


A THREE-TIERED ANALYSIS OF THE FACTORS INFLUENCING THE ADOPTION OF FORENSIC ACCOUNTING FIELD IN SAUDI ARABIA

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ARTICLE INFO	ABSTRACT
<p>Article history:</p> <p>Received 03 March 2023</p> <p>Accepted 29 May 2023</p>	<p>Purpose: The study shows how several perceptionistic, environmental, and economic aspects can be systematically assessed in advance of investment decisions to launch a proposed Master's program in Forensic Accounting.</p> <p>Theoretical framework: Since the final decade of the twentieth century there has been increasing global interest in adopting and applying forensic accounting, fraud detection methods, and financial fraud examination . However, there are no specialized postgraduate programs in this field at either the local (Saudi) or regional (Middle Eastern) level, despite its importance to meeting the needs of accountancy and judicial employers.</p> <p>Design/methodology/approach: An inductive and analytical approach evaluates the proposed program using a three-stage model that can be adopted by any higher education institution (HEIs) wishing to develop an educational program.</p> <p>Findings: The results show that the vast majority of the program's beneficiaries support its implementation due to its novelty both locally internationally. The program gives the University of Tabuk, its initiator, a sustainable competitive advantage over other local and regional universities through supplying the labor market with graduates qualified in financial criminal investigation. Finally, the financial analysis indicates that the program will be strong financially and have a high level of operational efficiency and expected demand.</p> <p>Research, Practical & Social implications: The findings are beneficial for HEIs seeking to achieve a competitive advantage over their rivals by offering attractive academic programs that meet the demands of the labor market.</p> <p>Originality/value: The study is the first that it uses a three-stage assessment model to show how several perceptionistic, strategic, and economic aspects can be systematically assessed in advance of investment decisions related to launching new academic programs in HEIs.</p>
<p>Keywords:</p> <p>Forensic Accounting; Forensic Accounting Education; Strategic Evaluation; Investment Evaluation; Analytical Case-Study Approach; Three-Tiered Analysis Approach.</p> <div data-bbox="172 1016 480 1263" style="text-align: center;">  </div>	<p>Doi: https://doi.org/10.26668/businessreview/2023.v8i6.2185</p>

UMA ANÁLISE EM TRÊS NÍVEIS DOS FATORES QUE INFLUENCIAM A ADOÇÃO DO CAMPO DA CONTABILIDADE FORENSE NA ARÁBIA SAUDITA

RESUMO

Objetivo: O estudo mostra como vários aspectos perceptivos, ambientais e econômicos podem ser sistematicamente avaliados antes das decisões de investimento para lançar um programa de mestrado proposto em Contabilidade Forense.

Estrutura teórica: Desde a última década do século XX, tem havido um crescente interesse global em adotar e aplicar a contabilidade forense, os métodos de detecção de fraudes e o exame de fraudes financeiras. No entanto, não há programas de pós-graduação especializados nesse campo, nem em nível local (Arábia Saudita) nem regional (Oriente Médio), apesar de sua importância para atender às necessidades dos empregadores do setor contábil e judicial.

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Projeto/metodologia/abordagem: Uma abordagem indutiva e analítica avalia o programa proposto usando um modelo de três etapas que pode ser adotado por qualquer instituição de ensino superior (IES) que deseje desenvolver um programa educacional.

Conclusões: Os resultados mostram que a grande maioria dos beneficiários do programa apoia sua implementação devido à sua novidade, tanto em nível local quanto internacional. O programa oferece à Universidade de Tabuk, sua iniciadora, uma vantagem competitiva sustentável em relação a outras universidades locais e regionais, fornecendo ao mercado de trabalho graduados qualificados em investigação criminal financeira. Por fim, a análise financeira indica que o programa será sólido do ponto de vista financeiro e terá um alto nível de eficiência operacional e demanda esperada.

Implicações sociais, práticas e de pesquisa: Os resultados são benéficos para as IES que buscam obter uma vantagem competitiva sobre seus rivais oferecendo programas acadêmicos atraentes que atendam às demandas do mercado de trabalho.

Originalidade/valor: O estudo é o primeiro a usar um modelo de avaliação em três etapas para mostrar como vários aspectos perceptivos, estratégicos e econômicos podem ser sistematicamente avaliados antes das decisões de investimento relacionadas ao lançamento de novos programas acadêmicos em IES.

Palavras-chave: Contabilidade Forense, Educação em Contabilidade Forense, Avaliação Estratégica, Avaliação de Investimentos, Abordagem Analítica de Estudo de Caso, Abordagem de Análise em Três Níveis.

ANÁLISIS EN TRES NIVELES DE LOS FACTORES QUE INFLUYEN EN LA ADOPCIÓN DEL CAMPO DE LA CONTABILIDAD FORENSE EN ARABIA SAUDÍ

RESUMEN

Objetivo: El estudio muestra cómo pueden evaluarse sistemáticamente diversos aspectos perceptivos, medioambientales y económicos antes de tomar decisiones de inversión para poner en marcha una propuesta de programa de máster en contabilidad forense.

Marco teórico: Desde la última década del siglo XX, existe un creciente interés mundial por la adopción y aplicación de la contabilidad forense, los métodos de detección del fraude y el examen del fraude financiero. Sin embargo, no existen programas de postgrado especializados en este campo, ni a nivel local (Arabia Saudí) ni regional (Oriente Medio), a pesar de su importancia para satisfacer las necesidades de los empleadores del sector contable y judicial.

Diseño/metodología/enfoque: Mediante un enfoque inductivo y analítico se evalúa el programa propuesto utilizando un modelo de tres pasos que puede ser adoptado por cualquier institución de enseñanza superior (IES) que desee desarrollar un programa educativo.

Conclusiones: Los resultados muestran que la gran mayoría de los beneficiarios del programa apoyan su aplicación debido a su novedad, tanto a nivel local como internacional. El programa ofrece a la Universidad de Tabuk, su iniciadora, una ventaja competitiva sostenible frente a otras universidades locales y regionales al proporcionar al mercado laboral titulados cualificados en investigación penal financiera. Por último, el análisis financiero indica que el programa será financieramente sólido y tendrá un alto nivel de eficiencia operativa y demanda prevista.

Implicaciones sociales, prácticas y de investigación: Los resultados son beneficiosos para las IES que buscan obtener una ventaja competitiva sobre sus rivales ofreciendo programas académicos atractivos que satisfagan las demandas del mercado laboral.

Originalidad/valor: El estudio es el primero en utilizar un modelo de evaluación en tres etapas para mostrar cómo pueden evaluarse sistemáticamente diversos aspectos perceptivos, estratégicos y económicos antes de tomar decisiones de inversión relacionadas con el lanzamiento de nuevos programas académicos en las IES.

Palabras clave: Contabilidad Forense, Enseñanza de la Contabilidad Forense, Evaluación Estratégica, Evaluación de Inversiones, Enfoque Analítico de Estudio de Casos, Enfoque de Análisis en Tres Fases.

INTRODUCTION

Accountancy is no longer just a means of delivering to a variety of decision-makers a range of reliable and relevant information (i.e. financial or non-financial). It goes beyond that, looking at the challenges that hinder accountants from performing this task effectively (Al-

Jalili, 2012). One of these challenges is the rising number of cases of fraud and financial corruption in organizations across both developing and developed countries. Such fraudulent activities constitute threats to business continuity, and thus economic, social, and environmental issues (Margret & Hoque, 2016). This has put increased pressure on academia and the world's top standard-setting bodies to develop areas of study to detect, deter, and protect against fraud and financial and administrative corruption. The most prominent is forensic accounting, which covers both litigation support and investigative accounting practices (Aigienohuwa, Okoye, & Uniamikogbo, 2017). Scientifically, forensic accounting may be defined as a combination of financial expertise, fraud knowledge, and a sound knowledge and understanding of business reality and the working of the legal system; professionally, it is oriented to courts of law, and refers to the application of financial facts to the rules of evidence and unresolved legal issues (T. Singleton & A. Singleton, 2010).

