

Datathon 2024

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ChatGPT, LLM and finance

The advent of ChatGPT and Large Language Models (LLM) has a significant impact on the financial industry.

Unlike previous technologies designed to automate the routine and repetitive tasks, this new technology can potentially replace workers in white-collar occupations highly qualified and well paid.

The most advanced LLMs have featured technology features for general use, suggesting that they may have ramifications important economic, social and political issues.

These developments are generating strong interest across various sectors, including accounting and finance, and an adoption rate without previous. Gartner predicts over 80% adoption by companies by 2026, a sharp increase from 5% in 2023 (Cooney 2023).

ChatGPT, LLM and finance

The impact of ChatGPT and other LLMs is being felt keenly in academic circles.

Over a relatively short period (from January 2022 to March 2024), 264 Articles related to ChatGPT and other LLMs have been uploaded to SSRN in accounting, finance or economics networks (Dong, Stratopoulos et Wang, 2024)

The applications of academic research concerned:

Table 6 Most Frequently Used Tasks in Accounting & Finance

Task	Count	Percent
Sentiment Analysis	21	22.3
Question-answering	18	19.1
Classification	15	16.0
Text generation	11	11.7
Logical reasoning	10	10.6

ChatGPT, LLM and finance

The vast majority of research concerned potential applications in the fields of the financial industry

Table 8 Output Categories in Finance

Output Category	Count	Percent
Potential applications	44	64.7
Conceptual	13	19.1
Value realization	11	16.2
Total	68	100.0

ChatGPT, LLM and finance

Billinski (2024) examined the usefulness of sentiment and complexity scores generated by ChatGPT for a sample of UK annual reports.

It shows that both measures contain economically meaningful and value-relevant information, as captured by their association with (i) price reactions to annual report announcements and (ii) future levels and changes in profitability.

Furthermore, both measures predict the dispersion of investors' beliefs, suggesting that they capture differences in how investors process the textual content of annual reports.

The results suggest that investors can use predictive AI models, such as ChatGPT, to help them analyze textual features in annual reports.

ChatGPT, LLM and finance

Crowley and Wong (2022) are more reserved. They demonstrate that the sentiment at the document level presents significant noise in the prediction and suggest that sentiment aggregation at the level of document leads to missed empirical nuances.

The contexts that determine sentiment outcomes vary considerably depending on the outcome, suggesting internal validity weaker empirical evidence for document-level sentiment

The sentiment therefore applies better at the level of specific contexts. rather than at the scale of entire documents.

ChatGPT, LLM and finance

Chapados et al. (2024) show that none of the traditional NLP approaches are able to reliably identify future positive or negative valuation changes of companies.

This does not mean, however, that annual reports (10-Q or 10-K) are not useful for communicating new forward-looking information to market participants. They are simply too long and too complex, and traditional methodologies fail in part because of the complexity of the reports.

Ready-made LLM procedures, even after training on financial goals, may not be worth it because they are as good as simpler character counting approaches.

Refining and training LLMs on financial goals, or having LLMs first learn finance before using their predictions, is a solution and a fruitful avenue for future research.

Financial analysis

All investments involve risk. It is a good idea to know whether a company is making or losing money, and why, before investing.

There are factors that can give you insight into how a business can respond to opportunities and risks.

However, even savvy investors can struggle to assess an area they are not familiar with. If you have difficulty explain what the company produces, or how it makes money, you may find it difficult to understand the risks that could affect its performance.

Financial analysis (continued)

- How a company manages its money says a lot about how well it will withstand stock market changes or unexpected events. Look at the company's performance and ask yourself:
Has the company had ups and downs in recent years?
 -
- Will it borrow to stimulate growth?
- Will it issue new shares?
- Does the balance sheet show that it has enough assets (or current assets) to cover short-term liabilities (or current liabilities)?
- Does the firm provide good dividend income to its investors?
 - Is it more of a capital gain?
 - Is it saving its cash for an acquisition? If so, which one?

Financial analysis (continued)

- Does the company have the potential to grow?
 - What evidence do we have for this fact?
- What do financial statements reveal?
 - Have the company's operating costs changed?
 - If costs increase while the company's sales are not on the upside, it may be a warning signal.

Financial information

- **Annual reports:** These reports provide an overview of the company's activities and financial situation, and indicate whether the company is making or losing money and why.
 - These reports also include statements from the CEO and other executives about company performance, as well as industry trends and events that may have affected stock performance.
- **Press releases:** Public statements from the company provide information about what it considers newsworthy about its business. This may include news about new contracts, mergers and acquisitions, management changes, and earnings releases.
- **Company Website:** In addition to press releases and annual reports, the website may also share information such as quarterly statements, executive speeches, research and reports, online broadcasts, and more.

Financial information (continued)

- **Third Party Websites:** You can obtain information about past stock prices and trends from many websites, including:
 - Globe Investor,
 - Morningstar,
 - Stockwatch,
 - Yahoo Finance
 - etc.
- There are **paid sites** available for professional investors
 - Bloomberg,
 - Aicon,
 - IBES,
 - Compounded
 - etc.
- **Other sources:** – Your broker and other brokerage houses

Financial information (continued)

Chen and Velikov (2020) focused on the expected returns of long-short portfolios based on 120 stock market anomalies considering (1) effective bid/ask spreads, (2) post-publication effects, and (3) the modern era of trading technology that began in the early 2000s.

Net of these effects, the average expected return on the anomaly is 8 bps per month. The strongest anomalies yield only 10-20 bps after taking into account data mining.

