

Is Finance for Me? Gender Differences in Choice of Finance as a College Major

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Using a sample of senior college students, this study investigates why there are so few female students choosing finance as their major and the motivating factors for students when choosing a major. We find that very few female students as compared to male students consider choosing finance as a major, and more female students said given another opportunity, they would not choose finance as a major. Female students appear to be motivated by family members, while male students appear to be motivated by increased job opportunities. More female students cited a perceived lack of quantitative skills for not choosing finance as their major; however, female students who have a higher perception of their quantitative skills are more likely to choose finance as their major. Regardless of gender, most students say they do not choose finance as a major because they do not see themselves in the finance industry, or they simply prefer other business majors.

Keywords: finance major, gender, finance education, college major

INTRODUCTION

One of the most important decisions that college students make is choosing their major. Research has shown that students' choice of major will have an impact on job satisfaction, employment opportunities, as well as compensation. St. John (2000) states that, "There is, perhaps, no college decision that is more thought-provoking, gut wrenching and rest-of-your life oriented - or disoriented - than the choice of a major." As a result, those involved in higher education always hope that this is a decision that students give ample thought and consideration. However, using meta-analytical evidence, Roese and Summerville (2005) conclude that the most common life regret for Americans is usually linked to their educational choices. Choice of college major is dependent on many big and small influences, which are all important because of the lasting impact that this decision has on the rest of students' lives. Moreover, this decision directly affects the corporations that employ graduates, as well as colleges and their associated individual departments.

Using a survey, this study attempts to investigate why there are so few females students choosing finance as a major. It has been documented that there is a gender imbalance in undergraduate finance in business schools, with many more male students choosing to major in the field regardless of their performance in the required corporate finance course, as well as the quantitative courses such as Mathematics and Statistics. This is perplexing to faculty who wonder why most of the young women, including those who perform well in corporate finance and the quantitative courses, stay away from the finance major.

This study is warranted because addressing the gender imbalance in fields such as finance will go a long way in addressing the gender imbalance and lack of diversity in the workplace. In a report published by McKinsey & Company entitled, *Women Matter 2016: Reinventing the workplace to unlock the potential of gender diversity*, the authors point out that there is still a dearth of women in top management in corporations around the world. According to the report, in the United States, only 17 percent of executive-committee members are women and women make up fewer than 19 percent of corporate boards of companies. Likewise, in Western Europe, the figures are 17 percent for executive committees and 32 percent for corporate boards. As part of the same research, and in an analysis of 300 companies around the world, the authors found that companies with the most women on their executive committees enjoyed a return on equity that is 47 percent higher than those with none, and a 55 percent difference in operating results. Therefore, at the microeconomic level, there is consensus that gender diversity in companies, especially at the management level, leads to more impressive financial results and better organizational effectiveness.

The motivation of this study, which examines the reasons behind the lack of female students choosing finance as a major, lies in the fact that among employment opportunities that require a college education, some fields (e.g., finance) experience a persistent lack of gender diversity. As a result, addressing the gender gap within the finance major is critical for colleges/departments and, by extension, corporations that will inevitably face a shortage of talent especially among higher-education graduates. One way to mitigate this gender bias in finance is for female business students to earn more finance degrees.

The current study differs from previous research on this topic as we endeavor to better understand the factors involved in the decision-making process of choosing a major, specifically the finance major, using a qualitative and quantitative study. Using a survey that was sent out to senior business students at a small, private university in the Midwestern United States, we asked students a number of questions surrounding their rationale for choosing their major. Specifically, the study investigates gender differences in their reasons, quantitative aptitude, and overall performance that influenced their decision to choose, or not choose, finance as their major. The objective is to examine whether there is gender bias in students' choice of finance as a major. Are females indeed less likely to choose finance as a major? If so, why? This study is warranted, as there is a gap in the literature that examines the persistent lack of female students choosing finance as their undergraduate major. Moreover, understanding this issue could have a direct, positive impact on gender diversity in management and on corporate boards.

The remainder of the paper is organized as follows. Section 2 presents the related literature. Section 3 describes the data. Section 4 discusses the research methodology used in the study. Section 5 reports the results. Section 6 concludes.

RELATED LITERATURE

Interest in students' choice of major has encouraged considerable research over the past several years. The research has included the investigation of many factors that may influence students' choices such as exposure to the field, professors as role models, family and friends, professionals, career opportunities, and earnings considerations. The research has also examined students' choices by gender and race. We review several research studies related to students' choice of major below.

