Is Sumner M. Redstone crazy like a fox?

Movie industry executives may be forgiven for thinking that the Viacom chairman was mad to let Tom Cruise go after a 14-year relationship simply because Mr. Cruise seemed a little off balance. After all, the movies made by Viacom’s Paramount Pictures studio and the actor’s production company earned more than $2.5 billion at the box office. Yet, if you ask economists and other academics that study the movie industry, Mr. Redstone’s decision was, in financial terms, spot on. The best reason to get rid of Mr. Cruise or, for that matter, Mel Gibson, or Lindsay Lohan, is not their occasional aberrant behavior. They, like most marquee names in Hollywood, are simply not worth the expense. “Who knows what went through Mr. Redstone’s mind?” said Jehoshua Eliashberg, a professor of marketing, operations and information management at the Wharton School of the University of Pennsylvania. “But one can’t discard that the reason is that it doesn’t make economic sense to pay him all this money.”

Mr. Eliashberg is part of a growing cadre of academics studying how movies are made, financed and distributed. Most are finding that the studio’s assumption that big stars will increase a movie’s bottom line is simply wrong. “There is no statistical correlation between stars and success,” said S. Abraham Ravid, a professor of economics and finance at Rutgers University, who, in a 1999 study of almost 200 films released between 1991 and 1993, found that once one considered other factors influencing the success of a film, a star had no impact on its rate of return. Employing a star had virtually no discernible impact on the box office itself. Mr. Cruise would no doubt object to that assertion. And to be fair, there is some theoretical pedigree to the idea that he may be worth every penny. In fact, there is a whole branch of economics that aims to explain how talented people generate so much more money than competitors who are only slightly less good. It’s called “superstar economics.”

Superstar economics, which has been used to explain the astonishing fees of top lawyers and the skyrocketing pay of star chief executives, dates back to the insight in the late 19th century of the British economist Alfred Marshall, who observed that “the relative fall in the incomes to be earned by moderate ability ... is accentuated by the rise in those that are obtained by many men of extraordinary ability.” The dynamic was explained by a University of Chicago economist, Sherwin Rosen, in a 1981 paper entitled “Superstar Economics.” Mr. Rosen posited that improvements in technology that would make it easier for top performers in a field to serve a larger market would not only increase the revenue generated by stars, but would also reduce the revenue available to everybody else. Take the National Basketball Association. Michael Jordan pulled in millions of dollars in the 1980’s and 1990’s because basketball fans from San Francisco to Milwaukee would tune in to Chicago Bulls games on TV to watch him play. In the absence of
Mr. Jordan, those fans would probably have been watching the game of the Milwaukee Bucks or the Golden State Warriors instead. In a study about ticket prices for concerts, the Princeton economist Alan B. Krueger found that between 1983 and 2003, a period in which MTV, Napster, the iPod and other technologies extended the reach of top acts, the share of concert revenue taken by the top 5 percent of artists increased to 84 percent, from 62 percent.

Hollywood, where the star system was invented, is not wholly dependent on celebrities: the list of biggest-grossing movies in history is dominated by movies like “Shrek 2,” “ET: The Extra-Terrestrial” and the “Star Wars” series, which were not star-driven. But the industry still places an enormous importance on superstar power based on a straightforward fact: On average, movies that have big names starring in them make more money at the box office than movies that do not. Movie industry specialists argue that, in the complicated world of Hollywood economics, stars bring many different kinds of benefits. They are easier to market, they help sell more tickets at home and overseas and they help drive home-video sales, which are a bigger and bigger slice of studio revenue. “If the stars’ job is to increase output, by drawing crowds into the theaters or selling DVD’s, it is not working as well as it had worked in the past,” said Harold L. Vogel, author of a book called “Entertainment Industry Economics: A Guide for Financial Analysis.” But, he added: “This is a hiatus. We have gone through 25 years where new distribution for films — videocassettes, cable and DVD’s — added new revenue potential. That meant less resistance to stars’ salary demands.” Even studio chiefs will acknowledge that a star does not guarantee success. “Bewitched,” starring Nicole Kidman, cost an estimated $85 million and had taken in only about $62 million at the American box office by late 2005. Yet there is a bedrock belief that the winning formula consists of the right star in the right movie. “If you pay a star a great deal of money for a film that people don’t want to see, then it won’t work,” said Sidney Sheinberg, the former president of MCA Universal. “It is always a question of whether you are dealing with a project that is enhanced by a star or are you dealing with a project where you are looking for the star to make it happen, and sometimes it works and sometimes it doesn’t.”

