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African Journal of **Business Management**



March 2021
ISSN: 1993-8233
DOI: 10.5897/AJBM
www.academicjournals.org



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Full Length Research Paper

Economy of the motorway concessions model in Italy

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Received 14 April, 2020; Accepted 22 February, 2021

The article analyzes the management of the motorway system in Italy. It underlines the positive and critical aspects of the concession system, through the analysis of the financial statements of the main concessionary companies. From the analysis of the economic and non-financial performance, it is concluded that the current model is preferable to a totally public model, which would require significant investments. The current model, if managed economically, guarantees well-being to the community in the medium and long term.

Key words: Economy, efficiency, environmental, social and governance (ESG).

INTRODUCTION

The Italian motorway system is managed through concessions to private companies. This solution was achieved after a long period of totally public management. This solution was adopted in the 1990s and today we are discussing again whether this model is effective or whether we should return to a totally public management model (Dei Conti, 2019).

The aim of the work is to verify the sustainability of the concession model, by analyzing the financial statements of the main concessionary companies. Thus, this research is based on the analysis of the economic results of the two main concessionary companies; in Italy, in fact, concessions are very concentrated and to assess the sustainability of the model it is essential to understand whether the concessionary companies are managed according to economic criteria (Winston, 2010). The research aimed to fill the literature gap by introducing the sustainability concept of the concession model and also

enriching corporate social responsibility.

The previous analyses on the sustainability of the model are based on macroeconomic and legal studies and not on specific analyses on the results of company management.

The analysis of the model's sustainability also introduces the criterion of corporate social responsibility, as a fundamental element for identifying sustainability (World Economic Forum, 2019).

In Italy, in fact, the concession model has been undermined by recent events such as that of the Morandi Bridge. On this occasion, the concessionaire was attributed with little attention to maintenance and great attention to profits. The evaluation of the concession model is strictly connected to the evaluation of the ability of the concessionary companies to produce profits in compliance with social responsibility (Rusconi and Contrafatto, 2013).

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LITERATURE REVIEW

The concessions model: Strength and weakness

The concession model adopted in Italy since the 90s of the last century is a model that has its proponents, but also its informers.

In particular, those who believe that a model entirely in the hands of the state is more appropriate, argues that the nationalized motorway service allows a lower increase in tariffs on users of the service and, at the same time, greater investments in infrastructure that a private individual does not require and the possibility of realizing (Ragazzi, 2008). Understanding, then, to distinguish everything within this approach due to distinct lines of argument: on one hand, there are those who argue that, given the peculiar characteristics of the motorway infrastructures, they must necessarily remain owned and publicly managed. Others, however, while admitting in principle the potential benefits of privatization, connected in discussion the Italian model, its original sins and its historical evolution (Biancardi, 2009).

The advocates of privatizations (Pisani, 2017) emphasize that the model adopted from the 1990s onwards arose to encourage the growth of competition in the motorway sector, which, however, can never be separated from compliance with the obligations entered into with dealers: this is a duty also for a future evolution of the infrastructure itself, which always needs to be constantly maintained, improved and developed. The increasing care of the existing network by the concessionary companies has allowed the end of the 90s to offer users a service that year after year reaches new quality standards, allowing our country to be able to count on infrastructure in step with the times and technology: this is demonstrated by the main data of the sector, which shows that traffic on motorways, although increasing over the years, is significantly more fluid and at the same time safer than in the past (accident rates and mortality in recent years). It is clear, however, that it is not possible to stop this infrastructure development process, under penalty of making future generations weigh on what could already be done, especially in terms of new works. Today's structure will inevitably tend to change in the coming years, with an ever greater standardization of the content of the concessions, so as to achieve a market that is as open and competitive as possible, without prejudice to the limits set by physical infrastructures that are difficult to duplicate. However, we must not forget the path that led to today's results, placing the highways as one of the few examples where privatizations, combined with the concurrent control of the concessionaires' work by the public grantor, have resulted in a substantial benefit (Macchia, 2016; Società Italiana di Politica dei Trasporti, 2020).

In a nutshell, there is a trend towards the preference of the concession system that passes through the tender

procedure tool in the award of concessions can allow to maximize the revenues in favor of the grantor and, at the same time, to select the most efficient operator, capable of guaranteeing the best management in terms of service quality and safety. The design of an incentive tariff system, entrusted to an independent regulatory authority, has the aim of guaranteeing production and allocation efficiency, so that the benefits in terms of lower costs can translate into lower tariffs (Balassone, 2020).

The debate is open and this study aims to analyze whether, from the business economic point of view, the current system is actually a sustainable system. The studies cited analyze the issue from a general economic and legal point of view; this study proposes to analyze the issue from a corporate economic perspective.

The issue has been extensively analyzed in macroeconomic and legal studies, but not in business economics. This paper proposes the business economic analysis of the motorway concessions model.

Even in the international literature, the authors have analyzed the issue from a macroeconomic point of view, but they have not evaluated it in corporate economic terms (Ochoa, 2002; Contreras and Angulo, 2018; Soliño et al., 2017; Pons-Rigat et al., 2017; Ramalho, 2014). In particular, the analysis was conducted on the effects of the system on public accounts (Valdés Fernández De Alarcón and González, 2014). In Spain, for example, doctrine believes that this business model is very dynamic and serves as a sharp break with the past, tending towards unregulated business (urban highways with a variety of alternatives) or non-transfer of demand-related risk. Concessions have become large-scale business in themselves.

MATERIALS AND METHODS

The motorway system in Italy: Analysis of the main concession companies

The structural features of the motorway concessions sector were defined at the end of the privatization process carried out in the 1990s and have undergone few changes over time (Banca d'Italia, 2011). The market structure is rather concentrated: of the twenty-five concessionaires managed by the Ministry of Infrastructure and Transport, nineteen refer to the two main groups operating in the sector, Atlantia and ASTM, to which more than half and more than a fifth of the highway network. Existing concessions have long residual durations: for about 60% of the network, the concession will expire in more than ten years. Between 2009 and 2018, toll revenues grew by 28% in nominal terms and by 13% in real terms, mainly as a consequence of the constant increase in unit tariffs, against a trend in traffic volumes that basically followed the economic cycle and which at the end of the period considered was at levels similar to the initial ones. The increase in tariffs in real terms is mainly attributable to the component linked to the return on investments (Ragazzi, 2006). In the same period, the annual investment expenditure has almost halved, reaching the minimum in 2017. The expenditure was mainly destined for the strengthening of the existing network. During the period there were significant differences between the investments planned in the dealers' economic and financial plans and those made (on average equal to

one third); this gap, which has eased in recent years, is largely attributable to delays in the execution of some works, also due to the slowdowns that arose in the phases of project approval and issue of authorizations. The institutional structure that has long governed the sector was characterized by a limited application of the competitive principles. This was reflected in the reduced recourse to public evidence procedures and in the long durations of the assignments, also due to widespread extensions (Società Italiana di Politica dei Trasporti, 2020).

Until recently, the market was not subject to the regulation of an independent authority and there was limited transparency on the contents of the concessions and on the conditions under which they were modified. In recent years, the regulatory environment has improved, in particular due to the changes made by the Code of public contracts in 2016 and by Legislative Decree 109/2018 (Gilardi and Maggetti, 2011). The rules of the code should favor, especially when awarding new concessions, greater openness to competition and a clear attribution of operational risk to dealers (Pratt and Grabowski, 2010). The new provisions will immediately apply to managements covering 18% of the network under concession (Gaboardi, 2003); this percentage will rise to 40 in ten years; will be equal to 96 in 2040. The new powers attributed by the Legislative Decree 109/2018 to the Transport Regulatory Authority may allow for an appropriate homogenization of the tariff regimes, with the application of a single price cap model. In exercising these powers, the authority is entrusted with the task of ensuring that the dynamics of the tariffs is fully justified by the investments made and the quality standards achieved, while ensuring adequate remuneration for the concessionaire (Saltari and Tonetti, 2019). The authority has already adopted the resolutions approving the toll tariff system for unexpired concessions; however, the effective adjustment of the tariffs was deferred until the economic-financial plans were updated which, according to current legislation, should be completed by 30 July 2020.

The studies conducted on the Italian motorway system were based on econometric evaluations of the system and not on the analysis of the economic trend of the individual concessionary companies. This paper analyzes the financial statements of the concessionary companies to evaluate the overall evaluation of the system in a corporate economic approach.

RESULTS AND DISCUSSION

Sustainability and criticality of the Italian model

The Italian model, as mentioned, is based on the principle of granting the motorway service to a number of concessionary companies. The latter, today, are all joint stock companies, however many listed, which have among their main revenues the tolls paid by users. These revenues serve to cover the costs for the management and maintenance of the network. The financial statements of two of the main concessionary companies for the year 2018 are shown in Table 1¹.

Autostrade per l'Italia S.p.A. has toll revenues amounted to € 3,658 million and showed an overall increase of € 68 million (+ 2%) compared to 2017 (€ 3,590 million).

It should be noted that the initiative relating to the

exemption of the toll on the Genoese area has generated lower toll revenues estimated at around 7 million euros. "Net operating costs" amounted to 2,013 million euros and increased by 520 million euros compared to 2017 (1,493 million euros).

The "Gross operating margin" (EBITDA), therefore equals to 1,991 million euros, decreased by 461 million euro (-19%) compared to 2017 (2,452 million euros); on a homogeneous basis, EBITDA increased by 27 million euros (+ 1%) compared to 2017.

Società Iniziative Autostradali e Servizi S.p.A. has toll revenues amounting to 1,135,149. The increase in "net toll revenues" equals 86 million euros (+ 8.46%)

The "operating costs", equals to a total of 469 million euros, show an increase of approximately 36.1 million euros. With regard to the aforementioned, the "gross operating margin" shows an increase of 43.8 million euro.

These values show, *mutatis mutandis*, that the companies operating under concession have a positive margin; this means that for the private company, the flow from the toll is able to guarantee coverage of maintenance costs and a positive flow for the company (Bastia, 1989; Quagli, 2017).

The model used in Italy generates, from the corporate point of view, a hybrid, albeit widely used as mentioned, quite peculiar. In fact, the public economic entity decides to implement the motorway transport service, therefore a typical public consumer activity, through the concession system, then through the "purchase" of the service from private companies for profit (Costa and Guzzo, 2011).

The theme is not indifferent, in fact, a service such as the motorway could be provided directly by the state, through a public consumer company that could ask for a mere contribution from the user. In this case, the typical financial economic cycle of the company that produces for internal consumption would be configured (Bianchi, 2011).

The use of the concession model means that the service is provided by a company that produces for the market, whose financial and economic cycle is profoundly different from the previous one.

The economic and financial cycles of the two types of activities cannot be superimposed. The first, that of consumer companies, is an open cycle that finds its continuity in the proceeds assigned by the associates, in the case of the state, taxes, fees, and contributions (Figure 1). The second, that of the companies that produce for the market, is a closed cycle in which the volume of revenues coming from the market must cover the costs of production and assign remuneration to capital (Figure 2).

