# About the Calculation and Possible Use Cases of the Real WinRate

Emirhan Aluş

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**Abstract**

Real WinRate is a form of WinRate that includes the volatility of the equity curve, this paper is devoted to publishing and documenting the invention of Real WinRate and exploring it's possible use cases.

## 1 Introduction

I am an algotrader I was looking for a way to invent a formula to optimize my trading algorithm, some random day totally randomly my brain outputted this formula, I played with it and tossed it aside because I could always use PSR, Sharpe Ratio, Max Drawdown for the same purpose. After couple of months later I saw an article about risk of ruin and its simplified version it used the normal WinRate then the author said this method's disadvantage is not all wins or losses being equal and thats where I realized I might invented something with a legitimate use case.

## 2 Calculation

AgLoss = Aggregate losses(percentage or dollar)
AgWin = Aggregate wins(must be same with AgLoss)
LoseRate = 100 - WinRate
AgRatio = AgLoss / AgWin

Real WinRate = 100 - (LoseRate * AgRatio)

NOTE: If the AgRatio is Undefined for all practical reasons we accept it as 1.

## 3 Meaning

When this formula first popped in my head I was using averages instead of aggregates the reason I switched from averages was to find something more reactive to huge one time wins or losses so I choose taking the ratio of aggregates for maximum reactivity and magically I had a percentage that was adjusted to the equity curve if it is above 50 percent the system is profitable if it is below 50 percent the system is losing money.

## 4 Discussion

How can this formula be applied to the risk of ruin calculation?

How can this formula be applied to any other quantitative finance concept?

Is there any other use cases for this concept other than risk and what are those?