



**An-Najah National University
Faculty of Graduate Studies**

**FINANCIAL STABILITY OF INSURANCE
COMPANIES UNDER COVID-19 PANDEMIC:
EVIDENCE FROM MENA COUNTRIES**

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**This Thesis is Submitted in Partial Fulfillment of the Requirements for the Degree
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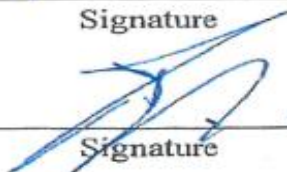
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الإهداء

إلى من قدمت الكثير من عمرها لي وجعلتني انا الآن .. أُمي الحبيبة.

إلى أعلى ما لدي في هذه الدنيا .. أبي الغالي.

إلى روح الغالين على قلبي .. جدي صالح وجدتي عائشة.

إلى أحن وأطيب أهل الارض .. جدي جمال وجدتي آمنه.

إلى رفقاء أيامي الثابتين .. إخواني الأعزاء .

إلى أولئك الذين يفرحهم نجاحنا، ويحزنهم فشلنا .. أقاربي الأعزاء

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إلى الحريصين على نجاحي والعيون الساهرة والعقول النيرة .. أساتذتي الأفاضل.

وإلى كل الذين أحبهم

الشكر والتقدير

قال تعالى "ومن يشكر فإنما يشكر لنفسه".

بفضل الله وتوفيقه طويت صفحة من التعب

فشكرا لكل حلم بدأ صغير وثم ازدان وكبر بفضل أبي وأمي

شكرا لكل من قال لي كلمة خير تعينني على الوصول

شكرا لكل من أمن بي ودفعني إلى أن أكون مخلصا في طلب العلم

كما وأتوجه بالشكر والامتنان لكل من الدكتور معز ابو عليا والدكتور غسان دعاس، فقد كان لإشرافهما

ومنحهما الكثير من الوقت لي للخروج بالرسالة بالشكل الذي ظهرت عليه

والشكر موصول لأعضاء لجنة المناقشة الأفاضل على تفضلهم بقبول مناقشة رسالة الماجستير

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لا يسعني كذلك سوى تقديم الشكر الجزيل لزملائي الأفاضل في هيئة سوق رأس المال

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I, the undersigned, declare that I submitted the thesis entitled:

FINANCIAL STABILITY OF INSURANCE COMPANIES UNDER COVID-19 PANDEMIC: EVIDENCE FROM MENA COUNTRIES

The work presented in this thesis, unless otherwise referenced, is the researcher's own work and has been submitted elsewhere for any degree or qualification.

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Abstract

This thesis examined how the determinants of financial stability of insurance companies (ICs) have been influenced by COVID-19 in MENA countries. The study administered a two-step system-GMM to a sample of 78 insurance companies in eight MENA countries in the pre-COVID-19 from second quarter of 2018 to the fourth quarter of 2019 and during the COVID-19 from the second quarter of 2020 to fourth quarter of 2021. The macro and micro level determinants of financial stability were estimated. These variables were identified following the theories and literature related to financial stability and COVID-19 pandemic. Inflation was taken as a proxy for macroeconomic instability, whereas receivables, reinsurance dependence, invested assets ratio, firm size, change in the gross written premium, loss ratio, insurance leverage ratio, retention ratio and market concentration were the firm specific-factors. The Z-score was used as a proxy for the financial stability.

During the COVID-19 pandemic period, a significant positive impact of inflation on financial stability was observed. However, the pre-COVID-19 period results showed no impact of inflation on financial stability. Concerning firm-specific variables, during COVID-19 pandemic period, the results showed that financial stability was impacted positively by firm size and negatively by loss ratio. Nevertheless, the results revealed that the receivables, reinsurance dependence, invested assets ratio, change in the gross written premium, age, insurance leverage ratio, retention ratio and market concentration had no significant effect on ICs' financial stability. The pre-COVID-19 period outcomes showed that firm-specific variables yielded mixed results while there was a positive impact of the retention ratio and market concentration on FS. The insurance leverage, however, had a negative effect on FS. Furthermore, the results showed that the remaining variables were insignificant, including receivables, reinsurance dependence, change in the gross written premium, loss ratio, firm size and firm age. In the end, and contrary to expectations, the

COVID-19 pandemic had a positive effect on the financial stability of ICs in the MENA region. The financial stability of insurance companies contributed to the overall financial stability at the macro-level, with a forward-looking view of appropriate policies to enhance the financial stability of these insurance companies during crises and pandemics. In addition, the study results assisted in understanding the actual impacts of COVID-19 with other firm-specific factors and macroeconomic factors on the overall financial stability of the economy.

Based on the study findings, the researcher recommends that, for a healthy, sound and stable insurance sector, insurance industry regulators and supervisory authorities actively monitor the financial stability predictors during the COVID-19 pandemic, and utilize them to circumvent the effect of future pandemics and crises. Future studies are encouraged to use other proxies that capture the severity of the pandemic, such as the number of cases and deaths. In addition, researchers should focus on each country in the MENA region to find out how environmental factors affected FS during the COVID-19 pandemic. The researcher also suggests that more research should be carried on the effects of vaccinations and recent crises (such as the shipping crisis) on the financial stability of insurance companies and the overall economy.

Keywords: Financial stability; Z-score, MENA Region; COVID-19; insurance companies, GMM.

Chapter One

Introduction and Theoretical Background

1.1 Introduction

The coronavirus (COVID-19) pandemic has burdened the world economy. The shock was sudden and widespread throughout nations, with great uncertainty about its severity and duration (Shang et al., 2021). As a result of the virus's fast spread, individuals worldwide have been required to isolate themselves under rigorous public health regulations (World Health Organization, 2022). Although social distancing and other preventive health efforts were life-saving procedures, they have led to an economic catastrophe (Kamerlin & Kasson, 2020). Major stock market indices plunge at an incredible rate, losing about a third of their value in only few weeks and affecting industries across the board (Becker et al., 2020). As a global financial crisis, the consequences of the COVID-19 pandemic on economies, financial markets and individual firms are more severe than the previous crisis (Sansa, 2020; Ehnts & Paetz, 2021).

Insurance Companies (ICs) are among the major institutional investors in the financial markets, given their essential role in financing the economy. ICs are regarded as long-term investors due to the stability and predictability of their liabilities (Apicella et al., 2022). In addition, they tend to purchase assets when prices drop (Timmer, 2018). Consequently, they sustain losses on their security holdings in the short run to generate higher profits over the long run. What's more, IC can play a stabilizing role during times of market instability by functioning as a "shock absorber" (Apicella et al., 2022).

The COVID-19 pandemic caused operational constraints, regulatory requirements, financial problems, and severe declines in the performance of ICs (Vlaminchx, 2020; Puławska, 2021). In General, a fall in assets compared to liabilities should be expected because of recent adverse market movements in the context of the pandemic, asset liquidity losses triggered, and the rise in past-due obligations (European Insurance and Occupational Pensions Authority, 2020).

Financial stability (FS) is "a situation when an individual financial institution is stable enough to perform the financial intermediation function appropriately without external assistance" (Moreno et al., 2022, p.2). The importance of examining the FS of firms was

stressed by the global financial crisis of 2008. FS creates a feeling of more confidence in the company's long-term financial success (Donohoe, 2019). In the insurance industry, a valid insurance system mechanism plays an essential role in achieving FS (Heidari et al., 2021).

The MENA countries have suffered significant economic challenges in the last decades, such as changing local economies, high unemployment rates, political crises and spreading pandemics (Hoogeveen & Lopez-Acevedo, 2021). Recently, the COVID-19 pandemic caused poor performance in most countries following 2020; and GDP per capita barely recovered pre-pandemic levels. Eleven out of the seventeen MENA countries cannot recover their pre-COVID-19 levels by the end of 2022, if the World Bank projections come true (World Bank, 2022). Moreover, the COVID-19 pandemic has influenced extreme liquidity strain in the system. Worldwide financial circumstances have continued to ease on the back of the decisive policy action taken by the G20 Group (World Bank, 2022). In the MENA region, COVID-19 negatively impacts ICs by increasing pricing and reducing capacity in many areas (Marsh, 2021).

This study is structured into four chapters. The current chapter presents the study's introduction and theoretical background. Chapter 2 explains the methods of the study. Chapter 3 presents and discusses the results of the study. Chapter 4 provides conclusion, recommendations and limitations.

1.2 Theoretical background

This section discusses the main concepts covered in the study as addressed by the related theories and the previous studies.

1.2.1 Financial Stability

Although the concept of FS is mainly used at the macro-level, it has implications at the micro-level. The concept of FS is discussed in this section at two levels.

1.2.1.1 Financial Stability at macro-level

There are several definitions of the FS. It is often defined as “the absence of system-wide instances in which the financial system fails to function (crises). It is also related to the stress-resilience of financial systems” (World Bank, 2020).

Financial market stability refers to a position in which market activities are not discontinued significantly, and financial asset values do not deviate substantially from economic fundamentals, allowing economic actors to manage and raise money with confidence (Bank of Korea, 2020). As most real economic transactions occur via the financial system, the FS is crucial for economic growth (World Bank, 2020).

Different theories identify the causes of financial instability; their applicability may vary based on the period and nations included in the investigation (Mishkin & Herbertsson, 2011). Problematic factors affecting the entire financial system that may lead to financial instability include inadequate economic policy, rapid liberalization of the financial sector, lack of a credible exchange rate mechanism, weak supervision, poor use of resources, lack of market discipline, and insufficient rules about auditing and accounting (Central Bank of Hungary, 2017).

The above-mentioned causes of financial instability reflect collectively and individually; hence, examining FS is a tremendously tricky undertaking (Mishkin & Herbertsson, 2011). The emphasis on specific companies' affects the overall view. Thus, macroeconomic and microeconomic variables should be considered to assess the FS (Central Bank of Hungary, 2017).

1.2.1.2 Financial Stability at the micro-level of insurance companies- Z-score

Another meaning of the FS relates to the FS of the financial institution, which refers to a situation where an individual financial institution is stable enough to perform the financial intermediation function appropriately without external assistance (Donohoe, 2019). A significant body of literature focus on examining several capitalization indicators (i.e., the actual solvency margin and solvency ratio) to assess companies' FS (Rubio & Fernández, 2017). However, limiting the study to ICs capitalization may be too restricted. A broader method is required to assess the various variables which impact an insurer's FS (Cummins et al., 2017). Chen and Wong (2004) and Caporale et al. (2017) focus on insolvency risk or suggest models that predict ICs experiencing financial distress. However, finding data on the insolvency of ICs is challenging for researchers conducting this type of investigation (Moreno et al., 2022).

Moreover, a substantial proportion of the risk to which an insurer is exposed are attributable to the policies it underwrites, or the overall sums insured (Čihák, 2007). Uncertainty accompanies the liabilities insurers face, as well as their size. This uncertainty or technical risk is inherent to the insurance sector overall. Typically, insurance liabilities are assessed using actuarial or statistical techniques based on probability theory, utilizing historical data and predictions. Such situations would affect FS of IC (International Monetary Fund, 2003).

1.2.2 Theories of financial stability

Many theories have addressed financial stability however most of them are on the macroeconomic level.

1.2.2.1 Theories of financial stability at the macro-level

This sub-section discusses monetary stability and financial instability hypothesis as theories of FS at the macro-level.

1.2.2.1.1 Financial Instability Hypothesis and the financial crises

According to Minsky (1986) and Kindleberger (1996), financial instability is a common predictor of financial crises. Financial systems in the money and credit markets are vulnerable to disruptions that could lead to the loss of sustained equilibrium (Minsky, 1982; 1986). Therefore, their method is frequently referred to as the instability hypothesis. Kindleberger (1996) asserts that severe external macroeconomic crises cause the economy to run faster by making it dependent on more credit. However, Minsky (1986) focuses more on endogenous systems, or flaws, to address financial market disturbances, when short- and long-term sustainable equilibriums do not coincide, this system error causes financial instability to develop.

Both Minsky (1986) and Kindleberger (1996) agreed that after a period of instability, demand for loans could rise due to optimistic expectations. In the absence of FS, credit bubbles rise and excessive expansion in the total amount of money causes the financial markets and economy to overheat (Fraga & Rocha, 2014). Asset bubbles develop when there is an excessive money surplus. The bubbles continue to rise due to anticipation of increasing asset prices (Grytten & Koilo, 2019). The prices will go up even further because investors anticipate a more significant overvaluation of the assets (Aliber &

Kindleberger, 2015). As investors anticipate a price maximum to be reached, this will continue until markets flip. The "Minsky Moment" refers to the turn in the financial markets (Aliber & Kindleberger, 2017). Following that, anticipated losses because the market declines to be even steeper and deeper into the economy (Grytten & Koilo, 2019).

1.2.2.2 Theories of financial stability at the micro-level

In the following sub-sections, theories related to FS at the micro-level are discussed.

1.2.2.2.1 Ruin Theory

The overarching premise that underpins ruin theory—derived from the collective risk theory—is that the decision-making process of IC takes ruin probability into account. The functioning of an insurance contract is thought of as a stochastic process that takes place in discrete time, with continuous steps and a single absorbing barrier (Salaudeen et al., 2021; Cummins & Nye, 1981). Safety-first decision-making and constraint utility maximization are two ways that ruin probability might be seen in action. While making decisions that put safety first, the rule is to maximize expected net income. When optimizing the expected utility of net worth, the rule to follow is the constraint utility maximization rule (Salaudeen et al., 2021; Cummins & Nye, 1981). The ruin idea is the central focus of this investigation. The study of stochastic processes, which depict the timely development of a surplus of a stylized non-life IC, is what ruin theory is all about (Loisel & Gerber, 2012). The theory describes the insurer as having two contradictory financial flows: incoming cash premiums and outbound cash claims. Whenever the number of capital decreases, it is reasonable to conclude that there has been a financial collapse (Salaudeen et al., 2021). Finally, Amsler (1984) indicates that "mathematical ruin" is typically utilized when evaluating the insurance portfolio's FS. Because ruin is a process by which a portfolio changes from the condition of "to be" to the state of "to be no longer," actuaries have, not surprisingly, attempted to quantify the severity of the risk posed by such a transition by referring to its "probability". Unfortunately, many tests have demonstrated, both in theory and in actual practice that the concept of "ruin probability" is not straightforward to work. Because of the challenge, which appears significant, it is necessary to look for another quantifier of the idea of a ruin outside the chance of occurrence.