The first type of company records the following report: Revenue/costs $R f(C,M)^2$

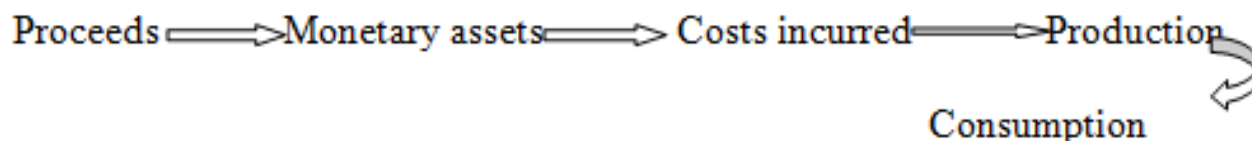
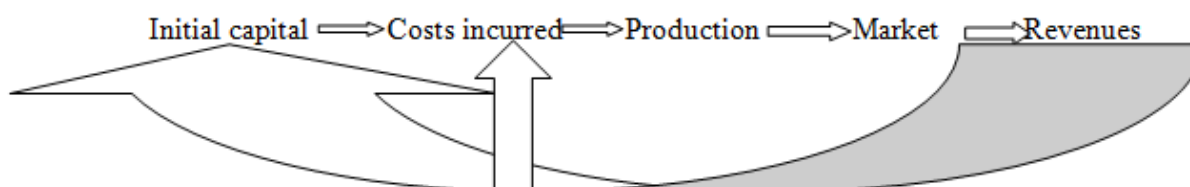
¹Autostrade per l'Italia S.p.A. financial statements as of December 31, 2018; Iniziative Autostradali e Servizi S.p.A. financial statements as of December 31, 2018.

Toll Revenue are only the revenue by the toll.

²R = revenue; C = costs; M = Market. Therefore revenues are a function of costs and of the market. In other words, there will be revenues if and only if the production structure has created goods and services to be sold and the market will purchase them.

Table 1. The financial statements of two of the main concessionary companies for the year 2018.

Variable	Autostrade Per L'Italia SpA (€/000)	Società Iniziative Autostradali SpA (€/000)
Toll revenues	3.658.000	1.135.149
Net operating costs	2.013.000	469.000
Gross operating margin	1.991.000	666.149

**Figure 1.** Financial economic of a company for open cycle.**Figure 2.** Financial economic of a company for close cycle.

Therefore, the condition of the company's economic equilibrium for the exchange is guaranteed by the ability to produce a surplus that allows coverage of costs and fair return on capital.

The Income Costs report, typical of the company for consumption, is as follows:

$$C f(P)^3$$

This means that the condition of economic equilibrium is guaranteed by the balance between income and costs. Given a certain volume of proceeds, an equal volume of costs can be incurred.

The concession model that is used for the motorway service is the result of a precise choice, modified over time but also widely used, which is the one in which the public economic entity decides to produce the motorway service through a company for the exchange, therefore, of done, buy the service from this.

This choice implies that the concessionaire company must perform the service while maintaining a level of costs that still allows the achievement of an adequate margin for the remuneration of the shareholders.

The theme, from a business point of view, is to understand whether this choice can be sustainable and

meet economic criteria.

The analysis must be conducted by remembering that the sustainability of a business model depends on its ability to be managed according to cost-effectiveness. The latter condition occurs when you are able to produce, achieving the objective of the economic entity, at minimum costs, without waste and with attention to future prospects (Bianchi, 2011). So it is necessary to be able to understand if the model that has been created is actually meeting economic criteria.

The data obtained from the financial statements of the main concessionaires, as seen, show a large margin deriving from the motorway service. This means that the companies in question are able to cover costs and guarantee margins through the flows derived from tolling. As have been seen, the concession provides that the concessionaire can build, maintain, expand, then invest, and can recover the costs for such investments through the collection of traffic tolls. In other words, the dealers anticipate the costs for the investment against flows coming from the tolls. Moreover, the assets under concession are freely transferable assets at the end of the concession.

It is clear that when choosing this model, the state believed that investments in the construction of the highway belt would be made more efficiently by the private operator than by the public operator. The construction of almost 7,000 km of highways confirms

³C = costs; P = Proceeds. The costs are a function of the proceeds, that is, costs can be incurred within the limits of the disposable proceeds.

Table 2. Non-financial performance indicators presented in the financial statements as at 31 December 2018.

Non-financial indicator	2018	2017
Accident rate	28.1	29.1
Mortality rate	0.32	0.24
Customer satisfaction regarding the level of the motorway service	7.21	7.28
Consumed between electricity, methane, LPG, diesel and petrol	1,120 T/Joule	1,153 T/Joule

that the constructive investment has been efficient and has contributed to GDP growth.

The issue is whether these investments, even today, with a rather complex concession system, are continuing to be effective.

Today the investment, the tragedy of the Morandi Bridge proves it; it is not only on the construction and expansion, but also and above all on maintenance. Yet the half-yearly financial report of *Autostrade per l'Italia*, which takes into account the failure to toll in the Genoese area as well as the costs for starting the demolition of the bridge, shows an EBITDA of € / MLN 1,162 slightly lower than that of the same period of 2018⁴. This shows that the economic and financial structure of the company built according to economic criteria is able to absorb extraordinary negative events.

The model appears, overall, in economy. To have a further indication of this result, it may be interesting to analyze some non-financial performance indicators presented in the financial statements as at 31 December 2018⁵ (Table 2).

Reading these indicators reveals a company's focus on safety and the environment. This leads to an assessment of the effectiveness of the corporate action which is capable of producing positive economic, but also non-financial, positive results.

Returning, in fact, to the definition of cost-effectiveness, it should be stressed that this condition occurs when the company reaches its objectives at minimum costs, but with attention to future prospects. This leads to the assertion that a company is inexpensive if it is able to build the conditions for future development for itself and for the community in which it lives. Therefore, attention to future prospects (Bianchi, 2010) is not only the ability to

create profits in the future (Capaldo, 2013) but also to make the company action heralding benefits for the environment, the safety of its workers, the local community, also through innovation activities (Malena and Foster, 2004).

The analysis of the complex of these data, not dissimilar to the other dealers, leads to the conclusion that the hypothesized model works because it achieves the sought-after cost-effectiveness of the system.

Clearly, the public operator will have to oversee some elements (Ackerman, 2005). In particular, it must always be borne in mind that the costs of the concessionaires must be incurred for the expenses and investments necessary for the correct maintenance of the network, there may be the temptation to minimize the costs not for an effect of efficiency, but of failure to comply with the needs of the network.

In particular, the monitoring of investments in maintenance and modernizations must be carefully evaluated. Just as it is clear that the concessionaire companies will have to carry on the Italian network the investments necessary to fulfill their obligations in terms of safety, environmental protection, maintenance and modernization and, then, if flows also coming from other activities will remain, they may decide to invest in other businesses or abroad, but the primary objective remains that of the obligations deriving from the concession. All in compliance with the stakeholders of the concessionary companies which, as companies that produce for the market, are called to achieve the objectives of their investors.

Conclusion

In Italy, there is a great debate on the topic of highway network management. There are pushes to return to the totally public model, while others would like to maintain the current situation (Ragazzi, 2004; Cassetta et al., 2013; Bonfratello et al., 2007). The analyses in favor of the public or private model are devalued with respect to macroeconomic analysis criteria, while an economic analysis of the company, such as the current one, allows the evaluation of the economy of the current system (Belardinelli and Stagnaro, 2020; Ochoa, 2002; Contreras and Angulo, 2018; Soliño et al., 2017; Pons-Rigat et al., 2017; Ramalho, 2014; Valdés Fernández De Alarcón and González, 2014).

⁴See *Autostrade per l'Italia S.p.A* half-yearly financial report at 30 June 2019: "Operating external costs" amounted to 436 million euros and increased by 202 million euro compared to the first half of 2018 (234 million euro). It should be noted that the change is essentially influenced by the costs associated with the preparatory interventions for the reconstruction of the Polcevera viaduct (€ 155 million), the impact of which on EBITDA is essentially zero due to the use of the recovery and replacement provision recorded in the item "Change operational fund management". Excluding the aforementioned charges associated with the event of 14 August 2018, the external management costs increased by 47 million euros in particular due to the greater maintenance interventions on the *Autostrade per l'Italia* network in relation also to the new and more complex tender (started already in 2017) which affected the activities of the previous year.

⁵ Report on the management of the *Autostrade per l'Italia* financial statements as at 31 December 2018.

Table 3. System efficiency if all investments are made from an ESG perspective.

Variable	Sustainable	Not sustainable	Not sustainable
Motorway concessions model	Efficiency according to economic criteria	Efficiency according to economic criteria	No efficiency according to economic criteria
	Adopting adequate social accountability models	Not adopting adequate social accountability models	Not adopting adequate social accountability models

The objection of the proponents of the public model is that the private individual aims to maximize profits and forget investments in maintenance and security. The hypothesis of returning to the totally public model has been officially denied by the current government team (Barbera, 2019; Buzzi, 2019), but continues to exert some charm.

The aforementioned analyses demonstrate the concessionaires must achieve the objectives in terms of profit, but also of future prospects and this second objective is achieved only through a management that does not aim only at short-term profit, but to achieve conditions of well-being in the medium/long term for the company and for the community. In other words, the concessionary companies must operate according to criteria of economy that allow to achieve results in terms of greater safety for the users of the network, through investments in maintenance and in the control over the network.

The limitations of this study are the few academic works, from a corporate economic perspective, about this issue and the specific characteristic of the motorway market in Italy.

The previous works did not analyze the financial and non-financial performance of the concessionary companies. They made an overall assessment of the concession system. The present work, on the other hand, has shown that the business economic analysis conducted on the main concessionary companies allows us to establish that the system is efficient if all investments are made from an ESG perspective (Table 3).

It being understood that whatever business model is chosen, the same works if it is managed according to economic criteria (Bianchi, 2011), however, the dismantling of the current system would entail significant costs and would require the state, a new economic entity, to continue investing.

The system of concessions, on the other hand, has its own stability. The dealers will have to demonstrate adequate social accountability models (Bianchi, 2010). In fact, it should be remembered that today, more and more, companies are evaluated for their socially responsible conduct and, therefore, the overall level of efficiency is not only read in terms of productivity, but of the effectiveness of the company action (Gianguialano and Solimene, 2019).

In fact, from many sides he complained that the current system does not allow for proper disclosure of the dealers' economic and financial plan. This aspect must certainly be improved because the public economic entity must have absolute transparency on the investment plan of the concessionaire companies and also on investments in favor of the environment, safety, etc.

At a time when there is great concern about the issue of investment choices according to Environmental, Social, and Governance (ESG) criteria, it cannot be said that investments in a sector such as public transport must be made according to clear criteria of sustainability and responsibility social; criteria which, as recalled, are perfectly compatible with cost-effectiveness.

CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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Full Length Research Paper

Predicting healthcare leaders' readiness to lead the implementation of change

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Received 31 December, 2020; Accepted 19 February, 2021

A key challenge facing healthcare leaders is how to implement changes successfully. For change to occur in healthcare, leaders must be proactive, and they must have an ability to adapt to new policies and practices. Data from 105 healthcare leaders were used to address the question of to what extent leadership style, leader efficacy, seniority, and gender predict healthcare leaders' readiness to lead change. The healthcare leaders were panel members of Centiment, an online survey research company that specializes in surveying hard-to-reach participants. A correlation analysis using Spearman's rho tested the relationship between leadership style and leader efficacy, and multiple regression analyses predicted the readiness of healthcare leaders in leading the implementation of change. The results of the multiple regression analysis show that transformational leadership and leader efficacy are statistically significant in change implementation. However, the results also reveal that transactional and passive leadership, seniority, and gender are not statistically significance. The results suggest that seniority does not moderate the relationship between the leadership styles and organizational readiness for implementing change, and gender does not moderate the interaction between leader efficacy and organizational readiness for implementing change. Healthcare leaders can use the results of this study to mitigate the rate of failure while implementing change.

