

No. 18-1199

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**In the  
Supreme Court of the United States**

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INVESTPIC, LLC,  
*Petitioner,*

v.

SAP AMERICA, INC.,  
*Respondent.*

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On Petition for Writ of Certiorari to the United  
States Court of Appeals for the Federal Circuit

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**BRIEF OF DR. SAM SAVAGE AS *AMICUS  
CURIAE* IN SUPPORT OF PETITIONER**

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ROBERT P. GREENSPOON  
*COUNSEL OF RECORD*  
FLACHSBART & GREENSPOON LLC  
333 N. MICHIGAN AVE., STE. 2700  
CHICAGO, IL 60601-3901  
(312) 551-9500  
rpg@fg-law.com

APRIL 15, 2019

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**INTEREST OF *AMICUS CURIAE*<sup>1</sup>**

Dr. Sam L. Savage is a Stanford University Adjunct Professor of Civil and Environmental Engineering. Dr. Savage earned a B.S. in Mathematics from Boston University, followed by a Master's Degree and Ph.D. in Computational Complexity from Yale University's Department of Applied Science and Engineering. After working at General Motors Research Lab's Mathematics Department, Dr. Savage went on to teach Management Science at the University of Chicago Graduate School of Business, as well as teaching Managerial Economics and Decision Science at Northwestern University Kellogg School of Business. In 2006, Dr. Savage co-founded the field of Probability Management, which pioneered the method of getting higher quality representations of joint distributions between Stochastic Information Packets. Dr. Savage is considered an expert in simulation-modeling science; specifically, Monte Carlo simulations and predictive financial modeling. Dr. Savage believes his unique experience in industry and academia can shed light on the issue presented beyond what the parties can do.

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<sup>1</sup> No counsel for a party authored this brief in whole or in part. No person or entity other than *Amicus* or its counsel made a monetary contribution to the preparation or submission of this brief. Consent for filing this *amicus* brief has been obtained from all parties.

Dr. Savage’s interest in this proceeding stems from his academic understanding of InvestPic’s invention and his status as an active participant in InvestPic’s relevant scientific field. This Court should grant the petition for writ of certiorari, because InvestPic’s ’291 patent is *not* simply an old, well-known process being applied to a computer, and it is thus not unpatentable under *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 573 U.S. 208, 217 (2014). Further, InvestPic’s ’291 patent represents an entire field of advanced statistics and predictive-financial-modeling software that, if held to be unpatentable, will trigger a chilling effect on that important scientific field. Such an outcome would leave the United States with a dearth of advanced, and useful, technologies in this area of predictive-financial-modeling, compared with other competitive markets.

### **SUMMARY OF ARGUMENT**

If certiorari is granted, this Court may provide much desired clarity on *Alice* and the Federal Circuit’s “physical realm” test implicated in this case’s previous proceedings. Further, this Court can review the error implicit in the lower court’s holding that InvestPic’s ’291 patent is only mathematics applied to a computer. Rather, a complex set of processes occurs through the innovative matrix resampling created by InvestPic. The fact that InvestPic’s ’291 patent statistical processes can *only*

be performed by a computer should not disqualify it from patent protection.

Matrix resampling has led to innovative and complex predictive financial models that were simply not possible before InvestPic's invention. In Dr. Savage's professional experience, the potential applications and marketability of applications for matrix resampling places it at a potential revolutionizing point for the financial-simulation field. If the Petition is not granted, thus shutting the door on patentability for matrix resampling, matrix resampling innovation will come to a halt no less than if the court system delivered a proverbial cease and desist letter forbidding further work in the field. Thus, Dr. Savage requests that this Court grant Petitioner's request for certiorari to provide clarity and promote innovation.

## ARGUMENT

### I. InvestPic's '291 Patent Is *Not* A Simple Mathematical Process Applied To A Computer As Discussed Under The *Alice Corp. v. CLS Bank Int'l* Analysis

*Alice* was clear, but lower courts have confused its application. Since the 2014 ruling in *Alice*, it should have been clear what types of "old" processes cannot be patented: those that simply apply an old abstract idea to a computer system. For instance, there would be no patent eligibility for an "inventor" who applied the process of multiplication to a computer, just as this Court held in barring the patent eligibility of application to a computer of old

counterparty risk mitigation calculations. *See generally Alice*, 573 U.S. at 217. However, a clear distinction exists between InvestPic's '291 patent and the prohibitions contained in *Alice*.

InvestPic's '291 patent is *not* directed to any ancient, established process within statistics, simply applied to a computer. Rather, InvestPic's '291 patent details a new field of statistical resampling called "matrix resampling" that can be used for financial predictions and analysis. The difference between matrix resampling and a simple mathematical function is easy to comprehend. With a mathematical function, a consistent set of inputs will *always* produce the same outputs. In contrast, InvestPic's matrix resampling can be given the same set of financial assets to analyze, but the end outputs will generate a different result due to the resampling nature of the processes. This method of matrix resampling is a new field of predictive statistics. It *must* be performed by a computer, as the unaided human mind cannot perform the requisite complex processes.

Put another way, InvestPic's '291 patent is *not* a predictable mathematical function that would disqualify it from patent protection, *and* the process is not a re-application of a method onto a computer. Instead, InvestPic's '291 patent is an innovative modeling method that *must* be performed by a computer. The fact that a statistical innovation is complex enough to require the use of a computer should not disqualify it "at the front door" from patent protection.

## II. If InvestPic's Petition For Writ Of Certiorari Is *Not* Granted, There Will Be A Chilling Effect On Statistical-Modeling-Based Inventions And Innovations

During his career, *amicus* has advised numerous companies and organizations, as well as taught countless classes centered around topics substantially similar to InvestPic's '291 patent subject matter. *Amicus* alerts the Court to his concern that denial of the writ would cast a chilling effect across the industry, stalling critical statistics innovation.

The outcome below is personally disappointing and alarming to *amicus*. He himself is developing ideas, products, and innovative processes that would potentially fall under the same analysis. Yet *amicus* retains little economic incentive to continue such research if there will not be an opportunity to protect innovations under the U.S. Patent System. As the Founders understood, patents "promote the progress of science and useful arts." U.S. Const. art. 1, § 8, cl. 8. Failure to grant the writ would, in essence, freeze matrix resampling innovation. Statistical research and predictive-model-development is an important branch of research for the United States' financial markets and any ruling that deters financial market research runs counter to patent policy to encourage innovation.

*Amicus* has helped pioneer the transition of mathematical optimization from mainframe-style programs to the electronic spreadsheet. As someone



at the forefront of analytical and predictive, modeling, *amicus* understands InvestPic's '291 patent as a leap forward in the predictive-modeling field. This Court should grant a writ of certiorari to help encourage further innovation in this and many other non-physical fields to incentivize further innovation in the very technological fields in which, until now, the United States has led.

### CONCLUSION

*Amicus* submits that this Court should grant certiorari to determine whether the Federal Circuit's "physical realm" test is a correct extension of *Alice*. Otherwise, parties like *amicus* will lack the certainty in the patent system that they require, including the certainty to develop new and presently-undiscovered advances in statistics and predictive modeling.

Respectfully submitted,

ROBERT P. GREENSPOON

*COUNSEL OF RECORD*

FLACHSBART & GREENSPOON LLC

333 N. MICHIGAN AVE., STE. 2700

CHICAGO, IL 60601-3901

(312) 551-9500

rpg@fg-law.com

April 15, 2019