

Does “Experience” Matter? Expertise and Voting Patterns in a Student-Managed Investments Program

**Lawrence J. Belcher
Dean, School of Business
Professor of Finance
University of Indianapolis
1400 East Avenue
Indianapolis, IN 46227
belcherl@uindy.edu**

**Landon J. Belcher
Hankamer School of Business
Baylor University
Waco, TX 76798**

INTRODUCTION

Decision making under uncertainty involves the evaluation, either consciously or unconsciously, of a set of possible outcomes and the assignment of probabilities of occurrence to each outcome. Humans are generally very poor when it comes to interpreting probabilities in a normative fashion. We can gather information about the subjective nature of the environment around us, but are also frequently influenced by perceptions of others regarding our decisions or the decisions of competitors, as well as learning from past outcomes or reliance on habitual behavior. This can ultimately produce sub-optimal decisions. The human decision process is not linear. We make decisions, receive feedback from the environment, and revise our actions to reflect changes in our information sets. We often refer to this expanding information set and its effect on our decisions as “gaining experience.” Generally, it is believed that such “experience” leads to better decision making (“Experience is the best teacher”). Often times, however, this is not the case. We react to new information but we may continue to make sub-optimal decisions because of inherent biases that we have and either fail to see or fail to correct.

One area where more information may not always be better is in investment decisions. Recent research has identified several possible sources of bias that can affect investment decision-making. One of these is an “optimism bias”. Do investors have a view of the world that is unusually rosy? One often thinks that when we see or hear of investors who will not get rid of a losing stock, for example, thinking that “it will always go back up”. Or, they might think that if it is increasing in value that it will continue to do so, rather than taking profits and running. These exit strategy decisions are often difficult to make because of this potential bias.

Another interesting line of research concerns “regret avoidance”. Will we approach a problem differently based on the success or failure of similar decisions made in the past? If a previous decision is viewed as a bad one, given our propensity for avoiding unpleasanties, we may seek to not do that again. If that was a bad investment decision, then we may rule them out on this basis.

Another possible bias is the “familiarity bias”. Several investment studies have shown that investors can display an affinity for given companies or the stocks of a given country. This sometimes leads to bad portfolio decisions in that investors will only choose things that they are most familiar with, which may lead to a lack of diversification, among other things.

Finally, our decisions are conditioned by our own personal views of the world. The whole issue of how we gather and process information and reach decisions is a very complex one. This complexity is often overlooked in simple models of decision making under uncertainty like expected utility maximization as discussed in Slovic (1972)

The “experience is the best teacher” model assumes that as one acquires more experience or expertise in a given domain that biases should decrease. Thus experts as compared to novices should acquire, organize, and process information differently than novices and this should lead to better decision outcomes. Thus, when facing the same set of information, the experts should be able to better process it than novices and they should produce some form of superior decision.

We apply these notions of bias formation and expert knowledge in a novel fashion. This study looks at the behavior a particular group of portfolio managers who function as the investment committee of a diversified portfolio of equities and fixed income instruments. They are Trustees of a university student-managed investment fund that currently manages an investment portfolio of approximately \$3 million in stocks and bonds. This fund was established by a dedicated gift and has been on-going since 1982. The fund has an investment committee made up of student and faculty trustees (by charter) on a Board of Trustees of the fund with the fund structured so that students have the majority position, so it is student-led. Faculty trustees have voting rights and so are a part of the decisions made, although always in a minority fashion. This brings up an interesting question to consider: Does the “experience” of a Finance Department teaching faculty person lead to better portfolio management decisions than those of a 21 year old Finance student in terms of the fund’s investment outcomes? A secondary question is whether such a student trustee could really be considered a “novice” when it comes to portfolio decisions, based on their education and experience. A third question we will consider is how well the funds performed, given the nature of and biases present in an investment fund managed by college students.

We test these notions by breaking down the voting patterns of the Board of Trustees based on the recorded minutes of the fund’s meetings over a roughly 12 year period. We are interested in the level of agreement (or disagreement) between the Faculty Trustees (the “experts”) and the Student Trustees (the “novices”). The fund’s structure and operation allows us this glimpse because the minutes recorded the actual votes by name of all of the trustees, so faculty and student trustees can be identified in each vote. We also computed return data based on sales transactions, so we can look at performance related to decisions as well as performance related to broader markets. We begin with a discussion of finance literature related to possible relevant investment decision biases as well as a brief consideration of characteristics of expertise and training. We then break down the votes over a number of different categories of decisions and draw conclusions based on our evidence.

BACKGROUND

Experience, Judgement and Bias in Investment Decision-Making

There are a many studies in both the finance and psychology literature dealing with decision-making under uncertainty. There is a long history in the psychology literature of how individuals process information and alter their outlooks as a result. Hogarth (1981) surveys main points of the existing psychological literature on judgment heuristics. He

notes that decision processes are continuous but are often represented as discrete decisions. This can lead to errors or under-represent the adaptive nature of information processing. Hogarth identifies three fundamental components of behavior: (a) the nature of the environment, (b) the nature of the organism, and (c) the means the organism has developed for coping with the environment. The environment that we face is complex, characterized by uncertainty but also by redundancy. Our processing mechanisms are characterized by sequential processes, limited memory, selective perception, and reliance on heuristic mechanisms. This leads to the development of two things: judgment and feedback. Judgment facilitates action and commitment and feedback gives us cues about the results of those actions.

That judgment can produce biases, however. One bias is an illusion of control. By having a particular skill, individuals can perceive that they have a greater degree of control over events than they actually do. This type of investing behavior can be affected by what Heath and Tversky (1991) call the “competence” hypotheses. They argue that individuals prefer to bet on uncertain events that involve three things: i) the estimated likelihood of the event; ii) the precision of the estimate; and iii) their general knowledge or understanding of the context of the event. The competence hypothesis says that they prefer to bet in a context where they consider themselves informed rather than where they feel ignorant or lacking in knowledge. This is enhanced by knowledge and experience and diminished by relevant information that may not be specifically known to that investor and not others.

Filbeck, Hatfield and Horvath (2005) discuss a somewhat different version of this locus of control argument. They cite research that classifies investor type as “active” or “passive”. Passive investors became wealthy by inheritance, risking others’ capital or had lower income levels. They desired security and so displayed less risk tolerance. Active investors were those who had risked their own capital and earned rather than inherited wealth. They tended to be much more aggressive than passive investors unless they felt that control over their investments was lessened. In that case, with perceived loss of control came lower risk levels.

There are two experiential biases present in the finance literature that are worth mentioning: the so-called “familiarity bias” and regret avoidance. Huberman (2001) discusses the familiarity bias. People often base investment decisions around things that they know better, which often leads them to make suboptimal decisions because it limits their possibility sets. This may be an application of the competence hypothesis in that they want to invest in companies (or countries) that they feel most familiar with. Huberman looked at investments in Regional Bell Operating Companies. He found a strong regional bias in investment decisions in what were essentially similar types of companies in different regions and argued that this was a really wide spread investment phenomenon. He further argued that it is also manifested in a preference for domestic versus global investments, often times in opposition to the advice of financial advisors who are suggesting more diversification.

