

[Home](#) > [Eastern Economic Journal](#) > [Article](#)

Active and Passive Learning in Agent-based Financial Markets

Article | Published: 28 December 2010

Volume 37, pages 35–43, (2011) [Cite this article](#)



[Eastern Economic Journal](#)

[Aims and scope](#) →

Your privacy, your choice

We use essential cookies to make sure the site can function. We, and our 96 **partners**, also use optional cookies and similar technologies for advertising, personalisation of content, usage analysis, and social media.

By accepting optional cookies, you consent to allowing us and our partners to store and access personal data on your device, such as browsing behaviour and unique identifiers. Some third parties are outside of the European Economic Area, with varying standards of data protection. See our [privacy policy](#) for more information on the use of your personal data. Your consent choices apply to springer.com and applicable subdomains.

You can find further information, and change your preferences via 'Manage preferences'. You can also change your preferences or withdraw consent at any time via 'Your privacy choices', found in the footer of every page.

We use cookies and similar technologies for the following purposes:

- > **Store and/or access information on a device**
- > **Personalised advertising and content, advertising and content measurement, audience research and services development**

[Accept all cookies](#)

[Reject optional cookies](#)

[Manage preferences](#)

[Log in via an institution →](#)

Subscribe and save

Springer+ Basic

€32.70 /Month

- Get 10 units per month
- Download Article/Chapter or eBook
- 1 Unit = 1 Article or 1 Chapter
- Cancel anytime

[Subscribe now →](#)

[Buy Now](#)

Your privacy, your choice

We use essential cookies to make sure the site can function. We, and our 96 [partners](#), also use optional cookies and similar technologies for advertising, personalisation of content, usage analysis, and social media.

By accepting optional cookies, you consent to allowing us and our partners to store and access personal data on your device, such as browsing behaviour and unique identifiers. Some third parties are outside of the European Economic Area, with varying standards of data protection. See our [privacy policy](#) for more information on the use of your personal data. Your consent choices apply to springer.com and applicable subdomains.

You can find further information, and change your preferences via 'Manage preferences'. You can also change your preferences or withdraw consent at any time via 'Your privacy choices', found in the footer of every page.

We use cookies and similar technologies for the following purposes:

Store and/or access information on a device

Personalised advertising and content, advertising and content measurement, audience research and services development

[Accept all cookies](#)

[Reject optional cookies](#)

[Manage preferences](#)

1. This is not a survey of learning, or heterogeneous agent models finance. This is well beyond the scope of this short paper. On heterogeneous agent models many excellent surveys exist including, [Chiarella et al. \[2009\]](#), [Hommes \[2006\]](#), [LeBaron \[2006\]](#), and [Lux \[2009\]](#). On learning models finance in general a recent survey of this large literature can be found in [Pastor and Veronesi \[2009\]](#).
2. Another early theoretical derivation is in [Breiman \[1961\]](#). A nice summary of this is in [Markowitz \[1976\]](#). [Blume and Easley \[1990\]](#) and [Blume and Easley \[2006\]](#) state the problem in the context of a utility maximizing portfolio decision. The latter paper proves that in a complete market world the convergence to true beliefs will occur regardless of preference parameters. However, the authors point out that in an incomplete market world this

Your privacy, your choice

We use essential cookies to make sure the site can function. We, and our 96 **partners**, also use optional cookies and similar technologies for advertising, personalisation of content, usage analysis, and social media.

By accepting optional cookies, you consent to allowing us and our partners to store and access personal data on your device, such as browsing behaviour and unique identifiers. Some third parties are outside of the European Economic Area, with varying standards of data protection. See our **privacy policy** for more information on the use of your personal data. Your consent choices apply to springer.com and applicable subdomains.

You can find further information, and change your preferences via 'Manage preferences'. You can also change your preferences or withdraw consent at any time via 'Your privacy choices', found in the footer of every page.