Factors Influencing Students' Choice of Major

Beggs, Bantham and Taylor (2008) use a means-end analysis to establish the factors that students think are important in choosing a major. The authors followed the aforementioned analysis by conducting a large-sample survey of undergraduate students and used both analyses to help understand the pertinent factors that students use in choosing a major. The authors find that the three highest ranked factors that influence students' choice of major are a match with interests, job characteristics, and major attributes. Also, the authors find that friends and family are not major factors of influence for students. Interestingly, the authors find financial success is not ranked very high overall as an influencing factor. However, when class rank is taken into account, seniors rank financial success as the third most important factor in their choice of major while the other classes rank financial success as number five. The authors surmise that financial success may be more relevant to seniors because they will soon be transitioning to the working world. Another significant finding from this study is that male students rated financial success more important than female students. Collins and Giordani (2004) in the "2003 Graduating Student & Alumni Survey", find that 68.4% of the students said that their choice of major was influenced by their love for the type of work it would enable them to do but only 7% said earning potential was a significant motivator.

Downey, McGaughey and Roach (2009) compare pertinent influences on choice of major for 205 Management Information Systems (MIS) and Computer Science (CS) majors at four universities in the United States. The authors find that the most significant influences for both MIS and CS students are their interest in technology and monetary compensation. However, students choosing MIS as their majors report being more heavily influenced by others such as college instructors, parents, friends, and the desire to interact with others. Several studies (Chung, Loeb, & Gonzo, 1996; Keillor, Bush, & Bush, 1995; Newell, Titus, & West, 1996) support this finding and show that parents have a strong influence on students' choice of major. Conversely, other studies (Adams, Pryor and Adams, 1994) find that only 4% of the respondents cited pressure from their parents, and 10% said that choosing a major similar to their parent's occupation was an important influence in their decision-making process. The same study also finds that 9% of students cited the recommendations of friends and relatives and 6% cited the recommendations of counselors/career mentors as significantly driving their choice of major. However, 59% of students said that real interest in the subject matter and related fields significantly influenced their choice of major. In a similar study by Leppel, Williams, and Waldauer (2001), the authors find that parents' occupation and socioeconomic status are important factors influencing business students' choice of major more so than nonbusiness students.

Mauldin, Crain and Mounce (2000) examine the impact of the accounting principles professor on students' decision to major in accounting. The authors find that career opportunities are the most important factor in choosing a major for accounting students as well as other business majors. On the other hand, Kim, Markham, and Cangelosi (2002) in their study find that interest in the specific subject area is the most important factor in students' choice of a business major, more than monetary compensation and job opportunity. Other studies also highlight that interest in the specific major and its associated fields is a significant motivator for students when choosing a major (Malgwi, Howe & Burnaby 2005; Strasser, Ozgur & Schroeder, 2002). Calkins & Welki (2006) investigate the factors that influence economics and non-economics students' choice of major to better understand which factors they consider significant motivators when deciding on a major and why some students don't choose economics. The authors find that that interest in the field, perceived marketability, performance in major classes, and the approachability and teaching reputation of the faculty are important drivers of students' choice of major. They also find that the perceived degree of difficulty of the subject matter influences students' decisions. In other words, some students choose their major based in part on how difficult, or easy, they perceive the associated classes.

Gender Differences in Students' Choice of Major

There is substantial research examining gender differences in nonbusiness majors, but there is limited research looking at gender differences among business majors. Lackland and DeLisi (2001) in examining

nonbusiness majors, find a gender difference in students' perceptions about their abilities for different majors, their humanitarian outlook on the different majors, and the practical usefulness of available majors. Sumner & Brown (1996) in looking at salary expectations, find that both male and female students in male-dominated majors expected higher salaries than both male and female students in non-male-dominated majors. Giacomino and Akers (1998) designed a study to investigate the differences between values and value types of accounting and nonaccounting majors, as well as differences between values and value types of males and females. The authors find few significant differences between accounting and nonaccounting majors in their individual values. However, they find significant differences between responses of females and males for nine values (Ambitious, Sense of Belonging, Broadminded, Politeness, Self-Discipline, Authority, Reciprocation of Favors, A World at Peace, Social Power) and two value types (Conformity, Power). The authors surmise that a better understanding of students' values and their value systems, including gender differences, can be very important for administrators and educators.

