QUANTAMENTAL INVESTING: AN EMERGING DIMENSION IN PORTFOLIO MANAGEMENT AND SCOPE OF CMAs

Abstract

After the popularization of the concept of Behavioral Finance, the informed investors started identifying and avoiding human biasness while taking decisions. A trend has emerged to invest in the stock market without involving human at the decision process as far as practicable. Though the concept has been gaining interest among hedge funds in developed economies, it is yet at a nascent stage in India. The present paper is aimed at examining the modas operanadi of quantamental investment in general and case of DSP Quant Fund in particular to explore the scope of CMAs in this emerging field of finance.

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Role of CMAs

The popularization of behavioral finance in academics has insisted the fund managers to identify and avoid possible human bias while taking investment decisions. Daniel et. al. (1998) observed that the overconfidence is the most common bias even the expert investment manager may suffer from. Further, reacting to short-term noises, anchoring of past winners and trying to do market timing for investment are some other very common mistake the investors commit time and again. Sometimes, the investment management takes decision on peer pressure. Many a time passive investment strategy outperformed human investment strategy. Bochman (2018) observed that in the US, more than 90% of 'active' investors in the equity market ended up with returns which was less than that of the benchmark (index). In this context, the quant investing or quantamental investing started to receive importance. In such investing philosophy, the investment decisions are heavily influenced by machine (computer) run quantitative model to leave little space for human interferences and his biasness in decision making process.

Quantamental Investing: How does it work?

The process under this method of investing has two parts (i) Developing model on historical data and acceptance on testing and (ii) Taking decision on investment based on real-time data. Any issue or factor which has the slightest chance of impacting share prices directly or indirectly is considered, the source of which is not just limited to financial statements but extends to non-financial statements like social media, director's statement, competitors' staratrgy etc. A model is developed considering historical data with the help of algorithm. This model is put

to test through backward testing as well as forward testing.

Process of Quantamental Investing

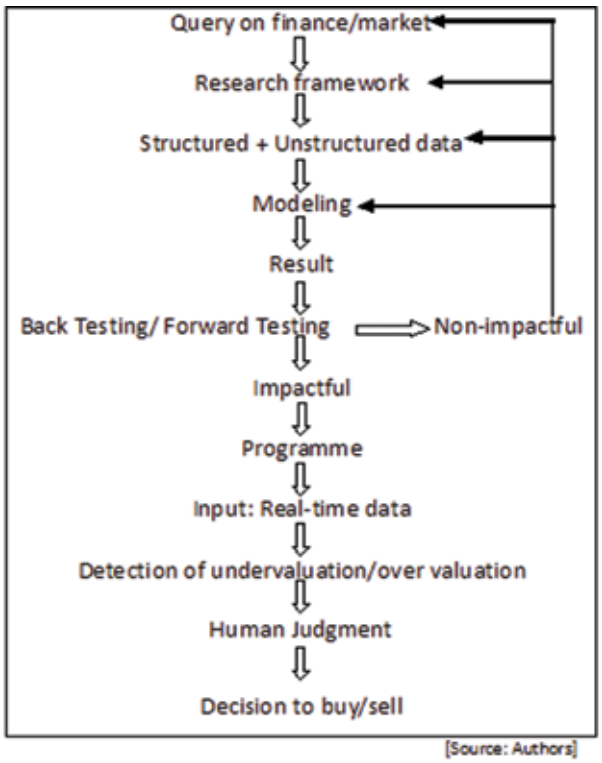

Diagram-1

If the model is effective and impactful then a programming is prepared. This programme would be fed with real-time data generated online as required. On the basis of the result, the quant portfolio manager facilitate (or apply his judgment) to take a decision about buying or selling of shares automatically.