1.2.2.2 Enterprise Risk Management (ERM) Theory

From a conceptual point of view, a positive link has been found between ERM and the profitability of the firms (González et al., 2020). Since comprehensive management allows companies to take greater risk and gain from reducing the inefficiencies of inherent risk dispersion and diversification across divisions or regions (Hoyt & Liebenberg, 2011). Tripp et al. (2008) indicate that ERM helps firms to integrate their risk appetite with their strategy and enhance risk response, resulting in reduced losses. As a result, companies may achieve a good trade-off between risk and FS (Bohnert et al., 2019). Salaudeen et al. (2021) claim that by carefully monitoring the firm's positioning itself toward a plan of change or direction that ensures an acceptable risk level, a successful enterprise risk management keeps management abreast of potential dangers and prepares it to respond appropriately. A company's risk management decisions can be overridden by management, which is human nature. Firm-wide risks can result from poor judgment, including collusion between two or more individuals in control, benefits involved and relative costs in control establishment and risk response, and so on (Salaudeen et al., 2021).

Moreover, ERM may decrease the cost of hedging risks by hedging solely on residual risk (González et al., 2020). Hoyt and Liebenberg (2011) argue that ERM reduces costs associated with implementing individual risk treatment and permits natural hedging across different economic transactions. Moreover, McShane et al. (2011) argue that ERM may improve the company's value since the risk of an aggregate portfolio might be lower than the sum of its risks. According to the modified Committee of Sponsoring Organizations of the Treadway Commission (COSO) document, ERM's benefits include assessing and managing organization-wide risk, raising profits and advantages while decreasing adverse shocks, minimizing performance variability, enhancing FS, and improving resource deployment (COSO, 2017).

1.2.2.3 Concentration and stability hypothesis

The concentration and stability hypothesis indicates that large firms reduce financial fragility through their capital and, therefore, are less exposed to liquidity and relatively high economic risks (Calice et al., 2021). Large insurers also have governance systems that reduce operational risks and economies of scale, enabling them to diversify their

investments financially and geographically (Matutes & Vives, 2000). In summary, this hypothesis suggests a positive impact of the company's size on FS.

1.2.2.2.4 Concentration and fragility hypothesis

The concentration and fragility hypothesis suggests that the IC's size's impact on the degree of stability is negative due to the moral hazard problem, with the belief that large companies are too big to fail (Calice et al., 2021). Especially if the management of the company is a fan of risk. On the one hand, large insurers which seek to increase their market share ensure high risk that raises the likelihood of accidents that the company may not be able to pay for and, therefore, bankrupt (Nicoló et al., 2006).

1.3 The COVID-19 Pandemic

Many governments have implemented several steps to prevent the pandemic, including the government closure of areas, restricting people's travel and movements to even going out of their homes, and mingling with others while wearing masks. For instance, body temperature checks, health declarations, and data placards are required on flights and railway stations to identify viral passengers. Notwithstanding, it has spread in many nations worldwide, causing global issues that have led to economic slowdowns in some countries (Yang et al., 2020). Moreover, Khan et al. (2020) identify that the recession caused the international economy to collapse because of the increase in firms' closures and unemployment. Feyisa (2020) asserts that several sector shocks, including services, manufacturing, tourism, and commerce, are also the most detrimental to the international economy. Several economic and social shocks have already resulted in a decline in investment, services, global consumption, and industrial production activities (Shi et al., 2020).

The insurance sector was no exception. Levantesi and Piscopo (2020) content that ICs were not ready to deal with the sizeable financial shock caused by COVID-19. Farooq et al. (2021) show that COVID-19 has a negative impact on the long and short-run stock returns of ICs in Canada, Australia, Germany, the United Kingdom, the United States, Indonesia, India, and Brazil. Ye et al. (2021) find that the Chinese ICs showed a decrease in stock prices during the first quarter. Moreover, the study reveals that the rise in COVID-19 cases reduced the insurance concentration, insurance premium, and insurance depth for Chinese ICs, whereas, COVID-19 has a positive impact on life insurance firms.

Ramasamy (2020) notices that life ICs have attracted more clients and made more money during the COVID-19 pandemic because individuals are terrified and want to prevent a financial distress if they are infected.

Certainly, the COVID-19 pandemic has caused an unanticipated and widespread economic downturn across ICs in all countries. However, there remains a lack of empirical studies of the COVID-19 effect on the FS of ICs, in general, and in the MENA context, in particular.

1.4 Literature Review and Hypotheses Development

A well-developed insurance market is critical to the economic growth of a country. ICs financial performance and FS affect the general public, company employees, agents, policyholders, stockholders, government agencies and prospective investors (Adeniyi et al., 2019). According to Stojaković and Jeremić (2016), the insurance sector's development has positively influenced economic growth. However, pandemics like SARS (Nippani & Washer, 2004), Ebola Virus (Ichev & Marinč, 2018), and COVID-19 (Yang et al., 2020) harmed economies globally.

1.4.1 Financial Stability (Z-Score)

A significant body of literature has concentrated on examining several capitalization indicators (the actual solvency margin and the solvency ratio) to draw conclusions about the FS of companies (Rubio & Fernández, 2017). However, limiting the study to IC capitalization may be too restricted. A broader method is required to assess the various variables that impact an insurer's FS (Cummins et al., 2017). Chen and Wong (2004) and Caporale et al. (2017) focus on insolvency risk and propose models to predict insurers experiencing financial distress. Nevertheless, finding data on the insolvency of ICs is challenging for researchers conducting this type of investigation (Moreno et al., 2022). The Z-score is a good proxy of an insurer's FS that considers criteria other than capitalization or the specific occurrence of bankruptcy (Moreno et al., 2022). The company with significantly higher risk returns can have the same or higher Z-score as other ICs with smaller capitalization (Moreno et al., 2022). Moreover, there are a few studies that examined the Z-score in ICs, like Puławska (2021), Cummins et al. (2017), Shim (2011) and Pasiouras and Gaganis (2013).

1.4.2 Receivables

Decreasing People's incomes will undoubtedly be impacted by the current economic crisis due to COVID-19, especially for those working in the tourism and transportation sectors (Ehnts & Paetz, 2021). Because essential requirements will be prioritized by public financial governance when society's income drops, people's purchasing power will decline. The absence of a prospective target market means that this situation will likely have an even larger impact on the manufacturing sector than just the drop in sales numbers. The industrial sector faces a significant level of credit risk as a result of this demand, which is also a result of consumers' diminished capacity to repay corporate debt during the economic crisis (Fridson & Alvarez, 2012). Moreover, Zimon and Tarighi (2021) suggest that some organizations might try to attract additional new customers in the market during the COVID-19 pandemic by raising the deadlines of accounts receivable to boost their sales growth and lowering the liabilities turnover to work with more different suppliers, which leads to a negative impact on the financial performance of companies. Consequently, it can be concluded that people's inability to pay their debts as a result of losing their jobs and their attention to basic needs causes them to neglect their receivables to businesses, including ICs, which lowers profits and affects their FS because profits are one of the most crucial pillars of FS.

Additionally, businesses, including ICs, might try to increase credit sales, which could have a negative impact on FS due to high-risk of bad debt that could result in bankruptcy (Sharma & Kumar, 2011). Mathuva (2009) and Gill et al. (2010) find that receivables turnover have a negative impact on financial performance. On the other hand, Kestens et al. (2011) find that the value of trade payables and receivables has a negative impact on financial performance during a financial crisis. In addition, Baveld (2012) examines working capital management by publicly traded companies in the Netherlands. Two time periods are compared: the pre-crisis period of 2004–2006 and the financial crisis period of 2008–2009. The study suggests a significant negative relationship between gross operating profit during the non-crisis period and accounts receivables. However, these two factors have no apparent connection throughout the crisis. Because some companies shouldn't maintain their accounts receivables at a minimum to enhance profitability during crisis periods, this conclusion may indicate that the relationship between receivables and a firm's profitability and FS changes during a crisis.

In contrast, Pugnetti and Seitz (2021) indicate that insurers are more concerned with reducing operational expenses than improving consumer value delivery. Mirzaev (2018) shows that accounts receivable have a negative impact on FS. Puławska (2021) find no impact of the value of receivables on FS of ICs in Germany, Italia, France, and Poland during the COVID-19 pandemic.

Thus, the following hypothesis is formulated:

H_{1A}: There is a significant negative impact of receivables on FS in Pre-COVID-19 period.

H_{1B}: There is a significant negative impact of receivables on FS during the COVID-19 period.

1.4.3 Reinsurance Dependence

Cummins et al. (2021) show that there is a significant positive links between reinsurance dependence and costs of ICs. Iqbal and Rehman (2014) find that ICs should try to reduce their dependence on reinsurance because the more they depend on it, the more likely their performance will decline. According to Iqbal et al. (2014), a higher reliance on reinsurance contracts will lead to lower profitability because leverage adversely affects profitability. They also assert that to improve risk coverage and maintain a stable profit. Shim (2015) indicates a significant negative impact of reinsurance dependence on FS, suggesting that insurers using more reinsurance have become more likely to get a restriction on their ability to handle additional risk and have a high-risk exposure. As a result, it is reasonable to anticipate that reinsurance will have a negative impact on financial performance and FS.

Moreover, Rubio-Misas et al. (2017) suggest that there is a significant negative impact of reinsurance utilization on the level of the regulatory solvency ratio as a measure of FS. Considering the insurer insolvency, Kim et al. (1995) argue that the more a company is exposed to reinsurance, the more it is susceptible to the adverse financial consequences of bankruptcy. However, Froot et al. (2001) show that the actuarial price of the risk transferred might be many times higher than the reinsurance premium, which means there is a negative impact on financial performance. Kramarić et al. (2019) denote that an insufficient volume of reinsurance dependence could put an insurer's ability to cover its obligations and keep its FS in risk. In contrast, Ismail (2013) and Sasidharan et al. (2020)

indicate a significant positive link between reinsurance dependence and financial performance. While Deyganto and Alemu (2019) report no significant impact of reinsurance dependence on financial performance. In addition, Barakat et al. (2022) demonstrate that, despite reinsurance's role in risk transfer, it has no impact on the financial performance for ICs in Palestine. This might be due to a lack of reinsurance providers or the possibility that Palestinian ICs waived a small portion of premiums for the benefit of reinsurance providers.

Thus, the following hypothesis is formulated:

H_{2A}: There is a significant negative impact of reinsurance dependence on FS in Pre-COVID-19 period.

H_{2B}: There is a significant negative impact of reinsurance dependence on FS during the COVID-19 period.

1.4.4 Invested assets ratio

Nzoka (2015) indicated that invested assets have a significant positive relationship with financial performance. This corroborates the idea that banks with a lot of idle assets that aren't being invested in will generate meagre incomes, which will lower financial performance. Khalid (2012) asserts that when a bank's asset quality worsens, it needs more resources to do credit-receiving activities that don't add value, leading to bad performance. Also, Khalid (2012) showed that asset quality and profitability were negatively related. The quality of a bank's assets affects its financial health, operating results, and the safety of the whole banking system. In the insurance sector, Elango et al. (2008) found that the size and variety of the insurer's returns are influenced by its investment portfolio. Higher returns may be obtained by investing in riskier assets. They may increase the volatility of such returns. However, Kim et al. (1995) and Kramer (1996) show that investment performance is adversely linked with the insolvency rate. Chen et al. (2004) found that investment positively impacts property-liability insurers' FS. Finally, investment expects to have a beneficial impact on an insurer's FS since the more significant the percentage of an insurer's investment, the more investment income is generated, which lowers the insurer's insolvency risk.

Thus, the following hypothesis is formulated:

H_{3A}: There is a significant positive impact of Invested assets on FS in Pre-COVID-19 period.

H_{3B}: There is a significant positive impact of Invested assets on FS during the COVID-19 period.

1.4.5 Firm Size

Firm size is commonly utilized as a determinant of business stability in the insurance and banking industries (Shim, 2015; Cummins et al., 2017). Yanase and Asai (2008) used the size of the insurance business to investigate risk-taking behaviour in the Japanese life insurance market. Since the financial health of any corporate organization is influenced by, among other things, the firm's size or total assets (Chen and Wong, 2004). According to Chen and Wong (2004), small insurers are predicted to be more susceptible to collapse since regulators are less inclined to liquidate more prominent insurers. Shiu (2004) argues that big insurance businesses have more capacity to cope with unfavourable market fluctuations. They may more readily hire skilled workforces with technical experience, resulting in improved performance.

On the other hand, Pi and Timme (1993) argue that a firm's financial success may be negatively connected to its size since it is sometimes challenging for owners to monitor managers as the company grows adequately. Diseconomies of scale should also be taken into consideration. Shim (2011) find that the size of the insurance firm has a favourable impact on financial performance. Moreover, Joo (2013) anticipates that small insurers are more susceptible to insolvency because regulators are less likely to liquidate large insurers, which means that size has a positive impact on FS. However, Cummins et al. (2017) conclude that it has a negative impact.

Furthermore, Pasiouras and Gaganis (2013) find that the size may be favourably and adversely linked with insurers' soundness in six distinct regressions, relying on the legislative measure employed in the model. In contrast, Almajali et al. (2012) and Ogbeide et al. (2017) conclude that there is no impact of firm size on financial performance.