Dawson-Threat and Huba (1996) investigate relationships among several factors surrounding choosing a major - gender, sex-role identification, clarity of purpose, and type of major (male-dominated/female dominated). The authors find that among college seniors, fewer than half identified with traditional sex-roles; however, most students chose majors traditionally dominated by their gender. Specifically, students' choice of a traditional major is more likely to occur among female students (72.4%) than among male students (67.3%). Moreover, the authors find that seniors have the propensity to cluster in majors that are normal for their gender group. Therefore, they surmise that students' choice of major is influenced by the value students place on its perceived appropriateness as well as the expected probability of success.

Zafar (2013) studies how college majors are chosen, with a specific focus on the gender gap. Using a data set of Northwestern sophomores that includes their subjective expectations outcomes, the author estimates a model to explain gender differences in students' choice of major. Results show that the most important outcomes in choice of major are enjoying coursework, gaining approval of parents, and enjoying work in the workplace. In addition, nonpecuniary factors explain about half of the choice for male students and more than three-fourths of the choice for female students. Both male and female students have similar preferences regarding outcomes at college, but differ in their preferences regarding the work environment. For outcomes in the work environment, female students value nonpecuniary outcomes much more. The study also finds that gender differences in beliefs about ability and future earnings are insignificant in explaining the gender gap.

Hawash and Stephen (2019) use a dataset of 592 students over 10 years to examine whether there is gender bias in students' choice of finance as a major. The authors find that female students, on average, scored higher in their first college math course by almost 2% than male students; however, there is no significant difference in the grades between female and male students in corporate finance. Moreover, their results show that a 10% increase in the student's grade in his/her math class increases the student's grade in corporate finance by 6%. Interestingly, though, the results also show that the odds of a female student choosing a finance major is 0.4, which means that male students are 2.5 times more likely to choose finance as their major. In addition, the authors find that for a given score in corporate finance, the probability of a male student choosing finance as his major is higher than that of a female student.

Role Model Effect on Students' Choice of Major

It is well known that males dominate the business faculty at many colleges throughout the world. This has given rise to the theory that the lack of female faculty in finance, and business in general, has a direct impact on the depressed numbers of female students choosing finance as their major. Rask and Bailey (2002) with a dataset including information from student records, transcript records, and faculty records from Colgate University classes from 1988 to 2000, find role-model effects for female students, minorities, and male students. Their results show significance between the number of classes taken with a faculty member "like-you" and students' choice of major. Emerson, McGoldrick and Siegfried (2018), Smith and Zenker (2014), investigate female faculty role models and whether there is a positive impact on

female students' choice of economics as a major. The authors find no support for the female faculty role model effect. Conversely, using data from 195 academic institutions, Ricks (2007) find a positive and significant association between the number of female economics faculty and the number of female students choosing economics as their major.

Socioeconomic Status and Students' Choice of Major

A limited number of research studies on students' choice of major have looked at gender differences in the effects of socioeconomic status (Ware & Lee, 1988; Green, 1992; Trusty, Robinson, Plata, & NG, 2000). Ware and Lee (1988) find that male students from families of high socioeconomic status were more likely to choose a major in the scientific field than were other male students. Interestingly, Green (1992) find that significantly more male business majors came from wealthier families than female business majors. The author conjectured that male students, regardless of socioeconomic status, are more apt to be motivated by money and status in their choice of majors. However, female students from less affluent families are also frequently driven by money and job security. On the other hand, wealthy female students feel more secure about their financial future and are more likely to pursue majors that are not directly associated with high-paying jobs. Trusty et al. (2000) find that overall, the links between socioeconomic status and students' choice of major were stronger for female students than for male students. The authors also find that there is a stronger relationship between higher socioeconomic status and female students choosing nontraditional majors than was the case for male students.

Available Majors and Students' Choice of Major

Business students now have a plethora of majors to choose from at institutions of higher learning. In times past, there were a limited number of options but business school students now have many more options when deciding on a major. Therefore, the wide availability of majors may have an effect on students' choice of major. Willis and Pieper (1996) examine the relationship between the number of business and economics majors across a wide range of institutions. Their results show a negative association between business degree availability at the institution and the number of students choosing economics as their major. Using data from 546 economics departments, Siegfried and Wilkinson (1982) examine the number of students choosing to major in economics. Interestingly, their results show that the availability of closely competing business majors had a significant negative impact on the number of economics Bachelor's degrees awarded. We surmise that the sheer number of majors available at today's institutions may impact any observed gender differences in students' choice of major.