We use cookies and similar technologies for the following purposes:

Store and/or access information on a device

Personalised advertising and content, advertising and content measurement, audience research and services development

[Accept all cookies](#)

[Reject optional cookies](#)

[Manage preferences](#)

6. The best-known case would be log utility.
7. See [Pastor and Stambaugh \[2009\]](#) for a more complete treatment of systems of this form in finance.
8. See [LeBaron \[2007\]](#) or [Campbell and Viceira \[2002\]](#) for derivations and connections to intertemporal preferences. The variance term in the numerator can be thought of as an adjustment for the fact that these are log returns.
9. The consumption fraction, λ , is irrelevant for wealth races of this form where it is considered to be the same across all agents. Each period all agents consume the same fraction of wealth, so the relative performance is not affected by λ .

Your privacy, your choice

We use essential cookies to make sure the site can function. We, and our 96 [partners](#), also use optional cookies and similar technologies for advertising, personalisation of content, usage analysis, and social media.

By accepting optional cookies, you consent to allowing us and our partners to store and access personal data on your device, such as browsing behaviour and unique identifiers. Some third parties are outside of the European Economic Area, with varying standards of data protection. See our [privacy policy](#) for more information on the use of your personal data. Your consent choices apply to springer.com and applicable subdomains.

You can find further information, and change your preferences via 'Manage preferences'. You can also change your preferences or withdraw consent at any time via 'Your privacy choices', found in the footer of every page.

We use cookies and similar technologies for the following purposes:

Store and/or access information on a device

Personalised advertising and content, advertising and content measurement, audience research and services development

[Accept all cookies](#)

[Reject optional cookies](#)

[Manage preferences](#)

[2007].

15. It reminds one of Fisher Black's discussions in [Black \[1986\]](#).

References

Anufriev, M., and P. Dindo . 2010. Wealth-driven Selection in a Financial Market with Heterogeneous Agents. *Journal of Economic Dynamics and Control*, 73: 327–358.

[Google Scholar](#)

Your privacy, your choice

We use essential cookies to make sure the site can function. We, and our 96 [partners](#), also use optional cookies and similar technologies for advertising, personalisation of content, usage analysis, and social media.

By accepting optional cookies, you consent to allowing us and our partners to store and access personal data on your device, such as browsing behaviour and unique identifiers. Some third parties are outside of the European Economic Area, with varying standards of data protection. See our [privacy policy](#) for more information on the use of your personal data. Your consent choices apply to springer.com and applicable subdomains.

You can find further information, and change your preferences via 'Manage preferences'. You can also change your preferences or withdraw consent at any time via 'Your privacy choices', found in the footer of every page.

We use cookies and similar technologies for the following purposes:

Store and/or access information on a device

Personalised advertising and content, advertising and content measurement, audience research and services development

[Accept all cookies](#)

[Reject optional cookies](#)

[Manage preferences](#)

Blume, L., and D. Easley . 2006. If You're so Smart, Why aren't you Rich? Belief Selection in Complete and Incomplete Markets. *Econometrica*, 74: 929–966.

[Article](#) [Google Scholar](#)

Boswijk, H.P., C.H. Hommes, and S. Manzan . 2007. Behavioral Heterogeneity in Stock Prices. *Journal of Economic Dynamics and Control*, 31 (6): 1938–1970.

[Article](#) [Google Scholar](#)

Breiman, L. 1961. Optimal Gambling Systems for Favorable Games, in *Proceedings of the Fourth Berkeley Symposium of Math Statistics, and Probability*, Vol. 1, edited by J. Newyman and E. Scott, Berkely, CA: University of California Berkely Press.

Your privacy, your choice

We use essential cookies to make sure the site can function. We, and our 96 **partners**, also use optional cookies and similar technologies for advertising, personalisation of content, usage analysis, and social media.

By accepting optional cookies, you consent to allowing us and our partners to store and access personal data on your device, such as browsing behaviour and unique identifiers. Some third parties are outside of the European Economic Area, with varying standards of data protection. See our **privacy policy** for more information on the use of your personal data. Your consent choices apply to springer.com and applicable subdomains.

You can find further information, and change your preferences via 'Manage preferences'. You can also change your preferences or withdraw consent at any time via 'Your privacy choices', found in the footer of every page.