Key words: Organizational change, transformational leadership, transactional leadership, passive-avoidant leadership, leader efficacy, organizational readiness for implementing change, healthcare leadership.

INTRODUCTION

The U.S. Centers for Medicare and Medicaid Services reported in 2017 that Americans spent \$3.5 trillion on healthcare (17.9% of gross domestic product) and projected that this number would increase to \$6.0 trillion 2027 (Centers for Medicare and Medicaid Services, 2019). Increasing healthcare costs have caused a number of problems within the healthcare industry in the United States, and this issue demands attention from

healthcare leaders. Healthcare organizations must implement effective change management strategies to improve the quality of care for patients with a view toward providing benefits and value for them (Nielsen et al., 2020). Innovations or changes in technology are necessary to improve the quality of care for patients, which can help to keep the healthcare costs down (Nagy, 2017). The general problem that this study focuses on is

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the high rate of failure of organizational change (Harrison-Blount et al., 2019). Researchers have consistently asserted that approximately 70% of organizational changes are not successful (Jones-Schenk, 2019), and effective leadership is critical to the success of an organization (Nagendra and Faroogui, 2016). However, organizational change initiatives have failed because of leadership shortcomings (Predișcan et al., 2016). Organizations may not employ an appropriate change model, and leaders may not possess the right leadership style to implement successful change initiatives (Lumbers, 2018). In addition, leaders may not have effective leader efficacy skills to steer the successful implementation of a change project (Bayraktar and Jiménez, 2020).

However, it is not clear whether there is a predictive relationship between leadership style, leader efficacy, and readiness to implement a change. This is the problem at the center of this paper. The primary purpose of this quantitative research study is to predict healthcare leaders' readiness to lead the implementation of a change while examining the relationship between leadership style and leader efficacy. The secondary purpose of the study is to explore whether seniority and gender moderate the predictive relationship between these variables. This nonexperimental research addresses one primary and two secondary research questions to determine leaders' readiness to head the implementation of change in the healthcare industry. Also, the relationship between seniority and leadership style as well as gender and leader efficacy were analyzed to determine if there is a moderating effect. Seniority was employed to determine if longevity in a position would impact a leader's motivation to implement change. Analyzing whether gender influenced a leader's ability to implement change was a secondary concern. So, the research questions for this study are

- (i) PRQ: To what extent do leadership style, leader efficacy, seniority, and gender predict healthcare leaders' readiness to lead change?
- (ii) SRQ1: To what extent does seniority moderate leadership style and healthcare leaders' readiness to lead change?
- (iii) SRQ2: To what extent does gender moderate leader efficacy and healthcare leaders' readiness to lead change?

This study is significant because it examines the relationship between leadership and organizational change, thus relating two key factors in considerations of how leaders can provide high-quality leadership when they are called to successfully implement a change initiative. This research broadens the discussion on how leadership styles can influence the role of leaders in the organizational change process, which has not been sufficiently explored by past scholarship (Lamm et al.,

2016).

MATERIALS AND METHODS

Which leadership style is most effective in leading the implementation of change? This is a key question for healthcare leaders today. Many researchers have successfully integrated the salient aspects of Lewin's change model and Kotter's eight stages into the implementation of organizational change. The level of effectiveness of a leader's change implementation has been found to be connected to the style of leadership employed (transactional, transformational, or passive avoidant). Transactional leaders play a critical role in healthcare; ensuring employees minimize errors, while performing standard tasks for patient care (Fletcher et al., 2019). When organizations are considering changes, a transactional leadership style may be appropriate for the healthcare industry since new medical processes and procedures are seldom introduced.

Transformational leadership is an effective leadership style in most organizations because the leaders who follow this model understand how to inspire followers to go beyond the norm (Apore and Asamoah, 2019). Many researchers have suggested that transformational leadership is the ideal leadership style for dealing with organizational change because the leaders who utilize it understand how to develop others to assume tasks (Busari et al., 2019). Additionally, research has shown that transformational leadership is highly desirable for influencing organizational change in the healthcare industry (Al-Hussami et al., 2018).

In a similar vein, research has also suggested that passive-avoidant leaders are least effective in motivating employees to adopt change. Passive-avoidant leaders tend to offer little support to their employees, hindering their learning development that may affect the organizational change process (Bligh et al., 2018). Passive avoidant leaders do not offer the appropriate level of employee interaction for the demanding healthcare industry (Muddle, 2020). Regardless of leadership style, leaders in the healthcare industry must be decisive and direct in making solid decisions that will reduce costs and enhance the quality of patient care.

Building on Bandura et al. (1999) theory of self-efficacy, leader efficacy is a leader's confidence in his ability to lead others. Leaders must possess the necessary abilities to influence and motivate team members, which are important skills for implementing change effectively (Bayraktar and Jiménez, 2020). Leaders with high efficacy can accomplish organizational change goals because of their ability to overcome barriers. Confusion or uncertainty occurs among employees when leaders cannot articulate the reasons for change (Heckelman, 2017). Establishing the confidence to alleviate confusion is a hallmark of leaders who have keen efficacy skills. The challenge for healthcare leaders is to convince healthcare professionals to overcome uncertainty in adopting change.

Little research has taken place on organizational readiness, especially in the healthcare industry, though this gap in the literature was recently narrowed with the introduction of the organizational readiness for implementing change instrument (Shea et al., 2014). This instrument evolved from Weiner's (2009) theory of organizational readiness for change. Organizational readiness for change is derived from change commitment, which occurs when organizations look to individuals to take active roles in implementing change and change efficacy and when they believe that they can be successful with the change initiative (Vaishnavi et al., 2019; Weiner, 2009).

Using a multiple regression design, this quantitative research study examines the predictive relationship between leadership styles, leader efficacy, and readiness to lead the implementation of change. A quantitative approach allows researchers to collect data

Table 1. Descriptive statistics: healthcare leadership positions.

Healthcare leadership position	Frequency	%
Chief executive officer (CEO)	19	18.10
Chief information officer (CIO)	3	2.86
Chief technical officer (CTO)	7	6.67
Chief nursing information officer/chief medical information officer (CNIO/CMIO)	5	4.76
Vice president, information technology (VP/IT)	6	5.71
Director, information technology (DIR/IT)	22	20.95
Other	43	40.95
Total	105	100.0

without manipulating the predictor variables to predict the outcome of the criterion variable. Additionally, this study evaluates the moderating effect of gender and seniority.

Data were purposively collected for this study from healthcare leaders that operate in various areas of the health industry. The population consisted of healthcare leaders who are members of Centiment's online survey panels. Centiment is an online survey research company that specializes in surveying hard-to-reach healthcare managers and administrators. These members were C-suite officers (CEOs, CIOs, CMIOs, and CNIOs), vice presidents, directors, and managers of information and system technology.

Employing a G*Power v3.1.9.4 with a 95% level of confidence, a statistical power of 80%, and an effect value of .15 with six predictor variables (transformational, transactional, and passive-avoidant leadership styles as well as leader efficacy, seniority, and gender), it was determined that a sample size of 98 participants was needed for the study. Malone et al. (2016) stated that a significance level or α error probability of .05 was appropriate for research, suggesting that there would be a 5% chance for a type I error. Having a statistical power of .80 or above would ensure a high probability of avoiding a type II error (Malone et al., 2016). A type II error occurs when researchers fail to reject a null hypothesis that is false (Hazra and Gogtay, 2016). For example, researchers might fail to detect a predictive relationship when, in fact, there is one. An effect value of .15 was used because the G*Power calculator recommended a sample size sufficient to achieve a normal distribution of data. An effect value less than .15 required a larger sample size, which would have been difficult to obtain with a hard-to-reach target population. An effect value greater than .15 yielded smaller sample sizes, which may have prevented efforts to meet the assumptions and statistical tests of the study.

Online surveys are a popular way to collect data for nonexperimental studies (Martinsson et al., 2017). Centiment was selected because of its reputation and experience in surveying respondents that are hard to reach due to their demanding schedules (Centiment Research, 2017). Centiment sent an email invitation to healthcare leaders with a link to the research questionnaire. Centiment had provisions in place for participants to remain anonymous.

The formulation of the research questionnaire was based on three valid and reliable instruments. First, the Multifactor Leadership Questionnaire-Short Version (MLQ-5X), which consists of 45 questions, was used to examine leadership styles (Bass, 1985). Previous researchers using the MLQ-5X reported a Cronbach alpha score higher than .74 (Boyer-Davis, 2018; Bass and Avolio, 2004). Second, the Leader Efficacy Questionnaire (LEQ) presents 22 items to measure a leader's level of confidence (Hannah and Avolio, 2013). The Cronbach's alpha for the LEQ is .92 (Harper, 2016). Third, Shea et al. (2014) expanded Weiner's (2009) Organizational Readiness for Implementing Change (ORIC) assessment to evaluate organizational readiness for change in the

healthcare environment. ORIC uses 12 questions to assess organizational readiness for change, by focusing on the change commitment and change efficacy of leaders at various levels (Shea et al., 2014). ORIC has a Cronbach's alpha of 0.77 (Livet et al., 2017).

The demographic attributes of the sample population included gender and seniority. The responses in this section were self-reported. Gender, either male or female, is a nominal unit of measurement. Seniority is interval level data that consists of the number of years a participant has served in a position. Also, participants identified their leadership titles and work locations. Approval was obtained from the University of Phoenix's Institutional Review Board (IRB) before commencing data collection. A pilot study was conducted to test the reliability and validity of the questionnaire. Schachtebeck et al. (2018), in citing Baker (1994), suggested that a sample size of 10-20% is generally acceptable and considered reasonable for conducting a pilot study. There were 12 respondents for the pilot study. The high response rate among the participants suggested that they did not have any problems following the instructions or understanding the questions. The questionnaire was uploaded to SurveyMonkey and transmitted to Centiment. Data were moved from Centiment to SurveyMonkey and eventually to SPSS seamlessly.

Including the 12 responses from the pilot study, there were 239 responses total. However, 122 respondents were disqualified because they refused to consent, self-responded that they did not manage healthcare professionals, or indicated that they work outside the United States. In the end, 105 leaders met the criteria to participate in the study. Centiment collected the data and exported them to SurveyMonkey. Data were uploaded into SPSS Version 25. Tests were conducted to determine whether the data met the four key assumptions of multiple regressions. These assumptions are normality, linear relationship, homoscedasticity, and multicollinearity (Osborne and Waters, 2002). A graphical approach was pursued after the assumptions of normality and linearity violated the numerical tests. Descriptive and inferential statistics were utilized to analyze and interpret the data.

RESULTS

Descriptive statistics were used to describe and explain the data. To this end, frequency distributions, central tendency, and measures of variability were produced. Participants answered demographic questions before responding to the components of the questionnaire that addressed leadership style, leader efficacy, and organizational readiness for implementing change. They were classified as 80% female and 20% male. While all

Table 2. Descriptive statistics: Number of years in leadership.

Number of years in leadership	Frequency	%
<5 years	43	40.95
6-10 years	36	34.29
11-15 years	9	8.57
16-20 years	10	9.52
>20 years	7	6.67
Total	105	100.0

Table 3. Descriptive statistics of variables (excluding demographic variables).