DATA AND METHODOLOGY

Our data were drawn from a sample of undergraduate students at a private university in a Midwestern state in the United States. The survey was administered in Qualtrics and given to students taking a mandatory capstone course in the spring semester of academic year 2019-2020. This capstone course is required for all senior students majoring in business. By surveying students in this capstone course, we sample students who are completing the last course requirements for graduation. These senior undergraduate students are at a good point in their academic career to reflect carefully on their undergraduate decisions and experiences particularly around choosing a major.

The students who completed the survey represented eight business majors - accounting (6%), entrepreneurship and innovation (7%), economics (4%), finance (27%), international business (5%), marketing (35%), management information systems (7%), and risk management and insurance (9%). The final sample consists of 106 students, 63% male and 37% female, who completed the entire survey. Most students have an overall GPA of 3.0 or better (86%), while 12% of students reported a GPA of 2.5-2.99, and 2% of students reported a GPA below 2.5.

Corporate finance is a required course for all business majors and it is also a prerequisite course for the capstone course, so while not all students in our sample are majoring in finance, the students in our sample have all taken corporate finance. For this reason, we use corporate finance as our reference point

for questions on a finance course. Students were asked to report their final grade earned in the corporate finance course and whether they had a male or female corporate finance professor. We asked these questions to explore whether there is any correlation between the experience in that course and the decision to major in finance. Similarly, we asked students to describe their general perception of their quantitative (math and statistics) skills. Finally, we asked students to reflect on their decision to (or not to) major in finance including their motivations and any reservations.

Our central question is to understand why fewer female students are choosing finance as their major compared to male students. Accordingly, we examine a number of factors impacting the decision to major in finance and then test to see whether there are any differences between the factors that influence female students to choose finance as their major compared to male students. The dependent variable ‘finance major’ is a dichotomous variable that is given a value of 1 (Yes) or 0 (No). Our first set of hypotheses tests the main exploratory variables of gender which is a dichotomous variable (1=female, 0=male), grade in corporate finance (1=above B, 0=B or below), perception of math skills (1=above average, 0=average or below), and whether the students knows anyone working in the finance field (1= yes, 0 =no). The second set of hypotheses test whether there are significant differences between female and male students on these factors.

RESULTS

We began our analysis by comparing female and male students’ responses on three questions. The first question was directed to the students who did not major in finance. The question was ‘Did you ever consider finance as a major?’. Only 23% of female students considered finance as a major whereas 44% of male students considered choosing finance as a major. This is illustrated in Figure 1 and Figure 2.

FIGURE 1
FEMALES - DID YOU EVER CONSIDER FINANCE AS A MAJOR? (%)

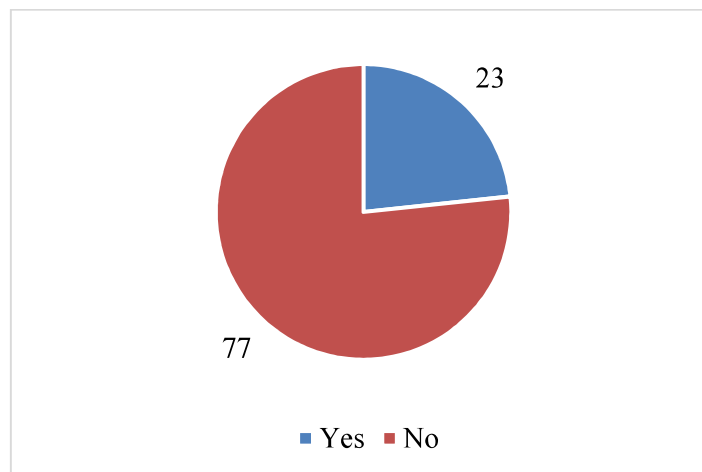
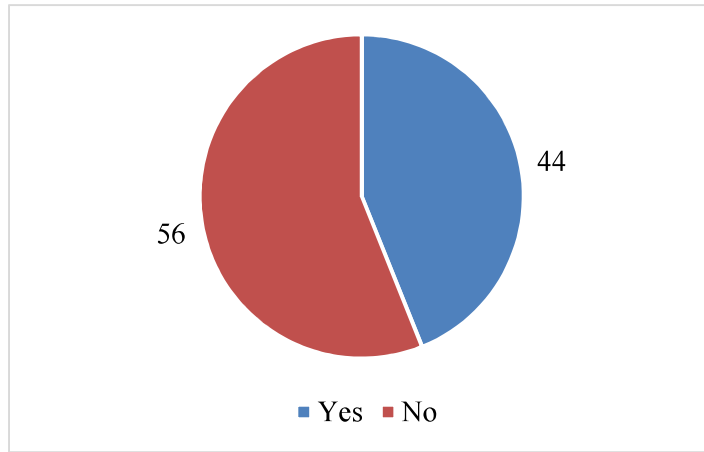


