
Risk management regulation and corporate demand for reinsurance in the Spanish autarky (1940-1952)

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Introduction

Risk management is a vital issue for companies. Firms try to minimize their exposure to possible losses and thereby maintain stable cash flows. To achieve this goal, corporate risk management has relied on financial hedging strategies and the purchase of insurance (Altuntas *et al.*, 2018, p. 211). However, although hedging has become widespread over the last three decades, insurance was the main risk diversification device before the financial revolution in the late twentieth century (Pearson, 2016; Capie, 2016). Thus, actuarial and financial theory has analyzed the determinants of the corporate demand for insurance. While empirical research has deepened understanding of firm-level elements boosting the demand for risk spreading, literature on financial theory has also underlined the weight of country-level determinants, that is, macroeconomic and, especially, regulatory features affecting the insurance decision (Mayers and Smith, 1982; Adiel, 1996; Adams *et al.*, 2008).

In the same way that insurance provides risk-diversification services to productive firms, reinsurance helps to mitigate the financial exposure of primary insurers by covering a share of their risk portfolios. Reinsurance enables insurance companies to design more homogeneous risk portfolios and reduce the volatility of losses (Blazenko, 1986; Adams, 1996, pp. 22-24). Moreover, by using reinsurance, insurance providers acquire the capacity to sell more policies and, therefore, maximize their presence in the market without jeopardizing their financial solvency. In this way, the use of reinsurance enhances the underwriting capacity of insurers without accumulating addi-

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tional resources, which makes it an imperfect substitute for equity capital (Mayers and Smith, 1990, pp. 37-39; Garven and Lamn-Tenant, 2003, pp. 217-221; Powell and Somner, 2007, pp. 176-178). This financial nature turns reinsurance into a key device for those insurance markets suffering from capital constraints, which become dependent on external reinsurers to deal with risks arising in developing economies (Outreville, 1995; Gutiérrez and Andersson, 2018).

As a channel for risk diversification, reinsurance is essentially an international business. Nevertheless, this global scope makes reinsurance extremely sensitive to regulations on cross-border financial transfers. Indeed, reinsurance has traditionally been resistant to state jurisdiction and, especially, to attempts to supervise the nature of traded risks (Pearson, 2012, pp. 74-75; Vec, 2016). In this way, literature has underlined the importance of the principle of confidentiality of the reinsurance treaty, since public information on risk cessions could raise doubts about the ceding company's portfolio, as well as creating uncertainty for customers (Nebel, 2002, pp. 115-118). Nonetheless, the nature of the purchase of foreign reinsurance cessions as an outflow of currency constitutes one of the main drivers of public intervention in reinsurance: the control of access to international capital and foreign exchange markets (Gerathewohl, 1993, pp. 49-52). Hence, in countries suffering from financial constraints, regulation has traditionally had wide repercussions on the development of this industry, by restraining the free transfer of premiums.

Focusing on the case of Spanish insurance, the goal of this paper is to examine the impact of regulation on reinsurance from the outbreak of the Second World War to the first steps towards liberalization in 1952. The international isolation of the country during this period and the chronic dependence of domestic insurers on foreign reinsurance turned the Spanish case into a conflict of opposing interests between the objectives of public regulations and the financial needs of private companies. The autarkic economic policy implemented by the Franco dictatorship sought tight control over cross-border currency transfers, while the country's neutral condition placed Spanish companies among the main providers of marine insurance and, in turn, among the main customers of international reinsurance. In this context, we seek to evaluate the effects of these regulatory changes on the risk management strategies of insurance companies and, ultimately, to analyze the influence of reinsurance regulation on the capacity of the Spanish insurance industry to reduce its exposure to unexpected losses.

To address these issues, we explore the links between reinsurance regulation, the financial leverage of the insurance industry and risk management strategies implemented by firms, in relation to the following questions: (1) How did regulatory changes modify the systemic role of reinsurance in the Spanish insurance industry? And (2), What costs arose from the new insur-

ance industry regulation, in terms of financial distress and actuarial performance? To deal with these questions, we use both institutional and corporate sources to build a novel dataset including figures on reinsurance transfers in Spain from 1940 to 1954 and firm-level statistics on insurance companies and their reinsurance practices.