Simultaneously, Saudi Arabia's educational sector is attracting wide attention because of its fundamental role in transforming the country's money-based economy into a human- and knowledge-based economy. It contributes by meeting the dramatically changing requirements of our current era, bringing the Saudi economy into line with the rest of the world. Moreover, the adoption of the new Saudi university system may contribute by strengthening the tools of the knowledge economy in two ways: (1) through motivating universities to be independent of government financial support; and (2) through urging them to strive to diversify their sources of income and reach a state of administrative maturity by assuming responsibility for their administrative and financial operation alongside their academic and social roles.

In promoting a knowledge economy, a university seeks competitive advantage over its rivals through offering educational programs and effective material and human resources to attract clients (students) from both the domestic and foreign market. Therefore, it aims to create an identity that distinguishes it from its counterparts in the region. This is achieved by launching programs that fulfill the requirements for both its own advantage and for those of the labor market.

Despite the importance of forensic accounting to meeting the needs of accountancy and judicial employers, currently there are no specialized postgraduate programs in this field at either the local (Saudi) or regional (Middle Eastern) level. Therefore, this study constructs a three-stage framework to evaluate and analyze an investment proposal to launch a Master's program in forensic accounting to be supervised by the Faculty of Business Administration at

the University of Tabuk. This framework can be adopted by other universities and higher education institutions (HEIs) that propose to introduce or develop an educational program.

Thus, the research problem can be formulated as the following questions. First, what is the opinion of students, employers, and experts on launching a Master's program in Forensic Accounting at Tabuk University? Second, what main internal strengths/external opportunities lend a sustainable competitive advantage to the proposed program? Third, what internal weaknesses/external threats could impede the sustainability and success of the proposed program? Finally, to what extent is the program profitable and able to achieve high future financial returns for the supervising institution?

LITERATURE REVIEW

The term “forensic accounting” was coined by Maurice E. Peloubet in 1946. He pointed out that it featured not only in the courtroom but was an independent type of professional practice (Crumbley, Heitger, & Smith, 2013). Nonetheless, its outcomes are used in resolving actual or anticipated disputes and litigation, where the term “forensic” means “suitable for use in a court of law” (Özkul & Pamukçu, 2012).

Since the final decade of the twentieth century there has been increasing global interest in adopting and applying forensic accounting, fraud detection methods, and financial fraud examination. This is shown by the results of the citation analysis conducted by Liodorova and Fursova (2018), which shows that 63 scientific articles on issues relating to forensic accounting appeared in the Scopus database from 1992 to 2017, from several countries. The vast majority were from the United States (29 articles), followed by Canada (six articles), then Australia and Nigeria (four articles each), then China, Germany, Malaysia, and India (three articles each), then the United Kingdom and South Korea (two articles each), then Hong Kong, Indonesia, Slovenia, and Turkey (one article each), and finally Russia (with a joint article with the United States). Furthermore, scientific initiatives are being undertaken and publications submitted by international professional associations such as the Institute of Certified Public Accountants (AICPA) and the Association of Certified Fraud Examiners (ACFE). These bodies have played an important role in developing the profession of forensic accounting and spreading awareness across several countries. These research efforts and professional initiatives are due to the importance of forensic accounting to detecting fraud. According to a global study by the Association of Certified Fraud Examiners from January 2020 to September 2021 (ACFE,

2022), which examined 2110 fraud cases from 133 countries, fraud involves losses of about US\$1.8 million per case.

After reviewing the related studies, it can be said that they fall into one of two groups:

- Studies that deal with what can be termed the supply side of the supply and demand equation. These are concerned with examining the content of each academic course taught in universities' accountancy departments. Their main objective is to determine which forensic accounting topics are covered, including those related to fraud investigations.
- Studies that conduct surveys of practitioners and/or academics to obtain their views on "hot" topics and contemporary issues in forensic accounting that should be adopted by academic accountancy programs, and their opinions on the expected take-up such courses and/or services. Such studies represent the demand side in the economic model.

The prior two-view argument leads to an improvement of forensic accounting programs accordingly (Carnes & Gierlasinski, 2001; Rezaee & Burton, 1997; Rezaee, Lo, Ha, & Suen, 2016; Kramer, Seda, & Bobashev, 2017). This section provides the relative studies that help to build a theoretical framework for an accurate Master's of Forensic Accounting Program.

The Demand Side Related Studies

There are several studies have been argued the important of forensic accounting subjects (Kramer et al., 2017; Hegazy, Sangster, & Kotb, 2017; Saadeh, 2019; Alshurafat, Beattie, Jones, & Sands, 2020; Sahdan, Cowton, & Drake, 2020), thus it is important to transform those demands for the profession of forensic accounting into a course offered by the universities (Kleyman, 2006). Within the Saudi context, for example, Al-Saad (2013) conducted an important study which is, "Forensic Accounting in the Kingdom of Saudi Arabia: Current Practice and Future Perspective: An Empirical Study (Exploratory)". It sampled a group of academics and chartered accountants (auditors), and the results indicate that about 87% believed in the importance of offering a forensic accounting major and that expected demand for its services would increase in future. With regard to the educational aspect, the study recommended Saudi universities' accountancy departments both to incorporate forensic accounting topics into related modules and to provide specialized independent programs in this major, including executive graduate programs.

According to Kramer et al. (2017) the employment options are numerous and include public accounting, internal audit, law enforcement, and a variety of federal agencies, including the FBI. Additionally, the candidate will profit from pursuing a career in forensic accounting and acquire a number of skills that will improve their capacity to operate as a professional in the business sector, audit, and as a consultant. In short, the quantity of fraud, embezzlement, and other financial crimes that take place in today's society has been increasing. Thus, Accounting and auditing professionals and educational institutions need forensic accounting education, training, and abilities to identify fraud, embezzlement, and other financial crimes in today's society.

In this regard, Matson (2016) stated the forensic accounting is a dynamically growth area in accounting field. This due to several reasons such as the Enron accounting and auditing scandals around the world made people aware of the consequences that financial fraud can cause. Such scandals, according to the report presented by West Virginia University (2007), have led to increased legal and regulatory requirements such as Sarbanes-Oxley Act of 2002 (SOX) and Public Company Accounting Oversight Board (PCAOB) for enhanced corporate governance. They have also led to address internal control systems for detecting and deterring fraud and encourage auditors to be more assertive in inspecting for fraud. This, in turn, has increased the demand for entry-level practitioners and professionals who have greater fraud awareness, as well as knowledge and skills related to fraud and forensic accounting. Additionally, the demand for the higher abilities that forensic accounting candidates possess has expanded due to the expansion of investigation services and ongoing changes to standards and regulations. Furthermore, Huber (2012) agreed that forensic accounting has a distinct social recognition. This acknowledgment occurs when economic difficulties are translated into genuine social benefits. The trusted values that forensic accountants help to attain, as well as the discipline and achievement advancement of the country's aims and mission.

Furthermore, Carnes and Gierlasinski (2001) examine the mismatch between the demand and supply for forensic accounting skills. In this context, the burden on auditors to identify fraudulent financial statements has grown, increasing the demand from accounting companies for fraud detection efforts and the need for forensic accounting competence. Carnes and Gierlasinski (2001) argued there are direct and indirect economic effect of fraudulent activities. Restatements of earnings and fraudulent financial statements entail a higher financial and shareholder investment cost. Such acts will have a direct effect on company stock values, which will then cause a dramatic decrease in exchange trades and result in bankruptcy. A

greater number of business failures will have an impact on the market as a whole and the economy of the nation.

According to ACFE (2022), these practices affect the gross revenues of the companies by 5% to all forms of occupational fraud and abuse. Such impact is a huge if multiplied to all companies in the countries stock exchange (Carnes & Gierlasinski, 2001). On the other hand, Carnes and Gierlasinski (2001) p. 379 stated these activities will have indirect effect on countries economy such as "reduced productivity, cost legal action, increased unemployment, and business disruption due to investigation".

