The Two-Year Student Managed Investment Fund: Coordination of Applied Investment Skills across Disciplines and Courses

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ABSTRACT: We present the structure of a unique student managed investment fund program that integrates several disciplines over a two-year investment horizon. After many years of experience with a program based on an academic year holding period, we designed a two-year program that addresses inherent problems found in funds based on a single course, single semester, or a single academic year. The two-year program presented in this paper provides for a rotation of students through a variety of different investment fund positions over a two-year period. Students engage in experiential learning through a sequence of positions within the fund to include junior stock analyst, senior stock analyst, senior sector analyst, portfolio engineer, portfolio manager, macroeconomic analyst, sector economic analyst, and general manager. The program also integrates several different courses across finance and economics disciplines in a sequence to support the development of skills necessary for the different positions in the fund. Key advantages of our approach over other more common student managed fund structures include an extended investment horizon, continuity of involvement with the fund over a two year period, more gradual turnover of fund managers, integration of finance, economics, and management skill development, well defined deliverable products at all levels of investment analysis, and a much larger number of students involved in the program.
The Two-Year Student Managed Investment Fund: Coordination of Applied Investment Skills across Disciplines and Courses

Student managed funds are popular experiential learning programs for the development of realistic skills and competencies in money management. The first student managed investment fund (SMIF) was created at Gannon University in 1952. SMIF programs had slow growth at first but expanded rapidly in the late 1990s. For example, Lawrence (1994) documented only 34 programs in 1993 but there were over 130 programs by 2000, according to a survey by Mallet and Lero (2001). More recently, Neely and Cooley (2004) use a survey approach to summarize the common structures of student funds. They find that most funds are linked to a course with either a semester or, in rare cases, an academic year holding period. After the course, the common practice is to liquidate the fund and start over with the next class. While there are a few exceptions, most funds are designed for seniors. These common structures result in a short investment holding period and frequent turnover of the management team. By limiting participation to seniors, juniors are prevented from using SMIF experiences as a springboard to a quality summer internship and are not able to provide enhanced leadership in the program when they are seniors.

In this paper we present a two-year student fund program linked to a student club for underclassmen. The two-year program we describe builds on a top-down fund that we have offered since 1993. The new structure lengthens the investment holding period and provides for a larger number of analysts conducting more in-depth fundamental analysis. A progression of assignments from junior analysts to higher levels of sector and portfolio management takes place over a two-year period. The extended investment horizon also allows a better integration of finance, economics, and accounting courses with a longer term learning objective. Both macroeconomic and industry analysis take on a larger role in the top-down fund structure.
supported by a closer working relationship with the economics department and honors programs. Finally, more formal links to alumni working in analyst, research, and portfolio management positions are built to form a mentoring relationship with past SMIF graduates and supporters. This program is in its initial formulation stage and is presented here to promote more discussion and consideration of both curriculum and resource constraints that may apply.

**Literature Review**

Bloom (1956) provides a classic taxonomy of cognitive learning with a hierarchy from simple to the most complex. The levels of learning and cognitive skills in the hierarchy include both the mastery of content and more complex application, analysis, synthesis, and evaluation skills. Active learning components of a curriculum, such as SMIF, provide opportunities to work on the higher levels of cognitive learning in Bloom’s taxonomy. AACSB standards actually call for business schools to demonstrate student learning at these higher levels. For example, AACSB assessment standards (AACSB, 2004) call for demonstration of student abilities to:

1. apply knowledge in new and unfamiliar situations,
2. adapt and innovate to solve complex business problems,
3. and have a capacity to critically analyze and question knowledge claims,

Exhibit 1 provides the Bloom hierarchy of cognitive skill levels with the corresponding student activities and specific actions adapted for an investments class. The activities in the textboxes could be achieved in a typical investments class but there are no dynamic interpretations of how these decisions or interpretations work out over time. A SMIF approach to these higher learning levels puts the learning process in real time with an ability to revise and adjust as new information develops. While there are many exceptions, the green shading in Exhibit 1
represents cognitive skills where more passive learning is appropriate and the brown shading represents cognitive skills best suited for active learning programs like SMIF.

(Exhibit 1 Goes Here)

A number of studies produce evidence that active learning approaches improve learning outcomes significantly. Active learning devices have been found to enhance problem solving (Kern 2002), increase student interest and motivation (McKeachie, 1986), improve student understanding (Galatas, 2006), promote better independent learning skills (Sivan, Leung, Woon & Kember, 2000), and increase comprehension and application skills (Omelicheva & Avdeyeva, 2008). These studies have certain flaws but they offer compelling arguments for expanding the way educators look at a curriculum. Ultimately, both content mastery and higher order cognitive skill development should be the end result of a successful curriculum. Our two-year approach places more emphasis on active learning and learning outside the traditional investments and portfolio analysis classroom settings. We also believe the approach outlined here provides a longer term set of learning goals to connect courses in economics, accounting, and finance.

