An Introduction to the Collectible Sportscard Market

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Abstract

The primary and secondary market activity in collectible sportscards has evolved into that of a primitive, but organised financial market. This report reviews some aspects of the collectible sportscard market. The objective of the report is to introduce the sportscard investment medium to finance professionals, including those interested in the research potential of the market. The report includes an empirical analysis of the performance of some selected sportscard portfolio strategies for the period between March 1988 and December 1993.

Sportscard collecting has evolved from an adolescent hobby of the 1950s into an active national market, estimated to involve approximately $5 billion and 3 million persons and served by a network of dealers and price information suppliers. The evolution of the sportscard market into its current state is described in this presentation. The description includes an empirical analysis of the performance of some selected sportscard portfolio strategies for the period between March 1988 and December 1993. The objective of the report is to provide information to those considering collectible sportscards as an investment medium and to those who might be interested in conducting financial research with collectible sportscard pricing data.

1. The Origins of the Collectible Sportscard Market

Sportscard collecting became a popular hobby with adolescents in the 1950s, when cards were distributed in "wax" packs. At first, the cards were meant to sell bubble gum. Gradually, emphasis was placed on the cards, with the bubble gum becoming the lesser attraction.

In 1950 the first notable set included 252 baseball cards and was distributed by the Bowman Company. In 1951, the Topps Company produced two limited sets of 52 cards. In 1952, Bowman produced a set of 324 cards, while Topps produced its first full set of 407 players. Bowman and Topps competed for market share until Topps bought out Bowman after the 1955 card season. After that time, Topps was the only significant producer of cards, including football and basketball cards, until the 1980s.

To the adolescents of the 1950s the basic function of the cards was recreation. Cards served as an enjoyable way to focus attention onto the players of a sport. The statistics on

the back of cards would be read for information, and collectors studied stars like Mickey Mantle as well as lesser-known players like Sandolio Consuegra. Cards were handled and traded often. Games were played, like flipping cards and scaling them against a wall. Many would attach cards to their bicycle wheels to create a "motorcycle" sound effect with the wire spokes.

A true collector would attempt to put together a complete set of each year's cards. Completing a set was a labor of love. The collector had to search for his missing cards in the "doubles" of fellow collectors. Eventually, card collecting would generally be outgrown. While many collections were discarded, some would survive in attics and basements.

II. Formalization of the Secondary Market

In the 1970s, past collectors began to stumble onto surviving cards of earlier years in antique shops, and began to purchase the cards for nostalgic reasons. These collectors were followed by others who may or may not have collected as adolescents, but found a hobby in collecting old sportscards in antique shops and garage sales. Such collectors are referred to as hobbyists. The demand by nostalgists and hobbyists caused collectible sportscards to rise in value.

The rising values of sportscards in the late 1970s attracted a number of people who became interested in sportscards primarily for their profit potential. These collectors are known as investors, and their entry into the market pushed sportscard values even higher, which in turn stimulated even more investor and speculator interest.

Sportscard values began to reflect the natural forces of supply and demand. The three primary fundamental factors influencing a card's value became (1) the quantity of a card in the marketplace, with limited supply being a factor that "stimulates its own demand" in collectibles; (2) the star quality of the player, based on performance, personality, and position; and (3) the condition of the card. A "near mint" card has sharp corners, is well-centered, and retains most of its original gloss and rigidity. A mint card is perfectly centered, has a crisp photo, and was seldom handled after the original pack was opened. As such, mint cards are worth more than near mint cards. Cards graded below near mint, due to poor centering or wear, are often worth significantly less than near mint cards.

As the hobby developed, a convention evolved to prize a player's oldest card as the most desirable card to own from a collector's standpoint. A player's oldest card is called the "rookie card", even if the card appeared after the player's true rookie season. Other things equal, the rookie card for a player generally takes on a value that is about four or five times higher than the second year card and about 10 times higher than subsequent cards.

Investors and speculators began to stimulate intense speculative activity in the new cards of active players. Investor/speculators began to buy boxes and cases of packs containing new cards as an investment in rookie cards of potential future stars. In 1976 the Topps Company, which was still the only producer of baseball cards, is reported to

have dramatically expanded its production of new sportscards to meet this speculative demand.

During the period of the late 1970s, the market's microstructure began to take form. The interests of collectors, investors, and speculators began to be met by dealers, operating nationally via mail order or locally out of shops, weekend shows, and flea markets. As in financial markets, dealers set a spread for buying and selling.

