

Supplement for

“Analytical Modeling and Empirical Analysis of Binary Options Strategies”

File 1. Research Motivation

Binary options have been and will be attracting many retail investors, given their simplicity and appeal. Yet, the research literature has multiple gaps of knowledge on binary options, resulting in uncertainty and caution by investors and policymakers. To fill some of these gaps, which are listed subsequently, the presented research study develops a mathematical model that enables the performance evaluation of investment strategies. The research literature focused mostly on trading strategies for binary options, with a focus on the varying actions to take in each trade. In other words, the bulk of the research on binary options focused on trading and pricing, each trade decision for which requires extensive computations. Such trading and pricing strategies are not intuitive or practical for the average investor. In contrast, this work is the first of its kind and researches intuitive investment strategies rather than the trading strategies that can be easily understood and applied. The strategies introduced and analyzed in this paper focus on simple, intuitive decision rules on how to invest in and out of a series of trades over a period.

The results and insights obtained in this research study can serve as guidance for stakeholders in the finance sector, including risk-seeking investors, exchanges, trading software, expert advisor developers, and policymakers at regulatory bodies.

File 2. Operational Mechanisms

Trading platforms treat binary options as nontradeable cash-settled futures contracts [1], which take time and require that the option decompose slowly. The patent by Gogol, Glinberg, and Michaels [1] introduces a clearing system that helps clear the binary option within the clearing firm's bookkeeping system. [2] proposes a new system that engenders a binary options index from a subset of bids and offers based on certain rules. The patent by Genzer and Avraham [3] describes a binary options trading system that can be used through the web without the need for a download. The patent presents a solution to resolve conflicts of interest between parties in the current binary options trading process. The patent by Montanaro et al. [4] describes systems and methods that enable trades to be exchanged in a structured market in a standardized format. The patent also provides methods to determine the closing settlement value of binary options-based securities in order to preserve a fair and orderly trading environment for such instruments.

1. Gogol, E.; Glinberg, D.; Michaels, D. Processing Binary Options in Future Exchange Clearing. US Patent No. 8,224,742. Washington, D.C.: U.S. Patent and Trademark Office, 2012
2. Jaycobs, R., Glantz, N. and Les Walker, J. Systems and Methods for Computing an Index for a Binary Options Transaction. U.S Patent No. 10 vol. 242,403. Washington, D.C.: U.S. Patent and Trademark Office, 2019
3. Genzer, Y.; Avraham, G. Binary Options Trading System. US Patent No. 2017/0076370. Washington, D.C.: U.S. Patent and Trademark Office, 2017
4. Montanaro, D. A.; Bickford, M. T.; Burns, J. P.; Masciale, C. P.; Ebner, S. R., Binary Options on an Organized Exchange and the Systems and Methods for Trading the Same. U.S Patent No. 8,738,499. Washington, D.C.: U.S. Patent and Trademark Office, 2014

File 3. Trading Algorithms

[5] suggests a binary options algorithm that includes one weekly buy/sell order and that can result in 87% overall gains. [6] proposes a signal-processing algorithm for binary options that involves one weekly buy/sell order and that can achieve 82% overall gains. [7] presents a hybrid algorithm for trading binary options that incorporates thousands of classifiers for robustness. The results suggest that the algorithm enables a profitable and fast-trading method that can be used for binary options. [8] uses technical analysis to generate buy–sell signals for trading binary options that can generate profits. [9] proposes a short-term strategy for trading monthly U.S. Nonfarm Employment Reports combining binary options, temporal warning dynamics, and triggering trading functionalities (TTF). The study recommends that the best way to trade NFP release reports is to include TTF functionalities and binary options for short-term swing traders. [10] provides practical uses and evaluations of eight trading strategies by using a Bollinger bands indicator to analyze 6,912 time series values of the “EUR/USD” pair. Most of the trades are realized when a double deviation is used in conjunction with the Bollinger bands.

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File 4. Options Pricing

[11] presents a semi-discretization scheme that uses the Itô formula and the no-arbitrage principle in the constant elasticity of variance (CEV) process. [12] suggests solving the Black–Scholes partial differential equation (PDE) with a payoff including discontinuities to evaluate binary options efficiently. The research proposes two methods: Type I, an adaptive time-stepping hybrid finite difference method, and Type II, a method that combines two uniform meshes. The results indicate that both methods are far more effective than hybrid methods with fixed time measures and that you get far more efficiency than you can see. [13] proposes a formula for pricing binary options using a CEV, with consideration of semi-discretization. Numerical experiments suggest that the algorithm is stable and convergent. [14–15] incorporates fuzzy set theory in pricing binary options to explain the uncertainty. [16] proposes a pricing method to solve the Black–Scholes PDEs with different binary-type coefficients.

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File 5. Variations of Binary Options

Binary options have multiple variations that are studied in the following streams of research: [17] provides insights into valuing one-touch double-barrier binary options, along with knockout, knockin, European, and American options. The study applies the traditional Black–Scholes Model for valuation and discusses how investors can use directional trades or structured products in trading. [18] suggests a model for valuing American binary FX options, empirically testing the method with real-world data sets. [19] discusses how the expiry payoffs of the exotic options can be expressed as a combination of the payoffs of some higher-order binary options. [20] proposes a model for valuing American options using a portfolio of binary power options. The proposed model is easier to implement than the old one is. [21] investigates binary barrier options and provides a comparison of the American and European binary options barrier prices.

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21. Gao, M.; Wei, Z. The Barrier Binary Options. *Journal of Mathematical Finance* **2020**, 10 (1): 140–56. doi:10.4236/jmf.2020.101010.

File 6. Risks of binary options

Binary options have many interesting characteristics that while making them attractive for trading also come with the following risks and disadvantages:

