# Project Name: Portfolio

CSE-0402 Summer 2021

## Farhana Rahman

Department of Computer Science and Engineering State University of Bangladesh (SUB) Dhaka, Bangladesh swapnarahman40@gmail.com

Abstract—A portfolio formed from a given list of assets is defined as a numeraire portfolio for the list if (a) it is selffinancing, (b) its value is always positive, and (c) zero is always the best conditional forecast of the numeraire-dominated rate of return of every asset on the list. The numeraire portfolio exists if and only if there are no profit opportunities from trading assets on the list. For a sample list of heterogeneous assets (NYSE size-quintile portfolios, corporate bonds, and shortterm bills), numeraire-dominated returns are similar to marketmodel forecast errors and, as abnormal return measures, clearly dominate market-adjusted returns. The paper investigates how quickly prices attain new equilibrium levels after large-block transactions, and measures the associated temporary and permanent price effects. We find that prices adjust within at most three trades, with most of the adjustment occurring in the first trade. The temporary price effect for seller-initiated transactions is related to block size, but the temporary price effect observed for buyer-initiated transactions is no larger than that observed in 100 share trades. Most of the price effect associated with block trades is permanent and is related to block size, regardless of the initiating party. In 1972 a group of electric utilities announced plans to construct Seabrook Station, a nuclear generating facility. In 1988, the lead partner in the venture, Public Service Company of New Hampshire (PSNH), filed for bankruptcy. Examination of the stock price effects of a variety of financial events preceding the bankruptcy filing shows that information about cash flows paid to PSNH security holders affected the common stock prices of PSNH and its Seabrook partners, whereas information about investment and operating cash flows had little or no effect.

Index Terms—The word mostly used in your report.

### I. Introduction

A personal portfolio is an evidentiary document designed to provide qualitative and quantitative information. It is different from a resume in that its intent is not to summarize, but to expand upon and provide evidence relating to accomplishments, skills and experiences, in the classroom, workplace, and community in which you live.

Developed this portfolio to help me understand, document, assess and enhance teaching and learning in a course I taught in fall, 1992. It represents one version of what a course portfolio can look like and what it can do to enhance teaching and learning. The course portfolio is founded upon two central ideas. The first is that the primary aim of teaching is to enhance students' learning, thinking and development. Teaching and learning are interdependent endeavors, and to me it makes no

sense to examine one without examining the other. Therefore I have tried to make this a "learning-centered" portfolio. The second idea is that a single course is an ideal context in which to explore relationships between teaching and learning. Courses represent coherent entities in which teachers integrate content and teaching practices to accomplish specific aims within a particular time period. A course portfolio creates a coherent view of teaching and learning throughout an entire course. It explains what the instructor intends to accomplish with students, how the teacher uses various teaching practices to address these aims and the results of the experience in terms of students' learning, thinking and development. Portfolios provide a way to document the substance and complexity of teaching in a course, and can be used to structure selfassessment as well as peer review. The course portfolio can also be used to document and assess students' learning and thinking, and development.

The key elements of a course portfolio include:

1. Teaching Statement. A teaching statement describes learning goals and teaching practices and presents a substantive rationale for the goals and the methods in the course. Ideally, the statement explains what the professor hopes to accomplish and why, and how the professor intends to accomplish it and why. The statement establishes a conceptual framework that connects a teacher's intentions to actual practice and students' learning. 2.Key assignments or learning activities. The portfolio includes several assignments that address important learning goals and represent the types of work students do in the course.

3.Students' performance on the key assignments. The portfolio includes evidence of students' learning and thinking, either examples or summaries of students' work. Ideally these should represent qualitative differences among students' learning and thinking. For instance, one might select several examples of particularly strong and weak work on an assignment. Or, the teacher might summarize students' work on an assignment by grouping it into broad categories that reflect important differences in the quality of learning and thinking.

4.Student perceptions of teaching and learning. A course portfolio includes student feedback about their experiences in the course. Students' observations and interpretations add a critical dimension to course portfolios, and involves students in shaping the quality of teaching and learning in the class.

5. Course summary. The course summary explains the extent to which students attained the course objectives, and discusses what worked well and what could be done to improve teaching and learning in the course. It is based upon the teacher's analysis of the portfolio material collected over the semester. In fact, Portfolio management is the selection, prioritisation and control of an organisation's programs and projects, in line with its strategic objectives and capacity to deliver. The goal is to balance the implementation of change initiatives and the maintenance of business-as-usual, while optimising return on investment.