In 1979, Dr Jim Beckett and Denny Eckes published the first *Sport Americana Baseball Card Price Guide*. This guide, published annually, has provided the public with representative prices at which cards had been traded. In the 1980 (second) edition, the authors' comment that "the prices are not the thoughts or desires of the authors, publisher, distributors, or advertisers. They are what the marketplace, through the law of supply and demand has determined... You and you alone are the final judge as to whether you should or should not buy or sell a particular card at a particular price." (Beckett and Eckes, 1980, p.3).

Naturally, the development of the market's microstructure, in terms of both dealers and pricing information, stimulated and facilitated additional public participation in collecting, investing, and speculating. In 1981, two additional companies (Donruss and Fleer) began to compete with Topps for market share in the distribution of new baseball cards.

III. The Modern Sportscard Market

The modern sportscard market is characterized by the following features:

A. *Secondary Market Activity*

1. Dealer Activity: One can often find one or more weekend sportscard shows within reasonable driving distance. Large regional shows are held seasonally in every major metropolitan area. The annual "National" show attracts tens of thousands of people. Many dealers set up at flea markets on a regular basis. Virtually every community has a small sportscard shop.

Many dealers trade with each other through an interactive computer network, called Sports Net, and sometimes referred to as the "dealer net" or simply "the net". Sports Net is accessed through Infonet. In 1993 the net included over 3,500 dealers. The net allows users to access through either a PC modem or a satellite dish. Like financial markets, deals are made on one's word, sometimes with an unknown dealer across the country; performance on deals is enforced by the need to maintain credibility. Dealers actively monitor bids, offers, and trades made by other dealers on the net for daily pricing information.

Dealers' secondary market products include single cards, whole sets, and boxes of unopened packs. Dealers often carry inventories of older unopened packs to meet the demands of a "gambling" element that evolved into the market: if a particularly valuable card may be contained in an unopened pack of an earlier year, a "gambler" is attracted to

"try his luck" with a pack in the same way that one is drawn to a lottery. Dealers also sell primary market material (new cards), obtained from distributors and manufacturers.

Dealer spreads tend to be very high. A typical dealer spread is 50%, as a dealer will buy for $80 what he will resell for $120. For "hot" items, this spread can be as low as 20%; for slow items, dealers may not be willing to buy at all.

2. Secondary Market Price Volatility: Sportscard values can be volatile and driven by events. Usually an upward jump in value will accompany the media attention of a great player's retirement or election in the hall of fame, or the breaking of some major record. The cards for the very popular Magic Johnson increased by over 50% following his announcement of retirement due to the HIV virus. A drop in value will follow an injury (Joe Montana's cards plummeted by 50% during the 1991 season, which he sat out due to injury), or loss of "role-model" status (Rickey Henderson's cards dropped by about 75% after the public perceived him as boasting over his own base-stealing accomplishments. Occasionally, a retired player's cards can increase in value if the person becomes a politician (Bill Bradley, Jack Kemp) or entertainment personality (Bob Uecker).

The market activity in older cards of inactive players, which formed the original basis of the market in the 1970s, continues to be strong. Some older cards have taken on such high values that they are auctioned at Sotheby's and other prestigious auction houses. However, although the market for inactive player cards is extensive and still growing, much of the activity in the modern secondary market is in the cards of active players, especially emerging stars and hot prospects.

Both a cause and effect of the high level of interest and activity in cards of active players is the fact that the market prices are more volatile than the cards of retired players. Retired players' card prices are generally not driven by information (except in cases like Peter Rose), whereas the card prices of active players are very sensitive to new performance information, media attention, and "herd" speculation by participants in the market.

3. Public Information: In 1987, Beckett's began to publish a monthly guide to the prices of actively traded baseball cards. Until that time, Beckett's pricing information was published annually, and the annual publication still includes cards that are not actively traded. Prices for each card are quoted as a range at which the card has been observed to trade in the prior month. Beckett's currently discovers prices in three ways: 1) observing activity at weekend shows around the country; 2) surveying dealers throughout the country; and 3) monitoring transaction price by dealers on the Sports Net.

In 1989, Beckett's began to publish a monthly pricing guide for football cards, followed in 1990 by monthly pricing guides for basketball and hockey cards. In addition to prices, the guides feature information about cards, players, and hobby trends. The monthly baseball card guide contains a useful calendar of all shows for the month.

A number of other information services are available. *Sports Collector Digest, Tuff Stuff* magazine, and *Collector's Sports Look* magazine are three popular sources of information about hobby trends, prices, and national dealer advertising. The current level

of public information in the modern sportscard market makes it nearly impossible to find undiscovered treasures at garage sales and antique shops.

