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A SWARA APPROACH FOR INVESTIGATING THE RISK AND INFORMATION PREFERENCES OF USERS OF FINANCIAL INFORMATION WHILE FORMING DECISIONS*

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Abstract

Although the selection of accounting information sources has been investigated across financial information user groups, few studies have explored the risk tolerance behavior of investors and its influence on source selection. This is unfortunate as it is notably acknowledged that risk tolerance level plays an important role in the decision-making behavior of an individual. This study makes use of the Step-Wise Weight Assessment Ratio Analysis (SWARA) approach, one of the newest criteria weight assessment method proposed for multi-criteria decision making. Twenty-four information sources (such as; financial reports, profit announcements, company presentations and CSR reports etc.) usage are evaluated under SWARA. The sample is divided into; risk averse, neutral and seeking investors. The results of the study indicate that information source selection differs between risk groups.

Keywords: Users of Financial Information, Risk Tolerance, SWARA, Decision Making, Accounting Information

Jel Classification: M41, M49, D81

KARAR VERMEDE YATIRIMCILARIN RİSK TOLERANS SEVİYELERİ VE FİNANSAL BİLGİ TERCİHİNİN SWARA İLE ANALİZİ

Öz

Muhasebe bilgi kaynaklarının seçimi, finansal bilgi kullanıcı grupları arasında araştırılmış olmasına rağmen, çok az sayıda çalışma yatırımcıların risk toleransı davranışını ve kaynak seçimine etkisini incelemiştir. Risk toleransı seviyesinin bir bireyin karar verme davranışında önemli bir rol oynadığı düşünüldüğünde, bu konuda bu kadar az çalışma olması literatürdeki boşluğu göstermektedir. Bu çalışmada, çok kriterli karar verme için önerilen, en yeni ağırlık değerlendirme yönteminden biri olan Kademeli Ağırlık Değerlendirme Oran Analizi (SWARA) yaklaşımını kullanmaktadır. Yirmi dört farklı bilgi kaynağının kullanımı (örneğin; finansal raporlar, kar duyuruları, şirket sunumları ve KSS raporları... vb.) SWARA yöntemiyle değerlendirilmiştir. Çalışmanın örneklemi üç gruba ayrılmıştır, bunlar; riskten kaçan, risk nötr ve risk sevendir. Çalışmanın sonuçları, bilgi kaynağı seçiminin risk grupları arasında farklılık gösterdiğini ortaya koymuştur.

Anahtar Kelimeler: Finansal Bilgi Kullanıcıları, Risk Tolerans Seviyesi, SWARA, Karar Alımı, Muhasebe Bilgisi.

Jel Kodları: M41, M49, D81

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 Dokuz Eylül Üniversitesi Bilimsel Araştırma ve Yayın Etiği Kurulunun 07/01/2020 tarihli toplantısında alınan karar ile bu çalışmada yer alan 36 sayılı anket formu Araştırma ve Yayın Etiğine uygun bulunmuştur.

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1. Introduction

Annual reports and disclosures are an important means by which companies communicate firm performance to the public (Healy and Palepu, 2001: 405; Yeoh, 2005: 1) and this information assists users of financial information while forming decisions (Florin-Constantin, 2012: 200). These reports enable investors to form insights into the dealings of the firm (Byard and Shaw, 2003: 356), are a useful aid for making economic decisions and assist in predicting an entity's future cash flow. However, as is addressed under the scope of the International Accounting Standard 1 (IAS 1: 1), there is a wide variety of multiple and different (Briciu and Sorin, 2006: 52) users of financial reports and the general-purpose financial statements are not specifically tailored to any particular user group. The financial statements, although not completely satisfying to all the users groups information needs, meet the common needs of the majority. Users require information to guide their own decision processes (Florin-Constantin, 2012: 201), as such, the multiple and different user groups differ in terms of the information they contemplate under the financial statements when trying to form investment decisions. Not only does occupational status (Guiso and Paiella, 2005: 38) determine the focus of the financial statement user, but it is also supported under literature that, risk tolerance levels of investors have considerable predictive power in decision making processes and selections. Guiso and Paiella (2005) analyzes the inherent relationship between risk association and financial investments and determines that risk tolerance levels effect portfolio selection in ways that are consistent with theory. Additionally, Weber and Milliman (1997); Sjoberg (2001); Dohmen et al. (2011) support that individual investors differ in relation to the risk they are willing take on under certain events. Thus, it is suggested that this behavioral aspect would further differ the information user groups employ when trying to form decisions. As mentioned before, annual reports and disclosures are of the main tools that offer insight into the dealings of the firm and aids in forming economic decisions. However, as these reports are prepared with the purpose of meeting the common needs of the majority, the information that user groups' draw from financial statements are limited. Moreover, researchers such as Cardona et al. (2012); Iannoconi and Sinnett (2011); Barbar (2008) even support that financial statements and notes are not used when making investment decisions. Cardona et al. (2012)'s paper assesses the benefits post-IFRS adoption and examines the claims that investors never read IFRS financial statements, believing that IFRS financial statements are too complex. They state that this is partially because investors require information on a timely basis. As a result, it is not uncommon to see investors focus on other forms of financial and non-financial information when analyzing the vitality of the firm, such as; earnings releases and investor presentations. Trading period; the time the investor is allocated to form a decision to either buy or sell the financial instruments are limited. Thus, it is impossible for investors to search through 60-100 pages of reports to form a buy/sell decision.

With that in mind, we aim to find a significant difference between the information preferences of the risk tolerance groups (risk averse, risk neutral and risk seeking investors). Moreover, we aim to gain knowledge about key financial and non-financial sources that influence investment behavior. The main research question is generated as follows.

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Does differences in risk tolerance levels of investors have an effect on financial information preferences employed under decision making? Various studies have been conducted on investor decision making.

However, there is a lack of studies making use of multi-criteria approaches for analyzing the information preferences of investors across risk tolerance groups.

