#### **TD Asset Management**

Quantitative Education ( 5 Minutes





# Meet our Quantitative Team

# Quantitative investing is a sophisticated approach to investment management and security selection.

It often uses a combination of computer models, data analytics and professional judgement in the pursuit of excess returns (alpha) above a market benchmark (like the S&P 500 Index) while seeking to create an optimal portfolio that balances risk and return.

The Quantitative Team at TD Asset Management Inc. (TDAM) manages low volatility, passive strategies, dividend strategies and alpha strategies by combining the science of quantitative investment with the deep expertise of a broad portfolio management team.

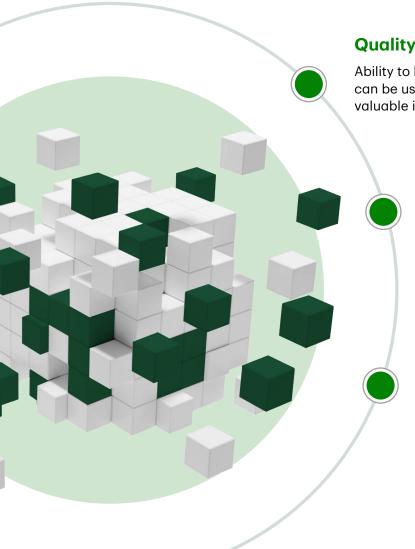


#### **Advantages of Quantitative Investing**

The TDAM Quantitative Team believes that utilizing a quantitative investment strategy can help maximize investment returns while reducing risk by incorporating algorithms and expertise in stock selection. Low volatility strategies consider the volatility of individual stocks and the correlation between stocks to help create low volatility portfolios.

#### Advantages include:

- Easily analyzes large amounts of data to exploit market inefficiencies
- Uses disciplined, highly repeatable systematic processes that avoids common biases in investment management such as loss aversion and herd behavior
- Continuously evaluates new technologies to improve decision making for instance, currently researching how machine learning and artificial intelligence can help investment results



#### **Quality Data**

Ability to leverage large volumes of quality datapoints that can be used to determine what is market noise and what is valuable information.

#### **Research Excellence**

Continuously evaluating new technologies to improve decision making. Researching machine learning and artificial intelligence to improve investment results.

#### **Proprietary Models**

Quantitative models aimed at building optimal portfolios for a given specific objective and a desired level of risk:

- Alpha Models: Seek to identify stocks that will outperform or underperform the market.
- Risk Models: Create a low volatility portfolio or control active risk.
- Dividend Models: Build a portfolio of high-quality dividend paying stocks.

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**Meet our Quantitative Team** 

## **Our Quantitative Strategies:**

#### Risk Focused Alpha Focused



#### Low Volatility Strategies

Uses cutting-edge models aimed at minimizing risks



#### Passive Strategies

Replicate performance of an equity or fixed income index



#### Dividend Strategies

Uses a quantitative method that reviews companies across a variety of quality metrics



#### Alpha Strategies

Uses dynamic multi-factor models that seek to outperform the market

## **Quantitative Investing Features:**



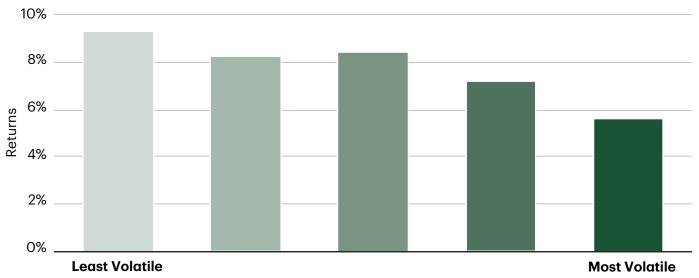
#### **Low Volatility Strategies**

- Uses proprietary risk models and advanced algorithms to create low-volatility portfolios which are designed to tackle measurables risk and foreseeable risks.
- These strategies are expected to outperform market indices in strong down markets and underperform in strong up markets. Expectations are that these strategies outperform more in down markets than they underperform in up markets, to generate better risk-adjusted returns than the market in the long run.

#### **Lower Volatility Stocks Outperform Over Market Cycles**

#### MSCI World ex Canada Index Returns by Volatility Quintile

From Q1 2000 to Q1 2025



**Equally - weighted Trailing Volatility Quintile Portfolios** 

Source: TDAM, MSCI Inc. As of March 31, 2025.



#### **Passive Strategies**

- Replicate performance of a benchmark.
- Technology and proprietary software are employed to monitor risk and maintain tight alignment with index characteristics.
- · Uses a dedicated team of specialists who ensure competitive pricing and access to liquidity.
- Offers low-cost solutions across fixed income and equity investments.



#### **Dividend Strategies**

• Focus on high-quality, dividend-paying companies which are highly profitable, have a record of dividend increases and are generating cash flows to pay their dividends.