We use cookies and similar technologies for the following purposes:

Store and/or access information on a device

Personalised advertising and content, advertising and content measurement, audience research and services development

[Accept all cookies](#)

[Reject optional cookies](#)

[Manage preferences](#)

market. *Journal of Economic Dynamics and Control*, 25: 363–394.

[Article](#) [Google Scholar](#)

Chiarella, C., R. Dieci, and X.-Z. He . 2009. Heterogeneity, Market Mechanisms, and Asset Price Dynamics, in *Handbook of Financial Markets: Dynamics and Evolution*, edited by T. Hens and K.R. Schenk-Hoppe. USA: Elsevier, 277–344.

[Chapter](#) [Google Scholar](#)

Chiarella, C., and X. -Z. He . 2001. Asset Pricing and Wealth Dynamics under Heterogeneous Expectations. *Quantitative Finance*, 1: 509–526.

[Article](#) [Google Scholar](#)

Your privacy, your choice

We use essential cookies to make sure the site can function. We, and our 96 **partners**, also use optional cookies and similar technologies for advertising, personalisation of content, usage analysis, and social media.

By accepting optional cookies, you consent to allowing us and our partners to store and access personal data on your device, such as browsing behaviour and unique identifiers. Some third parties are outside of the European Economic Area, with varying standards of data protection. See our **privacy policy** for more information on the use of your personal data. Your consent choices apply to springer.com and applicable subdomains.

You can find further information, and change your preferences via 'Manage preferences'. You can also change your preferences or withdraw consent at any time via 'Your privacy choices', found in the footer of every page.

We use cookies and similar technologies for the following purposes:

Store and/or access information on a device

Personalised advertising and content, advertising and content measurement, audience research and services development

[Accept all cookies](#)

[Reject optional cookies](#)

[Manage preferences](#)

Goldbaum, D., and B. Mizrach . 2008. Estimating the Intensity of Choice in a Dynamic Mutual Fund Allocation Decision. *Journal of Economic Dynamics and Control*, 32: 3866–3876.

[Article](#) [Google Scholar](#)

Hakansson, N.H. 1971. Multi-period Mean-variance Analysis: Toward a General Theory of Portfolio Choice. *Journal of Finance*, 26: 857–884.

[Google Scholar](#)

Your privacy, your choice

We use essential cookies to make sure the site can function. We, and our 96 [partners](#), also use optional cookies and similar technologies for advertising, personalisation of content, usage analysis, and social media.

By accepting optional cookies, you consent to allowing us and our partners to store and access personal data on your device, such as browsing behaviour and unique identifiers. Some third parties are outside of the European Economic Area, with varying standards of data protection. See our [privacy policy](#) for more information on the use of your personal data. Your consent choices apply to springer.com and applicable subdomains.

You can find further information, and change your preferences via 'Manage preferences'. You can also change your preferences or withdraw consent at any time via 'Your privacy choices', found in the footer of every page.

We use cookies and similar technologies for the following purposes:

Store and/or access information on a device

Personalised advertising and content, advertising and content measurement, audience research and services development

[Accept all cookies](#)

[Reject optional cookies](#)

[Manage preferences](#)

Computational Economics, edited by K.L. Judd and L. Tesfatsion. Amsterdam, the Netherlands: Elsevier, 1187-1233.

[Google Scholar](#)

LeBaron, B. . 2007. Wealth Evolution and Distorted Financial Forecasts, Technical Report, International Business School, Brandeis University.

LeBaron, B. . 2010. Heterogenous Gain Learning and the Dynamics of Asset Prices, Technical Report, International Business School, Brandeis University, Waltham, MA.

Levy, M., H. Levy, and S. Solomon . 1994. A Microscopic Model of the Stock Market Crashes, Booms, and Crashes, *Economic Letters*, 45, 103-111.

Your privacy, your choice

We use essential cookies to make sure the site can function. We, and our 96 **partners**, also use optional cookies and similar technologies for advertising, personalisation of content, usage analysis, and social media.

By accepting optional cookies, you consent to allowing us and our partners to store and access personal data on your device, such as browsing behaviour and unique identifiers. Some third parties are outside of the European Economic Area, with varying standards of data protection. See our **privacy policy** for more information on the use of your personal data. Your consent choices apply to springer.com and applicable subdomains.

