MAGIC METRIC Playing Cards. A comparison of basketball player ratings.

By Dick Mays

The author previously calculated the 2011-2012 NBA player ratings both on a Magic Metric per Game and Magic Metric per minute basis, suggesting that the product of these two metrics would make a good NBA player rating system.

A paper was published on apbr.org, in which the author compared this ranking with an efficiency ranking published on hoopstat.com.   In subsequent comments, the author incorrectly identified the EFF ranking used on hoopstats as the PER ranking developed by John Hollinger.

To remedy this error, the author took the NBA stats effective March 2/2013, and calculated the Magic Metric ranking all the NBA players, so that an accurate comparison could be made with PER. The hoopstat player rating system (EFF) is also included for in the table at the end, but this paper focuses on comparing PER to MM.

EFF is similar to the MM in that it is a linear summation of various positive and negative stats, but it lacks the mathematically derived coefficients, and effectively overvalues rebounds, and overly penalized missed shots. It is given by formula:

NBA Efficiency recap = ((Points + Rebounds + Assists + Steals + Blocks) - ((Field goals attempts - Field goals made) + (Free throws attempts - Free throws made) + Turnovers))

John Hollinger's PER is explained here:

http://www.basketball-reference.com/about/per.html

The Magic Metric is explained here:

http://www.upct.es/~beside/Textos/MagicMetric.pdf

Comparison Methodology.

Comparing player ranking systems is a bit like comparing the beauty of babies. Everybody has a beautiful baby, even the parents of the ugly babies, have beautiful babies if you take the time to ask them.

The author is the creator of the Magic Metric and can't see how Hollinger's baby is any prettier than is own. The following analysis is offered, without any claims of objectivity.

The table at the end of the Paper shows the top 52 rated players in the NBA as of March 2, 2013, for the 2012-2013 season. It considers only players with more than 15 games, who average more than 15 minutes of playing time. These players provide us a deck of playing cards, and we would guess that most of the names in the deck would be familiar to fans, and recognized stars.

Both PER and the MagicMetric could be used to create the player deck. Which deck of cards makes the most sense? Which players are included in the PER deck, versus the players included in the Magic Metric deck?

The top two players, the Ace of Spaces and Hearts, are Lebron James and Kevin Durant under both rating systems. So far, so good. The Magic Metric gives the next two aces to James Harden and Kobe Bryant. Harden as an Ace might raise some eyebrows. Kobe is defensible but the PER's choice of Chris Paul seems equally strong. However, PER gives an Ace to Brook Lopez. That has to be at least as shocking as Harden.

The Magic Metric recovers from the Chris Paul dis, by making him the King of Spades, where he is joined by Russell Westbrook, Carmelo Anthony, and Tony Parker. Who are the Kings in the PER deck? Dwane Wade, Tony Parker, Tim Duncan and Blake Griffin.

Tim Duncan, Dwayne Wade and Blake Griffin are Queens in the MM deck, joined by Kyrie Irving. The PER Queens include Westbrook, Harden, Carmelo, and Kobe.

Amazingly, both rating systems share 11 of the same top twelve players. This goes to show that the greatest players are probably not the best way to evaluate rating systems. Great players make their way to the top, no matter how the rating system is structured.

The main difference in the top twelve is that Kyrie Irving is a Queen in the MM deck, while Brook Lopez rates an Ace in the PER deck. As Irving is included as a Jack in the PER deck, the only glaring anomaly in the face-card portion of our decks is Brook Lopez. He is the ten of hearts in the Magic Metric deck, and doesn't even make the royalty cut, while he is listed as an ACE in the PER deck.

Similarly, no one really cares to examine differences in rating systems among the players at the bottom rung of the NBA. There are thirty teams in the NBA each team, each with two, or three or "name "players. This gives us a pool of 60 to 90 marquee names, from which to fill out our playing card deck.

The purpose of the playing card analogy is to compare what players are left out of the deck entirely. How does the rating system judge the second tier players? In this second tier, the comparisons are much closer, and differences in the rating system make a bigger difference in the playing card deck. There are fourteen players that differ

in the two decks. Here they are, presented side by side, along with their ranking under each rating system:

Magic Metric			PER	
Player	rank		Player	rank
Kevin Love	21		Andre Drummond	14
Rajon Rondo	22		Andray Blatche	15
Jrue Holiday	23		Amare' Stoudemire	17
Josh Smith	25		Javale McGee	18
Paul George	28		Brandan Wright	20
Joakim Noah	36		Anthony Davis	22
Deron Willams	37		Samuel Dalembert	31
Greivis Vasquez	41		Robin Lopez	32
Zach Randolph	42		Tiago Splitter	34
Brandon Jennings	43		Jose Calderon	39
Rudy Gay	44		Larry Sanders	47
Ty Lawson	45		Jordan Hill	48
Nikola Vucevic	46		Eric Bledsoe	49
Carlos Boozer	52		Tyreke Evans	51

If you like BIG MEN, PER might be your preferred rating system. But normal headed babies are prettier than BIG headed babies to this author's eyes, and the names on the left seem way prettier than the names on the right.

