Net Win Shares Value

by Dave Studenmund

Jason Bay of the Pittsburgh Pirates had a great year in 2005. A one-time minor-league reject from the Mets and Padres, Bay batted .306/.402/.559 and created 34 Win Shares for the Bucs, production that would have qualified him for the MVP in many previous seasons.

To top it off, the "small-market" Pirates only paid him $355,000 last year because he was not eligible for arbitration. By my reckoning, that made his contract the most valuable in all of major league baseball. He may not win the MVP, but he does win THT's "Most Valuable Contract" award. It's going to take me a couple of paragraphs to explain why.

I use Win Shares to calculate the value of a major league contract, and the reason is simple. Ball clubs pay players to win ball games. Hitting home runs and throwing strikeouts is nice, but they're just a means to an end: winning games. Economic research has shown that each game a contending baseball team wins adds about $2 million in additional revenue, depending on the market. So if you want to figure out how much a player helped his team's bottom line, figure out how many wins he contributed. That's what Win Shares does.

For instance, Sidney Ponson was paid $8.5 million last year, due to a contract he signed with the Orioles before the 2004 season. He logged a miserable 6.21 ERA before the Orioles finally released him, creating one Win Share for the year. The Orioles paid him $8.5 million for one measly Win Share. On the other hand, the Pirates only paid Bay $10,441 per Win Share.

$8.5 million vs. $10 thousand. Big difference.

However, I like to take this analysis several steps further and calculate something called Net Win Shares Value. It's more complicated, but it results in a better, fairer way to evaluate contracts. To make this article bearable, I'll put a short example of the system here and the long, boring definition at the end. For my example, I'm going to use the best free agent deal of 2005, Derrek Lee.

Lee was paid $7.7 million last year, or $7.4 million above the minimum of $316,000. He created 37 Win Shares, or 24 above what a typical bench player would have provided in his playing time (we call that WSAB, or Win Shares Above Bench). Net Win Shares Value assumes that major league teams can find average bench players at the major league minimum.

The average free agent was paid $1.3 million for each WSAB last year so, at $7.4 million, Lee was "expected" to create 5.6 WSAB ($7.4 divided by $1.3). At 24 WSAB, he was 18 WSAB above expectations.

In total, major league teams paid $789,000 for each WSAB, including all types of players (free agents, arbitration-eligible and non-arbitration). So to calculate how much value Lee brought to the Cubs, we multiply Lee's 18 "extra" WSAB by $789,000 for a total Net Win Share Value of $14.6 million. (You will get a slightly different figure due to rounding.)

If you still have questions, check out the addendum. Classifying players into different types was the trickiest part of the process.

OK, so who were the best values in 2005? The top 10 were:

Best 2005 Net Win Shares Values

Name	Status	Pos	WSAB	Salary	Net WS Value
Bay, J.	NA	OF	20.4	$355,000	$16,091,580
Willis, D.	NA	SP	19.2	$378,500	$15,120,052
Hafner, T.	NA	1B	18.9	$500,000	$14,753,071
Lee, D.	FA	1B	24.1	$7,666,667	$14,602,644
Ortiz, D.	FA	DH	22.0	$5,250,000	$14,343,907
Roberts, B.	NA	2B	17.1	$390,000	$13,410,248
Delgado, C.	FA	1B	19.7	$4,000,000	$13,351,563
Ensberg, M.	NA	3B	16.9	$450,000	$13,218,179
Cabrera, M.	NA	OF	16.8	$370,000	$13,172,528
Giles, B.	FA	OF	22.7	$8,333,333	$13,044,900

FA stands for Free Agent, NA stands for Not Arbitration eligible and A stands for Arbitration eligible.

You might have assumed that the top ten values would all be players not eligible for arbitration, but Net Win Shares Value levels the comparisons between types. You also might be surprised to see Carlos Delgado, who signed a four-year, $52 million contract this offseason, on the list. Delgado's contract calls for most of his salary to be "backloaded." He made only $4 million in 2005, but he'll make $15 million a year for the next three years. In other words, he'll never be this valuable again.

This type of salary accounting is not a good way to evaluate long-term contracts. But it's a logical way to approach one-year evaluations.

How about the lowest values, you ask? On the next table, you will find the usual suspects, including Sammy Sosa, Kevin Brown and Chan Ho Park. There's a whole lot of pain on this list, mostly seriously injured players and general managers with ulcers.

To show you how much an injury can turn value around, consider that Barry Bonds was the best contractual value in baseball just a year ago (as listed in last year's *THT Annual*) at $23 million. On the other hand, Chan Ho Park has made the worst-value list two years in a row.

Lowest 2005 Net Win Shares Values

Name	Status	Pos	WSAB	Salary	Net WS Value
Sosa, Sammy	FA	OF	-3.3	$17,000,000	-$12,721,992
Bonds, Barry	FA	OF	1.5	$22,000,000	-$11,920,375
Brown, Kevin	FA	SP	-2.2	$15,714,286	-$11,056,221
Bagwell, Jeff	FA	1B	1.3	$18,000,000	-$9,685,736
Park, Chan Ho	FA	SP	0.5	$15,000,0000	-$8,523,669
Schilling, Curt	FA	SP	0.3	$14,500,000	-$8,340,268
Thome, Jim	FA	1B	-0.4	$13,166,667	-$8,142,938
Mussina, Mike	FA	SP	4.5	$19,000,000	-$7,788,930
Ponson, Sidney	FA	SP	-3.6	$8,500,000	-$7,787,717
Gagne, Eric	A	RP	1.5	$8,000,000	-$7,443,508

The 2004 Free-Agent Class

Last year's free agents are on everybody's minds, so here's a list of the best and worst values based on the first year of those contracts:

Best 2004 Free-Agent Deals		Worst 2004 Free-Agent Deals	
Name	Net WS Value	Name	Net WS Value
Delgado, Carlos	$13,351,563	Ortiz, Russ	-$7,375,000
Kent, Jeff	$9,994,216	Leiter, Al	-$7,000,000
Eckstein, David	$9,888,064	Pavano, Carl	-$5,879,313
Clark, Tony	$9,817,827	Milton, Eric	-$5,333,333
Sexson, Richie	$8,406,559	Finley, Steve	-$4,776,882
Matheny, Mike	$7,129,353	Beltre, Adrian	-$4,656,317
Counsell, Craig	$6,849,084	Wright, Jaret	-$4,493,238
Jones, Todd	$6,325,570	Guzman, Cristian	-$4,200,000
Polanco, Placido	$6,281,047	Garciaparra, Nomar	-$4,198,257
Aurilia, Rich	$5,925,171	Percival, Troy	-$4,110,794

Reds' fans may be shaking their heads at Rich Aurilia's place on the "best value" list. Aurilia's value is high, compared to other free agents, because he was a free-agent sign for $600,000, and his bat did contribute to the Reds' cause (8 WSAB). The man who replaced Aurilia at shortstop, Felipe Lopez, created $8.3 million Net Win Shares Value.

For all you Mets fans, Carlos Beltran's Net Win Shares Value was $1.7 million positive. He was paid only about $11 million in 2005, the first year of his seven-year $115 million deal.

The Worst Free-Agent Class

Long-term free-agent contracts can be real killers, so I looked at the 2005 Net Win Shares value of every free-agent contract based on when it was signed.

Year	WSAB	Net WS Value
1998	4	-$22,571,135
1999	42	$13,359,560
2000	79	-$7,384,640
2001	75	-$62,599,181
2002	117	-$22,928,350
2003	373	$69,772,011
2004	411	$121,112,713

2001 was a bad year for free-agent contracts in 2005. Deals signed that year included many of the top 10 worst values of this year, such as Sosa's, Bonds's, Bagwell's and Park's, as well as the notorious contract of Bret Boone. The Yankees signed Jason Giambi to his megadeal in 2001, but he was a true value in 2005, to the tune of $5.1 million.

Arbitration Years

According to the collective bargaining agreement between MLB owners and players, players in arbitration are supposed to be compared to players with only one more year of major league service, as opposed to all players, and players with five years of service can be compared to free agents. In other words, there is a natural ladder of salaries built into the system. So I wondered, does this play out in Net Win Shares Value? The next table looks at Net Win Shares Value for arbitration-eligible players only. "MLS" stands for Major League Service and "SalAbMin" stands for Salary Above Minimum.

MLS	WSAB	SalAbMin	Net WS Value
2-3	26	$13,367,000	$18,645,769
3-4	191	$91,882,000	$75,777,865
4-5	212	$161,990,167	$9,429,808
5-6	169	$152,709,000	-$26,482,612

As you can see, very few players with two to three years of major league service go through the arbitration process. If you focus on the last three years of arbitration, you see that player salaries do rise (and Net Win Share Value falls) with longer major league service.

One of the reasons the free-agent class of this offseason will be so weak is that many of the final-year arbitration players (5-6 years) had poor years. Some of the players in this category include Byung-Hyun Kim, Erubiel Durazo and Octavio Dotel.