- The most significant risk with binary options is the extent of fraud that trading platforms commit, which is typically more severe than the extent of fraud that other instruments involve. To this end, after an increase in investors' complaints related to binary options trading, both the U.S. Securities and Exchange Commission (US SEC) (<https://www.sec.gov>) and Commodity Futures Trading Commission (CFTC) (<https://www.cftc.gov>) warned investors about fraudulent websites for binary options trading [22]. The complaints included "refusal to credit customer accounts or reimburse funds to customers; identity theft; and manipulation of software to generate losing trades." The Financial Industry Regulatory Authority (FINRA) (<https://www.finra.org/about/>) also highlighted the significance of such fraudulent schemes [23].
- In what is related to the first category of risk, another concern is related to the legal aspects of binary options. Legal authorities in some countries have banned trading in, or advertising, binary options. Some countries banned either retail or all binary options because of increasing complaints about scams and frauds on binary options trading platforms, many of which are unregulated and operate from countries other than those where their customers reside. For example, in 2019, the Financial Conduct Authority (FCA) permanently banned the sale of binary options to retail investors in the UK but still allowed such transactions for institutional investors [24]. Similarly, the financial regulatory agency in Belgium (FSMA) banned the distribution of some over-the-counter instruments, such as binary options and contracts for difference (CFDs) [25]. In 2017, securities regulators in Canada banned short-term binary options [26]. In countries that have not declared binary options illegal, their advertisement might still be banned. Over time, the scope of the bans might change. For example, the Netherlands' Financial Markets Authority (AFM) banned the advertising of binary options in 2017 [27], which was followed by temporary prohibition of the marketing, distribution, or sale of binary options for retail clients in EU countries by the European Securities and Markets Authority (ESMA) [28]. Although ESMA's temporarily prohibiting of binary options was not further renewed in 2019, many national authorities in the EU, including Germany and The Netherlands, implemented permanent prohibitions on binary options [29-30].
- Binary options are difficult to value and predict because they might have short durations, ranging from hours to minutes or even seconds. Short durations make it difficult for traders to analyze the data and make predictions, given the high uncertainty and short timespan for proper logical reasoning and human-involved critical analysis. In this respect, the FCA considered binary options as "high risk" and "speculation" [31]. Although many tools can help investors predict the value of binary options, some practitioners assure that an investor needs to predict correctly at least 55% of the time just to be able to "break even". [32] provides a formula for the minimum required prediction accuracy as a function of the payout percentage.
- For an ethical and legally compliant trader, the high risk, negative perception, and legal treatment of binary options might be discouraging. Some countries even consider binary options to be gambling rather than a financial product. For example, until early 2018, binary options in the UK were regulated by the Gambling Commission and not the FCA (FCA 2020). A master's thesis that studied Maltese law stated that although binary options come under the European Union's investment regime, some types of binary options need to be classified as remote gambling regimes [33].
- Binary options' small contract size lends itself to small returns each time [34], requiring many trades to earn significant gains.
- The size of the market for binary options is not as large as that of the traditional options market [34]

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- 35.

File 7. Trend Lines Models for Strategy B

Polynomial trend models of degree 3 were computed for roiB Median as a function of a given investment proportion (z') for a given prediction accuracy and payout percentage value pair (p, r).

The model might be significant at $p \leq 0.05$.

The prediction accuracy (p) factor might be significant at $p \leq 0.05$.

The payout percentage (r) factor might be significant at $p \leq 0.05$.

Model formula:	Prediction Accuracy*Payout Percentage*(Investment Proportion^3 + Investment Proportion^2 + Investment Proportion + Intercept)
Number of modeled observations:	15,824
Number of filtered observations:	0
Model degrees of freedom:	420
Residual degrees of freedom (DF):	15,404
SSE (sum squared error):	130,162
MSE (mean squared error):	8.44991
R-Squared:	0.968463
Standard error:	2.90687
p-value (significance):	< 0.0001

Analysis of Variance:

<u>Field</u>	<u>DF</u>	<u>SSE</u>	<u>MSE</u>	<u>F</u>	<u>p-value</u>
Prediction Accuracy p	380	1617501.3	4256.58	503.743	< 0.0001
Payout Percentage r	368	1967036.7	5345.21	632.576	< 0.0001

Individual Trend Lines:

Panels		Line		Coefficients				
<i>p</i>	<i>r</i>	<i>p-value</i>	DF	Term	Value	StdErr	t-value	p-value
0.7	0.5	< 0.0001	88	Investment Proportion^3	45.972	6.86855	6.69311	< 0.0001
				Investment Proportion^2	-65.0124	9.24203	-7.03442	< 0.0001
				Investment Proportion	20.3122	3.36786	6.03121	< 0.0001
				Intercept	1.0517	0.355849	2.95548	0.0040057
0.7	0.55	< 0.0001	227	Investment Proportion^3	57.6844	10.0275	5.75261	< 0.0001
				Investment Proportion^2	-115.818	14.0809	-8.22513	< 0.0001
				Investment Proportion	58.6158	5.79492	10.115	< 0.0001
				Intercept	-1.67513	0.684674	-2.44661	0.0151808
0.7	0.6	< 0.0001	228	Investment Proportion^3	-8.18444	14.586	-0.561117	0.575269
				Investment Proportion^2	-28.9255	23.0436	-1.25525	0.210674
				Investment Proportion	42.422	10.7682	3.93957	0.0001085
				Intercept	0.0841255	1.40229	0.0599913	0.952215

0.7	0.65	< 0.0001	202	Investment Proportion^3	-4.77201	13.0331	-0.366144	0.714641
				Investment Proportion^2	-18.3992	20.492	-0.897871	0.370323
				Investment Proportion	45.9924	9.27522	4.95863	< 0.0001
				Intercept	0.618433	1.08891	0.567938	0.570708
0.7	0.7	< 0.0001	178	Investment Proportion^3	4.22979	7.10296	0.595497	0.552267
				Investment Proportion^2	-22.257	10.9008	-2.04177	0.0426498
				Investment Proportion	56.2847	4.78192	11.7703	< 0.0001
				Intercept	0.566522	0.56193	1.00817	0.31474
0.7	0.75	< 0.0001	157	Investment Proportion^3	2.62243	6.64911	0.394403	0.693818
				Investment Proportion^2	-17.7313	10.3141	-1.71913	0.0875616
				Investment Proportion	64.0121	4.55326	14.0585	< 0.0001
				Intercept	0.621001	0.523393	1.18649	0.237221
0.7	0.8	< 0.0001	136	Investment Proportion^3	-4.04486	6.16389	-0.656219	0.512792
				Investment Proportion^2	-6.29346	9.74702	-0.64568	0.519575
				Investment Proportion	69.0621	4.39159	15.726	< 0.0001
				Intercept	0.936211	0.50953	1.8374	0.0683332
0.7	0.85	< 0.0001	139	Investment Proportion^3	-9.08477	6.03376	-1.50566	0.134424
				Investment Proportion^2	1.53459	9.32731	0.164526	0.869556

				Investment Proportion	75.5595	4.07929	18.5227	< 0.0001
				Intercept	1.14237	0.460473	2.48087	0.0142994
0.7	0.9	< 0.0001	121	Investment Proportion^3	-8.0715	5.90787	-1.36623	0.174401
				Investment Proportion^2	3.59049	9.09594	0.394735	0.693733
				Investment Proportion	83.0417	3.99688	20.7766	< 0.0001
				Intercept	1.32859	0.466479	2.84812	0.0051693
0.7	0.95	< 0.0001	127	Investment Proportion^3	-0.942929	5.92344	-0.159186	0.873775
				Investment Proportion^2	-4.22408	9.11971	-0.463181	0.644027
				Investment Proportion	94.9609	4.05708	23.4062	< 0.0001
				Intercept	1.09224	0.49451	2.20873	0.0289874
0.69	0.5	< 0.0001	64	Investment Proportion^3	13.0615	5.50639	2.37206	0.0207075
				Investment Proportion^2	-13.5243	7.53358	-1.7952	0.0773441
				Investment Proportion	-0.603248	2.88678	-0.208969	0.835136
				Intercept	2.12833	0.303857	7.0044	< 0.0001
0.69	0.55	< 0.0001	147	Investment Proportion^3	73.0248	9.72585	7.50832	< 0.0001
				Investment Proportion^2	-116.539	13.4854	-8.64188	< 0.0001
				Investment Proportion	46.2288	5.14492	8.98533	< 0.0001
				Intercept	-0.581412	0.551755	-1.05375	0.293726