Finance departments have a long history of using active learning to go beyond mastery of content. Active learning can take place in a variety of different teaching formats to include case method courses, simulations, hands-on data analysis, and internships, as examples. While student managed funds require significant resource commitments, there are significant learning advantages over other methods. Case method instruction allows realistic analysis of actual situations with an emphasis on written or oral defense of a decision or recommendation, but it is static in nature. Simulation allows a dynamic sequence of decisions and subsequent outcomes, but it fails to provide the sense of risk instilled by managing real money (Runyon, 1978). Student managed funds offer experiential learning in the context of continuous time adjustments
with a real sense of risk and return dynamics. Fund management also incorporates human interactions in managing people and teams as well as money. Active learning at higher cognitive levels occurs with intensive hands-on-data analysis linked to decisions that must be supported by an analysis of performance outcomes.

The finance literature contains a number of articles where educators share experiences with different fund structures. We take advantage of many of the insights and suggestions provided in these works. Early studies tend to focus on learning objectives and organizational issues for student managed funds (for example, see Belt, 1975; Bear & Boyd, 1984; Markese, 1984; Block & French 1991; Johnson, Alexander & Allen, 1996; and Kahl, 1997). Additional links to reality are created in some programs, like Stetson’s Rowland George Investment program, by using a distinguished visiting professorship staffed by a recognized investment practitioner who teaches and mentors in the program. Lawrence [1994] finds that most SMIFs operate as part of an investments course for both graduate and undergraduate programs. However, Tartar (1987) and Grinder, Cooper, & Britt (1999) describe a real funds approach using investment clubs open to students from all academic divisions within the university. The Tartar perspective allows for much wider student participation with more or less focused and directed learning, depending on the level of student experience.

Clinebell, Kahl, and Stevens (2012) demonstrate how the fund structure of student investment programs affects the legal and fiduciary responsibilities of students and faculty. They also present a best practices approach to building an investment policy statement to guide student management over longer investment horizons. Dolan and Stevens (2010) present a top-down SMIF structure based on a coordinated blend of finance and economics students to provide more in-depth analysis beyond stock picking. Charlton, Earl, and Stevens (2012) demonstrate how leadership and personnel management skills can be developed in a student fund in addition to
more traditional investment skills. We use the contributions from the three papers cited above extensively in our proposed program.

**Working Outline of SMIF Restructuring Plan**

The first step in structuring our SMIF program was to identify the key goals and outcomes we wanted to achieve with a new approach (see Exhibit 2). While our existing SMIF has served us well, the goals and expected outcomes represent improvements that we believe can be achieved with a restructuring. The goals are ambitious but the expected outcomes offer a quantum leap in student learning and enhanced opportunities.

*(Exhibit 2. Goes Here)*

The first concern was to create a more realistic structure of positions and skill development found in a money management firm. We began by conducting research on common organizational structures in money management firms combined with what we learned in our literature review on student funds. While there were many variations, the common thread was a spectrum of different job descriptions from more narrowly focused and specialized analysts to much broader overall portfolio and market analysis. The skills and competencies required for each position tend to build on economics, finance, and accounting course coverage that already exists in our curriculum starting in the freshman year and extending through the senior year. As a result, our program is structured with a variety of positions and activities with many opportunities for students who have not yet reached the senior year. The various positions all eventually relate to the construction of the portfolio as the nexus of all analysis conducted at different levels in the fund.

Exhibit 3 offers a schematic of the fund structure with an “upper level of analysis” that combines students with backgrounds and skills that are different from the background and skills
used in the “lower levels of analysis”. The upper levels require a greater degree of economics while the lower levels depend primarily on finance and accounting skills. The “upper level” positions in a top-down structure conduct a broad analysis of the factors and catalysts driving the markets. This analysis often feeds into the asset allocation decision and helps form expectations of how the different sectors or industries in the market will perform in the expected economic scenario. Our fund operates as an equity-only portfolio and is to be fully invested at all times. As a result, our emphasis is on broad macroeconomic and global forecasts that could then be translated into the most desirable weights for each sector of the market. This part of the fund structure is best suited to students with some depth in macroeconomics, international finance, industrial organization, and business conditions analysis.

We have an Economics Department in our business school with a long history of joint working relationships with the Finance Department. For example, finance faculty help support our Economics Department’s “Fed Challenge” program of mature economics students with advanced macroeconomics courses. Finance faculty also help supervise students with advanced research skills in our Economics Honors program. Finance also has a joint relationship with the Economics Department in support of a Finance Honors program. This history of joint work offers the potential for integrating economics and finance activities in the SMIF. An Economic Analysis Unit in the upper layer of the program is created by coordinating students with advanced microeconomics, industrial organization, advanced microeconomics, econometrics, and finance courses. This group provides periodic economic forecasts and industry/sector reports as inputs into the SMIF portfolio decisions.

As Exhibit 3 illustrates, the results of the research from the upper level of the analysis (grey shaded areas) flow to the portfolio managers (blue shaded area) in charge of constructing the investment fund’s holdings. At this point, the issue is to determine the sector/industry
weights relative to the benchmark index. Value can be added if portfolio sector weights of the best performing sectors are higher than the weights of the corresponding sectors in the benchmark. The sector weighting discussion is enhanced by including senior analysts who are assigned specific sectors to analyze. These analysts serve the dual purposes of making input into the sector weighting discussion as well as overseeing specific stock analysis work at the lower levels within their corresponding sector. The senior Portfolio Managers are responsible for the ultimate decision on sector weighting.

