

Performance as a *random variable.*

But first, a little bit of **basketball**.

NBA FINALS - GAME 3 • SA leads series 2-1



Heat **77** Final **113** Spurs
66-16, 29-12 Away 58-24, 35-6 Home





[Gamecast](#) [Recap](#) [Box Score](#) [Play-by-Play](#) [Team Stats](#)

Miami Heat


	PTS	FG	3PT	FT	REB	AST	TO	STL	BLK	OREB	DREB	PF	+/-	
Best player	12	4-10	0-1	4-6	10	4	1	1	3	2	8	2	-21	
	0	0-2	0-0	0-0	3	0	0	0	1	2	1	2	-13	
LeBron James #6	39	15	7-21	1-5	0-0	11	5	2	2	0	1	10	0	-32
Dwyane Wade #3	34	16	7-15	0-0	2-2	0	5	2	4	1	0	0	0	-29
Mario Chalmers #15	20	0	0-5	0-1	0-0	2	1	4	0	0	1	1	4	-19

But first, a little bit of **basketball**.

NBA FINALS - GAME 3 • SA leads series 2-1

 **66-16, 29-12 Away** Final **▶ 113** **Spurs**
58-24, 35-6 Home 

Gamecast Replays **Best team** Stats

 **Miami Heat**

STARTERS	MIN	PTS	FG	3PT	FT	REB	AST	TO	STL	BLK	OREB	DREB	PF	+/-
Chris Bosh #1	32	12	4-10	0-1	4-6	10	4	1	1	3	2	8	2	-21
Udonis Haslem #40	10	0	0-2	0-0	0-0	3	0	0	0	1	2	1	2	-13
LeBron James #6	39	15	7-21	1-5	0-0	11	5	2	2	0	1	10	0	-32
Dwyane Wade #3	34	16	7-15	0-0	2-2	0	5	2	4	1	0	0	0	-29
Mario Chalmers #15	20	0	0-5	0-1	0-0	2	1	4	0	0	1	1	4	-19

**Best
player**

But first, a little bit of **basketball**.

NBA FINALS - GAME 3 • SA leads series 2-1



Biggest stage

**Best
team**

▶ **113**

Spurs
58-24, 35-6 Home



[Gamecast](#) [Recap](#) [Box Score](#) [Play-by-Play](#) [Team Stats](#)



Miami Heat

STARTERS	MIN	PTS	FG	3PT	FT	REB	AST	TO	STL	BLK	OREB	DREB	PF	+/-
Chris Bosh #1	32	12	4-10	0-1	4-6	10	4	1	1	3	2	8	2	-21
Udonis Haslem #40	10	0	0-2	0-0	0-0	3	0	0	0	1	2	1	2	-13
LeBron James #6	39	15	7-21	1-5	0-0	11	5	2	2	0	1	10	0	-32
Dwyane Wade #3	34	16	7-15	0-0	2-2	0	5	2	4	1	0	0	0	-29
Mario Chalmers #15	20	0	0-5	0-1	0-0	2	1	4	0	0	1	1	4	-19

**Best
player**


But first, a little bit of **basketball**.

NBA FINALS - GAME 3 • SA leads series 2-1

 **Biggest stage.** Heat **77** Final **113** Spurs 
66-16, 29-12 Away 58-24, 35-6 Home

Best team

[Gamecast](#) [Recap](#) [Box Score](#) [Play-by-Play](#) [Team Stats](#)

 **Miami Heat**

STARTERS	MIN	PTS	FG	3PT	FT	REB	AST	TO						
Chris Bosh #1	32	12	4-10	0-1	4-6	10	4	1	1	3	2	0	2	-21
Udonis Haslem #40	10	0	0-2	0-0	0-0	3	0	0	0	1				
LeBron James #6	39	15	7-21	1-5	0-0	11	5	2	2	0				
Dwyane Wade #3	34	16	7-15	0-0	2-2	0	5	2	4	1				
Mario Chalmers #15	20	0	0-5	0-1	0-0	2	1	4	0	0	1	1	4	-19

This is bad!

-32

Best player

But first, a little bit of **basketball**.