0.69	0.6	< 0.0001	231	Investment Proportion^3	7.18047	12.3636	0.580776	0.561958
				Investment Proportion^2	-55.7518	17.3443	-3.21442	0.0014938
				Investment Proportion	45.0861	7.47031	6.03537	< 0.0001
				Intercept	-0.297027	0.963799	-0.308183	0.758221
0.69	0.65	< 0.0001	252	Investment Proportion^3	23.4586	17.7935	1.31838	0.188572
				Investment Proportion^2	-68.9451	28.0126	-2.46122	0.0145175
				Investment Proportion	60.9087	12.6956	4.79762	< 0.0001
				Intercept	-0.885189	1.50395	-0.588575	0.556674
0.69	0.7	< 0.0001	189	Investment Proportion^3	-9.44928	10.0708	-0.938282	0.349297
				Investment Proportion^2	-10.2751	15.625	-0.657605	0.511592
				Investment Proportion	48.0182	6.99274	6.86687	< 0.0001
				Intercept	0.819232	0.844377	0.970221	0.333176
0.69	0.75	< 0.0001	170	Investment Proportion^3	2.77729	8.03248	0.345757	0.729953
				Investment Proportion^2	-21.9106	12.7456	-1.71908	0.0874205
				Investment Proportion	61.6667	5.84861	10.5438	< 0.0001
				Intercept	0.397935	0.715604	0.556083	0.578885
0.69	0.8	< 0.0001	144	Investment Proportion^3	-10.0831	7.415	-1.35982	0.176011
				Investment Proportion^2	1.95049	11.9697	0.162953	0.870784

				Investment Proportion	60.6044	5.5832	10.8548	< 0.0001
				Intercept	1.28234	0.69984	1.83233	0.0689681
0.69	0.85	< 0.0001	145	Investment Proportion^3	-11.3291	6.25076	-1.81243	0.0719885
				Investment Proportion^2	5.10998	9.70905	0.526311	0.599476
				Investment Proportion	68.6106	4.29331	15.9808	< 0.0001
				Intercept	1.33133	0.49938	2.66598	0.0085478
0.69	0.9	< 0.0001	122	Investment Proportion^3	-13.6096	6.85843	-1.98437	0.0494595
				Investment Proportion^2	8.38218	10.6844	0.784526	0.434252
				Investment Proportion	76.8759	4.7603	16.1494	< 0.0001
				Intercept	1.38185	0.568389	2.43117	0.0165039
0.69	0.95	< 0.0001	133	Investment Proportion^3	-3.12567	5.94098	-0.526119	0.599682
				Investment Proportion^2	-3.13883	8.95757	-0.350411	0.726584
				Investment Proportion	89.7057	3.91306	22.9247	< 0.0001
				Intercept	1.07314	0.470014	2.2832	0.0240044
0.68	0.5	< 0.0001	69	Investment Proportion^3	-3.19139	3.55195	-0.898488	0.37205
				Investment Proportion^2	9.2314	4.84053	1.9071	0.0606709
				Investment Proportion	-7.80847	1.86634	-4.18384	< 0.0001
				Intercept	1.93079	0.194354	9.93443	< 0.0001

0.68	0.55	< 0.0001	91	Investment Proportion^3	48.5758	7.07025	6.87045	< 0.0001
				Investment Proportion^2	-67.8152	9.46207	-7.16705	< 0.0001
				Investment Proportion	20.6536	3.44076	6.00264	< 0.0001
				Intercept	1.16816	0.369092	3.16495	0.0021099
0.68	0.6	< 0.0001	170	Investment Proportion^3	63.8887	11.5135	5.54901	< 0.0001
				Investment Proportion^2	-120.936	16.5377	-7.31278	< 0.0001
				Investment Proportion	58.0826	6.98803	8.31173	< 0.0001
				Intercept	-1.42738	0.865101	-1.64996	0.100798
0.68	0.65	< 0.0001	202	Investment Proportion^3	-1.2048	16.3259	-0.0737971	0.941245
				Investment Proportion^2	-42.0342	23.7567	-1.76936	0.0783426
				Investment Proportion	44.8998	10.0813	4.45375	< 0.0001
				Intercept	0.164132	1.15425	0.142198	0.887065
0.68	0.7	< 0.0001	244	Investment Proportion^3	-16.953	17.6935	-0.958148	0.338936
				Investment Proportion^2	-16.3238	27.9149	-0.584769	0.559244
				Investment Proportion	48.1298	12.6904	3.79262	0.000188
				Intercept	0.346087	1.50595	0.229813	0.818429
0.68	0.75	< 0.0001	177	Investment Proportion^3	12.0253	9.92989	1.21102	0.227503
				Investment Proportion^2	-40.868	15.8517	-2.57815	0.0107466

				Investment Proportion	64.0666	7.28023	8.80008	< 0.0001
				Intercept	-0.183123	0.881764	-0.207678	0.835719
0.68	0.8	< 0.0001	165	Investment Proportion^3	-2.20833	7.6292	-0.289458	0.772594
				Investment Proportion^2	-14.5303	12.038	-1.20704	0.229145
				Investment Proportion	62.5236	5.43726	11.4991	< 0.0001
				Intercept	0.749948	0.640612	1.17067	0.243417
0.68	0.85	< 0.0001	161	Investment Proportion^3	-8.46063	6.23603	-1.35673	0.176765
				Investment Proportion^2	-1.91733	9.78357	-0.195975	0.844877
				Investment Proportion	66.6022	4.41128	15.0981	< 0.0001
				intercept	1.14734	0.538588	2.13028	0.0346674
0.68	0.9	< 0.0001	131	Investment Proportion^3	-15.777	7.04787	-2.23855	0.026873
				Investment Proportion^2	9.64555	11.0157	0.875618	0.38284
				Investment Proportion	71.2262	4.99233	14.2671	< 0.0001
				Intercept	1.54769	0.634035	2.44101	0.0159817
0.68	0.95	< 0.0001	135	Investment Proportion^3	-5.27931	6.832	-0.772732	0.441032
				Investment Proportion^2	-0.0650612	10.4123	-0.0062485	0.995024
				Investment Proportion	82.4907	4.51578	18.2672	< 0.0001
				Intercept	1.31189	0.513972	2.55245	0.0118094

0.67	0.5	< 0.0001	62	Investment Proportion^3	-10.6158	2.16197	-4.91023	< 0.0001
				Investment Proportion^2	19.0753	3.05256	6.24896	< 0.0001
				Investment Proportion	-10.4102	1.20377	-8.648	< 0.0001
				Intercept	1.65141	0.110377	14.9615	< 0.0001
0.67	0.55	< 0.0001	69	Investment Proportion^3	17.58	4.97169	3.53603	0.0007307
				Investment Proportion^2	-21.2667	6.64985	-3.19808	0.0020896
				Investment Proportion	3.03831	2.47361	1.22829	0.223511
				Intercept	1.81306	0.262449	6.90826	< 0.0001
0.67	0.6	< 0.0001	135	Investment Proportion^3	82.4039	9.59956	8.58413	< 0.0001
				Investment Proportion^2	-125.084	13.3754	-9.35177	< 0.0001
				Investment Proportion	46.3408	5.22635	8.86675	< 0.0001
				Intercept	-0.341288	0.606194	-0.563002	0.574367
0.67	0.65	< 0.0001	221	Investment Proportion^3	31.4444	11.3595	2.76811	0.0061166
				Investment Proportion^2	-87.1362	15.605	-5.58386	< 0.0001
				Investment Proportion	53.2717	6.32084	8.42794	< 0.0001
				Intercept	-0.626029	0.730532	-0.85695	0.392401
0.67	0.7	< 0.0001	228	Investment Proportion^3	13.6767	16.4089	0.833495	0.405438
				Investment Proportion^2	-59.1139	25.11	-2.35419	0.0194126