FIGURE 2
MALES - DID YOU EVER CONSIDER FINANCE AS A MAJOR? (%)



For the students who chose finance as their major, we asked them whether they had any reservations about their decision. The specific question asked was 'If you could do it all over again, would you still choose finance as your major?'. More female students said they would not choose finance again (27%) as compared to male students (20%). These results are illustrated in Figure 3 and Figure 4.

FIGURE 3
FEMALES - IF YOU COULD DO IT ALL OVER, WOULD YOU STILL CHOOSE FINANCE AS YOUR MAJOR? (%)

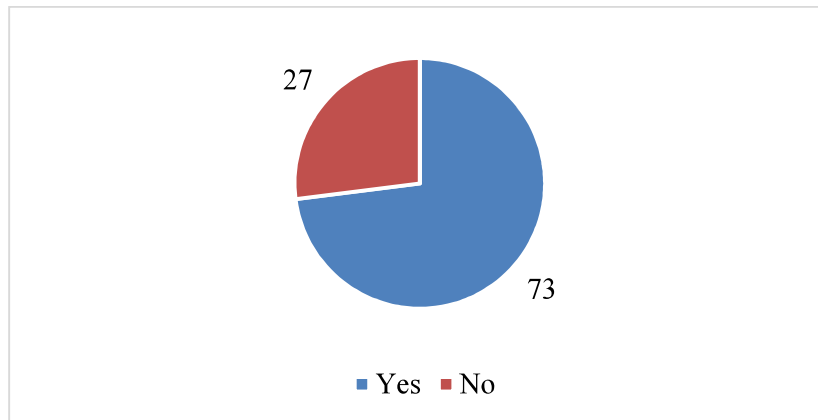
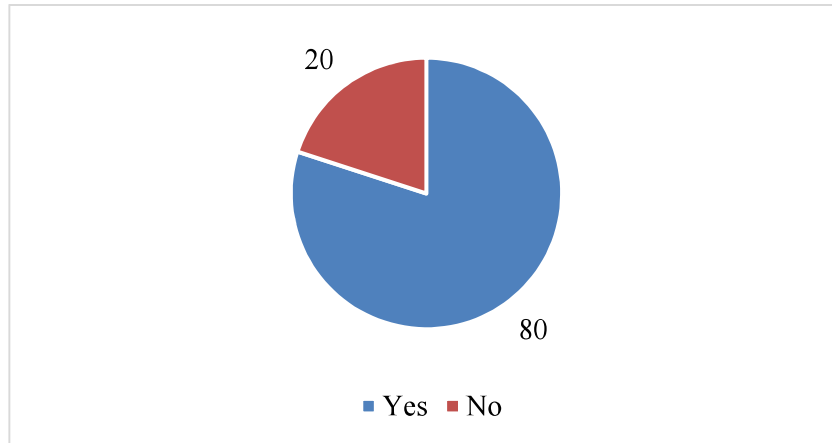


FIGURE 4
MALES - IF YOU COULD DO IT ALL OVER, WOULD YOU STILL CHOOSE FINANCE AS YOUR MAJOR? (%)



Next, we wanted to understand the motivation for choosing (or not choosing) finance as a major. Specifically, we asked the finance majors ‘What are the motivations behind choosing finance as your major?’. Then, we asked the students who did not choose finance as their major ‘What are the motivations behind not choosing finance as a major?’. The results of both queries are presented in Figure 5 and Figure 6.

