

CHANCE >

Volume 28, 2015 - [Issue 1](#)

| | | |
|-------|----------------------------|-----------|
| 98 | 2 | 0 |
| Views | CrossRef citations to date | Altmetric |

Articles

A Bellman View of Jesse Livermore

Nick Polson & Jan Hendrik Witte

Pages 27-31 | Published online: 11 Feb 2015

 Cite this article <https://doi.org/10.1080/09332480.2015.1016846>



 Full Article

 Figures & data

 References

 Citations

 Metrics

 Reprints & Permissions

Read this article

 Share

A Bellman View of Jesse Livermore

Nick Polson and Jan Hendrik Witte

Richard Bellman's Principle of Optimality, formulated in 1957, is the heart of dynamic programming, the mathematical discipline that studies the optimal solution of multi-period decision problems.

In his 1923 book *Reminiscences of a Stock Operator*, the legendary trader Jesse Livermore gave a detailed account of his methods. In this article we examine some of them—Livermore's rules for trading—to show how they are directly reflected in Bellman's Principle, and to demonstrate how in their striving for optimality, two of the greatest minds of the 20th century were neatly aligned.

Bellman's 1957 book on dynamic programming introduces his conceptual framework for the solution of multi-stage decision processes. While having multiple different mathematical formulations, the problems studied by Bellman all share the following characteristics:

- There is a system characterized at each stage by a set of parameters and state variables.
- At each stage of either process, we have a choice of a number of decisions.
- The effect of a decision is a transformation of the state variables.
- Past history is of no importance in determining future actions.
- The purpose is to maximize a function of the state variables.

In Bellman's words, a "policy" is any rule for making decisions that yields an allowable sequence of decisions,



Jesse Livermore
Photo courtesy of Wikipedia

and an "optimal policy" is one that maximizes a pre-assigned function of the final state variables. For every problem with the above listed properties, Bellman establishes the following rule, his Principle of Optimality: "An optimal policy has the property that whatever the initial state and initial decision are, the remaining decisions must constitute an optimal policy with regard to the state resulting from the first decision."

CHANCE

27

Additional information

Notes on contributors

Nick Polson is a Bayesian statistician who conducts research on financial econometrics, Markov chain Monte Carlo, particle learning, and Bayesian inference. Inspired by an interest in probability, Polson has developed a number of new algorithms and applied them to statistics and financial econometrics, including the Bayesian analysis of stochastic volatility models and sequential particle learning for statistical inference.

Jan Hendrik Witte

Jan Hendrik Witte is a numerical analyst who has developed a number of new algorithms in the area of numerical optimal stochastic control. Witte is generally interested in the areas of numerical mathematical finance, systematic trading, and portfolio optimization.

[← Previous article](#)

[View issue table of contents](#)

[Next article >](#)

Log in via your institution

[> Access through your institution](#)

Log in to Taylor & Francis Online

[> Log in](#)

Restore content access

[> Restore content access for purchases made as guest](#)

[Purchase options *](#)

[Save for later](#)


Article Purchase

24 hours access to article PDF & online version

Article PDF can be downloaded

Article PDF can be printed

EUR 34.00

 Add to
cart


Issue Purchase

30 days online access to complete issue

Article PDFs can be downloaded

Article PDFs can be printed

EUR 75.00

 Add to
cart

* Local tax will be added as applicable

Further reading

People also read

Recommended articles

Cited by

[The Big Picture: Big Data and Privacy >](#)

Nicole Lazar

CHANCE

Published online: 11 Feb 2015

[An Interview with Howard Wainer >](#)

Sam Behseta

CHANCE

Published online: 11 Feb 2015

[Ethics and Statistics: Disagreements About the Strength of Evidence >](#)

Andrew Gelman

CHANCE

Published online: 11 Feb 2015

[View more](#)

© Informa Group plc

[Privacy policy](#)

[Cookies](#)

[Terms & conditions](#)

[Accessibility](#)

[Help](#)

[Contact us](#)



Taylor & Francis Group
an **informa** business

Registered in England & Wales No. 3099067
5 Howick Place | London | SW1P 1WG