4. Book Pricing: Although published prices reflect the market's supply and demand, published prices are widely used by dealers to set prices to the general public. Specifically, dealers at shops typically employ Beckett's most recent "high column" prices - the high of the prices observed by Beckett's in the marketplace up to the time the guide is sent to the printers. A market convention has now been established to regard Beckett's monthly prices as the market's "book" prices. Often dealers at shows will discount/gross-up book prices in situations where new information has not yet been reflected in book prices.

5. Card Grading and Protection: Participants in the market are extremely particular about card quality. Many participants will not purchase a card with any flaw or defect. As a result, sportscards are no longer handled, and rarely played with. Participants in the market protect all cards by inserting them into polypropalene notebook pages or into clear sleeves and transparent hard plastic covers.

6. Market Standards: While the market is unregulated, there exists a voluntary dealer association that is concerned about standards and ethical issues. One issue is "searching" - opening of older wax packs to extract valuable cards, and then resealing and selling to naive public speculators, who assume there exists a chance of obtaining a valuable card. The association attempts to guide dealers and other market participants regarding ethical practices.

Another issue is that of card alteration and counterfeiting. Alteration involves shaving to recreate sharp corners or other cosmetic activity. Counterfeiting has become a significant problem. At present, all concerned parties are sharing information with each other on known counterfeits and how to detect them. Card alteration and counterfeiting constitute fraud and are thus illegal. In some states, card alteration and/or counterfeiting have been specifically addressed in legal statutes. Dealers and card producers are helping to identify and prosecute violators.

The collecting public has ensured that only licensed cards have any real value. The only recognized licensing groups are the professional associations (Major League Baseball, the National Football League, the National Basketball Association, and the National Hockey League) and player associations. These licensing groups have established a standard contractual practice for manufacturers to destroy the printing plates of an issue after the production during that season has ceased. This practice assures the public that a company cannot dilute the market in future years by printing more cards of an issue whose supply is assumed by the market to be stable.

B. *Primary Market Activity*

1. Overproduction: In the second half of the 1980s, the market saw more and more emphasis on speculative activity in newly issued rookie cards of potential future hall of famers. Large numbers of investor/speculators began to stockpile unopened cases of cards, and manufacturers produced to meet this demand. In addition, manufacturers began the practice of distributing boxed factory sets in addition to packs. Cards produced in recent

years have not appreciated much in value for these reasons, and many cards produced after 1987 have little value due to overproduction. In cases where the true rookie card of an active star player is too plentiful to have value, hobbyists have established the concept of a player's "key card", which takes into consideration the existing supply and desirability of the card, in addition to the point of time in the player's career.

2. Upscale Product: Following the introduction of the fourth baseball card set in 1988 by Score Co., the Upper Deck Company had a major impact on the market in 1989 with the introduction of its new set. The Upper Deck cards took quality to an entirely new level. Moreover, the Upper Deck cards cannot be counterfeited and the foil packs cannot be searched and resealed. By the time of the 1989 Upper Deck issue, bubble gum was a thing of the past for all card manufacturers.

Upper Deck's success with an "upscale" product led to intense competition among manufacturers to produce high quality cards. The 1990 Leaf baseball set[1] and the 1991 Topps Stadium Club baseball set had major success with hobbyists, partly because the cards were high quality and partly because production was perceived to be low. However, the warm reception to these sets has led to significant competition among all manufacturers to produce multiple lines of cards to fill multiple market niches, including traditional sets, upscale sets, and midscale sets. In 1993, this trend evolved into the issue of several "super premium, super limited" sets, led by the Topps Finest set.

Thus there now exists a glut of many different sets: By December, 1993 there were (released or announced) 18 regular- issue baseball card sets for the 1993 season, 19 regular-issue football card sets for the 1993 season, and seven regular issue- basketball card sets for the 1993-1994 season. In contrast, there were only four baseball card sets in 1988 and six in 1989, one football card set in 1988 and three in 1989, and one basketball card set in 1988-1989 and three in 1989-1990. Thus the competition for primary market share has exacerbated the overproduction problem in sportscards. It is interesting to note that the NBA has chosen to restrict the number of licensed sets. At the same time, interest by young fans and hobbyists in NBA basketball and its heroes (Michael Jordan, Magic Johnson, Charles Barkley, Shaquille O'Neal, and so forth) has been dramatically increasing at the expense of major league baseball.

3. Insert Cards: Primary market buyers often withhold purchasing new cards when overproduction is perceived to be a problem, since oversupply stifles demand as much as scarcity stimulates demand. However, in 1991 manufacturers began to maintain sales by the random dispersal of special limited-production "insert" or "chase" cards in new packs. Some of the insert cards are autographed cards that are extremely difficult to obtain,; others are more common. Many insert cards are part of insert sets. Insert cards have market value due to their perceived scarcity. The hope of pulling a valuable insert card from a pack of new cards stimulates many "gamblers" to buy and open packs of primary market cards.