There is an evedince on the existence of an realistic need for forensic accounting services in the Kingdom of Saudi Arabia, since one of the main objectives of the Kingdom's vision 2030 is to promote integrity and combat corruption. Most recently, Saudi Attorney General approves independent specialized prosecution branch for financial fraud titled "Prosecutions for Financial Fraud Crimes", which will be responsible for undertaking judicial procedures in combating financial crimes, investigate charges against the accused, and file criminal cases against them before the competent courts (Al Sherbini, 2023). This news and another announced nine months before it, which is related offering jobs in the field of forensic accounting by the Saudi Ministry of Justice, is a confirmation of the increasing demand for this specialization by judicial authorities in Saudi Arabia. On the other hand, it is known that forensic accounting serves all organizations (governmental or private) through providing principal methods for deterring and detecting all forms of occupational fraud. However, there are entities would benefit directly from services provided by this field. in Saudi Arabia, for example, there a number of governmental entities that can benifit from the services provided by forensic accountants. Examples of those entities are presented as a follow:

- Commercial and administrative courts: through the employment of the forensic accountant as an expert witness in cases of financial and administrative corruption.
- Public Prosecution: through the contribution of the forensic accountant in judicial procedures related to combating financial crimes, investigate charges against the accused.
- The Control and Anti-Corruption Authority (Nazaha): through the contribution of the forensic accountant in the process of collecting, analyzing and presenting data and statistics related to financial and administrative corruption.

- The General Bureau for Auditing: through the role of the forensic accountant in monitoring and auditing government spending operations and his/her contribution to reducing waste of public money.
- The Saudi Authority for Accredited Valuers (Taqeem): where the forensic accountant can provide professional services and high-quality evaluation reports for businesses and individuals.
- Bankruptcy Commission: through the contribution of the forensic accountant in verifying the declaration of bankruptcy and its procedures.
- The Central Bank of Saudi Arabia (Sama) and the financial institutions it supervises: through providing a range of services, including:
 - Tracking embezzled funds.
 - Reviewing regulations related to bank accounts and insurance.
 - Detering and detecting money laundering operations.
 - Reviewing contracts for financing loans.
- Zakat, Tax and Customs Authority: through the contribution of the forensic accountant in investigating tax/zakat fraud (evasion).

It is worth noting also that the Saudi Organization for Chartered and Professional Accountants (SOCPA), which is the official professional body pioneering and overseeing the accounting and auditing profession in the Kingdom of Saudi Arabia, implicitly recognized the forensic accounting field as one of the branches that fall under the profession through a number of initiatives. Mainly, SOCPA, represented by the Auditing Standards Council, has recently adopted the standard "Consulting Services: Engagements to provide Forensic Accounting Services." This standard adoption has resulted from a thorough study of the local market needs, and with the participation of a group of eminent judges and certified accountants during the development of the standard (SOCPA, 2023).

In conclusion, both markets and companies have a critical need for forensic accounting. Fraudulent actions will impact all market economies. So, to develop a market with more excellent skills and a sustainable economy that excludes fraudulent activities, professional experts and academics should respond to these needs and refocus their efforts.

The Supply Side Related Studies

Alharbi (2022) provide a study of critical arguments to the recent literature in forensic accounting and conclude several points that could improve the prevention instances of fraud

practices. Forensic accounting could be potentially improved by creating an education program that provides a variety of related knowledge, such as legal knowledge of relevant legislation and accounting skills, cybercrime, and technological knowledge. This argument is supported by Seda and Kramer (2014), which stated on p.3 "forensic accounting education offered by colleges and universities has been very limited". The literature provides evidence that education in forensic accounting is far from limited to professional courses for practicing accountants. For example, Digabriele (2008) investigated the relevant skills of forensic accounting from accounting practitioners' and academics' perspectives. The study concluded that the universities need more program that provides higher skills in forensic accounting and improvement for current accounting programs' curriculum by adding forensic accounting courses.

At the local (Saudi) and regional level, forensic accounting education has largely been overlooked. Most of the relevant studies conducted in the Kingdom of Saudi Arabia and Arab countries confirm the weak role of their universities in adopting and developing study plans in this field of accountancy, despite its importance, and recommend its inclusion into study plans and programs (Ghamber, 2014; Al-Kubaisi, 2016; Aram & Al-Hassan, 2016; Siralkhatim, 2019; Senan & Swalih, 2019). Abu Amara and Al-Harkan (2019) conducted a study, "Evaluating the Adequacy of the Current Content of Forensic Accounting in Accounting Programs within Saudi Universities". They found that the inclusion of forensic accounting topics in Saudi universities' accountancy courses is rare, and that this field is taught only on as a course included in graduate programs.

A study by Bhasin (2015) looked into the divergent perspectives of professionals and academics regarding the necessary competencies for forensic accounting services. According to the statistical findings, there is a lack of essential competencies in both academics and the profession. As a result, educators at universities have to create forensic accounting curriculum packages that benefit both. In addition, Seda and Kramer (2014) argued accounting education is now organized and needs to be drastically changed. Moreover, they argued that accounting educators should redesign the accounting curriculum to include more professional services (like forensic accounting) and elective courses that allow for some specialization, among other proposals. In this regard, Melancon (2002), p.30, who is the President and CEO of the American Institute of Certified Public Accountants, suggested that accounting educators such as universities should provide students with "the knowledge and skills to understand the fundamental characteristics of fraud, identify factors that may indicate it exists, and acquire enhanced interviewing techniques".

According to Alshurafat et al. (2020), forensic accounting is a growing but still immature field of study that, in addition to law and accounting, integrates expertise from other disciplines such as criminology, IT, psychology, and sociology. In addition, Sahdan, Cowton, and Drake (2020) advocated there is truly a lack of consensus over what constitutes forensic accounting, which is detrimental to those who engage in the discipline and those who are affected by its conclusion. Digabriele (2008) investigated the different view among forensic accounting practitioners, accounting academics, and users of forensic accounting services, for relevant skills needs for forensic accounting program in the University for 1500 respondent's sample. The results of the study concluded the needs of the following: Deductive analysis, Critical thinking, Unstructured problem solving, Investigative flexibility, Analytical proficiency, Oral communication, Written communication, Specific legal knowledge and Composure. Thus, universities and colleges need to consider those skills when the curriculum programs of forensic accounting are created.

The explanation above clarifies the increased demand for forensic accounting expertise, which aids organizational and financial levels. Moreover, the fraud phenomenon has drastically expanded in developed and developing countries markets. On the one hand, those behaviours have immediate adverse effects on businesses' gross domestic product and all industrialized nations. The indirect costs, on the other hand, include decreased productivity, the expense of legal action, a rise in unemployment, and company disruption due to the investigation.

As a result, the supply side requires academics and professionals to develop an appropriate theoretical model that aids universities in developing a forensic accounting program to provide the market with candidates with greater skill levels. In this regard, the following section uses Saudi Arabia as a case study to illustrate and apply the Three-Tiered Analysis of the factors that could affect the adoption of forensic accounting. As a result, it will be easier to evaluate investment choices methodically before beginning a suggested Master's program in forensic accounting.

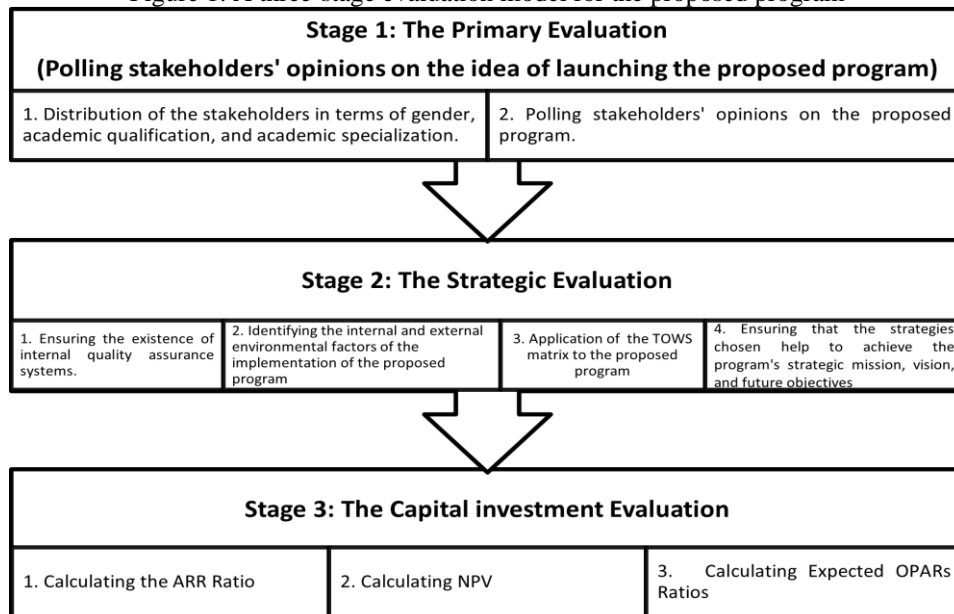
DATA AND METHODOLOGY

To ensure the sustainability of the program and to answer the research questions, an inductive and analytical approach was adopted to evaluate the proposed program through three stages (see Figure 1).