They conclude that expected returns are negligible despite cost optimizations that produce impressive net in-sample returns and the omission of additional transaction costs such as price impact.

Financial information (continued)

Cotter and McGeever (2016) studied the persistence over time of 9 well-known stock market anomalies for a sample of stocks British.

They find strong evidence of a decrease in the statistical significance of the most of these anomalies, including yield reversal effects and momentum.

Two anomalies (corporate profitability and stock turnover) remain fairly robust throughout the sampling period.

Variable	Definition	Publication
ACC	Accruals: the change in non-cash current assets minus the change in current liabilities all divided by total assets	Sloan (1996)
AG	Asset growth: yearly percentage change in total assets	Cooper et al. (2008)
B/M	Book-to-market ratio: book equity over lagged market equity	Fama and French (1992)
ISSUE	Share issuance: change in number of shares outstanding from 11 months ago	Pontiff and Woodgate (2008)
PROFIT	Profitability: earnings over book equity	Fama and French (2006)
R1	Return reversal: lagged 1 month return	Jegadeesh (1990)
R212	Momentum: 11 month cumulative return to the start of previous month	Jegadeesh and Titman (1993)
SIZE	Firm size: market value of firm's equity	Banz (1981)
TURN	Stock turnover: trading volume over number of shares outstanding	Datar et al. (1998)

Financial information (continued)

- Alternative sources of information from social networks
 - Seeking Alpha
 - Reddit
 - Stocktwits
 - Wall Street Bets
 - etc.

Fundamental analysis

Fundamental analysis is about understanding a company, the health of its business, and its future prospects.

- Fundamental analysis is a trading strategy that seeks to establish the intrinsic value of a stock using data such as revenue, expenses, growth prospects, and the competitive landscape.
 - The approach seeks to establish the comparative advantages of this company relative to its competitors.
- It uses financial and economic information to study the underlying indicators of a company.
 - **Financial reporting:** Focuses on annual reports and financial statements of the company and its competitors to estimate the future evolution of the company's value.
 - **Economic information:** Analysis of the impacts of the economic situation on the profitability of the company.

Technical analysis

Technical analysis uses a security's past price movements to predict its future price movements.

- It focuses on market prices themselves, rather than other factors that might affect them. - Most signals ignore the value of the stock and instead consider trends and patterns created by investors' emotional reaction to the movements.
 - It focuses mainly on graphical analysis and thresholds on technical indices. It considers that all the fundamentals of the company are reflected in the stock price.
- The field of technical analysis is based on three hypotheses that are verified:
 - Financial markets discount everything that is already incorporated into the price of the security.
 - Prices change according to trends.
 - History repeats itself.

The timing

Active investors are concerned with **beating the market**, that is, getting the best return on their money, Neely (1997) and a higher return than a passive approach.

An investor hoping for a return must know when to buy stocks and when to sell them.

- **For the fundamental approach:** Such a moment is when the intrinsic value of the firm is greater than its market value.
 - If you pay too high a price for even the best stocks in the world, you will never get a good return on your investment. Therefore, an investor must look at fundamentals. In the long run, the stock price should converge to its true fundamental
 - value. In the short run, a stock may have excellent fundamentals but move in the wrong direction due to
 - recent trends and market sentiment.

The timing

- **For the technical approach:** Market trends and investor emotions affect the short-term fluctuation of stock prices, causing the current market price to deviate from its true value.
 - Technical analysis casts doubt on the efficient market hypothesis, which holds that publicly available information, such as past prices, should not help traders achieve unusually high returns.
 - The success of technical analysis suggests that security prices are not always determined by financial and economic fundamentals but can deviate from fundamental values for long periods of time due to the irrationality of traders. In the long run, however, security prices should return to their fundamental values.
 -

Fundamental and technical analysis

Avramov et al. (2017) examined the recommendations of financial analysts presented on the television show **Talking Numbers**. In particular, they evaluated the performance of 1,599 investment recommendations, where each includes a fundamental forecast and a technical forecast.

They show that technicians are able to predict individual stock returns to economically significant degrees out to a one-year horizon while forecasts based on fundamental information are not meaningful.

Drakopoulou (2015) shows that daily stock traders (“Day Traders”) mainly use technical analysis for their stock selection without measuring the intrinsic value of a stock to make their decisions.

It shows the benefit for day traders to incorporate into their decisions

AI and Financial Analysis

As technology evolves and big data explodes, machine learning methods have become popular in the financial field, both among academics and investment professionals.

Gu, Kelly, and Xiu (2020) show that some cutting-edge machine learning strategies generate significant economic gains for investors.

Nevertheless, Muller and Schmickler (2020) show that the performance of some simple trading strategies based on doubly sorted portfolios is comparable to that of these machine learning strategies.

AI and Financial Analysis

Zhu and Sun (2021) propose an integrated approach that combines information fundamental and technical. This integrated approach generates gains substantial economic returns, comparable to those of strategies sorted twice on characteristics related to high transaction and turnover costs and to state-of-the-art machine learning strategies in existing studies.