However, the overproduction of essentially undesirable regular-issue cards has only been magnified by this process. The extreme "solution" to this problem occurred in 1993 when Pacific Co. began to issues its (presumably) scarce "insert cards", called Pacific Prisms, in one-card packs, relieving buyers of the problem of disposing of undesirable regular-issue cards.

Another problem that has resulted is the proliferation of insert cards and insert sets themselves. Manufacturers often insert one type of insert set in regular packs of Series 1 cards, another in regular packs of Series 2 cards, a third in jumbo packs of Series 1, and so forth. In 1993 there were no fewer than 10 insert sets associated with the regular Upper Deck baseball cards (not to be confused with Upper Deck's "super premium" set, which had its own insert cards).

4. Limited Production: Manufacturers have also begun advertising "limited production", with hopes that a scarce release will catch on with the hobby and "create its own demand". In 1992, the role model for this course of action was established by accident with the Bowman set, which had been reintroduced by Topps in 1989. The Topps Company announced that its Bowman line was to be discontinued, and only enough cards would be produced in the 1992 issue to meet the advance orders of dealers, which were few. Topps' reintroduction of the Bowman name in 1989 was for purposes of creating a product with an emphasis on "rookie cards" of players that had not yet established their major league tenure. However, the Bowman quality was so far behind that of the new upscale products that the Bowman line was a failure in the market. Topps upgraded the quality of the 1992 Bowman cards, but decided to discontinue the line anyway in the face of the intense primary market competition and to focus on its regular and Stadium Club issues.

As it turned out, the 1992 Bowman set contained the only 1992 cards for young players like Mike Piazza, Tim Salmon, Nigel Wilson, David Nied, and Cliff Floyd, all of whom began to make significant hobby news during the 1993 Spring training. The only cards in existence for these players were their relatively scarce 1992 Bowman cards. Correspondingly, the 1992 Bowman cards for these and other players rapidly appreciated in value. Piazza and Salmon went on to not only receive the 1993 "Rookie-of-the-Year" award in the National and American League, respectively, but also had a truly phenomenal season that eclipsed the typical season of a Rookie-of-the-Year. Since such rookie year performances create a significant amount of market speculation in the rookie cards of these players, the relatively scarce 1992 Bowman cards became the only 1992 baseball set to maintain market interest (and value) through the 1993 season.

The 1993 Topps Finest baseball card set was conceived as a product combining the highest quality and extreme scarcity. This issue was the most successful of 1993 from the viewpoint of the secondary market. However, not all announcements of "limited production" cards are being met with enthusiasm in the market. Unfortunately, many hobbyists have heard promises of limited production many times, only to have market prices collapse under the weight of a supply that somehow appears in great quantities. Hobbyists are wary of manufacturer's promises of limited production, and rightfully so.

IV. An Empirical Analysis of Modern Sportscard Market Prices

Sportscards are but one example of a tangible asset which might be considered for investment purposes. Other tangible, collectible assets include works of art, classic automobiles, postage stamps, rare vintage wine and antique furniture. The popularity of these investment alternatives is illustrated by the dozens of articles appearing in *Barron's* and *Fortune* magazines over the past few years.

Tangible assets are fundamentally different from other investment alternatives. Certain collectibles are often obtained as much for their nostalgic or sentimental value as for their investment value. The popularity of baseball cards and antiques offers evidence in this regard. Thus, the non-pecuniary benefits of tangible assets has been suggested as an explanation for some of the differences in their rates of return when compared with other investment alternatives (Taylor, 1983, p.1109; Graeser, 1993, p.820). Further, unlike traditional investments, the physical condition of collectibles is an important factor in determining their values.

The emerging popularity of tangible assets has given rise to some empirical studies. A sampling of recent research includes studies on the rates of return on American antique furniture (Graeser, 1993), stamps (Taylor, 1983) and wine (Jaeger, 1981). This paper attempts to extend the research in the area of tangible assets as a result of the recent explosion of the sportscard market for collectibles.

A. *Methodology*

This section reports the results of simulations of two distinct sportscard portfolio strategies over the period from March 1988 to December 1993. The first is an actively-managed strategy involving monthly holding periods of the key cards of "hot players" in the hobby. Every month, Beckett's features a "Weather Report", a list of names of players who are hot and cold in the eyes of the hobby participants. The key cards of the top ten players on the monthly "hot list" were selected to represent an actively-managed sportscard portfolio strategy for the modern market. Naturally, the composition of the portfolio changes over time. The average turnover is about one to two players a month.