				Investment Proportion	56.0331	11.2315	4.98894	< 0.0001
				Intercept	-0.45164	1.34544	-0.335683	0.737418
0.67	0.75	< 0.0001	221	Investment Proportion^3	10.3124	20.6746	0.498796	0.618419
				Investment Proportion^2	-53.2181	32.8482	-1.62012	0.106632
				Investment Proportion	66.2588	15.0211	4.41104	< 0.0001
				Intercept	-0.848874	1.8042	-0.470498	0.638463
0.67	0.8	< 0.0001	182	Investment Proportion^3	-8.92243	13.0394	-0.684268	0.494676
				Investment Proportion^2	-12.1753	20.8393	-0.584246	0.559778
				Investment Proportion	58.0567	9.62639	6.031	< 0.0001
				Intercept	0.668545	1.20691	0.553933	0.580305
0.67	0.85	< 0.0001	163	Investment Proportion^3	-15.7652	8.80829	-1.78981	0.0753403
				Investment Proportion^2	6.3222	14.0272	0.450711	0.652797
				Investment Proportion	58.0351	6.38227	9.09317	< 0.0001
				Intercept	1.41901	0.759534	1.86826	0.0635203
0.67	0.9	< 0.0001	140	Investment Proportion^3	-18.6408	8.21013	-2.27046	0.0247064
				Investment Proportion^2	13.2158	13.0535	1.01243	0.313078
				Investment Proportion	63.8481	5.95831	10.7158	< 0.0001
				Intercept	1.74685	0.738377	2.36579	0.0193623

0.67	0.95	< 0.0001	123	Investment Proportion^3	2.26516	6.98128	0.324462	0.74614
				Investment Proportion^2	-10.7826	10.6936	-1.00832	0.315281
				Investment Proportion	80.815	4.66113	17.3381	< 0.0001
				Intercept	1.04906	0.531495	1.9738	0.0506465
0.66	0.55	< 0.0001	62	Investment Proportion^3	-5.98601	3.67421	-1.6292	0.108342
				Investment Proportion^2	13.6881	5.10004	2.68391	0.0093196
				Investment Proportion	-9.82883	2.01585	-4.87578	< 0.0001
				Intercept	2.16269	0.214198	10.0967	< 0.0001
0.66	0.6	< 0.0001	90	Investment Proportion^3	41.8106	7.56042	5.53019	< 0.0001
				Investment Proportion^2	-56.6587	10.2037	-5.55276	< 0.0001
				Investment Proportion	15.6033	3.80003	4.1061	< 0.0001
				Intercept	1.61482	0.428895	3.76506	0.0002965
0.66	0.65	< 0.0001	165	Investment Proportion^3	83.2448	8.80449	9.45481	< 0.0001
				Investment Proportion^2	-141.194	12.0184	-11.7482	< 0.0001
				Investment Proportion	60.296	4.55233	13.2451	< 0.0001
				Intercept	-1.14145	0.48766	-2.34066	0.0204457
0.66	0.7	< 0.0001	196	Investment Proportion^3	3.0475	17.2194	0.176981	0.859706
				Investment Proportion^2	-50.7727	23.5644	-2.15463	0.0324106

				Investment Proportion	45.4056	9.57435	4.74242	< 0.0001
				Intercept	0.288753	1.09041	0.264811	0.791433
0.66	0.75	< 0.0001	235	Investment Proportion^3	-5.41601	17.7172	-0.305692	0.76011
				Investment Proportion^2	-38.4076	27.7175	-1.38568	0.167158
				Investment Proportion	55.714	12.5368	4.44405	< 0.0001
				Intercept	-0.32983	1.49382	-0.220796	0.825443
0.66	0.8	< 0.0001	203	Investment Proportion^3	-11.9829	24.7888	-0.483401	0.629332
				Investment Proportion^2	-19.6115	40.1663	-0.488257	0.625895
				Investment Proportion	57.2849	18.8168	3.04436	0.0026405
				Intercept	0.203814	2.33752	0.0871926	0.930604
0.66	0.85	< 0.0001	197	Investment Proportion^3	-21.9609	10.5093	-2.08966	0.037932
				Investment Proportion^2	8.5501	16.8086	0.508674	0.61155
				Investment Proportion	52.996	7.6718	6.9079	< 0.0001
				Intercept	1.45474	0.901259	1.61412	0.108102
0.66	0.9	< 0.0001	166	Investment Proportion^3	-37.0105	9.3373	-3.96373	0.0001094
				Investment Proportion^2	35.4629	15.0859	2.35073	0.0199117
				Investment Proportion	51.0208	7.06135	7.22535	< 0.0001
				Intercept	2.3796	0.901286	2.64022	0.0090754

0.66	0.95	< 0.0001	138	Investment Proportion^3	-0.846555	7.13545	-0.118641	0.905733
				Investment Proportion^2	-8.28537	11.0172	-0.752039	0.453308
				Investment Proportion	74.4553	4.83235	15.4077	< 0.0001
				Intercept	1.17889	0.551973	2.13579	0.0344623
0.65	0.55	< 0.0001	45	Investment Proportion^3	-11.0942	2.32526	-4.77114	< 0.0001
				Investment Proportion^2	19.872	3.31836	5.98851	< 0.0001
				Investment Proportion	-10.7963	1.31251	-8.22571	< 0.0001
				Intercept	1.70097	0.117499	14.4765	< 0.0001
0.65	0.6	< 0.0001	57	Investment Proportion^3	10.21	5.9772	1.70815	0.0930491
				Investment Proportion^2	-8.80291	8.31619	-1.05853	0.294281
				Investment Proportion	-2.92498	3.30003	-0.886349	0.379154
				Intercept	2.45975	0.368596	6.6733	< 0.0001
0.65	0.65	< 0.0001	146	Investment Proportion^3	77.8822	8.88727	8.76334	< 0.0001
				Investment Proportion^2	-114.964	11.8321	-9.71626	< 0.0001
				Investment Proportion	40.4121	4.21526	9.58709	< 0.0001
				Intercept	0.182298	0.436744	0.417403	0.676997
0.65	0.7	< 0.0001	202	Investment Proportion^3	72.7858	12.6073	5.7733	< 0.0001
				Investment Proportion^2	-140.106	17.393	-8.05533	< 0.0001