Table 1: Average Returns to Long-Short Portfolios Sorted on Fundamental or Technical Variables

This table reports average monthly raw and risk-adjusted returns of equal-weighted portfolios separately sorted on four fundamental variables (FSCORE, SUE, ROE, and BM) as well as three technical variables (MA, BOLL, and MOM). At the end of each month, stocks are assigned into three portfolios based on their average FSCORE values from the prior quarter: Low (less than 4), Mid (between 4 and 6), or High (greater than 6). Separately, we also sort firms into portfolios based on their most recent SUE, ROE, and BM quintiles. We take a long (short) position in firms with strong (weak) fundamentals as measured by these fundamental variables. The trading rules based on technical variables are as follows. For MA, we long (short) firms whose short-term MA are above (below) their long-term MA. For BOLL, we take a long (short) position in firms whose prices are below (above) the lower (upper) Bollinger band. For MOM, we long (short) firms that have the largest (smallest) cumulative returns from past 12 months. The portfolio holding period is for one month. The risk-adjusted returns are computed from the Fama-French (2015) five-factor model (FF5). Our sample includes all common stocks from NYSE, AMEX and NASDAQ. Stocks with prices less than \$5 at the end of portfolio formation periods are excluded. The sample period is from January 1985 to December 2016. Newey and West (1987) adjusted *t*-statistics are reported in parentheses.

	FSCORE		SUE		ROE		BM		MA		BOLL		MOM	
	Raw	FF5	Raw	FF5	Raw	FF5	Raw	FF5	Raw	FF5	Raw	FF5	Raw	FF5
Short	0.38	-0.49	0.54	-0.47	0.27	-0.44	0.70	-0.09	0.23	-0.74	0.57	-0.37	0.28	-0.67
	(1.07)	(-5.51)	(1.89)	(-7.33)	(0.65)	(-4.48)	(2.06)	(-1.34)	(0.48)	(-1.95)	(2.12)	(-4.09)	(0.78)	(-3.66)
Long	1.52	0.41	1.62	0.49	1.57	0.39	1.18	0.08	1.02	0.18	1.55	0.59	1.50	0.57
	(5.45)	(6.12)	(6.08)	(7.45)	(5.29)	(5.01)	(4.1)	(1.3)	(2.57)	(0.65)	(5.43)	(4.99)	(4.51)	(4.13)
Long-Short	1.14	0.90	1.08	0.96	1.30	0.82	0.48	0.17	0.79	0.91	0.98	0.96	1.23	1.25
	(7.24)	(8.77)	(11.27)	(10.81)	(5.57)	(6.56)	(2.12)	(2.05)	(1.70)	(2.10)	(7.45)	(5.94)	(4.63)	(4.03)
Standard deviation	2.62		1.79		3.95		3.63		9.62		2.85		4.90	
Skewness	0.62		-0.97		-1.11		0.77		-1.46		1.28		-0.24	
Kurtosis	5.61		5.54		12.65		5.18		25.92		6.22		8.73	
Skewness	0.11		0.60		0.22		0.12		0.00		0.24		0.27	

AI and Financial Analysis

Panel A: Portfolios Double-Sorted on FSCORE and Technical Variables

	Moving Average			Bollinger Bands			Momentum		
	MA1	MA2	MA2-MA1	B1	B3	B3-B1	M1	M5	M5-M1
F1	-0.08 (-0.22)	0.71 (2.07)	0.79 (3.97)	-0.03 (-0.08)	0.88 (2.41)	0.91 (3.90)	-0.10 (-0.22)	0.92 (2.28)	1.01 (3.12)
F3	1.19 (4.14)	1.61 (5.66)	0.42 (3.02)	1.09 (3.95)	2.20 (7.05)	1.10 (7.12)	0.98 (2.89)	2.16 (5.99)	1.18 (4.20)
F3-F1	1.27 (7.15)	0.91 (6.24)		1.12 (5.73)	1.31 (7.10)		1.08 (4.94)	1.25 (6.42)	
FA+TA	1.70 (7.95)			2.23 (9.12)			2.26 (6.92)		

Panel B: Portfolios Double-Sorted on SUE and Technical Variables

	Moving Average			Bollinger Bands			Momentum		
	MA1	MA2	MA2-MA1	B1	B3	B3-B1	M1	M5	M5-M1
SUE1	0.27 (0.88)	0.58 (2.12)	0.32 (1.95)	-0.15 (-0.52)	1.15 (3.72)	1.30 (7.91)	0.17 (0.49)	0.88 (2.51)	0.70 (2.41)
SUE5	1.12 (3.93)	1.74 (6.64)	0.62 (4.76)	1.13 (4.16)	2.25 (7.73)	1.12 (6.88)	0.91 (2.53)	2.00 (5.85)	1.09 (3.63)
SUE5-SUE1	0.85 (9.40)	1.16 (10.58)		1.28 (10.53)	1.09 (8.97)		0.74 (5.76)	1.13 (9.02)	
FA+TA	1.48 (9.10)			2.40 (14.39)			1.83 (6.74)		