The top 10 "hot list" consistently features only active players. Some are established stars (with key cards from earlier years), like Nolan Ryan (1968 Topps), Rickey Henderson (1980 Topps), Cal Ripken, Jr. (1982 Topps Traded), Wade Boggs (1983 Topps), Ryne Sandberg (1983 Topps), and Don Mattingly (1984 Donruss). Others are newer stars like Jose Canseco (1986 Donruss), Will Clark (1987 Fleer), Barry Bonds (1987 Fleer), Ken Griffey, Jr. (1989 Upper Deck), and Frank Thomas (1990 Leaf). The hot list also typically contains one of more players who are perceived at the time as top prospects by market participants, but some fade quickly from market prominence when their on-field performance does not meet these expectations. Thus the simulation of an actively-managed "hot list" strategy is representative of general participation in the active players' market.

The second strategy simulated in the analysis is a "buy- and-hold" strategy of older cards of inactive hall-of-famers. Actually, the performance of two such portfolios of 10 cards each is examined. By design, one portfolio contains all black players, while the other portfolio contains all white players. The purpose of this design is to investigate the possibility that racism plays a role in card values. Nardinelli and Simon (1990), using the 1989 Beckett's price guide examined whether a player's race directly affected the value of a player's 1970 baseball card. They found evidence that cards of nonwhite players sell for between 10 to 13% less than the cards of white players. Their approach focused on a large subset of the 1970 card set which considers many cards which are not actively traded.

Therefore, our study attempted to determine if there would be a similar result when using a portfolio trading strategy with a limited number of arbitrarily selected players.

The 20 inactive players were chosen arbitrarily. Mickey Mantle and Jackie Robinson were omitted due to the potential interpretation of their cards as "outliers". Mantle is the hobby's most desirable player, while Robinson is known for breaking the "color barrier" in major league baseball.

The black player (and the key card) portfolio consists of: Willie Mays (51 Bowman), Roy Campanella (52 Topps), Hank Aaron (1954 Topps), Ernie Banks (1955 Topps), Roberto Clemente (1955 Topss), Frank Robinson (1957 Topps), Bob Gibson (1959 Topps), Joe Morgan (1965 Topps), Rod Carew (1967 Topps), and Reggie Jackson (1969 Topps). The white player portfolio consists of Yogi Berra (1950 Bowman), Ted Williams (1950 Bowman), Stan Musial (1953 Bowman), Al Kaine (1954 Topps), Harmon Killebrew (1955 Tops), Sandy Koufax (1955 Topps), Brooks Robinson (1957 Topps), Carl Yastrzemski (1960 Topps), Johnny Bench (1968 Topps), and Mike Schmidt (1973 Topps).

For all portfolios, the analysis begins with the prices of the key cards as reported in the March 1988 Beckett's monthly price guide. Prior to that time, Beckett's monthly guide was not truly monthly, since the January and February months were combined. After March 1988, prices are available for every month until the study concludes with the December 1993 issue.

The choice of key cards was arbitrary. (Beckett's does not identify the key card for players listed in their "Weather Report"). In many cases the key card used in the analysis was the player's unambiguous rookie card (as identified in Boyd's Rookie Card Guide (1993)). Otherwise the most desirable card in the hobby, in the opinion of the authors (who actively participate in the market), was used. A new monthly publication, *Collector's Sports Look* magazine, has begun to feature "the top 20 cards" in the current market for each of four major sports. Some of these cards are inactive player cards; others are newer cards of current stars. This feature will provide a useful portfolio to analyze in the future.

All prices used in the analysis are Beckett's "high column" prices. It is likely that an investor would have to pay these prices at a shop. Typically, one might obtain a 20% (more or less) discount through negotiation with dealers at shows, at least for cards where the price guide reflects current information, but this type of card buying requires grading skills beyond those of a novice. Paying the full book price at a shop, at least at a shop where the expertise and integrity can be trusted, is a better guarantee of the quality of a card in the eyes of experts.

The rate of return on each of the ten cards in each of the portfolios is calculated from the high column prices in successive monthly Beckett's. Although it is extremely unlikely that cards can be liquidated easily at high column prices, this simulation makes this implicit assumption for continuity. In other words, this study ignores transactions costs. For each portfolio the ten rates of return are averaged in the manner of an equally-weighted portfolio. For the "hot list" portfolio, at the end of each month, the portfolio composition is revised to reflect the new "hot list".