				Investment Proportion	68.0248	6.92212	9.82716	< 0.0001
				Intercept	-1.67569	0.786434	-2.13075	0.0343193
0.65	0.75	< 0.0001	196	Investment Proportion^3	10.6924	17.7736	0.601591	0.548142
				Investment Proportion^2	-63.6384	25.7698	-2.4695	0.0143855
				Investment Proportion	56.5042	10.9684	5.15156	< 0.0001
				Intercept	-0.464999	1.24194	-0.374414	0.708501
0.65	0.8	< 0.0001	214	Investment Proportion^3	-40.069	19.2605	-2.08037	0.038682
				Investment Proportion^2	11.3502	30.783	0.368717	0.712703
				Investment Proportion	41.2909	14.2147	2.90479	0.0040607
				Intercept	1.19096	1.70382	0.698994	0.485315
0.65	0.85	< 0.0001	221	Investment Proportion^3	-62.2803	20.8535	-2.98656	0.0031395
				Investment Proportion^2	55.2778	33.5622	1.64702	0.100974
				Investment Proportion	31.8013	15.5164	2.04953	0.0415916
				Intercept	2.74036	1.9009	1.44161	0.150828
0.65	0.9	< 0.0001	168	Investment Proportion^3	-64.6998	18.8361	-3.43488	0.0007469
				Investment Proportion^2	69.1119	30.0114	2.30285	0.0225131
				Investment Proportion	34.0686	13.7209	2.48297	0.0140109
				Intercept	3.2686	1.68949	1.93467	0.0547104

0.65	0.95	< 0.0001	146	Investment Proportion^3	-3.85956	7.51227	-0.513767	0.608191
				Investment Proportion^2	-5.9293	11.7024	-0.506675	0.613147
				Investment Proportion	68.021	5.25516	12.9437	< 0.0001
				Intercept	1.31969	0.64679	2.04036	0.0431163
0.64	0.6	< 0.0001	45	Investment Proportion^3	-6.28777	4.00521	-1.5699	0.123445
				Investment Proportion^2	14.4994	5.79661	2.50136	0.0160777
				Investment Proportion	-10.5136	2.39726	-4.38565	< 0.0001
				Intercept	2.34306	0.254382	9.2108	< 0.0001
0.64	0.65	< 0.0001	86	Investment Proportion^3	37.1447	6.82106	5.44559	< 0.0001
				Investment Proportion^2	-48.7927	9.0657	-5.38212	< 0.0001
				Investment Proportion	12.1286	3.29064	3.68579	0.0003981
				Intercept	1.79689	0.351413	5.11332	< 0.0001
0.64	0.7	< 0.0001	138	Investment Proportion^3	95.5033	11.7746	8.11097	< 0.0001
				Investment Proportion^2	-148.439	16.0583	-9.24379	< 0.0001
				Investment Proportion	56.9566	5.98283	9.52001	< 0.0001
				Intercept	-0.699418	0.637523	-1.09709	0.274514
0.64	0.75	< 0.0001	203	Investment Proportion^3	43.1222	13.3163	3.2383	0.0014047
				Investment Proportion^2	-104.334	18.4171	-5.66509	< 0.0001

				Investment Proportion	59.7071	7.56933	7.88803	< 0.0001
				Intercept	-0.686877	0.89876	-0.764249	0.445606
0.64	0.8	< 0.0001	194	Investment Proportion^3	-9.63684	26.1023	-0.369194	0.712386
				Investment Proportion^2	-40.0228	38.2638	-1.04597	0.296877
				Investment Proportion	53.0557	16.6421	3.18803	0.0016701
				Intercept	-0.0123615	1.97223	-0.0062678	0.995006
0.64	0.85	< 0.0001	201	Investment Proportion^3	-51.8336	22.8306	-2.27036	0.0242465
				Investment Proportion^2	30.8559	36.0387	0.856188	0.392913
				Investment Proportion	37.2154	16.4807	2.25812	0.0250124
				Intercept	1.79331	2.04355	0.877549	0.381236
0.64	0.9	< 0.0001	202	Investment Proportion^3	-62.8823	22.6166	-2.78036	0.0059431
				Investment Proportion^2	60.5015	36.6499	1.65079	0.100334
				Investment Proportion	31.6301	17.1378	1.84564	0.0664087
				Intercept	3.2632	2.16881	1.5046	0.133989
0.64	0.95	< 0.0001	166	Investment Proportion^3	-12.1449	8.74671	-1.38851	0.166841
				Investment Proportion^2	2.48931	13.5068	0.1843	0.854003
				Investment Proportion	59.6429	5.94562	10.0314	< 0.0001
				Intercept	1.54269	0.693976	2.22297	0.0275683

0.63	0.6	< 0.0001	37	Investment Proportion^3	-10.3921	2.47186	-4.20416	0.0001592
				Investment Proportion^2	18.8448	3.59353	5.24408	< 0.0001
				Investment Proportion	-10.4417	1.4562	-7.17053	< 0.0001
				Intercept	1.7042	0.136134	12.5186	< 0.0001
0.63	0.65	< 0.0001	57	Investment Proportion^3	8.16779	5.32637	1.53346	0.130694
				Investment Proportion^2	-6.11593	7.56222	-0.808748	0.422023
				Investment Proportion	-3.74211	3.08569	-1.21273	0.230235
				Intercept	2.48025	0.343019	7.23065	< 0.0001
0.63	0.7	< 0.0001	100	Investment Proportion^3	64.3939	9.19429	7.00369	< 0.0001
				Investment Proportion^2	-90.9381	12.2691	-7.41199	< 0.0001
				Investment Proportion	28.8492	4.43893	6.49914	< 0.0001
				Intercept	1.06391	0.469255	2.26722	0.025529
0.63	0.75	< 0.0001	162	Investment Proportion^3	96.2023	10.463	9.19451	< 0.0001
				Investment Proportion^2	-163.82	14.4291	-11.3534	< 0.0001
				Investment Proportion	70.9622	5.50845	12.8824	< 0.0001
				Intercept	-1.82903	0.595804	-3.06985	0.0025118
0.63	0.8	< 0.0001	192	Investment Proportion^3	12.0165	20.2971	0.592028	0.554529
				Investment Proportion^2	-62.7837	28.3734	-2.21277	0.0280921

				Investment Proportion	48.8508	11.7143	4.17019	< 0.0001
				Intercept	0.372376	1.30864	0.284551	0.776295
0.63	0.85	< 0.0001	208	Investment Proportion^3	-21.9214	23.8804	-0.917966	0.3597
				Investment Proportion^2	-21.2829	36.3064	-0.586202	0.558376
				Investment Proportion	49.5441	16.2099	3.05642	0.0025337
				Intercept	0.627137	1.99149	0.314908	0.753147
0.63	0.9	< 0.0001	205	Investment Proportion^3	-72.5979	22.6278	-3.20835	0.0015493
				Investment Proportion^2	63.4626	35.7968	1.77286	0.0777375
				Investment Proportion	26.293	16.4004	1.60319	0.110431
				Intercept	3.22325	2.04658	1.57494	0.116812
0.63	0.95	< 0.0001	184	Investment Proportion^3	-69.2285	21.7253	-3.18653	0.0016918
				Investment Proportion^2	76.3453	34.495	2.21323	0.0281114
				Investment Proportion	26.178	15.9642	1.63979	0.102758
				Intercept	4.16025	2.05124	2.02816	0.0439855
0.62	0.65	< 0.0001	51	Investment Proportion^3	-5.48187	3.42781	-1.59923	0.115946
				Investment Proportion^2	12.7869	4.92432	2.59669	0.0122683
				Investment Proportion	-9.36715	1.99145	-4.70367	< 0.0001
				Intercept	2.10751	0.192725	10.9353	< 0.0001