(Exhibit 3 Goes Here)

The senior analysts for each sector manage the sector analysis and specific stock analysis within the sector to identify the best stock opportunities. The stock selection process represents the lower level of analysis (dark red shaded area) that provides the first opportunities for underclassmen, under the supervision of senior analysts and the faculty advisor. We have 12 Bloomberg connections and two Morningstar connections for student use in the analysis. The SMIF philosophy and strategy that guides the analysis is outlined in the fund’s Investment Policy Statement (IPS). It is also a good idea to have a prospectus for the fund, to add another realistic component faced by money management firms. Appendix I contains and outline of what should be in an IPS. We have not yet created the specific documents for our fund since there is added discussion required for many of the fine points.

The Portfolio Committee is charged with construction of the best possible portfolio consistent with the investment policy and prospectus. Input from the upper levels of analysis provides the basis for a committee decision on sector weights. Inputs from the lower levels of analysis provide the basis for stock selection within each sector. Portfolio Engineers within the Portfolio Committee are charged with using efficient portfolio algorithms in conjunction with the other members of the committee to set the portfolio. Ongoing work at every level is fed to
the Portfolio Committee for continuous updating and analysis of the fund’s holdings. At every level, there is a written product justifying the recommendations with supporting arguments. There is an ongoing review of these supporting arguments to make sure they continue to justify the holdings. The engineers use the attribution models available in our Morningstar platform to evaluate the portfolio performance across a wide range of portfolio characteristics. The Portfolio Committee is also charged with performance reviews using traditional measures of portfolio performance to include basic Sharpe, Treynor, Jensen, and Sortino measures. Portfolio Committee positions are for the most experienced students with a successful background in one of the other levels of the fund. Exhibit 4 offers more detail on the different positions to be filled to run the fund and Exhibit 5 illustrates the work flow from these positions.

(Exhibit 4 Goes Here)
(Exhibit 5 Goes Here)

Links to Alumnae

Our SMIF has been operating since 1993, providing a large list of SMIF alumnae. Many of our alumnae and other supporters of SMIF are now actively working in positions similar to the job descriptions in the restructured program. An added level of realism is possible by linking students in SMIF with alumnae who can offer advice and mentoring. We believe such relationships will further enhanced the reputation of the fund and circulate this information to help expand internships and job placements. Alumnae are very helpful in paving the way for interview opportunities and offer good testimonials of the quality and depth of work by SMIF participants. More informal relationships with alumnae and SMIF have existed for a long time, but the new program offers greater opportunities to display more in-depth understanding of investment analysis.
Many innovations, investment approaches, and enhancements of theoretical finance are first developed in practice. The new structure makes it easier to find opportunities for students to “shadow” practitioners working in positions that the student can better understand as a result of the new structure. Most important, the new structure broadens the experience of students beyond stock picking and trading found in most programs. This combination of depth and progression in investment practice will provide an emersion in investment practice that best prepares students for conversational interviews with practitioners. We currently take field trips to New York City and expose our students to high profile practitioners. The new structure will allow students to make a more positive impression at an earlier stage of their education than a senior only program.

**Curriculum and Recruiting Issues**

An important limitation of the current program is that SMIF students in a senior only program have little experience in the fund during the recruiting period. The situation is worse for juniors seeking high profile internships, since they often have only one investment course under their belt in the spring of the junior year when internship recruiting occurs. A high profile internship is generally the best way to obtain a high profile job offer. An additional issue is that most business schools and finance departments do not offer many courses to students prior to the junior year. There are important exceptions, to include economics, financial accounting, and statistics. Nevertheless, with the popularity of studying abroad in the junior year, it is difficult to get the depth of knowledge required for meaningful work in SMIF before the senior year.

Our approach to these problems is to use a student club experience (Finance Society) focused on freshmen and sophomores to build candidates for SMIF and offer experiential learning in an out of class program. We also are working on our curriculum and advising
process to make sure good candidates for SMIF take the needed courses as early as possible. Exhibit 6 provides a guide to the key courses and sequencing of courses in our curriculum that supports the SMIF program. One important goal is to allow students to take the investments course as soon as possible to gain a foundation for SMIF work. Supporting this goal is a push to streamline the prerequisites for the investments course to include only our financial accounting, macroeconomics, microeconomics, statistics, and our basic financial management course. Other courses that play an important role in developing SMIF skills and competencies are either required or strongly advised.

*(Exhibit 6 Goes here)*

Another important curriculum issue revolves around coordination with the accounting department and economics department to allow SMIF students to enroll at the first opportunity. Also, over time, specific exercises and assignments supporting SMIF are developed and integrated into supporting courses. For example, financial statement analysis projects in both accounting and financial management can be tilted toward fundamental analysis of a company with an eye toward the stock value. The new structure also allows for accounting or economics students to participate at the lower levels of SMIF as junior analysts even if they do not plan to take the upper level finance courses required to be Portfolio Managers. The popular choice of a concentration in accounting and finance or accounting and economics makes this opportunity attractive for many students. Students in these programs are good candidates for analyst positions but may not have the scheduling latitude to move into higher level finance courses. Wider participation in SMIF extends beyond students to also include faculty. Accounting, economics, and finance faculty can all be helpful in advising and contributing to the Finance Society Club activity. Such joint efforts in extracurricular activities are more likely if the program is supporting students from these departments, not just finance students.
Investment Philosophy and Style