NBA FINALS - GAME 3 • SA leads series 2-1



Heat
66-16, 29-12 Away

77

Final

▶ **113**

Spurs
58-24, 35-6 Home



**Best
team**

[Gamecast](#) [Recap](#) [Box Score](#) [Play-by-Play](#) [Team Stats](#)



Miami Heat

STARTERS	MIN	PTS	FG	3PT	FT	REB	AST	TO	STL	BLK	OREB	DREB	PF	+/-
Chris Bosh #1	32	12	4-10	0-1	4-6	10	4	1	1	3	2	8	2	-21
Udonis Haslem #40	10	0	0-2	0-0	0-0	3	0	0	0	1	2	1	2	-13
LeBron James #6	39	15	7-21	1-5	0-0	11	5	2	2	0	1	10	0	-32
Dwyane Wade #3	34	16	7-15	0-0	2-2	0	5	2	4	1	0	0	0	-29
Mario Chalmers #15	20	0	0-5	0-1	0-0	2	1	4	0	0	1	1	4	-19

**Best
player**

Performance is **stochastic**.

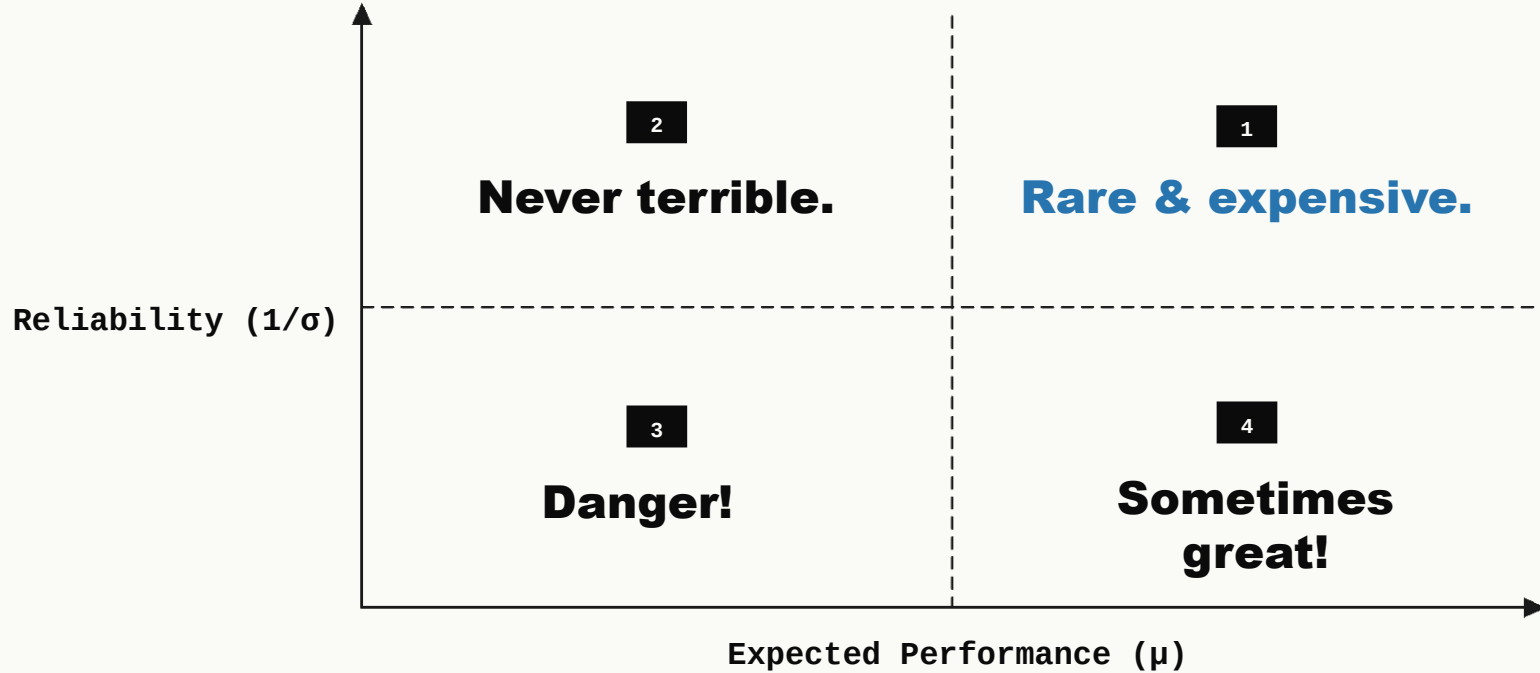
Worker-role-task performance variance is:

- larger than between worker average differences.¹
- stable over time and only loosely correlated with ability.²
- found in supermarkets, schools, labs, and C-Suites.³

1. Dalal et al. 2014, 2020 | 2. Beus and Whitman 2012; Dalal et al. 2014; Fleeson and Jaywickreme 2015; Minbashian et al. 2009; Ployhart and Hakel 1998; Yin et al. 2019

3. Sacket et al. 1988; March and March 1977; Awtrey et al. 2021; Liu and Tsay 2021; Liu et al. 2018 |

Performance is **stochastic**.