In Bailey and Kinerson (2005), the authors discuss the notion of “regret avoidance”. That is, we tend to avoid situations where past actions have not turned out exactly as we hoped they would. They argue that people often engage in “counterfactuals” That is, after a particular event that may not have turned out the way we wanted it to, we replay it over in our heads under a series of “what if” experiments. Surprising or negative life events increase the likelihood that we engage in such analyses. As we begin to process the “what-ifs”, our thinking on the past experiences may form feelings of regret or avoidance which condition the present. Their research concluded that investors’ risk tolerances could be conditioned by regret avoidance and so they may be unwilling to invest funds in investments that had negative past outcomes. If choices, particularly investment choices, did not turn out the way we wanted them to, then we often “cross them off” our lists and avoid them. Given the greater control that individuals now have over their own retirement planning, feelings of regret could lead them to sub-optimal investment outcomes.

Another factor where experience can produce bias is in what Johnson, Schnytzer, and Liu (2009) call “basic anchoring”. They studied a gambling market for horse betting and found that bettors tended to base their choices under uncertainty on one particular piece of information relative to the bet. If it agreed with their own perceptions of its betting value, they tended to use it more than other information. This excessive anchoring often led them to make poor decisions by restricting the amount of information they were willing to use. This created a bias toward placing bets that utilized what the bettor thought was the correct or appropriate information. In an investment sense, this means that we invest in things that fit into categories that agree with our perceptions, rather than a broader information set.

Biases such as these and others condition our evaluation of the information that we see. It makes individuals readjust their subjective probabilities and can lead to suboptimal behavioral outcomes. Individuals can also become less proactive in decisions because they consistently underestimate their own skill. At another extreme, expertise can also lead to overconfidence that can also produce biases or suboptimal decisions. Experience (including any biases that might be present), therefore, becomes a conditioning factor that helps us shape our responses to our environment.

This can produce outcomes that are not always beneficial, however. This is discussed at length in Brehmer (1980). One basic tenet of behavior seems to be that experience leads to better judgment and better decisions. Brehmer argues that this is not necessarily the case. Experience often comes without an adequate context for assessing its own value. Thus, Brehmer argues, it does not provide information for us to learn from. So “learning from experience” in the sense of improving judgment is a misnomer. The literature suggests that learning, judgment and experience all play crucial roles in the way in which we process financial information. This points out the value of proper education in terms of defining the environment that we form our heuristics in, and also the fact that we alter our decision probabilities as new information becomes available.

Experience, Expertise and Skill Development: The Value of “Expert” Knowledge

The common argument made is that experience is a positive conditioning factor, which helps to minimize bias formation of the sorts mentioned above. It should improve decision making because the quality of information used as inputs into the decision process is better, it is better organized, and the decision maker forms scenarios mentally to test their actions. This helps to minimize errors, reduces bias formation and leads to better outcomes. The question then becomes, how does one become an expert? Is it by mere repetition, as in practice, is it simply the acquisition of knowledge, or is it a combination of learning and doing? Also, is this a skill that can be imparted to others via training? Specifically, can someone be taught to develop expertise and so reduce bias formation or is it only acquired via trial and error?

The literature shows that those who are “experts” in their fields possess a knowledge base that others do not. This causes them to make decisions using a different process than “novices” in the field might make. Our hypothesis here is that the faculty in our analysis have more education and professional experience (knowledge and practice) than students and so they should evaluate the same information more critically than an undergraduate would. This should lead, hypothetically, to “better” decisions according to the literature. We are examining voting patterns that are made by the equivalent of a fund investment committee. We have a natural division, we are hypothesizing, between an expert group and what might be considered a more novice group. Our analysis considers agreement on recommendations made. If there are significant differences in ability to process the same set of facts, then there might be more disagreement on outcomes and this would be reflected in different votes.

However, this situation might be somewhat different than other studies we will consider. The whole point of effective teaching is to help students acquire and process knowledge so that they, too, become more effective in their own decision-making processes. So if faculty agree or disagree with students, is it because of their own inherent abilities to better discern or is it due to the fact that the students they have trained are also presenting information as “experts.” Unfortunately, it is hard to discern that simply from voting patterns. Both conclusions are realistic possibilities, however.

The literature on expertise and decision making looks at the differences in the ways experts acquire, process and act on given information sets relative to that of “novices.” It is a large literature and we will only present a brief snapshot of research. The studies mentioned here all survey much of the current research and so we would refer you to the bibliography for more detail. Horn (2006) surveys a number of studies in this literature and discusses a learning theory known as “chunking.” People, when faced with decision situations, form mental images of what they perceive. A “chunk” is a library of these pieces of information that “are a collection of elements that have strong associations with one another” (p.5) representing past experiences and their relation to the present. Experts, in this view, have more “chunks” of information available to them at any point in time than novices. Another extension of this concept is that experts possess the ability

to see the same problem and analyze the information on a much deeper level. Horn discusses these deeper levels in the literature as “schemas” (p 6). “These schemata are thought to be composed of the mental categories that people use to organize information and knowledge associated with a chunk, including potential problem solutions” (p.6). Later, “The evidence supporting schemata illustrates the point that experts not only can recognize more situations (larger chunk library), but that they generally utilize a higher quality organizational system in their classification of problems. This enhanced structure allows experts to identify paths of exploration that are likely to be more fruitful, as well as produce higher quality perceptual representations from the start.” (p. 6).

Phillips, Klein and Sieck (2008) discuss the semantic nature of the words “professional” and “expert.” Experts, in their view have “achieved exceptional skills in one particular domain” (p. 299). Expertise comes from the “breadth and depth of their domain-specific knowledge” (p.299). They summarize common findings on expertise as follows:

- *Perceptual skills*, the ability to make fine discriminations;
- *Mental models*, understanding the dynamics of events in their domain;
- *Sense of typicality and associations*, the ability to perceive large and meaningful patterns of association;
- *Routines*, knowing a wider variety of tactics for getting things done;
- *Declarative knowledge*, knowing more facts and details;
- *Run mental simulations*, adjusting known values to fit new situations (pp. 300-301).

These abilities could be the result of repetition or practice but they only develop with larger information sets and increased ability to process that information. In theory, this should reduce bias formation and improve decision-making ability.

One area that is mentioned above is the idea of typicality. In psychological literature, this refers to “how well an object represents its cognitive category” (Perkins and Reyna (1990)). They note that in consumer research, typicality is often linked to preference in that consumers may like something more if it seen as typical for a brand category. In decision making, “As expertise increases, the organization of knowledge in memory becomes more functional and processing becomes less superficial” (p. 356). They applied this idea to investment knowledge. In their study, they gave mental exercises related to frequently known investment products in the field. They had a novice group of undergraduate students in a senior level math class and an expert group that was composed of part-time MBA students and finance professionals with at least a bachelor’s degree. They were asked about how familiar they were with the investments, how many of them they personally owned, how “typical” they thought they were by sorting them into similar groups, and other basic demographic information such as income, family size and other information. They were also later asked to recall as many of the investments as they could. They measured expertise in terms of number of investments owned and number recalled. Their results showed positive correlation between both measures of expertise and preference for investments as well as typicality of investments. These typical objects, shown by greater familiarity in a category, can be cognitive reference points used in making better decisions. “In many product classes, the difference between

a novice and an expert can be inconsequential. But in a complex product class (referring to investments) the degree of familiarity can greatly influence the individual's ability to make reasonable decisions" (p. 360). This association provides a greater ability to make higher-order decisions when one is faced with new information as typicality increases.