Quantamental Investing: The strategies involved

The investment based on quantitative modeling is called quant investing which is of two types: (i) Quantamental Investing and (ii) Quanta-techno Investing. The former is based on fundamental analysis with rigorous quantitative modeling whereas the latter is based on technical analysis with rigorous quantitative modeling. However, the term 'quanta-techno' is rarely used in practice and sometimes quant investing is termed synonymously with quantamental investing. In this context, it is worthwhile to mention that quantamental investing could deal with the following three types of data which fundamental analysts do not consider.

i. Data could be input on real-time basis into the programme
ii. Data could be derived from natural language processing example, content analysis of huge data available in social media
iii. Data could be derived from the geo-location information and image processing

Quantamental Investing: The Indian experience

Quantamental Investing (QI) is yet to be popular mode of investment in countries like India. The QI technique followed by foreign financial institutions and domestic financial institutions are not reported in public domain. As a result, there is no published paper or research on QI in India. However, some mutual fund houses in India have introduced quant-based schemes and we have tried to have an idea about the `present status of quantamental investing in India.

The first quant fund was introduced by Reliance Mutual Fund in 2008. Then it has changed hands (ownership) and is renamed as Nippon India Quant Fund. At present, two more quant fund schemes are operating in India viz. DSP Quant Fund and Tata Quant Fund. The total asset under management (AUM) in the quant fund schemes stand at Rs. 350 crores, which is a paltry 0.01% of AUM managed by fund houses in India as at April 30, 2020. Even though the expense ratio is less than that in a normal fund, the lack of popularity of quant funds in India may be the not-so-decent return generated by such category of funds. One of the possible reasons behind the failure of quant model in India may be unreliable financial and non-financial data. Arun Kumar, Head, Research Cell, FundsIndia.com commented, 'corporate governance failures, which machine cannot factor in, have also been responsible for the poor performances of Quant Fund in India.' Thus, it may be concluded that incorporation of the corporate governance factor into quant modeling can possibly improve the efficacy of the model and generate better return.

Quant Funds in India with Benchmark

Name of the MF Scheme (Direct Growth Plan)	AUM (Rs.)	Return since launch	Annualised Return upto 31.3.2020	Expenses ratio
Nippon India Quant Fund	20 cr.	6.4%	-20.7	0.19%
DSP Quant Fund	216 cr.	-11.3%	-14.6	0.55%
Tata Quant Fund	99 cr.	-25.8%	-27.3	0.89%
SBI Nifty Fund (Bench Mark)	787 cr.	6.8%	-27.4	0.28%

Table-1 [Source: www.kuvera.com]

The fund managers apply quantamental investment in a way which is in alignment with their principles and operationally suitable to them. For the purpose of understanding the modas operadi of quant fund, the salient features of DSP Quant Fund have been enumerated here:

A Very Brief Case of DSP Quant Fund [DSPQF]:

A. Philosophy: Neutralising human bias from investment decisions

B. Principles:

a. Buy high quality stocks. Do not deviate from fundamental factors
b. Pay reasonable price. Do not buy over-priced stock.
c. Follow Buy & Hold Strategy. Do not churn portfolio frequently.

C. Strategy:

a. Selection: To select stocks from stock index

b. Screening: To eliminate of undesired stock

c. Criteria Based: To select on criteria among selected stocks

d. Diversification: To mitigate risk

D. Tactics: The following investment tactics has been followed by DSPQF as on 31 st. March, 2019.

a. Population for quant portfolio: The fund will select stocks from among the constituent stocks of S&P BSE 200 TRI index

b. Application of Screeners: To weed out undesired stock from the 200 stocks the fund manager applies several screeners on different criteria to achieve investment goal.

i. Fundamental Criteria: There were two criteria.

1. Highly leveraged company: On the basis of debt-equity ratio, DSPQF has identified 14 stocks as risky and eliminated from the prospective investment target.

2. Quality of Earning: On the basis of forensic accounting screener, the fund managers identify possible malpractices and manipulation in accounting figure as reported by the company. The off-balance sheet items are also considered to ascertain quality of reported data. Applying this screener, 40 stocks have been kept out of consideration.

ii. Unfocussed objective: Sometimes companies do not follow the objective of wealth maximization for the shareholders. Mainly, PSU companies and unscrupulous promoters do not follow such objective. DSPQF has screened out 33 stocks under this category.

iii. Technical Criteria: DSPQF is believes in long-term investment philosophy. Thus, the volatile stocks are not considered under this screener. Based on beta of the stock and coefficient of variation, 70 stocks have been eliminated from being the possible investment target.