Performance is **stochastic**.

Worker-role-task performance variance is:

- larger than between worker average differences.¹
 - stable over time and only loosely correlated with ability.²
 - found in supermarkets, schools, labs, and C-Suites.³
-

Volatility is firm-role specific, difficult to know ex-ante and private information thereafter.

- Doesn't that sound like a site for **strategic action**?
- Maybe even a source of **competitive advantage**?

And it is...in finance. And operations. And venture capital.⁴ **But not in HR/HCM.**

1. Dalal et al. 2014, 2020 | 2. Beus and Whitman 2012; Dalal et al. 2014; Fleeson and Jaywickreme 2015; Minbashian et al. 2009; Ployhart and Hakel 1998; Yin et al. 2019

3. Sacket et al. 1988; March and March 1977; Awtrey et al. 2021; Liu and Tsay 2021; Liu et al. 2018 | 4. Taylor 1911; Markowitz 1952; Sahlman 1990, Gupta and Sapienza 1992

Research questions:

Which organizations can use worker volatility as a strategic lever?

Who can afford to **ignore worker volatility**? And does it matter?

This research agenda:

Formal model of worker selection/retention.

Staggered, two-stage **difference-in-differences** using NBA data.

A two-period model (in the spirit of March and Denrell)

- Two otherwise identical workers:
 - a risk-free employee (let's call him **Steady Eddy**)
 - a stochastic replacement (let's call him **Wild Bill**)
- A manager who maximizes profits and fails when wealth falls below zero.
- A compensating differential – **the reliability premium** – which makes the manager indifferent between the two.

WORKER AND ORGANIZATIONAL FEATURES

RELIABLE $x^r > 0$ CURRENT EMPLOYEES N^r, N^p

VOLATILE $x^p \sim (x^r, \sigma)$ WEALTH $W_t \geq 0$

PRODUCTION FUNCTIONS

ADDITIVE $Q(N^r, N^p) = N^r x^r + \sum_{n=1}^{N^p} x^{p,n}$

LEONTIEF $Q(N^r, N^p) = A(N) \cdot \min(x^r, x^{p,1}, \dots, x^{p,n})$

TOURNAMENT $Q(N^r, N^p) = A(N) \cdot \max(x^r, x^{p,1}, \dots, x^{p,n})$

STATE (W_t, N^r, N^p)

WEALTH TRANSITION $W_{t+1} = W_t + Q(N^r, N^p)$

FAILURE fail if $W_{t+1} < 0$

SURVIVAL $S(W_t, N^r, N^p) = \Pr(W_{t+1} \geq 0)$

CONTINUATION $V(W_{t+1}, N^r, N^p)$

OBJECTIVE FUNCTION

$$\max \{ \underbrace{E[Q(N^r+1, N^p)] + S(W_t, N^r+1, N^p) \cdot V(W_{t+1}, N^r+1, N^p)}_{\text{difference in survival rates}} , \underbrace{E[Q(N^r, N^p+1)] + S(W_t, N^r, N^p+1) \cdot V(W_{t+1}, N^r, N^p+1)}_{\text{future organization output}} \}$$

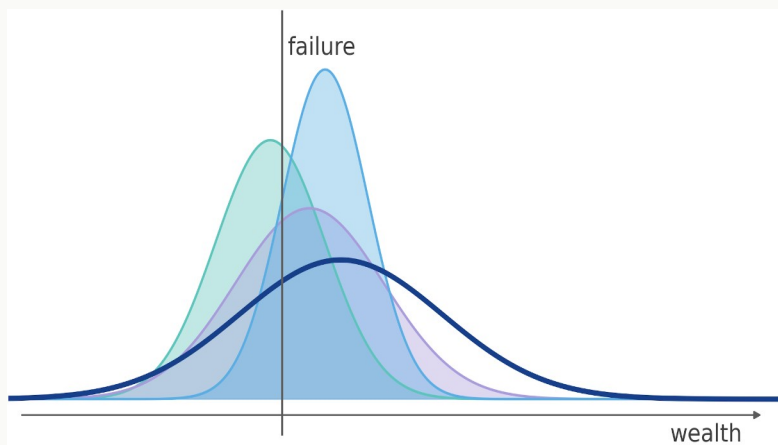
RELIABILITY PREMIUM

$$\lambda = \underbrace{[S(W_t, N^r+1, N^p) - S(W_t, N^r, N^p+1)]}_{\text{difference in survival rates}} \cdot \underbrace{V(W_{t+1}, N^r+1, N^p)}_{\text{future organization output}}$$

