

The background features abstract, overlapping green geometric shapes in various shades of green, creating a modern and dynamic look. The shapes are primarily located on the left and right sides of the slide, framing the central text.

Investment Fund #51

5 Year Review - Jan 2015 to Dec 2019

Just Analytics

Spend Wisely

www.justanalytics.ca

Principles of Investment Management

1. Active Managers get higher fees than a 'pure' track the Index ETF because they are supposed to provide higher net returns.
2. These higher returns should not be purely a result of your Investment Fund (IF) taking on more risk.
3. These higher returns should not be purely a result of 'luck' (random) as this is not sustainable for your Investment Fund.

Our Approach

1. We utilize the science of Analytics.
2. This will tell you if it is 'just luck' or 'skill' (i.e., a better methodology) when your Investment Fund (IF) outperforms the market.
3. I want your pension plan funds to out perform the market!
4. Hire Investment Funds that are most likely to outperform the market & have reasonable fees - Spend Wisely!

The Index

1. The first step in the analytics is to determine the appropriate Index against which to compare your Investment Fund.
2. This is a Foreign Equities fund thus we use the MSCI ACWI Ex USA NR USD Index; it had a return of 27.34% for 2019.
3. We will do a 'Value of \$100' comparison with both this Index and the Russell 3000.

Which Analytics?

Excess Return

- ▶ Are you receiving enough return for increased risk in the portfolio?

Value at Risk

- ▶ How is your Investment Fund performing when the Index is struggling?

Underperformance Ratio

- ▶ How often does your Investment Fund underperform the Index in a 10 year period?

Likelihood to Outperform - the most critical in my opinion

- ▶ Is it random (50% ish) or 'almost science' (90% ish over 3 years)?

Excess Return

- ▶ This Investment Fund has generated an average excess return (risk adjusted) of 193 basis points over the past 5 years as of 31 Dec 2019.
- ▶ This Investment Fund assumed 0.70 % more risk & generated almost 30% more return than the Index.

	IF 51	MSCI	T.E. Data	Difference	Comments
Avg. Monthly Returns	0.67	0.51			
Avg. Monthly Std. Dev'n.	3.64	3.62			
Avg. Annual Return	7.99	6.14		29.98%	not CAGR
Avg. Annual Std. Dev'n.	12.62	12.53		0.70%	
Intercept	0.17				
Slope (Beta)	0.97				
Expected Return	6.05				
Excess Return (Alpha)	1.93				
Tracking Error	3.37		0.97		
Information Ratio	0.57				

Value at Risk

- ▶ Stress test - how did the Fund perform when the Index had its worst months (i.e., the Index lost at least 2%).
- ▶ The Investment Fund was better than the Index on 7 of 13 occasions, and is 241 basis points ahead of the MSCI (cumulative).

Date	IF 51	MSCI ACWI	Difference
Oct-18	-8.80	-8.13	-0.67
Aug-15	-7.92	-7.64	-0.28
Jan-16	-6.09	-6.80	0.71
May-19	-6.39	-5.37	-1.02
Feb-18	-5.38	-4.72	-0.66
Sep-15	-4.43	-4.64	0.21
Dec-18	-5.12	-4.53	-0.59
Aug-19	-1.73	-3.09	1.36
Jun-15	-2.44	-2.79	0.35
Nov-16	-3.08	-2.31	-0.77
May-18	-0.48	-2.31	1.83
Aug-18	-1.39	-2.09	0.70
Nov-15	-0.82	-2.06	1.24
Total	-54.07	-56.48	2.41

Underperformance Ratio (5 years)

- ▶ Even the best performing funds will regularly under perform the Index; a Quartile 1 fund will typically underperform the Index in 2 of 5 years (Mercer).

Annual Return	IF 51	MSCI	Difference
2015	-0.77	-1.25	0.48
2016	2.29	0.12	2.17
2017	28.18	32.01	-3.83
2018	-13.96	-14.42	0.46
2019	27.90	27.34	0.56
Performance			-0.16
Incremental Fees			2.55
Net Performance			-2.71

- ▶ IF 3 has underperformed the MSCI once in 5 years, but it was significant enough to render the cumulative 5 year net return negative / less than the Index.

Performance - is it 'Random' or 'Skill'?