Variable	Mean	SD
Transformational leadership	3.1805	0.66919
Transactional leadership	2.7321	0.71837
Passive-avoidant leadership	0.9131	0.80229
Leader efficacy questionnaire (LEQ)	8.7359	13.17169
Organizational readiness for implementing change (ORIC)	4.0024	0.84420

N = 105.

participants indicated that they manage healthcare professionals, Table 1 reflects that 18.10% ($n = 19$) were CEOs, 2.86% ($n = 3$) were CIOs, 6.67% ($n = 7$) were CTOs, 4.76% ($n = 5$) were CNIO/CMIOs, 5.71% ($n = 6$) were VP/IT, 20.95% ($n = 22$) were DIR/IT, and 40.95% ($n = 43$) were denoted as other. Table 2 indicates the number of years participants spent in their respective positions. Regarding years of service, 43 (40.95%) respondents indicated that they had less than five years of experience. A majority of the participants had more than five years of experience in leadership: 36 (34.29%) with 6-10 years, 9 (8.57%) with 11-15 years, 10 (9.52%) with 16-20 years, and 7 (6.67%) with more than 20 years.

Table 3 depicts the means and standard deviations for leadership styles, leader efficacy, and organizational readiness for implementing change. Transformational ($M = 3.1805$, $SD = 0.66919$) rated as the most used leadership style of the participants, followed by transactional ($M = 2.7321$, $SD = 0.71837$) and then the passive-avoidant style ($M = 0.9131$, $SD = 0.80229$). The Leader Efficacy Questionnaire consists of three dimensions -leader self-regulation, leader action efficacy, and leader mean efficacy- and yielded $M = 8.7359$, $SD = 13.17169$. The mean for organizational readiness for implementing change was $M = 4.0024$ ($SD = 0.84420$).

Multiple regression analysis

Multiple regression was appropriate because the research sought to test the relationship between two predictor and two moderator variables and one criterion variable. The primary research question is to what extent is the

leadership style, leader efficacy, seniority, and gender predict healthcare leaders' readiness to lead change?

Moderating variables

Moderator variables are useful in strengthening the relationship between the predictor and criterion variables (Baron and Kenny, 1986). Hayes' Process macro determines the effect of the moderator variables on the relationship between the predictor and criterion variables (Hayes, 2013). Hayes' PROCESS macro Version 3.3 was used in SPSS to run a regression analysis to determine how seniority moderated the relationship between the leadership styles and organizational readiness for implementing change, addressing the first secondary research question. Also, the Hayes PROCESS macro was employed to run regression analyses to determine how gender moderated the relationship between leader efficacy and organizational readiness for implementing change, addressing the second secondary research questions.

The purpose of this study is to examine the relationship between leadership style and leader efficacy in predicting leaders' organizational readiness for implementing change in a healthcare organization by using seniority and gender as moderators. Multiple regression analyses were performed in SPSS 25 to measure the predictive relationship between the variables. It was not clear whether there was a predictive relationship between leadership style, leader efficacy, and readiness to implement a change. Considering all of the variables (transformational, transactional, and passive-avoidant

Table 4. ANOVA table (Predictor, moderating, and criterion variables).

Model		Sum of squares	Df	Mean square	F	Sig.
1	Regression	34.601	6	5.767	14.302	0.000*
	Residual	39.516	98	0.403		
	Total	74.117	104			

Dependent variable is ORIC. Predictors are constant, gender, transactional, seniority, passive, LEQ, and transformational. p -value < 0.001.

Table 5. Correlation of predictor and criterion variables.

		Transformational leadership	Transactional leadership	Passive-avoidant leadership	LEQ	ORIC
Transformational leadership	Spearman's rho correlation	1.000	0.552**	-0.261	0.621**	0.609**
	Sig. (2-tailed)		0.000	0.007	0.000	0.000
	N	105	105	105	105	105
Transactional leadership	Spearman's rho correlation	0.552**	1.000	0.146	0.520**	0.416**
	Sig. (2-tailed)	0.000		0.137	0.000	0.000
	N	105	105	105	105	105
Passive avoidant leadership	Spearman's rho correlation	-0.261	0.146	1.000	-0.079	-0.084
	Sig. (2-tailed)	0.007	0.137		0.422	0.329
	N	105	105	105	105	105
LEQ	Spearman's rho correlation	0.621**	0.520**	-0.079	1.000	0.591**
	Sig. (2-tailed)	0.000	0.000	0.422		0.000
	N	105	105	105	105	105
ORIC	Spearman's rho correlation	0.609**	0.416**	-0.084	0.591**	1.000
	Sig. (2-tailed)	0.000	0.000	0.392	0.000	-
	N	105	105	105	105	105

**Correlation is significant at the .01 level (2-tailed).

leadership as well as leader efficacy, gender, and seniority), the adjusted R^2 was .434. So, these six predictor variables account for approximately 43.4% of the organizational readiness for implementing change. The ANOVA values, as Table 4 shows, indicate an F -ratio of 14.302 with $df = 6$, $p < 0.001$. This value suggests a significant relationship between the predictor variables collectively and organizational readiness to implement a change.

Spearman's rho correlation coefficient was used to determine the statistical impact of the predictor variables on the criterion variable (Kumar et al., 2018). A correlation analysis was performed to assess the strength of the relationship between the research variables. The Spearman's rho correlation was performed using SPSS 25.

As Table 5 shows, transformational leadership had a positive correlation with transactional leadership ($r =$

0.552, $p < 0.01$), leader efficacy (LEQ; $r = 0.621$, $p < 0.01$), and organizational readiness for implementing change (ORIC) ($r = 0.609$, $p < 0.01$). The results suggest that there is a statistically significant relationship between transformational leadership, transactional leadership, leader efficacy, and organizational readiness for implementing change. Transformational leadership has a negative correlation with passive-avoidant leadership ($r = -0.261$), but there is also a significant relationship since $p < 0.01$, revealing a positive correlation between transactional leadership and all research variables. Transactional leadership does not correlate significantly with passive-avoidant leaders ($r = 0.146$, $p > 0.05$). Transactional leadership has a positive correlation with LEQ ($r = 0.520$, $p < 0.01$) and ORIC ($r = 0.416$, $p < 0.01$). There is a negative correlation between passive-avoidant leadership and LEQ ($r = -.079$, $p > 0.05$) and ORIC ($r = -.084$, $p > 0.05$). There is a positive relationship between

Table 6. ANOVA table (transformational, transactional, and passive-avoidant leadership and seniority).

Model		Sum of square	Df	Mean square	F	Sig.
1	Regression	29.098	4	7.275	16.159	0.000 ^b
	Residual	45.019	100	0.450		
	Total	74.117	104			

Dependent variable is ORIC. Predictors are constant, passive, seniority, transformational, transactional. p -value < 0.001.

Table 7. ANOVA table: ORIC, leader efficacy, and gender.

Model		Sum of squares	Df	Mean square	F	Sig.
1	Regression	30.359	2	15.180	35.383	0.000 ^b
	Residual	43.758	102	0.429		
	Total	74.117	104			

Dependent variable is ORIC. Predictors are constant, gender, and LEQ. * P -value < 0.001.

LEQ and ORIC, reflecting a significant correlation between LEQ and ORIC ($r = .591, p < 0.01$).

Primary research question

The primary question aims to assess to what extent leadership style, leader efficacy, seniority, and gender predict healthcare leaders' readiness to lead change. The ANOVA test in Table 4 indicates an F -ratio of 14.302 with $df = 6, p < 0.01$. This value supports the assertion that there is a statistically significant difference between the predictor variables collectively and the criterion variable. The results show that leadership style, leader efficacy, seniority, and gender, when considered together, are statistically significant in predicting healthcare leaders' readiness for implementing change.

Secondary research question 1

The first secondary question assessed to what extent seniority moderated leadership style and healthcare leaders' readiness to lead change. Multiple regression analysis was performed to predict the organizational readiness to implement change based on leadership styles and moderated by seniority. The ANOVA test in Table 6 shows an F -ratio of 16.159 with $df = 4, p < 0.001$. This value suggests significant differences between transformational, transactional, and passive-avoidant leadership as well as seniority and organizational readiness for implementing change when analyzed collectively. This result suggests that there is a predictive relationship, meaning the three leadership styles and gender is statistically significant in predicting organizational readiness for implementing change.

The Hayes PROCESS macro was used in SPSS to run

a regression analysis to determine whether seniority moderated the relationship between the leadership styles and organizational readiness for implementing change. There was no significance in the interaction between leadership styles and seniority when predicting organizational readiness for implementing change. This result suggests that seniority does not moderate the relationship between leadership styles and organizational readiness for implementing change.

Secondary research question 2

The final secondary research question asked to what extent gender moderates leader efficacy and healthcare leaders' readiness to guide organizations through change. Multiple regression was performed to predict the organizational readiness for implementing change based on leader efficacy and moderated by gender. The ANOVA test in Table 7 indicates an F -ratio of 35.383 with $df = 2, p < 0.001$. This value suggests a significant difference between leader efficacy, gender, and organizational readiness for implementing change. The p -value provides strong evidence that there is a predictive relationship, whereas leader efficacy and gender are statistically significant in predicting organizational readiness for implementing change.

Hayes' PROCESS macro was used in SPSS to run regression analyses to determine how gender moderated the relationship between leader efficacy and organizational readiness for implementing change. The results indicate that a statistically significant relationship exists between leader efficacy and organizational readiness for implementing change. There is no significant relationship between gender and organizational readiness for implementing change. In addition, there is no significance in the interaction between leader efficacy and gender

when predicting organizational readiness for implementing change. Thus, gender does not moderate the relationship between leader efficacy and organizational readiness for implementing change.

DISCUSSION

This study analyzes the effect of transformation, transactional, and passive-avoidant leadership styles and leader efficacy on predicting the readiness of healthcare leaders to lead the implementation of change in the healthcare industry. The results of this study reveal that transformational leadership is appropriate for organizational change. Effective transformational leadership for healthcare leaders is essential for change management initiatives (van Rossum et al., 2016). The findings here also show that transactional leadership is equally as effective for organizational change. However, other researchers have argued that transactional leaders may not actually be effective in promoting change (Boyer-Davis, 2018). Additionally, passive-avoidant leaders are less willing to engage with innovation, which may suggest that these leaders are not particularly interested in implementing organizational change (Deprez and Euwema, 2017). Studies on leadership styles have found that passive-avoidant leadership is the least popular leadership style (Curtis, 2018), which is consistent with the findings of this study.

Additionally, this study suggests that leadership styles and leader efficacy could be used to predict organizational readiness to lead change in the healthcare industry. This research extends the body of knowledge regarding organizational readiness for implementing change by focusing on the organization level. Akande et al. (2019) applied Weiner's (2009) work and concluded that researchers can evaluate organizational readiness for implementing change at an individual, team, or organizational level in the healthcare industry, focusing on individuals' change commitment and efficacy.

Researchers continue to use leadership style and leader efficacy as predictor constructs to address, understand, and analyze problems and issues in healthcare and other industries. In education, for example, a considerable body of work has been produced regarding leadership in school systems. For example, research was conducted to analyze the impact of leadership styles on organizational change in education (Mukhtar and Fook, 2020). Another study examined the impact of leadership efficacy in determining the readiness of school leaders (Abusham, 2018). Organizational readiness for implementing change is a relatively recent development, having only come into use during the last decade; therefore, few studies have employed this construct. Recently, however, organizational readiness for implementing change was used to determine the change commitment and change efficacy of South

African educators in implementing a new intervention program (Arthur et al., 2020).