Thus, the following hypothesis is formulated:

H_{4A}: There is a significant positive impact of firm size on FS in Pre-COVID-19 period.

H_{4B}: There is a significant positive impact of firm size on FS during the COVID-19 period.

1.4.6 Gross Written Premium Growth

Kim et al. (1995) support the hypothesis that high premium growth is one of the key factors leading to bankruptcy. Excessive premium growth raises underwriting risk and technical reserves, meaning that gross written premium growth significantly impacts profitability. Chen and Wong (2004) contend that being too focused on premium growth can lead to self-destruction. Although choosing profitable investment portfolios may be more important goals, they are frequently disregarded. This is particularly true in times of economic turbulence like the 2008 crisis.

Furthermore, Akotey et al. (2013), Hrechaniuk et al. (2007) and Deyganto and Alemu (2019) indicate that gross premiums have a positive relationship with insurance profitability. In contrast, Charumathi and Kota (2012) find that there is a significant negative impact of premium growth on financial performance. While Mehari and Aemiro (2013) find that there is no impact of premium growth on FS. However, Ismail (2013) and Abdeljawad et al. (2020) find that there is no impact of premium growth on financial performance. Hence, it is reasonable to anticipate that this variable to have a negative impact on FS.

Thus, the following hypothesis is formulated:

H_{5A}: There is a significant positive impact of GWP growth on FS in Pre-COVID-19 period.

H_{5B}: There is a significant positive impact of GWP growth on FS during the COVID-19 period.

1.4.7 Loss Ratio

Even though asset risk primarily includes the risk of bond defaults and stock price fluctuations, underwriting risk (loss ratio) is the possibility that payments will be greater

than the anticipated losses covered by the premiums charged to policyholders (Cummins & Sommer, 1996). Mehari and Aemiro (2013), Burca and Batrinca (2014), Kaya (2015), Alomari and Azzam (2017) Berhe and Kaur (2017) and Sasidharan et al. (2020) show that Loss ratio has a negative impact on insurance financial performance. Moreover, Guendouz and Ouassaf (2018) assert that firms with a higher loss ratio have a lower financial profit. Cummins et al. (2021) show that reinsurance purchase reduces loss ratio volatility significantly. In contrast, Charumathi and Kota (2012) assert that the loss ratio has no impact on financial performance. Whereas Joo (2013) who studies the impact of the loss ratio on FS for Indian ICs, shows that the loss ratio has a significant positive impact on the FS for Indian ICs, which may reflect the fact that the majority of businesses are still growing and are initially spending more than their total assets, income, and underwriting profits. Similarly, Cheng and Weiss (2013), Hu and Yu (2014) and Moreno et al. (2018) indicate that the loss ratio has a positive impact on the FS.

Thus, the following hypothesis is formulated:

H_{6A}: There is a significant negative impact of loss ratio on FS in Pre-COVID-19 period.

H_{6B}: There is a significant negative impact of loss ratio on FS during the COVID-19 period.

1.4.8 Insurance Leverage

The literature suggests that when an insurer expands its insurance and financial leverage, its risk grows (Carson & Hoyt, 1995). The literature on capital structure indicates that when leverage increases, a company's value improves up to an optimal point and then declines if leverage is extended beyond that point. Thus, exceeding this ideal level of leverage might result in a significant risk of bankruptcy and a weak company value (Chen and Wong, 2004). In addition, Shim (2015) indicate that insurance leverage significantly negatively impacts FS in the insurance system. However, Malik (2011), Charumathi and Kota (2012), Alomari and Azzam (2017), Charumathi and Kota (2012), Taha (2015) and Sasidharan et al. (2020) assert that insurance leverage significantly negatively impacts financial performance. In contrast, Almajali et al. (2012) and Mazviona et al. (2017) indicate that insurance leverage has a significant positive impact on financial performance. In comparison, Puławska (2021) reports that insurance leverage does not

have an impact on FS. Hence, the insurance leverage is expected to have a negative impact on FS.

Thus, the following hypothesis is formulated:

H_{7A}: There is a significant negative impact of insurance leverage on FS in Pre-COVID-19 period.

H_{7B}: There is a significant negative impact of insurance leverage on FS during the COVID-19 period.

1.4.9 Retention Ratio

According to Lee and Lee (2011), insurance businesses' underwriting risk and premium increase impact the insurer retention ratio. Smajla (2014) show that Croatian enterprises have strong capital adequacy and retention rates due to reinsurance services. Moreover, Browne et al. (2001) indicate that reinsurance coverage might be necessary for certain ICs because of bad claims experiences. The marine and fire classes have had the lowest reported claim experiences and retention rates among the other company classes. Low-risk profiles demonstrate the profitability of the related industry, which could lead to lower reinsurance premiums (Caporale et al., 2017). In contrast, Cheng and Weiss (2013), Mankai and Belgacem (2016) and Moreno et al. (2018) shows that the use of reinsurance has a negative impact on insurers' capitalization (FS). However, Caporale et al. (2017) show that ICs use reinsurance to reduce their capital needs, but it exposes them to counterparty risk and could raise the possibility of an insurer going bankrupt. Finally, Salaudeen et al. (2021) and Browne et al. (2001) find that the retention ratio has no impact on financial performance in IC. Hence, the Retention ratio is expected to have a negative impact on FS.

Thus, the following hypothesis is formulated:

H_{8A}: There is a significant negative impact of retention ratio on FS in Pre-COVID-19 period.

H_{8B}: There is a significant negative impact of retention ratio on FS during the COVID-19 period.

1.4.10 Market Concentration

According to Allen and Gale (2004), a concentrated banking industry with a minor member of banks is less vulnerable to financial crises than a less concentrated banking industry with many banks. According to Montgomery (1985), enterprises operating in highly concentrated marketplaces will likely benefit from increased prices and profits. In highly concentrated marketplaces, banks can profit by using their market dominance to charge higher prices. Banks with significant earnings make it easier to build up a capital buffer to guard against unfavorable financial shocks, lowering the risk of a financial crisis (Montgomery, 1985).

As a consequence of more substantial capital buffers that save them from external macroeconomic and liquidity shocks, big (monopolistic) banks in a highly concentrated banking system have a decreased chance of a financial crisis (Alshubiri, 2022). According to Boyd et al. (2004), giant (monopolistic) banks in a highly concentrated banking sector have a lower risk of a financial crisis because they have higher capital buffers that insulate them from external macroeconomic and liquidity shocks. Moreover, Calice and Leonida (2018) find that the amount and net effect of the mediators varied with concentration. Increasing concentration increases profitability, increasing banking system stability at lower concentration levels. The increased cost of credit, lack of diversity, and difficulty monitoring in the banking sector lead to concentration at higher levels. Concentration does not significantly affect intermediate-level FS because the competing moderators cancel each other out. According to the findings, there seems to be optimal well-being when there are intermediate concentration levels.

Moreover, Alshubiri (2022) and Ben Ali et al. (2018) find that market concentration has a significant positive impact on financial performance. In contrast, Chakraborty (2020) and Furman and Orszag (2018) assert that market concentration has a significant negative impact on financial performance. In comparison, Rinkevičiūtė and Kaulienė (2014) conclude that market concentration has no impact on financial performance.

For the insurance sector, Shim (2015) shows that higher market concentration is associated with lower FS of ICs. In this line, Nicolás et al. (2006) indicate that the market power that derives from an excessive concentration of banking activities has a negative impact on FS. In contrast, Chand et al. (2021) find that higher market concentration has

a significant positive impact on FS. Moreover, Shamsuddin et al. (2020) report that market concentration has no impact on financial performance.

Thus, the following hypothesis is formulated:

H_{9A}: There is a significant positive impact of market concentration on FS in Pre-COVID-19 period.

H_{9B}: There is a significant positive impact market concentration on FS during the COVID-19 period.

1.4.11 Firm Age

According to Evans (1987), the age of a company is a significant determinant of its profitability, due to cumulative expertise and lower efficiency costs, the older the company is, and the more profitable it will be. Moreover, Cowling et al. (2008) find that a firm's age had a positive and substantial impact on enterprise investment scheme (EIS) recipients: the higher the amount of fixed asset construction, the older and more extensive the EIS business. In the same vein, firm age may improve the chances of survival (Anyadike-Danes & Hart, 2018). Operators with more years of expertise may be able to make more effective and more competent judgments, resulting in a beneficial influence on the firm's stability. Taha (2015) suggests that older firms have greater experience, have reaped the advantages of knowledge, are not susceptible to the limitations of newness, and may achieve higher performance. Older companies may also profit from reputation effects, which enable them to generate a better sales margin. Cowling et al. (2008), Mahfoudh (2013), and Too and Simiyu (2018) show that there is a significant positive impact of firm age on financial performance. In contrast, Abubakar et al. (2018) and Pervan et al. (2017) find that firm age has a significant negative impact on financial performance. Nevertheless, Almajali et al. (2012) and Taha (2015) find that there is no impact of firm age on financial performance.

Thus, the following hypothesis is formulated:

H_{10A}: There is a significant impact of firm age on FS in Pre-COVID-19 period.

H_{10B}: There is a significant impact firm age on FS during the COVID-19 period.

1.5 Macro variables

Many macroeconomic variables impact FS. In this study, inflation is examined as a predictor of the FS.

1.5.1 Inflation

Inflation and financial crises are positively connected with ICs financial stability. Cummins et al. (2017) assert that inflation has a positive relationship with GDP even though when inflation rises due to a demand-pull effect, it indicates that the country's economy is improving, leading to a positive economic control on the market's financial health. In this line, Browne and Hoyt (1995) found that unanticipated inflation positively affects insurers' insolvency. However, Shapiro (2020) studies how COVID-19 caused a sharp drop in inflation. The reduction in core personal consumption expenditures inflation was driven mainly by a sharp drop in consumer demand, as seen by disaggregating the underlying pricing data by spending category. The demand impact was far more extensive than the price increases caused by supply shortages due to COVID-19. Chadha et al. (2021) assert that much lower inflation, because of combined fiscal-monetary actions, reduced the severity of the pandemic shocks and facilitated a faster return to pre-crisis levels of economic activity. In contrast, Perera et al. (2013) and Taha (2015) find that there is a significant negative impact of inflation on FS. While Berhe and Kaur (2017), Alomari and Azzam (2017) and Sasidharan et al. (2020) conclude that there is no significant effect of inflation on financial performance.

Thus, the following hypothesis is formulated:

H_{11A}: There is a significant positive impact of inflation on FS in Pre-COVID-19 period.

H_{11B}: There is a significant positive impact of inflation on FS during the COVID-19 period.

1.6 Problem Statement

The issue of FS has received considerable attention from researchers in various fields of activity. Also, FS enables regulators and ICs to take steps to improve their performance and keeps ICs from going out of business. It also allows investors to predict the risk of an insurance company going out of business (Puławska, 2021). This is important because the health and survival of an organization depend on how it maintains its FS. In addition,

ICs protect the FS of consumers and businesses by insuring their risks (European Central Bank, 2009).

The COVID-19 poses a more significant economic impact than earlier virus's outbreaks, such as SARS in 2003 (Yang et al., 2020). It is anticipated that outbreaks like the coronavirus could hurt the stock market because they raise the level of risk in the financial market (Gormsen & Koijen, 2020). Similarly, the COVID-19 pandemic has had a detrimental impact on the insurance sector worldwide. The negative impact of the COVID-19 on the insurance sector is alarming since ICs are critical to the financial system's stability because they are significant investors in financial markets. As a result, it is crucial to look at how the COVID-19 pandemic has impacted ICs. The insurance industry's risk exposure grew as the COVID-19 pandemic wreaked havoc on citizens' lives, the insurance industry, and all economic operations (EIOPA, 2020).

The lack of FS during the COVID-19 was not caused solely by insurance-related activities alone, such as the settlement of benefits and claims; instead, it was due to the investments made by the insurers (Koszalka, 2021). The FS of the ICs is also essential because of their sensitivity to credit loss. Finally, the COVID-19 tends to have irregular impacts on the FS in insurance sectors. To inform lawmakers and investors of the insurance sector's response to COVID-19, it is crucial to use the connections the industry has with both groups.

1.7 Research Questions

Based on the problem statement described, the following questions are stated in the context of investigating the FS of ICs during the COVID-19 pandemic in the MENA countries.

Q_{1A}: What is the impact of receivables on FS in Pre-COVID-19 period?

Q_{1B}: What is the impact of receivables on FS during the COVID-19 period?

Q_{2A}: What is the impact of reinsurance dependence on FS in Pre-COVID-19 period?

Q_{2B}: What is the impact of reinsurance dependence on FS during the COVID-19 period?

Q_{3A}: What is the impact of Invested assets on FS in Pre-COVID-19 period?

- Q_{3B}: What is the impact of Invested assets on FS during the COVID-19 period?
- Q_{4A}: What is the impact of firm size on FS in Pre-COVID-19 period?
- Q_{4B}: What is the impact of firm size on FS during the COVID-19 period?
- Q_{5A}: What is the impact of GWP growth on FS in Pre-COVID-19 period?
- Q_{5B}: What is the impact of GWP growth on FS during the COVID-19 period?
- Q_{6A}: What is the impact of loss ratio on FS in Pre-COVID-19 period?
- Q_{6B}: What is the impact of loss ratio on FS during the COVID-19 period?
- Q_{7A}: What is the impact of insurance leverage on FS in Pre-COVID-19 period?
- Q_{7B}: What is the impact of insurance leverage on FS during the COVID-19 period?
- Q_{8A}: What is the impact of retention ratio on FS in Pre-COVID-19 period?
- Q_{8B}: What is the impact of retention ratio on FS during the COVID-19 period?
- Q_{9A}: What is the impact of market concentration on FS in Pre-COVID-19 period?
- Q_{9B}: What is the impact market concentration on FS during the COVID-19 period?
- Q_{10A}: What is the impact of firm age on FS in Pre-COVID-19 period?
- Q_{10B}: What is the impact firm age on FS during the COVID-19 period?
- Q_{11A}: What is the impact of inflation on FS in Pre-COVID-19 period?
- Q_{11B}: What is the impact inflation on FS during the COVID-19 period?