#### II. LITERATURE REVIEW

Portfolio selection models are at the heart of the portfolio construction phase. Since the pioneering work of Markowitz (1952, 1959) in the theory of portfolio analysis, based on the mean-variance formulation, several portfolio selection models have been proposed. According to this formulation, an investor regards expected return as desirable and variation of return (variance) as undesirable. In the basis of the Markowitz (1952, 1959) mean-variance formulation, many researchers developed miscellaneous new methodologies. Elton et al. (2007) provide an overview as far as these methodologies is concerned. Apart from the mean-variance model, they cite the single index models, the multi-index models, the average correlation models, the mixed models, the utility models in which the preference function of the investor plays a key role in the construction of an optimum risky portfolio and the models which employ different criteria such as the geometric mean return, safety first, stochastic dominance and skewness. Pardalos et al. (1994), also, provide a review and some computational results of the use of optimisation models for portfolio selection. The portfolio construction problem can be realised in two phases (Hurson and Zopounidis, 1995, 1997): 1 evaluation of the available securities to select the ones that best meet the investor's preferences 2 specification of the amount of capital to be invested in each of the securities selected initially. The implementation of these two stages in the traditional portfolio theory is based on the mean-variance approach. Within this multidimensional context, the MCDM paradigm provides a plethora of appropriate methodologies to support the evaluation of the available securities as well as portfolio synthesis/optimisation. The former (securities' evaluation) has been studied by MCDM researchers using discrete evaluation methods (outranking relations, multi-attribute utility theory, preference dissagregation analysis, rough sets). Studies conducted on this topic have focused on the modelling and representation of the investor's policy, goals and objectives in a mathematical model. The model aggregates all the pertinent factors describing the performance of the securities and provides their overall evaluation. The securities with the higher overall evaluation are selected for portfolio synthesis purposes in a latter stage of the analysis. This stage is realised within the MCDM framework as a MMP/GP problem. The decision maker specifies the portfolio synthesis criteria, his objectives/goals and an iterative and interactive process is

invoked to identify a portfolio that best meets his investment policy. Zopounidis et al. (1998) classify the studies concerning the use of multicriteria analysis in portfolio selection according to their special methodological background (Pardalos et al., 1995; Siskos and Zopounidis, 1993) as follows: 1 MMP 2 multi-attribute utility theory 3 outranking relations 4 preference disaggregation approach. Doumpos (2000) categorises the research studies in portfolio management in four basic classes: 1 models focusing on the analysis and perception of the securities' behaviour 2 forecasting models focusing on the rapid spotting of the security trends 3 security evaluation methodologies focusing on modelling of the investor's preferences 4 portfolio synthesis and optimisation methodologies. Moreover, in the papers of Hurson and Zopounidis (1995),). Zopounidis and Doumpos (2002) and Steuer and Na (2003) someone can find elaborate and detailed reviews as far as the field of multiple criteria portfolio selection is concerned.

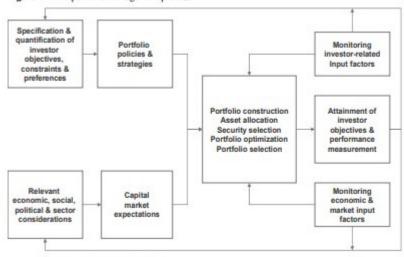
A sample of some significant studies in the field follows. Saaty et al. (1980) propose to construct a portfolio using the analytic hierarchy process methodology. Lee and Chesser (1980) present a GP model to construct a portfolio. Rios-Garcia and Rios-Insua (1983) construct a portfolio using multiattribute utility theory and multi-objective linear programming. Evrard and Zisswiller (1982) use multi-attribute utility theory to perform a valuation of some stocks. Nakayama et al. (1983) propose a graphics interactive methodology to construct a portfolio using multiple criteria. Martel et al. (1988) perform a portfolio selection using the outranking methods ELECTRE I and ELECTRE II. Colson and De Bruyn (1989) propose a system that performs a stock valuation and allows the construction of a portfolio, Szala (1990) performs stock evaluation in collaboration with a French investment company. Khoury et al. (1993) use the outranking methods ELECTRE IS and ELECTRE III to select international index portfolios. The purpose of Colson and Zeleny (1979) is to construct an efficient frontier in concordance with the principles of stochastic dominance. Hurson and Zopounidis (1993) propose to manage the portfolio selection by using the MINORA system that will be presented in the following section. Zopounidis et al. (1998) propose the use of the ADELAIS system to construct a portfolio using some diversification constraints, some constraints representing the investor's personal preferences and multiple stock-market criteria. Tamiz et al. (1996) propose to use GP for portfolio evaluation and selection. Dominiak (1997b) presents a procedure for security selection that uses a multicriteria discrete analysis method based on the idea of reference solution. Hurson and Ricci (1998) propose to combine arbitrage pricing theory (APT) and MCDM to model the portfolio management process. Steuer et al. (2007b) employ six categories in order to place multiple criteria oriented portfolio analysis research into perspective: 1 overall framework 2 portfolio ranking 3 skewness inclusion 4 use of alternative measures of risk 5 DSS 6 the modelling of individual investor preferences. In the first category, he classifies articles that are overview pieces such as Hallerbach and Spronk (2002a, 2002b) and Bana et al. (2001), in which the benefits of embracing multiple criteria concepts in