The results reveal that gender did not moderate the relationship between leader efficacy and organizational readiness for implementing change, although gender was an effective moderator variable in other studies (Landay et al., 2019). This indicates that gender did not influence the predictive relationship between the two constructs. However, in evaluating leader efficacy by gender, females scored higher than males on two factors-leader action self-efficacy and leader means self-efficacy (Sebelski, 2017). The findings of this study show that female leaders had a higher level of leader efficacy than males in all three constructs of the LEQ (leader action self-efficacy, leader self-regulation efficacy, and leader means self-efficacy), reflecting that females possess the necessary skills to be effective healthcare leaders and change agents.

The results indicate that seniority did not moderate the relationship between transformational, transactional, and passive-avoidant leadership styles and organizational readiness for implementing change. These leadership styles did not influence the relationship between the predictor and criterion variables. Most of the respondents (75%) self-reported having less than 10 years of seniority. This may be critical, because many of the healthcare leaders in the study have had minimal experience. The seniority of leaders can affect their perspectives when introducing new ideas. As leaders acquire years of experience, they may be reserved in supporting organizational changes. Bernstein et al. (2016) posited in their study that CEOs of a non-profit are more averse to organizational change as they acquire work experience. This finding suggests that healthcare leaders may be receptive to organizational changes in the earlier years of their leadership.

Employee involvement in organizational changes was not the focus of the study at hand, as the researcher was concerned with analyzing the role of the leader. However, employees play a major role in the success or failure of the change process. Organizational changes have been a challenge because of employee resistance (Basyal and Seo, 2017). It is a natural tendency for employees to resist the implementation of new programs, ideas, policies, and processes (Basyal and Seo, 2017). There are many different reasons why employees resist change, including fear of new technology, lack of trust, and uncertainty (Basyal and Seo, 2017). Healthcare professionals become reluctant when they must adopt new technologies (Kumar et al., 2020). Healthcare professionals resist implementing new technology when there are concerns about the privacy and security of patients' medical information (Kumar et al., 2020). The challenge for healthcare leaders is to convince healthcare professionals to overcome uncertainty and concerns about adopting new technology.

Organizational culture can impact organizational change.

While not addressed in this study, employees must sense that their organization embraces a culture of change. For change to be implemented successfully in the healthcare environment, there must be such a culture, initiated and reinforced by senior leadership (Le-Dao et al., 2020).

Practical recommendations

The results from this study provide a framework for healthcare organizations to implement organizational change by establishing initiatives that will help positively shape and increase the skills of their leaders. To be effective, organizations should establish a strategic plan. A SWOT analysis could help an organization develop an awareness of the factors needed to implement change successfully (Abednego and Syah, 2019). In addition, organizations can consider employing a change management model. Lewin (1947) and Kotter (1996) provided traditional models that are still effective today in implementing organizational change. Also, it is recommended that organizations champion a succession plan, which can ensure stability at all levels of leadership during the change process. Finally, organizations could establish mentorship programs, supporting the development of future leaders and helping to build and develop their leadership competencies.

The results of this study have revealed that healthcare leaders are major players in the organizational change process. Given the importance of their roles, leaders should complete an assessment, such as the MLQ, to determine their leadership style. More specifically, healthcare leaders should try to demonstrate transformational leadership tendencies when looking to implement effective change initiatives (van Rossum et al., 2016). Healthcare leaders should also participate in leadership development programs to hone the competencies that are significant in the change process. Finally, healthcare leaders should serve as change agents with a proclivity toward helping others embrace and adapt new ways of doing things.

Conclusion

This study has explored whether a change might be unsuccessful because of leadership styles, leader efficacy, and organizational readiness for implementing change. Regarding organizational or technology change, earlier research focused on examining the reaction, resistance, and behavior of the employees. This study places the organization and healthcare leaders under a different lens, focusing on their roles during the change process. Healthcare organizations and their leaders can use the results of this study to mitigate the rate of failure when implementing change. Although research has been expanding on all aspects of organizational change, there are still no clear or definitive reasons why change

initiatives are unsuccessful. This study suggests that transformational leadership may be paramount for developing the organizational readiness to lead the implementation of change.

LIMITATIONS

There are several limitations that may have affected the outcome and findings of this research. One is the sample size. A sample size that is too small might shift the statistical significance of the study, while a sample size that is too large might affect its feasibility (Malone et al., 2016). The personal reflections and perspectives of the respondents were another limitation. Also, all individuals self-reported their data, so a potential lack of truthfulness in responding to the questionnaire may have limited the research. In addition, the level of self-knowledge of the leaders is another limiting factor. All participants reported that they were leaders of healthcare professionals in a healthcare facility. However, it is possible that healthcare leaders may not know all the factors that might influence their leadership style and leader efficacy.

RECOMMENDATIONS FOR FUTURE RESEARCH

This study presents many opportunities for further research. There does not appear to be any research that integrates leadership style, leader efficacy, and organizational readiness for implementing change in the healthcare industry. Further investigations that could extend these concepts collectively into other industries that are challenged with organizational change would be potentially fruitful.

Also, the current study highlighted the transformational, transactional, and passive-avoidant leadership styles as practiced by healthcare leaders. But healthcare leaders should explore other leadership styles, like democratic, autocratic, and servant. Further research could investigate whether gender moderates the relationship between leadership style and organizational readiness for implementing change and whether seniority moderates the relationship between leader efficacy and organizational readiness for implementing change.

Future researchers should also consider increasing the sample size. A larger sample size could influence the relationship between the predictor and criterion variables, providing more accuracy in predicting organizational readiness to lead change and addressing the issue of generalizability.

Additionally, others could further expand on and explain the research presented here by employing a different research method. A quantitative approach was viable for this study, as the emphasis falls on predicting organizational readiness for implementing change by evaluating leadership style and leader efficacy. However, others could enhance the findings here by employing a

qualitative research method in order to understand the opinions of healthcare leaders on implementing change. Narrative inquiry, for example, would allow researchers to collect personal stories of healthcare leaders during the change process, analyze their experiences, and determine how their experiences might influence their leadership style and leader efficacy.

CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

ACKNOWLEDGEMENT

The author appreciates the Center for Educational and Instructional Technology Research, College of Doctoral Studies, University of Phoenix, for supporting the preparation of this article.

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Full Length Research Paper

The impact of taxation on the value of companies

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Received 15 December, 2020; Accepted 11 February, 2021

The study aims to analyze the factors that determine the financial structure of listed companies based on the impact of taxation on the value of companies (effective tax rate, tax savings, growth opportunities, asset tangibility, company size, Return on Assets (ROA), company seniority), and the impact of indebtedness on the profitability of enterprises measured by indebtedness rate, turnover, tangibility of assets and seniority of companies. The information collected from the annual financial statements for the period 2010 to 2019 related to the sample of companies was the basis for the analysis of the data panel using the method of multiple regressions. The results show that companies prefer equity as a means of financing and not debt because companies are sensitive to fiscal policies that are sometimes unpredictable and frequently changed. The influence that the fiscal variable has on the financial structure of the companies and its value is a constant result on the entire study. The result of the research also shows that there is an inverse proportion between the degree of indebtedness and the economic profitability of companies; very profitable companies have the ability to secure financing for most of the profits retained for this purpose.

Key words: Investments, models, factors, influences, value.

INTRODUCTION

In an attempt to explain how firms finance their assets and the factors that influence these financing decisions, a number of theoretical and practical models of capital structure have been proposed over time, with the fiscal variable being introduced in models by Graham (2003).

In this context, the research starts from the question: "Is there a direct link between the level of taxes and economic growth?" This question lies in the fact that more important than the payment of taxes (even if it

affects the company's treasury) is how to use the taxes collected to stimulate economic growth. It should be borne in mind that repeated changes in legislation, misinterpretation or misapplication of legal provisions by professional accountants can lead to difficulties in the efficient management of the business. Therefore, the organization of a fiscal management at the level of the entity within the overall management becomes a necessity starting from the substantive and formal

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JEL Classification: G30, M40, M41.

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feature, in the economic theory and practice, which has the tax in financial, economic, social and political plan (Joumard et al., 2013). The structure of capital was and remains one of the most controversial issues of finance to which researchers have given special importance following the publication of the work of Modigliani and Miller (1958).

The contribution of various researchers and financial economists has given new dimensions to theories of capital structure, in particular by taking into account taxation (Modigliani and Miller, 1963), bankruptcy costs (Stiglitz, 1972; Titman, 1984), agent costs (Jensen and Meckling, 1976; Myers, 1977; Jensen, 1986), personal taxes (Miller, 1977), and information asymmetry (Ross, 1977; Myers and Majluf, 1984; Myers, 1984). Based on research published before 2000, a number of researchers continue to pay attention to the determinants of the capital structure as well as the profitability of the company. We mention in this context, first of all, the study of the authors (Khan et al., 2020) who analyzed the structure of capital dependent on a number of explanatory variables (leverage, tangibility, profitability, firm yield) and concluded that the financial policy of an individual firm must take into account its characteristics.

Other authors such as Nguyen and Nguyen (2020a, b) considered the investigation of the determinants of financial performance measured through the indicators ROE, ROA, profitability of sales or profit per share. The empirical results obtained showed that the capital structure has a statistically significant negative effect on the company's performance. Our research analyzes how taxation acts on the value of the company and verifies whether the theories launched on the financing structure (capital or debt) are validated by companies listed on Stock Exchange, to identify fiscal policy instruments that have a negative influence on economic growth. Although in the approach of research there are some points in common with the three studies mentioned above, its content stands out by the approach and the number of explanatory variables used to explain economic growth in terms of taxation, which has not been studied in Iraqi companies. We intended to highlight the main determinants of the financial structure of the enterprise in theory and practice, with special reference to Iraqi enterprises, as well as how they can be used to maximize the value of the economic agent, considering that they can be important information for investors.

LITERATURE REVIEW

The financial structure of a company results, in principle, forms a decision that integrates a whole set of factors. The literature, especially Anglo-Saxon literature, is generous in this direction. Modigliani and Miller (1958)

were the first to research the financing of companies and launched the "irrelevance theorem", which suggests that the type of financial structure of an enterprise has no influence on its market value. In the opinion of the two authors, only the company's ability to generate cash flows determines its value. This contribution was decisive in the development of modern financial theory.

Subsequent studies (Brealey and Myers, 2003; Bannerman and Fu, 2019) have been instrumental in contributing to the theory of financial structure. Thus, from the desire to identify the optimal financing structure, it was concluded that the short-term financial structure is given by the necessary working capital. Regarding the long-term financing, no consensus was reached, the only unanimous opinion being that the choice of a certain financing structure aims to maximize the market value of the company. Given that the theory of the financial structure of an enterprise has evolved, some authors (Ogden et al., 2003) identify the factors that influence financing decisions, presenting theories regarding fiscal policy, financing difficulties, agency costs, information asymmetry and corporate control.

In a subsequent study in 1958, Modigliani and Miller (1963) improved their theory by introducing the concept of taxation and concluded that any tax-paying firm should maximize its level of indebtedness in order to maximize its value. Summarizing the concept of the two authors, it can be stated that the effective tax rate must be positively correlated with the level of debt.

Shackelford and Shevlin (2001) state that historically, prior to the 1980s, taxation research was focused on the legal assessment of the effect of the tax on exogenous transactions and political studies. In fact, the two authors refer to the research of Modigliani and Miller who introduced the income tax in 1963 in a study on the existence of an optimal capital structure. The most complex study belongs to Graham (2003) who integrated the fiscal variables in choosing the capital structure, dividend policy, choosing the form of organization at national and multinational level.