FIGURE 5
WHAT ARE THE MOTIVATIONS BEHIND CHOOSING FINANCE AS A MAJOR? (%)

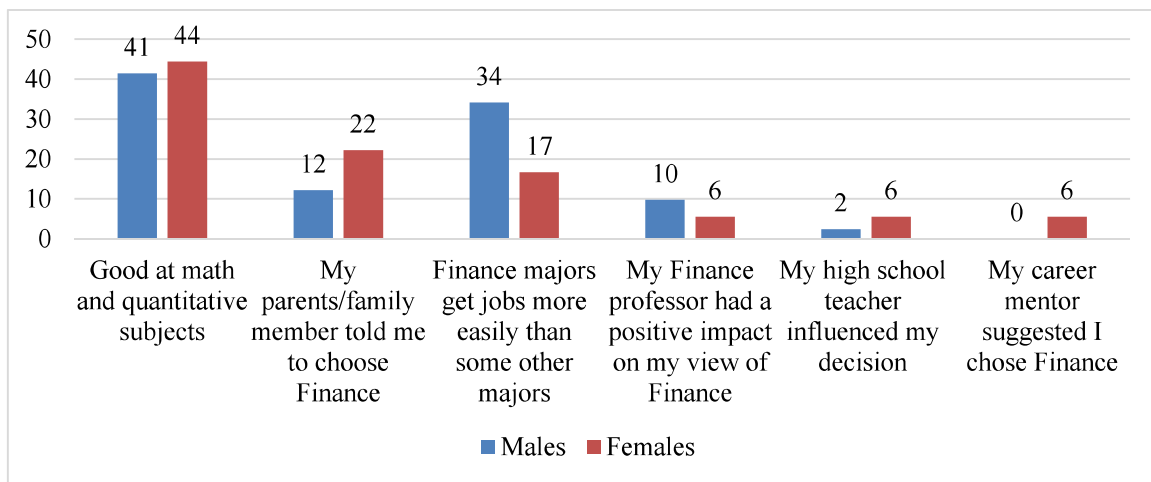
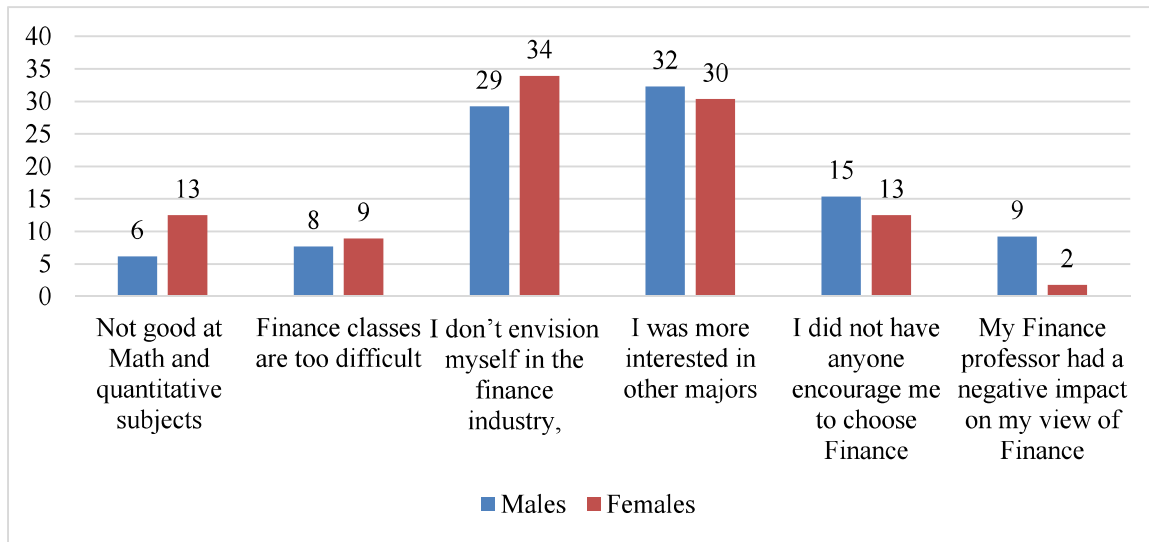


FIGURE 6
WHAT ARE THE MOTIVATIONS BEHIND NOT CHOOSING FINANCE AS A MAJOR? (%)



Interestingly, for the students who chose to major in finance, the female students appear to be more motivated by family members, while the male students appear to be more motivated by the perception that students who choose finance as their major get jobs more easily than students who choose other majors. For students who did not choose finance as their major, there were no significant differences between female and male students on most reasons. However, more female students cited a perceived lack of math and quantitative skills for not choosing finance as their major. We take note that regardless of gender, most students are not selecting finance as a major because they do not envision themselves in the finance industry, or they simply had a greater interest in the other business majors.