It is hoped that measuring of financial risk tolerance levels of investors, coupled with a multi-criteria decision-making approach will contribute towards the literature and offer a better understanding the effect behavior has on financial information preferences actively employed under decision making.

The results of this study are as follows. We determine that users' perceptions of usefulness differ significantly across various information sources. Decision-makers are found to demand/employ information from a variety of sources. Moreover, their accounting information source selection is affected by investors risk tolerance levels. The findings produce a ranked list that is supported by prior research. However, our study is extended by employing use of a relatively new multi criteria decision making technique. This technique aided in determining the relationships between various information sources for different risk groups. Thus, based on the results gained from this study, it can be argued that different groups of investors should not be treated as homogeneous. In order to ensure that accounting information sources are employed efficiently, users to be made aware of their potential benefits. This study could be useful for researchers and firms in channeling limited resources towards preparing various reports that would better aid in drawing in potential investors. The resources of the organization are not infinite; thus, firms need to effectively manage their costs in order to receive the most benefits.

The following sections are structured as follows. Under the first part of this study, we examine previous literature addressing the effect of risk behavior under decision making. In the second part, we separate the research design into three sections and provide information on the development process of the analysis. The fourth section shall analyze and discuss the findings of the paper. The fifth section shall conclude.

2. Literature Review

2.1. The Effect of Risk Behavior under Decision Making

The generally accepted normative model of rational choice (Shuxian, 2009: 3), Expected Utility Theory (EUT) argues that all reasonable individuals would wish to follow the maxims of the economic decision model. However, Kahneman and Tversky, (1979) offer several choice problems in which the preferences of participants steadily disrupt the maxims of EUT. Addressing the way individuals choose between probabilistic alternatives that involve risk (Zhou et al., 2014), Prospect Theory (PT) states that people make decisions and assign values based on the potential value of losses and gains rather than the final outcome. Thus, PT predicts insurance/ gambling for small probabilities. However, Kahneman and Tsversky (1979: 263) states that the present analysis falls short of a fully adequate account of these complex phenomena.

As defined by Kahneman and Tversky (1979: 288), gain/losses are relative to a neutral reference point, usually corresponding to current asset position. Meaning that gains/losses correspond with the actual amounts that are received/paid.

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Under EUT, a rational individual is indifferent to the reference point, and they only care about absolute wealth- not the relative wealth. Under PT, the reference point corresponds to an asset position that one had expected to attain.

Guiso and Paiella (2008), in order to accurately measure individuals risk association levels, use a hypothetical situation where they ask participants whether they would be willing to pay to ender a contest with a 50% chance of winning 5000 euros.

Kahneman and Tversky (1979) on the other hand ask participants how they would deal with the issue where there are two situations; first, the participant has a one in four chance of winning $30.000 and second, the participant has a one in five chance of winning $40.000. This design effectively reduces risk-seeking, except for gambling with low probabilities. Kahneman and Tversky (1979) states that risky prospects exhibit inconsistent properties with EUT. When compared with outcomes of higher certainty, Kahneman and Tversky (1979: 263) argues that investors underweight outcomes become merely probable. Referred to as a certainty effect, it contributes towards increasing risk-aversion (risk-seeking) - particularly in choices involving guaranteed gains (in choices involving guaranteed losses).

Qualls and Puto (1989: 179) defines this predisposition towards the attitude of risk avoidance as risk aversion, and researchers have long analyzed the potential affect this behavior might hold for various decision processes. A risk-averse person is seen to choose a riskless outcome with certain expected value. A person who is risk- loving is a person with propensity for risky situations and high-risk, high-gain investments, while risk neutral individuals have been known to be neutral to shifts in risk situations. This behavioral aspect in regard to risk association levels is thought to contribute further to separate the users of accounting information.

Given alternative choices, Kahneman and Tversky (1979) and Guiso and Paiella (2008) examine the responses and determine that, decision makers show an inclination to value certainty above all else and are less willing to trap oneself into risky situations. Grable and Lytton, (1999) form a risk measuring module that include financial scenarios and situations in order to accurately judge the risk profile of investors. They create a diverse risk assessment module that includes inquires of various measures. The 13-item financial risk questionnaire generated was compared against the Survey of Consumer Finance and was tested on university staff. The result indicated that the questionnaire was a valid for describing individual's risk-profile. Grable and Lytton (2003), also employ an e-survey and confirmed the validity the questionnaire Grable and Lytton (1999). Guiso and Paiella (2005), in order to study people's attitudes to risk and their responses, uses a game as an experiment. They develop lottery questions to determine the inherent relationship between risk association to occupational status and financial investments. They find that risk aversion has considerable predictive power for portfolio selection in ways consistent with theory.

Various studies under the literature offer supportive evidence on the effect risk tolerance levels have on decision making. Under their analysis Guiso and Paiella (2005) support that the allocation of accumulated assets, portfolio composition reflects differences in risk preferences and massive heterogeneity in portfolio shares across households could all be traced back to such differences.

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They state that risk aversion affects individual's investment choices and imply that risk averse individuals would forgo relatively higher expected returns according to the levels of return variability. In a similar study, Corter and Chen (2006) find that the riskiness of a respondent's actual investment portfolios are positively correlated with risk tolerance levels. This results show that investors with high risk-tolerance levels are also likely to have higher-risk portfolios. Ingerson (1987) also states that risk tolerance levels affect individuals hedging demands.

More (less) risk tolerant individuals are said to prefer short (long) hedge portfolios, affecting their decisions to buy/sell financial instruments.

Weber et al. (2002); MacCrimmon and Wehrung (1990); Harlow and Brown (1990) support that individuals differ in the way deal with decisions involving risk/uncertainty, and such differences are often described by variation in risk-preferences. While Dunham (1984) supports that personality factors (risk tolerance levels) do not change over short periods of time and that these (risk attitudes) tend to be stable across multiple situations. Therefore, it is expected that these factors would influence the decision-making behavior of an individual.