Social media analysis

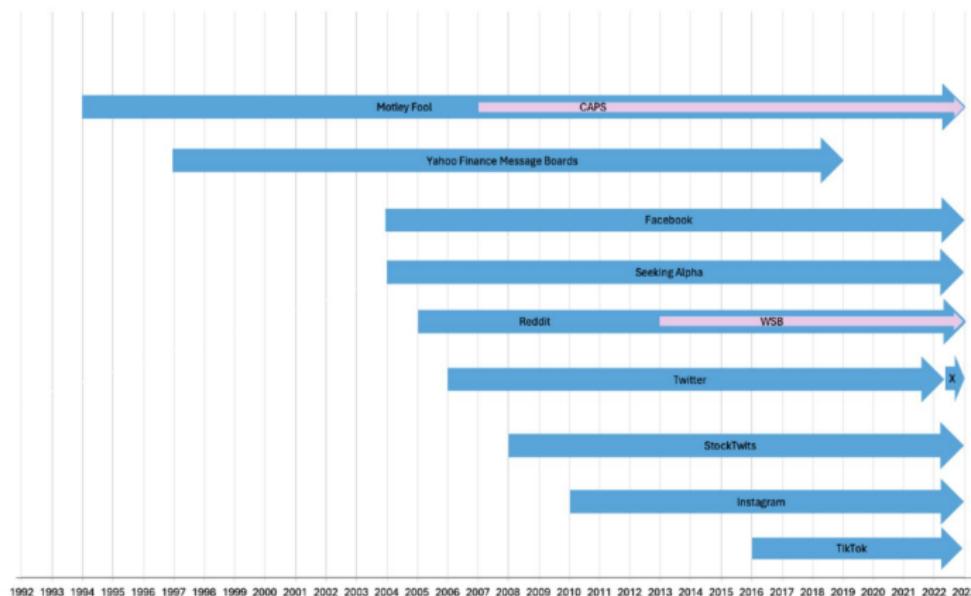
In recent years, there has been a rapid increase in the use of financial-specific social media (e.g., StockTwits, FinTwit, SeekingAlpha, Reddit's WallStreetBets) and the concomitant development of online trading apps and platforms that enable online financial decision-making (e.g., Robinhood and eToro). As social media has grown, it has triggered significant events in

financial markets and the real economy, such as the GameStop trading frenzy and potentially the run on Silicon Valley Bank.

Social media analysis

Figure 1: Evolution of Social Media Landscape

This figure shows the founding year, and in some cases the ending year, of the main social media platforms that have emerged over the past 30+ years



Social media analysis

Dim (2024) analyzes the extent to which non-professional social media investment analysts (SMAs) form correct beliefs about stock returns.

The analysis in this article draws on the opinions and belief statements of SMAs on Seeking Alpha, a popular social finance platform launched in 2004 to promote the exchange of investment ideas among individuals.

Any registered user can contribute their views to Seeking Alpha by submitting a detailed opinion piece detailing an investment thesis (and, more recently, accompanied by an explicit belief statement) on specific stocks.

According to the author's results, more than half of SMAs appear qualified and express beliefs that correctly align with future returns.

There is substantial heterogeneity in skill among SMAs as 13% of SMAs produce a one-week alpha of 61 bps, while the remaining 87% generate only 6 bps.

Social media analysis

Divernois and Filipovic (2023) classify the sentiment of a large sample of StockTwits messages as bullish, bearish or neutral to create a daily measure of aggregate stock sentiment polarity.

On average, polarity is not able to predict returns next day's stock exchanges, but when conditioned on events specific, defined as sudden spikes in message volume, the polarity has predictive power on abnormal returns.

Financial analysis and the law of small numbers

When making predictions about a random outcome, people often succumb to **the gambler's fallacy**.

For example, after seeing a series of heads in a series of fair coin tosses, individuals tend to expect a tail on the next toss, despite the constant objective probability of 50% (Rapoport & Budescu, 1992, 1997).

The gambler's fallacy is often considered to be indicative of the **law of small numbers (LSN)**, the mistaken belief that even a small local sample represents the characteristics of the underlying population (Tversky and Kahneman, 1971).

More generally, in the same way as the biases linked to the overreaction of markets and the neglect of basic information, the LSN illustrates the tendency to draw conclusions too quickly based on too little data.

The analysis of a specific firm is a feature of the LSN. Conclusions can be drawn about thousands of public firms over decades, but do these results apply to a particular firm?

Financial analysis and the law of small numbers

An immediate consequence of LSN is that people behave either:

- Like contrarians: when they predict the outcome of a random sequence, they tend to expect an immediate reversal of trends.
- Like the **hot hand belief**: where people expect a series of similar outcomes to continue.
 - For example, a basketball player in the middle of a streak is often considered more likely to make the next shot, even though the actual outcome does not appear to be correlated with the previous streak. These two seemingly inconsistent phenomena
 - can be reconciled based on people's prior knowledge about data generation.
 - When people know the data generation process, the LSN results in the gambler's fallacy; when they don't know it, they rely too
 - much on the few data points they have observed to make inferences, leading to a belief in a **hot hand**.

Financial analysis and the law of small numbers

The documented empirical regularities are mostly analyzed on large samples over several years.

They cannot be applied directly to a specific asset. We are in the law of small numbers

Idiosyncratic risk is a type of investment risk that is endemic to an individual asset (such as the stock of a particular company), a group of assets (such as a particular sector), or, in some cases, a very specific asset class (such as collateralized mortgage obligations). Idiosyncratic risk is also called specific risk or unsystematic risk.

Financial analysis and the law of small numbers

In this context, the financial analyst cannot only use quantitative or systematic approaches.

He or she must have a good understanding of the firm's potential.