Ideally, Net Win Shares Value would adjust the expected WSAB by the number of years of major league service for those players in arbitration. But the sample size is just a little too small for that.

Position

Next, I wondered if we would discern any differences in Net Win Shares Value by position. Major league general managers took a lot of flak this past offseason for paying a lot of money to starting pitchers, and I was curious to see if they deserved it. Here's a table of Net Win Shares Value by position. I divided Net Win Shares Value by "expected WSAB" to standardize the comparison by playing time and player status.

	WSAB	Net WS Value	Per WSAB
2B	182	$95,887,093	$1,149,707
SS	156	$74,215,032	$949,638
RP	292	$162,980,670	$808,980
1B	305	$117,115,339	$651,046
OF	632	$205,348,374	$485,748
C	127	$46,764,194	$472,517
3B	154	$41,269,635	$343,573
SP	564	$115,979,144	$215,320

As you can see, major league starting pitchers are way overpaid by this measure. In the past, some commentators have criticized Win Shares for not valuing starting pitching highly enough. I made a correction for this in WSAB by setting bench levels at 60% of expected Win Shares for starting pitchers vs. 70% for all other

positions. Even with this correction, starting pitchers appear to be extremely overpaid.

This doesn't tell the entire story, however, because it includes all pitchers, regardless of whether they were free agents, arbitration-eligible or not. For another view, here is a table of Net Win Share Value per WSAB by each category, for starting pitchers only:

	WSAB	Net WS Value	Per WSAB
NA	183	$183,817,969	$1,005,572
A	176	($7,690,846)	($43,638)
FA	205	($60,147,980)	($292,796)

Wow. As a category, free-agent starters created negative value of $60 million. The only other categories that are significantly negative are free-agent third basemen ($16 million: Mike Lowell, Adrian Beltre, David Bell) and free-agent relief pitchers (Graves, Foulke, Remlinger, Percival, yada yada yada).

Why is this happening? I can think of a few reasons:

- Recent outcomes have made it clear that starting pitching is perhaps the number one success factor in postseason play. Their postseason value is higher than their regular-season value.
- Pitchers are risky propositions. Their production is erratic, and their injury risk is high.
- Major league general managers just don't understand that there are good alternatives available to them without having to overpay below-average free agents.
- At the same time, GMs hope to catch lightning in a bottle. If Buzz Capra (circa 1974) can lead the league in ERA, then by gum anyone can lead the league in ERA! Which, of course, is exactly why you shouldn't overpay for a pitcher.
- High demand and low supply. Major league teams needs five starting pitchers, but they only need one regular for every other position. On the other hand, only 36% of all WSAB from starting pitchers came through the free-agent market last year, the third-lowest total behind only free agent third basemen and relief pitchers.

With the postseason success of the White Sox and Astros, a relative paucity of starting pitching in the free-agent market, and major league owners flush with cash from new media deals, look for this situation to get worse before it gets better.

Addendum

Here's the detailed explanation of Net Win Shares Value.

First of all, you run into simple mathematical problems when you divide salary by Win Shares. For instance, if you divide salary by Win Shares, and the player created zero Win Shares, how do you handle the "infinite" result? It's better to look at incremental value, as in dollars above or below an expected level.

To calculate an expected level, you could include all major league ballplayers. For instance, major league teams paid about $2.3 billion last year for 7,290 Win Shares, or about $315,000 per Win Share (or $945,000 per win, since each Win Share equals one-third of a win).

Even a bare-bones team, however, composed mostly of what's called "replacement players" (remember the strike years?) would win 30% to 40% of their games. The difference between an established major league player and a good Triple-A player is not that big.

So we differentiate Win Shares above a level we call "Bench," (or, WSAB) and salary paid above the major league minimum of $316,000 in 2005. Also, we differentiate between free agents (FA), arbitration-eligible players (A) and players not yet eligible for arbitration (NA). To do otherwise isn't really fair to the player or to management.

There are only so many great ballplayers who are not yet eligible for arbitration. General managers can't be expected to fill their roster with players like Jason Bay. At the same time, players fought hard for the right to control their lives and be paid according to their market value. To say a player didn't provide good value because he exercised this simple right isn't fair to the player or the GM who negotiated his contract. So our approach considers the conditions under which the player signed his contract.

To show you what a difference this makes, let me list how much major league teams paid above the minimum for each WSAB for each class of player:

Not arbitration eligible:	$16,000
Arbitration eligible:	$702,000
Free agent:	$1,303,000
Average:	**$789,000**

Speaking economically, these are three different player "markets," and any cohesive contract analysis has to level the playing field between them.

Here's the example of how the math works. Derrek Lee was paid $7.7 million last year, or $7.4 million above minimum. He created 37 Win Shares, or 24 above a bench player. The average free agent was paid $1.3 million for each WSAB so, at $7.4 million, Lee was "expected" to create 5.7 WSAB. At 24 WSAB, he was 18 above expectations.

Since major league teams paid $789,000 across all markets for each WSAB, we multiply Lee's 18 by that figure for a total Net Win Share Value of $14.6 million. (You will get a slightly different figure due to rounding.)

The approach is slightly different for players who are not eligible for arbitration. We assume that their expected WSAB is zero (since they're paid the minimum, or slightly more), so we first multiply each player's actual WSAB total by $789,000. Then we subtract any amount paid over the major league minimum (almost always $100,000 or less).

We use the "all market" figure for our final step because this puts all player contributions in the same context. In other words, expectations are set by the "market" in which the player signed, and incremental value is set by the average across all markets. This approach allows you to directly compare one player's value to another.

Two final notes: The calculation is set so that a player cannot have a negative Net Win Share Value greater than his salary. Without this "maximum allowable," you get some very strange results. Also, I used salary figures as published by Major League Baseball. These reflect only the current year payouts, not the full value of a long-term contract.

The key to this system is properly classifying players as free agents, arbitration-eligible and not eligible for arbitration. This is much trickier than it seems. Let me list some of the judgment calls I made:

- A few players, such as Rickie Weeks and Mark Prior, signed major league contracts when they were drafted even though they are not yet eligible for arbitration. I classified these players as free agents, because they effectively had free-agent leverage at the time they signed due to their talent (and agent).
- The same thinking applies to players from other countries who did not go through the draft, such as Jose Contreras, Ichiro Suzuki and the Matsuis. I classified them as free agents.
- There are many players who have not yet played for six years in the majors (and so aren't eligible to file for free agency) but were free agents because they were released by their teams. I did my best to identify all players who were in this situation when they signed their contract for 2005 and label them free agents. One of the best examples is A.J. Pierzynski, who was released by the Giants during the offseason and subsequently signed by the White Sox.
- If a player had played at least six years in the majors but was playing under a contract signed before he was eligible to be a free agent, I still classified him as a free agent.
- Two players, Roger Clemens and Placido Polanco, filed for arbitration instead of entering the free-agent market, as is their right. After much gnashing of the teeth, I decided to classify them as free agents. You could argue either way.

We have made a Net Win Shares Value spreadsheet available for those who have purchased this book. The spreadsheet lists all major-league players, their Net Win Shares Value and other information, such as years of major league service as of the beginning of the year. The spreadsheet is available at http://www.hardballtimes.com/THT2005Annual/. The username is "reader" and the password is "kaline".

Net Win Shares Value 2006

by Dave Studenmund

Major League Baseball teams were caught in a salary squeeze this year, and it's not likely to get better anytime soon. As a result, the amount they pay per victory is continuing to rise.

Blame the rookies. In fact, blame the last two rookies crops. In 2005, there were 2,473 Win Shares (or 824 wins; see the Glossary for more about Win Shares) contributed by players not yet ready for arbitration. In other words, players who were only making the minimum salary (or a bit more) contributed about 34% of all wins.

In 2006, thanks to an outstanding rookie crop, that figure rose to 2,669 Win Shares (37%). You'd think that would be good news for owners' budgets, right? Players who make only the minimum contributing more to the team?

The problem is that free agent spending continued to rise, up from $1.5 billion (yes, billion) in 2005 to $1.6 billion in 2006—yet free agents contributed nearly 300 fewer Win Shares than in 2005 (down from 3,163 to 2,879). Teams paid more money for less productivity from free agents.

The overall result is that the price of a Win Share Above a Bench player (or WSAB) for all players rose from $750,000 in 2005 to $830,000 (an 11% increase). I'm pretty sure this is a bigger increase than the commissioner's office would like.

Let's back up. Major league teams paid $2.3 billion in player salaries last year, or about $2.6 million per player. Put another way, there were 2,430 wins last year, so teams paid a little less than $1 million per win.

This approach is too simplistic, however, because most teams could probably win 50 or more games by paying and playing players who make only the minimum salary ($327,000). Do the math and you'll see that those 50 wins would only cost a team about $163,000 per win in player salary.