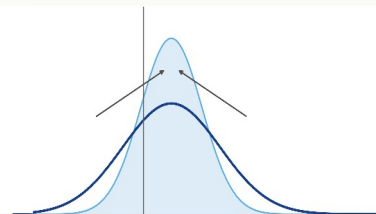
Some **intuition** from basic probability

Organizational output is the **convolution** of individual worker performance draws.

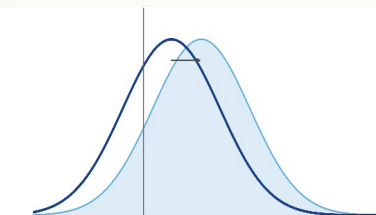
The manager's problem: “how can I reduce probability mass to the left of zero wealth?”



More draws (and the law of large numbers)



Mean-shift the entire organization



The **Volatility Tax** depends on scale and wealth

1

Under additive production, **large and wealthy companies can ignore volatility.**

- With more workers, bad days are counterbalanced by good days.
- With more resources, bad draws cannot be catastrophic.

2

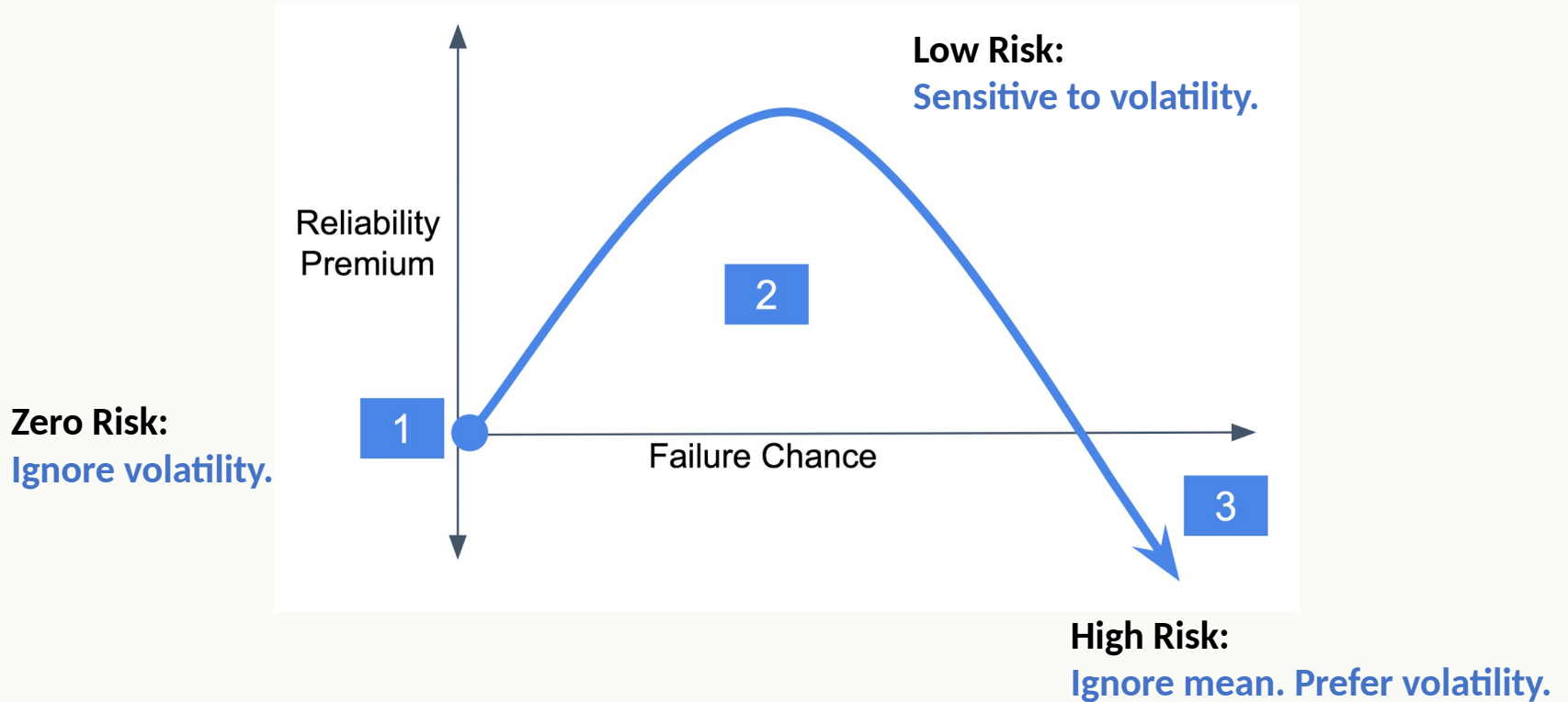
Small or resource constrained organizations are penalized.