Our experience with a short horizon SMIF suggests that students prefer to “trade” rather than “invest”. Investment is a longer run proposition that is not to be abandoned when short term volatility or other market quirks occur. Yet, students prefer the action of shorter run plays and often do not have enough long run investing discipline to construct a portfolio for a longer holding period. While there are many potential investment strategies, a longer run holding period makes it more feasible to use some variant of the Graham & Dodd approach with an emphasis on the fundamentals of the firm. This approach also requires more in-depth analysis of the financial statements in addition to application of valuation metrics to estimate intrinsic stock prices. The new structure of SMIF presented here allows more emphasis on investment with the necessary supporting analysis, which generates more learning opportunities.

We have not yet set the investment policy statement or the prospectus for the fund, but it is likely that the new structure will have more of a value orientation consistent with a longer holding period for analysis. To maximize learning it is attractive to adopt a “good company” and a “good stock” approach. Like all funds, it is important to articulate buy decision justification and provide a sell discipline to reverse the decision only when the stated justifications are not playing out. We also like the idea of breaking the behavioral attachment that an analyst has to stocks that are recommended for the fund by requiring the Sector Analysts to recuse themselves from votes on stocks that are from their respective sectors.

A focus on investing rather than trading also has an important implication for the calendar year management of the fund. Students who qualify as the logical SMIF managers in the senior year tend to have internships during the summer months that preclude trading or participating on stock investing. Most funds simply close out the fund and starting over in the
A long run approach requires the fund to be ongoing throughout the calendar year. Options for management in the summer are limited. Funds that have a “trading” mentality want to protect against short term volatility during the summer by using stop loss orders. Our experience with this approach is that stocks are stopped out, the fund goes to holding cash, and the performance lags the market index on the year due to the cash holding. In any event, a major determinant of fund performance over the calendar year does not reflect an active decision. Other alternatives are to cash out the fund, invest in a passive index fund for the summer that matches the index, and then re-establish positions in the fall. Problems here include the transaction costs of turning over the portfolio and the long lag time it takes to get the fund fully invested again in the fall. If the fund philosophy is long term investing, a buy and hold approach to the summer is more reasonable.

**Gender Relevance**

The imbalance of gender in finance is a complicated phenomenon. Whatever the causal reasons for this imbalance, there are specific actions that a SMIF program can take to encourage more participation by female students. A logical place to start is with accounting students. Accounting tends to have a much healthier gender balance than finance, yet the skills and competencies required in the two disciplines are similar. The student club approach with an open invitation to students interested in accounting is a good start at opening up the possibilities for careers in finance for both males and females at an early stage of their college career. Active advising, mentoring with female SMIF alumnae, and use of female finance speakers all support a healthier picture of what female careers in finance might be like. The junior analyst program for Finance Society members also allows a low cost way for females to engage in investments without making permanent commitments to courses, concentrations, or majors.
An emphasis on mentoring females to the point of positioning them for the Portfolio Committee is healthy for the management of the fund. Studies show that males have behavioral biases and tendencies that lead to holding losers too long and excessive trading relative to female investors. Females are less inclined than men to be overconfident. Adding females to the Portfolio Committee should improve the decision process and help establish a better sell discipline for the fund.

**Academic Credit for SMIF Participants**

Most student funds are organized as a single class with a one semester holding period, for a number of practical reasons. A substantial amount of student and faculty time commitment is required to run an investment fund, especially if the fund is to mirror a real world investment firm. Any reward system for students or faculty other than academic credit would tilt the fund toward investment advisory services for a fee, resulting in higher fiduciary and legal responsibilities. Administration of academic credit tends to be linked to semester long courses and very short holding periods that match credit to the workload. The holding period of the investment tends to be linked to the duration of the course for which credit is given. Such short holding periods and complete turnover of fund managers are not realistic in investment management, resulting in the tendency for “trading” rather than long term “investing”.

There will be a prolonged discussion about appropriate academic credit for students and faculty for SMIF activities, since we are not using a typical semester long course structure. Our current thinking is that the Finance Society (club) does not have academic credit for students or faculty. Students participate for the experience and skills obtained from the activity. Faculty members provide “service” to the department and school by advising the club activities. One issue that may need more development is the ‘service” credit. Often, student interaction is not counted the same as committee assignments and tends to be an add-on to a normal service
commitment. We envision a significant time commitment in teaching, mentoring, and advising in the out-of-class program. Part of the load can be shared by having a team of advisors from different disciplines.

Our university uses a unit system where a unit of credit is more than the typical 3-hour credit but less than 4 hours. There has also been a move to break the link between credit and in-seat class time. Credit is linked to workload rather than time in class. There are significant constraints to allocating academic credits to the various activities of the fund. Many colleagues do not want too much credit given for an experiential program and do not fully understand the time commitments of a SMIF. To provide credit to academic advisors and students working on the fund, we must have a registered class “taught” by the professor with a regular meeting time, even though the activity is ongoing throughout the week.