financial decision making are outlined. Em multiple criteria decision analysis for portf are papers represented by Yu (1997), Jog Bouri et al. (2002). In the category of skewn are papers by Konno and Suzuki (1995) et al. (1997). With regard to alternative there are the efforts by Zeleny (1977), Ko (1991) and Doumpos et al. (1999). In the employing mathematical programming tec the approaches of Ogryczak (2000), Ehn and Zopounidis and Doumpos (2000a). In recognising that some criteria may com economic theory and others may come fi investor, we have Spronk and Hallerbach (1998) and Bana et al. (2004)

# III. PROPOSED METHODOLOGY

All the articles (147) that have been compiled are classified by methodology employed, in Tables 1, 2 and 3. The most (39 studies) are in the category of multi-objective mathematical programming (MMP), followed (25 studies) by goal programming (GP) and so forth. Some of the most popular MCDM methodologies are described in the following sections: MMP, GP, outranking relations theory, utility functions-based approaches, the UTA method and the UTADIS method. For a detailed description of almost all the MCDM methodologies see Zopounidis and Doumpos (2002). Table 1 MCDM and portfolio management: general framework and reviews MCDM and portfolio management Number of articles Studies Steuer et al. (2007a, 2007b, 2006a, 2006b, 2005) Polyashuk (2005) Ahmed and El-Alem (2005) Spronk et al. (2005) Zopounidis and Doumpos (2002) Bana et al. (2001) Zopounidis and Hurson (2001) Hallerbach (1994) General framework 34 Hallerbach and Spronk (2000) All the articles (147) that have been compiled are classified by methodology employed, in Tables 1, 2 and 3. The most (39 studies) are in the category of multi-objective mathematical programming (MMP), followed (25 studies) by goal programming (GP) and so forth. Some of the most popular MCDM methodologies are described in the following sections: MMP, GP, outranking relations theory, utility functions-based approaches, the UTA method and the UTADIS method. For a detailed description of almost all the MCDM methodologies see Zopounidis and Doumpos (2002). Table 1 MCDM and portfolio management: general framework and reviews MCDM and portfolio management Number of articles Studies Steuer et al. (2007a, 2007b, 2006a, 2006b, 2005) Polyashuk (2005) Ahmed and El-Alem (2005) Spronk et al. (2005) Zopounidis and Doumpos (2002) Bana et al. (2001) Zopounidis and Hurson (2001) Hallerbach (1994) General framework 34 Hallerbach and Spronk (2000)

Figure 1 The portfolio management process



Source: Maginn et al. (2007)



Table 2 Classification of MCDM portfolio management studies by methodology (continued uture in the field of financial management, because they offer

Methodology	Number of articles	Studies
MHDIS		Doumpos et al. (2000)
Rough sets theory	2	Jog et al. (1999b)
		Jog and Michalowski (1994)
Combinations of MCDM methods	9	Xidonas et al. (2008, 2007a, 2007b)
		Pendaraki et al. (2005)
		Zopounidis and Doumpos (2000b)
		Hurson and Zopounidis (1997, 1995)
		Zopounidis et al. (1995)
		Rios-Garcia and Rios-Insua (1983)

Table 3 MCDM portfolio management and decision support system (DSS)