You can find further information, and change your preferences via 'Manage preferences'. You can also change your preferences or withdraw consent at any time via 'Your privacy choices', found in the footer of every page.

We use cookies and similar technologies for the following purposes:

Store and/or access information on a device

Personalised advertising and content, advertising and content measurement, audience research and services development

[Accept all cookies](#)

[Reject optional cookies](#)

[Manage preferences](#)

Pastor, L., and R.F. Stambaugh . 2009. Predictive Systems: Living with Imperfect Predictors. *Journal of Finance*, 64: 1583–1628.

[Article](#) [Google Scholar](#)

Radner, R. 1998. Economic Survival, in *Frontiers of Research in Economic Theory*, edited by D.P. Jacobs, E. Kalai and M.I. Kamien. Econometric Society Monographs, Cambridge, UK: Cambridge University Press, 183–209.

[Chapter](#) [Google Scholar](#)

Samuelson, P. 1971. The “fallacy” of Maximizing the Geometric Mean in Long Sequences of Investing or Gambling. *Proceedings of the National Academy of Science*, 68: 2493–2496.

Your privacy, your choice

We use essential cookies to make sure the site can function. We, and our 96 **partners**, also use optional cookies and similar technologies for advertising, personalisation of content, usage analysis, and social media.

By accepting optional cookies, you consent to allowing us and our partners to store and access personal data on your device, such as browsing behaviour and unique identifiers. Some third parties are outside of the European Economic Area, with varying standards of data protection. See our **privacy policy** for more information on the use of your personal data. Your consent choices apply to springer.com and applicable subdomains.

You can find further information, and change your preferences via 'Manage preferences'. You can also change your preferences or withdraw consent at any time via 'Your privacy choices', found in the footer of every page.

We use cookies and similar technologies for the following purposes:

Store and/or access information on a device

Personalised advertising and content, advertising and content measurement, audience research and services development

[Accept all cookies](#)

[Reject optional cookies](#)

[Manage preferences](#)

Authors and Affiliations

International Business School, Brandeis University, 415 South Street,
Mailstop 32, Waltham, 02453 - 2728, MA, USA

Blake LeBaron

Rights and permissions

[Reprints and permissions](#)

About this article

Cite this article

Your privacy, your choice

We use essential cookies to make sure the site can function. We, and our 96 [partners](#), also use optional cookies and similar technologies for advertising, personalisation of content, usage analysis, and social media.

By accepting optional cookies, you consent to allowing us and our partners to store and access personal data on your device, such as browsing behaviour and unique identifiers. Some third parties are outside of the European Economic Area, with varying standards of data protection. See our [privacy policy](#) for more information on the use of your personal data. Your consent choices apply to springer.com and applicable subdomains.

You can find further information, and change your preferences via 'Manage preferences'. You can also change your preferences or withdraw consent at any time via 'Your privacy choices', found in the footer of every page.

We use cookies and similar technologies for the following purposes:

Store and/or access information on a device

Personalised advertising and content, advertising and content measurement, audience research and services development

[Accept all cookies](#)

[Reject optional cookies](#)

[Manage preferences](#)



Navigation

Find a journal

Publish with us

Track your research

Your privacy, your choice

We use essential cookies to make sure the site can function. We, and our 96 [partners](#), also use optional cookies and similar technologies for advertising, personalisation of content, usage analysis, and social media.

By accepting optional cookies, you consent to allowing us and our partners to store and access personal data on your device, such as browsing behaviour and unique identifiers. Some third parties are outside of the European Economic Area, with varying standards of data protection. See our [privacy policy](#) for more information on the use of your personal data. Your consent choices apply to springer.com and applicable subdomains.

You can find further information, and change your preferences via 'Manage preferences'. You can also change your preferences or withdraw consent at any time via 'Your privacy choices', found in the footer of every page.

We use cookies and similar technologies for the following purposes:

Store and/or access information on a device

Personalised advertising and content, advertising and content measurement, audience research and services development

[Accept all cookies](#)

[Reject optional cookies](#)

[Manage preferences](#)