A framework for analysis

- Company Description
- The management team
- The main shareholders
- Information of interest
 - News
 - Perception of the main risks and growth factors
 - Social Network Analysis (Social Financial Analysts)
- Financial performance of the firm
- Technical analysis
- If possible, a simple (such as “Double Sort”) forecasting model

The company description

First of all, it is important to briefly present the firm

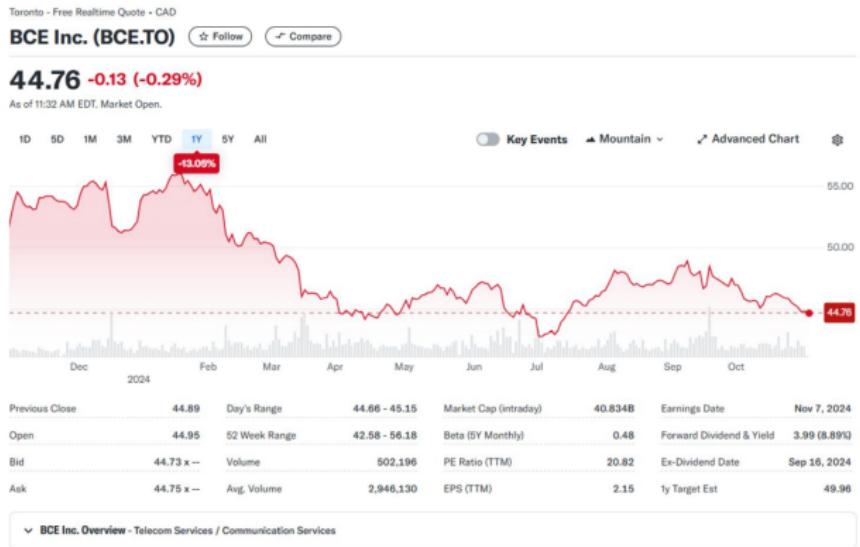
Exemple: BCE (Bell Canada)

PROFILE

BCE provides wireless, broadband, television, and landline phone services in Canada. It is one of the big three national wireless carriers over 10 million customers constituting about 30% of the market. It is also the ILEC (incumbent local exchange carrier—the legacy telephone provider) throughout much of the eastern half of Canada, including in the most populous Canadian provinces: Ontario and Quebec. Additionally, BCE has a media segment, which holds television, radio, and digital media assets. BCE licenses the Canadian rights to movie channels including HBO, Showtime, and Starz.

The company description

Next, you present the basic statistics of the firm including a graph or table of recent performance



The company description

You present the different management teams starting with the CA

Board of directors

As of March 7, 2024

Gordon M. Nixon,
C.M., O.Ont.
ONTARIO, CANADA
Corporate Director
Chair of the Board,
BCE Inc. and Bell Canada
Director since November 2014

Mirko Bibic
ONTARIO, CANADA
President and
Chief Executive Officer,
BCE Inc. and Bell Canada
Director since January 2020

David F. Denison,
FCPA, FCA
ONTARIO, CANADA
Corporate Director
Director since October 2012

Robert P. Dexter
NOVA SCOTIA, CANADA
Chair and
Chief Executive Officer,
Maritime Travel Inc.
Director since November 2014

Katherine Lee
ONTARIO, CANADA
Corporate Director
Director since August 2015

Monique F. Leroux,
C.M., O.Q., FCPA, FCA
QUÉBEC, CANADA
Corporate Director
Director since April 2016

Sheila A. Murray
ONTARIO, CANADA
Corporate Director
Director since May 2020

Louis P. Pagnutti,
FCPA, FCA
ONTARIO, CANADA
Corporate Director
Director since November 2020

Calin Rovinescu, C.M.
ONTARIO, CANADA
Corporate Director
Director since April 2016

Karen Sheriff
ONTARIO, CANADA
Corporate Director
Director since April 2017

Robert C. Simmonds
ONTARIO, CANADA
Chair,
Lenbrook Corporation
Director since May 2011

Jennifer Tory, C.M.
ONTARIO, CANADA
Corporate Director
Director since April 2021

Louis Vachon,
C.M., O.Q.
QUÉBEC, CANADA
Operating Partner,
J.C. Flowers & Co.
Director since October 2022

Johan Wibergh
BARBADOS
Corporate Director
Director since November 2023

Cornell Wright
ONTARIO, CANADA
President,
Wittington Investments, Limited
Director since April 2021

The company description

You can get the information from different news sites.
financial

Key Executives

Amounts are as of December 31, 2023 and compensation values are for the last fiscal year ending on that date. Pay is salary, bonuses, etc. Exercised is the value of options exercised during the fiscal year. Currency in CAD.

Name	Title	Pay	Exercised	Year
Mr. Mirko Bibic	CEO, President & Director	4.56M	--	
Mr. Curtis Millen	Executive VP & CFO	1.15M	--	
Mr. Stephen Guy Howe	Chief Technology & Information Officer	3.21M	--	
Thane Fotopoulos	Vice President of Investor Relations	--	--	
Mr. Robert Malcolmson	Executive VP and Chief Legal & Regulatory Officer	--	--	
Ms. Karine Moses	Senior VP of Sales & Vice Chair of Québec	--	--	
Ms. Nikki Moffat	Chief Human Resources Officer & Executive VP of Corporate Services	--	--	
Mr. Blaik Kirby	Group President of Consumer, Small & Medium Business (SMB)	1.77M	581.57k	
Ms. Devorah Lithwick	Senior Vice President & Chief Brand Officer	--	--	

BCE Inc.

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<https://www.bce.ca>

Sector:
Communication Services
Industry: Telecom Services
Full Time Employees: 45,132

The company description

You present the different committees of the CA

Committees of the Board

Audit committee

L.P. Pagnutti (*Chair*), K. Lee,
M.F. Leroux, J. Tory, C. Wright

The audit committee assists the Board in the oversight of:

- * the integrity of BCE's financial statements and related information
- * BCE's compliance with applicable legal and regulatory requirements
- * the independence, qualifications and appointment of the external auditors
- * the performance of both the external and internal auditors
- * management's responsibility for assessing and reporting on the effectiveness of internal controls
- * BCE's risks as they relate to financial reporting.