Another study of the relationship between investment expertise and performance is in Jacoby, Troutman, Kuss and Mazursky (JTKM 1986). In the previous study, one of the markers of expertise was knowledge of investments. JTKM argue that this is insufficient. "Moreover knowledge does not always equate to skill. Demonstrating that one is an expert based on one's performance on a knowledge test is not necessarily equivalent to being able to exhibit that skill in actual task performance" (p.470). And "Being able to do something doesn't necessarily mean one is able to identify or articulate what it is that one does" (p. 470). This goes back to earlier ideas relating to expertise- possessing more knowledge as well as being able to deploy it more effectively. They set up a simulation of expert behavior involving the performance of security analysts in financial decision making.

Seventeen analysts were tasked with choosing "best buy" securities, or ones that they thought would show the greatest price appreciation over the next ninety days. Eight securities were analyzed over four ninety day periods. Each analyst had access to twenty six factors that could be used in their analysis. They used those factors in determining their final recommendations each period. Data was actual data taken from NYSE listings with the company names disguised. The sole "expertise" performance criterion was price per share performance in each period. Their main hypotheses dealt with three areas: depth, content and sequencing of information used by the analysts in their decisions.

Their findings indicated that expertise was related to all three hypothesized areas. For depth of search, number of items acquired across all four periods correlated with better analyst performance. For content, they examined which of the factors available were accessed at least once. Better performing analysts had such sub-matrices of information that were accessed better than the lesser performing analysts. Better performing analysts were also shown to display better sequencing of information accessing than lesser performing analysts. Their results cast light on one aspect of expertise-the ability to access and process information more effectively, leading to measurable performance increases.

Rzeszutek, Szyska and Czerwonka (2015) also test the application of expertise in financial decision-making, but with a different objective. The usual belief is that experience is a large component of developing expertise in a particular domain and that with experience bias formation is lessened. Thus, many of the common investment biases noted above should be lessened with greater expertise. The authors note, however that "The results of these (earlier) studies show that extensive experience in stock market investing does not protect people from behavioral biases. Professional investors are particularly vulnerable to divergence from rational action if a task is not transparent and there are no unequivocal indicators suggesting an appropriate solution" (p.339) (emphasis added). "What is surprising is that, after making the wrong decision, even as new

information clarifies the problem, professional investors can become more convinced of having a good understanding of the issue and do not change their initial stance” (p. 339). They hypothesize that biases may still be present even in experienced investors.

To test this, they had an “expert” group of 100 retail investors frequently investing in equities at the Warsaw Stock Exchange. Their “novice” group was 100 students from the Warsaw School of Economics. They used an experimental format where the respondents answered questions about various scenarios that would allow the researchers to evaluate susceptibility toward the certainty effect, mental accounting and the sunk cost fallacy, three commonly identified investing biases.

Their results showed that retail investors were susceptible to the aforementioned biases when making decisions and that their susceptibility was stronger than the novices. They noted that the tendency to display behavioral biases 1) is a highly automatized process so investors might be unaware of their influence; 2) there is little possibility of conscious control of the biases, and 3) experts in some domains can show a strong overconfidence when making critical decisions (p. 346). Experts can also try to “save face” by admitting their mistakes and acting to correct them. In short, this seems to reinforce some of Brehmer’s observations about the value of experience in generating better decisions.

An issue related to our particular study concerns the ability of individuals to form expertise. We are treating the student analyst trustees in the study as “novices” and the faculty trustees as “experts” for the purposes of evaluating the data. Based on some of the previous research these categories, particularly the novice one, may not be entirely accurate. In earlier studies cited, the novices were generally students that little or no knowledge of financial markets or investing. The expert groups, on the other hand, either had more extensive financial market knowledge or education or they had direct investing experience. Clearly our novice group is more sophisticated than the ones cited. They have all had at least three and perhaps four college level finance courses as well as other training in statistics, economics and accounting. In short, they may have education that is better than some of the experts in the previous studies. In addition, many of them had private portfolios that they actively managed while in school, which would put them into the retail investor category as well.

What separates the two groups here is the level of specific knowledge and experience, so one might argue that this a question of degree of expertise, although other studies have looked at the gap between graduate students and professors in analyzing expertise. We might ask, then, what does it take to develop expert intuition? Salas, Rosen and DiazGranados (2009) discuss five factors which can be used to facilitate the development of expert intuition in individuals. These are:

- *Deliberate and Guided Practice.* Experts use deliberate practice to increase their control of a situation and their ability to monitor performance in their domain of expertise.
- *Self-Regulation.* Self-regulation involves conscious monitoring and self-assessment of performance processes to move towards higher levels of skill.

- *Feedback Seeking.* An accumulation of experience is not sufficient to develop expertise, but rather experiences need to include accurate, diagnostic and timely feedback. This helps develop individual performance to higher levels.
- *Motivation.* It takes focus and determination to understand experience and improve performance. Thus high motivation must be sustained over long periods of time to develop expertise.
- *Goal Setting.* Goal setting helps to develop expertise by providing focus and helping to develop task strategies (pp. 16-19).

If we apply those five factors to our analysis, it could be argued that the teaching/learning process that the students are involved in is developing expertise along those lines. They have deliberate and guided practice in security evaluation, they are generally self-regulating, motivated and goal setters, and they receive frequent and timely feedback on their decisions. So the faculty on this setting may be dealing with students that could be considered experts in their own rights. For the purposes of our study, we will look at the interaction of student and faculty trustees in terms of voting patterns and assess how much difference there is.

METHODOLOGY

Structure of the Investment Fund

The investment fund analyzed is a student-managed investments program that was established by a designated gift in 1982. Because of this, it has some unique properties that make it different from other funds like it. First is its tenure. It is one of the longest running funds in the world. Another aspect of this is its structure in terms of its chartered Trustee Board. It is a part of a separate funded Investments Institute that has a faculty Director. It has always had a faculty representative on the board by charter as well as input from the Institute Director, although the constraints on what the students can do is minimal compared to other fund structures. By charter, it has two voting faculty Trustees on the board, the Finance department chair and a “Dean’s representative.” It can also have one other faculty representative depending on the size of the class. Part of the operation of the fund has involved keeping minutes of the Trustee meetings, which were then used to dictate trades that the fund would make. The record of these minutes established the votes on each recommendation and what the final outcome was in terms of buy, sell, or hold recommendation. As the fund got larger and more sophisticated, the minutes did as well. Each set of minutes began to identify both student and faculty votes on particular recommendations. It is this set of minutes that we will analyze in terms of particular votes and the outcomes of those votes both in terms of what was included in the fund or sold, but also what things were passed up. Based on these actual votes we hope to draw inference about the value (if any) of faculty knowledge and experience based on what their recommendations were.

The program currently has two funds, an equity fund and a fixed income fund. The course structure is such that students receive credit for six hours: a three hour Equity Management course in the fall semester and a three hour Fixed Income Management

course in the spring semester. The structure of the fund is primarily as a cohort. It is a two-semester sequence that students must apply to participate in. Permission of instructor is a necessary condition for participation and the cohorts generally are twenty to twenty five in size. Sometimes students will only participate in the fall class, but this is rare.

