Trend Following Diversified Managed Futures Trading with Artificial Intelligent

FYP proposal

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Contents

[1 Introduction 2](#_Toc2727337)

[Overview 2](#_Toc2727338)

[Objectives 2](#_Toc2727339)

[Literature Survey 3](#_Toc2727340)

[2 Methodology 3](#_Toc2727341)

[Design 3](#_Toc2727342)

[Implementation 3](#_Toc2727343)

[Testing 3](#_Toc2727344)

[Evaluation 3](#_Toc2727345)

[3 Project Planning 3](#_Toc2727346)

[Distribution of Work 3](#_Toc2727347)

[GANTT Chart 3](#_Toc2727348)

[4 Required Hardware & software 3](#_Toc2727349)

[Hardware 3](#_Toc2727350)

[Software 3](#_Toc2727351)

[5 References 3](#_Toc2727352)

[6 Appendix 3](#_Toc2727353)

# 1 Introduction

## Overview

Trend following is an investment or trading strategy which tries to take advantage of long, medium or short-term in various markets. Traders who employ a trend following strategy are commonly referenced as Commodity Trading Advisors (CTA). CTAs do not aim to forecast or predict specific price levels; they simply jump on the and ride it. CTAs normally enter in the market after the trend "properly" establishes itself, betting that the trend will persist for a long time, and for this reason they forego the initial turning point profit.

A market "trend" is a tendency of a financial market price to move in a direction over time. If there is a turn contrary to the trend, CTAs exit and wait until the turn establishes itself as a trend in the opposite direction.

Diversified Managed futures refers to an investment where a portfolio of futures contracts is actively managed by professionals, in our case the CTAs. Diversified Managed futures are considered an alternative investment and are often used by funds and institutional investors to provide both portfolio and market diversification. Diversified Managed futures provide portfolio diversification by offering exposure to asset classes to help mitigate portfolio risk in a way that is not possible in direct equity investments like stocks and bonds. In the scope of our project, we dissected the future market into 5 asset classes: Farm produce, non-farm produce, exchange rates, equities and interest rates.

Artificial intelligence (AI) is a term for simulated intelligence in machines. These machines are programmed to "think" like a human and mimic the way a person act. The ideal characteristic of artificial intelligence is its ability to rationalize and take actions that have the best chance of achieving a specific goal, although the term can be applied to any machine that exhibits traits associated with a human mind, such as learning and solving problems. In this project we try to employ AI to identify trends in different markets.

In our project, we try to build a Trend Following Diversified Managed Futures Trading strategy with AI that mimic/outperform the Barclay CTA.

## Objectives

The goal of our project is to build a reliable trading system that employs AI for identification of trends. Our futures portfolio will be actively managed in various assets classes to boost profits and mitigate portfolio risks. Our project will mainly focus on the following objectives:

1. Develop an AI that can identify trend in any given asset class with the corresponding historic price and volume data.
2. Develop a system that can manage trade execution including monitoring in different asset classes, position sizing, opening/closing trades, trailing stop losses.
3. Develop a system that can evaluate strategy performance in the portfolio.

The biggest challenge we expect to face will be the development of a reliable AI to identify trend, to address this challenge we will reference the performance of other technical indicators e.g. simple moving averages, MACD, RSI, OBV to calibrate the expected accuracy of our AI.

## Literature Survey

# 2 Methodology

### Design

### Implementation

### Testing

### Evaluation

# 3 Project Planning

## Distribution of Work

## GANTT Chart

# 4 Required Hardware & software

## Hardware

## Software

https://github.com/bbfamily/abu

# 5 References

Decrypt Fund of Hedge Funds: How to Take Bond Market Risks & Get Stock Market Return, Nie Jun

Stocks on the Move: Beating the Market with Hedge Fund Momentum Strategy, Andreas F. Clenow

Following the Trend: Diversified Managed Futures Trading, Andreas F. Clenow

Beat the Market by Quantitative Trading, Abu

# 6 Appendix

Objective

We try to generate profits by following the trend on different assets classes.

3 components of our trading methodology

1. Determination of Trend – Trade the Trend
2. Management of winners and losers – Trade Management
3. Diversification of capital among various asset classes : Farm produce, non-farm produce, interest rates, securities, exchange rates