Junior Analysts, Senior Analysts, Sector Analysts, Portfolio Managers, and the General Manager must register for a course/lab section that meets 90 minutes each week in class and has directed work outside class on fund activities. Exhibit 6 illustrates the logical placement of the courses/lab sections in a student’s academic program. The faculty member offering the course/lab receives teaching credit. A problem here is that there may be so many students in a single class/lab that the intensive contact and mentoring out of class may be too much for the teaching credit. We normally get between 35 and 45 juniors applying to join our senior-only SMIF program and 18 are selected to be in the senior year only SMIF program. At some point, we hope to also have sophomores in the analyst program’s course/lab sections when we go to the two-year program. Many of our juniors study abroad in the junior year, limiting their participation to only one semester of the junior analyst program. With this in mind, we project offering two sections of the junior analyst classes each academic year and two sections of the senior analyst classes.
Enrollments in the analyst courses will include sophomores who have accelerated programs and who have either had or are concurrently enrolled in our Investment course (Finance 366); juniors who have had or are concurrently enrolled in Investments; juniors who have already had the junior analyst class and are enrolling in a senior analyst section; and seniors who are not in the portfolio management program but want to learn analysts skills. Our Portfolio Management program will have one section each semester for those analysts who have been chosen as Senior Sector Analysts, Portfolio Engineers, Portfolio Managers, or General Manager. All lab/course sections will carry .5 unit of academic credit with a cap of 2 units of total credit for participation in the SMIF program. When the two-year program is fully implemented we anticipate a staffing need of 3 units of academic credit per academic year.

The commitment of 3 units of credit on the year to a faculty member is approximately a half-time position at our university. There is latitude in staffing the analyst courses/labs with adjuncts having investment backgrounds and credentials. Another approach, much like the model at Stetson, is to develop an endowment for a full time distinguished practitioner program to help supplement and offer practical guidance for the fund. Such a practitioner would also be instrumental in advising students for internships, placements, and fund raising. We do not have a solution to this resource constraint at this point, but we believe that the proposed program is well worth the investment required to implement the program’s structure.

Timetable for Implementation

There are a lot of moving parts to the program outlined here. We intend to have a variety of discussions and presentations to first fine-tune the proposal and seek support for the resources and cooperative relationships between departments, alumni association, SMIF alumnae, students, and advisors. A step by step implementation is likely with a focus on bringing the top layer of analysis together first. Like most SMIF programs, we need more emphasis on the top-down
process to move away from the tendency to "pick stocks" and trade rather than invest. Sector weighting discussions will be elevated with a requirement for more analysis. There is also a need to firm up the documentation of the fund, such as an improved Investment Policy Statement and Prospectus for the fund. We are likely to abandon our current split between value and growth funds to concentrate on a single fund with a long term investment horizon. This change will also bring about a better articulation of stock screening and fundamental analysis expectations beyond typical valuation metrics.

The Finance Society is already in place but with a more limited scope at this point. We anticipate restructuring the club format to appeal to more students and to add more "instructional" opportunities for students interested in an introduction to finance careers. We have a relatively new wing in the business school with a new lab equipped with 12 Bloomberg connections and Morningstar access. Most students enjoy exploring the capabilities of these services and we intend to use this draw to allow more hands on exposure for underclassmen. A junior analyst program will emerge when we have a critical mass of members interested in running stock screens and conducting basic analysis.

The full blown program will require additional resources to implement the sector "labs/sections" for academic credit. This is likely to be the last step in the process. The full blown program is ambitious and will undergo many revisions before it is implemented. Nevertheless, the structure presented here is a good working model to consider with the potential to change the scale as needs require.

Conclusion

Student managed funds have been around since 1952 and the development of new structures and features continues. The potential for enhanced learning has not yet been fully developed. With a greater emphasis on coordination of economics, accounting, and finance
these programs can reach a much larger number of students and offer a better integration of skills and competencies. Active learning has been so successful with these funds that they deserve a larger role in a curriculum. Opportunities to use practitioners to help with the fund should also be explored to a greater extent as a device to bring more real world experience to the curriculum.

Comments and reactions to the structure presented here are welcome. We have opened up our current thinking at a preliminary stage in hopes that additional revisions will make the structure better. We also intend to report back at a later stage to share our measures of enhanced learning and success in achieving our goals.
Endnotes


2. Stetson provides a good model for using practitioners in student managed fund. See
   http://business.stetson.edu/business/roland-george/hisstory.php

3. See http://robins.richmond.edu/centers/center-for-active-business-education/competitions/fed-
   challenge.html for a description of the Fed Challenge program at our University.

4. Grinder, Cooper, & Britt (1999) argue for using a prospectus even when the funds are
   provided by an endowment or grant. For an example of an excellent prospectus see the
   University of Connecticut’s student fund site: www.business.uconn.edu/users/smf./smf-
   prospectus.pdf.

5. Attribution models are powerful tools in analyzing the key drivers of a fund’s performance.
   See Girard, Pondillo, & Proctor (2005) for a simple classroom example and exercise for an
   attribution model.

6. Trading is motivated by a short run profit expectation. In this case, the stock rather than the
   company is the key point of analysis. For longer term investing the analysis begins by making
   sure the company has sound fundamentals for the long term. The next step is based on
   valuation metrics to determine if the stock is a good value. Students will have longer holding
   periods with an investment approach and must evaluate both the merits of the company and
   the stock.