1.8 Research Significance

This study seeks to identify the set of determinants that affects the FS of ICs in the MENA countries during the COVID-19. Empirical results on the FS contribute to providing regulatory and supervisory bodies with a forward-looking view of appropriate policies to enhance the FS of these IC during crises and pandemics and, thus, the FS of the insurance sector overall. In addition, this study contributes to preserving the firm from financial

failure risks that might lead to financial default and bankruptcy. It may also improve IC's market survival, which probably contribute to the general health and prosperity of the economy.

This study makes various significant contributions. First, it assists in understanding the actual impacts of the COVID-19, along with other firm-specific factors and macroeconomic factors, on the FS of the ICs. Second, it is one of the first studies to examine the FS of ICs during the COVID-19 pandemic. Third, according to the researcher's best knowledge, this topic has never been studied in the context of MENA countries. This study ultimately covers this gap in the existing literature.

1.9 Research Objectives

This study aims to examine the FS of ICs in MENA countries, during the COVID-19 pandemic, for the period from Q2 2018 to Q4 2021, with the following objectives:

- To investigate the factors which have an impact on the FS of ICs across MENA countries.
- To study the impact of the COVID-19, along with other firm-specific and macroeconomic factors, on the FS of ICs.
- To provide information to regulators in MENA countries about the FS in the insurance sector, which is considered the main component of the FS of the overall economy.
- Understanding the nexus between these factors and the insurance company's FS helps the supervisory authorities to formulate their policy to recover from the coronavirus pandemic under that relationship and serve its objectives.

Chapter Two

Methods

2.1 Introduction

This chapter focuses on the population and sample, research model, data collection process, variables measurements, and analytical methods. This study investigates the determinant of the FS for ICs in the MENA region using the Generalized Method of Moments (GMM) model.

2.2 Population and Sample

The study includes the listed ICs in the MENA countries that adopt IFRSs and Insurance Core Principles (ICPs), a widely accepted framework for insurance supervision consisting of Principles, Rules, and Guidelines issued by the International Association of Insurance Supervisors (IAIS). Moreover, ICPs lead to a sound supervisory system that protects policyholders and promotes the financial system's stability. Also, it addressed the broad set of risks within the insurance sector. The sample includes all listed insurance companies in these countries that meet the following criteria:-

1. The company should not have merged.
2. The companies should provide insurance but not offer reinsurance services.
3. The data or proxies needed are available.

The final sample consists of balanced panel data for (78) ICs across eight countries in the MENA region (Palestine, United Arab Emirates, Bahrain, Jordan, Kuwait, Palestine, Qatar, Saudi Arabia, and Oman) for the period from Q2 of 2018 to Q4 of 2021 as shown in Table (1). This study differs from previous contributions in that it examines the FS determinants during the COVID-19 pandemic. The study covers eight quarters, four before and four within the pandemic. The total ICs quarterly observations are (624).

Table (1)

The study sample

| Country | Market | Number of ICs Before exclusion | Number of ICs After exclusion | % |
|--------------|--------|--------------------------------|-------------------------------|------------|
| Palestine | PEX | 8 | 8 | 10.25 |
| Jordan | ASE | 20 | 18 | 23.07 |
| UAE | ADX | 17 | 16 | 20.51 |
| Saudi Arabia | TASI | 29 | 21 | 26.92 |
| Qatar | QSE | 6 | 3 | 3.85 |
| Oman | MSX | 11 | 5 | 6.42 |
| Kuwait | BK | 8 | 4 | 5.13 |
| Bahrain | BHB | 4 | 3 | 3.85 |
| Total | | 103 | 78 | 100 |

Source: Author's own calculation.

2.3 Data Collection Methods

As seen in Table (3), the data used in the study was obtained from the annual reports and interim financial reporting (i.e., income statements and the statement of financial position) of ICs, which were disclosed on the Websites of the sample companies for the eight periods from Q2 2018 to Q4 2021. The inflation data was collected from World Economic Outlook from the International Monetary Fund (IMF) Website. The variety of filters used to filter the data reduced data with missing values.

2.4 Variables measurement

The theoretical analysis produces many variables. Theoretical and empirical investigations have proven several distinct measurements for these FS determinants. The variables chosen and measured are typically based on earlier empirical investigations, with the variables suggested and adopted mostly by preceding empirical literature.

2.4.1 Dependent Variable (FS)

The FS of ICs is proxied in this study using the Z-score. As previously mentioned, the Z- score concept is to link the capital ratio to the volatility in the ROA to determine how much variability in returns can be absorbed by capital without the company going bankrupt (Li & Malone, 2016), and it is calculated as follows,

$$Z - \text{score} = \frac{\text{ROA} + \text{Eq/TA}}{\sigma\text{ROA}} \dots \dots \dots (1)$$

The equity-to-total-assets ratio is expressed by Eq/TA, while the standard deviation (SD) of the ROA is denoted by σ_{ROA} .

When losses drain equity (i.e. whenever $ROA + Eq/TA \leq 0$), default is anticipated. The Z-score reflects the number of standard deviations between the expected value of the ROA, $E(ROA)$, and the negative values of ROA, $ROA = -Eq/TA$, which would result in bankruptcy if it is believed that ROA is a random variable (Hannan and Hanweck, 1988). It also shows how many standard deviations the ROA must fall to deplete equity and compel a failure. Capital acts as a cushion against unanticipated losses, much as it does in the banking industry, and is essential to an insurer's capacity to pay its commitments (Cummins et al., 2017).

$$Z - score1 = \frac{ROAt + Eq/TAt}{\sigma_{ROA3}(ROAt, (ROAt - 1), (ROAt - 2))} \dots \dots \dots (2)$$

Various methods for computing this variable have been reported in the literature. The Z-score is defined as the sum of the firm's ROA (ROAt) and equity-to-total assets ratio (Eq/TAt) numbers in the current period divided by the σ_{ROA} computed using data from the year (t) and the two preceding years (Pasiouras & Gaganis, 2013; Cummins et al., 2017).

The Z-score may be regarded as an alternative measure of risk and, therefore, a suitable method of the FS of ICs since it considers variables other than capitalization and the specific incident of bankruptcy (Moreno et al., 2022). However, the Z-score has generally been used in the banking literature to measure individual risk (Chand et al., 2021; Harkati et al., 2020; Li & Malone, 2016). Some recent research has also used this indicator to assess the FS of ICs (e.g. Moreno et al., 2022 and Puławska, 2021). Because of the simplicity and accessibility of its measurement, the Z-score can be a simple and practical approach to ICs failure (Plantin and Rochet, 2008). This measure may be used for ICs with diverse risk management strategies (Pasiouras and Gaganis, 2013). The institution with significantly higher risk returns may have the same or higher Z-score as other IC with smaller capitalization (Moreno et al., 2022).

The advantage of Z-score is that it can be used for enterprises with no more sophisticated data. It also allows comparison of the risks of default in different groups of firms, which may vary in ownership or objectives, but face bankruptcy risks. While it is commonly

used as an important measure of FS, it has limitations. For instance, its calculations are based only on financial data gathered from financial statements, such as profitability, and therefore its calculation requires that financial firms facilitate the data required; a Z-score may provide a very positive outlook of FS (Moreno et al., 2022).

Also, Z-score looks at each financial institution separately. It omits inter-institutional linkages, which may overlook the possibility that a financial institution's failure may cause other financial institutions to failure in the system (i.e. systemic risk).

2.4.2 Insurer-specific characteristics

The ICs characteristics reflect the study's independent variables. Based on the extant literature, size, receivables, reinsurance dependence, invested assets ratio, change in the gross written premium, loss ratio, insurance leverage ratio, retention ratio, market concentration, firm age and the COVID-19 pandemic are included. Each of them is measured as follows:

1. Firm size

The first independent variable in almost all FS studies is the size of the insurance company. In most studies, the natural logarithm of assets is commonly used to measure firm size (Kramarić et al., 2019; Cummins et al., 2017; Abu Alia et al., 2022).

2. Receivables

Following previous studies such as Puławska (2021) and Kestens et al. (2011), this variable is measured by net receivables divided by total assets.

3. Reinsurance dependence

Following previous studies such as Rubio and Fernández (2017), this variable is measured by Premium ceded to reinsurers divided by total assets.

4. Invested assets ratio

Following previous studies such as Burca and BatrInca (2014) and Elango et al. (2008), this variable is measured as invested assets divided by total assets.

5. Change in the gross written premium

Following previous studies such as Chen and Wong (2004) and Kim et al. (1995), this variable is measured as gross written premium at the current year minus gross written premium at the previous year and divided all by gross written premium at the previous year.

6. Loss ratio

Following previous studies such as Burca and BatrInca (2014) and Guendouz and Ouassaf (2018), this variable is measured as incurred claims divided by net insurance premium revenue.

7. Insurance leverage ratio

Following previous studies such as Carson and Hoyt (1995) and (Shim (2015), this variable is measured as a net technical reserve to total equity.

8. Retention ratio

Following previous studies such as Lee and Lee (2011) and Smajla (2014), this variable is calculated by dividing the gross premium by the net premium.

9. Market concentration

Following previous studies such as Sim and Hassan (2020) and Allen and Gale (2004), this variable is calculated as the sum of market shares by the five largest insurance firms based on the gross written premium.

10. Firm age

Following previous studies such as Cowling et al. (2008) and Anyadike-Danes and Hart (2018). This variable is the years since the firm was established

2.4.3 Country-level characteristics

This study on FS includes inflation as a country-level variable: Sim and Hassan (2020) employ inflation as a macro variable, measured as the percentage change in consumer price index (CPI) as follows, $(CPI_t - CPI_{t-1}) / CPI_{t-1}$.

Table (2)*The study variables measurement*

| Variable | Measurement | Reference |
|-----------------------------|---|---|
| Dependent Variable | | |
| FS (Z-score) | Z score = (ROA + equity-to-total assets ratio)/SDROA | Moreno et al. (2022), Altuntas and Rauch (2017) and Cummins et al. (2017) |
| Independent Variable | | |
| Receivables | Net receivables divided by total assets | Puławska (2021) and Kestens et al. (2011) |
| Reinsurance dependence | Premium ceded to reinsurers divided by the total assets | Rubio and Fernández (2017) |
| Invested assets ratio | Total invested assets divided by total assets | Burca and BatrInca (2014), Elango et al. (2008) |
| Size | Natural logarithm of total assets | Cummins et al. (2017), Kramarić et al. (2019) and Abu Alia et al. (2022) |
| GWP Growth | Gross written premium at the current year minus gross written premium at the previous year and divided it all by gross written premium at the previous year | Chen and Wong (2004) and Kim et al. (1995) |
| Retention ratio | Gross premium divided by the net premium | Lee and Lee (2011) and Smajla (2014) |
| Loss ratio | incurred claims divided by net insurance premium revenue | Burca and BatrInca (2014) and Guendouz and Ouassaf (2018)) |
| Insurance leverage ratio | Net technical reserve to total equity | Carson and Hoyt (1995) and (Shim (2015) |
| Market concentration | <i>(Herfindahl – Hirschman Index</i> (HHI) = $10000 * \sum_{i=1}^n (MS_i)^2$ | (Sim and Hassan (2020) and Allen and Gale (2004) |
| Age | The number of years of incorporation of the company | Cowling et al. (2008) and Anyadike-Danes and Hart (2018) |
| Inflation | $(CPI_t - CPI_{t-1}) / CPI_{t-1}$ | Sim and Hassan (2020), Cummins et al. (2017) and Browne and Hoyt (1995) |
| Control Variables | | |
| Equity Ratio | Equity/ total assets | Puławska (2021) |

2.5 Estimation models

Previous literature provides several models to estimate the impact of firm-specific and macroeconomic variables on FS in ICs. Multiple regression was applied by Joo (2013). Shim (2015), Misas (2020) and Kasman et al. (2020) apply a System-GMM estimator, whereas linear fixed-effect model is used by Puławska (2021). In this study, a two-step System-GMM estimator is used. The GMM model was proposed by Arellano and Bond (1991) and modified by Blundell and Bond (1998). Using this model enables us to address the main econometric difficulties of the study, which include the potential endogeneity in both the firm-level and the country-level independent variables; auto-correlation in the data concerning the behaviour of the dependent variable (Z-score); using time-independent variables in our parameters; and controlling on unobserved firm heterogeneity (Cummins et al., 2017). The two-step system-GMM method has been used to address these econometric inefficiencies in the investigation of Z-score in the banking sector by Delis and Staikouras (2011) and Ibrahim and Rizvi (2017), and also in the insurance sector Kasman et al. (2020), Cummins et al. (2017) and Misas (2020).

Using the second lag, the factors of other companies and countries are considered as endogenous instruments for them. The two-step system-GMM estimator approach depends on the outcomes of two hypotheses that may be empirically proved or disapproved. To begin with, for instruments to be legitimate, there must not be any correlation between them and the term of error (Misas, 2020). To confirm the accuracy of this assumption, The Hansen test of over-identifying constraints is implemented, which claims that the instruments' validity is proven by statistically insignificant values (Misas, 2020). Second, for the two-step System-GMM approach to function reliably, the initial difference residual has to be devoid of any second-order serial correlation. The autoregressive Arellano-Bond (AR) (2) statistic is used to determine if this is correct or not (Arellano & Bond, 1991). If the AR (2) statistic is negligible, it demonstrates that the model has been adequately defined. Moreover, the C statistic is used to determine the instruments' validity for level equations. This statistic allows us to assess whether or not the instruments are valid by assessing whether or not the outcomes are statistically significant (Hayashi, 2000).

