REVA UNIVERSITY

REVA Academy for Corporate Excellence

PGDM/MBA in Business Analytics
Capstone Project Proposal

Trimester: THIRD TRIMESTER

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Project Name:	**Systematic approach to factor Investing in Stock Market**
Background Information	• Like many financial innovations, alternative indexes became popular in the wake of a crisis. • Investor reaction to major drawdowns, increased focus on diversification, And bubble avoidance set the stage for strategies that would have done better through the turmoil of huge Stock Market Crashes. • A new approach has recently emerged in investment practice known as factor investing, which recommends that allocation decisions be expressed in terms of risk factors, as opposed to standard asset class decompositions.

Statement of the Problem	• As with any investment, there's no guarantee of performance. • Individual factors have tended to perform well at different parts of the economic cycle, and may be less correlated with equity market moves. • A multi-factor investment is diversified across factors and may help to reduce the effect of this cyclicality.
Proposed Solution	• Factors have historically been identified as critical drivers of portfolio risk and return and can now be used to better inform the investment process. • Factors may help investors meet their objectives such as reducing risk, increasing returns, and increasing diversification by providing a better understanding of risk and returns. • We will apply fewer Modelling Approaches to arrive at some Actionable Insights for profit which may be following:

	1. principal component analysis: • We will find subset of variables that are the essential ones within the higher set of variables, and there's a method in statistics called principal component analysis. It is a method that allows to take a high dimensional set of data, projected on to much lower dimensions and give us basic information about what's important and what's not important. 2. cluster analysis: • A second approach that we're going to use is what's called cluster analysis. We will find clusters that somehow have commonality that are relatively homogeneous among themselves. And we will separate the data into clusters where there's one group of companies that act very similarly, from another group that that acts in a different way. • We are going to combine the PCA and the clustering to give us information that we can use in our investment strategies.

	3. Graphical analysis: • Here we take a group of companies and we put them in a network where the connections are indicated through the arcs in the network, the lines that connect the points. And the location on the network tells us, how central that company is, relative to everyone else. So the graphical analysis tells us what's the relationship among companies and how central are they in terms of their influences on other companies and we're going to use this over time to identify patterns that we might find. The courses will change, we will see this graph moving across time, and that will give us additional information. • We need to find ways to identify patterns in the data. And we want to do that through these three methods, the principal component analysis, the clustering, and the graphical analysis.

Detailed Scope of Work:	There are two main types of factors that have driven returns: macroeconomic factors, which capture broad risks across asset classes; and style factors, which help to explain returns and risk within asset classes. Macroeconomic factors: 1. Economic growth: Exposure to the business cycle 2. Real rates: The risk of interest-rate movements 3. Inflation: Exposure to changes in prices 4. Credit: Default risk from lending to companies 5. Emerging markets: Political and sovereign risks 6. Liquidity: Holding illiquid assets Style factors: 1. Value: Relatively inexpensive stocks. Captures excess returns to stocks that have low prices relative to their fundamental value 2. Low size (small cap): smaller companies. Captures excess returns of smaller firms (by market capitalization) relative to their larger counterparts 3. Momentum: rising stocks. Reflects excess returns to stocks with stronger past performance 4. Low volatility: lower risk stocks. Captures excess returns to stocks with lower than average volatility, beta, and/or idiosyncratic risk.

	5. Dividend yield: cash flow paid out. Captures excess returns to stocks that have higher-than-average dividend yields 6. Quality: sound balance sheet stocks. Captures excess returns to stocks that are characterized by low debt, stable earnings growth, and other "quality" metrics 7. Growth: Measure of change in sales and earnings. Measures company growth prospects using historical earnings, sales and predicted earnings 8. Liquidity: Size-adjusted trading volume. Captures common variations in stock trading volumes relative to available shares trading. The objective is to survey, study, and examine various facets and provide better solutions to overcome the challenges in Factor investing.
Support needed from Program office	RP as Mentor and support from other Faculties as may be needed for more ideas and better implementation.

References	[1] Zelia Cazalet. and Thierry Roncalli (October 2014), Facts and Fantasies About Factor Investing [2] David Blitz and Milan Vidojevic ,The Characteristics of Factor Investing [3] Andrew Ang (06-10-2013), Chapter 14: Factor Investing [4] An EDHEC-Risk Institute Publication (March 2020),Factor Investing in Liability-Driven and Goal-Based Investment Solutions [5] Scott N. Pappas, CFA; Joel M. Dickson, Ph.D. (April 2015), Factor-based investing [6] *Douglas M. Grim, CFA; Scott N. Pappas, CFA; Ravi G. Tolani; Savas Kesidis* (April 2017), Equity factor-based investing: A practitioner's guide [7] An EDHEC-Risk Institute Publication (September 2020), The EDHEC European ETF, Smart Beta and Factor Investing Survey [8] An EDHEC-Risk Institute Publication (September 2018), The EDHEC European ETF and Smart Beta and FactorInvesting Survey 2018 [9] An EDHEC-Risk Institute Publication (September 2019), The EDHEC European ETF, Smart Beta and Factor Investing Survey 2019 [10] An EDHEC-Risk Institute Publication (February 2018), Smart Beta and Beyond: Maximizing the Benefits ofFactor Investing [11] EUGENE PODKAMINER (SUMMER 2015 Volume 24 Number 2), The Education of Beta: Can Alternative Indexes Make Your Portfolio Smarter?