0.62	0.7	< 0.0001	74	Investment Proportion^3	28.0492	6.65915	4.21213	< 0.0001
				Investment Proportion^2	-35.4757	8.96169	-3.95859	0.0001716
				Investment Proportion	7.1622	3.35922	2.1321	0.0363173
				Intercept	2.05619	0.359889	5.71341	< 0.0001
0.62	0.75	< 0.0001	135	Investment Proportion^3	80.31	9.79299	8.20076	< 0.0001
				Investment Proportion^2	-122.275	13.1001	-9.33386	< 0.0001
				Investment Proportion	45.0183	4.67229	9.63516	< 0.0001
				Intercept	0.0465566	0.470221	0.0990102	0.921277
0.62	0.8	< 0.0001	166	Investment Proportion^3	91.5804	12.2474	7.47755	< 0.0001
				Investment Proportion^2	-165.652	16.8658	-9.82177	< 0.0001
				Investment Proportion	76.0507	6.65498	11.4276	< 0.0001
				Intercept	-1.85892	0.751362	-2.47407	0.0143639
0.62	0.85	< 0.0001	198	Investment Proportion^3	14.7097	24.7313	0.594779	0.55267
				Investment Proportion^2	-74.0436	35.0358	-2.11337	0.0358217
				Investment Proportion	59.5159	14.7594	4.0324	< 0.0001
				Intercept	-0.359877	1.7493	-0.205726	0.837216
0.62	0.9	< 0.0001	234	Investment Proportion^3	-13.6115	24.4482	-0.556748	0.578231
				Investment Proportion^2	-28.1049	37.0066	-0.759456	0.448344

				Investment Proportion	54.0962	16.27	3.32491	0.0010267
				intercept	0.54279	1.90204	0.285372	0.775612
0.62	0.95	< 0.0001	219	Investment Proportion^3	-89.1099	20.3172	-4.38593	< 0.0001
				Investment Proportion^2	99.719	33.1843	3.005	0.0029653
				Investment Proportion	10.5956	15.8735	0.667505	0.505152
				Intercept	5.23721	2.10751	2.48502	0.0137031
0.61	0.65	< 0.0001	38	Investment Proportion^3	-9.50748	2.28321	-4.16409	0.000173
				Investment Proportion^2	17.4423	3.32776	5.24147	< 0.0001
				Investment Proportion	-9.82288	1.32724	-7.40101	< 0.0001
				Intercept	1.64203	0.111421	14.7371	< 0.0001
0.61	0.7	< 0.0001	58	Investment Proportion^3	-0.0624039	4.84745	-0.0128736	0.989773
				Investment Proportion^2	5.60556	6.71411	0.834893	0.407204
				Investment Proportion	-7.52904	2.62856	-2.86432	0.0058096
				Intercept	2.35799	0.27006	8.73133	< 0.0001
0.61	0.75	< 0.0001	95	Investment Proportion^3	44.6274	8.42089	5.29961	< 0.0001
				Investment Proportion^2	-59.3627	11.0467	-5.37379	< 0.0001
				Investment Proportion	15.6443	3.88061	4.03141	0.0001119
				Intercept	1.78876	0.392645	4.55566	< 0.0001

0.61	0.8	< 0.0001	140	Investment Proportion^3	98.6456	11.6111	8.49584	< 0.0001
				Investment Proportion^2	-155.744	15.9317	-9.7757	< 0.0001
				Investment Proportion	61.1467	5.98535	10.2161	< 0.0001
				Intercept	-0.894486	0.64531	-1.38613	0.16791
0.61	0.85	< 0.0001	153	Investment Proportion^3	64.1011	16.5139	3.88165	0.0001539
				Investment Proportion^2	-135.3	23.1824	-5.83633	< 0.0001
				Investment Proportion	70.4737	9.44919	7.45818	< 0.0001
				Intercept	-1.23132	1.10019	-1.11919	0.264815
0.61	0.9	< 0.0001	218	Investment Proportion^3	10.243	26.5398	0.385949	0.699911
				Investment Proportion^2	-59.7141	38.1776	-1.56411	0.119242
				Investment Proportion	54.4911	16.2186	3.3598	0.0009207
				Intercept	0.492452	1.88696	0.260976	0.794357
0.61	0.95	< 0.0001	216	Investment Proportion^3	-37.5687	28.3518	-1.32509	0.186541
				Investment Proportion^2	16.7394	44.8804	0.372977	0.709531
				Investment Proportion	36.1754	20.8145	1.73799	0.0836381
				Intercept	2.53998	2.66435	0.95332	0.341494
0.6	0.7	< 0.0001	52	Investment Proportion^3	-10.8201	3.03159	-3.56911	0.0007806
				Investment Proportion^2	20.3296	4.34006	4.68418	< 0.0001

				Investment Proportion	-11.8206	1.74185	-6.78622	< 0.0001
				Intercept	2.06573	0.164144	12.5849	< 0.0001
0.6	0.75	< 0.0001	64	Investment Proportion^3	17.8038	5.22443	3.4078	0.0011371
				Investment Proportion^2	-20.8719	7.08764	-2.94483	0.0045002
				Investment Proportion	2.21293	2.68593	0.823896	0.413058
				Intercept	2.08833	0.271539	7.69072	< 0.0001
0.6	0.8	< 0.0001	103	Investment Proportion^3	62.9076	10.6996	5.87944	< 0.0001
				Investment Proportion^2	-86.8656	14.4557	-6.00911	< 0.0001
				Investment Proportion	25.782	5.35686	4.8129	< 0.0001
				Intercept	1.64579	0.59432	2.7692	0.0066661
0.6	0.85	< 0.0001	150	Investment Proportion^3	97.1895	13.3154	7.29905	< 0.0001
				Investment Proportion^2	-162.944	18.2892	-8.9093	< 0.0001
				Investment Proportion	68.8516	6.90943	9.96488	< 0.0001
				intercept	-1.29988	0.759255	-1.71204	0.0889552
0.6	0.9	< 0.0001	178	Investment Proportion^3	59.0775	19.0543	3.10049	0.0022466
				Investment Proportion^2	-130.184	26.9402	-4.83234	< 0.0001
				Investment Proportion	71.8644	11.2793	6.37134	< 0.0001
				Intercept	-1.30592	1.32648	-0.984495	0.326208