2.6 Research Model

The general econometric model can be written as follows,

$$\begin{aligned} Zscore_{it} = & \alpha_0 + \beta_1 REC_{it} + \beta_2 RD_{it} + \beta_3 IA_{it} + \beta_4 SIZE_{it} + \beta_5 GWP\ growth_{it} \\ & + \beta_6 RR_{it} + \beta_7 LR_{it} + \beta_8 IL_{it} + \beta_9 MC_{it} + \beta_{10} AGE_{it} + \beta_{11} IN_{it} \\ & + \beta_{12} EQ_{it} + \varepsilon_{it} \dots \dots \dots \text{Model (1)} \end{aligned}$$

Where:

i and t refer to the insurance firm and year, respectively

α_0 : Constant term

COVID-19: a COVID-19 dummy variable.

REC: receivables.

RD: reinsurance dependence.

IA: invested assets.

SIZE: firm size

GWP growth: Gross Written Premium Growth

RR: retention ratio.

LR: loss ratio

IL: insurance leverage.

MC: market concentration

AGE: firm age

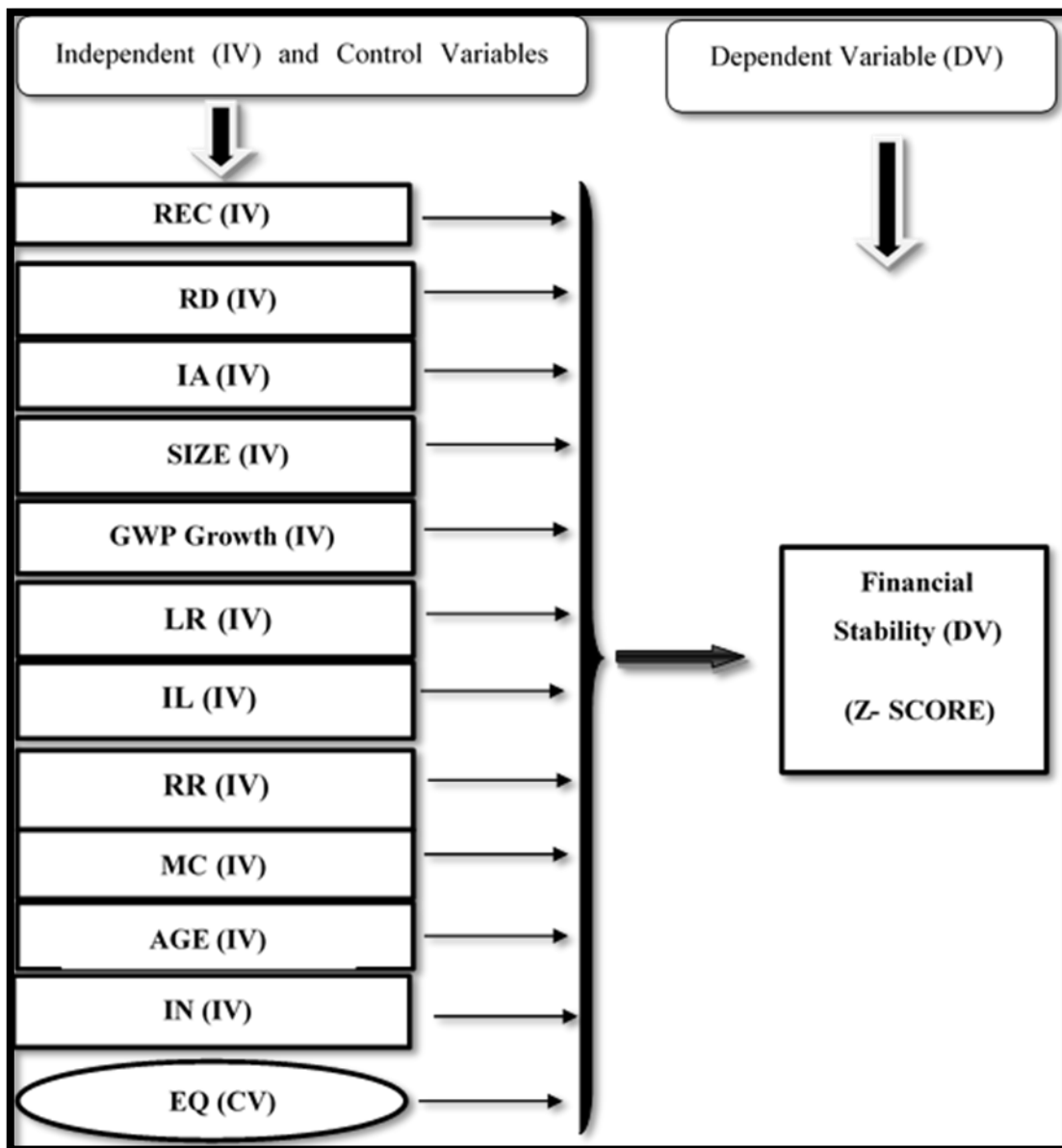
IN: inflation rate.

ER: equity ratio.

ε_{it} : error term.

Figure (1)

Independent, Control and Dependent variables



Source: Author's own creation.

Chapter Three

Results and Discussion

3.1 Introduction

This study aims to investigate the FS of ICs in MENA countries in two period the first one is in the pre-COVID-19 period from Q2 of 2018 to Q4 of 2019 and the second is during the COVID-19 period which is from Q2 of 2020 to Q4 2021. To achieve the study objectives, quarterly data covering 8 quarters was deployed. Moreover, the Generalized Methods of Moments (GMM) is used to test the study hypotheses.

3.2 Descriptive statistics

This section shows the descriptive statistics of the study dependent variable (FS), independent variables (REC, RD, IA, SIZE, LR, RR, MC, AGE, IN, IL, GWP, and ER). Table (3) exhibits descriptive statistics for the study variable's, which shows the mean, minimum, maximum and standard deviation for each variable.

Table (3)

Descriptive statistics of the study variables.

| | Mean | Min | Max | Std. Dev. |
|---------------|-------|-------|-------|-----------|
| LN (Z- SCORE) | 11.06 | 3.81 | 23.22 | 2.59 |
| COVID-19 | 0.50 | 0.00 | 1.00 | 0.50 |
| REC | 0.15 | 0.00 | 0.50 | 0.08 |
| RD | 0.17 | -0.06 | 0.62 | 0.11 |
| IA | 0.50 | 0.12 | 0.95 | 0.16 |
| SIZE | 19.50 | 15.88 | 23.41 | 1.68 |
| LR | 0.68 | 0.13 | 1.09 | 0.18 |
| RR | 0.64 | 0.13 | 0.99 | 0.20 |
| MC | 3.24 | -3.18 | 8.74 | 2.46 |
| AGE | 27.69 | 0.50 | 71.00 | 16.33 |
| IN | -1.25 | -9.10 | 3.04 | 2.27 |
| IL | 1.10 | -0.43 | 3.72 | 0.75 |
| GWP Growth | 0.14 | -0.93 | 23.30 | 1.31 |
| ER | 0.34 | 0.05 | 0.94 | 0.13 |

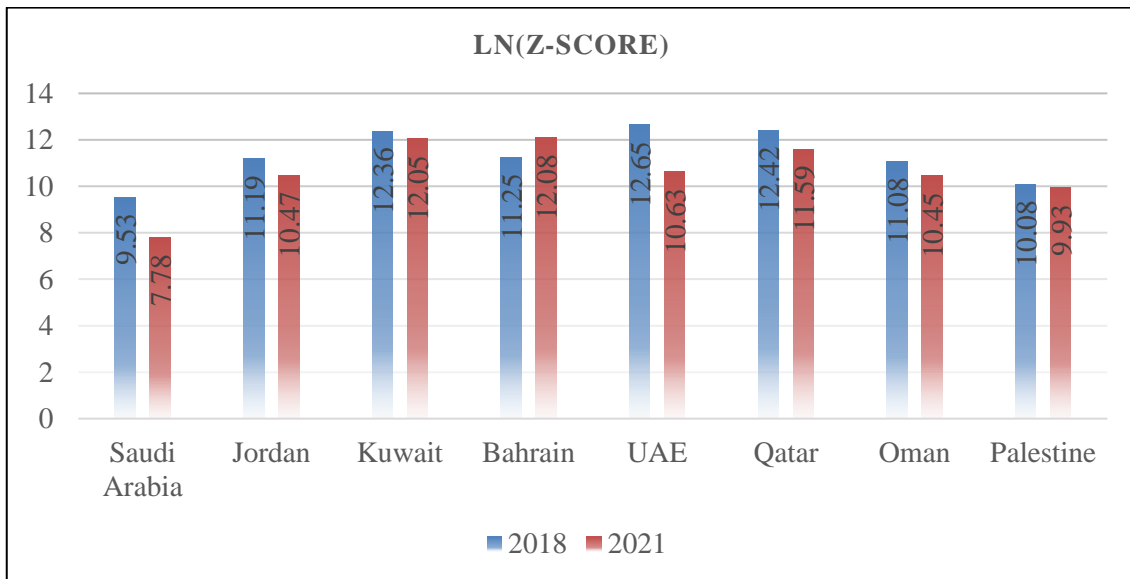
Referring to Table (3), the mean of RD is 0.17; this result corresponds with Ismail (2013). The maximum RD is 0.62 from Palestine, while the minimum shows -0.06 from Bahrain. The mean of REC is 0.15 during and post- COVID-19, which means that the ICs in the

MENA region are not seeking to increase their sales on debt. The mean of IA is 0.50, which indicates that the ICs in MENA assets consist of 0.50 invested assets. In addition, this result is argued by Nzoka (2015). The mean of LR is 0.68; which approximately corresponds to that reported by Sasidharan et al. (2020). The maximum LR is 1.09 from KSA, while the minimum is 0.13 from KSA. Similarly, IL mean value corresponds to that reported by Sasidharan et al. (2020). Moreover, the mean of GWP Growth is 0.05 pre-COVID-19 and 0.24 during the COVID-19, which means that the growth in written premiums has slowed during the pandemic due to the lockdown and the delaying of specific sectors such as logistics.

Moving to (Ln -Z-score), the mean value is 11.17 in the pre-Covid-19 period and 10.90 during the COVID-19 period, which means that the FS declined in the MENA region during the pandemic, as shown in Figure (2), with a standard deviation of 2.59. The minimum value of Ln -Z-score is 3.81, and the maximum value reaches 23.22. The outcomes are similar to those reported in previous literature, for example the Ln-Z-score mean in Cummins et al. (2017) and Puławska (2021) are 12.36 and 17.37, respectively. Puławska (2021) who study the FS during the COVID-19 pandemic in Belgium, France, Germany, Italy and Poland for the period from 2019 to Q2 2020 find that the minimum value of Z-score in European countries is -110.718 and the maximum value is 853.739. Moreover, Cummins et al. (2017), who study the FS in 2008 crises in Europe Union (EU) for the period from 1999 to 2011, reports a similar values that is consistent with Puławska (2021) minimum and maximum Z-scores. Finally, the values of minimum and maximum values in Cummins et al. (2017) and Puławska (2021) differ from this research for some reasons, like the nature of the European countries differs from those of the MENA region, where the FS is more affected than the MENA region by pandemics and crises due to the diversity of the insurance portfolio as in the MENA region.

Figure (2)

Ln (Z-score) for sample countries in 2018 and 2021



Source: Author's own creation.

3.4 Correlations matrix

The correlation coefficients for the variables in this study are presented in Table (4). The table shows that FS positively correlates with reinsurance dependence, market concentration, firm age, inflation, growth in gross written premium and equity ratio. In contrast, it has a negative relationship with the COVID-19 dummy variable, receivables, invested assets ratio, firm size, loss ratio, retention ratio, and insurance leverage. The high correlation within independent variables can be problematic in the regression analysis (Multicollinearity issue), but the most substantial relation between the retention ratio and reinsurance dependence is -0.718, which is acceptable. According to Asteriou and Hall (2007) findings, correlations lower than 0.8 do not constitute a significant multicollinearity issue when doing linear regression.

Table (4)*Correlations of study variables*

| | LN (Z- SCORE) | COVID-19 | REC | RD | IA | SIZE | LR | RR | MC | AGE | IN | IL | GWP Growth | ER |
|---------------|---------------|----------|---------|---------|---------|---------|---------|---------|---------|---------|--------|---------|------------|-------|
| LN (Z- SCORE) | 1.000 | | | | | | | | | | | | | |
| COVID-19 | -0.040 | 1.000 | | | | | | | | | | | | |
| REC | -0.014 | -0.023 | 1.000 | | | | | | | | | | | |
| RD | 0.172* | 0.049 | 0.357* | 1.000 | | | | | | | | | | |
| IA | 0.006 | -0.080* | -0.47* | -0.286* | 1.000 | | | | | | | | | |
| SIZE | -0.044 | 0.030 | -0.163* | -0.046 | -0.009 | 1.000 | | | | | | | | |
| LR | -0.091* | -0.074 | 0.286* | 0.044 | -0.045 | -0.201* | 1.000 | | | | | | | |
| RR | -0.166* | -0.090* | 0.004 | -0.718* | 0.157* | -0.166* | 0.210* | 1.000 | | | | | | |
| MC | 0.269* | -0.006 | 0.810* | 0.0163* | -0.303* | 0.033 | 0.047 | -0.117* | 1.000 | | | | | |
| AGE | 0.222* | 0.102* | 0.001 | 0.250* | 0.057 | -0.021* | -0.008 | -0.233* | 0.248* | 1.000 | | | | |
| IN | 0.116* | 0.165* | 0.090* | 0.258* | 0.154* | -0.128* | 0.123* | -0.184* | -0.025 | 0.347* | 1.000 | | | |
| IL | -0.184* | -0.025 | 0.317* | -0.220* | -0.124* | -0.101* | 0.365* | 0.492* | 0.073 | -0.138* | -0.046 | 1.000 | | |
| GWP Growth | -0.057 | -0.072 | 0.032 | 0.021 | -0.038 | 0.090* | 0.062 | 0.729 | 0.087* | -0.082* | 0.095* | 0.149* | 1.000 | |
| ER | 0.073 | -0.016 | -0.349* | -0.085* | 0.510* | -0.135* | -0.288* | -0.077* | -0.296* | 0.065 | 0.111* | -0.633* | -0.093* | 1.000 |

The Asterisk (*) shows significance at the 0.05 level.