It's the wins above 50 that cost a lot of money, and that is where Win Shares can lend a hand. Win Shares were developed by Bill James to allocate each team's wins to its players. Win Shares uses a lot of basic baseball stats—batting, stealing bases, hitting in the clutch, pitching ERA, saves, fielding stats—to quantify how much each player contributed to his team's win total. As an example, it says that Player X contributed five wins to his team, and then multiplies that by three (basically to make the number meatier). The final result is that Player X contributed 15 Win Shares.

So if you calculate the number of Win Shares a player contributed above what a typical "minimum salary" (or "bench") player would contribute, and you compare that to the salary he was paid over the minimum, you can figure out just how much those extra wins he contributed cost.

Are you with me? I hope so, because the results may surprise you. Here are a couple of findings I get from applying that logic to specific classes of player salaries:

- Teams paid players eligible for arbitration $470 million above the minimum for 597 WSAB last year, for an average of $788,000 per WSAB, or $2.4 million per win.
- Teams paid free agents nearly $1.6 billion above the minimum for 1,077 WSAB last year, for $1.5M per WSAB, or an astounding $4.4 million per win.

In other words, **the price of a win rose from $163,000 (for the first 50) to $2,400,000 (for additional wins from arbitration-eligible players) to $4,400,000 (for additional wins from free agents).**

If you assume Player X, who contributed five wins to the team, contributed two wins above a bench player and was paid an average salary for his class, he would have made…

- $327,000 if he was a first- or second-year player
- $4,800,000 if he was in his third to sixth year
- $8,800,000 if he was a free agent

That is salary inflation, and it also how small-market teams manage their payrolls and still win. Player X's Win Share totals, by the way, are about the same as an average major league ballplayer's.

Maybe you're someone who believes major league players are paid way too much. As the son of two teachers, I'm not going to disagree with you.

But the business of baseball is doing very well. According to *Forbes* magazine, the value of major league franchises has risen 15% each of the last two years. Attendance reached an all-time high this year, and Major League Baseball Advanced Media (MLBAM), the operator of MLB's Internet site, is a powerful new source of revenue.

Owners are flush with money, they want to win (because winning is good for business) and players are delighted to sign for as much as they can get. There's nothing really "wrong" with this scenario. It's Adam Smith's free market at work.

So instead of complaining about Alex Rodriguez's $26 million salary, let's accept baseball's salaries for what they are and ask whether or not Rodriguez's contract was a good deal in the context of what ballplayers were actually paid last year.

The system I've developed to answer that question is called Net Win Shares Value.

I'll put a detailed explanation of Net Win Shares Value at the end of the article, but suffice it to say that the system evaluates each player and his contract based on his classification (not eligible for arbitration, arbitration-eligible and free agent) and his production (as measured by Win Shares).

Net Win Shares Value is essentially the amount by which a player exceeded the average value of his classification. For instance, here's a list of the 10 best values of 2006:

Best 2006 Net Win Shares Value

Name	Tm	Cl	Salary	Net WS Value
Cabrera, Miguel	FLA	NA	$472,000	$17,121,203
Mauer, Joe	MIN	NA	$400,000	$16,334,200
Wright, David	NYN	NA	$374,000	$15,695,111
Howard, Ryan	PHI	NA	$355,000	$14,641,724
Beltran, Carlos	NYN	FA	$13,571,429	$14,495,338
Reyes, Jose	NYN	NA	$401,500	$13,343,969
Ortiz, David	BOS	FA	$6,900,000	$12,865,289
Morneau, Justin	MIN	NA	$385,000	$12,348,351
Hafner, Travis	CLE	A	$2,500,000	$12,012,263
Thomas, Frank	OAK	FA	$500,000	$11,838,943

Naturally, if you want to find the players who provided the best value, look for superstars not yet eligible for arbitration. Exhibit Number One is the Marlins' Miguel Cabrera, who had an MVP-type of year with 33 Win Shares, yet was paid only $472,000.

According to Net Win Shares Value, Cabrera's extra production was worth over $17 million, based on what the average major leaguer was paid. As long as he stays healthy, Cabrera will have his day in arbitration court, but the Marlins got their money's worth this year.

A few free agents made the top-10 list too. You actually might be a bit surprised to see that Carlos Beltran, he of the mega contract for mega years, was the best free agent value last year. But Beltran had an MVP-type year, with 41 home runs, 116 RBIs, 127 runs scored, outstanding defense in centerfield, great base running and 38 Win Shares (27 WSAB). In 2006, at least, he was worth a lot more than what that contract paid him.

Indeed, the Mets had three of the six best contract values on their roster. We'll get to team rankings in a couple of minutes.

Before we do, let's look at the...

Worst 2006 Net Wins Shares Values

Player	Tm	Cl	Salary	Net WS Value
Pineiro, Joel	SEA	A	$6,300,000	($10,015,092)
Mulder, Mark	STL	A	$7,750,000	($9,907,041)
Gagne, Eric	LAN	A	$10,000,000	($9,901,801)
Berroa, Angel	KC	A	$2,000,000	($8,570,974)
Perez, Odalis	LAN/ KC	FA	$8,750,000	($8,447,174)
Colon, Bartolo	LAA	FA	$14,000,000	($8,309,574)
Ortiz, Russ	ARI	FA	$7,800,000	($8,219,259)
Chen, Bruce	BAL	A	$3,800,000	($8,000,963)
Hillenbrand, Shea	TOR/ SF	A	$5,800,000	($7,662,720)
Alfonzo, Edgardo	LAA	FA	$8,000,000	($7,618,708)

People tend to complain about the big bucks paid to Beltran and A-Rod, but they forget about the impact that an injury to someone like Bartolo Colon, at $14 million, makes. Or the impact that a terrible year by Joel Pineiro (6.36 ERA, -5 WSAB) can have on the value of his contract.

In fact, seven of the 10 worst values last year were pitchers, emphasizing that pitching is risky business. And check out the terrible year that Angel Berroa had. Batting .234/.259/.333 and playing a subpar shortstop, Berroa was eight Win Shares **worse** than a bench player. His negative $8.5 million in Net Win Shares Value is the amount the Royals would have had to pay other players, on average, to compensate for Berroa's lack of production.

You can find the Net Win Shares Value of every major leaguer in our appendix. In this article, I thought I'd pursue a few interesting angles regarding this year's contracts.

First of all, I looked at each free agent contract based on the year it was signed. Just like last year, the most valuable free agent class was the most recent one, but the class of 2001 added a twist by producing the most value per WSAB.

Net WS Value by Year of Contract

Year	WSAB	Net WS Value	Val/WSAB
1999	1	($5,790,025)	($4,067,909)
2000	65	($457,669)	($7,005)
2001	81	$6,919,803	$85,024
2002	85	($14,530,361)	($170,366)
2003	184	($7,934,558)	($43,018)
2004	319	($562,511)	($1,762)
2005	340	$22,355,321	$65,820

It makes sense that the most recent free agent year would be the most valuable, because it's easier to predict player performance one year out instead of three or four years out. Also, players often sign for significantly less salary in the first year of a contract.

Taking a closer look at last year's free agent deals....

Best 2005 Free Agent Net WS Values

Name	Salary	Net WS Value
Ortiz, David	$6,900,000	$12,865,289
Thomas, Frank	$500,000	$11,838,943
Carpenter, Chris	$5,000,000	$9,561,070
Hernandez, Ramon	$4,000,000	$8,079,482
Ryan, B.J.	$4,000,000	$7,194,000

B.J. Ryan will make $12 million in a couple of years. Frank Thomas will make a whole lot more next year, as he signed a one-year deal with Oakland and enters the free agent market again this offseason.

In the *2006 THT Annual*, the 2001 free agent class had the lowest value of all free agent classes. This year, they have the most value per WSAB. Part of the improvement came about because several contracts expired (Sosa, Boone, etc.) and part of the improvement came from a technicality. (I didn't include players who didn't play, so Jeff Bagwell was left out of the equation.)

But Barry Bonds' return to health certainly helped, as did improvements by Jorge Posada, Jason Schmidt and Jason Kendall.

That 1999 deal is Ken Griffey Jr. Yes, Junior hit 27 home runs last year, but he also posted a OBP of .316 and played terrible defense. From a production standpoint, he wasn't worth his $12.5 million salary.

Net Win Shares Value treats all arbitration-eligible players the same, but they're not paid the same way. In fact, the Collective Bargaining Agreement explicitly calls for player salaries to rise as they gain experience between their third and sixth years.

You can see the impact of the arbitration process in this table. Six-year players were paid about 75% of the value free agents were paid. This is why you'll sometimes see teams non-tender players entering their last years of arbitration.

Major League Service

Years	WSAB	Sal/WSAB
2-3	77	$247,325
3-4	219	$525,080
4-5	125	$1,071,087
5-6	175	$1,153,116

Which position generated the most contractual value? In 2006, that position was catcher, where players such as Joe Mauer, Brian McCann, Russell Martin, Dave Ross and Ronny Paulino had very good years at (or close to) the minimum salary.