7. See Kuhle & Ogilby (2010) and Drougas & Harrington (2007) for references to classroom
   teaching of Graham and Buffett investment approaches.


REFERENCES

AACSB International 2004, p. 20, 74-75


### Exhibit 1. Bloom Taxonomy Applied to Investments and Portfolio Analysis Courses

<table>
<thead>
<tr>
<th>Cognitive Skill (Low to High)</th>
<th>Student Activity</th>
<th>Actions</th>
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| Knowledge                     | Recall and retention of material | • Define what is meant by a value stock?  
• List financial ratios used to measure a company’s leverage?  
• State the stock index used to measure performance of small cap stocks. |
| Comprehension                 | Understand learned material | • Explain weak market efficiency and the type of investment practice that is not expected to work if markets are efficient in the weak form.  
• Predict what will happen to the shape of the yield curve if higher interest rates are expected in the future.  
• Interpret the Capital Allocation Line provided in the graph and how it might be used to measure active investment performance. |
| Application                   | Use learned material in new and specific situations | • Use the data provided to apply the Sharpe, Jensen, and Treynor measures of investment performance.  
• Solve for the expected rate of return for the stock given its beta and market data provided.  
• Show where your stock would plot relative to the security market line given the data provided. |
| Analysis                      | Break down material into parts to understand the organizational structure | • Differentiate the key assumptions of value versus growth investment philosophies.  
• Compare the intrinsic values of the following two companies using the data provided.  
• Contrast the economic conditions when durable good producing companies do well versus consumer product companies. Distinguish between the investment philosophy of Warren Buffett and Peter Lynch. |
| Synthesis                     | Put parts together to form a new whole not previously present | • Design and investment screen for large cap value stocks.  
• Construct a Markowitz efficient portfolio using the data provided for a list of stocks.  
• Develop an explanation for the apparent inability of expansionary Fed policies to stimulate private investment. |
| Evaluation                    | Judge value of material for a given purpose using definite criteria | • Appraise the quarterly performance of the portfolio of stocks given below using the data in table 1.  
• Evaluate the contribution of asset allocation to the performance of the portfolio using the data below.  
• Justify your recommendation to buy, sell, or hold the following stock using data you download from Bloomberg. |

**Activities generally best suited for Classroom**

**Activities generally best suited for SMIF**
Exhibit 2. Student Managed Investment Fund (SMIF) Reorganization

Goals of Reorganization

- Better preparation of seniors for the job market that begins before the senior year of SMIF management (market begins as early as September of the senior year)
- Better preparation of juniors for quality internships that begin at the end of the junior year
- Create a more realistic experience with multiple job titles and functions over the course of two years that more closely match the workings of a money management firm
- Expand the SMIF experience to more students with different levels of interest, to include more introductory exposure to investments
- Emphasize the role of macroeconomic and industry economic analysis in the context of a top down investment approach
- Offer more opportunities for students to follow special interests in specific sectors and industries
- Create specific deliverable products at each level of analysis to allow for more communication and distribution of student analysis with internal and external stakeholders
- Develop more leadership positions and team management opportunities for SMIF students in the second year of the program
- Create a connection between current students and SMIF alumni in mentoring relationships

Expected Outcomes

- Better placements for seniors based on more extensive money management experience and an accelerated background in investment analysis at the time of job interviews
- Better internships for students between the junior and senior year due to an accelerated background in investment analysis prior to internship interviews
- A wider range of job titles with specific skills and competencies attached to each title along with written and oral products available for review.
- A close working relationship between the finance, economics, and accounting faculty to integrate economic and financial analysis skills and competencies in support of the program.
- A more formal relationship between the Fed Challenge Program in economics and the SMIF Program
- A higher quality of SMIF reports to include more advanced portfolio performance metrics in the mid-year and annual report
- Written products on economic outlooks and market conditions, sector/industry analysis, and special topics
- A better integration of SMIF activities and the Honors Program in Economics and Finance
- A more realistic organizational structure that mirrors the functions and positions in a money management firm.
- Enhanced communication between students in SMIF and alumni employed in comparable positions in the real world.
Exhibit 3. SMIF Top-Down Structure of Activities

Global & Domestic Macroeconomic Conditions
  Macroeconomic Analyst

Sector and Industry Analysis
  Sector / Industry Weights
  Economic Sector Analyst

Portfolio Construction & Performance Analysis
  (Portfolio Manager- Portfolio Engineer)

Stock Recommendations by Sector & Industry
  (Portfolio Managers and Senior Sector Analysts)

Stock Valuation Metrics for Screened Stocks
  (Analysts)

Stock Screening Based on Investment Policy Statement
  (Analysts & Interns)
Exhibit 4. Job Titles and Responsibilities in the Two-Year Program

**Analyst Intern**  Students in the Finance Society (club) are eligible. This position is like an internship to expose the student to the workings of the fund and investment practice in general. Supervision comes from junior and senior research analysts, the faculty advisor for the Finance Society, and alumni involved in the fund. This position is designed for students interested in longer term participation in SMIF. Learning is supported by seminars, Finance Society activities, and integrated assignments in Financial Accounting and Financial Management courses. (No academic credit, students at any level are eligible if they remain in good standing with the Finance Society)

**Junior Analysts**  Students must have either completed or be currently enrolled in Investments (Finance 366). The skill set to be learned includes: manipulation of stock screens for the given investment strategy, application of stock valuation metrics, and background knowledge in a given sector or industry. At this level, analysts learn the skills and competencies of both company and stock analysis. Hands-on data analysis using the investment philosophy and style of the fund is emphasized. Over the semester students become oriented to the total fund operation to include identification of sector catalysts. (.5 unit academic credit per semester, enrolled in SMIF by the appropriate CRN.)