2.2. Information Preference Variation across Decision Making

The literature on information source selection covers a diverse range of studies that have been conducted different user groups and research methods. McNally, Eng and Hasseldine (1982) determine the importance of disclosing an item of information for two groups of decision makers; financial investors and exchange members. The authors comparatively analyze the usage of the following financial and non-financial items; statement a future dividends, dividend policies, profit announcements, operating and financial data, capital expenditure, earnings per share, number of employees, historical background of the company, personnel hiring, development, advertisement activities and social responsibility. A sample consisting of manufacturing companies listed on the New Zealand Stock Exchange is employed for the analysis. The information is collected via use of a questionnaire that was mailed to a total of 184 respondents. They were asked to score the importance of the financial and non-financial items listed under the questionnaire from 1 (no importance) to 5 (very important) according to their personal preference. The results were further examined by performing a t-test to determine the existence of a significant difference in mean scores for the two groups. The results of the analysis indicate that although the two groups attribute different importance to the information sources, few of these are statistically significant. Financial investors find voluntary based information to be much more useful than mandatorily reported information. Moreover, they determine that statement of future dividends, dividend policies, profit announcements, capital expenditures and earnings per share score higher in terms of usefulness for investors, while social responsibility information, advertisement information and personnel hiring are found to be the least useful.

Ghani, Laswad, and Tooley (2009) analyze the usage of firms' balance sheet, income statement, cash flow statement and disclosures as tools in decision making. The authors examine the degree a particular source (information) would enhance the investors performance. Moreover, they analyze the perceived ease of use items. Sixty-two New Zealand public accounting practitioners take part in the study and the analysis consists of an experimental task involving participants comparing two firms and responding to an investment decision. Moreover, in order to determine the respondent's preference for financial statements prepared in three different digital formats (PDF, HTML and XBRL) a post-experimental questionnaire is conducted.

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They find that the respondents' perceptions of usefulness differ significantly, while ease of use remains similar across the three digital reporting formats. Moreover, the respondents' preferences were also found to influence the reporting format. Cohen, Holder-Webb and Zamora (2015) analyze the usage of nonfinancial information consisting of economic performance (market share, product innovation, customer satisfaction, turnover and retention, employee satisfaction and quality awards or certification), corporate governance (executive compensation, audit process, control procedures, innovative management strategies and board selection process) and corporate social responsibility (product safety, employee benefit plans, health and safety records, employee training, employment ratings and programs, political, human rights information, employee diversity and humanitarian initiatives). A survey consisting of 228 respondents who provide investment advice on an active/professional basis is conducted by a professional online survey organization and the results are rated in terms of how valuable the information would be in helping make better investment recommendations. Moreover, the authors study the demand for the nonfinancial information across various professional investors. They find that professional investors require greater detail for economic and governance policies than their non-professional counterparts, while both groups demand for CSR information seems to be increasing. They also analyze the information presentation preferences for investors and determine that access to a wide variety and comparable of information that has been audited by neutral third parties contains a higher demand. Ultimately, they argue that both groups need differ between governance, economic and social responsibility information.

Analyzing the usage of financial and non-financial information, Weetman and Tsalavoutas (2019) identify seven information sources employed by financial analysts; annual financial reports, industry performance, management quality perception, macroeconomic performance, insider information on firm performance, quantitative and technical analysis according to market data. The authors analyze the role and usefulness of accounting information in forming investment decisions. A survey is conducted in the context of China with 186 professional investors illuminating their decision-making process. The authors argue that in order to elevate the effects of information asymmetry, it is important to understand the financial information users' needs and preferences. They state that information intermediaries, such as; analyst and the media are failing in fulfilling their role as suppliers. Regardless, when the authors analyze the information preferences for users, they determine that financial and non-financial information distributed by the firm scores higher in terms of usefulness. Moreover, information on the firms' operational environment and the industry scores similarly. Finally, the authors determine that technical analysis and the information generated in not preferred by the respondents.

O'Reilly (1982) analyzed the usage of the following information sources; handbooks, procedures, updates in memoranda, corrective newsletters, supervisors, workgroups, and individuals outside of work groups, clients and training programs. They held meetings with 163 respondents across 4 branches of welfare agencies. The respondents were eligibility workers responsible for screening and processing welfare applications. They suggest that decision makers select information on criteria other than of perceived quality. They argue that trustworthiness is a valuable criterion that dictates investors' information source selection. Moreover, accessibility of the information is found to be a determinant of source selection.

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Bence, Hapeshi, and Hussey (1995) analyze the usage of the annual and interim financial reports of firms, personnel interviews, company press releases, product information, profit announcements, organized firm visits, company presentations, conversations with firm managers, public relation departments, trade journals, industry and government statistics and online data streams. The authors conduct a cluster analysis and assess the usage of different information sources across stockbrokers and institutional investors. 21 individuals were interviewed, and the results of the analysis indicate that users employ a limited range of sources[4]. Short term information is routinely employed, profit announcements and interim financial reports are perceived as extremely important. On the other hand, timely and complete information is seen to aid short term decision making better.

Finally, Moizer and Arnold (1984) make use of the; company's annual reports, chairman statements, directors' reports, balance sheet, profit and loss account, supplementary current cost information, value-added statement, auditor's report, employee newsletters, government industry statistics, financial press, trade journals, conversations with the firm personnel and investment analyst information. They analyze a sample of 202 analyst and find no significant difference between those preferring technical or fundamental analysis. Moreover, the authors determine that except for audit reports and value-added statements, the institutional investors' employs use of the firm's financial reports and employee reports much more consistently.

While many studies have investigated information source selection in different user groups, few have explored the risk tolerance of investors and how it interacts with source selection. Thus, in the following section a multi-criteria decision-making model shall be employed in order to shed light on the effect risk tolerance has on decision making.