#### **Dividend Company Example**



For Illustration Purposes

Source: TDAM. As of March 31, 2025.



#### **Alpha Strategies**

- Looks to exploit market inefficiencies by dynamically investing in factors to generate consistent long-term outperformance.
- Identify factors that can lead to long-term outperformance and identify conditions under which certain factors should be emphasized or muted. While being style-agnostic over the long run, the strategy can vary in style and capitalization depending on what is currently trending in the market.

#### Alpha Strategies Avoid Focus on a Single Investing Style – No Style Always Outperforms

2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Momentum 31.1%	Small Cap 15.7%	Momentum 28.8%	Low Volatility 10.7%	Quality 32.1%	Growth 40.5%	US Disc. Eq. Alpha Fund 30.4%	High Div Yld 3.2%	Growth 42.8%	Growth 48.3%
Quality 28.4%	Value 12.8%	Growth 20.3%	Momentum 7.2%	Growth 30.7%	Momentum 27.3%	S&P 500 27.6%	Value 0.6%	Quality 32.7%	Momentum 44.3%
Low Volatility 26.7%	High Div Yld 12.2%	Quality 17.7%	Growth 6.8%	US Disc. Eq. Alpha Fund 26.6%	Quality 20.8%	Quality 26.5%	Low Volatility -2.6%	S&P 500 22.9%	S&P 500 36.4%
Growth 25.4%	S&P 500 8.1%	S&P 500 13.8%	High Div Yld 6.5%	S&P 500 24.8%	Small Cap 16.8%	Value 26.1%	US Disc. Eq. Alpha Fund -5.4%	US Disc. Eq. Alpha Fund 18.4%	Quality 35.3%
US Disc. Eq. Alpha Fund 21.6%	US Disc. Eq. Alpha Fund 8.0%	High Div Yld 11.7%	Quality 6.1%	Momentum 21.6%	S&P 500 16.3%	Growth 25.2%	Small Cap -11.1%	Small Cap 15.3%	US Disc. Eq. Alpha Fund 31.1%
S&P 500 21.6%	Low Volatility 6.8%	US Disc. Eq. Alpha Fund 11.7%	S&P 500 4.2%	Low Volatility 21.5%	US Disc. Eq. Alpha Fund 13.1%	High Div Yld 20.9%	Momentum -11.4%	Low Volatility 6.8%	Low Volatility 26.5%
High Div Yld 20.8%	Quality 4.2%	Low Volatility 11.3%	Value 1.2%	Small Cap 20.9%	Low Volatility 3.9%	Low Volatility 20.0%	S&P 500 -12.2%	Momentum 6.6%	Value 24.7%
Value 17.6%	Growth 2.8%	Small Cap 9.6%	US Disc. Eq. Alpha Fund -0.7%	Value 19.4%	High Div Yld -0.1%	Small Cap 18.5%	Quality -17.0%	Value 6.3%	Small Cap 22.2%
Small Cap 15.6%	Momentum 1.5%	Value 7.8%	Small Cap -1.9%	High Div Yld 16.3%	Value -0.8%	Momentum 11.9%	Growth -27.0%	High Div Yld 4.0%	High Div Yld 21.8%

Source: TDAM, MSCI Inc. As of December 31, 2024. Quality is represented by the MSCI USA Quality TR (\$CAD), Momentum is represented by the MSCI USA Momentum TR (\$CAD), High Dividend Yield is represented by the MSCI USA High Dividend Yield TR (\$CAD), Low Volatility is represented by the MSCI USA Minimum Volatility TR (\$CAD), Value is represented by the MSCI USA Value TR (\$CAD), Growth is represented by the MSCI USA Growth TR (\$CAD), Small Cap is represented by the MSCI USA Small Cap TR (\$CAD), S&P 500 is represented by the S&P 500 TR Net (\$CAD).

#### Experience, depth and intelligence — meet our Quantitative Team leaders



Joined the firm: 2006 Began Career: 2006

#### Julien Palardy, CFA Managing Director, Head of Quantitative Investing, TD Asset Management Inc.

- Julien is the Head of Quantitative Investing. He oversees the team responsible for the modelling, research and management of various Quantitative strategies, including Low Volatility Equities and Disciplined Alpha Equities, in addition to the teams responsible for the management of Passive Equities and Passive Fixed Income.
- He previously headed the Quantitative Equity Team and, before that, was Lead Portfolio Manager for the firm's Systematic Alpha, Low Volatility and Low Volatility Plus funds. He previously co-managed the firm's Institutional Asset Allocation mandates, designed asset allocation models, and built quantitative strategies for long-only and market neutral equity funds, as well as Canadian and global bond funds.
- Julien holds a B.Sc. and an M.Sc. in Applied Financial Economics, both from HEC Montréal.