In the last, in order to maintain quality standards and continuous improvement of the proposed program, it was built on benchmarking with 4 of Top 200 universities in the QS

ranking, as well as the ACFE's Fraud Examiners Manual 2020 (International Edition). It is also presented with empirical general principles and procedural steps that are adopted and implemented by the University's Vice-Rectorate for Graduate Studies and Scientific Research in collaboration with the Department of Study Plans and Programs at the university. These include approving the proposed program by the respective committees and councils, sending it for arbitration to specialized experts, studying the need of Saudi society/economy for the proposed program, and comparing it with analogous programs locally and internationally.

Figure 1. A three-stage evaluation model for the proposed program



Source: Prepared by the author (2023)

Stage 1: Primary Evaluation

At this stage, the study attempts to estimate the potential value of the program and express the preferences of a range of stakeholders, including faculty members, students (current and alumni), managers, and employees in multiple sectors, regarding the launch of the proposed course. A sample of 109 participants were selected for this study, 96 of whom are employees and managers of more than 45 governmental and private entities, and the remainder students (both current and alumni). An electronic questionnaire (by Surveyheart®) was sent to all participants. This included nine questions: five to obtain respondents' demographics; and the remaining four to collect their opinions on launching the proposed program. Since this questionnaire has only closed-ended questions, all were returned with usable data. The survey results are presented in the following paragraphs.

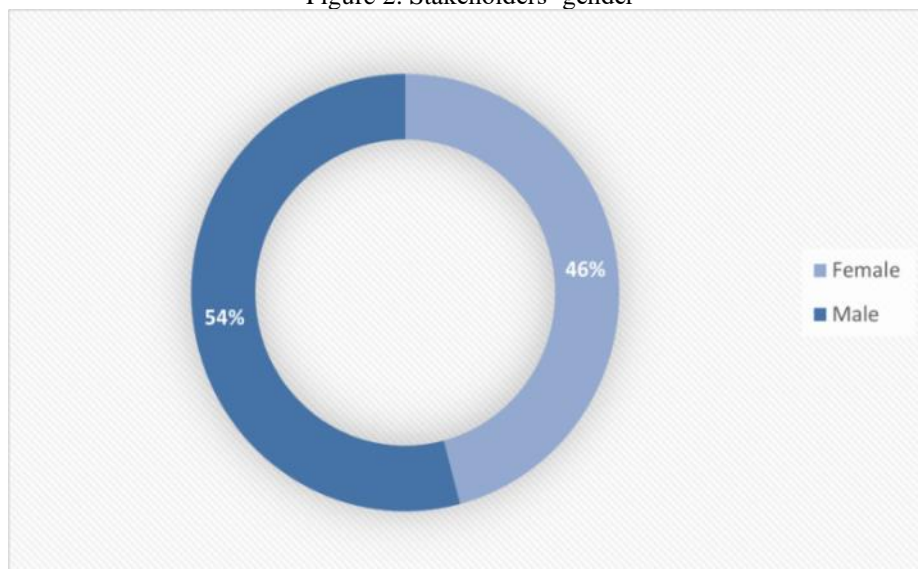
Similarly, for more comprehension, in strategic evaluation, in-depth policies and document review was performed. This process intensify the contextual need and demand for the proposed programs, as mentioned in detail in the 2nd part of the figure 1.

Moreover, capital investment analysis were also performed for the proposed program, to check its acceptability on the stakeholder sides. Here the study analysed the expected AAR, NPV, and OPAR values in details in their respective sections.

Distribution of Stakeholders in Terms of Gender, Academic Qualification, and Academic Specialization

As shown in Figure 2, 54 percent of the sample was male, while 46 percent was female (Figure 2). About 2 percent of respondents had secondary and post-secondary diplomas, 6 percent had a higher diploma, 45 percent had a Bachelor's degree, 41 percent had a Master's degree, and the remainder (approximately 6 percent) held a PhD (Table 1).

Figure 2. Stakeholders' gender



Source: Prepared by the author using Surveyheart®

Table 1. Stakeholders' qualifications

Qualifications	Count	%
Bachelor's Degree	49	45
High Diploma	7	6
Master's Degree	45	41
PhD	7	6
Secondary Education	1	1
Total	109	100

Source: Prepared by the author using Surveyheart®

The results in Table 2 indicate that 69 of the respondents (about 63 percent) were specialized in Accountancy, most of them were faculty members with doctoral (PhD) degrees, 19 (about 18 percent) had degrees in Business and Management Studies, while the remaining participants (21 respondents, or about 19 percent) had specialized certificated and training in accountancy from the audit firms.

Table 2. Stakeholders' academic specialization

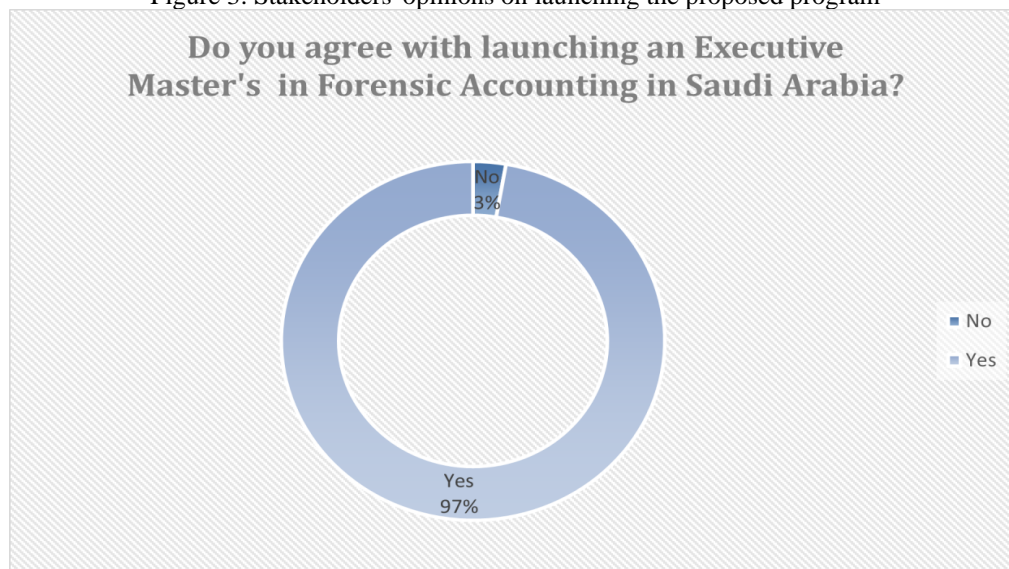
Academic Specializations	Count	%
Accounting	70	64
Business Administration	12	11
Computer Science and IT	3	3
Economy	1	1
Finance and Investment	1	1
Financial Management	1	1
Islamic Law	2	2
Law	2	2
Marketing	4	4
MIS	3	3
Other	10	9
Total	109	100