**Senior Stock Analyst**  Students with background courses up to and including Finance 366 (Investments) and Junior Analyst may be senior analysts. The position begins with responsibilities for learning and using stock screens, stock valuation techniques, and financial statement analysis to evaluate firm fundamentals. Students will progress to more focused analysis of stocks offering the best opportunity in a given sector. Senior analysts will also have some responsibility for mentoring junior analysts. (.5 unit academic credit per semester, enrolled in SMIF by CRN for the appropriate sector, juniors and seniors primarily)

**Sector Analyst – (Non-voting member of the Portfolio committee)**  Students who have served as Senior Stock Analysts are eligible to be Sector Analysts. The Sector Analyst manages the Stock Analysts in one of the fund sectors and is a mentor to Junior Analysts. The Sector Analyst has the responsibility to take the best stock picks within the sector forward to the Portfolio Committee for consideration as potential holdings. The Sector Analyst also authors the periodic Sector Report and is expected to gain expertise on the catalysts, earnings projections, regulatory issues, and economic prospects of the given sector. (.5 unit of academic credit per semester, enrolled in SMIF, seniors primarily)

**Portfolio Manager (Portfolio Committee)**  Portfolio Committee members are experienced analysts and are responsible for the construction and management of the portfolio. The committee receives reports and research from the upper levels (Economic Analysis Unit) to feed into discussions and decisions on sector weights. Reports and research from the various Sector Analysts are also discussed and evaluated to pick the stocks within each sector for inclusion into the portfolio. Finally, the Committee works with the Portfolio Engineers to make the final fund decisions that lead to the most efficient portfolio. Once the fund’s portfolio is constructed, the Portfolio Committee works with the Portfolio Engineers to evaluate performance on an ongoing basis. The Committee is responsible for all communications with the Board of Advisors to include the mid-year and annual reports. (.5 unit of academic credit per semester, enrolled in SMIF, seniors primarily, selected in a process run by outgoing portfolio managers each spring)
Exhibit 4. Continued

**Portfolio Manager (Portfolio Engineer, Portfolio Committee)** – The Portfolio Engineer position is highly qualified in Bloomberg and Morningstar, to include the various attribution models. Specific responsibilities include running the Markowitz Efficient Portfolio algorithms and performance evaluation templates for Sharpe, Jensen, Treynor, and Sortino metrics. The Portfolio Engineers feed the quantitative reporting outputs to the Portfolio Committee for reporting and analysis purposes. Finally, engineers are mentors and support personnel to all fund members with respect to Bloomberg, Morningstar, and other lab resources. Engineers have voting rights in the Portfolio Committee. (.5 unit of academic credit per semester, enrolled in SMIF, seniors primarily, selected in a process run by outgoing portfolio managers each spring)

**General Manager (Portfolio Committee, Chair)** – The General Manager is the Chair of the Portfolio committee and is the primary liaison with the faculty advisors. The GM coordinates SMIF activities and communicates across all operating positions of the fund. The GM is responsible for running the mid-year and end of year presentations to the Advisory Board and represents the fund to external constituents. All SMIF reports submitted for external communication and circulation must first be approved by the GM and the faculty advisors. (.5 unit of academic credit per semester, enrolled in SMIF, senior standing while in the position, selected in a process run by outgoing portfolio managers each spring)

**Macroeconomic Analyst (Economics Analysis Unit)** – Students in this position conduct an analysis of the larger economic environment that conditions the financial markets. The Economic Outlook produced by this group is the first step in a top-down approach to investing. The Outlook is used internally in conjunction with work by the Sector Economists as input for the Portfolio Committee’s sector weight decision. The Outlook is also available for communication to external constituents of the fund as a service of the Economic Analysis Unit and SMIF. Macroeconomic Analysts are resources to other analysts in SMIF with respect to economic conditions and forecasts. Ideal candidates are economics majors with a combination of courses in Advanced Macroeconomics, International Economics or International Finance, and honors students working on a thesis in macroeconomics. (.5 unit of academic credit per semester, selected by outgoing economists in the Economic Analysis Unit.)

**Sector Economic Analyst (Economics Analysis Unit)** – Students in this position conduct analyses of the various market sectors and industries. Periodic sector or industry reports produced by this group are used as inputs in the sector weighting discussion and decision of the Portfolio Committee. The reports are also used internally by all other analysts, especially the Sector Analysts. Sector and industry reports are also available for communication to external constituents of the fund as a service of the Economic Analysis Unit. Ideal candidates are economics majors with a combination of courses in Advanced Microeconomics, Industrial Organization, Environment Economics, and honors students working on a thesis in applied microeconomics. (.5 unit of academic credit per semester, selected by outgoing economists in the Economic Analysis Unit.)