3.5 Estimation results

Table (5) were obtained using a two-step System-GMM. Two models were used. The first model refers to the pre-COVID-19 period. Whereas the second model refers to the period during COVID-19.

Table (5)

Dynamic panel data analysis using two-step System-GMM model

| VARIABLES | (1) | (2) |
|-----------------------|--|--|
| | Ln (Z-score) In pre-COVID-19 period | Ln (Z-score) During COVID-19 period |
| Ln (Z-score) t-1 | 0.746** (0.050) | 1.082** (0.014) |
| IN | 0.111 (0.696) | 0.882*** (0.009) |
| RR | 27.578** (0.050) | -8.245 (0.849) |
| RD | 8.894 (0.584) | -32.878 (0.565) |
| IA | 26.625** (0.013) | -0.049 (0.996) |
| IL | -15.221** (0.033) | -3.888 (0.416) |
| MC | 2.387** (0.005) | -0.043 (0.937) |
| GWP | -1.363 (0.119) | 2.435 (0.490) |
| LR | -2.101 (0.698) | -12.803** (0.018) |
| AGE | -0.037 (0.647) | -0.041 (0.470) |
| SIZE | -0.366 (0.649) | 1.269** (0.049) |
| RECR | 38.635 (0.064) | 53.394 (0.523) |
| ER | -55.239 (0.058) | -20.322 (0.898) |
| Constant | 18.818 (0.445) | -1.038 (0.265) |
| Observations | 312 | 312 |
| Groups | 78 | 78 |
| AR(1) | 0.0102 | 0.0100 |
| AR(2) | 0.2160 | 0.0521 |
| Hansen test (p-value) | 0.061 | 0.628 |
| Sargan test (p-value) | 1.000 | 0.685 |
| Number of Instruments | 47 | 17 |

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Based on the model's fitness findings in model (1), the Hansen test of over-identifying constraints indicates that the instrument's validity is robust by statistically insignificant

values (at 0.05 level of significance). Moreover, the AR (2) statistic permits accept the null hypothesis of the absence of second-order serial correlation. In addition, the C-test used to determine the instruments' validity for level equations confirms that the instruments are valid for level equations. The lagged value of $\ln(Z\text{-score})$ has statistically significant coefficients of 0.746. Also, the positive coefficients demonstrate the substantial degree of persistence in the FS proxy ($\ln Z\text{-score}$) and the suitability of using a dynamic regression model with inertia.

Model (1) shows the dynamic panel data analysis (two-step System GMM) of Insurer-specific characteristics that affect FS in ICs and inflation as country-level characteristics in pre-COVID-19 period. Coefficients of Insurer-specific variables in the two models show that all variables significantly impact the FS except for REC, SIZE, LR, IL and GWP. The macroeconomic variable, inflation, as a country-level characteristic has no impact on the FS.

The results in model (2) estimate the impact of the FS of ICs during the COVID-19 pandemic.

Based on the model's fitness findings in model (2), the Hansen test of over-identifying constraints indicates that the instrument's validity is robust by statistically insignificant values (at 0.05 level of significance). Moreover, the AR (2) statistic permits accept the null hypothesis of the absence of second-order serial correlation. In addition, the C-test used to determine the instruments' validity for level equations confirms that the instruments are valid for level equations. The lagged value of $\ln(Z\text{-score})$ has a positive and significant coefficient of 1.082. Also, the significant coefficient demonstrates the substantial degree of persistence in the FS proxy ($Z\text{-score}$) and the suitability of using a dynamic regression model with inertia.

Model (2) shows the dynamic panel data analysis (two-step System GMM) of Insurer-specific characteristics that affect the FS of ICs and inflation as country-level characteristics during COVID-19 period.

3.6 Hypotheses Testing and Results Discussion

The relationship between independent, control and dependent variables is estimated using the two-step System GMM. The main results of Table (5) are discussed for each variable, separately, in the following sub-sections.

3.6.1 Receivables and Financial Stability

H_{1A} hypothesis is that ICs' receivables has significant negative impact on the FS in pre-COVID-19 pandemic period. Referring to model (1) the receivable has no impact on the FS of ICs, therefore, H_{1B} hypothesis is rejected at a significant level of 0.05. This result is consistent with the findings of Puławska (2021). This may be attributed to the fact that receivables in ICs are mainly collected during the same year, which does not affect the ability to pay claims, financial performance and other expenses, and therefore does not have an impact on the FS. In addition, the company's profits may not only be realized from operating operations but may be due to the reevaluation of investment properties or the sale of assets such as shares and bonds.

H_{1B} hypothesis is that ICs' receivables has significant negative impact on the FS during the COVID-19 pandemic period. Referring to model (2), there is a no significant impact of receivables of ICs on FS, therefore, H_{1B} hypothesis is rejected at a significant level of 0.05. This is because the receivables in ICs are mainly collected during the same year, which does not affect the ability to pay claims, financial performance and other expenses and therefore does not have an impact on the FS. Moreover, company's profits may not only be realized from operating operations but may be also due to the reevaluation of investment properties or the sale of assets such as shares and bonds. This result confirms the findings of Puławska (202) that the value of receivables has not increased during the COVID-19 pandemic in German, Italian, French, and Polish ICs. Furthermore, Fridson and Alvarez (2012) show that the industrial sector faces a significant level of credit risk as a result of this demand, which is also a result of consumers' diminished capacity to repay corporate debt during the economic crisis. However, this is very different in the insurance sector because most written premiums are in cash; a fraction is on credit and collected during the same year. During COVID-19 period, there was a slowdown which led to a decrease in written premium growth while maintaining the same level of credit in MENA region with the same average of receivables for the periods of 2018 to 2019 and 2020 to 2021. However, the results contradict Kestens et al. (2011), who find that the

financial crisis negatively impacted the value of trade payables and receivables. Similarly, Zimon and Tarighi (2021) indicate that some organizations might try to attract additional new customers in the market during the COVID-19 pandemic by extending the deadlines of accounts receivable to boost their sales growth, as well as lowering the liabilities turnover to work with more different suppliers. Pugnetti and Seitz (2021) argue that insurers are more concerned with reducing operational expenses than improving consumer value delivery. In addition, Baveld (2012) who studies the pre-crisis period of 2004–2006 and the financial crisis period of 2008–2009 indicates that the relationship between receivables and a firm's profitability and FS changes during a crisis. The results of Baveld (2012) differ from the effect of the COVID-19 on ICs in MENA countries, where the relationship between receivables and FS remain consistent in models one and three. In the same vein, Mirzaev (2018), who study accounts receivable of Uzbek companies that provide electricity, indicates that accounts receivable negatively impact the FS. In his view, this may be attributed to an inefficient payment system and late payments for natural gas and electricity use, accounts receivable have been growing regularly.

3.6.2 Reinsurance Dependence and Financial Stability

H_{2A} hypothesis is that ICs' reinsurance dependence has significant negative impact on the FS in pre-COVID-19 pandemic period. Referring to model (1) the reinsurance dependence has no impact on the FS of ICs, therefore, H_{2A} hypothesis is rejected at a significant level of 0.05. This result is consistent with the findings of Reinsurance dependence has no impact on the FS of ICs. This result is consistent with the findings of Deyganto and Alemu (2019) and Barakat et al. (2022). This is due to the nature of the reinsurance agreements determines their impact on the FS of companies. Proportional reinsurance agreements change with the change of the total written premiums. Non-proportional reinsurance agreements are determined to a certain extent, and compensation by the reinsurer is above a certain limit to be agreed upon. Hence, the nature of the agreements in some MENA countries is mostly non-proportional reinsurance agreements and the lack of substantial reliance on reinsurance may explain that there is no impact of reinsurance dependence on FS in pre-COVID-19 pandemic period.

H_{2B} hypothesis is that there is a significant negative impact of reinsurance dependence on the FS of ICs during the COVID-19 pandemic. Referring to model (2), there is a non-

significant impact of ICs' reinsurance dependence on the FS, therefore, H_{2B} hypothesis is rejected at a significant level of 0.05. This result can be interpreted based on the following reasons. The first is that most reinsurance agreements in the MENA countries are non-comparative, i.e., they are not changed by the change of written premiums. Second, the rate of premiums given to the reinsurer is low, with an average of only 0.17. This means that reinsurance dependence has no impact on FS during the COVID-19 period. The result is consistent with Barakat et al. (2022) who demonstrates that, despite reinsurance's role in risk transfer, it has no impact on the financial performance of ICs in Palestine. This might be due to a lack of reinsurance providers or the possibility that Palestinian ICs have waived a small portion of premiums for the benefit of reinsurance providers. Previous findings contradict the ruin theory, which assumes that cash inflows and cash outflows may lead to financial collapse during periods of crisis, as results showed that relying on reinsurance as an outflow did not impact FS during the COVID-19 period (Salaudeen et al., 2021). However, the result contradicts that of Iqbal et al. (2014), Iqbal and Rehman (2014), Shim (2015), Rubio-Misas et al. (2017), Kim et al. (1995), Froot et al. (2001), Kramarić et al. (2019) and Cummins et al. (2021) who suggest that due to the higher risk of insolvency, highly leveraged companies use more reinsurance. Additionally, less profitable ICs require more reinsurance, and potential financial distress drives up demand for reinsurance. Which suggest that there is significant negative impact of reinsurance utilization on the level of the regulatory solvency ratio and financial performance and FS. However, it also in contrast with Ismail (2013) and Sasidharan et al. (2020) who indicate that the risk profile, which is less exposed to catastrophic losses, allows the ICs to obtain lower reinsurance rates and then good financial performance.

3.6.3 Invested Assets Ratio and Financial Stability

H_{3A} hypothesis is that there is a significant positive impact of invested assets ratio on the FS of ICs in pre-COVID-19 pandemic period. Referring to model (1) the invested assets ratio has significant positive impact on the FS of ICs, therefore, H_{3A} hypothesis is accepted at a significant level of 0.05. This result is consistent with the findings of Nzoka (2015) and Chen et al. (2004), which can be explained in that the higher proportion of assets invested to total assets leads to higher investment income, which has a positive impact on financial performance and thus the FS. In addition, ICs that invest in technology sector shares have made them earn a higher profit from this investment, thus boosting their financial performance and, in turn, their FS.

H_{3B} hypothesis is that there is a significant positive impact of invested assets ratio on the FS of ICs during the COVID-19 pandemic. Referring to model (2), there is a non-significant impact of invested assets ratio of ICs on the FS, therefore, H_{3B} hypothesis was rejected at a significant level of 0.05. This result may be due to lower stock returns during the pandemic period due to shocks in specific sectors. Additionally, as interest rates by central banks in the MENA decline, investment deposit yields also decline. This finding is inconsistent with Nzoka (2015) who indicates that banks' invested assets have a significant positive relationship with financial performance. This corroborates to the idea that banks with a lot of idle assets that are not being invested will generate inadequate returns, which will lower financial performance. Also, it is in contrast with Khalid (2012) who asserts that when a bank's asset quality worsens, it needs more resources to do credit-receiving activities that do not add value, leading to bad performance. Also, the literature show that asset quality and profitability were negatively related. The quality of a bank's assets affects its financial health, operating results, and the safety of the whole banking system (Nzoka, 2015). Chen and Wong (2004) indicate that investment yield positively affects the FS of property-liability insurers. Contradictory results are reported by Kim et al. (1995) and Kramer (1996).

3.6.4 Firm Size and Financial Stability

H_{4A} hypothesis is that there is a significant positive impact of firm size on the FS of ICs in pre-COVID-19 pandemic period. Referring to model (1) the firm size has no impact on the FS of ICs, therefore, H_{3A} hypothesis is rejected at a significant level of 0.05. This result is consistent with the findings of Almajali et al. (2012) and Ogbeide et al. (2017). This result can be explained by the fact that effective cash flow management is essential for optimal operation, whether IC is small or large. Many ICs have declared bankruptcy, primarily due to insufficient cash flow, which has prevented them from meeting their financial obligations to their customers.

H_{4B} hypothesis is that there is a significant positive impact of firm size on the FS of ICs during the COVID-19 pandemic. Referring to model (2), there is a significant positive impact of the size of ICs on FS with a coefficient of 1.270 (p-value of 0.049), therefore, H_{3B} hypothesis is accepted at a significant level of 0.05. The result suggests that large insurers are better equipped than small insurers to handle market volatility brought by financial crises. Additionally, it is more effective at utilizing resources and creating

processes. Consequently, during the COVID-19 period, the size has had a significant positive impact on the FS of ICs in the MENA region. On one hand, this result are in line with the concentration and stability hypothesis which indicates that large firms reduce financial fragility through their capital and, therefore, are less exposed to liquidity and relatively high economic risks (Calice et al., 2021). Large insurers also have governance systems that handle operational risks and economies of scale, enabling them to diversify their investments financially and geographically (Matutes & Vives, 2000). This finding is also consistent with Shiu (2004) who asserts that big insurance businesses have more capacity to cope with unfavourable market fluctuations. Moreover, Joo (2013) and Shim (2011) anticipate that small insurers are more susceptible to insolvency because regulators are less likely to liquidate large insurers, which means that there is a positive impact of size on FS. On the other hand, this result contradicts the concentration and fragility hypothesis, which suggests that there is a negative impact of the size of the insurance company on the degree of stability is negative as a result of the moral hazard problem, with the belief that large companies are too big to fail. Especially if the management of the company is a fan of risk. Likewise, large insurers, as they seek to increase their market share, ensure high risk that raises the likelihood of accidents that the company may not be able to pay for and, therefore, bankrupt. However, Pi and Timme (1993) show that a firm's financial success may be negatively related to its size since it is sometimes challenging for owners to monitor managers as the company grows adequately. Moreover, Pasiouras and Gaganis (2013) report mixed result of the relationship between the size and insurers' soundness in six distinct regressions, relying on the legislative measure employed in the model. Overall, the result is inconsistent with Pi and Timme (1993), Cummins et al. (2017), and Pasiouras and Gaganis (2013) who indicate that there is a significant negative impact of firm size on the FS. Similarly, the results is also inconsistent with Almajali et al. (2012) who find a non-significant impact of the size of ICs on FS.