Although Scholes and Wolfson (1996) developed a conceptual framework for integrating taxation into enterprise investment and financing decisions, the conceptual framework did not bring new theories and methodologies, but the authors took a positive approach in trying to explain the role of taxation in the organization. This conceptual framework remains fundamental to tax, accounting and finance research. Some authors consider that tax research needs to present certain methodological issues regarding, in particular, the estimation of the marginal tax rate, in order to specify their models, variables and variation, as well as the availability of data (Shackelford and Shevlin, 2001).

Other authors present more substantiated research, stating that measuring the tax rate is an important step in tax research and can generate negative effects on the

results obtained (Plesko, 2003; Dammak, 2006).

However, we note that there are different approaches to estimating the tax rate. Zimmerman (1983); Porcano (1986) and Omer and Terando (1999) took into account the average effective rate of tax rate, and others (Shevlin, 1990; Graham, 1996) adopted a simulation technique to determine the marginal rate of taxation, a technique that has been widely adopted by Mackie (2002) and Feenberg and Poterba (2000).

Auerbach and Hassett (1992) and Hassett and Hubbard (1996) investigated the effect of tax incentives on investments, such as tax credits for investments, while Cummins et al. (1995) studied the impact of tax adjustments on rates set by Tobin. Other studies have highlighted the effect of income tax and personal tax on the cost of capital (Auerbach, 1983; Stiglitz, 1983; McKenzie et al., 1997) and the interaction between the deficit situation, the interest rate, the cost of using capital and their impact on investments (Gale and Orszag, 2005).

In a 1977 study, Miller stated that the decision-making process is much more complex and identified three types of taxes that influence a company's financial structure, namely: profit tax rate, dividend tax rate, and income tax rate from interest. According to Miller's view, the tax rate is not an independent variable significant enough for the level of indebtedness.

Fama and French (1988) complement Miller's theory and argue that indebtedness levels do not imply tax benefits, with a high degree of indebtedness having other negative effects. These negative effects are represented by higher agency costs because shareholders and creditors anticipate that higher leverage will have a negative impact on profitability.

On the other hand, De Angelo and Masulis (1980) argue that there are other tax savings based on factors other than interest expenses, such as: deductibility of tax depreciation, deductibility of expenses representing investments in fixed assets, deductibility of research and development expenses (R & D). Therefore, they point out that a company should focus more on obtaining tax savings based on the elements listed above and less on accessing credit, hence the assumption on which their thinking is based: tax deductions outside the interest should be negatively correlated with leverage.

Contrary to the theories regarding the maximization of the debt level, there are those that claim that the expected probability of default is positively correlated with the degree of indebtedness of a company, because it implies confidence in its ability to generate profit and honor its obligations to creditors decreases (De Angelo and Masulis, 1980; Sogorb-Mira, 2005). Therefore, it can be stated that the size of the company should be positively correlated with the level of debt. A problem identified by Myers (1977) is represented by the situation in which the level of investments within the company is insufficient. This problem occurs when the

company has reached a maximum level of indebtedness, and the only possibility to attract new funds is to attract capital.

This situation occurs especially in the case of companies with significant growth opportunities. Thus, the state of underfunding in which they find themselves leads to difficulties in accessing loans. A consequence in their case would be the transition from long-term indebtedness to short-term indebtedness or even to financing only on the basis of equity. Finally, this would lead to a negative relationship between development opportunities and leverage (Sogorb-Mira, 2005; Brealey et al., 1991). The stated aspect leads us to the statement that development opportunities must be negatively correlated with the company's leverage.

Given that within the company the financing can be achieved both through long-term loans and through short-term loans, it is necessary to differentiate the total debts in this regard (Michaelas et al., 1999), their relationship with growth opportunities being inverse (negative for long-term loans and positive for short-term loans). The following statements can be made:

- (i) Long-term debt must be positively correlated with the size of the company;
- (ii) Short-term debt must have a negative effect on the size of the company.

Referring to the link between firm opportunities and debt levels, Myers (1977) and Sogorb-Mira (2005) argue that firms with high levels of agency costs are pressured by creditors to maintain a high level of tangible assets in total assets, as they are a guarantee for creditors. Thus, the share of tangible assets should influence the company's ability to obtain external financing. Given that firms mainly finance their tangible assets through long-term lending, a positive correlation should be identified between the tangible asset rate and the level of debt.

Poitevin (1989), following an empirical analysis, found that in profitable companies the leverage is higher. In studying the link between the level of debt and the company's profitability, the author starts from the idea that profitable companies have a lower risk and therefore have the advantage of obtaining credit at a lower cost. Contrary to this statement, Myers and Majluf (1984), through the "theory of ranking sources of financing", argue that profitable companies prefer to finance their investments from the profit carried forward. Thus, according to this theory, profitable companies will resort to bank loans and the issuance of new shares to a lesser extent than non-profit companies. Recourse to financing through capital increase is seen as a last resort in prioritizing funding sources. This situation is caused precisely by the lack of information from those outside the company and it can be stated that the leverage should be negatively correlated with the company's profitability.

At the same time, another implication of the “theory of hierarchies of financing sources” refers to the period from the establishment of the company to the present. According to Hall et al. (2000), firms that have been active in the market for a long time have a greater capacity to use domestic sources (profit carried forward), as they have had time to accumulate resources, hence the statement that leverage should negatively correlated with the period of time since the company was established.

On the other hand, the following conclusion can be deduced from the same “theory of ranking of financing sources”: any company that presents debt in the balance sheet has exhausted its internal resources, indicating that the company's seniority on the market has nothing to do with debt. Consequently, correlated with the previously stated, it is even beneficial for companies to use external lending in order to support the current activity and make investments.

In addition to the briefly presented studies, other currents of thought, which emerged in the 1970s, such as signal theory and agent theory, can be discussed, which allows the analysis of business financing practices and the establishment of the financial structure. Taking into account the concerns found in the literature, our research considers the presentation of the financial structure of companies listed on the Stock Exchange and the analysis of the factors that influence it. Through the models created and their extension, we also proceeded to analyze the impact of indebtedness on the profitability of the company. Our research is in line with this approach, integrating taxation into companies' decisions.

MATERIALS AND METHODS

Description of the financial structure

The analyzed sample consists of 34 companies listed on the Stock Exchange on the main segment, from various branches of activity. Panel data refer to the period 2010- 2019. Viewed from the perspective of the financial structure, the evolution of the variables considered are characteristic, respectively the share of capital, total debt, long-term debt and short-term debt in the balance sheet liabilities, as shown in Table 1. The data in the table reveal that 60.65% of the companies included in the analyzed sample are financed by equity and 39.35% of the companies are financed by debts.

In general, companies prefer equity as a means of financing and not debt, because equity is more affordable for companies. However, the most important aspect is the lower cost of equity. On the other hand, referring to the theory presented above, debt should have represented a much more significant share in the balance sheet liability, as double taxation of dividends would discourage financing by issuing shares. It can also be pointed out that the inflation rate and interest rates are declining, which suggests that purchasing power is increasing, with an increasing benefit / cost ratio.

Although the inflation rate and the interest rate decrease, the long-term debts show a reduced trend, the average of the analyzed period being 29.05%. The downward trend in long-term debt interest rates reflects a decline in the market's perception of

financial risk. Thus, there is an increase in the trend of financing through equity, providing greater security, as the funds will not be withdrawn in case of deterioration of the financial situation, as in the case of a bank loan, ensuring flexibility and independence. A counter-argument against this trend would be that, in the event of bankruptcy, the shareholders will be the last to be remunerated.

Rising inflation and creating a tax shield by deducting interest expense would have been expected to make long-term debt a more attractive source of funding. The taxation practiced in Iraq does not allow the deduction from the payment of the profit tax of the interest only within the limit of a maximum ceiling of 30%. The financing structure of enterprises remains in favor of equity under a limited debt tax advantage.

The designed model

In the analysis we undertake we will rely on the general debt ratio - TDR (also known as leverage or degree of indebtedness) determined as the ratio between the total debts of the company and its total assets. This variable will be the basis for constructing the regression equation as a dependent variable.

The explanatory variables were determined based on numerous studies on the structure of capital. The present study involves the use of 7 explanatory variables, most of which are consistent with the studies that formed the basis of Sogorb-Mira's research (2005), namely:

- 1) Effective tax rate (ETR) represents the ratio between the effective measure of the profit tax and EBIT (Earnings before interests and taxes). The concept belongs to Gupta and Newberry (Gupta and Newberry, 1997);
- 2) TSI represents the ratio between fiscal savings (TS) generated by other items in the balance sheet, other than those related to bank loans and total assets (TA) (Sogorb-Mira, 2005);
- 3) Growth opportunities (GO) are determined as the ratio between intangible assets (IA) and total assets (TA). It is also considered that the value of intangible assets reflects the ability of a company to make investments in the future in order to grow. According to equilibrium theory, firms with high development opportunities borrow less than firms with a large share of tangible assets in total assets, as development opportunities cannot be used as collateral for loans (Myers, 2003);
- 4) TANG - tangibility of assets was used in Nivorozhkin (2005)'s study, according to which companies with high growth rates should rely more on equity financing, as a high degree of indebtedness leads to a decrease in the company's capacity to finance future growth. It is determined as the ratio between the physical assets (tangible) - PA and the total asset (TA);
- 5) The size of the company (CS) - the size of the firm, as a factor influencing the financial structure of the firm has been mentioned in most studies in the field of capital structure (Rajan and Zingales, 1995; Mazur, 2007). Some authors use the number of employees, but the economic crisis that has passed has led to the restructuring of the labor force for which reason it is not a representative influencing factor. Other authors (Marcu et al., 2015) use the logarithmic expression of turnover, which we consider to be less representative due to price fluctuations. Embracing Sgorob-Mira's opinion (Sogorb-Mira, 2005), in the present research we will use the logarithmic expression of the total asset;
- 6) Profitability (PROF) is mentioned by the theory of static balance, as well as by the theory of hierarchy of funding sources. Some authors (Myers, 2003; Nivorozhkin, 2005) determine profitability as the ratio between operating income and total assets. For a greater accuracy of the results we used Return on Assets (ROA) determined as a ratio between EBIT and total assets; 7). YO is the natural logarithm of the years of operation

Table 1. Financial structure of the sample companies.

Year	EQ/TL	TD/TL	STD/TL	LTD/TL	Average interest rate		Inflation rate
					Monetary policy interest rate	Interest rate on loan facilitation	
2010	0.64169	0.35831	0.1064	0.25191	6.66	10.81	6.1
2011	0.64432	0.35568	0.10704	0.24864	6.25	10.00	5.8
2012	0.63084	0.36916	0.11503	0.25413	5.25	9.50	3.3
2013	0.62266	0.37734	0.11353	0.26381	4.87	7.60	4
2014	0.57045	0.42955	0.0821	0.34745	3.35	6.10	1.1
2015	0.58100	0.41901	0.09061	0.32840	2.00	4.00	-0.6
2016	0.61666	0.38334	0.08739	0.29595	1.75	2.88	-1.5
2017	0.55468	0.44532	0.09364	0.35167	1.75	2.88	1.3
2018	0.60444	0.39556	0.10671	0.28885	2.33	3.00	4.6
2019	0.59836	0.40164	0.12750	0.27414	2.50	3.50	3.8
Average	0.60651	0.39349	0.10299	0.29050	3.67	6.03	2.79

Source: authors' processing based on data collected from the financial statements of listed companies.