The remainder of the paper is organized as follows. The next section examines the long-term determinants of reinsurance demand in the Spanish insurance industry and the effects of regulatory changes introduced during the Second World War. The third section presents the data and the methodology for the empirical analysis. The fourth section discusses the results. Finally, we conclude the paper.

Financial and regulatory constraints: The long-term determinants of reinsurance demand in Spain

During the first decades of the twentieth century, the development of the Spanish economy triggered the need for risk management services, which resulted in the progress and growth of the insurance industry (Pons, 2003; 2007a). Indeed, Spanish insurers used complex devices such as reinsurance to connect isolated regions with national financial networks, as well as to expand their operations to other markets (Gutiérrez and Pons, 2017). However, domestic companies had to deal with major obstacles in order to compete successfully: first, the fragmentation of the market, which was reflected in the high number of financially weak small companies and mutual societies; and second, the shortcomings of the financial system, which was barely capable of providing capital services and equity resources to such a complex business as insurance (Pons, 2002, pp. 13-15).¹ As a result, the Spanish insurance industry, along with other sectors, experienced chronic difficulties to access financial resources in a period of market expansion. Furthermore, the new regulation on insurance passed in 1908 and emerging trends of economic nationalism stimulated the withdrawal of foreign companies from Spain, which left the market free for domestic offices (Pons, 2012, pp. 92-94).

In this context, although insurance business grew steadily over the next four decades, this development suffered from deep financial imbalances. While the aggregate financial leverage of the Spanish insurance industry declined from the end of the First World War and during the 1920s and 1930s,

1. As noted by Martín Aceña (1987; 1993), Comín (2013) and Martínez Ruiz (2013), non-adhesion to the gold standard complicated the internationalization of Spanish finance, while the excessive weight of the Bank of Spain in the whole banking system and its subordination to fiscal needs hindered the development of a sound domestic capital market.

it remained at a high level compared with the figures obtained for other countries.² Moreover, the financial leverage of Spanish insurers determined their capital structure and their risk management strategies: in order to overcome the chronic lack of capital funding, domestic offices showed a systematic preference for purchasing reinsurance. Indeed, by using reinsurance as an imperfect substitute for capital, Spanish insurance companies were able to meet the growing demand of the overall economy, but at the same time they became heavily dependent on foreign reinsurance networks throughout the whole period from 1900 to 1940 (Gutiérrez and Andersson, 2018).

While this trend seems to have been a structural dynamic, the evolution of the international risk exchange networks and regulatory changes affecting reinsurance marked the evolution of the business during different stages. From the First World War onwards, restrictions on the circulation of reinsurance premiums were established, both in highly developed and peripheral countries, to avoid capital outflows and currency transfers (James *et al.*, 2013, pp. 71-79). As a matter of fact, the conflict redirected the demand of freight and insurance services towards neutral countries.³ However, as reinsurance transfers were deemed to be a destabilizing element for the national balance of payments, national authorities implemented different measures with regard to foreign exchange control during the last years of the conflict. Moreover, the new regulations attempted to transform national reinsurance markets into monopolies ruled by national champions (James *et al.*, 2013, pp. 171-179).⁴ Within this context, the international scope of reinsurance became seriously limited: as long as national regulatory agencies tried to force primary insurers to share information about their reinsurance cessions and reveal the conditions of contracts, the principle of confidentiality in reinsurance treaties would be threatened or broken.

However, institutional restrictions were not the only problem for international reinsurers: monetary disturbances and inflationary trends during the

2. The premium to surplus (P/S) ratio, calculated as net premiums written to surplus (equity + reserves) is widely used as a proxy to measure the probability of bankruptcy and the financial leverage of insurance companies (see e.g. Mayers and Smith, 1982; Powell and Somner, 2007; or Cole and McCullough, 2006). Indeed, while Beckman and Tremelling (1972), p. 206, obtained P/S ratio values lower than 1 for the United States in the same decades and Kader *et al.* (2010), p. 276, got a mean value of 0.410 for Sweden, most of the figures in the Spanish case fluctuated between 1.5 and 2. Gutiérrez (2014), p. 48.

3. As noted by Larsson and Lönnborg (2014) and Petersson (2011) for Sweden, and by Gutiérrez (2014) and Gutiérrez and Pons (2017) for Spain, a drastic increase in the financial exposure of marine insurance companies triggered the demand for foreign reinsurance by domestic insurers in neutral countries, in order to alleviate their leverage.