3.6.5 Gross written premium growth and Financial stability

H_{5A} hypothesis is that there is a significant positive impact of gross written premium growth on the FS of ICs in pre-COVID-19 pandemic period. Referring to model (1) the gross written premium growth has no impact on the FS of ICs, therefore, H_{5A} hypothesis is rejected at a significant level of 0.05. This result is consistent with the findings of Mehari and Aemiro (2013) and Ismail (2013). In contrast, the outcome argues with Chen

and Wong (2004), which indicates that too much focus on growth can be destructive to oneself because other crucial goals may be overlooked. This is especially true during a recession, such as the occurrence during the Asian Financial Crisis.

H_{5B} hypothesis is that there is a significant positive impact of gross written premium growth on the FS of ICs during the COVID-19 pandemic. Referring to model (2), there is a non-significant impact of gross written premium growth of insurance companies on FS, therefore, H_{5B} hypothesis is rejected at a significant level of 0.05. The premiums from many types of insurance are almost always set at the floor tariff imposed by insurance regulators rather than according to risk-based pricing due to the intense competition in the MENA market (Abdeljawad et al., 2020). The result also agrees with Mehari and Aemiro (2013) and Ismail (2013) who assert that premium growth has no impact on financial performance. The finding contradicts with Chen and Wong (2004) who indicate that too much focus on growth can be destructive to oneself because other crucial goals may be overlooked. This is especially true during a recession, such as the occurrence of the Asian Financial Crisis. However, Kim et al. (1995) support the hypothesis that one of the variables leading to bankruptcy is high premium rise. In contrast, it is inconsistent with Akotey et al. (2013), Hrechaniuk et al. (2007) and Deyganto and Alemu (2019) who find that gross premiums have a positive relationship with financial performance. Kim et al. (1995) shows a negative impact of gross written premium growth on FS. In addition, Charumathi and Kota (2012) asserts that there is a significant negative impact of premium growth on financial performance.

3.6.6 Loss Ratio and Financial Stability

H_{6A} hypothesis is that there is a significant negative impact of gross written premium growth on the FS of ICs in pre-COVID-19 pandemic period. Referring to model (1) the gross written premium growth has no impact on the FS of ICs, therefore, H_{6A} hypothesis is rejected at a significant level of 0.05. loss ratio has no impact on the FS of ICs. This result is can be explained by the fact that the company profits stems from its non-operating activities, such as from investing or selling assets.

H_{6B} hypothesis is that there is a significant negative impact of gross written premium growth on the FS during the COVID-19 pandemic. Referring to model (2), there is a significant negative impact of the loss ratio of ICs on the FS with a coefficient of -12.803 (p-value of 0.018), therefore, H_{6B} hypothesis is accepted at a significant level of 0.05. The

results show that the claims insured measure the loss ratio, negatively impacting the FS. This finding is in line with ruin theory, which indicates that study of stochastic processes that depict the time development of a surplus of a stylized non-life insurance firm (Loisel & Gerber, 2012). The theory describes the insurer as having two contradictory financial flows: incoming cash premiums and outbound cash claims. Whenever the number of capital decreases, it is reasonable to conclude that there has been a financial collapse (Salaudeen et al., 2021). The results are consistent with Mehari and Aemiro (2013), Kaya (2015), Burca and BatrInca (2014), Berhe and Kaur (2017), Alomari and Azzam (2017) and Sasidharan et al. (2020) who show that firms with a higher loss ratio have a lower financial performance. Moreover, Cummins et al. (2021) argue that reinsurance purchase reduces loss ratio volatility significantly. The results are also consistent with Joo (2013) who studies the impact of the loss ratio on FS for Indian ICs, and finds that the loss ratio has a significant positive impact on the FS of Indian ICs; This finding may reflect the fact that the majority of businesses are still growing and are initially spending more than their total assets, income, and underwriting profits. In addition, Cheng and Weiss (2013), Hu and Yu (2014) and Moreno et al. (2018) indicate that the loss ratio has a positive impact on FS. However, the results contradict with Charumathi and Kota (2012) who find that the loss ratio has no impact on financial performance.

3.6.7 Insurance Leverage and Financial Stability

H_{7A} hypothesis is that there is a significant negative impact of Insurance leverage on the FS of ICs in pre-COVID-19 pandemic period. Referring to model (1) there is a significant negative impact of Insurance leverage on the FS of ICs, therefore, H_{7A} hypothesis is accepted at a significant level of 0.05. This result is consistent with the outcome of Chen and Wong (2004), Shim (2015), Malik (2011), Charumathi and Kota (2012), Alomari and Azzam (2017), Charumathi and Kota (2012), Taha (2015) and Sasidharan et al. (2020). The literature on capital structure shows that when leverage grows, a company's value increases up to some threshold, then declines if leverage is extended beyond that threshold. So, going over this optimal level of leverage could lead to a high risk of bankruptcy and a low value for the company (Chen and Wong, 2004). In the case of the MENA region, the ICs from 2018 to 2019 have a significant negative impact on financial leverage, which may be caused by an increase in technical reserves as a result of an increase in claims during the period from 2018 to 2019.

H_{7B} hypothesis is that there is a significant negative impact of Insurance leverage on the FS of ICs during the COVID-19 pandemic. Referring to model (2), there is a non-significant impact of insurance leverage of ICs on FS, therefore, H_{7B} hypothesis is rejected at a significant level of 0.05. This result is consistent with the findings of Puławska (2021). The results can be explained by the fact that the literature on capital structure indicates that when leverage grows, a company's value improves up to a threshold, then declines if leverage is extended beyond that threshold. Thus, exceeding this optimal level of leverage might result in a significant risk of bankruptcy and a fragile company value (Chen & Wong, 2004). In the case of the MENA region, the ICs from 2018 to 2021 have a financial leverage that has a negative impact, but it is insignificant, which may be caused by a decline in technical reserves as a result of shutdowns during the period from 2020 to 2021 of the period studied, which lead to has no impact on FS. However, it contradicts with ERM theory, which indicates that with careful monitoring of the firm's exposure and positioning itself toward a plan of change or direction that ensures an acceptable risk level, a successful ERM keeps management abreast of potential dangers and prepares it to respond appropriately (Salaudeen et al., 2021). Carson and Hoyt (1995) assert that when an insurer expands its insurance and financial leverage, the risk of the insurer grows. In contrast, the result contradicts with the studies of Shim (2015), Malik (2011), Charumathi and Kota (2012), Alomari and Azzam (2017), Charumathi and Kota (2012), Taha (2015) and Sasidharan et al. (2020) which indicate that insurance leverage has a significant negative impact on FS and financial performance in the insurance system. A contradiction is also found with the findings of Almajali et al. (2012) and Mazviona et al. (2017) who conclude that insurance leverage has a significant positive impact on financial performance.

3.6.8 Retention Ratio and Financial Stability

H_{8A} hypothesis is that there is a significant negative impact of retention ratio on the FS of ICs in pre-COVID-19 pandemic period. Referring to model (1) there is a significant positive impact of retention ratio on the FS of ICs, therefore, H_{8A} hypothesis is rejected at a significant level of 0.05. This result is consistent with the findings of Smajla, (2014), which indicates that solid capital adequacy and retention rates came from reinsurance services.

H_{8B} hypothesis is that there is a significant negative impact of retention ratio on the FS of ICs during the COVID-19 pandemic. Referring to model (2), ICs' retention ratios have no significant impact on the FS. Findings indicate that H_{8B} hypothesis is rejected at a significant level of 0.05. According to Lee and Lee (2011), this finding can be interrupted by the claim that the higher the written premium, the more risk is transferred to the reinsurer. In the MENA context, especially during the COVID-19 period, when growth is stable in written premiums with a non-proportional reinsurance agreement, that logical to show that there is no impact on the retention ratio. Moreover, it is in line with the ERM theory, which indicates that by careful monitoring of the firm's exposure and positioning itself toward a plan of change or direction that ensures an acceptable risk level, a successful ERM keeps management abreast of potential dangers and prepares it to respond appropriately. (Salaudeen et al., 2021). The results confirm the previous results of Salaudeen et al. (2021), who find that the retention ratio has no impact on financial performance in ICs. Nevertheless, Lee and Lee, (2011) show that insurance businesses' underwriting risk and premium increase significantly impact the insurer retention ratio.

3.6.9 Market Concentration and Financial stability

H_{9A} hypothesis is that there is a significant positive impact of market concentration on the FS of ICs in pre-COVID-19 pandemic period. Referring to model (1) there is a significant positive impact of market concentration on the FS of ICs, therefore, H_{9A} hypothesis is accepted at a significant level of 0.05. This result is consistent with the findings of Chand et al. (2021), Alshubiri (2022), and (Ben Ali et al. (2018). This can be explained by the mean of ln (HHI) as an MC measure is 3.2, showing a relatively concentrated market of ICs in the MENA region. In addition, the result is consistent with Boyd et al. (2004) who indicate that highly concentrated banking sectors have a lower risk of a financial crisis because they have higher capital buffers that insulate them from external macroeconomic and liquidity shocks.

H_{9B} hypothesis is that there is a significant positive impact of market concentration on the FS of ICs during the COVID-19 pandemic. Referring to model (2), there is a non-significant impact of market concentration of ICs on the FS. Hence, H_{9B} hypothesis is rejected at a significant level of 0.05. The intermediate levels of market concentration of the MENA insurance market led to no impact on FS, or the study of eight markets from the MENA region in this research offset the effect of each otherth. According to Calice

and Leonida (2018), this finding may be attributed to the fact that concentration does not significantly affect FS at intermediate levels because the competing moderators cancel each other out. It seems to be optimal well-being when there is intermediate concentration. Moreover, the result can be also explained by the fact that insurers do not always coordinate efforts to set prices; instead, they may imitate the pricing strategies and business practices of their rivals, especially those of the market leaders, which is a characteristic of "oligopolistic markets where market leaders compete against one another"(Alhassan et al., 2015). The result is consistent with Shamsuddin et al. (2020) and Rinkevičiūtė and Kaulienė (2014) who report that market concentration has no impact on financial performance. Moreover, the result is inconsistent with Chand et al. (2021), Calice and Leonida (2018), Alshubiri (2022), (Ben Ali et al. (2018) who show that market concentration has a positive impact on financial performance. The result is also inconsistent with Nicoló et al. (2006), Chakraborty (2020) and Furman and Orszag (2018) who asserts that market concentration has a negative impact on financial performance.

3.6.10 Age and Financial Stability

H_{10A} hypothesis is that there is a significant positive impact of firm's age on the FS of ICs in pre-COVID-19 pandemic period. Referring to model (1) there is a no impact of firm's age on the FS of ICs, therefore, H_{10A} hypothesis is rejected at a significant level of 0.05. The firm's age has no impact on the FS of ICs. This result is consistent with the findings of Almajali et al. (2012) and contradicts that of Taha (2015), who suggests that older firms, which have greater experience and have reaped the advantages of knowledge, are not susceptible to the limitations of newness and may achieve higher performance.

H_{10B} hypothesis is that there is a significant positive impact of firm's age on the FS of ICs during the COVID-19 pandemic. Referring to model (2), there is a non-significant impact of firm's age on the FS. Hence, H_{10B} hypothesis is rejected at a significant level of 0.05. The results indicate that, in the period of the pandemic, size difference has no impact on FS. This finding is consistent with Almajali et al. (2012) and Taha (2015) who show that firm age has no impact on financial performance. In contrast, Evans (1987) argues that a company's age is a significant component of its profitability. He added that because of expertise and lower efficiency costs, the older the company is, the more profitable it will be. Similarly, Cowling et al. (2008) argue that a firm's age had a positive and substantial impact on EIS; the higher the amount of fixed asset construction, the older and more

significant the EIS business. However, the results contradict with Anyadike-Danes and Hart (2018) who claim that operators with more years of expertise may make more effective and more competent judgments, resulting in a beneficial influence on the firm's stability. Also, the results are in contrary to Taha (2015) who indicates that younger and smaller companies thus gain market share despite disadvantages such as a lack of capital, well-known brands, and a bad business reputation with older companies. In addition, it contrasts with the studies of Evans (1987), Cowling et al. (2008), and Anyadike-Danes and Hart (2018), Mahfoudh (2013) and Too and Simiyu (2018), which indicate that there is a positive impact of age on FS. Finally, Abubakar et al. (2018) and Pervan et al. (2017) assert that there is a significant negative impact of firm age on financial performance

3.6.11 Inflation and Financial Stability

H_{11A} hypothesis is that there is a significant positive impact of inflation on the FS of ICs in pre-COVID-19 pandemic period. Referring to model (1) there is a significant positive impact of inflation on the FS of ICs, therefore, H_{11A} hypothesis is rejected at a significant level of 0.05. This result is consistent with the findings of Berhe and Kaur (2017), Alomari and Azzam (2017) and Sasidharan et al. (2020). However, Cummins et al. (2017) find that inflation has a positive relationship with GDP even though when inflation rises due to a demand-pull effect, it indicates that the country's economy is improving, leading to a positive economic control on market's financial health.