Net Win Shares Value by Position

POS	WSAB	Net WS Value	Val/WSAB
DH	80	$12,409,655	$154,929
C	167	$62,160,589	$371,487
1B	225	$81,331,469	$362,008
2B	109	$32,981,932	$303,728
SS	125	$31,759,688	$254,837
3B	212	$72,780,499	$343,548
OF	544	$137,756,935	$253,007
RP	326	$100,803,904	$309,461
SP	674	$115,973,461	$172,078

Starting pitchers are definitely overpaid according to Net Win Shares Value. Win Shares has been criticized by many for underrating starting pitchers, but I've taken steps to appropriately value them in the WSAB process (see the end of the article for details). Was it enough of an adjustment? Not according to major league teams, who paid more for production from starting pitchers than any other position. (Except for designated hitter, where Carl Everett, Rondell White, Mike Sweeney and Dmitri Young and others had bad years. The designated hitter position appears to be the home of over-the-hill, injured and overpaid players.)

Team Payrolls

Teams follow different strategies to success. Big-market franchises sign free agents, small-market teams develop their farm systems and middle-market teams try a combination of the two.

Up to now, the best method for evaluating the effectiveness of team payrolls has been the late Doug Pappas' Marginal Payroll/Marginal Wins method. While Pappas' method is excellent, it doesn't account for differences in strategy. Teams that play the free agent market are obviously going to pay more for talent; successful teams that emphasize player development are obviously going to pay less.

Net Win Shares Value, when accumulated at the team level, does account for differences in strategy. For instance, the Marlins were obviously very good at payroll management last year, finishing almost .500 with a $15 million payroll. But Net Win Shares Value says that the Twins were actually more successful in managing their payroll, due to the fine performances turned in by many of their arbitration-eligible players (Cuddyer, Santana and Nathan).

The least Net Win Shares Value award goes to the Cubs, who were wracked by injuries and terrible production from some players. We don't have to talk about that anymore, do we? You will find a table of every team's total Net Win Shares Value on the next page.

Looking at classifications, the Marlins captured the most Net Win Shares Value from their youngest players. In fact, 187 of Florida's 234 Win Shares were contributed by players in their first or second year.

Incredibly, the Marlins' cross-state rivals, the Tampa Bay Devil Rays, realized no Net Win Shares Value from their non-arbitration players. That's almost impossible, but the production of Tampa Bay's first- and second-year players was horrendous: -0.8 WSAB overall.

The team with the most valuable group of arbitration-eligible players was Arizona, who received nearly $27 million in Net Win Shares Value from players like Brandon Webb and Orlando Hudson. The team that got the least from arbitration-eligible players was Milwaukee, due to injuries to Ben Sheets and Tomo Ohka, and subpar years from players like Brady Clark.

Finally, the White Sox received more Net Win Shares Value from their free agents ($23 million) than any other team, particularly due to Jim Thome's and Jermaine Dye's great years. The team with the least free agent Net Win Shares Value was the New York Yankees (of course), at negative $21 million. Randy Johnson and Gary Sheffield deserve some of the blame, but there's plenty to go around.

For instance, Alex Rodriguez, who was paid $4 million more than any other player, contributed negative $4.3 million in Net Win Shares Value (the 56th-worst total). I figured you might be curious about that.

As I mentioned before, Net Win Shares Value is listed for most players in our Statistical appendix.

Net Win Shares Value by Team and Classification

Team	NA	A	FA	Grand Total
MIN	$48,705	$16,175	($3,036)	$61,844
FLA	$52,382	$8,869	($1,819)	$59,432
OAK	$34,103	$6,687	$12,064	$52,854
DET	$37,270	$9,697	$5,572	$52,539
NYN	$40,043	($8,680)	$20,561	$51,924
SD	$33,709	$11,778	$764	$46,252
TOR	$15,580	$1,254	$18,500	$35,335
COL	$26,543	$6,181	$922	$33,646
LAN	$22,359	($15,689)	$20,943	$27,613
LAA	$23,106	$18,606	($14,630)	$27,083
CIN	$7,495	$19,476	$95	$27,065
PHI	$38,323	($982)	($11,146)	$26,195
CLE	$25,858	$8,469	($9,544)	$24,782
ARI	$11,080	$26,725	($13,142)	$24,662
ATL	$23,230	($6,905)	$5,766	$22,090
CHA	$5,680	($9,424)	$23,157	$19,413
MIL	$21,834	($17,635)	$13,197	$17,396
STL	$12,365	($11,581)	$14,384	$15,168
TEX	$12,295	$29	$2,450	$14,774
PIT	$38,033	($17,371)	($9,564)	$11,097
WAS	$19,157	$3,797	($13,104)	$9,849
SF	$9,088	($7,752)	$8,386	$9,722
SEA	$12,000	($7,941)	$4,977	$9,036
HOU	$13,223	$37	($7,745)	$5,514
BOS	$15,629	($3,786)	($9,165)	$2,678
TB	($935)	$10,858	($9,406)	$516
BAL	$3,725	($11,770)	$1,837	($6,208)
KC	$16,473	($11,208)	($12,839)	($7,573)
NYA	$22,250	($10,619)	($20,890)	($9,259)
CHN	$982	($7,293)	($17,542)	($23,853)

ADDENDUM

There are two basic steps to calculating Net Win Shares Value: first you calculate the anticipated performance of a player based on how much he was paid, and his classification (free agent, arbitration-eligible or not eligible). You then compare his actual performance to his anticipated performance and multiply the difference by the average amount paid per WSAB across all players.

To show how important it is to differentiate among classifications, let me list how much major league teams paid for each WSAB for each class of player:

Not arbitration eligible:	$17,907
Arbitration eligible:	$788,155
Free agent:	$1,452,474
Average:	$832,195

Here's an example of how it works: at the beginning of the season, David Ortiz signed a new five-year contract with the Red Sox that calls for him to make $6.5 million this year; he also received a signing bonus of $2 million. By spreading the bonus over the five years of the contract, I come up with a 2006 salary of $6.9 million this year.

With seven years of major league service before the year began, Ortiz qualified as a free agent, even though he didn't put his services on the free agent market. The notion is that the Red Sox certainly negotiated with his agent as though he were a free agent.

Free agents received $1.45 million for every WSAB they produced last year. So, at a salary of $6.9 million, Ortiz's "anticipated" WSAB output was 4.5. He blew that away, of course, by compiling 29 Win Shares and 20 WSAB. That was 15.5 WSAB more than "anticipated."

Across all classifications, players received $832,195 for each WSAB last year. So we multiply Ortiz's WSAB above anticipated (15.5) times the average value of a WSAB to obtain his Net Win Shares Value. That figure ($12.9M) is how much value he delivered to the Sox beyond the expected value of his contract.

We use the "all market" figure for our final step because this puts all player contributions in the same context. In other words, expectations are set by the "market" in which the player signed, and incremental value is set by the average across all markets.

This process has changed slightly from last year's. For one thing, we defined bench players at 70% of expected Win Shares for all players except starting pitchers, for whom we used 50%. Last year, we had used 60% for starters.

Also, I put an artificial floor on negative values last year so that no player would have less value than the money spent on his salary. I eliminated that floor this year.

The key to this system is properly classifying players as free agents, arbitration-eligible and not eligible for arbitration. This is much trickier than it seems, and I made a few difficult choices.

- There are many players who have not yet played for six years in the majors (and so aren't eligible to file for free agency) who were free agents because they were released by their teams. I did my best to identify all players who were in this situation when they signed their contracts and identified them as free agents.
- If a player had played more than six years in the majors but was playing under a contract signed before he was eligible to be a free agent, I still classified him as a free agent.

There is one caveat I should mention. This analysis included only players who actually played in 2006. There were a number of players who were paid good money but didn't make it onto the field last year. Here is a list of all non-playing major leaguers who received at least $1 million salary in 2006:

Player	Salary
Bagwell, Jeff	$17,000,000
Hampton, Mike	$16,000,000
Pavano, Carl	$8,000,000
Guzman, Cristian	$4,200,000
Wilson, Paul	$3,750,000
Lawrence, Brian	$3,600,000
Alvarez, Wilson	$2,000,000
Reed, Steve	$1,250,000
Ginter, Keith	$1,250,000
Spivey, Junior	$1,200,000

Long-term contracts

by Dave Studeman

December 6, 2007

Keith Law recently **published a blog entry** about **Scott Linebrink**'s new four-year contract with the White Sox (ESPN Insider subscription required). Keith generally lamented the use of multi-year deals (three years or more) for relievers, and posted an impressive (my word) list of recent similar deals that have already turned into disasters (Keith's word), such as **Scott Schoeneweis**' and **Danys Baez**'s.

It's a point well-taken; long-term contracts can be risky and long-term contracts with relievers can be particularly risky. But I'm always a little suspicious of the "list approach" because it sometimes reveals more about the author's bias rather than a real trend. My own bias is the same as Keith's, but maybe we can take a more systematic look at long-term deals in baseball. Let's give it a shot.