Anita Elberse, an associate professor at the Harvard Business School, tried to measure the average effect of a star by analyzing casting announcements on the price of stocks on the Hollywood Exchange (www.hsx.com), a simulated market where hundreds of thousands of users trade stocks in individual movies based on their expected box-office revenue. Prices on this exchange have been found to be fairly good predictors of a film’s box-office success. Ms. Elberse found, for instance, that the announcement in 2002 that Mr. Cruise had dropped out of “Cold Mountain” — he had been expected to play the lead — reduced the movie’s expected gross by $10 million. The announcement that Mr. Cruise was in talks to play a leading role in “The Last Samurai” lifted the movie’s expected gross by $28 million. Combining through 12,000 casting announcements between November of 2001 and December of 2004, related to 600 movie stars and 500 movies, Ms. Elberse found stars, on average, were worth $3 million in theatrical revenue. Still, Ms. Elberse and other academics suspect that the box-office power of movie stars might be somewhat of a mirage. Ms. Elberse found that, even when casting announcements had an impact on the expected financial outcome of a given film, they had no discernible effect on the share price of the media companies that owned the movie studio — indicating that the participation of a star had no impact on the expected profitability of the studio.

Moreover, even if a star-studded movie does well, it does not necessarily mean that the stars are causing higher ticket sales. In fact, it seems to move the other way around: stars select what they believe are promising projects. And studios prefer to put stars in movies that they expect to be a success. “Movies with stars are successful not because of the star, but because the star chooses projects that people tend to like,” said Arthur S. De Vany, a professor emeritus of economics at the University of California, Irvine, who has written extensively about the economics of moviemaking. “It’s a movie that makes a star.” In other words, while a person will go to a Bruce Springsteen concert because the artist is, indeed, Bruce Springsteen, the success of “The Matrix” had to do with many things other than its star, Keanu Reeves. “Movie industry executives keep this perception that stardom is a formula for success, but they don’t measure it,” Mr. Eliashberg said. “They resist using analytical methods for all sorts of reasons, from being uncomfortable with numbers to the argument that this is a creative industry and not a business.”

Mr. De Vany and other economists point out that many factors contribute to the success of a movie — like a big budget, having a G or PG rating, opening on a large number of screens and whether it is a sequel, among others. In one study, Mr. De Vany and W. David Walls, an economist at the University of Calgary, took those factors into account. Looking across a sample of more than 2,000 movies exhibited between 1985 and 1996, they found that only seven actors and actresses — Tom Hanks, Michelle Pfeiffer,
Sandra Bullock, Jodie Foster, Jim Carrey, Barbra Streisand and Robin Williams — had a positive impact on the box office, mostly in the first few weeks of a film’s release. In the same study, two directors, Steven Spielberg and Oliver Stone also pushed up a movie’s revenue. But Winona Ryder, Sharon Stone and Val Kilmer were associated with a smaller box-office revenue. No other star had any statistically significant impact at all. So what are stars for? By helping a movie open — attracting lots of people in to see a movie in the first few days before the buzz about whether it’s good or bad is widely known — stars can set a floor for revenues, said Mr. De Vany. “Stars help to launch a film. They are meant as signals to create a big opening,” he said. “But they can’t make a film have legs.”

Mr. Ravid, the Rutgers professor, suggests that stars serve as insurance for executives who fear they could be fired for green-lighting a flop. “If they hire Julia Roberts and the film flops, they can say ‘Well, who knew?’ ” said Mr. Ravid.