The results of the analysis are reported in the next section. While not included in the formal analysis, the reader may be interested to know that Mickey Mantle's 1952 Topps card, perhaps the most famous baseball card in the market, increased in value from $6,000 in March 1988 to a peak of $33,000 in late 1992. In January 1993 the value of the card began to decline, and was listed at $25,000 as of December, 1993. Jackie Robinson's 1950 Bowman rookie card increased gradually in value from 350 in March 1988 to 750 by July 1993, which was still the value as of December 1993.

B. *Results*

Summary statistics are reported in Table 1 and graphs of portfolio performance and the S&P500 are shown in Figures 1, 2 and 3. Figure 1 illustrates how much a dollar invested at the beginning of February 1988 would be worth if maintained in each portfolio. Figure 2 illustrates the monthly return experienced by the inactive portfolio and the S&P500 index. Figure 3 shows the monthly return experienced by the "hot list" portfolio and the S&P500 index. During the time period between March 1988 and November 1993[2], the "hot list" strategy produces a 50.92% annualized rate of return. This return compares favorably to the S&P500's 9.95% annualized return over the same time period. The "hot list" portfolio however experiences a higher level of variability. The standard deviation of monthly returns for the "hot list" portfolio is 5.41% whereas the S&P500's equivalent statistic is 3.49%. Interestingly, however, the "hot list" portfolio experiences negative monthly returns 14 times while the S&P500 experiences negative monthly returns 26 times.

The largest monthly decline for an individual card is negative 45%. This decline in value was experienced by Bo Jackson's 1986 Donruss Rookie card that fell from $20 in December 1991 to $11 in January 1992. This decline was due to Jackson's injury that ended his career in football and made his future performance in baseball questionable. The largest negative monthly decline for the "hot list" portfolio is only negative 6.08% computed from the beginning of June 1993 to the beginning of July 1993. The S&P500's largest monthly decline in value is negative 9.12% calculated from the first business day of August 1990 to the first business day of September 1990.

The largest monthly gain in value for an individual card is 108.33%. This increase in value is experienced by David Justice's 1990 Leaf card that rose from $24 in September 1991 to $50 in October 1991, as the market began to acknowledge Justice's strong chances of being names "Rookie of the Year" as well as the high quality of scarcity of the 1990 Leaf card set. The largest monthly increase in value for the "hot list" portfolio was 22.44% calculated from the beginning of October 1989 to the beginning of November 1989. The S&P500's largest monthly gain in value was 9.4% estimated from the first business day of December 1991 to the first business day of January 1992.

Over the time period examined, each of two inactive player portfolios experiences a higher rate of return than the S&P500. The portfolio of black players experienced a 22.25% annualized rate of return, while the portfolio of white players earned a 17.08% annualized rate. As noted, the S&P500's rate of return over the same interval was 9.95%. A difference in means test does not provide evidence of any significant differences between the

performance of portfolios made up of white and black players and an F-test failed to reject the null hypothesis of equal variances for these two portfolios. We find no evidence that the card market discriminates based on color.[3]

Unlike the "hot list" portfolio, the two inactive player portfolios experienced a lower level of variability than the S&P500. We attribute the lower level of variability for the portfolios of inactive players relative to that of the active players to be a function of the lower level of new information the market receives regarding inactive players. We calculate F- statistics to test the null hypothesis of equal variances for the portfolios made up of active players (the hot list portfolio) and portfolios made up of inactive players. The null hypothesis of equal variances is rejected in all cases that compare portfolios of active players versus portfolios of inactive players.

A combined portfolio made up of the 20 inactive (black and white) players experienced a 19.69% annualized rate of return. The standard deviation of monthly returns for this inactive player portfolio was 1.97% whereas the S&P500's equivalent statistic was 3.49%. The combined portfolio of inactive players experienced negative monthly returns only 10 times while the S&P500 experienced negative monthly returns 26 times.

Lastly, an "overall card market" equally-weighted portfolio of 30 players is examined. This portfolio is made up of the 10 players on the "hot list" and the 20 inactive players. This portfolio produces a 29.81% annualized rate of return during the period examined. This is higher than the previously reported 9.95% annualized return for the S&P500. This performance was achieved along with a lower standard deviation of monthly returns of 2.45% for the card portfolio, while the S&P500's standard deviation of monthly returns for the given time period was 3.49%.

We calculated a simple linear regression where the monthly return for the S&P500 is the explanatory variable and the monthly return for the "hot list" portfolio is the dependent variable. No statistically significant relationship was found. The beta was -.117 (t=-.624). Similarly, we found no statistically significant relationship between the return for either of the two inactive player portfolios and the return of the S&P500. The inactive black player portfolio had a beta of -.032 (t=-.454); the inactive white player portfolio had a beta of .053 (t=.671). The return of the overall card market portfolio was also significantly related to the return of the S&P500, with a beta of -.032 (t=-.379).