**Chief Economist (Chair of the Economic Analysis Unit)** – The Chief Economist coordinates the efforts of the Economic Analysis Unit. All reports and correspondence from the EAU must be approved by the Chief Economist. The Chief Economist is the key liaison person with the faculty advisors and with the General Manager of SMIF. The Chief Economist sits on the Portfolio Committee and is responsible for presenting the work of the ECU to the Portfolio Committee, Advisory Board, and to external constituents of SMIF. (.5 unit of academic credit per semester, selected by outgoing economists in the Economic Analysis Unit.)
Exhibit 5. Structure of Activities by the Economics Analysis Unit in the **Upper Level** of the Two-Year Program

<table>
<thead>
<tr>
<th>GDP Growth Analysis &amp; Projection</th>
<th>Inflation Analysis &amp; Projection</th>
<th>Interest Rate Analysis &amp; Projection</th>
<th>Employment Analysis &amp; Projection</th>
<th>Currency Value Analysis &amp; Projection</th>
<th>Global Market Analysis &amp; Projection</th>
<th>Sentiment Analysis &amp; Estimate</th>
</tr>
</thead>
</table>

**Economic Forecasts and Projections used to Analyze the Sensitivity of Sectors to the Outlook** (Macroeconomic Analysts Report)

<table>
<thead>
<tr>
<th>Materials Sector Analysis &amp; Projections</th>
<th>Energy Sector Analysis &amp; Projections</th>
<th>Industrial Sector Analysis &amp; Projections</th>
<th>Financial Sector Analysis &amp; Projections</th>
<th>Consumer Cyclical Sector Analysis &amp; Projections</th>
<th>Consumer Staple Sector Analysis &amp; Projections</th>
<th>Technology Sector Analysis &amp; Projections</th>
<th>Utilities Sector Analysis &amp; Projections</th>
<th>Health Care Sector Analysis &amp; Projections</th>
</tr>
</thead>
</table>

**Economic Outlook Report**
**Economic Sector Analysts Report**
**Special Reports to the Portfolio Committee**
**Chief Economist**

**Portfolio Committee**
- Sector Weight Decisions
- Stock Selection Decisions
- Portfolio Optimization Analysis
- Attribution Analysis
- Ongoing Performance Analysis
Junior and Senior Analysts apply Financial Statement Analysis and Stock Valuation Methods to find the best stocks in each sector from the stocks that pass the screening program for the selected investment style.
### Exhibit 6. Integrated Course Selection and Course Sequence Supporting SMIF

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Sophomore</th>
<th>Junior</th>
<th>Senior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microeconomics</td>
<td>Macroeconomics</td>
<td>Investments</td>
<td>Sec. &amp; Port. Analysis</td>
</tr>
<tr>
<td>Fin. Accounting</td>
<td>Statistics</td>
<td>International Finance</td>
<td>Fin. Elective/ Electives</td>
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<tr>
<td></td>
<td>Financial Management</td>
<td>Fxd Inc. &amp; Derivatives</td>
<td>CFA Seminar</td>
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<td></td>
<td>Information Systems</td>
<td>Fin. Stmt. Analysis</td>
<td></td>
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<tr>
<td></td>
<td>Money &amp; Banking</td>
<td>Fin. Info. Systems</td>
<td></td>
</tr>
</tbody>
</table>

**Finance Society (Club Level)** [No academic credit]  
**Finance Society (Club Level)** [No academic credit]  
**In Special Cases**  
**Junior Analyst Class [.5 unit]**

**SMIF Junior Analyst Class [.5 unit]**

**SMIF Junior or Senior Analyst Program [.5 unit]**

**Sector Analyst, Portfolio Engineer; Portfolio Manager; General Manager [.5 unit each semester]**

### Index

- Core Classes supporting SMIF
- Recommended Courses supporting SMIF
- Finance Concentration Courses supporting SMIF
- SMIF Courses and Club Activity
Appendix I. Important Components of an Investment Policy *

1. **Factual Data:**
   * Where the assets are held
   * Amount of the assets under management
   * Identification of trustees or interested parties to the account

2. **Client (source of funding):**
   * Discussion and review of the client’s investment objectives
   * Investment time horizon
   * Any anticipated withdrawals or deposits
   * Need for reserves or liquidity
   * Attitudes regarding tolerance for risk and volatility

3. **Constraints and Restrictions on Assets:**
   * Liquidity and marketability requirements
   * Diversification concentrations
   * Advisor’s investment strategy (including tax management if applicable)
   * Locations of assets by account type (taxable versus tax-deferred)
   * How client accounts that are not being managed (if any) will be handled
   * Transaction prohibitions

4. **Securities to be Included in Investments:**
   * Types of securities and asset classes to be included or excluded in the portfolio
   * Basic allocation among asset categories and the variance (rebalancing) limits for this allocation.

5. **Controls:**
   * Monitoring and control procedures and responsibilities of each party.


Notes:
* It is important to make sure that there is nothing in the IPS that the student managers, faculty advisors, or provider of funds cannot implement or verify.