3. Research Design

The research design that shall be employed under the study is descriptive and experimental in nature. The first stage of the study describes the sample in accordance to literature and determines the risk association level; while the second stage further analyzes information preferences under the decision process, simultaneously considering the samples previously coded behavioral inclination. Under the first stage of the analysis, the authors exploit questionnaire-based qualitative (Weber et al., 2002; Blais and Weber, 2006) measures and determines the type of analyst risk association. The questionnaire shall be conducted on a sample of investors buying/selling financial instruments. The sample shall be collected via use of snowball sampling technique. An interview shall be set up with those that respond favorably to the inquiries. In order to avoid observer effect bias and keep the sample from modifying their, the questionnaire shall be employed right before the information preference analysis. The potential moderating effect of age, gender and education shall also be accounted for and a sensitivity analysis will be performed at the end of the study to determine the predictive implications.

The second stage of the study shall employ a Stepwise Weight Assessment Ratio Analysis (SWARA) approach. Evaluation weight of the analyzed criteria is a crucial piece of evidence in properly discovering its effects on decision making.

[4] With the decision taken at the meeting of Dokuz Eylül University Scientific Research and Publication Ethics Board dated 07/01/2020, the questionnaire form numbered 36 conducted in this study was found in accordance with Research and Publication Ethics.

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Thus, it is not uncommon for studies to employ use of a weighted model; for example, the Analytic Hierarchy Process (AHP) proposed by Saaty (1977; 1980) is a pairwise comparison technique that applies both qualitative and quantitative decision criteria. Analytic Network Process (ANP), on the other hand, allows systematic analysis via analyzing sophisticated interrelationships among the decision attributes (Saaty, 1996; Jharkharia and Shankar, 2007). When compared to previous methods, SWARA [proposed by Kersuliene et al. (2010)] is the one of the newest criteria weight assessment method.

Upon analyzing the steps undertaken in SWARA, we see that it takes on a crucial role in assessing and calculating the weights of employed criteria [accounting information sources]. The analysis begins with determining the importance of each item. Next, items are ranked according to perceived importance and assigned a significant value. The importance of each criteria is determined by experts who use his/her implicit knowledge, experience and information. The ranks to the groups are then calculated according to the mediocre value of ranks (Kersuliene and Turskis, 2011). The steps which are used in the calculation of the aforementioned weights are explained in the following section.

3.1. SWARA

The procedure of applying the SWARA method consists of 5 steps (Kersuliene et al., 2010).

Step 1. The evaluation criteria are sorted in descending order via importance level

j: the evaluation criterion from the most important to the least important criteria

j = 1, 2, 3, ..., n

l: the expert; l = 1,2, ..., L

Step 2. In this stage, the relative importance level of criteria are graded based on previous criteria by experts. The assessment is called the comparative importance of average value *(s_{jl}).*

s_{jl}: the importance of j. evaluation criterion according to (j +1). evaluation criterion according to the expert *l*

Step 3. The coefficient *(kjl)* values shown in Equation 1 are calculated.

$$k_{jl} = \begin{cases} j = 1 \implies 1 \\ j > 1 \implies s_{jl} + 1 \end{cases}$$ Equation 1

Step 4. Following this, weights of q_{jk} values are recalculated in Equation 2.

$$q_{jl} = \begin{cases} j = 1 \implies 1 \\ j > 1 \implies \frac{q_{jl-1}}{k_{jl}} \end{cases}$$ Equation 2

w_{jl}: the importance level of j.evaluation criterion according to expert l;j = 1, 2, 3,..., n

k: evaluation criterion; k= 1, 2, 3, ..., n

Step 5. Weights of the evaluation criteria are calculated with Equation 3.

$$w_{jl} = \frac{q_{jl}}{\sum_{k=1}^{n} q_{kl}}$$ Equation 3

Step 6. The final step of this method is the integration of expert evaluations. As is shown in Equation 4.

w_j: the integrated importance level of j.evaluation criterion; j = 1, 2, 3,..., n

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$$w_j = \sqrt[L]{\prod_{l=1}^{L} w_{jl}}$$ Equation 4

Since its development, the SWARA method has been extensively employed in literature- its usage spanning across various fields and disciplines [for example, the selection of the best location for a factory to deciding the best candidate for a job]. For example, Erdoğan et al. (2019) used this method to select the best engine fuel, Zolfani et al. (2013) evaluated the characteristics of different locations to find the best optimal area to build a mall. Heidary Dahooie et al. (2018) evaluated IT personnel candidates to hire the most qualified individual for the job. Moreover, Yazdani et al. (2016) assessed green suppliers' financial performance, while Ighravwe and Oke (2019) evaluated various maintenance strategies for public buildings. However, despite these studies, there has not been any research which uses the SWARA method for evaluating the stock market. This is because the SWARA method is a relatively new technique (Kersuliene et al., 2010) and investment appraisal research has been conducted via use of various different multi-criteria decision making models. For example, Ferrara et al. (2017) analyze the stock performance based on profitability criteria. The stock performance is evaluated via use of a multi-dimensional analysis of preference (LINMAP) method.

The analysis aided in determining the highest performing stock in a portfolio. Thus, the SWARA approach is an appropriate fit for conducting our analysis.

The survey shall comprise a sample of financial analysts located in Izmir/Turkey as the SWARA approach under the secondary stage of the study requires the researcher must be physically present in order to clearly explain the process to the participant. It must be stressed that the financial decisions of the analysts themselves aren't under consideration, but the process employed while reaching the decision. The results of the coded questionnaire and the preference analysis of participants shall be cross referenced in order to determine whether there appears to be a trend in the information used to reach decisions made by financial analysts. The information gained shall then be separated into groups according the risk association levels of the analysts. To examine the main research question of the study Does differences in risk tolerance levels of investors (risk averse, risk neutral and risk seeking) have an effect on financial information preferences employed under decision making? the coded data shall be analyzed in order to serve as an indicator of the current trend in decision statistics. We aimed to find patterns that weren't predicted by our pre-conceptions or current knowledge.