Corporate governance committee

M.F. Leroux (*Chair*), D.F. Denison,
K. Lee, K. Sheriff, R.C. Simmonds,
C. Wright

The CGC assists the Board to:

- * develop and implement BCE's corporate governance policies and guidelines
- * identify individuals qualified to become members of the Board
- * determine the composition of the Board and its committees
- * determine the directors' compensation for Board and committee service
- * develop and oversee a process to assess the Board, committees of the Board, the Chair of the Board, Chairs of committees, and individual directors
- * oversee BCE's policies concerning business conduct, ethics, public disclosure of material information, AI governance and other matters
- * oversee BCE's ESG strategy (including climate change strategy and climate-related matters, and supply chain labour issues), and its integration within BCE's overall

Management resources and compensation committee

D.F. Denison (*Chair*), R.P. Dexter,
S.A. Murray, C. Rovinescu,
J. Tory, L. Vachon

The MRCC assists the Board in the oversight of:

- * compensation, nomination, evaluation and succession of officers and other management personnel
- * BCE's workplace policies and practices (including health and safety policies, policies ensuring a respectful workplace free from harassment, and policies ensuring a diverse and inclusive workplace)
- * BCE's exposure to risk associated with its executive compensation and policies and identification of practices and policies to mitigate such risk

Risk and pension fund committee

C. Rovinescu (*Chair*), R.P. Dexter,
S.A. Murray, L.P. Pagnutti,
K. Sheriff, R.C. Simmonds,
L. Vachon

The RPFC assists the Board in the oversight of:

- * BCE's enterprise risk governance framework and the policies, procedures and controls management uses to evaluate and manage key risks to which BCE is exposed
- * BCE's exposure to key risks, except for risks that remain the primary responsibility of another committee of the Board
- * the administration, funding and investment of BCE's pension plans and funds
- * the unitized pooled funds sponsored by BCE for the collective investment of the funds and the participant subsidiaries' pension funds.

The company description

You present the management team

Executives

As of March 7, 2024

Mirko Bibic

President and Chief Executive Officer
BCE Inc. and Bell Canada

Sean Cohan

President, Bell Media
Bell Canada

Stephen Howe

Chief Technology and Information Officer
Bell Canada

Blaik Kirby

Group President, Consumer and
Small & Medium Business (SMB)
Bell Canada

Devorah Lithwick

Senior Vice President and Chief Brand Officer
Bell Canada

Robert Malcolmson

Executive Vice President and
Chief Legal & Regulatory Officer
BCE Inc. and Bell Canada

Curtis Millen

Executive Vice President and
Chief Financial Officer
BCE Inc. and Bell Canada

Nikki Moffat

Executive Vice President, Corporate Services and
Chief Human Resources Officer
BCE Inc. and Bell Canada

Karine Moses

Senior Vice President, Content Development &
News and Vice Chair, Québec
Bell Canada

John Watson

The company description

You present the main shareholders of the firm

Top Institutional Holders

Holder	Shares	Date Reported	% Out	Value
Royal Bank of Canada	50.08M	Jun 30, 2024	5.49%	2,243,895,232
Bank of Montreal/Can/	37.53M	Jun 30, 2024	4.11%	1,681,623,995
CIBC World Markets, Inc.	22.91M	Jun 30, 2024	2.51%	1,026,571,007
FIL LTD	20.78M	Jun 30, 2024	2.28%	931,310,814
National Bank of Canada/FI	18.01M	Jun 30, 2024	1.97%	807,006,481
Caisse De Depot Et Placement Du Quebec	16.74M	Jun 30, 2024	1.83%	749,997,943
Bank Of Nova Scotia /	15.67M	Jun 30, 2024	1.72%	702,009,613
Vanguard Group Inc	15.07M	Jun 30, 2024	1.65%	675,493,205
TD Asset Management, Inc	10.85M	Jun 30, 2024	1.19%	486,151,815
Scotia Capital Inc.	8.53M	Jun 30, 2024	0.94%	382,222,590

Information about the firm

It is important to present information of interest about the firm

Recent News: BCE.TO

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Earnings Preview: BCE (BCE) Q3 Earnings Expected to Decline

Zacks • yesterday



BCE Q3 2024 results to be announced November 7

CNW Group • 29 days ago



Rogers Communications Price Target Lowered to \$63 at Desjardins

PREMIUM MT Newswires • 15 days ago



Is BCE Inc.'s (TSE:BCE) 11% ROE Better Than Average?

Simply Wall St. • 15 days ago



After Rogers' MLSE deal, Leafs-Raptors-Jays IPO close to a slam dunk, say analysts

Financial Post • last month



Bell Let's Talk Day 2025 to Prioritize Youth Mental Health as Young Canadians Face Growing Crisis

CNW Group • 22 days ago



BCE & MacLean Advance Sustainable Mining Practices: Stock to Benefit?

Zacks • last month



Information about the firm

By using the firm's annual report, you highlight the firm strategy and business risks

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Information about the firm

By using the firm's annual report, you highlight the firm strategy and business risks

Key growth drivers

- Building out digital experiences and expanding distribution in order to support audience growth and increase advertising inventory
- Monetization of Bell data through continued scaling of SAM TV and Bell DSP buying platforms as well as expansion of Addressable TV and Addressable Audio
- Ongoing growth in BDU rates
- Delivery of compelling content to maintain strength in audience performance

Principal business risks

This section discusses certain principal business risks specifically related to the Bell Media segment. For a detailed description of the other principal risks that could have a material adverse effect on our business, refer to section 9, *Business risks*.