The fund management classes are taught by a Visiting Professor of Applied Investments, whose salary is funded by an endowment which helped to establish the fund as well. The Visiting Professor nominally has a three year term, although the most recent professor has had a semi-permanent tenure.

Because it is run by students, it displays some elements related to a cohort of twenty-somethings. Many of the investment biases we discussed earlier have shown up in the fund: excessive optimism, overconfidence, familiarity, anchoring, regret avoidance (not wanting to be associated with a bad performer) as well as voting with one's friends on recommendations.

Fund Portfolio Parameters

With a long-running program like this, one could expect changes to occur over time, which is what has taken place. The fund has also obviously grown over time, as proceeds less a "fee" paid to the institution are reinvested in the fund. Average return for a twenty five year period was about 7% (Belcher, Boyd and Mallett 2010). The fund has also grown in complexity over time as markets have gotten more complex and opportunities to invest in more sophisticated instruments at lower levels have grown.

The trustee structure has changed somewhat over time and the number of meetings has increased as the funds have grown in size and scope and complexity. The number of transactions executed per semester has also increased over time. The equity fund tends to be small-cap bottom up focused with around 20 positions. Equity transactions are buy, hold or sell. The fixed income fund takes positions that are \$100,000 each and generally follows a swap-switch structure of selling and replacing existing bonds to alter portfolio characteristics. Thus, each fixed income transaction is a simultaneous sell and buy transaction unless it is a stand-alone buy transaction. This has changed over time from inception as well. Usable data identifying voters was over the later years of the fund, from 1998 through the end of the sample, which was in 2010.

Voting Data

We will examine the votes and then look at subsequent performance of some of the recommendations. Admittedly, the analysis is ex-post and does not reflect the rationale for the votes, only the outcomes. We can't necessarily judge who was "right or wrong", but we can see the outcomes of particular decisions and see how well they did in terms of the fund's actual performance. Both sets of trustees bring potential biases into the process here. Faculty may have more knowledge about particular industries or companies and have their own ideas about how a decision might affect the portfolio as a

whole. Students, as we said, may choose companies based on what they like or may make recommendation based on peer pressure or lack of adequate research (anybody who has had experience with a student fund has probably seen these and could add more to the list). Once again, we can only get the outcome of the decisions, not the process itself, but this might show how “successful” each party has been in terms of their “picking” strategies.

In terms of questions, we might ask some of the following:

- Do “experienced” faculty tend to frequently vote differently than “less experienced” students?
- Does broad agreement mean that experience has no added value or that it is used in context?
- Does broad agreement mean that “experience” and knowledge (and possible biases) have been successfully transferred to students?

VOTING ANALYSIS

In terms of the votes, they were taken after a presentation of the recommendation by the student analyst. Each student prepared in advance a detailed security report that analyzed important investment parameters such as industry and firm outlook, economic conditions, financial data, and valuation models. For fixed income reports, students prepared scenario analysis using Bloomberg swap-switch analysis and also explored possible interest rate movements as well as a discussion of the bond’s ratings. These reports followed a similar format so they were based on an existing methodology that followed professional standards. Samples are available on request. All trustees had advance access to the reports and all heard the presentations made by the students. Presentations were usually 10 minutes followed by a five minute or so question and answer period. After the presentations were made, a vote on each recommendation was taken. Successful recommendations were then given to the Institute Director to execute. Based on the methodology, all trustees saw the same reports and the same presentations, so their votes reflected their view on the appropriateness of the recommendation.

We can start by looking at the breakdowns of the sample data. There are number of possible scenarios. For equity transactions, they could be buy, sell or hold recommendations. On the fixed income side, they could be buy or sell, but most were structured as swap-switch transactions, which meant a simultaneous buy and sell decision. In this case, one vote would be for two decisions at once. If voted positively, an existing bond would be sold and replaced by a new recommendation. For each recommendation, each trustee would cast a vote in favor of the recommendation or opposed to the recommendation. Faculty trustees were always a minority presence, and in case of a tie vote the recommendation would pass. All of the faculty had doctorates in finance, economics, or banking so in terms of the trustees they would be considered “experts.” In terms of our recorded decision matrix, we record three possibilities at this point in our analysis: agree, disagree, or split. An agree data point signifies that all voting faculty trustees agreed with that particular decision, whether it passed or failed.

Later we will try to separate out the pass and failed recommendations. A disagree data point meant that all voting faculty trustees disagreed with the resulting outcome. A split vote was as the name implies, where at least one voting faculty trustee disagreed with the recommendation.

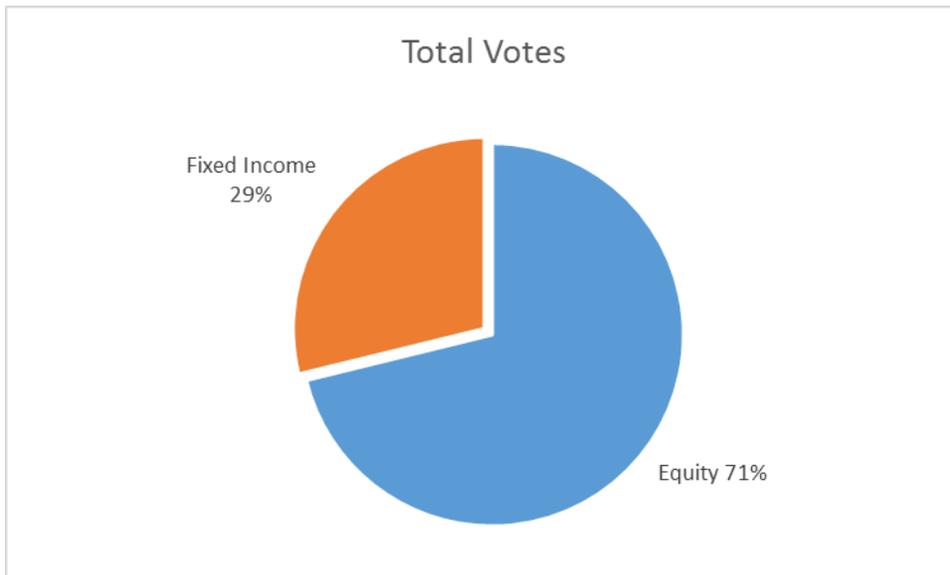
Breakdown of Total Voting Decisions by Fund

To see how some of these ideas played out in practice, we examined trustee voting patterns from minutes of the student-managed fund meetings from the period 1998-2010. Earlier trustee minutes when the fund was beginning and relatively small had few trades to analyze and did not identify trustees by name. Therefore, we have data from about twelve years of meeting records. Over that time period, the following numbers took place:

Equity Decisions in the sample: 531

Fixed Income Decisions in the sample: 215

So over the twelve year period we had data for there were 746 votes taken by the Trustee Boards. This averages out to about 62 decisions per year. As we look at the breakdown, we see the following:



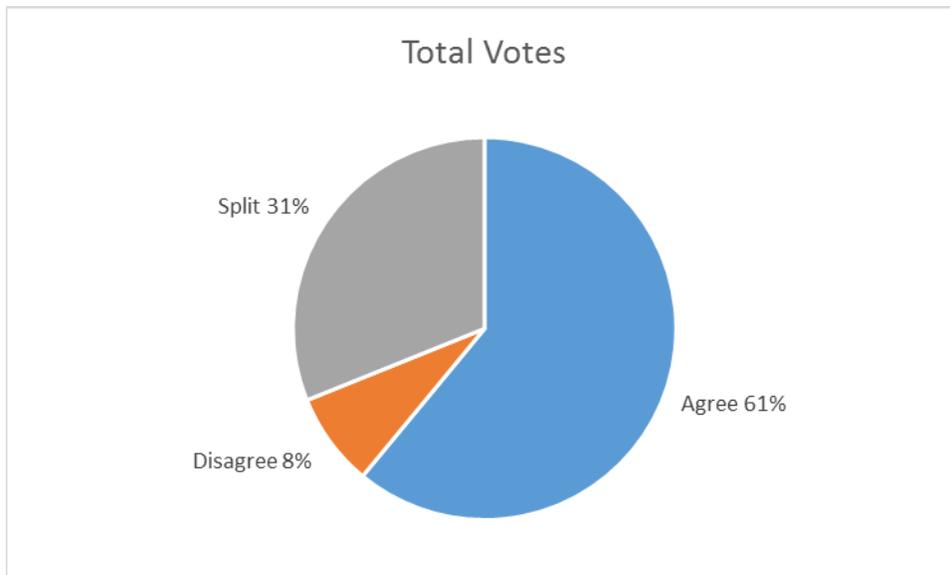
Out of the sample, more than two thirds of the votes were on equity transactions. Generally the fund tried to keep the number of equity positions at around twenty so that each position was around 5% of the total portfolio value. As positions gained or lost value they were sometimes pared back or sold completely to preserve balance in the fund. On the fixed income side, the positions were \$100,000 each so there were usually fewer positions, around 13. One of the other aspects of the charter was that the funds were to remain as balanced in size as possible, so that if one grew too much then positions would be altered and funds transferred to re-balance the funds. This helps to explain the difference in the number of transactions across funds. Each year the entering class is also

tasked with evaluating the existing equity positions in the fall. Thus, the greatest number of equity position votes would take place then. Not all recommendations were approved, which means that the number of trades was always well less than the number of recommendations.

Breakdown of Total Voting By Level of Agreement

If we look at total voting across both funds, we see the following pattern:

Total votes taken: 746
Agree votes: 455 (61%)
Disagree votes: 59 (8%)
Split votes: 232 (31%)

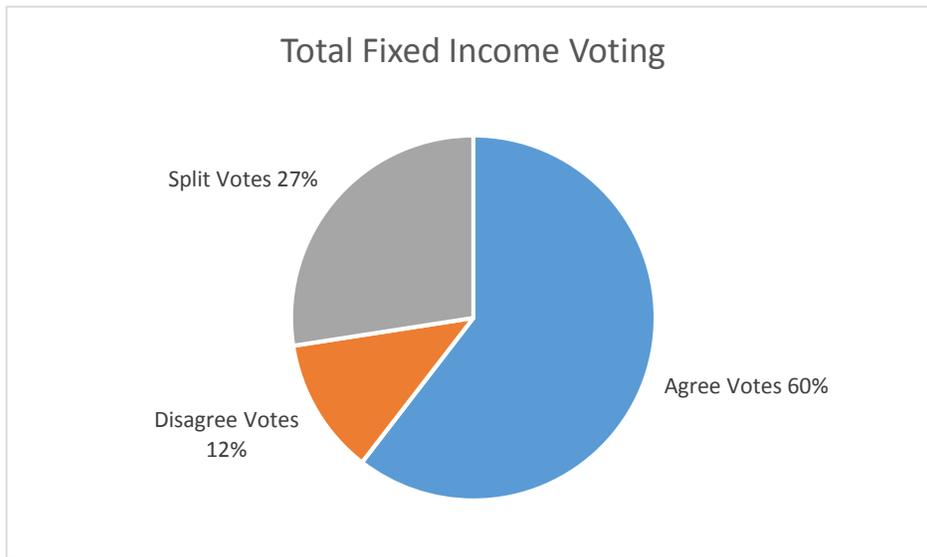


The total voting pattern overwhelmingly shows agreement with the recommended decisions (either buy, sell or hold). If we take full agreement (agree) with partial agreement (split) those votes represented 92% of the total votes taken across both funds and across all decisions.

Breakdown of Fixed Income Voting Decisions

Fixed Income transactions, as we have said, were mostly swap-switch transactions involving a sell candidate in the existing portfolio and buying a new replacement. There were a few stand-alone buy or sell transactions, mostly to alter portfolio characteristics such as average rating or average duration.

Total Fixed Income Votes



The pattern here is very similar to the total voting pattern, with slightly more disagree votes than in total. The numerical breakdown of the fixed income votes was as follows:

Agree Votes: 130

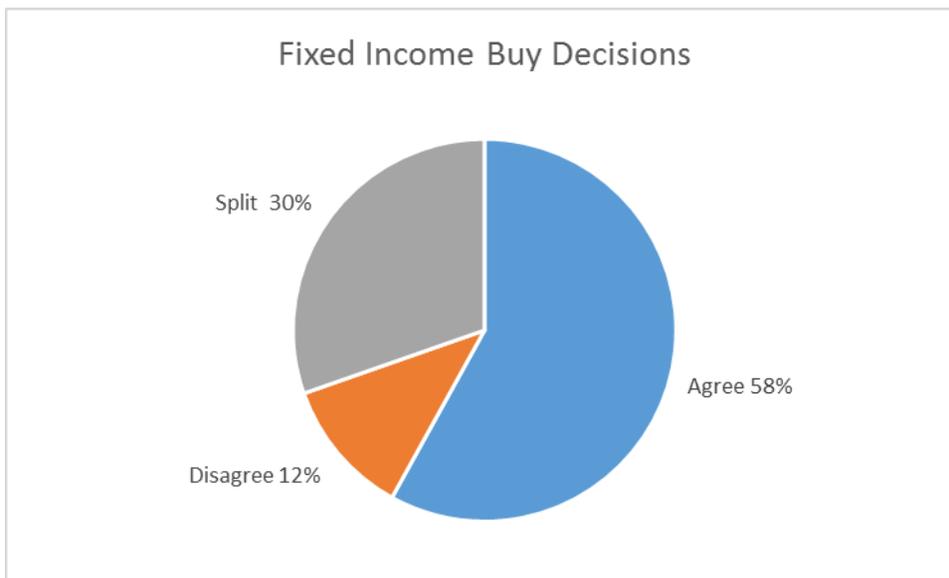
Disagree Votes: 59

Split Votes: 26

Total Fixed Income Votes: 215

Again, votes with at least partial agreement (agree, split) constituted 87% of total votes cast (with some rounding error evident in the pie chart). We can also split the votes by type of decision made (buy or sell).