Source: Prepared by the author using Surveyheart®

Stakeholders' Opinions on the Proposed Program

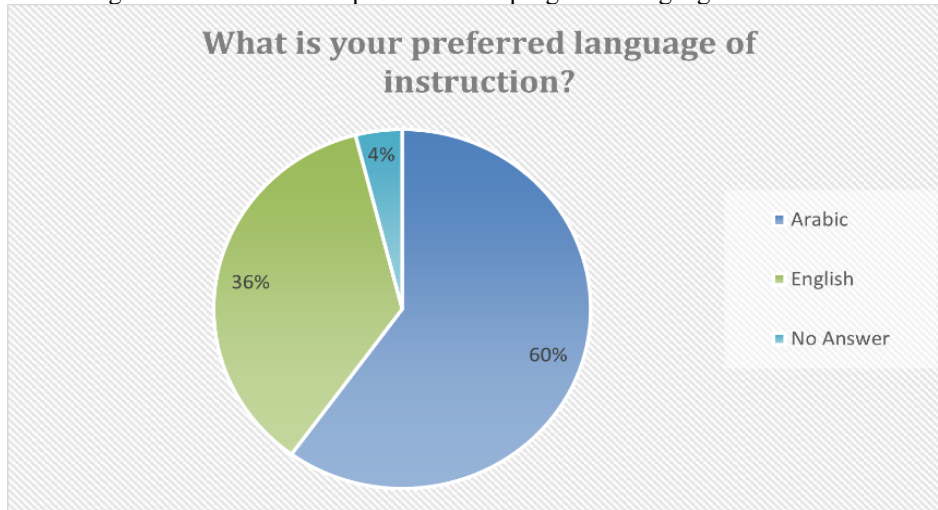
Figure 3 presents an overview of the extent to which respondents supported the idea of launching an executive Master's program in Forensic Accounting. As can be seen, the vast majority (about 97 percent) were in favor, and about 72 percent would like to constrain the teaching language to Arabic (Figure 4).

Figure 3. Stakeholders' opinions on launching the proposed program



Source: Prepared by the author using Surveyheart®

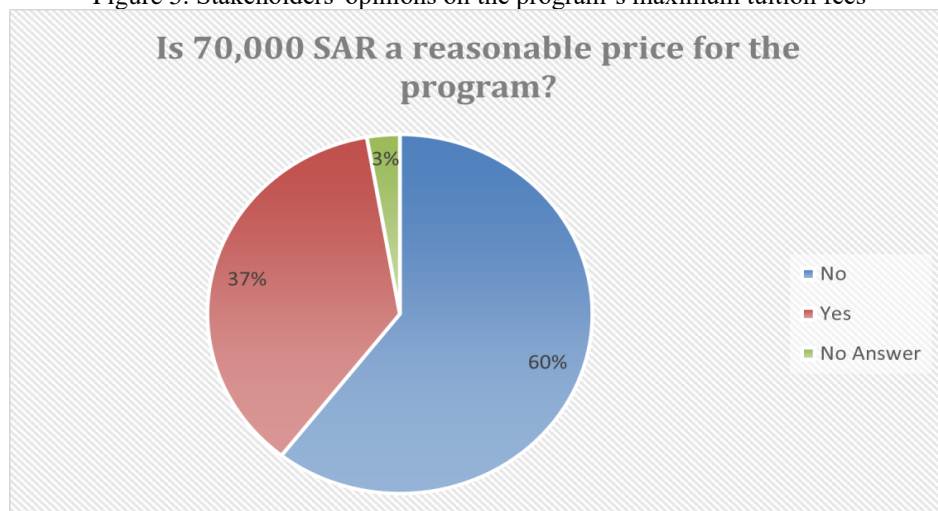
Figure 4. Stakeholders' opinions on the program's language of instruction



Source: Prepared by the author using Surveyheart®

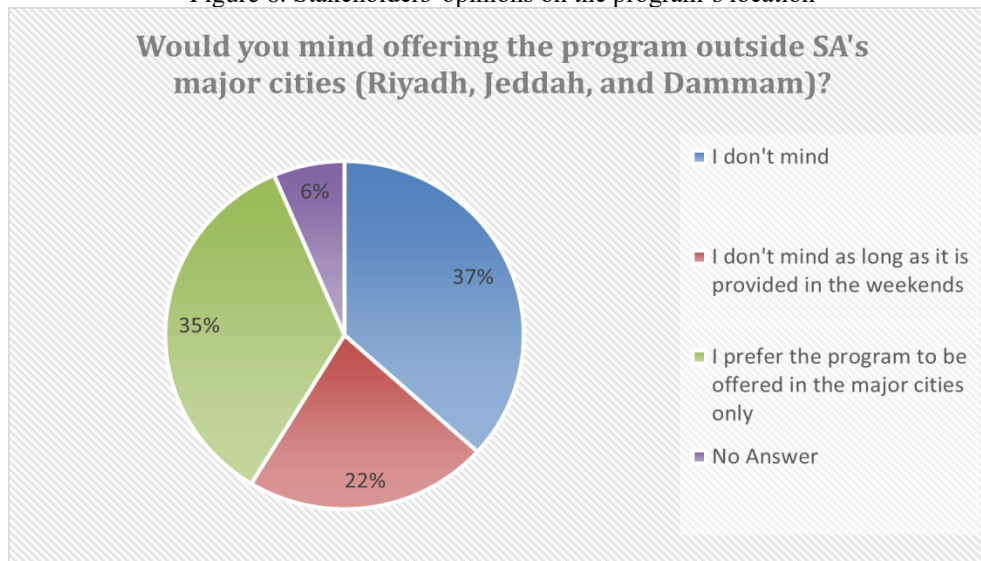
Moreover, more than half (about 62 percent) perceived that the maximum tuition fees for the proposed program (14 courses) should be 70,000 SAR (approximately US\$18,661; see Figure 5). About 39 percent saw no justification for refraining from offering the program at the University of Tabuk (the institution responsible for the program), but 23 percent required it to be delivered at weekends. By contrast, 37 percent preferred that it should run only in major cities (Riyadh, Jeddah, and Dammam) (Figure 6).

Figure 5. Stakeholders' opinions on the program's maximum tuition fees



Source: Prepared by the author using Surveyheart®

Figure 6. Stakeholders' opinions on the program's location



Source: Prepared by the author using Surveyheart®

Stage 2: Strategic Evaluation

Sharplin (1985) defined strategic evaluation as the process of obtaining information relating to performance and strategic plans and then comparing it to a set of standards. One of the most important tools commonly used in this process is SWOT analysis. This reflects an organization's expected summary of its strengths, weaknesses, opportunities, and threats. It is designed to be primarily a situation analysis tool (Wehrich, 1982); however, it can be used as a precursor to strategic planning in various applications (Johnson, Scholes, & Sexty, 1989; Bartol & Martin, 1998; Helms & Nixon, 2010). When correctly applied, SWOT makes it possible for the program-implementing institution (i.e. the Faculty of Business Administration (FBA) at the University of Tabuk) to gain an overall picture of its current condition in relation to its community, its rivals, and sectors in which its graduates will find employment. An understanding of the external factors (comprised of threats and opportunities), coupled with the internal ones (represented by strengths and weaknesses), assists in forming a vision of the future. Such foresight translates to initiating only competent programs and replacing any redundant or irrelevant ones with innovative and more relevant programs (Balamuralikrishna & Dugger, 1995). To evaluate the proposed program through SWOT analysis, there are four main steps:

- (1) Ensure that there is an internal quality assurance system.
- (2) Identify the internal and external environmental factors affecting its implementation.
- (3) Complete the TOWS matrix for the proposed program.

(4) Ensure that the chosen strategies help to achieve the program's strategic mission, vision, and future objectives.

Only the first three have been undertaken in the current study, as the last step may be considered to be running the target program.

Ensuring the Existence of Internal Quality Assurance Systems

This step means employing academic, administrative, and financial activities to fulfill students' needs (Ali, Ja'ilo, & Abdulhassani, 2020). FBA at the University of Tabuk has a superior quality assurance system supervised by the faculty's Vice-Deanship for Development and Quality. This aims to promote the concept of quality, spread it, and implement it across all academic departments and administrative units.

Identifying the Internal and External Environmental Factors Influencing the Implementation of the Proposed Program

The first step in SWOT analysis is construct a table consisting of four sections, one each for strengths, weaknesses, opportunities, and threats. The next is to list the specific items related to the problem at hand in the appropriate sections. In this study, as suggested by Johnson, Scholes, and Sexty (1989), the maximum number of points per section was set to ten to avoid over-generalization.