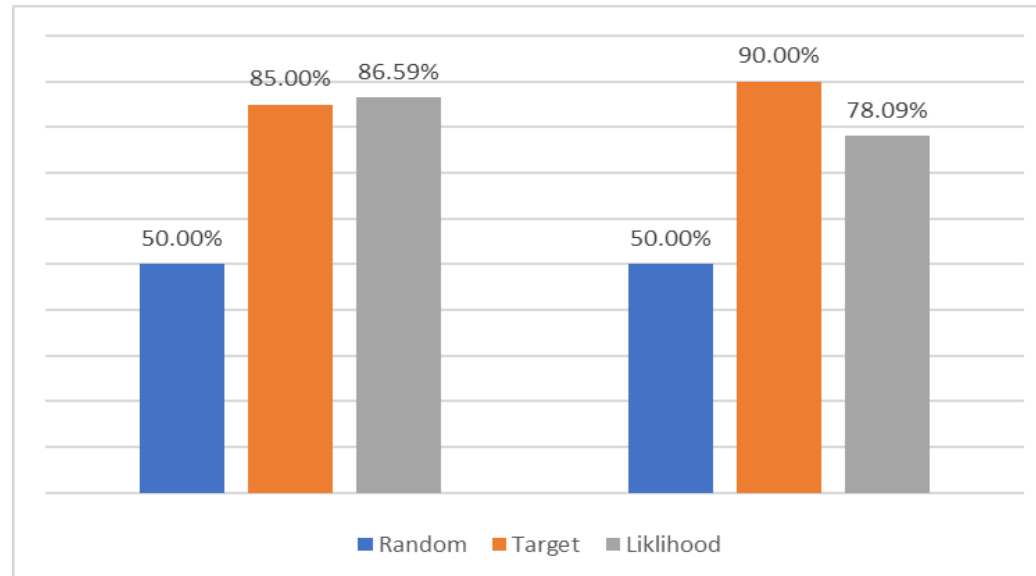
1. If your Fund out performs the market, they will tell you it is 'skill'.
2. If your Fund under performs the market, they will tell you it is 'bad luck'.
3. The reality is that either statement could be true or false.
4. How do you know?
5. The 'science of Analytics' can determine if out performance (or under performance) is random (luck) or skill (better process / meaningful).
6. The analytics looks at the returns, the various risk profiles, the correlation, and then runs a regression analysis to determine the probability of the results being more than just luck.

‘Random’ or ‘Skill’ - What is the Threshold?

1. Scientists expect a 95% confidence level, it is a very rigorous standard.
2. I look for a 90% confidence level over 3 years, 85% over 5 years, and 80% over 10 years.
3. I believe it is worth reviewing if the results are within 5% of target (e.g., 76% confidence level over 10 years).
4. We know that Investment Fund 51 outperformed the market over the past 5 years based on having generated excess return. Was it luck or skill? That is the critical question...

Analytics Results - 3 and 5 years

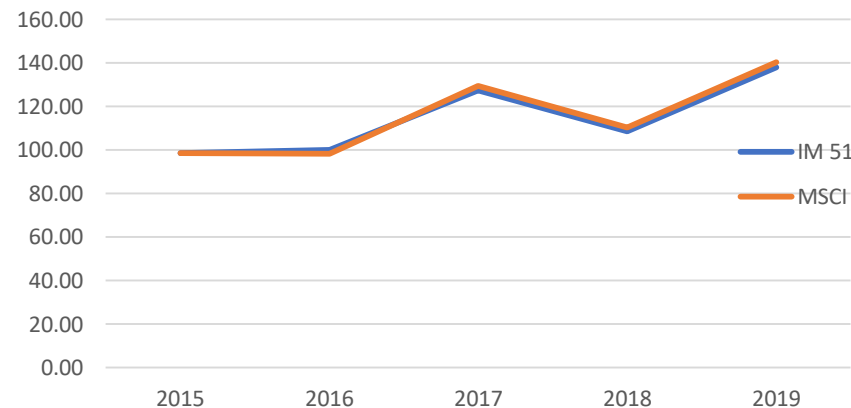
- ▶ We are not confident that IF 51 results are statistically significant over a 3 year period (78.09%).
- ▶ We are confident that IF 51 results are statistically significant over a 5 year period (86.59%).



- ▶ You can do better.

Value of \$100 (net of fees) - 5 years

- ▶ The MSCI Index grew to \$140, the IF grew to \$138.
- ▶ By comparison the Russell 3000 grew to \$169 - a 20% premium.



- ▶ The IF's results were slightly better than the MSCI Index but the higher fees (+50 bp / annum) resulted in a lower end 'value of \$100'.

Exec Summary

1. Investment Fund 51 outperformed the market, on a risk adjusted basis, over the 5 year period as they generated excess return.
2. The Value at Risk results were positive - 241 basis points ahead of the Index in the worst 13 months with losses greater than 2%.
3. IF 51 underperformed the Index (MSCI) once in 5 years but it was by a significant margin.
4. There is between a 86% (5 year) and 78% (3 year) likelihood that the outperformance is not random (i.e., a better methodology).
5. This is not significant for the 3 year timeline.
6. The excess return was largely offset by higher fees.
7. This is a Tier 3 fund, you can do better.

Review Meeting

- ▶ Please call me at 403 818 0671 or email me at greg@justanalytics.ca to book our 90 minute review meeting.
- ▶ Please let me know if you have any questions.
- ▶ Thank you for choosing Just Analytics.ca!

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