Fixed Income Buy Decisions



On buy decisions (which would have an equivalent sell along with it in most cases), 88% were in at least partial agreement with the recommendation made. The numerical breakdown here is:

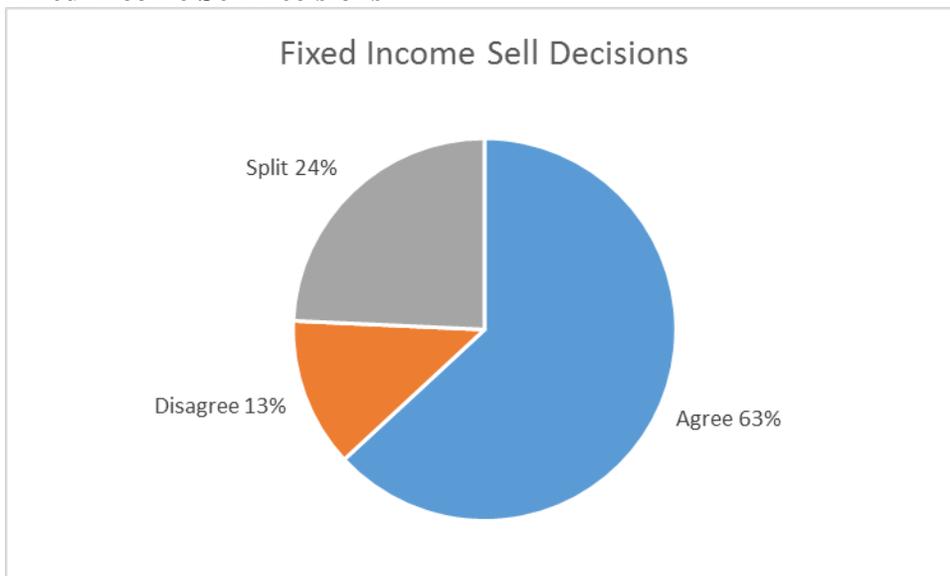
Agree Votes: 65

Disagree Votes: 13

Split Votes: 34

Total Fixed Income Buy Votes: 112

Fixed Income Sell Decisions



Sell decisions were usually the other half of the swap-switch. 87% agreed at least partially with the recommendations made here. Numerical breakdown is as follows:

Agree Votes: 65

Disagree Votes: 13

Split Votes: 25

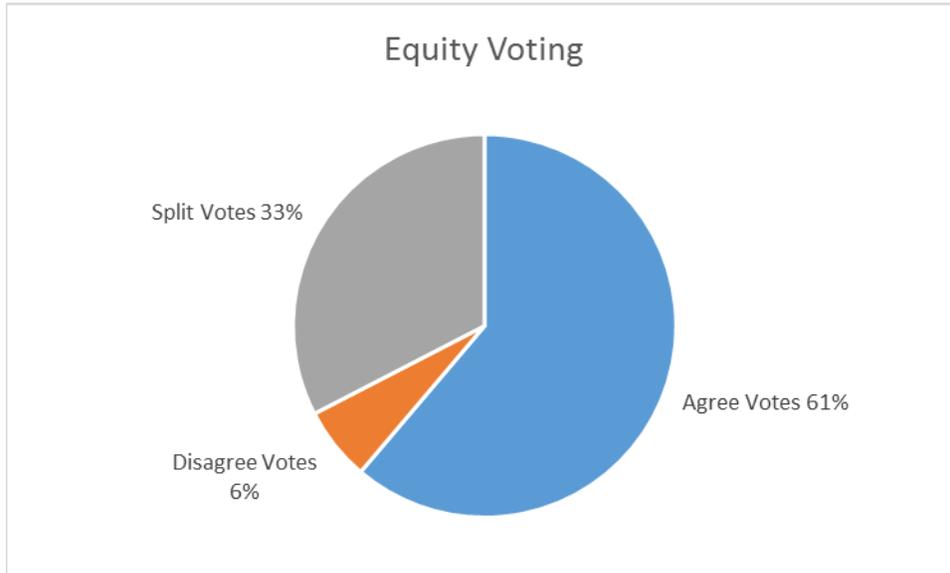
Total Fixed Income Sell Votes: 103

Breakdown of Equity Voting Decisions

Total Equity Votes

Equity voting decisions were buy, hold or sell. The beginning of each fall semester started with an evaluation of the current status of the portfolio. Students were assigned

existing securities and made hold/sell recommendations. After that process was completed, new buy recommendations would be considered. Most equity decisions were made in the fall semester during the Equity Analysis class but there were also some made in the spring Fixed Income class. These could be for reducing cash positions, selling off poor performers, or making timely additions to the equity portfolio.



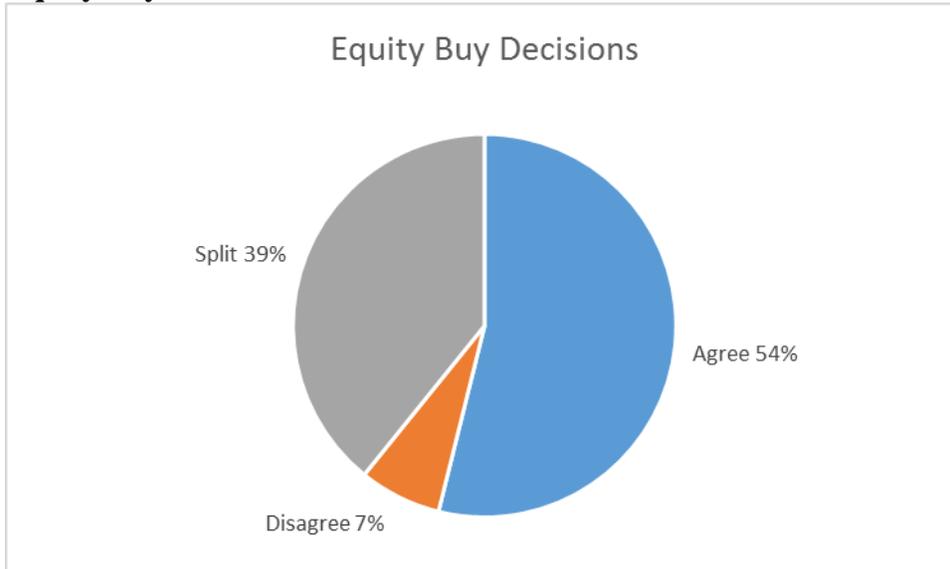
This block, which is all equity decisions, represented the largest proportion of at least partial agreement votes, at 94%. Interestingly enough, the percentage of agree votes cast remained remarkably equal across both portfolios. The disparities arose in the disagree-split breakdown. The numerical breakdown of the equity votes was as follows:

Agree Votes: 325

Disagree Votes: 33

Split Votes: 173

Equity Buy Decisions



Here the percentage of at least partial agreement decisions was still at 93, but a much greater amount of disagreement as shown by only 54% total agreement with the decisions made.