Advertising and subscription revenue uncertainty

Risk

- Advertising is heavily dependent on economic conditions and viewership, and traditional media is under increasing pressure for advertising spend against dominant non-traditional/global digital services
- The advertising market could be further impacted by cancelled or delayed advertising campaigns from many sectors due to the economic environment
- Bell Media has contracts with a variety of BDUs, under which monthly subscription fees for specialty and pay TV services are earned, that expire on a specific date

Potential impact

- Economic uncertainty could continue to impact advertisers' spending. Our failure to increase or maintain viewership or capture our share of the changing and fragmented advertising market, including digital revenues, could result in the loss of advertising revenue.
- If we are not successful in obtaining favourable agreements with BDUs, it could result in the loss of subscription revenue

Aggressive competition

Risk

- The intensity of competitive activity from new technologies and alternative distribution platforms such as unregulated OTT content offerings, VOD, personal video platforms, DTC distribution and pirated content, in addition to traditional TV services, in combination with the development of more aggressive product and sales strategies by non-traditional global players with a much larger scale

Potential impact

- Increased competitive activity in combination with the development of more aggressive product and sales strategies could have an adverse impact on the level of subscriptions and/or viewership for Bell Media's TV services and on Bell Media's revenue streams

Rising content costs and ability to secure key content

Risk

- Rising content costs, as an increasing number of domestic and global competitors seek to acquire the same content or to restrict content within their own ecosystems, and the ability to acquire or develop key differentiated content to drive revenues and subscriber growth

Potential impact

- Rising programming costs could require us to incur unplanned

Information about the firm

A review should be carried out on social networks, particularly on opinions about:

- Reputation of the firm
- Employee satisfaction
- Recommendations from social financial analysts
- etc.

The financial performance of the firm

You present the firm's performance relative to its competitors

Performance Overview: BCE.TO

Trailing total returns as of 11/1/2024, which may include dividends or other distributions. Benchmark is S&P/TSX Composite index.

YTD Return

BCE.TO	S&P/TSX Compo...
- 8.58%	+ 16.20%

1-Year Return

BCE.TO	S&P/TSX Compo...
- 5.70%	+ 29.03%

3-Year Return

BCE.TO	S&P/TSX Compo...
- 14.12%	+ 15.76%

5-Year Return

BCE.TO	S&P/TSX Compo...
- 1.72%	+ 47.74%

Compare To: BCE.TO

[Compare](#)

Select to analyze similar companies using key performance metrics; select up to 4 stocks.

BCE.TO

BCE Inc.	<input checked="" type="checkbox"/>
44.76	-0.29%

Mkt Cap

CAD 40.834B	<input checked="" type="checkbox"/>
-------------	-------------------------------------

Industry

Telecom Services	<input checked="" type="checkbox"/>
------------------	-------------------------------------

T.TO

TELUS Corporation	<input type="checkbox"/>
22.00	-0.05%

Mkt Cap

CAD 32.604B	<input type="checkbox"/>
-------------	--------------------------

Industry

Telecom Services	<input type="checkbox"/>
------------------	--------------------------

RCI-B.TO

Rogers Communicati...	<input type="checkbox"/>
50.62	+0.10%

Mkt Cap

CAD 27.602B	<input type="checkbox"/>
-------------	--------------------------

Industry

Telecom Services	<input type="checkbox"/>
------------------	--------------------------

TU

TELUS Corporation	<input type="checkbox"/>
15.80	-0.06%

Mkt Cap

23.436B	<input type="checkbox"/>
---------	--------------------------

Industry

Telecom Services	<input type="checkbox"/>
------------------	--------------------------