Table 2. Descriptive statistics.

Variables	Mean	Median	Maximum	Minimum	Std.Dev.	Observations
LOG(TD)	11.99909	11.39321	17.32709	3.95124	2.22824	340
ETR	0.16600	0.14058	3.96462	-1.26430	0.31135	340
TSI	-0.00167	-0.00095	0.09237	-0.04333	0.01156	340
GO	0.03257	0.00276	0.66539	0.00000	0.10819	340
TANG	0.51048	0.50577	0.98367	0.00309	0.22749	340
CS	13.21941	12.62182	17.67614	10.00767	1.96992	340
PROF	0.04323	0.04503	0.44237	-0.89505	0.09270	340
YO	3.61597	3.59722	4.81218	2.30259	0.68983	340

Source: authors' processing.

established at the reporting date. In 1991, the active companies in Iraq were registered in the Trade Register, which is why we ignored this moment and took into account the year in which a company was founded or established, provided that it operates continuously. Therefore, YO represents the logarithmic expression of the years that elapsed from the moment of establishment until 31.12.2019.

To describe the determinants of the financial structure of the enterprise, the econometric model is based on the theoretical foundation provided by the theories of capital structure and has the following form:

$$LEV = c1 + c2ETR + c3TSI + c4GO + c5TANG + c6\log(CS) + c7PROF + c8\log(YO) + \varepsilon \quad (1)$$

where, Y = the lever; ε = the specific error.

The model is based on panel data and consists in estimating the regression equations in which time series as well as cross-sectional data are used. Subsequently, to highlight the impact of the financial structure on profitability, we analyzed the econometric model applied by Smith et al. (2012), which measured performance through ROA and which is significantly negatively correlated with the amount of debt used by the firm.

The regression equation to be tested has the following form:

$$Prof = c + c1*TDR + c2*\log(TVR) + c3*TANG + c4\log(YO) + \varepsilon \quad (2)$$

where: Log (TVR)=logarithm of turnover

Description and analysis of data

In order to form a general image on the tendency of the considered variables, in Table 2 is presented the descriptive statistics of the sample that will be analyzed. We notice that the highest values are recorded by the size of the company (CS) and the total debts recorded due to the heterogeneity of the sample in terms of the specifics of the activity and the way capital is managed. On the other hand, the lowest values are recorded by tax savings, other than those generated by interest. This aspect helps us to analyze the correlations between the variables provided in Table 3. The table shows the correlations between the variables, and their sign confirms or refutes the theories described in point 2 regarding the financial structure of the enterprise and the influence exerted by taxation.

First, it is noted that there is a positive link between leverage (measured by total debt) and the effective tax rate, thus confirming

Table 3. The matrix of correlations between the dependent variable and the independent variables.

Variables	TD	ETR	TSI	GO	TANG	CS	PROF	YO
TD	1							
ETR	0.02480	1						
TSI	-0.16756	0.01098	1					
GO	0.24707	-0.00194	-0.01611	1				
TANG	0.22953	0.05838	-0.13146	-0.36535	1			
CS	0.90667	0.11877	-0.10070	0.25782	0.26225	1		
PROF	0.11605	0.04658	0.09833	0.09798	-0.14260	0.19748	1	
YO	-0.00802	0.02993	0.08279	-0.23638	-0.11614	0.00186	0.18268	1

Source: authors' processing.

the theory put forward by Modigliani and Miller, according to which the effective tax rate should be positively correlated with the level of debt, on account of fiscal savings related to interest expenses. Referring to the TSI variable, the results confirm the theory of De Angelo and Masulis (1980) that it is negatively correlated with leverage, but has a very low value. The low growth opportunity, measured by the share of intangible assets in total assets (3.25%) refutes Sogorb-Mira's theory that there should be a negative correlation with leverage (Sogorb-Mira, 2005). If the variables that refer to the tangibility of assets, the size of the company and the period from the establishment to the present confirm the theories described above, the same cannot be said about profitability. Myers and Majluf (1984) refer to the financing of investments from carried forward profit. The Iraqi tax legislation puts its mark on the company's profitability through the way of regulating the profit, which leads to dismissing the hypothesis according to which the leverage should be negatively correlated with the company's profitability. An analysis on the two groups of companies, respectively those with majority state capital and those with majority private capital, validates those found on the whole sample and presented above.

RESULTS AND DISCUSSION

Determinants of the financial structure of the enterprise

The results of the basic model related to the total debt

The econometric model established according to relation (1) has the form of multiple linear regression, the serial correlation of errors in the case of cross-sectional data being irrelevant, and the dependent variable LEV is nuanced by the total debt ratio (TDR) calculated as ratio between total debt and total assets. According to the variable correlation matrix (Table 5) no factor should be eliminated, but by estimating the equation we find that some variables are not statistically significant having p-value >0.05, value initially stipulated by Fisher and accepted by the scientific community.

Starting from relation (1) and determining the lever by TDR (total debt ratio), the linear regression becomes:

$$TDR = c1 + c2ETR + c3TSI + c4GO + c5TANG + c6\log(CS) + c7PROF + c8\log(YO) \quad (3)$$

The modeling result obtained based on the processing of the data related to the analyzed sample of companies, is presented in Table 4. The data from the processing suggest that the variation of the series is largely explained by the regression factors. Both R2 and R2-adjusted show very high values (0.839058, respectively 0.835665), which suggests that in a proportion of 84%, the independent variables considered explain the dependent variable (TDR). From the resulting estimates, we notice that the only variable that has a positive influence on the lever is the size of the company, the rest of the variables having a negative effect. The ETR coefficient is negative and statistically significant (p-value = 0.0003). The lack of predictability of the fiscal policy, the frequent changes in the fiscal field regarding the deductibility of the elements of calculation of the profit tax, the application of the IFRS regulations regarding the calculation of the deferred profit tax only at the level of groups of companies, are only some of the causes (1963). According to the results obtained, a 1% increase in the tax rate is followed by a decrease of 0.25 percentage points in the borrowing rate.

Referring to the TSI indicator, the results confirm the hypothesis of Sogorb-Mira (2005), according to which it is negatively correlated with leverage. Also, considering the probability associated with the t-Student test, it is found that it is statistically relevant, p-value = 0.0011. The results indicate that Iraqi companies are sensitive to the applied fiscal policies and that an increase of 1 percentage point of fiscal savings (other than those arising from interest) is a decrease of 6.24% points of total debt.

The size of the firm (CS) is positively correlated with the lever. The coefficient is statistically significant (p value is 0.0000). This indicates that the larger the company, the more loans it will use. The results obtained indicate that at a 1% increase in the size of the company there is an increase of 1.04% points of leverage. The

Table 4. Modeling the regression equation for total debt.

	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.696139	0.187384	-3.715045	0.0002
ETR	-0.250466	0.068694	-3.646116	0.0003
TSI	-6.242475	1.867903	-3.341970	0.0009
GO	-0.021476	0.243875	-0.088063	0.9299
TANG	-0.099716	0.115280	-0.864992	0.3877
CS	1.044512	0.029301	35.64718	0.0000
PROF	-0.645750	0.242839	-2.659166	0.0082
YO	0.002026	0.076942	0.026335	0.9790
R-squared	0.839058			
Adjusted R-squared	0.835665			
Prob(F-statistic)	0.000000			

Source: authors' processing.

evidence supports the hypothesis that the size of the firm has a positive impact on lending. The evidence is consistent with the tradeoff theory of capital structure and the studies of Ang et al. (1982) and Sogorb-Mira (2005). The profitability (PROF) expressed by the ROA coefficient is negative and statistically significant (p-value is 0.01111). The coefficient obtained for the variable profitability suggests that an increase by one percentage point of the profitability of Iraqi enterprises listed on the BSE is associated with a decrease of approximately 0.65% points of the total degree of indebtedness. It has been hypothesized that when firms are profitable, they prefer to borrow because the expected cost of bankruptcy decreases as profitability increases, to which are added the tax advantages that will lead to higher profitability, but the evidence does not support this theory. The negative sign of profitability is in line with the theory of hierarchy that predicts a preference for internal financing, rather than external financing (Myers and Majluf, 1984; Myers, 1984). The finding is also consistent with the early studies of Rajan and Zingales (1995), Booth et al., 2001 and Ozkan (2001) and Gaud et al. (2005).

The two variables GO and YO are statistically insignificant because the p-value is greater than 0.05. Although the GO variable is negatively correlated with leverage (Sogorb-Mira, 2005; Brealey et al., 2020), it is insignificant with p-value = 0.9299. The main dependent variable used in the analysis was the general debt rate. However, the use of this rate alone as a dependent variable does not allow a debt structure analysis. Starting from relation (1) and considering that the total debts consist of long-term debts and short-term debts,

the multiple linear regression takes the following forms:

$$LTD = c1 + c2ETR + c3TSI + c4GO + c5TANG + c6log(CS) + c7PROF + c8log(YO) \quad (4)$$

$$STD = c1 + c2ETR + c3TSI + c4GO + c5TANG + c6log(CS) + c7PROF + c8log(YO) \quad (5)$$

Where: LTD - long-term debt ratio; STD - short-term debt ratio

The results of the long-term debt regression model

Following the estimation of the regression model (4) for the dependent variable LTD, we notice that in proportion of 73% the decisions regarding the financial structure of the enterprise are determined by the above variables. It is observed that in the case of long-term debt, the resulting coefficient has the positive sign according to the theory of Myers (1977) and Sogorb-Mira (2005), but p-value = 0.6446 makes this variable not statistically significant. Instead, the theory of Ang et al. (1982) and Hall et al. (2000) confirms that long-term debt must be positively correlated with firm size. A 1% increase in the company's size leads to a 1.16% point increase in indebtedness.

On the other hand, the hypothesis is validated according to the hypothesis considering that the age of the company should be negatively correlated with the leverage (Sogorb-Mira, 2005). Its value shows that an increase of 1 percentage point determines a decrease of

Table 5. Descriptive statistics.

Variables	Mean	Median	Maximum	Minimum	Std.Dev.	Observations
ROA	0.030679	0.033707	0.439297	-0.905847	0.090615	340
TDR	0.400476	0.320842	2.098278	0.001797	0.344457	340
LOG(TVR)	5.336034	5.202494	7.419262	3.113284	1.01014	340
TANG	0.510484	0.50577	0.983671	0.003088	0.227488	340
LOG(YO)	1.570397	1.562252	2.089905	1	0.29959	340

Source: authors' processing.

0.57% points of indebtedness.

The results of the short-term debt regression model

The analysis performed at the level of the entire sample in relation to short-term debts (Equation 5), both R and R² - adjusted records significant values of 0.767802 and 0.762906 respectively, which suggests that in proportion of 76%, the independent variables considered explain the dependent variable RDS. The link is less strong than in the case of LTD and, therefore, it can be stated that 76% of this model explains the decisions on the financial structure of the company. As can be seen, the strongest link is ensured by the company's profitability (p-value = 0.0138) and a percentage increase of 1% determines a reduction of indebtedness by 0.7 percentage points. The negative correlation between profitability and total indebtedness supports the hypothesis of the theory of the ranking of financing sources according to which profitable enterprises use less borrowed capital for financing, as they have more internal resources that they can use as financing sources (Myers and Majluf, 1984). In the same sense, it is noted that the hypothesis of Sogorb-Mira (2005) is confirmed, according to which it is negatively correlated with the lever. From a statistical point of view the variable AEF is significant (p-value = 0.0003). As we have already pointed out, the results indicate that Iraqi companies are sensitive to the applied fiscal policies and that an increase of 1 percentage point of fiscal savings (other than those derived from interest) determines a decrease of 7.93% points of debts on short term.