A logistic model was fitted to the data since our dependent variable, finance major, is a dichotomous variable. The results displayed in Table 1 show the log of odds of choosing finance as a major.

TABLE 1
LOGISTIC REGRESSIONS

	(1)	(2)	(3)
	Finance Major	Finance Major	Finance Major
Female (=1 if Female, =0 if Male)	-0.969** (0.481)	-0.867* (0.497)	-1.575 (1.771)
GPA	-0.686 (1.888)	-0.596 (1.763)	-0.186 (1.372)
Grade in Corporate Finance (=1 if grade above B, =0 if grade B or below)	2.379*** (0.890)	2.286*** (0.865)	2.629** (1.071)
Perception of quantitative skills (=1 if above average, =0 if average or below)		0.489 (0.486)	-0.930 (0.680)
Has any acquaintance in Finance (=1 if Yes, =0 if No)		-0.097 (0.634)	0.805 (0.729)
Female*Perception of quantitative skills (=1 if Female and has perception of above average quantitative skills, =0 otherwise)			3.376*** (1.237)
Female*Has acquaintance in Finance (=1 if Female and has acquaintance in Finance, =0 otherwise)			-1.886 (1.498)
Female*Grade in Corporate Finance (=1 if Female and has earned grade B and above in Corporate Finance, =0 otherwise)			-0.450 (1.190)
N	106	106	106

Standard errors are in parenthesis
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
0.05, *** $p < 0.01$

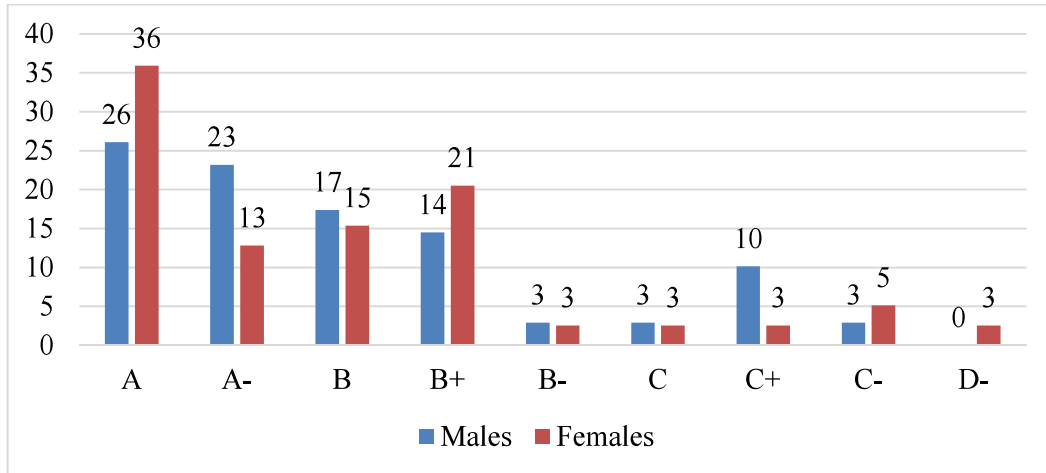
In Model 1, we regress the choice of finance as a major on gender, GPA, and grade in corporate finance. We find that females are significantly less likely to choose finance as a major in comparison to males. We also find that better grades in the corporate finance course increase the likelihood of the student choosing finance as a major. This suggests that students who master the finance skills in the mandatory corporate finance are more likely to choose finance as their major. In Model 2, we add the student's perception of their quantitative (math and statistics) skills and whether knowing someone in the finance field influences their decision to major in finance to our explanatory variables. We report no significant association between perception of math skills and likelihood of choosing finance as a major. In addition, we do not find support for having an acquaintance in finance and increased likelihood of choosing finance as a major.

In Model 3, we include interaction variables to observe differences between genders in the impacts of the explanatory variables included on the choice of finance as a major. In our analysis of comparisons between female and male students, we find that female students with a higher perception of their quantitative skills have a greater likelihood of choosing finance as a major as compared to their male counterparts.