Joined the firm: 2017 Began Career: 2005

#### Lin Lin, CFA Managing Director, Head of Quantitative Research and Portfolio Manager, TD Epoch

- Lin is the Head of Quantitative Research and a portfolio manager for TD Epoch. Prior to joining TD Epoch in 2017, Lin was a vice president and equity strategist on the Global Quantitative Research team at Morgan Stanley, where she helped launch their global quantitative product and published research on a variety of topics, including stock selection and ESG investing.
- Before that, she was an assistant vice president and senior research analyst on the Quantitative Research and Portfolio Strategy team at Sanford C. Bernstein.
- Lin began her career as a consulting associate at FMI Corp.
- Lin has a B.A. in Economics from Nanjing University, and an M.A. in Economics from Duke University.



Joined the firm: 2008 Began Career: 1993

## Yuriy Bodjov, CFA Vice President & Director, Lead of Quantitative Research, Quantitative Equity, TD Asset Management Inc.

- Yuriy leads the Quantitative Equity research team where he directs the alpha and risk models research and the design of quantitative equity strategies.
- Previously, he worked as a Director and Portfolio Manager overseeing tactical asset allocation strategies at a large institutional investment fund.
- Yuriy has extensive experience as a Portfolio Manager of U.S. and international equities as well as fixed income portfolios at prominent investment management firms. He also served as a Senior Consultant at an international risk analytics consulting firm.
- Yuriy holds an M.Econ. from the University of National and World Economy in Sofia, Bulgaria, and an M.Sc. from the Université du Quebec à Montréal.



Joined the firm: 1999 Began Career: 1989

#### **Miroslav Stankovic**

Vice President & Director, Lead of Data Architecture, Quantitative Equity, TD Asset Management Inc.

- Miroslav leads the team responsible for Software Development,
   Database Design, Programming and Data Integrity.
- He previously conducted portfolio management, analysis and database programming for the firm.
- Miroslav has an M.Sc. in Electrical Engineering from the University of Zagreb.



Joined the firm: 2015 Began Career: 2007

#### Emin Baghramyan, CFA

Vice President & Director, Lead of Quantitative Portfolio Management, Quantitative Equity, TD Asset Management Inc.

- Emin leads the Quantitative Equity portfolio management team and is the lead portfolio manager for all Quantitative Equity mandates.
- Emin is also the macro strategist of the team and conducts various research projects related to monetary, fiscal, geopolitical and socio-demographic trends. He prepares reports identifying global economic risks and opportunities facing equity markets, interest rates and currencies.
- He was formerly a Senior Global Strategist at an investment research firm and holds a B.Econ. from Yerevan State University and an M.Sc. from John Molson School of Business at Concordia University.



**Joined the firm: 2015** Began Career: 1999

#### Laurie-Anne Davison, CFA, CAIA Managing Director, Head of Passive Investing, TD Asset Management Inc.

- Laurie-Anne is the Head of Passive Investing and is the lead portfolio manager for all passive equity mandates. She previously co-managed Quantitative Equity portfolios and was the lead portfolio manager of the U.S. and Canadian mandates.
- She continues to help manage the various quantitative ETF mandates. Laurie-Anne previously provided risk oversight for Fund of Funds solutions. She gained experience in various research roles covering a variety of asset classes.
- Laurie-Anne holds a B.A. in Administrative and Commercial Studies, Finance and Economics from Western University and an M. Fin. from the Rotman School of Management at the University of Toronto.



Joined the firm: 2016 Began Career: 2015

#### Jean-François Fortin, CFA Vice President & Director, Quantitative Equity, TD Asset Management Inc.

- Jean-François is a Portfolio Manager on the Quantitative Equity team, where he manages Low Volatility and Disciplined Alpha funds. Prior to his current role, he worked on the design and implementation of quantitative investment strategies and equity risk models.
- He also served as a Risk Manager at a private asset management firm, monitoring and analyzing market risk within pension fund portfolios.
- Jean-François holds a B.B.A. in Finance & Management Science and an M.Sc. in Financial Engineering, both from HEC Montréal.



**Joined the firm: 2021**Began Career: 1994

#### Michael Formuziewich, CFA Vice President, Client Portfolio Management, TD Asset Management Inc.

- Michael is a member of the Client Portfolio Management team representing the Public Equity and Quantitative Equity teams, where he represents the firm's guiding principles, process, performance, attribution and portfolio positioning to internal and external clients.
- Michael also represents portfolio management on topics related to financial markets and the firm's investment capabilities with a primary focus on the firm's Public Equity and Quantitative Equity philosophy and process, as well as market and economic outlook. He has prior experience as a portfolio manager with several large wealth management firms.
- Michael holds an Honours B.A. in Business Administration from Sir Wilfrid Laurier University.



## Free yourself from day-to-day investment decisions and experience intelligence in action in your portfolio.

To find out more on alternative investment solutions from TDAM and how they may suit your portfolio, speak with your **investment professional**.

#### **Connect with TD Asset Management**









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