Last year, major league teams paid about $2 billion to free agents, under contracts of varying lengths. Here's a table of 2007 salary paid by contract length, a total of 397 deals by my count:

Years	Contracts	Salary
1	177	$369,310,000
2	73	$259,885,000
3	66	$463,558,334
4	36	$347,150,000
5	22	$230,850,000
6	10	$124,750,000
7	5	$68,821,429
8	4	$57,000,000
9	2	$29,100,000
10	2	$50,000,000

Total	397	$2,000,424,762

There were far more deals of one year than any other length, but the most money paid last year was to free agents with three-year contracts ($463 million). That's because the best players have it both ways. They are paid more per year and they also receive longer term deals. To prove the point, here is a table of average salary paid last year, separated by length of contract:

Years	Contracts	Average Sal
1	177	$2,086,497
2	73	$3,560,068
3	66	$7,023,611
4	36	$9,643,056
5	22	$10,493,182
6	10	$12,475,000
7	5	$13,764,286
8	4	$14,250,000
9	2	$14,550,000
10	2	$25,000,000
Total	397	$5,038,853

It's pretty straightforward. As contract length increases, salary goes up. Players with one-year deals were "only" paid an average of $2 million last year, but the two players with 10-year deals received an average of $25 million.

The ten-year players played on the left side of the Yankees' infield, although A-Rod infamously put an end to his contract. Still, he and **Derek Jeter** were paid a lot of money last year, money that was actually well-spent by the Yankees. In fact, long-term contracts generally turned out to be good deals for major league clubs in 2007. As proof, here is a list of the 2007 **Net Win Shares Value** of contracts, grouped by contract length:

Years	Contracts	Net Win Shares Value
1	177	-$3,158,367
2	73	-$61,740,794
3	66	-$55,111,222
4	36	$33,375,138
5	22	$48,409,662
6	10	$32,916

7	5	$16,727,505
8	4	-$13,131,527
9	2	-$930,585
10	2	$8,307,381
Total	397	-$27,219,894

Those of you paying extremely close attention might have noticed that the Net Win Shares Value of this group is negative in total, when it should theoretically be zero. That's because I added some contracts of players who didn't play at all in 2007, such as **Mike Hampton**, **Corey Koskie** and **Kris Benson**. Their total lack of production pulled the total Net WS Value down to a negative $27 million.

Anyway, there is a point here: As a group, players with contracts of four years or longer were positive value contributors last year. Players with shorter deals were actually negative in total. You may not have expected that result, but 2007 was a pretty good year for players with long-term deals. What's more, the same general pattern held in 2006, though the cutoff wasn't as clean (players with two-year deals were positive while those with four-year deals were negative). In general, long-term deals have been good values for ballclubs lately.

As you can imagine, there's a lot of info seething beneath the surface, so let's talk about some specific very wealthy players in a little more detail.

The two players who played under nine-year deals were **Todd Helton**, whose contract expires in 2012, and **Ken Griffey Jr.**, whose contract is over in two years, although both players have option years at the end of their terms. Helton had a somewhat positive value last year, but Griffey's was negative, making the total negative overall.

The four players with eight-year contracts were **Alfonso Soriano** (in the first year of his contract), **Manny Ramirez**, **Scott Rolen** and Hampton. Soriano was a very positive value for the Cubbies last year, but the other three players were negative contributors—particularly Hampton (his negative $8.3 million would have been the seventh-worst in the majors if I had included him in my original analysis), so the overall group had a negative value of $13 million.

As a group, players with seven-year contracts contributed very positively last year ($16 million). These included big contributions from **Albert Pujols** and **Carlos Beltran**; negative contributions from **Jason Giambi** and **Barry Zito**; and, believe

it or not, a huge contribution from **C.C. Sabathia**. Yeah, Sabathia. The chunky Cleveland southpaw originally signed a four-year deal with an option year starting in 2002, after his rookie year. The Indians picked up his 2006 option and also added two more years that will expire after 2008.

So Sabathia's deal was really a four-year deal with an option year and a two-year extension. Seven years overall, and I included him in this analysis because he would have been a free agent this past year had he not agreed to the extension. He was a huge value to the Indians, with an $11 million Net Win Shares Value.

In fact, starting pitchers tended to follow the same pattern as players in total: those who played under long-term contracts were generally more "valuable" (remember, we're talking monetary value here) than those with shorter deals. Here is the Net Win Shares Value breakout for starting pitchers only:

Years	Contracts	Net Win Shares Value
1	31	-$29,779,624
2	16	-$21,814,040
3	21	-$28,549,175
4	14	$16,384,918
5	6	-$2,453,201
6	1	$3,213,010
7	2	$9,588,913
8	1	-$8,277,278
Total	92	-$61,686,477

Hampton was the eight-year deal, and Zito and Sabathia were the seven-year contracts. The one pitcher in the six-year group was the Red Sox's **Daisuke Matsuzaka**, who was obviously in the first year of his contract. Not every Japanese import earned his salary, however.

New York's **Kei Igawa** signed a five-year contract last offseason, but accrued a negative value of -$2.8 million. Other negative contributors in the five-year group were **Chris Carpenter** and **Kevin Millwood**, but they were almost completely offset by stars **Roy Halladay**, **Gil Meche** (!) and **A.J. Burnett**. Burnett can opt out of his contract after next year and he's very likely to do so if he matches his 2007 production.

More from The Hardball Times

A Hardball Times Update
by RJ McDaniel
Goodbye for now.

The four-year group really sizzled last year. Top values were **Brad Penny**, **Tim Hudson** and **Ted Lilly**, all over $6 million contributors, and there were seven more pitchers between $0 and $6 million, while the only big negative contributors were **Bartolo Colon** (who was **really** bad, at -$9.9 million), **Pedro Martinez** and **Carl Pavano**.

But let me be clear about something: I'm not advocating long-term contracts for pitchers. Hampton's deal has been a disaster, and only the unique circumstances involved with the seven-year contracts (Sabathia is a young stud; Zito was in the first year of his contract, when he was paid much less than he will be in future years) made those deals work. In fact, these results suggest a natural guideline: the longest contract you should give a free agent pitcher is five years, and those should be saved for the young studs (and his initials are **Johan Santana**).

Still, the pattern of longer contracts being the best deals held across virtually all positions last year. The worst values were in the shorter contracts (one, two and three years), while the highest Net Win Shares Values accrued in the contracts of longer length (four years or more). Of course, there were good deals and bad deals in all categories—we're just picking out general trends among last year's performances.

You may be a bit surprised by these findings, but the pattern makes economic sense. Players (and just about everyone everywhere) give up salary for long-term security. That's not only human nature, but **research has found** that there is a negative correlation between baseball salaries and contract length, when performance is also factored in. In other words, when an individual player's contract length goes up, his salary goes down. There's the contradiction: As a group, player salaries go up as contract length goes up, but for individual players, salary gets negotiated down as the length of a proposed contract goes up.

You may have noticed another trend: Among longer-term deals (of five years or

more), the deals that are further along in their terms (those that were signed a longer time ago) are generally less valuable for ballclubs. For example, Todd Helton was more valuable than **Ken Griffey** Jr. in the nine-year group. In the eight-year group, Alfonso Soriano was in the first year of his contract, and much more valuable than Ramirez, Rolen and Hampton, who were in the last years of their deals. As a general rule, long-term deals are good for the club in the early years, and good for the player toward the end.

Let's get back to the original point of the article (if there ever was one!). How valuable were relief pitchers last year, under varying contract lengths? Well, first of all, pitchers are different. Not just different in a **Nuke LaLoosh** kind of way, but different because they age differently than position players.

In this year's **Hardball Times Annual**, David Gassko has a great graphic showing that the performance of batters tends to increase until they reach the ages of 27 to 29, then gradually decrease. This is the typical aging pattern known to sabermetricians everywhere. Pitchers, on the other hand, are at their best before the age of 28, after which they gradually decline. And there is no clearly defined peak in the early years—pitchers in their early 20s may have their best years at the age of 22 or 28—the results are rather random.

Obviously, wear and tear on a pitcher's arm is the issue here, but there's also an implication for the distribution of major league pitching talent (and pitching contracts). Since players have to pitch six years in the majors before becoming a free agent, the most production in any given year tends to come from pitchers who aren't yet free agents.

Let me cite some specific numbers. In 2005, free agent position players (non-pitchers) contributed 54% of all position players' WSAB. Position players who had played less than six years (arbitration-eligible or not) accounted for the other 46%. The free-agent figure decreased to 50% in 2006 and 43% in 2007, a sign of the enormous youth movement in baseball these days.

Among pitchers, free agents accounted for only 34% of pitching WSAB in 2005, twenty points lower than that of free agent position players. That percentage actually rose to 35% in 2006 and declined to 32% in 2007—not much change from year to year. Here are the results in a table:

	Position	Pitchers	Diff
2005	54%	34%	-20%
2006	50%	35%	-15%
2007	43%	32%	-11%

The consistent result is that free agent pitchers, as a group, don't provide as much production as free agent position players. As a rule, teams that turn to the free agent market for pitching help find that the market isn't as robust as the market for everyday players.