The largest negative monthly decline for the overall 30- card portfolio, was only negative 2.82%, experienced from the beginning of August 1993 to the beginning of September 1993. The S&P500's largest monthly decline in value was negative 9.12% experienced from the first business day of August 1990 to the first business day of September 1990. The largest monthly increase in value for this card portfolio was 12.75% calculated from the beginning of October 1989 to the beginning of November 1989. The S&P500's largest gain in value was 9.4% computed from the first business day of December 1991 to the first business day of January 1992.

V. Potential Insights for Financial Market

In the past, the theme of sports has provided occasional insights to financial research in general. See, for examples, articles on sports wagering by Gandar, et al (1988) and on the Super Bowl stock market predictor by Krueger and Kennedy (1990). Is it possible that there also may be opportunities for some general financial research in the collectible sportscard market?

A. *Informed Versus Uninformed Trading*

One research opportunity may present itself within the aspect of sportscard market pricing that many dealers set their prices by Beckett's pricing guide, while the guide in turn attempts to reflect the prices set by supply and demand in the market. This circularity is reminiscent of the discussion of market efficiency in the classic article by Grossman and Stiglitz (1980). Grossman and Stiglitz argued on the "impossibility" of efficient markets when information is costly, since there would be no incentive to acquire the information if there were no mispricings to exploit. However, if no traders gather information, relying instead upon market prices to be efficient, then the prices cannot be efficient with respect to pertinent information.

Grossman and Stiglitz construct an equilibrium where there exist two types of traders, the informed and the uninformed, and where an uncertain supply of investments introduces noise into prices. This noise prevents prices from fully revealing the information of the informed traders to the uninformed traders. In the model, the percent of traders who expend the resources to acquire information is an endogenous variable.

Clearly, the vast reliance on Beckett's book prices in the sportscard marketplace reflects uninformed trading in the Grossman/Stiglitz sense. However, in the Grossman/Stiglitz world, it may be rational for a large proportion of traders to stay uninformed, ie. use Beckett's book prices as the best estimate of card values. The questions are: 1) What is the equilibrium proportion of informed trading to uninformed trading in the sportscard market that would ensure that deviations of prices from fundamental values (based on supply, set quality, and player star quality) are due only to noise in the market's perception of card supply, and 2) Is the uninformed component in the sportscard market too high, allowing prices to become distorted relative to fundamental values in a systematic fashion?

Research of this type could provide insights into the empirical validity of equilibrium noisy rational expectations models. Of course, there are many equilibrium noisy rational expectations models, just like there are many capital asset pricing models. However, the Grossman/Stiglitz work appears to be a fundamental starting point, much the same as the Sharpe-Lintner model is relative to the various capital asset pricing models.

B. *Sentiment and Prices*

Related to the issue of informed versus uninformed traders is the question of the relative influence of sentiment versus information in pricing. In the Grossman/Stiglitz model, uninformed traders are simply passive. Those who would trade on sentiment might be

viewed as beinging "disinformation" into prices. Financial research has recently focused on the role of sentiment in market pricing. For example, see Lee, Shleifer, and Thaler (1991).

The fact that the sportscard market can be divided between active and inactive players may permit analyses that cannot traditionally be performed in financial markets. For example, price changes for inactive player cards, where there exists no new information, can be used to control for the "sentiment" effect of the growth in the popularity of the hobby. The prices of active player cards can be examined for the relative influences of sentiment and information, and for informational efficiency, after controlling for sentiment effects.

C. *Resolution of Uncertainty*

Another interesting issue that it may be possible to explore is the classic uncertainty resolution insight of Robichek and Myers (1966). Robichek and Myers used a simple example to explain the role of uncertainty resolution in asset pricing. The asset was the ownership of the return load of a two-year voyage of an ancient trading ship, which might return with treasure or not return at all. Robichek and Myers determined that the value of the asset would not be expected to appreciate at the same risk- adjusted rate of return each year. Over the first year, no uncertainty is resolved, and the value of the asset would appreciate at the risk free rate. Only over the second year would the asset be expected to earn a rate of return that included a risk premium.