RCI

Rogers Communicati...	<input type="checkbox"/>
36.36	+0.11%

Mkt Cap

19	<input type="checkbox"/>
----	--------------------------

Industry

Telecom Se	<input type="checkbox"/>
------------	--------------------------

The financial performance of the firm

It is important to understand the consensus on the firm being analyzed

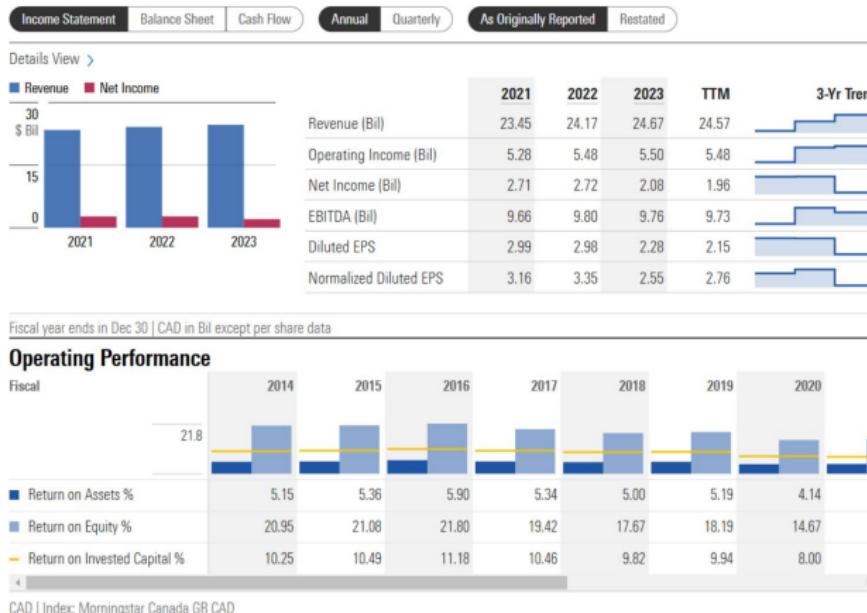
Research Analysis: BCE.TO

View M



The financial performance of the firm

You present the highlights of the financial analysis



The financial performance of the firm

You present the highlights of the financial analysis



The financial performance of the firm

You present the main points of the evaluation ratios

Valuation

Calendar	2017	2018	2019	2020	2021	2022	2023	Current	5-Yr	Index
23.04	23.04	23.04	23.04	23.04	23.04	23.04	23.04	23.04	23.04	23.04
Price/Sales	2.49	1.97	2.32	2.26	2.55	2.14	1.97	1.62	2.18	2.02
■ Price/Earnings	19.54	16.64	18.59	23.04	21.58	18.18	21.79	20.33	20.76	19.01
■ Price/Cash Flow	8.44	6.58	7.24	7.08	7.89	6.44	6.11	5.19	6.71	9.93
■ Price/Book	3.50	2.73	3.28	3.10	3.15	2.92	2.83	2.50	2.96	2.09
Price/Forward Earnings	—	—	15.62	15.58	18.53	16.82	12.08	10.68	16.61	—
PEG Ratio	9.92	8.55	8.48	7.05	0.96	34.97	—	—	—	—
Earnings Yield %	5.12	6.01	5.38	4.34	4.63	5.50	4.59	4.92	4.75	—
Enterprise Value (Bil)	64.94	57.20	64.69	61.38	71.41	65.57	64.04	59.36	65.60	—
Enterprise Value/EBIT	16.69	14.71	15.69	18.39	17.90	16.50	18.29	17.81	17.62	—
Enterprise Value/EBITDA	9.64	8.17	8.77	9.30	9.42	8.56	9.02	8.44	9.07	—

The financial performance of the firm

You present the main points of the evaluation ratios

Key Statistics

[Overview](#) [Growth](#) [Operating and Efficiency](#) [Financial Health](#) [Cash Flow](#)

Valuation				Growth (3-Year Annualized)			
Price/Book	Price/Cash Flow	Price/Sales	Price/Earnings	Revenue %	Operating Income %	Net Income %	Diluted EPS %
2.54	5.39	1.67	20.88	2.54	1.86	-4.93	-6.17
As of Oct 31, 2024				As of Dec 31, 2023 Restated Data			
Financial Health				Profitability			
Quick Ratio*	Current Ratio*	Interest Coverage	Debt/Equity*	Return on Assets %	Return on Equity %	Invested Capital %	Net Margin %
0.51	0.65	2.84	2.45 - 1.43 84 +	2.72 - 2.68 +	11.72 - 10 +	5.55	7.98 - 7.13 +
As of Jun 30, 2024 * Restated Data				As of Jun 30, 2024			

Technical analysis of the firm

You present a technical analysis of the firm

BCE Inc 44.83 -0.06 (-0.13%)



5 Min 15 Minutes 30 Min Hourly 5 Hours Daily Weekly Monthly

Summary

Technical Indicators >



Strong Sell



Moving Averages >



Strong Sell

Summary: Strong Sell

Technical indicators

RSI (Relative strength index)

The Relative Strength Index (RSI) is a momentum indicator.

The RSI measures the speed and magnitude of recent price changes in a security to detect conditions where the security's price is overvalued or undervalued.

The RSI is displayed as an oscillator (a line graph) on a scale from zero to 100.

$$\text{RSI} = 100 \cdot \frac{100}{\frac{\text{Average gain}}{\text{Average loss}}} +$$

The RSI is generally calculated over 14 days (or 3 weeks)

Technical indicators

RSI (Relative strength index)



Technical indicators

MACD (Convergence/Divergence)

Moving Average Convergence Divergence (MACD) is a trend-following momentum indicator that shows the relationship between two exponential moving averages (EMAs) of a security's price.

The MACD line is calculated by subtracting the 26-period EMA from the 12-period EMA. The calculation creates the MACD line. A nine-day EMA of the MACD line is called a signal line, drawn above the MACD line, which can act as a trigger for buy or sell signals.

$$\text{MACD} = \text{12-Period EMA} - \text{26-Period EMA}$$

Traders can buy the stock when the MACD line crosses above the signal line and sell (or short) the stock when the MACD line crosses below the signal line.

Technical indicators

MACD (Convergence/Divergence)



 Investopedia

Image by Sabrina Jiang © Investopedia 2022

Technical indicators

OBV (On Balance Volume) The OBV indicator measures the positive and negative flow of a security's volume over time.

- The indicator is a running total of up volume minus down volume.
 - Up volume is the volume on a day when the price is going up.
 - Down volume is the volume on a day when the price is falling.
 - Each day, volume is added or subtracted from the indicator depending on whether the price is rising or falling.

When the OBV increases, it indicates that buyers will step in and push the price higher. When the OBV decreases, the selling volume exceeds the buying volume, indicating lower prices. In this way, it acts as a trend confirmation tool. If both the price and the OBV increase, it helps indicate a continuation of the trend.

Traders who use OBV also watch for divergence. This occurs when the indicator and price are moving in different directions. If price is rising but OBV is falling, this could indicate that the trend is not

Technical indicators

OBV (On Balance Volume)



Some libraries in Python

- yfinance
 - All the information of the firms on Yahoo Finance can be obtained through this library
- TA-Lib
 - Technical Analysis Library
- Quantlib
 - Especially for quantitative finance
- freapi
 - Fred is a vast American and somewhat international economic database