As in the case of the regression model for the total debt, the negative relationship between the effective tax rate and the debt level is observed here, the coefficient being statistically significant (p-value = 0.0013). A 1% increase in the tax rate produces a decrease in short-term debt by 0.26% points and confirms the theory of Modigliani and Miller (1963).

On the other hand, the positive sign of the coefficient related to the variable DF, leads to the rejection of the theory of Ang et al. (1982) and Hall et al. (2000) according to which short-term debt should be negatively

correlated with the size of the company. This theory is explained by the fact that some companies included in the sample were in a period of insolvency in which there was a decrease in liquidity. The statement is in line with the idea that companies' "liquidity has a negative impact on companies' decisions to lend. This negative effect could be due to potential conflicts between creditors and companies' shareholders (Ozkan, 2001). In other words, companies with a high level of liquidity hold more liquid assets and have lower short-term debt, thus reducing the share of short-term debt and total debt at the same time.

Summarizing what has been described so far, it can be stated that indebtedness can increase the value of the company, as the existence of taxes creates advantages in the case of using a larger volume of borrowed capital. The interest related to them is tax deductible expenses, which reduce the taxable profit and, as a result, generate a tax saving. But an indebted firm has a higher degree of risk: the non-indebted enterprise has only an economic risk, while the indebted enterprise registers an increase in the risk of its own capital in relation to the degree of indebtedness.

Factors that influence the value of the company

As previously stated, the study of financial structure determinants that influence firm profitability is based on studies by Smith et al. (2012) that measured performance through ROA significantly negatively correlated with the amount of debt used by the firm (calculation relation (6)). In the view of the three authors, high-performing companies tend to have more undistributed profit and thus do not need to borrow to finance their business. On the other hand, low profitability can put pressure on the company to use more debt in the next period.

$$Prof = c + c1 * TDR + c2 * \log(TVR) + c3 * TANG + c4 \log(YO) + \varepsilon \quad (1)$$

We chose profitability testing as a dependent variable, measured using the ROA indicator calculated as the

Table 6. Matrix of correlations between the dependent variable ROA and independent variables.

Variables	ROA	TDR	LOG(CA)	TANG	LOG(YO)
ROA	1				
TDR	-0.29844	1			
LOG(TVR)	0.199503	0.085193	1		
TANG	-0.13833	0.028158	0.269167	1	
LOG(YO)	0.183981	-0.04772	0.094564	-0.11614	1

Source: Authors' processing.

ratio between net profit and total assets. The independent variables, as an expression of the determinants, refer to:

- (1) The degree of indebtedness or the leverage established as a ratio between the total debts and the total assets, hence the expression of the total debt rate;
- (2) The size of the company quantified by the logarithm of the turnover related to company *i* at time *t*;
- (3) Tangibility of assets, as previously described;
- (4) The logarithm of the number of years of operation of companies *i*, at time *t*.

The research of the factors that influence the value of the company is a continuation of the previous research, which is why it uses the same database related to the 34 companies listed on Bagdad Stock Exchange in the period 2010-2019. Table 5 presents the descriptive statistics of the variables used in the analysis. As can be seen, the leverage comprises on average 40.05% of the accounting assets, and the ROA is 3.06%.

Table 6 shows the correlation between the model variables and as can be seen the closest correlation is between TANG and LOG (CA).

As the regression results show, when the ROA is a dependent variable (Table A4, the degree of indebtedness is significant (p -value = 0.0000) and has a negative sign. This result means that an increase in a firm's debt results in a decrease in economic profitability, ROA. Analyzing the p -value values of the other factors, we notice the existence of insignificant factors, such as the case of the company's age (logYO), which we will eliminate from the calculation. Modeling the regression equation in the absence of the enterprise age factor shows us that the highest value of the coefficient is the lever. In this context, in order to determine the optimal capital structure, we will perform an econometric analysis between profitability and the degree of indebtedness, eliminating from the model the other insignificant elements and we will have:

$$ROA = C(1) + C(2) * TDR \quad (7)$$

Following the chart below, we notice that at a leverage

value equal to 0%, the profitability is maximum specific to the Iraqi market of 6%. But, the maximum degree of indebtedness, above which the profitability becomes negative, is found at the level of 79.5% (Figure 1). From what is presented, it can be determined that, when the companies are listed on the BSE, they have a high degree of indebtedness, which determines the decrease of the economic profitability. Firms that record very high rates of economic profitability record low debts instead. Although there is no theoretical justification for this, a practical explanation is that very profitable companies simply do not need large debts for financing. Their high rates of return allow them to secure financing for most of the profits retained for this purpose (self-financing).

Conclusions

The aim of the research is to analyze how taxation affects the value of the companies and verify whether the theories launched on the financing structure (capital or debt) are validated by Iraqi companies listed on the BSE, and to identify fiscal policy instruments that have negative influence on economic growth. For listed Iraqi companies, it is important to know the determinants of the company's financial structure, as well as the factors that influence the value of the company because economic growth cannot be achieved without identifying the occurring influences. The research provides useful information to managers, investors and decision makers in Iraq.

Researching the financing structure of Iraqi companies listed on Bagdad Stock Exchange we found that they generally prefer equity as a means of financing, and not debt, because equity is more accessible. The most important aspect is the lower cost of equity. On the other hand, referring to the theory of the hierarchy of sources of financing, debt should have represented a much more significant share in the balance sheet liability, as double taxation of dividends would discourage financing by issuing shares. Following the factors that influence the financing structure of the Iraqi companies listed on Bagdad Stock Exchange, the followings were identified:

The effective tax rate, both in the case of total debt and

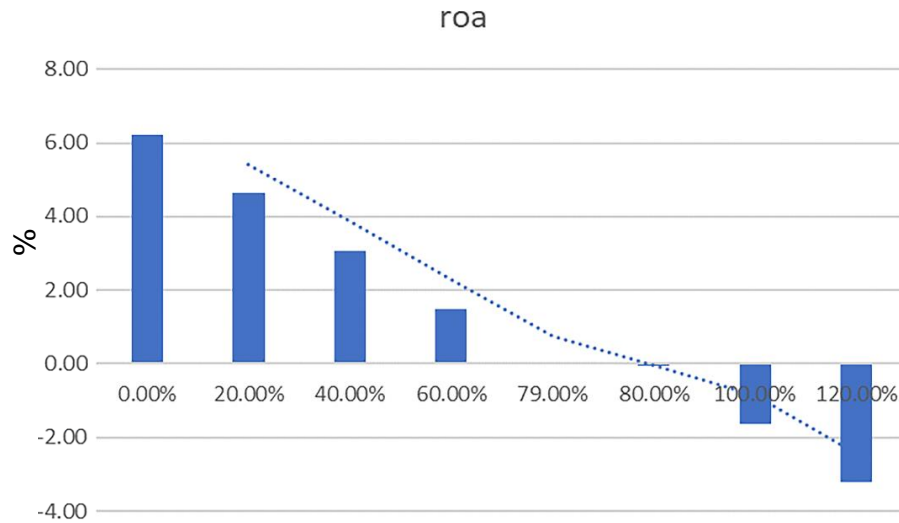


Figure 1. The limit for which profitability is maximum or minimum.
Source: Processing belongs to the authors.

in the case of long-term and short-term debt, is in a negative relationship with leverage. The main cause would be that companies are not profitable enough to make the most of the tax savings resulting from the level of indebtedness (there was a period when some large companies were in a state of insolvency);

Tax savings, other than those resulting from interest, prove to be beneficial, but they are short-term and related to government fiscal policy, as has been shown in the case of measures on social security contributions; *Growth opportunities* are in a positive relationship with long-term debt and total debt and in a negative relationship with short-term debt, thus rejecting the theory that development opportunities must be negatively correlated with the company's leverage. This situation can also be explained by the slightly higher share of long-term debts in the balance sheet liabilities of companies, thus reflecting their inclination to achieve a balance between long-term and short-term debts;

The tangibility of the assets does not seem to have a negative effect on the leverage even if in the case of short-term debts the sign is negative, thus accepting the hypothesis of the existence of a positive correlation with the leverage. Consequently, it is important for the analyzed companies to invest in tangible assets in order to be able to obtain long-term financing;

The size of the company proved to be in a negative relationship with both the level of total debt and the level of long-term debt, but in a positive relationship with short-term debts. This aspect can be explained by the fact that Iraqi companies have a higher probability of bankruptcy, which demotivates them when the issue of indebtedness arises (Miciuła et al., 2020);

Profitability is positively correlated with all three dependent variables leading to the rejection of the theory

that supports this relationship. Therefore, in the case of the analyzed Iraqi companies, the carried forward profit is insignificant for financing investments from internal resources;

The years of operation of a company is negatively correlated with the leverage, which leads to the acceptance of the theory that the longer a company operates in the market, the less it borrows because it has had time to accumulate internal financing resources.

Summarizing what has been described, it can be stated that indebtedness can increase the value of the company, as the existence of taxes creates advantages in case of using a larger volume of borrowed capital (Noja et al., 2020). The interest related to them is tax deductible expenses, which reduce the taxable profit and, as a result, generate a tax saving. But an indebted firm has a higher degree of risk: the indebted enterprise has only an economic risk, while the indebted enterprise registers an increase in the risk of its own capital in relation to the degree of indebtedness.

Regarding the second aspect, the analysis of the determinants of the financial structure that influence the firm's profitability was based on the studies of Smith et al. (2012) who measured performance through ROA significantly negatively correlated with the amount of debt used by the firm. The research shows that, when companies are listed on the BSE, they have a high degree of indebtedness, which leads to a decrease in economic profitability. Firms that record very high rates of economic profitability record low debts instead. Although there is no theoretical justification for this, a practical explanation would be that very profitable companies simply do not need large debts for financing. Their high rates of return allow them to secure financing for most of the profits retained for this purpose (self-

financing).

In response to the title of the research, we note that there is a kind of dialectical link between taxation and the power of the company on the market, the former consolidating the latter which will therefore have the means to reduce the same taxation. This follows from the fact that, if taxation encourages, in particular, expenditure whose profitability increases with market power, it contributes to the increase of that power which entails the partial translation of the corporate tax on customers.

Limitations of the study and future perspectives

Although the study is based on a relatively long period of time (2010-2019), it should be emphasized that Iraq's economy is not a stable economy; the data collected contain sufficient risks that may lead to dilution of research results. In other words, the empirical data are extracted from the financial statements of companies published on www.isx-iq-net, which may be suspected of low accuracy. Additionally, there are concerns regarding taxation, which diminishes the informative power of built models.

The lack of specialized support in the direction of researching the influence of factors on the value of the company makes it impossible to compare with other similar studies at the level of Iraqi companies. The limits stated regarding the study lead to the pioneering aspect of this research, through which we highlight only the evaluation and explanation of the factors influencing the value of the company. We plan to extend this research in the future by comparing and tracking the trend of the factors described.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

ACKNOWLEDGEMENTS

The authors thank the editor and reviewers for their comments and suggestions. The authors collaborated in the study and are responsible for designing the methodology, collecting and interpreting the data.

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