As mentioned before, in order to analyze our research question and investigate the relationship between risk tolerance levels of investors and their financial information preferences in decision making, the modified 30 item Domain-specific Risk-attitude Scale of Weber shall be employed under the analysis. Weber, Blais and Betz (2002): Blais and Weber (2006) based their theoretical foundation on the studies of Ajzen, (1991) and Ajzen and Fishbein, (2000) and develop a scale that measures the risk attitude of individuals (risk averse, risk neutral and risk seeking investors) in two ways; the degree an individual avoids/seeks out risky options, the individuals attitude towards perceived risk (labeled as risk seeking or adverse). The authors suggest that differences apparent in risk attitude (between domains/the 5 sub-scales) might be the result of differences in marginal value for outcomes. The authors analyze the risk tolerance behavior of individuals and attitude towards perceived risk across five separate domains: financial, health/safety, recreational, ethical, and social decisions.

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The final scale consists of 5 content domains (health/safety, ethical, social, and recreational risks). The scale was tested on a 7-point Likert scale (ranging from not at all to extremely risky).

The purpose of the conducted exploratory factor analysis by Weber, Blais and Betz (2002) was to explore the possible underlying factors, without affecting the outcome (Child, 1990). They determined that the scale developed for the measurement of risk tolerance levels and risk attitude of individuals successfully reflected the underlying factor structure according to proposed hypothesis. In terms of the reliability of the results, we see that the correlation structure of the employed variables were significant ($p<0.01$), which indicates a suitability for the factor analysis. Additionally, the commonalities presented under the study were above the limit. The final scale was composed of 5 factors, successfully reflecting the theoretical background of Weber, Blais and Betz (2002)'s proposed hypothesis, explaining 50.3% of the total variance (however, this number is between 0.70-0.89% for each subscale item). The KMO score of the subscales are acceptable and the overall alpha level is significant ($p<0.05$), thus, the data is factorable. This is indicative that the scale is suitable for replication and by doing so we shall be able to determine the degree to which an individual appears to avoid or seek out risky behaviors.

However, in order to employ use of the modified Domain-specific Risk-attitude Scale of Weber, Blais and Betz (2002): Blais and Weber (2006) under our study, the scale instrument first needs to be adapted to the characteristics of the Turkish language, cultural and social structures. The cross-cultural adaptation of an instrument is a common method of employing use of scales in various fields of study. Çınar (2013) Öner (2009), Tez ve Dinç (2017), Dinç, Uzunöz ve Güneş (2018), Bayramoğlu (2019) translate and employ use of the modified and unmodified DOSPERT, testing the overall validity and reliability of the scale in Turkey. The results show that the model indicates a similar factor structure with the original scale. Thus, the modified 30 item DOSPERT Scale as translated and adapted by Bayramoğlu (2019), shall be employed in measuring the risk tolerance levels of Turkish investors. Finally, the financial information source selection consists of items identified under our literature review (Weetman and Tsalavoutas, 2019; Bence, Hapeshi and Hussey, 1995; O'Reilly, 1982) are as follows; *Data Regarding Other Firms Operating in the Same Industry, Balance Sheet, Adjustments to Financial Statements from a Previous Period, Other Information Sources, Disclosures to the Financial Statements, Economic and Trade Journals, Annual Activity Reports, Financial Analyst Reports, Income Statement, Stock Charts (Changes in Price and Volume), Public Oversight, Accounting and Auditing Standards Authority Announcements of Companies, Corporate Social Responsibility Reports/Sustainability Reports, Global Market News, Macroeconomic Data, Cash Flow Statement, Online DataStream Sources, Statement of Owners Equity, Industry Performance News, Criminal Announcements, Administrative Fines, Other Sanctions and Measures Given to the Company by the Capital Markets Board, News on the Company, Profitability Announcements, Company Presentations, Information Provided by the Company on the Official Website, and finally, CEO, CFO and Management Interview*s. Selection of an adequate sample size in such qualitative research requires usage of judgment (Sandelowski, 1995) in determining the cut-off point for the information collected. Thus, the data collection was finalized upon reaching effective saturation across the 3 investor categories (Morse et al., 2002). The final sample size is 15. A table showing the general descriptive statistics of the respondents are presented below.

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Table 1. Descriptive Statistics of Respondents

Variable	Characteristic	Sample Size
Gender	Female Male	8 7
Age	22–35 >35	9 6
Education level	College degree Postgraduate degree	4 11

4. Findings and Discussion

Following the steps identified under the previous section, the respondents are divided according to their risk tolerance levels. The final sample consists of 15 investors divided across risk averse (2), risk neutral (8) and risk seeking (5). Next, the weight (wji) of each, criteria based on respondent results, are determined according to Equation 3. This process afforded the researchers with the individual criteria weights (wj1) to be included under Equation 4. The geometric average of the weighted variables provides the overall preference level. The results of the calculation for Risk Seeking investors are provided under Table 2 as an example.

The SWARA approach is applied across each group, and the rankings of the accounting information sources.

The scoring for risk averse, risk seeking and risk neutral investors are summarized under Table 3 and grouped within ranks under Table 4. A visual analysis of the presented data indicates that the user's perception of usefulness among the information sources differ significantly. This argument is supported by Arnold and Moizer (1984) who argues that different groups of investors should not be treated as homogeneous. Decision-makers of varying risk tolerance levels demand information from a variety of sources and have different preferences. Moreover, decision makers use specific groupings of information and do not base their decisions solely on the information contained in the annual report (Arnold and Moizer, 1984: 195; Weetman, Collins and Davie, 1994: 59). The results gained from the application of SWARA offers supportive evidence for answering our research question. We determine that the risk tolerance levels of investors (risk averse, risk neutral and risk seeking) have an effect on financial information preferences employed under decision making.