4. Furthermore, when the constraints on international payments became widespread during the 1920s and, especially, the 1930s, several unsuccessful plans emerged in France, Belgium, Sweden, Greece and Spain, among other countries, to convert these private monopolies into state-owned ones, which alarmed the industry (Gutiérrez, 2014; Gutiérrez and Pons, 2017).

1920s and the disintegration of international economy in the 1930s posed additional difficulties to the development of the business during the interwar period (Capie, 2017). In addition, the social struggle and political instability during Spain's Second Republic and the outbreak of the Civil War in 1936 contributed to increasing the isolation of the country. Besides the economic collapse during the years of conflict, the victory of General Franco with the support of the Axis powers left the Spanish economy in an unsteady position. Difficulties to access an almost blocked international equity market converged with the consequences of the war. As well as the physical destruction, the disturbances caused by three years of monetary dualism and the high exposure of the financial system posed additional obstacles to recovery. Besides these problems, the insurance industry had to confront the effects of the massive claims faced by companies due to the civil conflict, as well as problems to receive compensation for reinsured policies (Tortella *et al.*, 2014, pp. 160-166).

The outbreak of the Second World War added further complexity to the situation.⁵ Much as during the First World War, Spain, as a neutral country, was among the main providers of freight and insurance services for international trade (Martínez Ruiz, 2003, p. 122).⁶ The increase in the underwriting of new policies and the rise of loss ratios due to the riskiness of marine traffic jeopardized the financial equilibrium of Spanish insurers: as they had to face new liabilities in their balances, companies needed to raise their reserves or purchase reinsurance. The rigidities of the Spanish financial system, and the obstacles to accessing additional funding posed by the war, led these companies to resort massively to foreign reinsurance (Gutiérrez, 2017, pp. 172-173). The outflow of capital in the form of reinsurance premiums, both in pesetas and in foreign currencies, alarmed Spanish monetary authorities at the Instituto Español de Moneda Extranjera (IEME). Pursuing the goal of identifying and controlling the cessions of premiums through reinsurance, an Official Committee on Marine Insurance was created in 1942. In parallel, a new regulation was passed to control reinsurance transfers from Spanish insurers to abroad.⁷

Within the new framework, insurers could only cede their policies to foreign reinsurers through an administrative authorization granted by the IEME. Moreover, a compulsory cession to the Committee on Marine Insurance of a

5. As noted by Egidio León (2005), the Spanish government moved from neutrality to non-belligerency in 1940 and back to neutrality in 1943, but these changes had no significant effects on the role of the Spanish merchant fleet, which mostly purchased insurance services provided by domestic companies.

6. Indeed, the size of the marine insurance market, in terms of premiums underwritten, rose from almost 100 million pesetas in 1940 to more than 300 million in 1943. See Pons (2002), p. 115, and *Memoria de la Dirección General de Banca, Bolsa e Inversiones* (1951).

7. Decree of 13 March 1942, in the *Official State Gazette (BOE)* no. 87, 27 March 1942.

share of all marine insurance policies written in Spain was introduced. Consequently, one of the main elements of the reinsurance treaty was broken with these measures: the principle of confidentiality. While the initiative tried to prevent the free movement of foreign currencies, the new regulation introduced an anomalous element into corporate risk management strategies: companies seeking risk diversification had to share their portfolio information with the regulatory agency. This situation provoked strong protests from private offices but, far from causing a conflict between the Franco dictatorship and the industry, an agreement was reached: the Committee on Marine Insurance would retrocede a share of those risks taken from the market that did not generate currency outflows.⁸

When the Second World War was coming to an end in Europe, Spanish monetary authorities designed a new framework to deal with the postwar scenario. While the disturbances affecting the marine insurance market were vanishing, the isolation of the Spanish economy increased due to the dictatorship's links with the Axis powers. Moreover, the slow reconstruction of the productive sectors and the government's obstinate policy of pursuing autarky affected the demand for insurance services.⁹ In parallel to this trend, the relaxing of requirements to establish new companies in legislation passed in March 1944 led to an increasing fragmentation of the market.¹⁰ In this situation, the key motives for direct intervention in marine insurance lost weight in the face of a wider problem: the increasing lack of foreign currencies and the weakness of the peseta in the new global financial and monetary context.¹¹