- When volatility is ignored, the organization absorbs increased risk of failure.
- Otherwise, the organization must pay a wage premium for reliability.

Other implications:

- Teams and parent organizations have different premiums, leading to principal-agent conflicts.
- Volatility drives assortative matching: mature organizations get better talent without paying for it.
- Venture capital treats the wealth problem, regardless of firm quality.

The **Volatility Tax** splits HCM into three regions



Takeaways:

Worker portfolio management should be a central strategic and operational concern for startups, teams, and movements.

Reliable employees, managed correctly, are a source of **sustainable competitive advantage** à la firm-specific human capital.

Back to **basketball**.

Do NBA teams pay for reliability?

METHOD

Hedonic regression: 2,347 free-agent signings (2011–2023); estimated within CBA contract tiers.

-6.8%**

next contract value per SD
increase in GameScore

Do reliable players win games?

METHOD

Staggered, two-step DiD (Gardner 2022); treatment based on 268 first-of-season injuries to important players

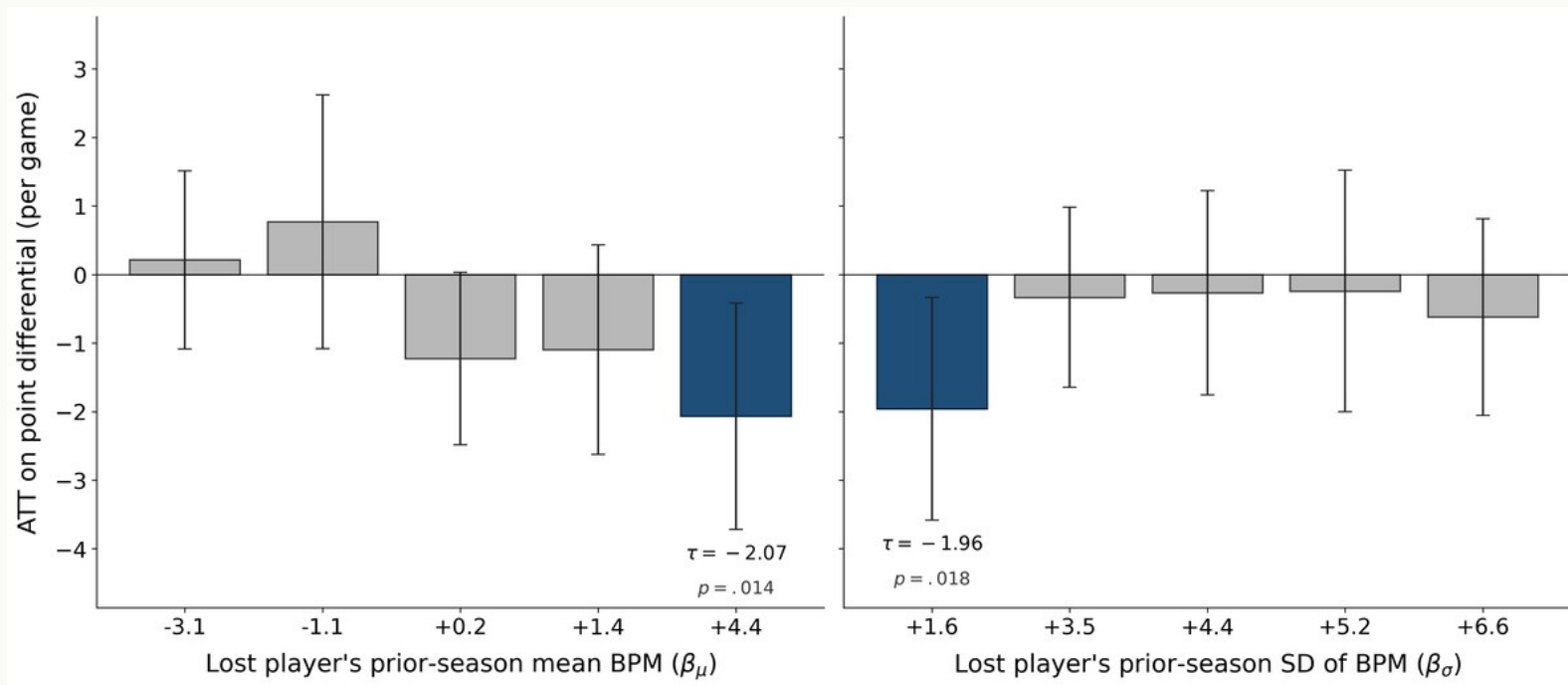
-1.7 pts**

point differential per SD increase in
injured player GameScore

-6.37%***

win percentage per SD increase in
injured player GameScore

Like superstars, but boring.

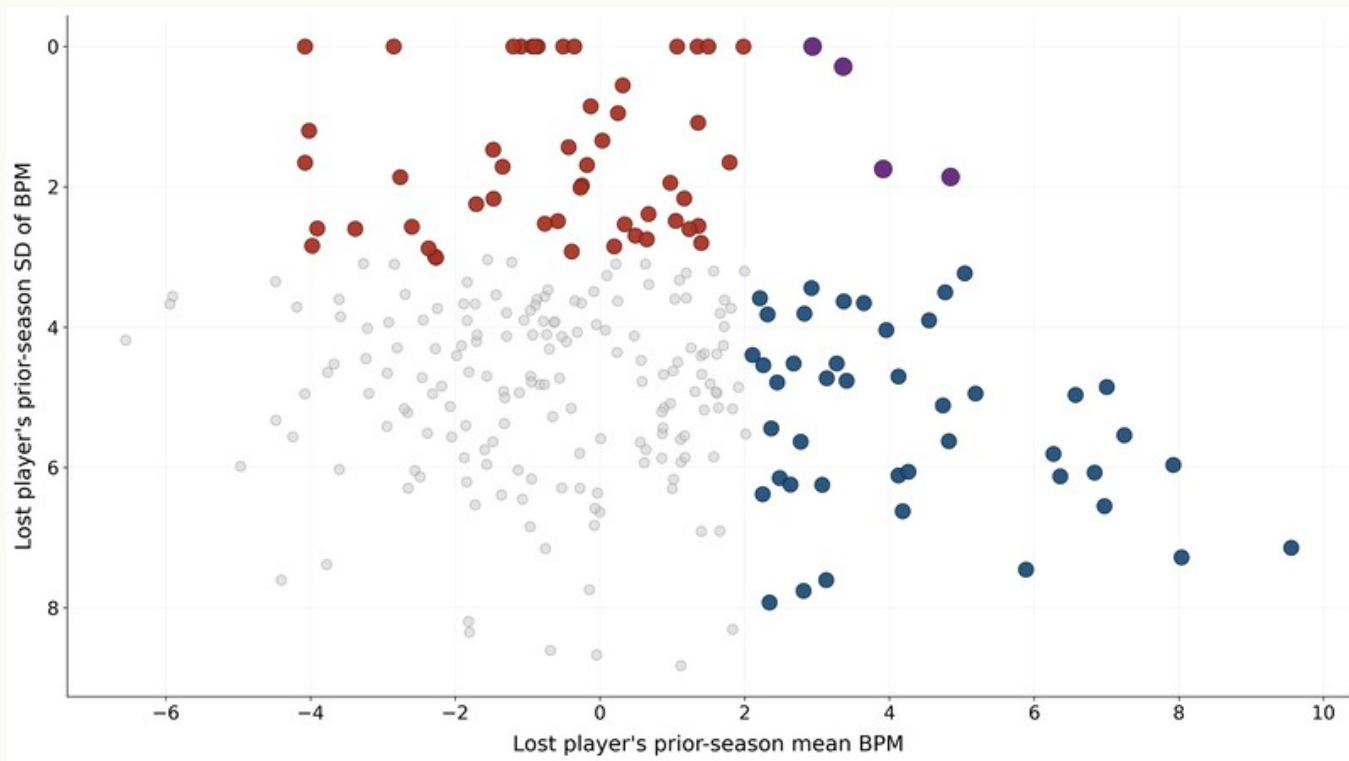


Player Quality

Reliability

Like superstars, but boring.

Reliability -
Game to game



Player Quality - Season Average

Thank you!