Table 2. Result of Equation 3 and 4 for Risk Seekers

Criteria Name	Wj_1	Wj_2	Wj_3	Wj_4	Wj_5	Average	Rank
Balance Sheet	0.0860	0.0745	0.0860	0.0293	0.0860	0.0674	2
Income Statement	0.0860	0.0745	0.0860	0.0342	0.0860	0.0695	1
Cash Flow Statement	0.0114	0.0782	0.0782	0.0395	0.0860	0.0473	8
Statement of Owners Equity	0.0114	0.0710	0.0860	0.0360	0.0745	0.0451	12
Disclosures to the Financial Statements	0.0114	0.0342	0.0745	0.0860	0.0782	0.0455	11
Annual Activity Reports	0.0395	0.0546	0.0745	0.0860	0.0745	0.0635	3
Corporate Social Responsibility Reports/Sustainability Reports	0.0455	0.0061	0.0710	0.0114	0.0055	0.0165	17
Stock Charts (Changes in Price and Volume)	0.0782	0.0745	0.0745	0.0710	0.0114	0.0512	6
Macroeconomic Data	0.0745	0.0860	0.0360	0.0546	0.0546	0.0585	4
Public Oversight, Accounting and Auditing Standards Authority Announcements of Companies	0.0710	0.0860	0.0171	0.0745	0.0710	0.0560	5
Criminal Announcements, Administrative Fines, Other Sanctions and Measures	0.0745	0.0455	0.0546	0.0455	0.0395	0.0506	7

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Given to the Company by the Capital Markets Board							
Company Presentations	0.0745	0.0114	0.0114	0.0171	0.0061	0.0159	18
Information Provided by the Company on the Official Website	0.0114	0.0114	0.0114	0.0067	0.0067	0.0092	24
Data Regarding Other Firms Operating in The Same Industry	0.0171	0.0205	0.0114	0.0745	0.0114	0.0202	16
Global Market News	0.0205	0.0860	0.0205	0.0205	0.0455	0.0320	13
Company Presentations	0.0360	0.0114	0.0287	0.0782	0.0171	0.0275	15
Industry Performance News	0.0287	0.0360	0.0342	0.0287	0.0205	0.0291	14
Financial Analyst Reports	0.0067	0.0114	0.0293	0.0114	0.0342	0.0154	19
Adjustments to Financial Statements from a Previous Period	0.0546	0.0293	0.0455	0.0860	0.0360	0.0468	9
Profit Announcements	0.0860	0.0287	0.0395	0.0745	0.0287	0.0461	10
Company Presentations	0.0342	0.0067	0.0067	0.0114	0.0114	0.0115	22
Economic and Trade Journals	0.0293	0.0171	0.0114	0.0061	0.0114	0.0132	21
Online DataStream Sources	0.0061	0.0395	0.0061	0.0114	0.0293	0.0137	20
Other Information Sources	0.0055	0.0055	0.0055	0.0055	0.0745	0.0093	23

Table 3. Accounting Information Preference: SWARA Scores and Ranks

Criteria Name	**Averse**	**Seeking**	**Neutral**
Data Regarding Other Firms Operating in The Same Industry	0.0381 (10)	0.0202 (16)	0.0286 (15)
Balance Sheet	0.0420 (8)	0.0674 (2)	0.0607 (1)
Adjustments to Financial Statements from a Previous Period	0.0114 (23)	0.0468 (9)	0.0267 (17)
Other Information Sources	0.0055 (24)	0.0093 (23)	0.0055 (24)
Disclosures to the Financial Statements	0.0357 (11)	0.0455 (11)	0.0288 (14)
Economic and Trade Journals	0.0223 (18)	0.0132 (21)	0.0192 (20)
Annual Activity Reports	0.0543 (5)	0.0635 (3)	0.0329 (10)
Financial Analyst Reports	0.0313 (13)	0.0154 (19)	0.0372 (8)
Income Statement	0.0502 (6)	0.0695 (1)	0.0486 (5)
Stock Charts (Changes in Price and Volume)	0.0638 (1)	0.0512 (6)	0.0534 (4)
Public Oversight, Accounting and Auditing Standards Authority Announcements of Companies	0.0228 (17)	0.056 (5)	0.0372 (9)
Corporate Social Responsibility Reports/Sustainability Reports	0.0284 (15)	0.0165 (17)	0.0284 (16)
Global Market News	0.0383 (9)	0.032 (13)	0.0319 (12)
Macroeconomic Data	0.0583 (2)	0.0585 (4)	0.0571 (2)
Cash Flow Statement	0.0556 (4)	0.0473 (8)	0.0536 (3)
Online DataStream Sources	0.0218 (19)	0.0137 (20)	0.015 (22)
Statement of Owners Equity	0.0474 (7)	0.0451 (12)	0.0398 (7)
Industry Performance News	0.0291 (14)	0.0291 (14)	0.0314 (13)
Criminal Announcements, Administrative Fines, Other Sanctions and Measures Given to the Company by the Capital Markets Board	0.0582 (3)	0.0506 (7)	0.0326 (11)
News on the Company	0.0249 (16)	0.0275 (15)	0.0245 (19)
Profit Announcements	0.0351 (12)	0.0461 (10)	0.0472 (6)
Company Presentations	0.0144 (21)	0.0115 (22)	0.0173 (21)
Information Provided by the Company on the Official Website	0.0139 (22)	0.0092 (24)	0.0131 (23)
CEO, CFO and Management Interviews	0.0183 (20)	0.0159 (18)	0.0262 (18)

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Table 4. Ranks within Groups

