however, it is possible to differentiate a tantalizing visual whisper from spoken economic truth.

Regardless of the investor's attempt to escape visual manipulations with the presented knowledge, the genre of economic literature is saturated with infused rhetoric that does not belong. The introduction of this paper stated that fact and logic drive the world of economics; due to this truism, pathetic appeals and manipulative graphical depictions have absolutely no place in the literature. Journalists and analysts need to take responsibility for their academic and economic integrity, and they need not consider their paycheck the determining factor in their forecasts. The science of forecasting is dubious

enough as it is, let alone with a hoard of selfish swindlers saturating investors with verbal and visual rhetoric.

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