0.6	0.95	< 0.0001	233	Investment Proportion^3	26.2969	32.6018	0.806609	0.420714
				Investment Proportion^2	-70.3418	48.8934	-1.43868	0.151584
				Investment Proportion	55.4539	21.7241	2.55264	0.0113301
				Intercept	1.03727	2.68576	0.38621	0.699693
0.59	0.7	< 0.0001	42	Investment Proportion^3	-7.99933	1.63719	-4.886	< 0.0001
				Investment Proportion^2	14.7058	2.34987	6.25813	< 0.0001
				Investment Proportion	-8.31376	0.913407	-9.10193	< 0.0001
				Intercept	1.40083	0.071193	19.6765	< 0.0001
0.59	0.75	< 0.0001	56	Investment Proportion^3	-2.85116	4.59566	-0.620402	0.53751
				Investment Proportion^2	9.55905	6.43353	1.48582	0.142936
				Investment Proportion	-8.78697	2.53366	-3.46809	0.0010149
				Intercept	2.30808	0.249983	9.23293	< 0.0001
0.59	0.8	< 0.0001	68	Investment Proportion^3	23.1814	8.28633	2.79755	0.0066916
				Investment Proportion^2	-26.9945	11.2916	-2.39067	0.0195923
				Investment Proportion	2.88453	4.35293	0.662664	0.509786
				Intercept	2.59076	0.490047	5.28676	< 0.0001
0.59	0.85	< 0.0001	119	Investment Proportion^3	86.8066	12.2234	7.10166	< 0.0001
				Investment Proportion^2	-125.087	16.3862	-7.63368	< 0.0001

				Investment Proportion	41.8953	5.91531	7.08252	< 0.0001
				Intercept	0.681074	0.628433	1.08376	0.28066
0.59	0.9	< 0.0001	169	Investment Proportion^3	103.127	10.922	9.44211	< 0.0001
				Investment Proportion^2	-180.75	14.8812	-12.1462	< 0.0001
				Investment Proportion	80.742	5.55097	14.5456	< 0.0001
				Intercept	-2.25735	0.597851	-3.77577	0.0002206
0.59	0.95	< 0.0001	163	Investment Proportion^3	55.429	24.6264	2.2508	0.0257352
				Investment Proportion^2	-117.092	34.7844	-3.36621	0.0009505
				Investment Proportion	65.7472	14.5208	4.52781	< 0.0001
				Intercept	-0.221955	1.70363	-0.130283	0.896503
0.58	0.75	< 0.0001	40	Investment Proportion^3	-13.4493	2.86447	-4.69521	< 0.0001
				Investment Proportion^2	23.7181	4.114	5.76521	< 0.0001
				Investment Proportion	-12.5757	1.6369	-7.68265	< 0.0001
				Intercept	1.89792	0.147317	12.8832	< 0.0001
0.58	0.8	< 0.0001	58	Investment Proportion^3	4.35367	5.59084	0.778715	0.439313
				Investment Proportion^2	-0.871637	7.71847	-0.112929	0.910477
				Investment Proportion	-5.18626	3.02379	-1.71515	0.091656
				Intercept	2.29879	0.317344	7.24384	< 0.0001

0.58	0.85	< 0.0001	76	Investment Proportion^3	43.3814	9.22362	4.70329	< 0.0001
				Investment Proportion^2	-57.448	12.2689	-4.68242	< 0.0001
				Investment Proportion	14.6926	4.53171	3.24218	0.0017626
				Intercept	1.98543	0.506694	3.9184	0.0001934
0.58	0.9	< 0.0001	165	Investment Proportion^3	99.9037	11.765	8.4916	< 0.0001
				Investment Proportion^2	-150.303	15.781	-9.52429	< 0.0001
				Investment Proportion	54.741	5.72329	9.5646	< 0.0001
				Intercept	-0.165699	0.605143	-0.273817	0.784567
0.58	0.95	< 0.0001	157	Investment Proportion^3	90.4826	12.5189	7.22766	< 0.0001
				Investment Proportion^2	-168.154	17.3166	-9.71055	< 0.0001
				Investment Proportion	79.1152	6.69053	11.8249	< 0.0001
				Intercept	-1.92343	0.747149	-2.57435	0.0109669

File 8. Near-Optimal Parameter Values and Returns for Strategy C

p	r	z^*	w^*	v^*	$roiC^*$
0.52	0.95	0.15	2.00	0.90	1.81
0.53	0.90	0.20	2.00	0.90	1.82
0.53	0.95	0.10	2.00	0.90	1.89
0.54	0.90	0.55	1.80	0.90	2.01
0.54	0.95	0.60	2.00	0.90	2.01
0.55	0.85	0.30	2.00	0.90	1.85
0.55	0.90	0.55	1.80	0.90	2.01
0.55	0.90	0.55	2.00	0.90	2.01
0.55	0.95	0.15	2.00	0.20	2.61
0.56	0.80	0.30	2.00	0.90	1.85
0.56	0.85	0.25	2.00	0.90	1.95
0.56	0.90	0.15	1.80	0.60	2.32
0.56	0.95	0.15	2.00	0.20	3.51
0.57	0.80	0.10	2.00	0.90	1.90
0.57	0.85	0.15	2.00	0.20	2.11
0.57	0.90	0.20	1.80	0.10	3.02
0.57	0.95	0.15	2.00	0.30	4.70
0.58	0.75	0.25	2.00	0.90	1.85
0.58	0.80	0.15	2.00	0.90	1.93
0.58	0.85	0.15	2.00	0.40	2.62
0.58	0.90	0.20	2.00	0.10	4.25
0.58	0.95	0.20	2.00	0.10	6.57
0.59	0.70	0.40	1.80	0.90	1.69
0.59	0.75	0.65	2.00	0.90	1.99
0.59	0.80	0.10	2.00	0.30	2.31
0.59	0.85	0.15	2.00	0.20	3.82
0.59	0.90	0.15	2.00	0.10	5.58

p	r	z^*	w^*	v^*	$roiC^*$
0.61	0.85	0.25	2.00	0.10	6.69
0.61	0.90	0.30	2.00	0.10	9.74
0.62	0.65	0.25	2.00	0.90	1.87
0.62	0.70	0.15	2.00	0.50	2.21
0.62	0.75	0.10	2.00	0.10	3.61
0.62	0.80	0.20	2.00	0.10	5.47
0.62	0.85	0.25	2.00	0.10	8.50
0.63	0.60	0.80	2.00	0.90	1.82
0.63	0.65	0.75	2.00	0.90	1.99
0.63	0.70	0.15	1.80	0.10	2.89
0.63	0.75	0.20	2.00	0.10	4.89
0.63	0.80	0.25	2.00	0.10	7.78
0.64	0.60	0.10	2.00	0.90	1.87
0.64	0.65	0.15	2.00	0.40	2.42
0.64	0.70	0.25	1.80	0.10	4.14
0.64	0.75	0.25	2.00	0.10	6.63
0.64	0.80	0.25	2.00	0.10	9.40
0.65	0.55	0.25	2.00	0.90	1.84
0.65	0.60	0.55	2.00	0.90	2.12
0.65	0.65	0.15	2.00	0.20	3.43
0.65	0.70	0.20	2.00	0.20	5.27
0.65	0.75	0.25	2.00	0.10	8.70
0.66	0.55	0.85	1.80	0.90	1.94
0.66	0.60	0.20	1.80	0.10	2.48
0.66	0.65	0.25	1.80	0.10	4.51
0.66	0.70	0.25	2.00	0.10	7.66
0.67	0.50	0.30	2.00	0.90	1.81