The point: **The law of supply and demand has the perverse effect of driving up the salaries of free agent pitchers and making free agent pitching contracts less valuable than the contracts for free agent position players.** The proof: In the **Net Win Shares Value article**, I found that starting pitchers had the worst total Net Win Shares Value, while relievers had the worst average Net Win Shares Value. Starters used to be the worst values, but demand for relievers has risen so much that their contracts are now the worst values.

With that in mind, let's look at the Net Win Shares Value of relievers only, broken into groups of different contract lengths:

Years	Contracts	Sum of Net WS Val	Average
1	59	$3,683,410	$62,431
2	22	-$758,941	-$34,497
3	12	-$16,414,954	-$1,367,913
4	2	$745,055	$372,528
5	1	-$4,760,281	-$4,760,281
Total	96	-$17,505,710	-$182,351

Keith Law is right. Relievers broke the general pattern last year; the most valuable relievers were those with one-year deals. In fact, were it not for the four-year deals (**Billy Wagner** and **Justin Speier**), there would have been a consistent downward trend in average Net Win Shares Value from short- to long-term contracts.

As bullpen usage has grown from year to year, bullpen success has become a more important contributor to team success. But bullpen success if fleeting and enigmatic. To make the point statistically, I looked at the runs allowed per nine innings for all pitchers who started at least 15 games in both 2006 and 2007 (96 in all), and found a correlation between the two of .38. Then I looked at the same stat for all pitchers

who relieved in at least 30 games both years (113) and found a correlation of .20. Bullpen performance is going to vary a lot, even if the underlying skill of the pitcher doesn't change.

So teams are in a trap. Because of evolving game strategies, they've become more dependent on something that is inherently inconsistent. When they fail, the tendency is to panic by signing relievers to relatively rich, long-term deals. As more money flows into the game, the situation intensifies. Teams without young arms pay more and more (in dollars and length) for more questionable talent.

Last year, **Kenny Williams** took a rational approach to his bullpen. He built around closer **Bobby Jenks** by signing up some power arms like **Mike MacDougal** and **Matt Thornton** to relatively inexpensive three-year contracts and brought some other viable candidates into camp (**Andy Sisco**, **Nick Masset**, etc.), hoping to catch lightning in a bottle. It didn't pan out, and Williams is now showing signs of panic by signing relievers like Linebrink to four-year deals.

That's too bad. GM's who try to buy consistent bullpen excellence in the free agent market are setting themselves up for disappointment.

References & Resources

There is one methodological error in my data. If players played for more than one team, their contracts were counted more than once. For instance, Armando Benitez pitched for two different teams last year, so he appears twice in the in the "twelve" three-year contracts given to relievers. Without the double counting, there were actually only eleven three-year reliever contracts.

However, dollar figures were prorated between teams, so the total salaries and Net Win Shares Value figures are correct (at least according to my base data).

Dave Studeman was called a "national treasure" by Rob Neyer. Seriously. Follow his sporadic tweets **@dastudes**.

Comments are closed.

All About Arbitration

by Dave Studeman

January 31, 2005

1973 was quite the year for baseball. The year began with the news that **Roberto Clemente**, while attempting to deliver aid to Nicaraguan earthquake victims, had died in a plane crash on New Year's Eve. The Designated Hitter was used for the first time that season. **Reggie Jackson** and **Pete Rose** were MVP's, **Seaver** and **Palmer** won the Cy Youngs. **Hank Aaron** finished the year one home run short of Babe Ruth's record. **Willie Mays** retired. George Steinbrenner bought the Yankees from CBS for **$10 million**. And in the beginning of the year, spring training was almost cancelled.

The early 70's were the years in which players finally began to gain some of the freedoms they were due. They were the years of **Marvin Miller**, **Curt Flood**, **Andy Messersmith** and **Dave McNally**, **Catfish Hunter** and **Charlie Finley**. The players had gone on strike at the beginning of the 1972 season, and canceling the 1973 spring training was an attempt by the owners to gain an upper hand as the two sides hammered out a new Basic Agreement. The owners did lock the players out of early spring training, but eventually a new agreement rose from the miasma just in time for camps to open March 1st.

It must be said, however, that the owners royally blew whatever upper hand they had gained, because this agreement included something new. They called it **Salary Arbitration**, and it included many of the characteristics we know so well today:

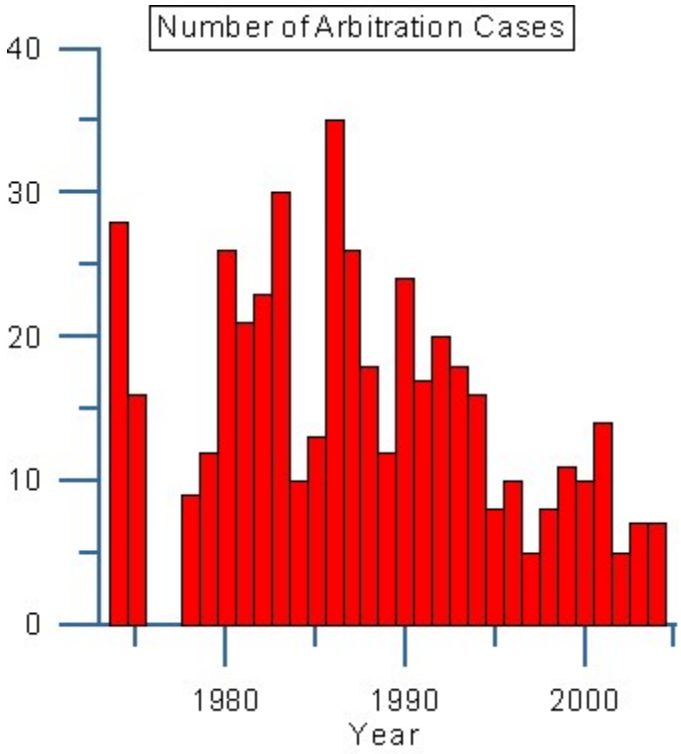
- Arbitration cases were heard in February.
- Players were eligible for arbitration after two years of major league service.
- Both the player and the club submitted figures to an arbitrator, who picked one or the other. There would be no compromise. This is called "Final Offer Arbitration."

In one fell swoop, the owners pretty much gave the house away, as arbitration allowed players to consistently receive substantial increases in future years, even during the bleak period of Ueberroth's collusion. The players knew they had gained something special, as captured by this commentary from the Sporting News' 1974 Official Baseball Guide:

> "Of the new gains the Players Association appeared particularly pleased with the unprecedented clause allowing salary arbitration. Previously, a player dissatisfied with his contract offer had no recourse. If he didn't sign, he had to sit out since the reserve clause rule bound him to one club and he was unable to negotiate with any other team.

Arbitration has had a fundamental impact on the economics of baseball — perhaps as large an impact as free agency itself. And with **the arbitration season opening today**, it seems like a good time to reflect on the history of the process and its outcomes.

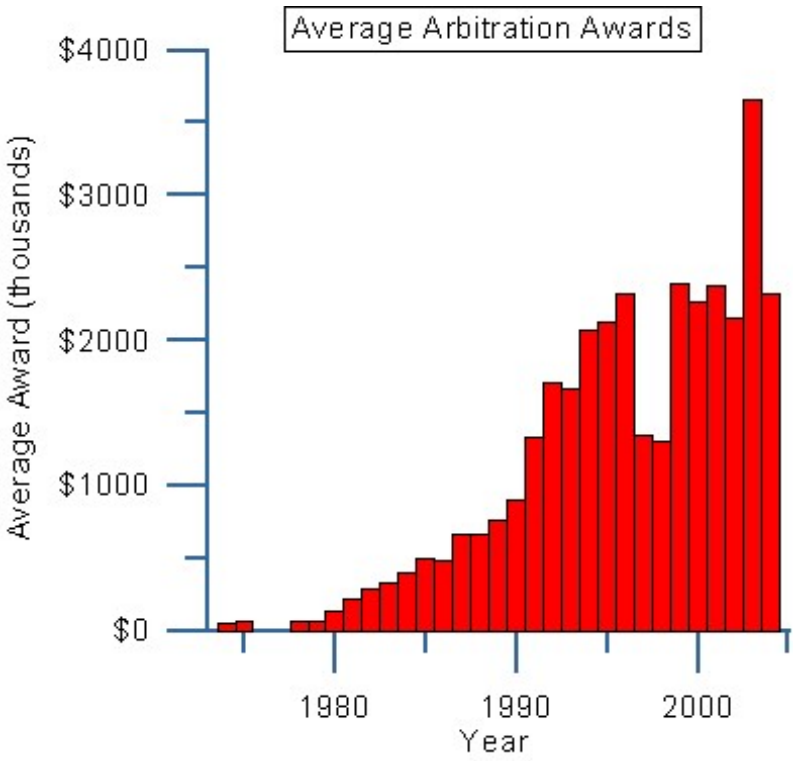
Let's go over a few graphs covering all thirty-one years of salary arbitration. First up, the number of cases that have gone to arbitration each year:



As you can see, a lot of players went through arbitration in the 1970's and 1980's. **Reggie Jackson** went through arbitration in each of the first two years. He won the first case for $135,000 after his MVP year, but lost in the next year after submitting a

salary of $168,500 and losing to the club's $140,000 submission. After all, the guy only finished fourth in the 1974 MVP race.