Averse	Seeking	Neutral
Group 1		
-Stock Charts (Changes in Price and Volume), -Macroeconomic Data, -Cash Flow Statement, -Criminal Announcements, Administrative Fines, Other Sanctions and Measures Given to the Company by the Capital Markets Board	-Balance Sheet, -Income Statement	-Balance Sheet, -Macroeconomic Data
Group 2		
-Annual Activity Reports, -Income Statement, -Statement of Owners Equity	-Annual Activity Reports, -Public Oversight, Accounting and Auditing Standards Authority Announcements of Companies, -Macroeconomic Data	-Income Statement, -Stock Charts (Changes in Price and Volume), -Cash Flow Statement, -Profit Announcements
Group 3		
-Data Regarding Other Firms Operating in the Same Industry, -Balance Sheet -Disclosures to the Financial Statements, -Global Market News, -Profit Announcements	-Adjustments to Financial Statements from a Previous Period -Disclosures to the Financial Statements, -Stock Charts (Changes in Price and Volume), -Cash Flow Statement, -Statement of Owners Equity, -Criminal Announcements, Administrative Fines, Other Sanctions and Measures Given to the Company by the Capital Markets Board, -Profit Announcements	-Financial Analyst Reports, -Public Oversight, Accounting and Auditing Standards Authority Announcements of Companies, -Statement of Owners Equity
Group 4		
-Financial Analyst Reports, -Corporate Social Responsibility Reports/Sustainability Reports, -Industry Performance News	-Global Market News, -Industry Performance News, -News on the Company	-Data Regarding Other Firms Operating in the Same Industry, -Adjustments to Financial Statements from a Previous Period, -Disclosures to the Financial Statements, -Annual Activity Reports, -Corporate Social Responsibility Reports/Sustainability Reports, -Global Market News, -Industry Performance News, -Criminal Announcements, Administrative Fines, Other Sanctions and Measures Given to the Company by the Capital Markets Board, -CEO, CFO and Management Interviews
Group 5		
-Economic and Trade Journals, -Public Oversight, Accounting and Auditing Standards Authority Announcements of Companies, -Online DataStream Sources, -News on the Company, -CEO, CFO and Management Interviews	-Data Regarding Other Firms Operating in The Same Industry, -Financial Analyst Reports, -Corporate Social Responsibility Reports/Sustainability Reports, -CEO, CFO and Management Interviews	-Economic and Trade Journals, -Online DataStream Sources, -News on the Company, -Company Presentations
Group 6		
-Adjustments to Financial Statements from a Previous Period -Other Information Sources, -Company Presentations, -Information Provided by the Company on the Official Website	-Other Information Sources, -Economic and Trade Journals, -Online DataStream Sources, -Company Presentations, -Information Provided by the Company on the Official Website	-Other Information Sources, -Information Provided by the Company on the Official Website

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Our analysis focused on sophisticated users of financial information (determined by their education background) that actively made buy/sell decisions on the BIST. Similar to the arguments of Arnold and Moizer (1984), we determine that risk seeking investors more prominently employ use of the income statement (0.0695) and balance sheet (0.0674). However, although Arnold and Moizer (1984) argue for the importance of discussions between analyst and management, our analysis finds that information sources such as; CEO, CFO and management interviews (ranging from 0.0159 to 0.0262) and company presentations (ranging from 0.0115 to 0.0173) score very low on SWARA. This indicates that investors', regardless of their risk tolerance level, give little importance to the information presented by top level management. This could be the result of lack of trust afforded to the announcements of employees; individuals that have direct interest in the performance of the firm. For example, O'Reilly (1982) argues that individuals are more likely to select certain types of information based on their trustworthiness, rather than its perceived expertise. However, they also point out that accessibility is a critical determinate, as well. For Turkish investors, access to financial reports is much more convenient as the information for all firms can be easily downloaded from one source, the Public Oversight, Accounting and Auditing Standards Authority. However, with non-financial information, such as; interviews, news, presentations or even the CSR reports- we see that the sources are distributed across various websites. Moreover, the firms' official websites are outdated, and most reports are missing (Balsarı, Dalkılıç and Cagle, 2016: 537). Thus, convenience and accessibility could be important factors contributing towards the over reliance of financial based information. These findings are supported by Cai and Yang (2013), as the authors argue that investors find financial information to be more useful than non-financial information in decision making. Interestingly, McNally, Eng and Hasseldine (1982), determine that investors find voluntarily reported information to be much more useful than mandatory information. However, this is not the case with our findings as accounting information sources such as the Corporate Social Responsibility Reports/Sustainability Reports are consistently low for risk averse (0.0284, Rank 15, Group 4), risk seeking (0.0165, Rank 17, Group 5) and risk neutral (0.0284, Rank 16, Group 4) investors. This result is also supported by prior research (Jeffrey, Holder-Webb and Zamora, 2015). Regardless of investor type, Jeffrey, Holder-Webb and Zamora (2015) argues that investors are most interested in economic information, rather than CSR or governance information. The familiarity level of investors with other sources of information and resistance to change could be factors contributing towards the lack usage of these sources.

Upon analyzing the results for risk averse investors, we see that Stock Charts (Changes in Price and Volume) is the highest scoring item by 0.0638. This is not surprising as risk averse individuals are argued to be more reactive/sensitive towards fast changes. As stated by Arnold and Moizer (1984), short-term investors tend to employ use of these charts as it affords them the chance to quickly respond to ascents/descents in stock prices. When compared to risk seekers (Group 3) and risk neutral investors (Group 4), risk averse investors were also found to give greater importance (Group 1) toward Criminal Announcements, Administrative Fines and Sanctions news for firms (0.0582, Rank 3). Any news of criminal misdeed is found to be a distinguishing factor for risk averse investors as stock prices may drop after criminal penalties. These investors might view a conviction as signaling potential business problems in the future or that the companies' ability to compete is weakened.