0.59	0.95	0.20	2.00	0.10	8.12
0.60	0.70	0.65	1.80	0.90	1.91
0.60	0.70	0.65	2.00	0.90	1.91
0.60	0.75	0.10	2.00	0.30	2.02
0.60	0.80	0.15	2.00	0.20	3.27
0.60	0.85	0.20	2.00	0.10	4.78
0.60	0.90	0.20	2.00	0.10	7.47
0.61	0.65	0.65	1.60	0.90	1.82
0.61	0.65	0.65	1.80	0.90	1.82
0.61	0.65	0.65	2.00	0.90	1.82
0.61	0.70	0.70	1.60	0.90	1.97
0.61	0.75	0.15	1.80	0.10	2.73
0.61	0.80	0.15	2.00	0.10	4.45

0.67	0.55	0.90	2.00	0.90	2.01
0.67	0.60	0.15	2.00	0.10	3.51
0.67	0.65	0.30	2.00	0.10	5.93
0.67	0.70	0.25	1.80	0.10	9.43
0.68	0.50	0.95	2.00	0.90	1.91
0.68	0.55	0.15	2.00	0.20	2.55
0.68	0.60	0.25	2.00	0.10	4.61
0.68	0.65	0.25	2.00	0.10	7.61
0.69	0.50	0.45	2.00	0.90	2.03
0.69	0.55	0.20	2.00	0.10	3.62
0.69	0.60	0.30	2.00	0.10	6.01
0.70	0.50	0.20	2.00	0.30	2.54
0.70	0.55	0.20	2.00	0.10	4.62
0.70	0.60	0.30	2.00	0.10	8.12

File 9. Analysis of Skewness

Figure 1 exhibits the change in the skewness of the *roi* for the different strategies in relation to prediction accuracy p on the x-axis. To enable a robust analysis, the medians of the skewness values are plotted. Figure 1 suggests that *roiA Skewness* for Strategy A is considerably higher than it is for other strategies; that is to say, *roiA* for Strategy A is always much more skewed to the right (left-leaning probability density function, higher variance). Figure 1 also suggests that the skewness of the *roi* for all strategies decreases gradually for higher values of prediction accuracy p .

Figure 2 exhibits the change in the skewness of the *roi* for the different strategies in relation to payout percentage r on the x-axis. The medians of the skewness values are plotted to ensure robustness. Figure 2 indicates that *roiA Skewness* for Strategy A is significantly higher than its counterparts for other strategies. Thus, *roiA Skewness* for Strategy A is much more skewed to the right (probability density function leaning to the left). Furthermore, *roiA Skewness* even increases with higher values of r . Figure 2 also indicates that *roiB Skewness* for Strategy B is neither the lowest nor is it the one that decreases most with higher values of the payout percentage r . Skewness values for Strategies C and D exhibit very little change under varying values of payout percentage r .

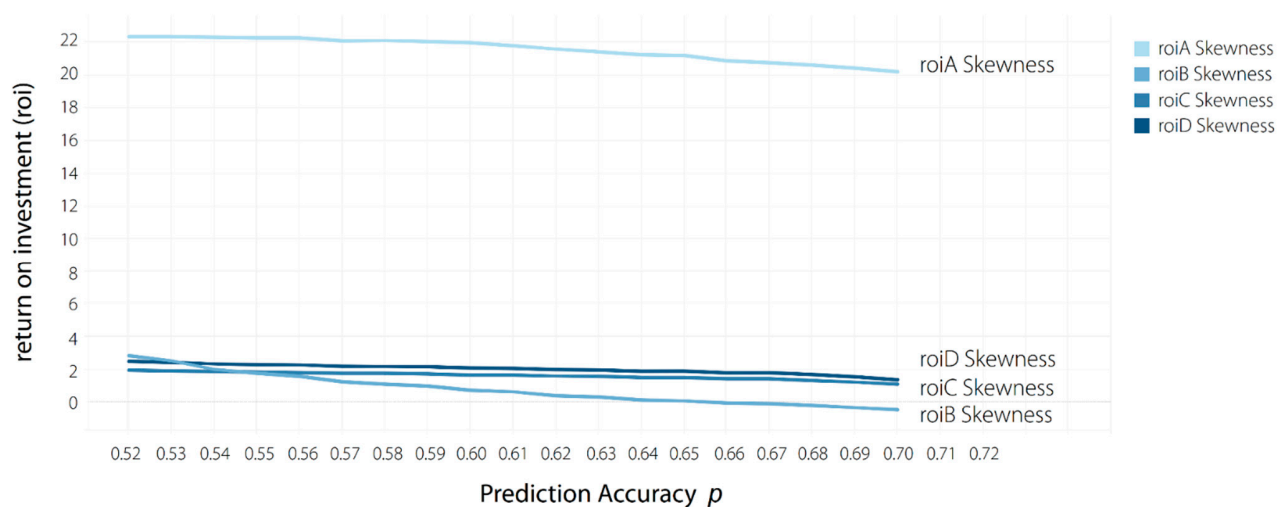


Figure S1. Change in (median) roi Skewness of the strategies in relation to prediction accuracy p on the x-axis.

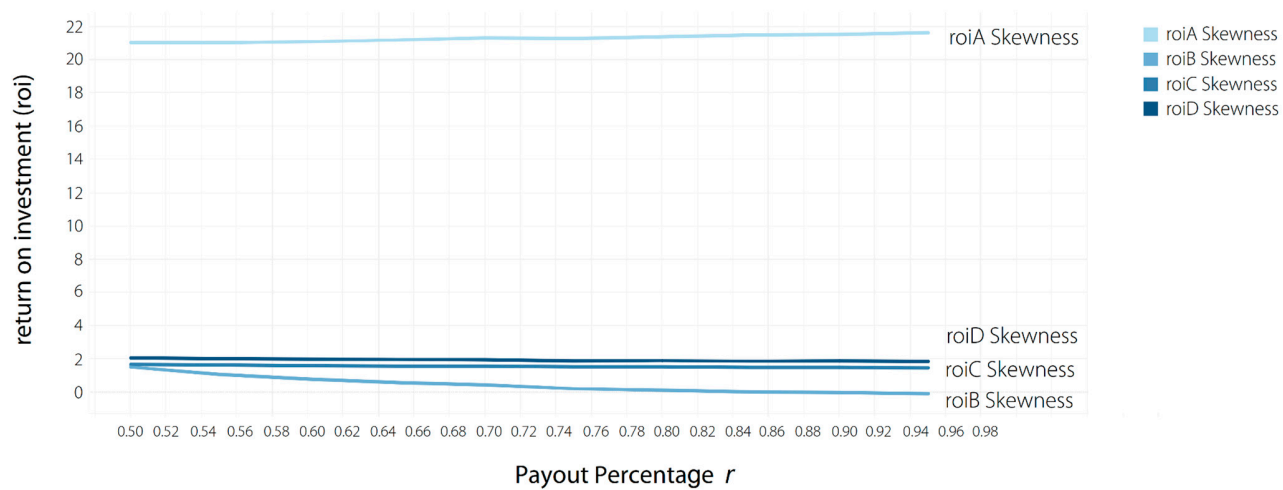


Figure S2. Change in (median) roi Skewness of the strategies in relation to payout percentage r on the x-axis.