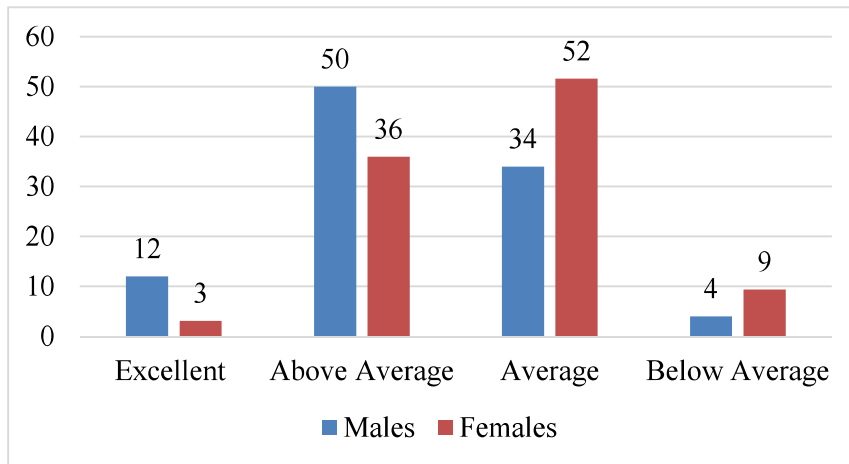
What is intriguing about this finding is that when we examine final grades in the corporate finance course, we see that female and male students perform equally well, earning at least an "A-" in the course (49% for both female and male students) as displayed in Figure 7. Given that female students appear to perform just as well as male students in the corporate finance course, then a thought-provoking question is why do females not perceive themselves as having the skills required to major in finance? One explanation could be that their lack of confidence in their quantitative abilities is deterring them from

choosing finance as their major. As shown in Figure 8, female students tend to perceive themselves as having lower mathematical and statistical skills relative to male students.

**FIGURE 7
GRADES IN CORPORATE FINANCE (%)**



**FIGURE 8
PERCEPTION OF MATH AND STATS SKILLS (%)**



The shocking mismatch between the female students’ perception of their quantitative skills and their performance in corporate finance becomes even more obvious when observing the significantly low correlation coefficient between both variables ($r=0.05$) in comparison to their counterpart male students’ correlation coefficient ($r=0.4$), which emphasizes the fact that females tend to underestimate their quantitative skills. This question offers an opportunity for future research on perception differences between genders and the impact on choosing finance as a major. We surmise that there are differing impact factors on female students as compared to male students when it comes to selecting finance as a major.

CONCLUSION

The goals of this study were to examine why there are so few female students choosing finance as their major, and what are some of the motivating factors for students when it comes to choosing a major. The gender imbalance that faculty and administrators witness in the finance major is confounding and addressing the issue will go a long way in mitigating the gender imbalance and lack of diversity in management positions and on corporate boards.

Our results show the following: (1) Very few female students as compared to male students consider choosing finance as a major; (2) More female than male students said given another opportunity, they would not choose finance as a major; (3) For those who choose to major in finance, female students appear to be more motivated by family members, while the male students appear to be more motivated by increased job opportunities; (4) More female students cite a perceived lack of quantitative skills for not choosing finance as their major; (5) Female students who have a higher perception of their quantitative skills are more likely to choose finance as their major, more so than their male colleagues; (6) The perception of their quantitative skills matter more for female students when choosing a major; (7) Students who perform well in corporate finance are more likely to choose finance as their major; (8) Overall, if we disregard gender, it appears that many students say that they are not choosing finance as a major because they do not envision themselves in the finance industry, or they have a keener interest in the other business majors.

Based on these findings, we believe that finance faculty should increase their efforts to attract more female students to the finance major. Finance departments should consider increasing their presence in high schools in order to provide more female students with pertinent information about the finance field. Likewise, finance departments should work closely with corporations with the specific aim of attracting more female students to the finance industry. This will address the gender imbalance and lack of diversity in upper management and on corporate boards. Finally, recent research shows that women lack confidence in their ability to compete in fields that men often dominate, such as finance, science, math, and technology. This may explain the dearth of female students choosing finance as a major. Indeed, this study shows that female students who have more confidence in their quantitative skills are more likely to choose finance as their major. In essence, gender stereotypes may be impacting female students' choice of major.

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