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Alternatively, risk averse investors might feel that these types of firms could fail to qualify for future business opportunities because of the firms' criminal record (e.g. government contracts). Moreover, a conviction may reduce consumer confidence in corporate products/service, resulting in decreased revenues (Gruner, 2004). Interestingly enough audited financial statements, such as; the balance sheet, income statement, statement of owners' equity and disclosures to the financial statement score lower for risk averse investors. This is interesting as timely and audited information are argued to be more useful in the short run (Jeffrey, Holder-Webb and Zamora, 2015: 130). However, both for risk seeking (Group 1) and risk neutral (Group 1) investors show higher preference for annual financial statements, such as; the balance sheet. This is supportive of the arguments provided by Bence, Hapeshi and Hussey (1995) as they argue these sources of information are routinely received and have a higher quality of timeliness. Contrarily, Arnold and Moizer (1984), argue that accounting information sources such as; the Income Statement (0.0695) and Balance Sheet (0.0674) and Annual Activity Reports (0.0635) are items traditionally employed by long-term investors. Thus, it is not surprising that these items were the highest three information sources preferred by risk seeking investors. Annual activity reports provide shareholders, potential investors and other users with comprehensive information on the firms; current activities/projects/investments, financial performance and future direction. Moreover, the reports are summarized, clear and concise sources of information (Ghani, Laswad and Tooley, 2009: 64) that also provide future oriented information on the firm. For example, since 2015 Petkim, Arçelik, Vestel (etc.) have consistently mentioned their investments in Industry 4.0 under their activity reports. Although this investment has consumed a large quantity of resources for these firms, the prospect of achieving significant revenue gains outweighs the cost. By evaluating firms based on the information gained from these reports, investors are exploring the future potential increase in the value of the firm. Thus, it can be argued that risk seeking investors take on higher risk with hopes of receiving a large return. Finally, these results also correspond with the findings of Cai and Yang (2013) who argue that forward looking information on a firms' guide investors in forming decisions. Similarly, Weetman and Tsalavoutas (2019), argue that this type of information aids in predicting the firms future value and that such accounting information plays an important role in investment decision.

Risk neutral investors show higher preference (Rank 3) for the information provided under the Cash Flow Statement (0.0536). Addressing the firms' solvency and ability to change cash flows in arising situations, the Cash Flow Statement provides valuable information of the stability and future of the company. A stable but growing company is an ideal investment opportunity for risk neutral individuals.

By investigating users' perceptions we aim to provide insight into the acceptance/rejection of a specific accounting information source. The results of this study show that there is a need for users to be made aware of the benefits to be gained from the different forms of information sources. The sources listed under Group 6, such as; Information Provided by the Company on the Official Website, Company Presentations provides valuable information on the future direction and future profitability of the firms. Thus, this information should not be discounted when forming buy/sell decisions. However, the results of our study demonstrate that investors view these sources of information as similar and have little value. It can be also argued that investors, regardless of risk tolerance level, do not distinguish between the information provided under these items (for example, economic and trade journals).

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Another finding has been the usage of limited sources of information by users (Bence, Hapeshi and Hussey, 1995).

Apparent for risk neutral and risk seeking investors, these users primarily employ and give higher preferences for a limited range/group of accounting information sources. For example, risk averse and risk neutral investors primarily focus on the balance sheet and income statement and balance sheet and macroeconomic data, respectively. Alternatively, risk averse investors seem to equally employ a higher number of sources when forming decisions.

Although Hu, Lin and Xiao (2003) argue that profit announcements receive great attention by investors, we see that risk seeking, risk neutral, and risk averse investors group them between-Group 2 to 3. When investors were asked to list other sources of information employed when forming buy/sell decisions recommendations from family and friends were provided by three respondents. Finally, a sensitivity analysis conducted on the descriptive characteristics of the respondents indicate that; gender, education level and age does not play a distinguishing role in explaining the results.

5. Conclusion

Under this study we set out to determine whether or not there is a difference between the information preferences of users across risk tolerance levels. We employ use of a relatively new criteria weight assessment method for analyzing investor decision making. The SWARA approach aims to evaluate and rank criteria based on experts' implicit knowledge/experience. The collected information is calculated based on the mediocre value for each group. We determine that user's perception of usefulness among the information sources differ significantly. Decision-makers of varying risk tolerance levels demand information from a variety of sources and have different preferences. Moreover, decision makers use specific groupings of information and do not base their decisions solely on the information contained in the annual report. We find evidence that investors', regardless of their risk tolerance level, give little importance to the information presented by top level management. This could be the result of lack of trust afforded to the announcements of employees; individuals that have direct interest in the performance of the firm. Our results also indicate that financial based information is preferred by investors, when compared to non-financial information. For example, investors are most interested in economic information, rather than CSR or governance information.

Upon individually comparing the risk groups, we find that risk averse investors are more reactive/sensitive towards fast changes and criminal firm behavior. Thus, they show higher preference towards Stock Charts (Changes in Price and Volume) and the Criminal Announcements, Administrative Fines and Sanctions news published by the KAP. These information sources are found to be a distinguishing factor for risk averse investors as swift changes to stock prices may signal potential business problems and result in investor action. Timely and audited information score higher for risk seeking and risk neutral investors. This is not surprising as routinely received information is argued to be of a higher quality. Moreover, risk seeking investors show higher preference towards future oriented information.

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Supplying users with information on the firms' activities/projects/investments, activity reports explore the future potential of organizations. Thus, it can be argued that risk seeking investors take on higher risk with hopes of receiving a large return.

Finally, risk neutral individuals require information supporting the stable growth of their investment and focus more on the information provided under the cash flow statement.

Access to resources is an important factor in the preparation of accounting information. The results of this study could better aid firms in allocating these resources and to develop effective repots to draw in potential investors. In order to further expand this study, researcher could employ use of the AHP and ANP methods and cross reference the results. Moreover, our method could be applied to solutions of similar decision-making problems, especially those concerning the ranking of variables. A limitation of the study is the difficulty in reaching the sample. As the SWARA method requires that respondents be physically present to clearly explain the process, the sample size is fairly difficult to expand.

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