The numerical breakdown of the Buy decisions was:

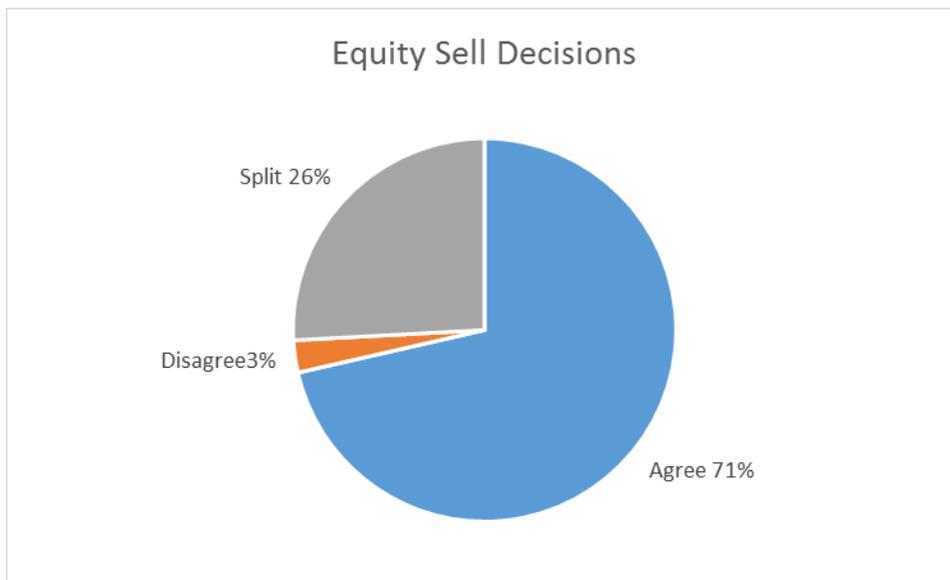
Agree Votes: 132

Disagree Votes: 17

Split Votes: 96

Total Equity Buy Decisions: 245

Equity Sell Decisions



On the sell side, virtually all of the votes were to agree with the recommendation at least partially (97%). It is also shown in sheer numbers, as there were only 4 disagree votes cast on the sell side. In many ways the sell decisions were less controversial. Most were to take profits, alter sector composition, pare positions that had shot up in price to keep the position near 5% of total portfolio, or to get rid of losers. The numerical breakdown here was as follows:

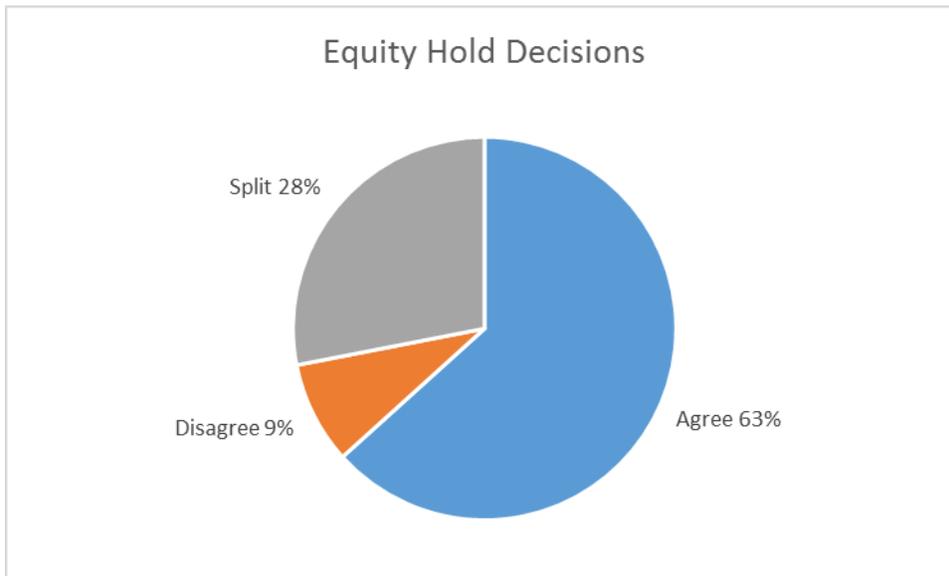
Agree Votes: 105

Disagree Votes: 4

Split Votes: 38

Total Equity Sell Decisions: 147

Equity Hold Decisions



In terms of hold decisions, these were typically made at the start of a new class as they evaluated the existing portfolio. The amount in at least partial agreement again stood at 91% with a large split vote here. Numerical breakdown of Hold decisions yields:

Agree Votes: 88

Disagree Votes: 12

Split Votes: 39

Total Equity Hold Decisions: 139

Breakdown by Quality of Decisions

Another interesting artifact of the data we collected is the transaction records provided by the fund's Annual Reports. Each year the transactions made by the funds were recorded, which provided data on the initial buy and subsequent sell prices of stocks and bonds held by the fund. From this data we calculated simple no-dividend holding period returns for equities from the two prices. These decisions were primarily sales for obvious reasons but there were also hold decisions that were voted down. A negative vote on a hold decision necessitated a sale. The numbers break down by decision as follows:

Equity Sell Agree: 71

Equity Sell Disagree: 0

Equity Sell Split: 6

Equity Hold Agree: 3
Equity Hold Disagree: 1
Equity Hold Split: 5

For the equity sell decisions the following are true:

Low Return	High Return	Average Return
-81%	505%	18.54%

For Fixed Income, again we computed holding period returns from buy and sell prices without considering coupons. On the Fixed Income side, we had:

Fixed Income Sell Agree: 8
Fixed Income Sell Disagree: 7
Fixed Income Sell Split: 6

Appendix 1 shows the return distributions for each decision category. The ranges were as follows:

Sell Agree Decisions

Low Return	High Return	Average Return
-6.321%	11.16%	3.452%

Sell Disagree Decisions

Low Return	High Return	Average Return
-5.492%	7.305%	0.2758%

Sell Split Decisions

Low Return	High Return	Average Return
0.2566%	4.5311%	2.972

DISCUSSION

The analysis we did was in response to three questions relating to the notion of “expertise” in portfolio management, using voting data from a student managed investment fund. These were:

1. Was there value in faculty Trustees’ expertise such that they would differ frequently from student recommendations when faced with the same data as the student Trustees?
2. Given the sophistication necessary to manage a multi-million dollar asset portfolio, could the students really be considered “novices”?
3. For given return data available, how well did the decisions perform?

In terms of Question 1, we can say solidly that there was very strong agreement between student and faculty trustees. If we define agreement by at least partial agreement (agree plus split votes), the level of agreement with the student decisions was in the upper eighty percent range consistently. If we define agreement by total agreement then that number drops down substantially. The level of outright disagreement was consistently a low number of total votes.

In terms of the second question, the students in this sample, according to samples used in other studies cited, would not be considered novices based on what they do and the level of education they needed to apply for the student fund program. Most other studies that used student populations as control groups used students in disciplines that new little to nothing about investments or financial markets. In fact, many people, based on the students' analytical capabilities, WOULD view them as experts or at least highly qualified. So they might more accurately be viewed as having less expertise than higher level experts (the faculty).

In terms of performance, there were 75 "Equity Sell" transactions that we computed returns for where there was agreement between faculty and students. The average return for those transactions was 18.54%. There were three "Equity Hold" decisions that triggered sales (hold was voted down) that had faculty and student agreement. The average return for those (admittedly small) number of transactions was -38.64%. If the sales were strategic in terms of taking profits as a motivation, then this would suggest sound strategy: sell stocks that had appreciated and reinvest while cutting losses on underperformers before they lost any more value.

On the fixed income side, the picture was a little less clear. On the "Sell Agree" transactions the average return was 3.452%. For "Sell Split" transactions the average return was 2.972% and for the "Sell Disagree" votes the returns were 0.2758%. This might indicate that poor performers were held on too long, as faculty wanted to keep bonds that had the lowest average returns. However, fixed income securities displayed a lot less volatility than equities and had higher transactions costs, so picking up a few extra basis points by holding underperformers is not an unreasonable strategy to pursue. On the whole, the return performance for the transactions listed was pretty good, also considering that it included the 2008 financial crisis in the data.