Is there any doubt, that the team on the Left, would destroy the team on the Right? Forget the all-star game, let's see the player rating system game. Make your card deck of the 52 best players, and you get the ones left off by the competing system. Then go at it on the court.

Acknowledgements

All 52 players, in the MM playing card deck:

Player	MM/g	mm/min	Mmprod	MM	EFF	EFF	PER	PER
L. James	30.28	0.7865	23.815	1	32.6	1	31.76	1
K. Durant	28.815	0.7446	21.455	2	30.9	2	28.79	2
J. Harden	24.125	0.6266	15.117	3	24.4	4	23.55	10
K. Bryant	23.86	0.6262	14.942	4	24.3	5	23.18	12
C. Paul	22.02	0.6755	14.874	5	22.9	8	26.12	3
R. Westbrook	22.62	0.6354	14.373	6	22.7	10	23.66	9
C. Anthony	22.915	0.6014	13.782	7	22.6	11	23.37	11
T. Parker	21.3	0.6435	13.707	8	22.3	14	24.37	6
T. Duncan	19.67	0.6623	13.027	9	22.8	9	23.97	7
D. Wade	20.86	0.6064	12.649	10	21.7	17	24.42	5
K. Irving	21.075	0.5987	12.618	11	21	22	22.68	13
B. Griffin	20.11	0.6207	12.482	12	22.6	12	23.77	8
S. Curry	21.635	0.5724	12.383	13	21.6	18	20.58	25
A. Varejao	20.825	0.5785	12.047	14	25.2	3	21.88	16
D. Lee	20.81	0.5594	11.641	15	24	6	19.42	37
A. Horford	20.2	0.5445	10.998	16	23.3	7	20.09	30
A. Jefferson	19.04	0.577	10.986	17	21.4	19	21.01	21
B. Lopez	17.9	0.5908	10.575	18	19.5	35	24.52	4
L. Aldridge	19.785	0.522	10.328	19	21.7	16	19.64	35
D. Cousins	18.06	0.5679	10.257	20	20.2	26	20.16	29
K. Love	18.7	0.5452	10.195	21	20.7	24	18.22	54
R. Rondo	19.525	0.5221	10.193	22	21.3	20	18.27	53
J. Holiday	19.465	0.5069	9.8668	23	19.8	30	18.16	56
D. Howard	18.51	0.5319	9.8454	24	21.2	21	19.22	42
J. Smith	18.75	0.5223	9.7928	25	20.2	25	17.52	67
D. West	18.045	0.5387	9.7201	26	19.7	31	20.65	24
P. Pierce	18.1	0.5339	9.664	27	18.6	37	18.41	52
P. George	18.81	0.4989	9.385	28	19.9	28	17.42	71
P. Millsap	16.835	0.552	9.2924	29	18.6	38	20.73	23
G. Monroe	17.39	0.5286	9.1919	30	19.7	32	19.74	33
C. Bosh	17.425	0.5186	9.0366	31	19.7	33	20.34	27
K. Garnett	16.52	0.5452	9.0069	32	18.6	39	19.16	43
K. Walker	17.52	0.5093	8.923	33	17.2	51	18.99	44
M. Gasol	17.48	0.5052	8.8309	34	19.9	27	19.28	41
K. Lowry	15.925	0.5491	8.745	35	16.6	62	19.41	38
J. Noah	18.28	0.476	8.702	36	22	15	17.56	65
D. Williams	17.675	0.4816	8.5124	37	17.9	44	18.17	55
J. Hickson	15.75	0.5339	8.4089	38	19.1	36	20.48	26
T. Chandler	16.7	0.5015	8.3751	39	20.7	23	20.31	28
D. Nowitzki	15.99	0.5192	8.3013	40	17	53	18.48	50
G. Vasquez	16.78	0.4921	8.2571	41	17.5	48	16.94	60
Z. Randolph	17.065	0.4834	8.2497	42	19.9	29	18.15	57
B. Jennings	17.435	0.4712	8.2157	43	16.6	61	16.6	97
R. Gay	17.91	0.4581	8.2038	44	17.8	47	14.72	147
T. Lawson	16.97	0.4821	8.1813	45	16.8	56	17,21	79
N. Vucevic	16.235	0.5011	8.135	46	19.6	34	17.3	76
R. Anderson	15.74	0.511	8.0438	47	16.2	65	19.36	40
M. Ginobili	13.655	0.5861	8.0025	48	14.2	95	21.08	19
K. Faried	15.25	0.5205	7.9373	49	18.1	42	18.72	46
N. Pekovic	15.82	0.5006	7.92	50	18.1	43	19.58	36
S. Ibaka	15.81	0.4972	7.8603	51	18.6	40	18.81	45
C. Boozer	15.555	0.5034	7.8304	52	17.8	46	17.31	75