

Overview

The code in this replication package constructs the simulated returns in Figures 2 and 3, and includes the data to reproduce Figure 1 and the statistic in footnote 1 of the paper. The replicator should expect to run the simulation code for Figures 2 and 3 in a matter of seconds.

Data Availability and Provenance Statements

Summary of Availability

- ☐ All data **are** publicly available.
- ☒ Some data **cannot be made** publicly available.
- ☐ **No data can be made** publicly available.

Details on each Data Source

Data on Dutch East India Company voyages in Figure 1 are sourced from Gelderblom et al. (2019), Table 3. The data are contained in `fig1/fig1.xlsx` in the repository.

The underlying data for the distribution of venture capital (VC) returns in Figure 2 is proprietary, and their construction is described in detail in Korteweg and Sorensen (2010). The returns may be replicated using Pitchbook or VentureSource data, by collecting all financing round data for startups companies that received a first VC round investment until between 1987 and 2000, and had an exit event (an acquisition, initial public offering, or went out of business) by the end of 2005. The Korteweg and Sorensen paper includes a description of the computation procedure for returns between financing rounds, which are then accumulated across rounds to obtain the first round to exit returns. Finally, the distribution of the returns generated using an Epanechnikov kernel density with default parameters. Note that the reconstructed distribution from Pitchbook or VentureSource data may be different from the one shown in Figure 2, as a result of differences in the data source.

Data for the Dutch East India Company loss percentage statistic in footnote 1 is sourced from Bruijn et al. (1987), Tables 13 and 22. The relevant data are in `footnote1/footnote1.xlsx`.

Dataset list

Data file	Source	Notes	Provided
<code>fig1/fig1.xlsx</code>	Gelderblom et al. (2019)		Yes
<code>footnote1/footnote1.xlsx</code>	Bruijn et al. (1987)		Yes

Computational requirements

Software Requirements

- Matlab (code was run with Matlab release 2019b)

- Microsoft Excel (charts were produced with Excel for Office 365)

Controlled Randomness

- ☒ Random seed is set at line 25 of program fig2_simulation.m
- ☒ Random seed is set at line 17 of program fig3.m

Summary

Approximate time needed to reproduce the analyses on a standard 2020 desktop machine:

- ☒ <10 minutes
- ☐ 10-60 minutes
- ☐ 1-8 hours
- ☐ 8-24 hours
- ☐ 1-3 days
- ☐ 3-14 days
- ☐ > 14 days
- ☐ Not feasible to run on a desktop machine, as described below.

Details

The code was last run on a **6-core Intel i5-9400 desktop with 16 Gb RAM and Windows 10**. Simulations for Figures 2 and 3 were completed in a matter of seconds.

Description of code

- fig2/fig2_simulation.m simulates the returns for 10,000 Dutch East India Company voyages. The output is used in Figure 2.
- fig3/fig3.m simulates long-horizon stock returns and generates the three panels of Figure 3.

License for Code

The code is licensed under the GPL v3 license. See [LICENSE.txt](#) for details.

Instructions to Replicators

To reproduce the simulated returns histogram in Figure 2:

- Run fig2/fig2_simulation.m in Matlab.
- The variables x and n contain the histogram bin centers and counts, respectively, that are shown in Figure 2.

To reproduce Figure 3:

- Run `fig3/fig3.m` in Matlab.

List of tables and programs

The provided code reproduces:

- ☒ All numbers provided in text in the paper
- ☐ All tables and figures in the paper
- ☒ Selected tables and figures in the paper, as explained and justified below.

Figure/Table #	Program	Line Number	Output file	Note
Figure 2	<code>fig2/fig2_simulation.m</code>			Generates the simulated returns data in Figure 2. The VC returns data is proprietary, as described above.
Figure 3	<code>fig3/fig3.m</code>			

References

Bruijn, Jaap R., Femme S. Gaastra, and Ivo Schöffer. 1979-1987. Dutch-Asiatic Shipping in the 17th and 18th centuries. 3 vols. The Hague: Nijhoff.

Gelderblom, Oscar, Abe De Jong, and Joost Jonker. 2013. "The Formative Years of the Modern Corporation: The Dutch East India Company VOC, 1602-1623." *Journal of Economic History* 73 (4): 1050-1076.

Gelderblom, Oscar, Abe De Jong, and Joost Jonker. 2019. "Learning how to Manage Risk by Hedging: The VOC Insurance Contract of 1613." *European Review of Economic History* 24 (2): 332-355.

Korteweg, Arthur, and Morten Sorensen. 2010. "Risk and Return Characteristics of Venture Capital-Backed Entrepreneurial Companies." *Review of Financial Studies* 23(10): 3738-3772.

Acknowledgements

We are grateful to Abe De Jong for sharing his simulation code from the Gelderblom et al. (2019) paper, which formed the basis for the simulations in `fig2/fig2_simulation.m`.