CONCLUSION

This paper analyzed faculty and student trustee votes in a student-managed investments program. By analyzing a long history of votes that spans several years, we got a window into how the votes of students and faculty members played out in terms of after-the-vote performance. This information is unique in the sense that there is a long history of votes that can be examined, which is uncommon in the relatively short curricular history of student-managed investments programs. We viewed it from the perspective of the value of expertise in the decision making process and saw that there was substantial agreement on recommendations made by both students and faculty. This led us to conclude that the students, in other contexts besides comparisons to faculty, would themselves be considered experts based on their abilities and fund performance. We also analyzed a subset of the 700-plus recommendations made that had actual sale prices and concluded that the performance of those decisions in and of themselves was pretty good. This again suggests that, based on current research into training programs to develop domain-specific expertise, the curriculum and instruction is doing just that with the students in the program.

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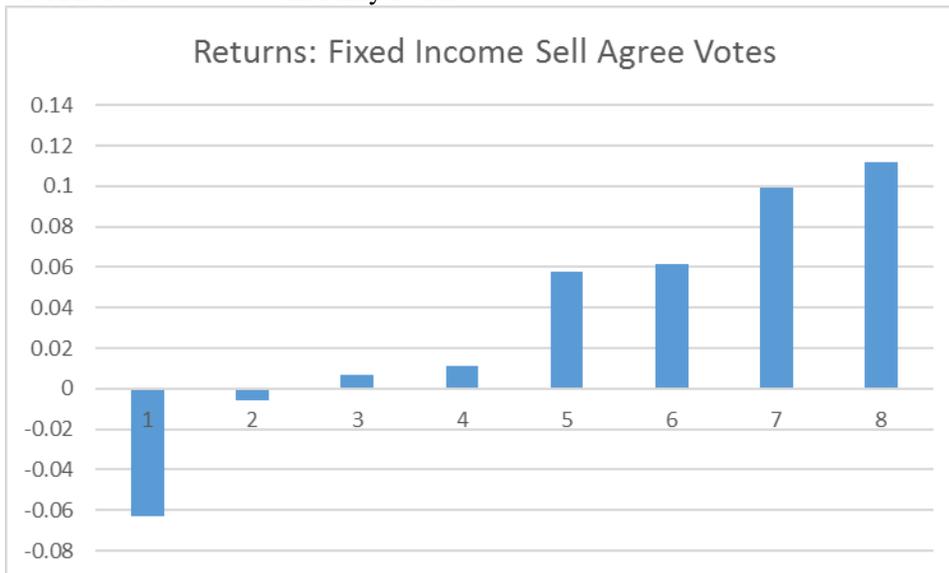
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Appendix 1: Fixed Income Sell Returns by Vote

Fixed Income Sell Agree Votes

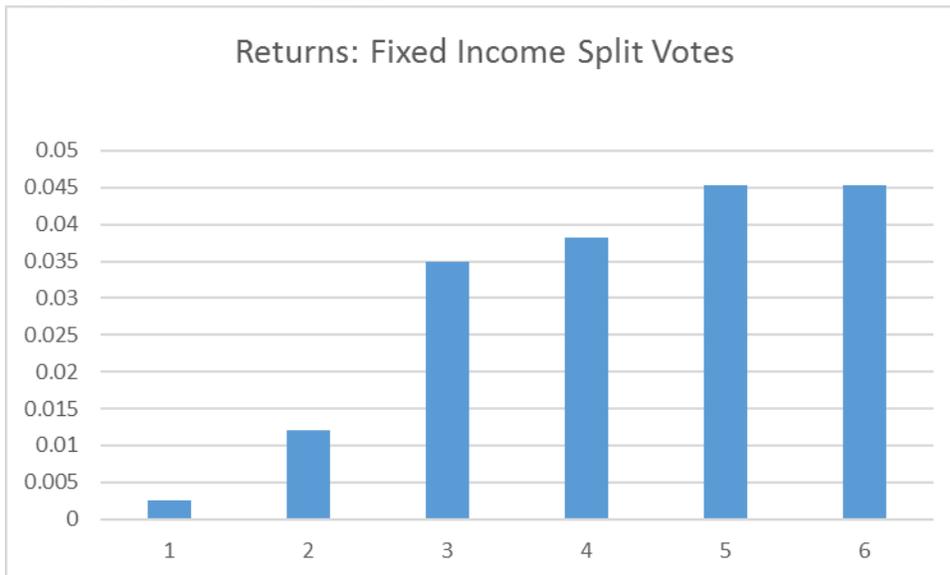
Return	Company
-0.06321	Arrow Electronics
-0.00573	2011 TIPS
0.006775	Caterpillar
0.011501	US TIPS 4/28
	Goldman Sachs
0.057807	7.35
0.061837	Nations Bank 6.6
0.099603	Bell Atlantic
0.111586	Hershey Foods



Appendix 2

Fixed Income Sell Split Votes

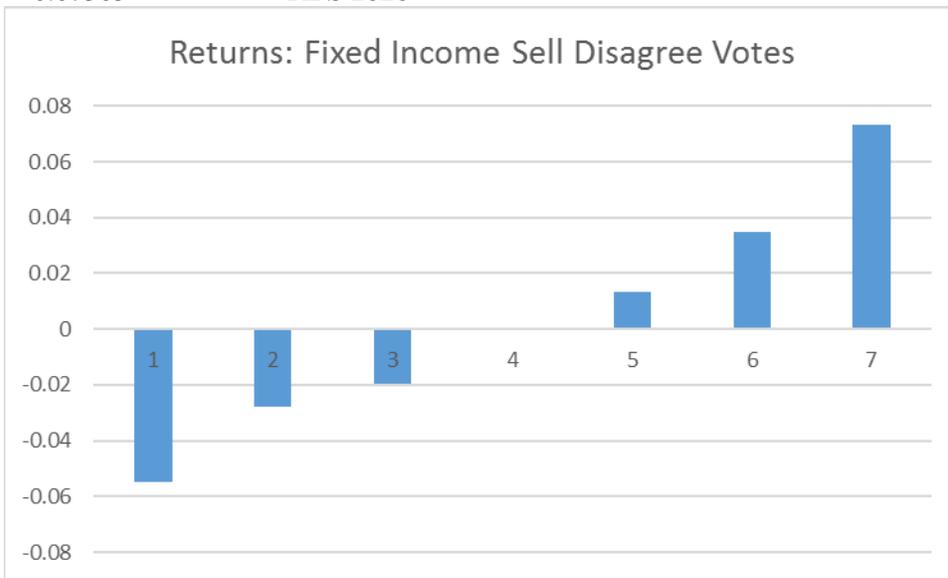
Return	Company
0.002566	United Health Group
0.012071	EDS
0.034906	FPL
0.038132	Citigroup 71/4%
0.045311	Verizon
0.045311	Verizon



Appendix 3

Fixed Income Sell Disagree Votes

Return	Company
-0.05492	International Paper
-0.02776	BAC
-0.01971	Union Carbide 6.7
0.000325	CMCSA
0.013417	Coca Cola
0.034906	FPL
0.07305	TIPS 2026



Appendix 4
Equity Sell Transaction Returns