Needless to say, the dollar amounts of arbitration settlements have risen dramatically ever since. Here is a graph of the average salary award each year:

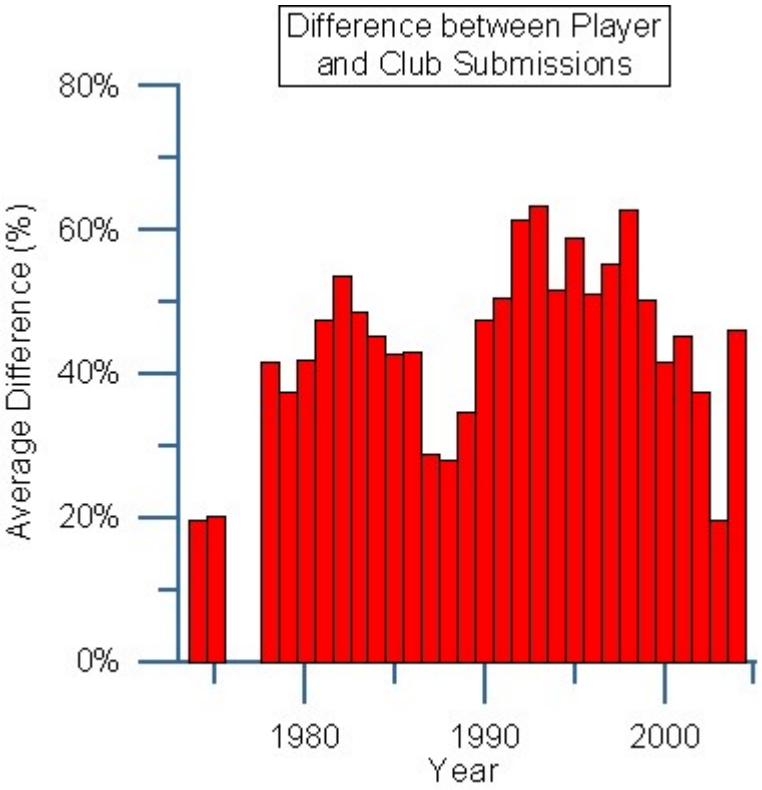


In 1997 and 1998, players and clubs managed to resolve most of the high-salary cases outside the arbitration process. From 1979 to 1996, however, average arbitration awards rose from $68,000 to $2,300,000. That's a Compound Average Growth Rate of 23%. Some of the key increases in arbitration history have been:

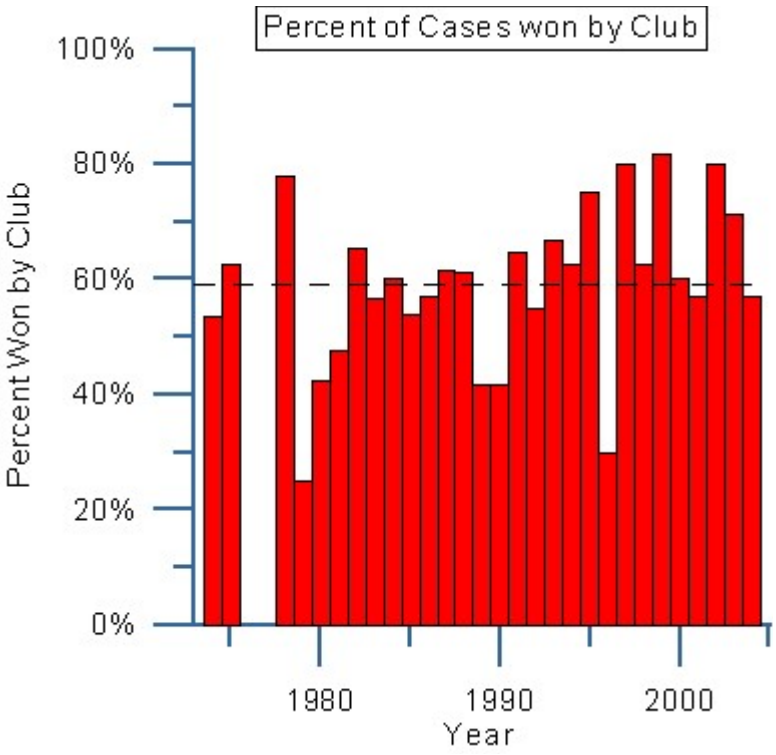
- Bruce Sutter's $700,000 in 1980 (the previous high was $140,000)
- Fernando Valenzuela's cool million in 1983
- Don Mattingly's jump to $1,975,000 in 1987
- Doug Drabek skipped the $2 million range altogether and jumped to $3,350,000 in 1991, followed in 1992 by…
- Ruben Sierra's stunning $5 million award in 1992 (Texas had submitted a bid of $3.8 million. Rafael Palmeiro and Kevin Brown also took the Rangers to the bank that year).
- Mariano Rivera's $7,250,000 figure in 2000. This is the only high mark in which the club actually won the hearing — Rivera had submitted a figure of $9,250,000.

- Andruw Jones' $8,200,000 in 2001 — the highest winning figure among all cases that have gone to arbitration so far.

In Jones' case, the Braves submitted a figure of $6,400,000, or $1.8 million less than Jones' bid. That is the third highest difference between players and clubs of all time. The largest differences have been Gagne and the Dodgers last year ($8 million and $5 million) and Rivera and the Yankees in 2000 ($9.25 million vs. $7.25 million). Here is a graph of the average differential between clubs and players each year, expressed as the percent difference between the player's submission and the club's submission (you might call it the player's "markup").



You can see that the owners really pushed their luck in the early 1980's as well as much of the 1990's. Overall, however, clubs have won 59% of their cases. Here is a rundown from year to year. Note how clubs went from big winners in 1978 (winning 7 of 9 cases) to big losers in 1979 (winning just 3 of 12).



There is virtually no correlation between the size of the difference between the parties and whether the eventual settlement goes to the player or club. However, no player has ever won an arbitration case in which his submission was more than twice the club's submission. The most extreme difference was **Jerry Browne's** in 1993, the year after he batted .287/.366/.364 in 324 at bats. The A's won with a submission of $625,000; Browne's submission was 212% higher at $1,950,000. Browne was represented by Scott Boras.

By the way, Scott Boras has gone to arbitration for a player 39 times, and clubs have won 59% of his cases. Right on the overall average.

The Really Important Thing to Remember

According to the Basic Agreement, an arbitrator is supposed to consider several things when deciding upon a case. Most importantly, he/she is directed to consider:

- The player's contribution to his team
- His previous salary
- The salaries of players in a similar class

The last two points are extremely important — in arbitration, **players are not all equal**. When making a case for a player, the arbitrators are instructed to consider only the salaries of players with **the same amount of major league experience, or one year more**.

Here is the exact wording from the current Basic Agreement regarding this point:

> "The arbitration panel shall, except for a Player with five or more years of Major League service, give particular attention, for comparative salary purposes, to the contracts of Players with Major League service not exceeding one annual service group above the Player's annual service group. This shall not limit the ability of a Player or his representative, because of special accomplishment, to argue the equal relevance of salaries of Players without regard to service, and the arbitration panel shall give whatever weight to such argument as is deemed appropriate.

You may have wondered why players going through arbitration for the first time receive significantly less than players going through it for the third time. It's because the difference is baked into the system. I was reading a review of the recent $2.5 million **Marcus Giles** contract in which the author expressed surprise that the Braves got such a good deal. It was a good deal for the Braves, but it made sense, given that Giles was eligible for only his first year of arbitration. That is how the system works.

As a result, there is a "natural" progression of a player's salary in his career. For his first two or three years, he receives the major league minimum ($316,000 in 2005). He then goes through the arbitration process for three or four years (even if he doesn't go through the process, his salary will be heavily influenced by arbitration). During those years, his salary rises from the minimum to the level of a free agent in his final arbitration year. After that, his salary is subject to the free agent market.

That is why **Ramon Ortiz** may make as much as **Carlos Zambrano** next year, and why low-budget teams sometimes trade players in their sixth year; not just because they are about to become free agents, but also because their salaries will have

increased significantly since their first year of arbitration.

So when you're reviewing player salaries, you not only need to know whether the player is a free agent, arbitration-eligible or not, but you also need to know how many years of major league service he has, if he's going through arbitration.

As if the system wasn't complicated enough…

References & Resources
I promised this would be All About Arbitration, but I've only covered some of the topics. For more information, I recommend the following:

Marinomics' Review of this year's submissions, which includes links to other arbitration studies.

The Sports Econmist has **a nice overview of arbitration**, as well as **a commentary on what can and cannot be considered during arbitration**.

