

All-Star Game

No doubt there are a lot of us who dabble in applying statistical methods to sports, like comparing Tiger Woods to Jack Nicklaus to Bobby Jones, or picking apart the flaws in the NFL's quarterback rating. But nothing draws us like baseball. Maybe it's tradition, maybe the consistency of the game over time. Or perhaps it's because of the vast store of publicly available, reliable data to analyze, which actuaries rarely see in real life. Whatever the reason, the game of baseball is mathematics; everything else is just arithmetic.

After reading the article ("Stat of the Art," May/June 2004) and the three contributions posted on your website, I just have to add my own. It's a variation on "total bases" and "on-base percentage," and it's a measure of offensive production. I refer to it as "net bases gained per plate appearance," or NB/PA.

The formula takes total bases and adds walks (intentional or not, including "hit by pitch") and stolen bases. It subtracts for "caught stealing" (CS) and "grounded into double play" (GIDP), to get the net total bases produced by the hitter by whatever method. This is ratioed to the total number of plate appearances (at-bats plus walks, as defined above) to give the net bases-per-plate appearance.

It should be noted that CS and GIDP were not kept consistently in both leagues until 1950, so to truly compare over history, they have to be removed.

What this stat measures is what you can expect from a given player every time he steps to the plate—how many bases will he get for you? Granted, it doesn't include sacrifices to move the runner, or RBIs, both of which address "run production," but that's not what I'm measuring. When you reduce offense in baseball to its smallest meaningful increment, it's getting on base and moving around them, by whatever means, which I think in the long run will work its way into the run column just fine.



So, who's the best at this? Who gets you the most "expected bases" when he steps into the batter's box? It will probably surprise no one to learn that the best NB/PA for a "season" is owned by the great Ted Williams. But what might surprise is that it wasn't in his 1941 season when he hit .400, but rather in the 1953 season where he had only 110 plate appearances. In that year he gained 1.073 bases for every plate appearance! (Actually in the previous year, he got 1.083 per PA but only appeared 12 times.)

Think of it, though—MORE than one base, on average, each and every time he stepped in to hit! Amazing. Now that's offense!

The only other players who have produced more than one base on average for an entire season are Babe Ruth (who did it twice, in 1920 and 1921) and Barry Bonds in 2001. Bonds' 1.065 is the best in any "full season" (more than 500 PAs), followed by Ruth's 1.058 and 1.047 in '21 and '20 respectively.

In case you were wondering, Williams had an NB/PA stat of .901 in 1941—it was the only "full season" he had over .900. Lou Gehrig had two in the .900s, as did Mark McGwire. Sammy Sosa and Jimmie Foxx each had one, and Todd

Helton came within a whisker, but that's it. None of the other "big dogs" like Mays, Aaron, Greenberg, Mantle, or DiMaggio has had any above .900.

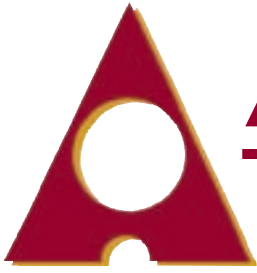
Bonds has had three seasons at that level, and his current (YTD 5/11/04) season is on pace (1.095) to break his own record. Nobody touches Ruth's consistency, however. He had eight seasons with NB/PA over .900 (and three more above .850). The Babe is the king of offense on a lifetime career basis. When you adjust to remove CS and GIDP (for consistency across time), the all-time list of batters 1 to 8 is:

Ruth	.893
Bonds	.837
Williams	.828
Gehrig	.827
Helton	.801
Greenberg	.800
Foxx	.794
Ramirez	.783

I like that lineup for offense, don't you?

BILL MECH
MILWAUKEE, WIS.

P.S. All statistics derived from tables on www.baseball-reference.com



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Business Is Booming

I read with interest John Skar's recent commentary on life settlements in the March/April issue of *Contingencies*. From my perspective as a recently retired chief actuary and CFO, who has spent the past year working primarily in this marketplace, I found myself in total agreement with respect to Mr. Skar's concern that the whole process be centered on the customer, which I define as the policyholder.

I found that his general description of the present life settlement marketplace is reasonably accurate, although not completely so. Life expectancy targets have been expanded to 15 years, with some purchasers willing to go to 20 years. Life settlements' rapid growth, in my opinion, is not an isolated phenomenon. It's a symptom of a new concept that I would broadly define as a third party paying a

value for an option (benefit) in an insurance policy. In the case of life settlements, the third party's financial ability to keep a policy in force until a customer dies is crucial.

I'm in particular disagreement with Mr. Skar's statement that he feels the life settlement transactions will remain small and the number of companies will decline. The present industry is growing dramatically; recent estimates put the death benefits purchased in 2003 at about \$5 billion.

A tidal wave of baby boomers will begin reaching age 65 in 2012. Boomers are known to have not saved enough for retirement. I believe a significant number would rather sell life policies than work to pay for ongoing policy premiums. And recently, companies have begun purchasing variable annuity death benefits. Health underwriting is presently not used for variable annuities.