The SWOT method can be carried out by individual administrators or by groups. Group techniques are particularly effective in providing structure, objectivity, clarity, and focus in discussions on strategy which might otherwise tend to wander or be strongly influenced by politics and personalities (Glass, 1991). Therefore, an electronic questionnaire with both closed- and open-ended questions was distributed to the University of Tabuk's Dean of the FBA, its Vice-Dean for Development and Quality, and its Accounting Department's faculty members in posts of assistant professor and above. These individuals represent the program and study plan committee members. The aim was to determine the internal and external examination of strengths, weaknesses, opportunities, and threats that identify the department's competitive ability to run the proposed program. Table 3 summarizes the most important of these factors from respondents' point of view.

Table 3. SWOT analysis for the proposed program

Internal environment			
Strengths		Weaknesses	
18.92%	The name and reputation of University of Tabuk that has a full institutional accreditation from Saudi National Commission for Academic Accreditation & Assessment.	42.11%	The absence of intensive marketing campaigns for paid programs at the university
16.22%	The successful experience of the College of Business Administration at the University of Tabuk in terms of implementing (paid) academic/executive programs.	21.05%	The lack of the teaching staff specialized in the field of forensic accounting.
16.22%	The capacity for each teaching division does not exceed 30male or female students .	21.05%	The department's programs did not obtain any local or international accreditation.
13.51%	Having a comprehensive central library to serve faculty members and students	10.53%	Low non-governmental financial support to introduce the program.
10.81%	Expanding the admission requirements for the program	5.26%	Bureaucratic procedures and complex decision-making processes applied by the university.
10.81%	The existence of a Vice Deanship for Postgraduate Studies and Scientific Research		
	The availability of regulations that governs the study process and examinations procedures.		
2.70%	The governmental support given to Saudi universities.		
2.70%	The existence of relational capital elements at the department and college levels, which helps in accomplishing common tasks and work		
External environment			
Opportunities		Threats	
17.02%	Adaptation of the proposed program outcomes to the needs of the labor market and the Kingdom's vision	26.67%	Lack of demand for the program if it is implemented at the university's headquarters in Tabuk.
17.02%	Unavailability of similar programs at the local or regional level	20%	Economic fluctuations.
17.02%	The existence of three mega-projects in the Tabuk region (NEOM, Amaala and Red Sea).	20%	The existence of international master's programs in forensic accounting offered in a distance education method
10.64%	The desire of the Ministry of Education to diversify sources of income for public universities to get out of the mantle of the rentier state	20%	Availability of accredited professional certificates in the proposed major.
8.51%	The possibility of implementing the program outside the city of Tabuk in order to attract the largest possible segment of students	13.33%	Entry of new competitors.
6.38%	The possibility of setting up the program during the weekend		
4.26%	The possibility of allowing admission to the program twice every academic year		
2.23%	Increase the population of the Kingdom in general and the Tabuk region in particular		
2.23%	The possibility of implementing the program remotely		

Source: Prepared by the author using Surveyheart®

Using the TOWS Matrix with the Proposed Program

Identifying the most important strengths, weaknesses, opportunities, and threats is insufficient to determine the strategic position of the program's implementing party. In addition, it is necessary to match the strengths to the opportunities, and to convert the weaknesses and threats into strengths and opportunities. This process is known as TOWS analysis (Wehrich, 1982). This analysis is presented in Table 4.

The TOWS matrix analysis has shown that it is possible to devise at least four strategic alternatives that can be adopted by the supervising body of the proposed program to achieve its goals. Consequently, when comparing these alternatives it is necessary to ensure that the selected ones help the entity (i.e. the FBA at the University of Tabuk) to achieve the strategic directions stipulated in its mission, vision, and future objectives. These strategies can also be used as tools for designing and selecting from among several proposed Master's programs.

Table 4. TOWS matrix for the proposed program

		Opportunities (O)	Threats (T)
		<ol style="list-style-type: none"> 1. The alignment of the proposed program outcomes with the needs of the labor market and the Kingdom's vision 2. Unavailability of similar programs at the local or regional level 3. The existence of three gega-projects in the Tabuk region (NEOM, Amaala and Red Sea). 4. The desire of the Ministry of Education to diversify sources of income for public universities to get out of the mantle of the rentier state 5. The possibility of implementing the program outside the city of Tabuk in order to attract the largest possible segment of students 6. The possibility of setting up the program during the weekend 7. The possibility of allowing admission to the program twice every academic year 8. Increase the population of the Kingdom in general and the Tabuk region in particular 	<ol style="list-style-type: none"> 1. Lack of demand for the program if it is implemented at the university's headquarters in Tabuk 2. Economic fluctuations. 3. The existence of international master's programs in forensic accounting offered in a distance education method. 4. Availability of accredited professional certificates in the proposed major. 5. Entry of new competitors.
Strengths (S)	SO	ST	
<ol style="list-style-type: none"> 1. The name and reputation of University of Tabuk that has 	<ol style="list-style-type: none"> 1. Building bridges of cooperation with the relevant 	<ol style="list-style-type: none"> 1. Increase the demand for the program by meeting 	

<p>a full institutional accreditation from Saudi National Commission for Academic Accreditation & Assessment.</p> <ol style="list-style-type: none"> 2. The successful experience of the College of Business Administration at the University of Tabuk in terms of implementing (paid) academic/executive programs. 3. The capacity for each teaching division does not exceed 30 male or female students. 4. Having a comprehensive central library to serve faculty members and students. 5. Making the program more accessible to a large segment of students by implementing the program during the weekends. 6. The existence of a Vice Deanship for Postgraduate Studies and Scientific Research. 7. The availability of regulations that governs the study process and examinations procedures. 8. The governmental support given to Saudi universities. 9. The existence of relational capital elements at the department and college levels, which helps in accomplishing common tasks and work. 	<p>authorities and leading projects in the region to ensure the success and sustainability of the proposed program (S1O2O3).</p> <ol style="list-style-type: none"> 2. Taking advantage of the teaching and administrative experience acquired by the college in providing such paid programs to ensure the success of the proposed program, and to achieve a high rate of return on it (S2O4). 3. Increasing teaching and support staff per student, and thus increasing the quality of education provided for students (S3O1). 	<p>the needs of working professionals, and following a schedule of alternate weekend classes, and through delivering the program online (S5T1T3).</p> <ol style="list-style-type: none"> 2. Using the name and reputation of University of Tabuk in building relationships with forensic accounting professional bodies, in preparation for obtaining professional accreditations from them (S1W4).
Weaknesses (W)	WO	WT
<ol style="list-style-type: none"> 1. The absence of intensive marketing campaigns for paid programs at the university 2. The lack of the teaching staff specialized in the field of forensic accounting. 3. The department's programs did not obtain any local or international accreditation. 4. Low non-governmental financial support to introduce the program. 5. Bureaucratic procedures and complex decision-making processes applied by the university. 	<ol style="list-style-type: none"> 1. Taking advantage of the lack of rivals, locally and regionally, in not having to provide initiate frequent marketing campaigns and devote significant resources to launching the program (W1O2). 2. Networking and building relationships with several stakeholders in order to receive the non-government support (financial and non-financial) needed for the success and sustainability of the program (W4O3). 3. Taking advantage of the encouragement provided by 	<ol style="list-style-type: none"> 1. Intensifying marketing campaigns for the proposed program to promote the demand for it (W1T1). 2. Contracting with faculty members specialized in forensic accounting in order to pursue advanced study in the relevant courses, and to achieve a competitive advantage among new competitors (W2T5). 3. Developing a plan to obtain local and international accreditations, in order to improve the quality of the

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| <p>the ministry to facilitate the bureaucratic procedures and complex decision-making processes applied by the university currently to launch/develop new academic programs (W504).</p> <p>4. Taking advantage of the possibility of implementing the program in one of the large cities in the Kingdom (Riyadh, Jeddah, or Damam) to engage a larger and more qualified faculty members teaching this field (i.e. forensic accounting).</p> | <p>program learning outcomes that would be a barrier to the entry of new rivals (W3T3T4T5).</p> |
|--|---|
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Source: Prepared by the author (2023)

Stage 3: Capital Investment Evaluation

The decision to offer new educational programs has an significant impact on the competitive strategy of any academic institution. Regardless of the outcome of the decision, the enhancement of such offerings involves much consideration of essential strategic management accounting techniques, such as break-even analysis and cost-benefit analysis, capital budgeting, and benchmarking. As a subset of these analytical tools, this study quantitatively investigates the estimation of the capital and operational returns on the proposed degree program. For Saudi public universities, such evaluation processes are usually operated under conditions of certainty and an absence of competition due to the stable conditions prevailing in government-subsidized universities. Moreover, in such institutions the impact of factors such as the timing of investment, political and economic fluctuations, availability of sources of financing, and the size of operational costs are normally minimal and ineffective. Therefore, when evaluating any investment under such circumstances, it is important that the evaluation process is carried out on a purely financial basis, disregarding the potential economic and social considerations.