In total, 99 stocks have been screened and excluded by applying different screener from BSE 200 TRI index. Some stocks are found excluded under more than one screen. The portfolio of Quant Fund is created out of rest 101 stock from the said stock index.

C. Formation of Portfolio: Portfolio was formed on following guidelines:

i. Selecting Quality Stocks: In DSPQF, there are three criteria for identifying quality stocks.

1. ROE: The stocks with higher return on equity is chosen

2. Growth in Past: The historical growth firms' ability to perform

3. Prediction of analysts on future growth: The sentiment of the expert about the stock is ascertained

ii. Fair Price: To avoid over-pricing stocks DSPQF chose two criteria

1. Dividend yield: Unlike book profit which is prone to manipulation, dividend payment indicates real financial strength of the company. Further, the dividend yield is relative measure of stock price

2. Free Cash Flow Yield: Another indicator to ensure fair price

iii. Assigning weight: The weight in the portfolio is assigned for each selected scrip to ascertain amount to be invested that particular scrip

iv. Risk mitigation: The main theme here is to reduce concentration on similar stocks.

1. Company Concentration: Not more than 10% investment in one stock

2. Sector Concentration: Not more than 1% investment in one sector

v. Portfolio Turnover: Semi-annual rebalancing of portfolio to avoid uncontrolled churning

The above tactical criteria are programmed and investment decisions are taken by Quant fund manager on the basis of result as produced by the programme. Two important aspects are to be noted firstly both fundamental analysis and technical analysis are being employed in investment process and secondly DSP Quant fund does indulge in investment on real-time data analysis.

Over a period of 15 years DSPMF has yielded a CAGR of 17.9% and outperformed the 13.1% return of S&P BSP 200 TRI index during the same period.

Return of DSPQF with Benchmark index

[From 30th. Sept., 2005 to 31st. March, 2019]

Parameter	DSP Quant Fund	S&P BSE 200
CAGR	17.9%	13.1%
Return/Risk	0.96	0.58

Table-2 [Source: DSPQF Fact Sheet, 2019]

Quantamental Investing: Skills Requirement

The intricacy of the quantamental investment process not a job of an individual, it requires a team to be successful. In this emerging field of quantamental investment management team needs to have the technical knowledge of - (i) Corporate Finance (ii) Portfolio Management (iii) Data analytics through modeling. In addition to this knowledge of research process is a desired one.

The investment manager must be well acquainted with in related areas of finance and business e.g. business valuation, management accounting, financial accounting, taxation both from domestic and international point of view to name a few. The handling of Big data and formulation of algorithms helps an analyst to move towards quant investing. The investment

and quant managers should have knowledge of research process and be conversant with the flowchart starting from framing the research question to interpretation of results after analysis.

There could be two types of quantamental investment manager --- (1) Quant Investment Manager, and (2) Quant Investment Strategist. The strategist formulate model on the basis of corporate policy and investment manager on the other hand manages the programme which is tested and also applies his judgement in investment decision. There is no hard and fast orgaisniational structure for Quantamental Investment Management. However, an ideal organizational set up for the purpose would be like following:

Hierarchy of Quantamental Investment Management Team

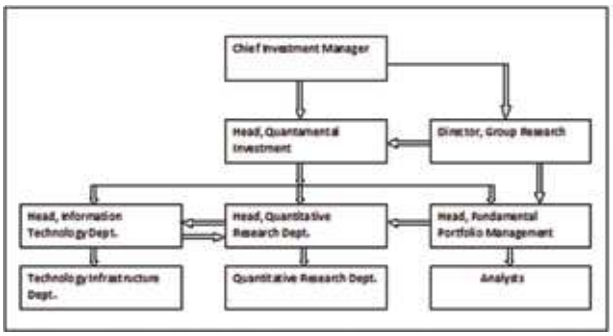

Diagram-3 [Source: Authors]