I agree with Mr. Skar that the estate is an issue for life settlements. The policy owner arguably does not personally benefit from a larger estate; it's the beneficiary who reaps the benefit. The process for a life settlement to take place includes not only the policy owner but also the beneficiary. Both have to sign and agree to sell the policy. I feel that should logically satisfy Mr. Skar's concerns with regard to the estate issue or the ability of the beneficiary to pay. My own experience is that it is extremely rare for a beneficiary to step up to pay the premium in place of the policy owner.

I disagree with Mr. Skar's inference that a major health decline must always take place in order for a life settlement to work. That may have been true years ago, but it's simply not true today. As I said earlier, no health underwriting is used for the purchase of variable annuity death benefits.



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I agree with Mr. Skar that everyone has a right to transfer personal property, including life insurance. I agree that companies buy policies in anticipation of making a profit, but that's true for any company that provides cash to the owner who is willing to sell any personal property.

Mr. Skar asserts that in all cases, life insurance that would be purchased is more valuable than any other asset contained in an estate. I disagree with that assertion. I don't believe in omniscience; no one knows all the assets a person may own and what other rates of return those assets might earn. That decision belongs to the policy owner.

In my own experience, I know policy owners who have sold policies because they feel they shouldn't mortgage their home to pay premiums or sell a business they created in order to provide cash to keep a policy in force. It's my perception that a policy owner who created a business is almost always better off keeping or expanding his business than keeping a life insurance policy.

I feel the need to deal with a reference Mr. Skar made to a myth about life settlements being a threat to the industry. Saying that any pricing actuary is omniscient enough to cover all instances of antiselection flies in the face of history. One need only visit present constraints put on the illustration actuary with regard to certifying that current illustrations are reasonable. The required tests include both self-support and lapse-support. These requirements came about due to concern over inappropriate pricing used to make illustrations look better than what was likely to occur.

A specific example developed during the 1990s in Canada. Term to 100 without cash value policies caused many Canadian companies to dramatically increase reserves as actual lapse experience proved much lower than was priced or reserved for. I don't feel that a long-term and active secondary market will hurt the industry overall. However, I feel it will cost companies that rely on lapse-supported pricing or low election techniques some money. Present minimum-premium universal and variable life products,

as well as long-duration term policies, probably have a similar exposure.

I congratulate Mr. Skar on his article. It provides an opportunity to air opinions and educate our profession about the secondary market, which I think will be a very long-term, positive development for both our profession and our industry. In my opinion, it will significantly increase the value of existing policies and ultimately provide a definite measure of the value of benefits or options contained in an insurance policy.

FREDERICK A. RANDALL
WAYLAND, MASS.

Mr. Skar responds:

I appreciate Mr. Randall's thoughtful response to my article.

Since we're both actuaries, Mr. Randall knows that in saying that a life policy qualified for a settlement offer is a relatively high-return estate asset, I'm using expected returns, not omniscience. A Treasury bond has a higher expected return than a lottery ticket, although on occasion the lottery ticket turns out to be a better investment.

I'm not concerned with life settlements per se but with the generally misleading marketing materials and lack of good consumer education and disclosures. Given the high transaction costs, people who sell their policies often receive only a fraction of the policy's true economic value. Financial advisers should provide the best advice, not just "better than" advice. After that, it's truly up to the policy owner to make the final decision.

The myth mentioned in my article was that "life companies are opposed to life settlements because they would rather see the policies lapse." On the contrary, our advice to policy owners is to retain the policy. While Mr. Randall's concerns over lapse-supported pricing may have some merit in a different context, I don't believe there is any evidence that the industry's opposition to life settlement marketing practices has anything to do with a profit motive.

As to the future, my sense is that life

settlements will be replaced by more efficient mechanisms. One possibility is that banks or finance companies will provide lines of credit secured by the death benefit, similar to what is happening with reverse mortgages.

A Certified Mistake

I would like to point out an error in the feature article, "A Moving Image" (May/June 2004). On Page 18, the author refers to a group of people called certified financial analysts and uses a parenthetical (CFAs) afterwards. The mistake is repeated several times throughout the article. This implies that CFA stands for certified financial analyst.

There are two problems here: First, CFA stands for Chartered Financial Analyst (not certified); second, the use of CFA as a noun (CFAs) is an improper use of the designation.

Unlike the FSA, CFA is a registered trademark of the Association of Investment Management and Research (AIMR) and is only usable in grammar to describe someone who has earned the charter. The correct way to have written the sentence would have been to either not use the parenthetical at all (saying Chartered Financial Analyst instead of certified) or to substitute CFAs with CFA Charterholders in the parenthesis.

In the future, you may want to pass the reference to AIMR to see that it is published accurately. Sorry to nitpick about the second point, but I may as well do you the service of a complete correction. Thanks!

BRIAN HIRSCHFELD
OAKS, PA.

Correction: The string of prime numbers at the bottom of Page 30 of Tom Herzog's article about the Monto Carlo method (May/June 2004) should have included the number 17. In the last line of that column, the description of the prime number should have read 2p-1. Mr. Herzog's article was adapted from his book, *Applications of Monte Carlo Methods to Finance and Insurance* (Actex Publications, 2002), which he wrote with Graham Lord.