There are several capital investment evaluation models related to these conditions of certainty. Some of them use the time value of money, while others do not put this factor into the equation. The current study used one model for each type. Further, operating performance ratios especially for HEIs were adopted to estimate the program's sustainability and financial health. The quantitative financial data used in analyzing these models was cited from predictable and relevant sources, which are: the minimum average number of students admitted to another analogous program operated by the faculty (Executive MBA program)ⁱ; the annual tuition fees per student and the faculty members' contracts (about SAR 18,000), as mentioned

in the administrative and financial regulations for the program; the number of modules taught each year as mentioned in the program specification); the ACFE's educator annual membership fees per member; and number of fraud and investigation-related modules included in the program.

The evaluation methodology involved obtaining the anticipated financial data from the college. These data represent the expected cash flows for the proposed program.

Accounting Rate of Return (ARR)

The accounting rate of return is a commonly used model for analyzing investment projects. It neglects the value of money, since it is calculated by dividing the average accounting income that a project generates per period by the amount of the investment in the project (Ingram & Albright, 2007).

Using the data derived from the administrative and financial regulations for the proposed Master's program, and from the numbers of students expected to be admitted annually into the program, this rate can be calculated as follows:

$$\text{ARR} = (\text{Net operating income (2)}) / (\text{Initial investment costs (3)}) \quad (1)$$

For the proposed project, net operating income includes tuition fees and education contracts, grants, endowments, and other income after deducting the operating expenses. The amount of investment, on the other hand, reflects the program's capital and preliminary expenses, such as the costs of external review of the course syllabuses, fees for obtaining memberships in relevant associations, and other preliminary costs.

Thus, the ARR for the first year of the program can be estimated from previous data, as shown in Table 5.

Table 5. ARR calculation for the proposed program

	SAR Thousands
Income	
Tuition fees and education contracts (50 students* × SAR 36000**)	
Grants	--
Endowments	--
Other income	--
Total income	1,800
Expenditures	
Faculty members' contracts (SAR 18,000*** × 16 modules each year)	(288)
The course director annual salary	(30)
Staff and faculty members costs	(318)

Other operating expenses		(5)
Total expenditure		(323)
Net operating income	(2)	1,477
Initial investment costs		
Costs of external review of course syllabuses (SAR 3000 × 2 reviewers)		6
Fees for obtaining memberships in the ACFE**** (\$195***** × 12 modules***** × SAR 3.75)		8,775
Other preliminary expenses		30
Total initial investment costs	(3)	44,775
Accounting rate of return (ARR)	(1)	33

* Based on the minimum average number of students admitted to the Executive MBA program operated by the FBA.

** The annual tuition fees per student, as mentioned in the administrative and financial regulations for the program.

*** The faculty members' contracts per module, as mentioned in the administrative and financial regulations for the program.

**** Association of Certified Fraud Examiners.

***** The educator annual membership fees per member.

***** Number of fraud and investigation-related modules included in the program.

Source: Prepared by the author (2023)

The ARR outcome is very high, revealing that an extra 33 SAR can be earned from each riyal invested in the proposed program. This is to be expected, since most of its capital expenditures are covered by government. Based on this result, launching an exclusive Master's program in forensic accounting seems a worthwhile investment. By contrast, the ARR scale sometimes provides misleading outcomes, therefore it cannot be considered as an economically significant measure for the program under evaluation (Brief & Lawson, 1992). For example, when using the ARR to compare the profitability of two academic programs with equivalent initial investment costs, after a while the program with the higher annual income may be ranked above the one with higher annual income in its early years, no matter how much the latter is worth now. Thus, this measure is inappropriate for academic programs with high operating costs, since their viability depends on the time cash flows.

Net Present Value (NPV)

Doss, Guo, and Lee (2012) indicate that capital investment evaluation may be used to estimate the financial viability of a potential investment decision, based on factors such as rate, profitability, time, present value, and future value. However, the previous ARR model for investment evaluation does not consider the time value of money. Therefore, it ignores at least two important factors suggested by Doss and his colleagues, which are "the time" and "the present value".

Investigating the literature associated with capital budgeting methods shows that the NPV is one of the most common techniques used by a variety of business bodies for economic

and financial decisions. Some scholars have examined the importance of this technique for making capital investment decisions through time (e.g. Brigham & Ehrhardt, 2017) or for ranking and selecting from alternative projects (e.g. Lasher, 2005). Moreover, some studies use a case study methodology to estimate the present value of all future cash flows generated by specific investment projects. For instance, Doss, Sumrall, and Jones (2012) used NPV and other capital budgeting models to evaluate the strategic finance of various criminal justice organizations, and they considered these not to be competing but complementary measures of the investment opportunities.

In the HEI context, previous studies have used NPV to explore the value of education at the level of the economy (country) (Kantrowitz, 2007; Krabec & Čížinská, 2020), entity (i.e. college or university) (Lobo & Burke-Smalley, 2018), and program (Belli, Khan, & Psacharopoulos, 1999; Doss et al., 2015; Krabec & Čížinská, 2020).

Methodologically, the current study uses NPV to calculate the proposed program's economic benefit. Using the NPV model is useful since it does not neglect the basic concept of the time value of money in examining an investment situation (Needles, Powers, & Crosson, 2011). The selection rules that governed the use of the NPV approach are as follows:

- If the NPV result exceeds 0, then the investment project may be considered as acceptable as it exceeds any established "hurdle rate" (ibid.: 1238).
- If the NPV result does not exceed 0, then the investment project may be considered as unacceptable as it does not surpass any established "hurdle rate" (ibid.).
- If the NPV result equals 0, then the investment project may be considered as acceptable as it meets the minimum established return rate (ibid.).

The NPV of the proposed program a year after its start was estimated using the formula:

$$NPV = -R_0 + \sum_{t=0}^n \frac{R_t}{(1+r)^t}, \quad (2)$$

where R_0 stands for the initial value of the investment, R_t for the free cash flow that the project generates in year t , n for the expected lifetime of the project, and r for the discounted rate, which represents 7 percent (according to tradingeconomics.com, the highest interest rate decision made by Saudi Central Bank).

Therefore, the NPV for the proposed degree program would be:

$$NPV = -44,775 + \sum_{t=1}^1 \frac{1,477,000}{(1+0.07)} = -44,775 + 1,380,374 = 1,335,599 \quad (3)$$

Based on this result and according to the rules of thumb discussed previously, as an academic investment the proposed degree program seems to be the preferred and recommended course of action.

Operational Performance Assessment Ratios (OPARs)

The program's stakeholders are concerned at its ability to continue as an ongoing project with the available resources and under conditions of uncertainty (e.g. inflation and changes in fiscal policy). To observe the impact caused by such factors, US scholars Tahey, Salluzzo, Prager, Mezzina, and Cowen (2010) proposed applying the Composite Financial Index (CFI) method, which is mainly used for calculating universities' financial health. The index includes four financial ratios (i.e. primary reserve ratio, viability ratio, return on net assets ratio, and net operating revenues ratio) that help universities' boards and senior management to understand their institutions' financial position and to assess their future prospects.

The financial health of universities seems also to be related to other factors, including the graduate and undergraduate programs offered (Mohanlingam & Linh, 2013). Thus, by examining whether the program's operational results are within the available resources or not, this paper attempts to focus on a single component of the CFI that reflects its operational characteristics: its net operating revenue ratios.