H_{11B} hypothesis is that there is a significant positive impact of inflation on the FS of ICs during the COVID-19 pandemic. Referring to model (2), inflation has a significant positive impact on the FS with a coefficient of 0.882 (p-value of 0.009). H_{11B} hypothesis is accepted at a significant level of 0.05. The finding means that inflation has a positive impact on the FS. This finding is in contrast with the argument of the financial instability hypothesis by Minsky (1982), Minsky (1986) and Kindleberger (1996), which indicates that an excessive expansion in the total amount of money causes both the financial markets and the economy to a whole to overheat. Asset bubbles develop when there is an excess money surplus; bubbles continue to rise due to anticipation of the rising asset prices, and the prices will go up even further because investors anticipate an even more significant overvaluation of the assets. Because investors anticipate a price maximum to be reached, this will continue until markets flip. Moreover, the "Minsky Moment" refers to the turn in the financial markets; following that, anticipated losses will be steeper and

more profound because of the market flip. The results are in line with Cummins et al. (2017), who assert that inflation has a positive relationship with GDP even though when inflation rises due to a demand-pull effect, it indicates that the country's economy is improving, leading to a positive economic control on the market's financial health. Moreover, Shapiro (2020) who study how the COVID-19 outbreak caused a sharp drop in inflation. He argues that the reduction in core personal consumption expenditures inflation was driven mainly by a sharp drop in consumer demand, as seen by disaggregating the underlying pricing data by spending category. The demand impact was far more significant than the price rising caused by supply shortages due to COVID-19. Chadha et al. (2021) assert that much lower inflation occurred because of combined fiscal-monetary actions, which reduced the severity of the pandemic shocks and facilitated a faster return to pre-crisis levels of economic activity. Overall, the result is consistent with the studies of Cummins et al. (2017), Browne & Hoyt (1995), Shapiro (2020) and (Chadha et al. (2021), which indicate that there is a positive impact of inflation on FS during the COVID-19 pandemic. In contrast, it is inconsistent with Perera et al. (2013) and Taha (2015) who found that inflation has a negative impact on FS. Also, the result contradicts with Berhe and Kaur (2017), Alomari and Azzam (2017) and Sasidharan et al. (2020) who show that there is no impact of inflation on financial performance.

Table (6)

Summary of the results

| Variables / Period | Pre COVID-19 period | During COVID-19 period |
|------------------------------|----------------------------|-------------------------------|
| Receivables | no | no |
| Reinsurance dependence | no | no |
| Invested assets ratio | + | no |
| Size | no | + |
| Gross written premium growth | no | no |
| Loss ratio | no | - |
| Insurance leverage | - | no |
| Retention ratio | + | no |
| Market Concentration | + | no |
| Age | no | no |
| Inflation | no | + |

Chapter Four

Conclusion and Recommendations

4.1 Introduction

This chapter concludes the thesis. The following sub-sections presents conclusions of the study; recommendations, limitations and originality of the study, then some directions for future studies.

4.2 Conclusions

The study aims to examine how the determinants of FS of ICs has been influenced by COVID-19 in 8 MENA countries using data of 78 ICs in two period the first one is in the pre-COVID-19 period from Q2 of 2018 to Q4 of 2019 and the second is during the COVID-19 period which is from Q2 of 2020 to Q4 2021. The impact of COVID-19, along with other firm-specific and macroeconomic factors, on FS is estimated using the two-step system-GMM estimator. These variables were selected following the theories and literature related to FS and COVID-19 pandemic. Inflation is used as an indicator of macroeconomics. Whereas receivables, reinsurance dependence, invested assets ratio, firm size, firm age, change in the gross written premium, loss ratio, insurance leverage ratio, retention ratio and market concentration are the firm specific-factors. The dependent variable, the FS, is proxied by the Z-score.

Two models are estimated using the two-step system-GMM methodology. The first model refers to the model containing the study's variables for the pre-COVID-19 period. Whereas the second model used to estimate the effect of the determinants on FS during COVID-19.

The study's outcome in the pre COVID-19 period indicates that there is no impact of inflation on FS. Concerning firm-specific variables, mixed results are obtained. While a positive impact of the retention ratio, invested assets ratio, and market concentration on FS is reported, the insurance leverage has a negative effect on FS. Furthermore, the results show that the remaining variables are insignificant, including receivables, reinsurance dependence, change in the gross written premium, loss ratio, firm size and firm age.

The study's result during COVID-19 period show that there is a significant positive impact of inflation on FS, which may be attributed to the reduction in core personal

consumption expenditures. Inflation was mainly driven by a sharp drop in consumer's demand, as seen by disaggregating the underlying pricing data by spending category. So, the aggregate demand impact was far more significant than the price rising caused by supply shortages due to the COVID-19. Concerning firm-specific variables, mixed results are obtained. While a positive impact of the firm size on FS is reported, the loss ratio has a negative effect on the FS. Furthermore, the results show that of the remaining variables are insignificant, which includes receivables, reinsurance dependence, invested assets ratio, change in the gross written premium, firm age, insurance leverage ratio, retention ratio and market concentration. Nevertheless, and contrary to our expectations, the COVID-19 pandemic has had a positive impact on the FS of ICs in the MENA.

The FS of ICs contributes to the overall FS at the macro-level, with a forward-looking view of appropriate policies to enhance the FS of these ICs during crises and pandemics. Moreover, the result of this study assists in understanding the actual effects of the COVID-19 pandemic, along with other firm-specific factors and macroeconomic factors, on the overall FS of the economy. Furthermore, it may help ICs administrations and authorities to improve the financial stability of the ICs and avoid risks that may lead to economy wide-instability.

4.3 Recommendations

In light of the findings of this study, the most important recommendations can be summarized in the following points:

1. The study recommends that insurance industry regulators and supervisory authorities must actively monitor the financial stability predictors during the COVID-19 pandemic, and utilize them to circumvent the effect of future pandemics and crises.
2. Use other indicators to proxy for the pandemic effect, such as the number of cases and deaths. Also, investigate the impact of vaccination and other crises (such as the shipping and energy crises caused by the Russian-Ukrainian war).
3. Future studies are encouraged to extending the study for a period after the end of the current pandemic.
4. In the future, researchers would focus on each country in the MENA region to find out how environmental factors affected FS during the COVID-19 pandemic.

4.4 Limitations

This study has several limitations. First, the different financial reporting frameworks used in the MENA countries have led to excluding the countries which do not apply IFRS. Second, the exclusive use of local languages rather than English in some countries, when preparing financial reports, may cause misinterpretation of the content of these financial reports and thus excluding it from the study sample. Third, this study does not include all insurance companies due to the limited availability of data.

List of Abbreviations

| Abbreviation | Definition |
|---------------------|--|
| ADX | Abu Dhabi Securities Exchange |
| AGE | Firm age |
| AR | Arellano-Bond |
| ASE | Amman Stock Exchange |
| BHB | Bahrain Bourse |
| BK | Bourse Kuwait |
| COSO | Committee of Sponsoring Organizations |
| COVID-19 | Coronavirus pandemic |
| EIOPA | European Insurance and Occupational Pensions Authority |
| ERM | Enterprise Risk Management |
| FS | Financial Stability |
| GMM | Generalized Method of Moment |
| GWP | Growth in Written Premium |
| HHI | Herfindahl-Hirschman Index |
| IA | Invested Assets |
| IAIS | International Association of Insurance Supervisors |
| ICPs | Insurance Core Principles |
| ICs | Insurance Companies |
| IFRS | International Financial Reporting Standards |
| IMF | International Monetary Found |
| IN | Inflation |
| LR | Loss Ratio |
| MC | Market Concentration |
| MENA | Middle East and North Africa |
| MSX | Muscat Stock Exchange |
| PEX | Palestine Securities Exchange |
| QSE | Qatar Stock Exchange |
| RD | Reinsurance Dependence |
| REC | Receivables |
| ROA | Return on Assets |
| RR | Retention Ratio |
| SARS | Severe Acute Respiratory Syndrome |
| SIZE | Firm Size |
| TASI | Tadawul All Share Index |
| WHO | World Health Organization |

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Appendices
Appendix (A)

List of Insurance companies statistics in the sample countries

| Country | Number of insurance companies |
|----------------|--------------------------------------|
| Palestine | 8 |
| Jordan | 18 |
| UAE | 16 |
| Saudi Arabia | 21 |
| Qatar | 3 |
| Oman | 5 |
| Kuwait | 4 |
| Bahrain | 3 |



جامعة النجاح الوطنية
كلية الدراسات العليا

الاستقرار المالي في شركات التأمين في ظل جائحة كورونا: أدلة من دول الشرق الاوسط وشمال افريقيا

إعداد
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قدمت هذه الرسالة استكمالاً لمتطلبات الحصول على درجة الماجستير في المحاسبة من كلية الدراسات
العليا في جامعة النجاح الوطنية، نابلس - فلسطين.

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الملخص

هدفت الدراسة الى فحص الاستقرار المالي لشركات التأمين في دول الشرق الاوسط وشمال افريقيا خلال فترتين الاولى قبل جائحة كورونا والممتدة من النصف الثاني من العام 2018 الى الربع الرابع من العام 2019 والفترة الثانية في ظل جائحة كورونا من النصف الثاني للعام 2020 الى الربع الرابع من العام 2021، من خلال دراسة تأثير العوامل الخاصة بالشركات وعوامل الاقتصاد الكلي في دول الشرق الاوسط وشمال افريقيا باستخدام طريقة العزوم المعممة (GMM) حيث تكونت عينة الدراسة من 78 شركة تأمين من 8 دول. انه ووفقا للنظريات والادبيات السابقة التي تخص كل من الاستقرار المالي وجائحة كورونا، فقد اعتمدت الدراسة على متغير التضخم كمتغير من متغيرات الاقتصاد الكلي، كما اعتمدت على الذمم المدينة، ونسبة الاعتماد على معيد التأمين، ونسبة الأصول المستثمرة، والحجم، والتغير في اجمالي الاقساط المكتتبة، ونسبة الخسارة، ونسبة الرافعة المالية للتأمين، ونسبة الاحتفاظ واخيرا تركيز السوق كعوامل محددة للشركة، اما بما يخص المتغير التابع فقد تم استخدام مقياس (Z-score) كمؤشر للاستقرار المالي.

تشير النتائج الرئيسية للدراسة خلال جائحة كورونا، على مستوى الاقتصاد الكلي وجود تأثير ايجابي للنمو في التضخم على الاستقرار المالي خلال جائحة كورونا. بينما خلال فترة ما قبل الجائحة فتشير النتائج الى عدم وجود تأثير للتضخم على الاستقرار المالي. اما بما يخص المتغيرات الخاصة بالشركات خلال فترة الوباء، اظهرت النتائج ان للحجم تأثيره ايجابياً على الاستقرار المالي. وكما هو متوقع، فقد كان تأثير نسبة الخسارة سلبياً على الاستقرار المالي. واخيرا اظهرت النتائج عدم وجود أثر ذا دلالة إحصائية للعمر ونسبة الاحتفاظ والاعتماد على معيد التأمين والذمم المدينة والنمو في اجمالي الاقساط المكتتبة وتركيز السوق

ونسبة الاصول المستثمرة والرافعة المالية للتأمين على الاستقرار المالي خلال جائحة كورونا. في النهاية، وكانت نتائج العوامل الخاصة بالشركات خلال فترة ما قبل الجائحة تشير إلى وجود تأثير إيجابي لكل من نسبة الاحتفاظ وتركز السوق على الاستقرار المالي، بينما كان هنالك تأثير سلبي للرافعة المالية للتأمين على الاستقرار المالي، اما المتغيرات الاخرى فليس لها تأثير على الاستقرار المالي وهي الذمم المدينة و الاعتماد على المعيد والنمو في اجمالي الاقساط المكتتبه و نسبة الخسارة و حجم الشركة واخيرا عمر الشركة. وعلى عكس التوقعات، يمكن القول ان لجائحة كورونا تأثير يكاد يكون ايجابي على الاستقرار المالي لشركات التأمين في الشرق الأوسط وشمال إفريقيا.

ان نتائج الدراسة تسهم في القاء الضوء على الاستقرار المالي لقطاع التأمين لمساعدة الجهات الرقابية والاشرفية في وضع السياسات المناسبة لتعزيز الاستقرار المالي في شركات التأمين اثناء الازمات والابئة وبالتالي الاستقرار المالي للاقتصاد، وبالإضافة الى ذلك تساعد النتائج في فهم الآثار الحقيقية لوباء كورونا مع العوامل الاخرى الخاصة بالشركات وعوامل الاقتصاد الكلي على الاستقرار المالي للاقتصاد بشكل عام، واخيرا تسهم الدراسة في مساعدة صانعي القرار على تحسين التعاون الدولي وتجنب المخاطر التي قد تؤدي إلى عدم الاستقرار المالي.

اوصت الدراسة بان تحدد الجهات الرقابية والاشرفية على قطاع التأمين مؤشرات الاستقرار المالي خلال جائحة كورونا واستخدام نتائجها لتحديد التأثير المتوقع على القطاع في حالة الابئة والازمات مستقبلا. واوصت ايضا للدراسات المستقبلية بالبحث في مؤشرات اخرى تقيس جائحة كورونا مثل عدد الحالات او الوفيات وبيان تأثير الطعومات والازمات التي نتجت بعد الجائحة مثل ازمة الشحن كما وأوصت للباحثين بدراسة كل دولة من دول الشرق الاوسط وشمال افريقيا على حدا لمعرفة تأثير العوامل البيئية على الاستقرار المالي خلال جائحة كورونا واخيرا اوصت الدراسة بدراسة اثر ازمة الطاقة التي نتجت عن الحرب الروسية الأوكرانية على الاستقرار المالي لشركات التأمين.

الكلمات المفتاحية: الاستقرار المالي؛ جائحة كورونا؛ طريقة العزوم المعممة؛ دول الشرق الاوسط وشمال أفريقيا.