Methodology	Number of articles	Studies
Reviews	4	Matsatsinis et al. (2002)
		Zopounidis and Doumpos (2000a)
		Siskos and Spyridakos (1999)
		Zopounidis et al. (1997)
MMP	3	Zopounidis et al. (1998)
		Colson and de Bruyn (1989)
		Siskos and Despotis (1989)
MAUT	1	Dong et al. (2005)
MCBETH	1	Bana et al. (2004)
UTA	2	Siskos et al. (1993)
		Zopounidis (1993)
UTASTAR	2	Samaras et al. (2008, 2003)
Combinations of MCDM methods	2	Zopounidis and Doumpos (2000b)
		Zopounidis et al. (1995)
Intelligent DSS	5	Poh (2000)
		Liu and Lee (1997)
		Tam et al. (1991)
		Lee et al. (1989), ctivate Wind

## IV. CONCLUSION AND FUTURE WORK

The contribution of the MCDM in the portfolio management problems, focusing on the justification of its multidimensional character and on the use of different MCDM methodologies to support them. In the past, the financial theory addressed portfolio management/selection problems in the very narrow framework of optimisation. MCDM comes to broaden this framework and successfully combine sophistication, realism and fast computation. Zopounidis (1999) and Zopounidis and Doumpos (2002) underscore the main advantages that the MCDM paradigm provides not only in portfolio management but in many other financial decision making problems as well: 1 the possibility of structuring complex evaluation problems 2 the introduction of both quantitative and qualitative criteria in the evaluation process 3 the transparency in the evaluation, allowing good argumentation in financial decisions 4 the introduction of sophisticated, flexible and realistic scientific methods in the financial decision making process. But the most important of all aspects is that MCDM enables the decision maker to participate actively in the financial decision-making process and supports him in understanding the peculiarities and the special features of the real-world problem that he faces. In conclusion, MCDM methods seem to have a promising

Tuture in the field of financial management, because they offer a highly methodological and realistic framework to decision problems.

My Development tools are: \* LANGUAGE: HTML, CSS \* WEB BROWSER: INTERNET EXPLORER \* SOFTWARE: NOTEPAD, VS-CODE My future portfolio FEATURES are: \* HOME \* ABOUT ME \* SKILL \* CONTACT ME - YOUR NAME - YOUR E-MAIL - YOUR MESSAGE; SEND BUTTON; RESET BUTTON \* MORE WAYS TO CONTACT \*CV attachment

#### ACKNOWLEDGMENT

I would like to thank my honourable**Khan Md. Hasib Sir** for his time, generosity and critical insights into this project.

#### REFERENCES

- [1] Ahmed, E. and El-Alem, M. (2005) 'On multi-objective optimization in portfolio management', Applied Mathematics and Computation, Vol. 167, No. 1, pp.616–621.
- [2] Albadvi, A., Chaharsooghi, S.K. and Esfahanipour, E. (2007) 'Decision making in stock trading: an application of PROMETHEE', European Journal of Operational Research, Vol. 177, No. 2, pp.673–683.
- [3] Arenas Parra, M., Bilbao Terol, A. and Rodriguez Uria, M.V. (2001) 'A fuzzy goal programming approach to portfolio selection', European Journal of Operational Research, Vol. 133, No. 2, pp.287–297.
- [4] Ballestero, É. (1998) 'Approximating the optimum portfolio for an investor with particular preferences', Journal of the Operational Research Society, Vol. 49, No. 9, pp.998–1000.
- [5] Ballestero, E. and Pla-Santamaria, D. (2003) 'Portfolio selection on the Madrid exchange: a compromise programming model', International Transactions in Operational Research, Vol. 10, No. 1, pp.33–51.
- [6] Ballestero, E. and Pla-Santamaria, D. (2004) 'Selecting portfolios for mutual funds', Omega, Vol. 32, No. 5, pp.385–394.
- [7] Ballestero, E., Gunther, M., Pla-Santamaria, D. and Stummer, C. (2007) 'Portfolio selection under strict uncertainty: a multi-criteria methodology and its application to the Frankfurt and Vienna Stock Exchanges', European Journal of Operational Research, Vol. 181, No. 3, pp.1476–1487
- [8] Belton, V. and Stewart, T.J. (2002) Multiple Criteria Decision Analysis: An Integrated Approach, Kluwer Academic Publishers, Boston