I. ABSTRACT

This study provides an updated test of Billy Beane’s Moneyball hypothesis using a panel model over the years 1999-2013. We regressed winning percentage as a function of the original Moneyball variables, which included on-base percentage, slugging percentage, on-base percentage against and slugging percentage against. In turn we created our own model which replaced the “against” statistics with owned run average and fielding percentage. Within both models, we concluded that the coefficient of on-base percentage was significantly greater than slugging percentage, which supports Beane’s theory that in today’s game on-base percentage is more important than slugging in determining winning percentage. These conclusions can be used by major league managers and owners to decide which players to trade for or to pick up in free agency.

II. Empirical Model and Variables

(Beane’s Model): WINS = OBP, SLUG, OBP_AGAINST, SLUG_AGAINST

(Klopp/Munson Model): WINS = OBP, SLUG, ERA, FEES

WINS = Winning Percentage - Percentage of wins vs losses

OBP = On-Base Percentage - Percentage of times a batter gets on base per plate appearance

SLUG = Slugging Percentage - Total bases divided by the total number of at bats

OBP_AGAINST = On-Base Percentage Against - Percentage of times the opposing team’s batters get on base per plate appearance

SLUG_AGAINST = Slugging Percentage Against - The total bases the opposing team’s batters get on base divided by their total number of at bats

ERA = Earned Run Average - The total amount of Earned Runs given up by a team per 9 innings

FEES = Fielding Percentage - The percentage of times players in the field properly field a routine fly ball

IV. Data

Panel model data set of all 30 MLB teams over 15 years (1999-2013)

Sample size: 450

Data Limitations:

- Due to the highly statistical nature of baseball we had to limit our data to our project.

Data Sources:

-ERA, OBP, SLUG, and FIELD data all came from BaseballReference.com

-OBP_AGAINST and SLUG_AGAINST data came from both ESPN.com and MLB.com

V. Empirical Results

Beane’s Model

Klopp/Munson Model

VI. Conclusions

- As indicated by the adjusted R², 85.8% of the variation in WINS is explained by the Klopp/Munson model. The Beane model’s adjusted R² is less at 83.3%.

- On Base Percentage is significantly more important in determining winning percentage than is slugging percentage in both Beane’s model and the Klopp/Munson model.

- We tested for the effects of the 2005 steroid ban on the importance of OBP and SLUG in determining winning percentage and found no statistically significant implications of the ban.

- We determined the Klopp/Munson Model predicts winning percentage better than Beane’s does.