For example purposes assume that a player's key card is worth 250 if the player makes the Hall of Fame. Consider a hypothetical comparison of the key cards of a veteran baseball player like Paul Molitor and those of baseball's prominent new stars, Ken Griffey, Jr. and Frank Thomas. Molitor's rookie card in the 1978 Topps set, shared with veteran all-star Alan Trammell, was never valued higher than $50 prior to the 1993 season. During Molitor's outstanding season in 1993 with the champion Toronto Blue Jays the Molitor/Trammell rookie card rose dramatically in value. Some market participants claimed that the card had been undervalued, perhaps due to the fact that Molitor had his career with the Milwaukee Brewers rather than in a large- media city. On the other hand, could the card have been correctly valued given that Molitor's 1993 season simply resolved considerable uncertainty over whether Molitor will eventually be inducted into the Baseball Hall of Fame?

The key cards for Griffey (1989 Upper Deck) and Frank Thomas (1990 Leaf) experienced dramatic increases in prices, each to about $50, very early in the careers of these two players. Since that time, there has been very little volatility in these players cards, despite the fact that both have been at the top of the hot list for two years. Many regarded the dramatic rise in their cards' values as speculative fever at the time. However, has the price behavior of these two player's cards actually reflected that a significant amount of the uncertainty of their potential for Hall of Fame status was resolved early in their careers?

A research study of card prices and information could help distinguish misvaluation effects (perceived undervaluation and speculative overvaluation) from effects connected to the resolution of uncertainty.

VI. Conclusion

The primary and secondary market activity in collectible sportscards has taken on features of an organized financial market, complete with nationwide computer pricing and trading. This market continues to evolve as more participants are attracted by the enjoyment of sports and the volatility of card prices. Unique aspects of the market may make it possible to conduct some interesting and useful future research related to the general subject of finance.

Endnotes

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1. Leaf had been the Canadian trade name for Donruss cards; now Donruss is the name of one of the product lines of the US company, Leaf, Inc.

2. The dates on the Becketts issues reflect the prices from the previous month. Baseball Becketts is pubished early in the month prior to its stated month. Given publication lag time, Becketts December prices correspond to market prices as of about the beginning of November. The dates reported herein are as stated on Beckett's covers. The S&P500 returns are calculated from the first business day each month. Figure 1 and Figure 2 display portfolio performance when it actually took place, that is one month prior to the Beckett's covers.

3. Moreover the magnitudes of the card values for the black and white players are roughly the same.

References

Beckett, Jim and Denny Eckes, *Sport Americana Baseball Card Price Guide*, 1979-1993.

Gandar, J., R. Zuber, T. O'Brien, and B. Russo, "Testing Rationality in the Point Spread Betting Market," *Journal of Finance*, September, 1988, 995-1008.

Graser, P. "Rate of Return to Investment in American Antique Furniture," *Southern Economic Journal*, April 1993, 817-821.

Grossman, S. and J. Stiglitz, "On the Impossibility of Informationally Efficient Markets," *American Economic Review*, June 1980, 394-408.

Jaeger, E., "To Save or Savor: The Rate of Return to Storing Wine," *Journal of Political Economy*, July 1981, 584-592.

Krueger, T. and W. Kennedy, "An Examination of the Super Bowl Stock Market Predictor," *Journal of Finance*, June 1990, 691-698.

Lee, C., A. Shleifer, and R. Thaler, "Investor Sentiment and the Closed-End Fund Puzzle," *Journal of Finance*, March 1991, 75-110.

Nardinelli, C. and C. Simon, "Customer Racial Discrimination in the Market for Memorabilia: The Case of Baseball," *Quarterly Journal of Economics*, August 1990, 579-595.

Robichek, A. and S. Myers, "Conceptual Problems in the Use of Risk-Adjusted Discount Rates," *Journal of Finance*, December 1966, 727-730.

Taylor, W.M., "The Estimation of Quality-Adjusted Rates of Return in Stamp Auctions," *Journal of Finance*, September 1983, 1095-1110.

Table 1

	Hot List Portfolio	S&P 500	Inactive White Player Portfolio	Inactive Black Player Portfolio	Inactive Black & White Player Portfolio	Inactive & Active Player Portfolio
Maximum	22.44%	9.40%	8.76%	9.15%	7.91%	12.75%
Minimum	-6.08%	-9.12%	-2.66%	-1.71%	-2.07%	-2.82%
Arithmetic Average Rate of Return	3.62%	0.85%	1.35%	1.71%	1.53%	2.23%
Geometric Mean Monthly Return	3.49%	0.79%	1.32%	1.69%	1.51%	2.20%
Annualized Geometric Mean Return	50.92%	9.95%	17.08%	22.25%	19.69%	29.81%
Standard Deviation of Monthly Returns	5.41%	3.49%	2.26%	2.05%	1.97%	2.45%
% of Monthly Returns Negative	20.29%	37.68%	15.94%	13.04%	14.49%	14.49%