There should be a Chief Investment Officer (Manager) in each fund house. On the basis of philosophy and policy of the firm, he will issue guidelines to Director of Security Research and Head of the Quantamental Investment Management Team. The Head has to coordinate four sections (1) Security Research Dept. (2) Fundamental Research Dept. (3) Quantitative Research Dept. and (4) IT Dept. The security research team and Fundamental Portfolio Management will determine the principles and criteria for portfolio selection. Quantive finance department would build up the model and would test its efficacy. Finally, IT dept. would implement the real-time online programme. Among the human resources, the Chief Investment Officer, the Director and members of security research dept., the Quantamental Investment Officer, the Fundamental Portfolio Management Dept. must have background in fiancé and exposure towards portfolio management. Thus we understand that, without any doubt that the CMAs are most suited professionals for those positions.

Quantamental investing: Role and scope of Quantamental investing: Role and scope of CMAs

The profession of quantamental investing is very lucrative and highly remunerative because of the very nature of the job. At present, there is hardly any professional or specialized course that would groom anyone to be a successful quantamental investment professional. From the discussion so far, it is understood that Quantamental Investing requires interdisciplinary knowledge having two types of acquaintance. (1) Knowledge and expertise in Portfolio management (2) Knowledge and expertise of data analytics. Knowledge of research process would be an added advantage.

Quantamental Investing involves short-listing and screening of different sectors at the initial stage on the basis of economic analysis and industry analysis.

Quantamental Investing involves short-listing and screening of different sectors at the initial stage on the basis of economic analysis and industry analysis. The next level requires knowledge of picking up scrip based on corporate fundamentals. A candidate who has in depth understanding different issues of financial market and investment management would be most suitable for mutual fund industry in general and quantamental investing in particular. This is where CMAs has a key role to play by analyzing the course structure of many professional or academic courses, one could make sure that trained CMAs are the most sought-after professional for the position of quant managers. The knowledge of financial management, management accounting, business valuation, (input) costing, business environment, etc. which is required in quant investing can be obtained from the well-designed, industry-oriented CMA course.

The understanding about the research process any short-term course on research process can also be very helpful. Further, A CMA with experience as research associate or an M.Phil. (or Ph.D.) degree would most coveted professional in the field. Apart from the theoretical soundness of knowledge, such candidates having knowledge of econometrics and hands-on training on solving research problems using software packages will be hunted after by the industry as consultants and investment managers.

To be a strategist in quant investing who tests mathematical/ statistical model, one needs to have knowledge of data analytics which is altogether a separate discipline. Since quantamental investing works through a team, the CMA will render the expertise in the field of security analysis and portfolio management. There are two ways in which a CMA from non-computer background could be part of quant investing team. Firstly, he/she teams up with people having knowledge of data analytics. Secondly, one can undertake an online course on Big Data Analytics. In this context, it may be stated that a Master's degree holder student from Compute Science or Mathematics with specialisation in artificial intelligence could pursue CMA to be a well-equipped applicant for quantamental investment strategist that will take his career graph to an unprecedented high level.

Conclusion

The idea behind Quantamental Investing is to minimize human biasness while taking investment decision. However, the process will be systematised by the skilled 'human'. He will decide population of stocks to be considered for portfolio formation. He will apply the screeners for filtering the stocks. Thus, the 'brain' cannot be replaced as the nature of data to be fed is to be understood by a financial expert. This is where the role of CMAs will become critical as their strong

The idea behind Quantamental Investing is to minimize human biasness while taking investment decision.

domain knowledge will help to make the correct decisions. The amalgamation of the two techniques viz. quantitative techniques and fundamental investing creates a synergic effect in decision-making. The application of the latter is related to a detailed analysis of a particular sector and its companies. The analysis hovers around the areas like cash flows, earnings, profitability, corporate governance, future strategies and the like. The QI, on the other hand, gives impetus not only to the financial data but also to the non-financial data. Some of the relevant data that are considered important under quantitative techniques include momentum, sentiment, event-driven, economic data-driven, pricing inefficiencies and very importantly quality of data. The analysis of all these data together with support from a person having strong domain knowledge in financial markets is going to yield superior results. Thus, the scope of CMAs in this field is very bright and they can have a lucrative career as the demand of professionals for Quantamental Investing is on rise. MA

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