Operating revenues include items such as tuition, fees, grants, endowment income available for operation, and non-endowment giftsⁱⁱ. The ratio is calculated by dividing the net operating income by the operating revenues. Therefore, the net operating revenues ratio of the proposed program can be expressed as:

$$(1,477,000)/(1,800,000) \times 100 = 82\% \quad (4)$$

This high ratio reflects the program's ability to conduct operating activities readily by using just the operating revenues generated during the first academic year.

According to the CFI framework, there are other financial ratios that can be used as indicators of the net operating revenues of any educational institution/program, including its cash income ratio, contribution ratio, net tuition dependency ratio, net tuition per student full-time equivalent (FTE) ratio, and demand ratio. However, we can use only contribution and demand ratios to evaluate our projected Master's program: we cannot estimate its financial performance using the other ratios, as they are based on accrual accounting principles (Tahey

et al. 2010) that are as yet unimplemented in Saudi public universitiesⁱⁱⁱ. The calculations for the contribution and demand ratios are shown in Equations (5) and (6) below:

$$\text{The contribution ratio of the proposed program} = (\text{Tuition and fees, net of financial aid (1)}) / (\text{Total expenses (4)}) \quad (5)$$

$$\text{The demand ratio of the proposed program} = (\text{Total operating expenses (3)}) / (\text{Total operating income (2)}) \quad (6)$$

As shown in Table 6, the contribution ratio of the program indicates that the total revenue expected to be generated from the program's tuition fees exceeds the total budgeted operating expenses, which is a positive indicator of its financial health and sustainability. Moreover, as its total operating expenses do not exceed 18 percent of its total operating income, the result of the demand ratio shows that the proposed program would be highly competitive.

Table 6. Contribution and demand ratio calculations for the proposed program

		SAR Thousands
<u>Income</u>		
Tuition fees and education contracts (50 students* × SAR 36000**)		1,800
Grants		--
Endowments		--
Operating revenue (tuition and fees, net finance aid)	(1)	1,800
Other income (non-operating revenue)		--
Total operating income	(2)	1,800
<u>Operating expenses</u>		
Faculty members' contracts (SAR 18,000 × 16 modules each year)		(288)
The course director annual salary		(30)
Staff and faculty members costs		(318)
Other operating expenses		(5)
Total operating expenses	(3)	(323)
Net operating income		1,477
<u>Initial investment costs (non-operating expenses)</u>		
Costs of external review of course syllabuses (SAR 3000 × 2 reviewers)		6
Fees for obtaining memberships in the ACFE (\$195 × 12 modules × SAR 3.75)		8.775
Other preliminary expenses		30
Total non-operating expenses		44.775
Total expenses	(4)	367.775
The contribution ratio of the proposed program	(5)	4.9
The demand ratio of the proposed program	(6)	18%

* Based on the current average number of students admitted to the Executive MBA program operated by the FBA.

** The annual tuition fees per student, as mentioned in the administrative and financial regulations for the program.

Source: Prepared by the author (2023)

Table 7. Scoring scale, ratio scale, and weighting factor of net operating revenues ratios

Scoring scale	Net operating revenues ratios (contribution and demand ratios)	
	Ratio scale	Weighting Factor*
1	1.3%	15%
3	4%	
10	13%	

* For public institutions with no (or minimal) long-term debt.

Source: Prepared by the author (2023)

Table 8. Calculating the strength of the expected operational efficiency of the program

Ratio Name	Ratio Value	Ratio scale	Strength Factor	Weighting Factor	score
Contribution Ratio	4.9	0.013	379.9	0.15	56.99
Demand Ratio	0.18	0.013	13.8	0.15	2.07
Total Net Operating Revenues Ratio Score					59.06

Source: Prepared by the author (2023)

Once each ratio is calculated, it is converted into a strength factor by dividing by a ratio scale. This strength factor is multiplied by a weighting factor, then the new scores for each ratio are summed to measure the total CFI^{iv}. The scoring scale ranges from -4 to 10. A strength factor of 3 or higher for each ratio indicates relatively strong financial health. For public institutions with no long-term debt, as is the case in this study, the ratio scales and weighting factor of net operating revenues ratios are as shown in Table 7.

Tahey et al. (2010, 134) argue that “some institutions will exceed the top score; however, for purposes of measuring financial health, there is no reason for the scale to be extended beyond 10.” Therefore, if the scoring scale is greater than or equal to ten, the invested program or project will be financially healthy. By contrast, if the corresponding scoring scale is less than or equal to one, the proposed program or project is under financial stress. Nevertheless, to calculate the strength factor at point other than those presented in Table 7, we divide the ratio value by the relevant value for a scoring scale of one, as in the table. Therefore, the calculations for strength factors for the contribution and demand ratios are as follows:

$$\text{The strength factor for the contribution ratio is } = 4.9/0.013 = 379.9 \quad (7)$$

$$\text{The strength factor for the demand ratio is } = 0.18/0.013 = 13.8 \quad (8)$$

Finally, we apply the weighting factors to each ratio and then total the two results (see Table 8).

Accordingly, this score (i.e. 59.06) reflects the program’s strength of expected operational efficiency, which may predict an increase in demand for the program in a manner that guarantees its success and sustainability.

DISCUSSION AND CONCLUSION

In light of the aim to promote a knowledge economy, most HEIs seek to achieve a competitive advantage over their rivals by offering attractive academic programs that meet the demands of the labor market. The study proposes a three-stage administrative and financial framework to be used to evaluate and analyze the academic programs offered by any institution.

The study has found that the proposed program is generally favored by the majority of stakeholders (academics, employees, and students), consistent with the findings of previous studies (e.g. Rezaee & Burton, 1997; Buckhoff & Schrader, 2000; Al-Saad, 2013; Kramer et al., 2017). The study has also shown that the program has several strengths and opportunities that may be linked to discover crucial aspects of the program. Furthermore, it has some weaknesses and potential risks that can be tied together to recognize and remove any limitations or negative impacts that might be imposed by those factors in the long term. Last, but not least, as the values of all financial ratios used to evaluate the program's first year performance exceed its developers' highest expectations, the results of the financial assessment have shown that the program will remain financially healthy.

One important aspects, which was triggered during the empirical analysis, was that, the perspective students are worried regarding the fee and funding of the proposed program. However, the program can be sponsored/ subsidised with the cooperation of the local banks, who will extend their help in the form of low-interest rate loan and scholarship from the national and international bodies.

The principal methodological importance of this study is that it uses a three-stage assessment model to show how several perceptionistic, strategic, and economic aspects can be systematically assessed in advance of investment decisions related to launching new academic programs in HEIs. This is unlike most related studies, which have mainly relied on a single model of evaluation. Another important contribution of this study is that it is the first attempt, at the local level, not only to use Composite Financial Index (CFI) ratios to conduct a quantitative assessment of the suggested program but to calculate the strength factors of these ratios, which reflect the ability of the program to continue financially healthy.

Finally, the study indicates a remarkable limitation, namely its adoption of just two indicators of the net operating revenues ratio. The reason is that the other indicators (i.e. cash income ratio, net tuition dependency ratio, and net tuition per student full-time equivalent (FTE) ratio) are based on accrual basis accounting, which is currently still under consideration by the Saudi public sector, including HEIs. Upon the adoption of accrual accounting, therefore, when

assessing the operational performance of academic programs/institutions future related research should take into consideration all indicators for net operating revenues. Moreover, it is recommended that the study can be replicated in other regions and countries, that haven't yet considered forensic accounting field in their higher educational system, based on their own contextual analysis, at national and international level. Likewise, at international level, the project can be done at international level through collaboration of different universities and that will be an added-value for the proposed program.

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Notes

Note 1. There is no evidence to show if the proposed program can realistically recruit this number of students. However, the university's policies do not allow launching any program unless the number of students enrolling for the program reaches a minimum of 20 students. This minimum number of students should be considered as a break-even-point (in units) at which the expected costs of launching the program equal the expected revenues generated from it.

Note 2. Endowment gifts are revenues, but they are not available for spending.

Note 3. There is an ongoing project at the Saudi Ministry of Finance to shift all government agencies, including public universities, from the applying cash basis to the accounting accrual basis. However, the project was not formally implemented before this paper was written.

Note 4. The current study will calculate only the scores of net operating revenues ratios.