And **here is MLB's updated list** of all arbitration filings and signed contracts. You can find historical arbitration data at **the late Doug Pappas's website**.

Dave Studeman was called a "national treasure" by Rob Neyer. Seriously. Follow his sporadic tweets **@dastudes**.

Comments are closed.

The Free Agent Cycle

by Dave Studeman

November 30, 2006

So much angst! Free agent salaries are so out of control that the blogosphere can barely contain itself. **Baseball Think Factory** has been full of aghast posters. **USS Mariner** has been popping blood vessels daily. **Sabernomics** wonders what the explanation could be.

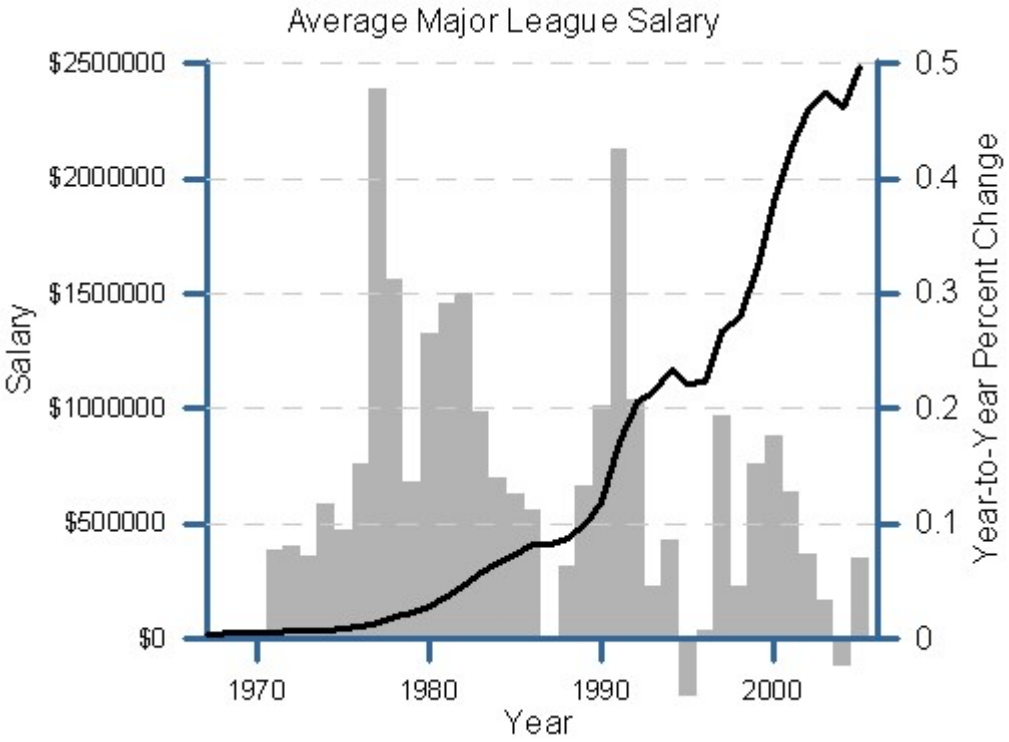
Truly, it's hard to like any of these outlandish deals:

- **Alfonso Soriano** leverages a career year to get an eight-year deal for $17 million a year from the Cubs, the fifth-largest contract ever.
- **Gary Matthews Jr.** does the same thing on a smaller scale.
- A below-average centerfielder gets $44 million for five years (weird **Juan Pierre** contract fact: After receiving $10 million in both 2009 and 2010, he'll be paid only $8.5 million in 2011.).
- Mediocre reliever **Danys Baez** gets $19 million for three years from the Orioles (remember last year's howls when the Cubs signed **Bobby Howry** to a three-year deal for $12 million?).
- **Carlos Lee**, a prime candidate for the early-decline club, signs a six-year deal for $100 million with the Astros.

In almost every blog I've read, many fans of these clubs love these deals while dispassionate baseball "analysts" hate them all. I'm not different, by the way. I particularly **loathe the Pierre deal** and I can't even speak about the Baez contract.

But, as David Gassko **reminded us earlier this week**, this sort of thing has happened before. In fact, it occurs on a regular basis. Since 1969, the average major league salary has risen nearly 14% a year, and about 8% a year in the most recent eight to 10 years.

In fact, here's a graph of the average major league salary from 1967 through 2005 (I don't have last year's figure yet, but I know it rose about 6%) with the gray bars signifying the percent change from year to year.



The black line slopes upward ominously, doesn't it? But the real story is in the gray bars. Allow me to digress for a minute.

In the insurance industry, there is a phenomenon called the **underwriting cycle**, in which the underwriting profits of insurance companies go up and down on a fairly predictable basis. Underwriting profits, by the way, are a company's premiums minus losses incurred on policies (gains on investments, which is how most insurance companies make money, aren't included). I've seen many reasons proffered for the underwriting cycle, but I think one in particular hits the mark.

When insurance companies are making money in a market, other insurance companies try to get in on the action. Prices go down; salespeople are allowed to lower premiums in order to keep accounts. Underwriters are encouraged to take on more risk. Eventually, bottom lines erode, the market becomes less attractive, some companies leave the market, prices firm up and profitability returns. I would guess that virtually every insurance executive is aware of this, but it happens anyway. It's free competition, it's human nature. It's unavoidable.

I think the same thing happens with baseball salaries. Take a look at the chart again.

First off, there were the madcap years from 1976 to 1986, when free agency literally freed baseball players. There there were the Ueberroth collusion years, culminating in a year of flat salaries in 1987 (by the way, it's an interesting comment on the natural inflation of baseball salaries that colluding owners couldn't even decrease total salaries from one year to the next). Thanks to the courts and Andre Dawson, that little affair didn't last long and salaries once again rose, though the next inflationary peak (43% in 1991) was slightly lower than the heady days of the 1970s.

Next came the strike years of the early '90s, when large market teams battled it out with small-market teams and everyone battled with the players. The fallout in salary structure came in the nadir of 1995, when salaries actually declined 5%. Yet salary inflation rose again with the home run rates of Sammy Sosa and Mark McGwire, culminating in some insane contracts in 2000 (**Alex Rodriguez**, **Derek Jeter**, **Mike Hampton**, **Manny Ramirez**) that teams are still paying for. As you can see, the inflation peak of that up cycle was actually less than 20%, far below previous peaks.

Most recently, the owners found their fiscal footing and actually held salaries down in 2004 (the offseason of **Miguel Tejada**, **Vladimir Guerrero**, and three-year contracts to nearly everyone else). As J.C. Bradbury of the Sabernomics blog pointed out, owners were so "successful" that there has **been a collusion settlement** related to free agent salaries in 2002.

Now if you were to look at this graph and guess what would happen to salaries in 2006 and 2007, you'd say up, right? You'd be right, of course; that is exactly what we're seeing. I think the baseball salary cycle, just like the underwriting cycle, is unavoidable. Salaries will go up and down, hitting extremes below 0% and above 20% depending on where teams are in the cycle. I can think of several reasons for the current upswing in the cycle:

- The business of baseball is awesome. Major League Baseball hit an all-time high attendance record and **MLB Advanced Media is a cash cow** Lots of cash to spend on players.
- The extraordinary crop of rookies and sophomores has freed up a lot of short-term baseball salary budget. As I've mentioned before, the 2006 minimum-salary players contributed over 1,000 more Win Shares Above Bench than the 2004 crop. In the short run, this is equivalent to an $800 million salary windfall. In fact, I don't think the average major league salary in 2007 will rise nearly as much as you might think because kids making the

minimum (or in their first year of arbitration) will help keep it down.
- The new Collective Bargaining Agreement (CBA) has a lower tax rate on shared revenue for large-market clubs. As I understand it, it's not a big difference, but it's something. Large-market clubs set the salary levels of free agents.

The one thing I do know is that salaries will continue to rise for a while, but they will eventually fall, too. The rookies and sophomores that are cheap today will be expensive tomorrow as they move through the arbitration process.

In fact, arbitration is how these outrageous salaries will come back to bite the owners. By agreement, arbitration results are tied to free agent salaries, so today's higher free agent salaries will increase arbitration results in a few years. How do you think owners will act when they see their arbitration-eligible salaries rising rapidly?

The free agent cycle will continue...

References & Resources

One reader pointed out to me that I may be underestimating the impact of the new revenue tax schedule included in the Collective Bargaining Agreement. Some large-market teams will now get to keep 30% more of their revenue increase because their marginal tax rate will decrease from 53% to 31%. Other teams will see a decrease of about 13%. When a team signs a free agent, they do so in anticipation of more wins, more ticket sales and more revenue. So the revenue-sharing tax change should have a definite impact on free agent salaries.

More from The Hardball Times

A Hardball Times Update
by RJ McDaniel
Goodbye for now.

Dave Studeman was called a "national treasure" by Rob Neyer. Seriously. Follow his sporadic tweets **@dastudes**.

Comments are closed.