Consequently, the Committee on Marine Insurance was remodeled as an Official Committee on Reinsurance. This new agency retained a decreasing role as a reinsurer for marine risks, but its main function was redefined as supervisor of all reinsurance operations abroad involving Spanish risks. It was to operate in all branches of the market by taking a 1 percent share of every policy underwritten in Spain by domestic or foreign companies and reinsured

8. Furthermore, as noted by Gutierrez (2014), pp. 34-35, this capture and reallocation of marine insurance was implemented with a clear inclination towards domestic marine insurers. Indeed, while foreign companies had to cede a share of their policies to the Committee, the retrocession strategies implemented by the public agency took only domestic companies into consideration. In line with the trend of economic nationalism initiated three decades before, these measures forced a shift of market share from foreign offices to Spanish insurers.

9. See Prados (2017) and Maluquer de Motes (2016) for a detailed analysis of the evolution of the economic indicators during this period. García Ruiz and Caruana (2009), Pons (2010) and Gutiérrez (2017) note the stagnation of written premiums in all lines.

10. In fact, as noted by Pons (2015), the dictatorship boosted the proliferation of mutual societies formed by businessmen and employers. This process, along with the constitution of new companies with low financial resources, resulted in a drop of 30 percent in the average premiums earned by companies between 1942 and 1951 (Pons 2010, p. 65).

11. This was one of the main points cited in the arguments behind the new legislation. See Decree of 8 July 1945, in *BOE* no. 197, 16 July 1945.

abroad.¹² Moreover, companies ceding premiums abroad were required to send the authorities all the information of the reinsurance contract, which could only be signed once approved by the Committee. Private companies such as La Unión y el Fénix alleged that this new mechanism implied the end of the confidentiality of reinsurance operations, which would impose severe difficulties on accessing international risk exchange networks.¹³ Furthermore, the criteria used by the Committee to permit the transaction were quite restrictive: all operations sending reinsurance abroad had to be compensated by an equal amount of reinsurance premiums coming from abroad, remunerated in foreign currencies.

TABLE 1 • *P/S ratio in life and non-life branches in Spain (1942-1951)*

| | 1942 | 1943 | 1944 | 1945 | 1946 | 1947 | 1948 | 1949 | 1950 | 1951 |
|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Life | 0.210 | 0.211 | 0.221 | 0.217 | 0.201 | 0.205 | 0.193 | 0.190 | 0.189 | 0.186 |
| Non-life | 1.847 | 1.797 | 2.025 | 2.363 | 2.368 | 2.210 | 2.076 | 2.043 | 1.893 | 1.853 |

Source: Memoria de la Dirección General de Banca, Bolsa e Inversiones, 1951

After the new regulation was passed in July 1945, insurance companies abruptly reduced their reinsurance operations abroad. Committee officials noted this trend, when the amount of premiums ceded to foreign reinsurers declined by 70 percent in the second half of 1945.¹⁴ Meanwhile, the amount of domestic risks reinsured by Spanish companies rose from 10.3 percent of life premiums underwritten in Spain in 1944 to 18.3 percent in 1946, while in the case of non-life branches the figure rose from 32 percent to 59 percent in the same period (Gutiérrez, 2017, p. 226). In parallel, the performance of solvency indicators worsened. Indeed, as shown in Table 1, insurance companies in non-life branches experienced a significant increase in their financial leverage from 1943 to 1946.¹⁵ This trend coincided with the regulatory obsta-

12. The compulsory cession of 1 per cent of all risks reinsured abroad was actually introduced by a previous regulation passed in September 1944 but, as explained by officers of the Committee, it was not fully implemented until the transformation of the institution. See Decree of 29 September 1944, in *BOE* no. 293, 19 October 1944.

13. Historical Archives of the Bank of Spain (ABE), Departamento Extranjero, IEME, Comité Oficial de Reaseguros, Correspondencia y Actas del Comité, c.85, f. 6.

14. ABE, Departamento Extranjero, IEME, Comité Oficial de Reaseguros, Correspondencia y Actas del Comité, c.84, f.12. While a minimum share of this fall could be caused by the concealment of operations, the trend was also acknowledged by private companies in their internal reports. See the *Report to the Meeting of the Board of Directors* of Compañía General de Reaseguros, 21 January 1946.

15. Note the difference between life and non-life branches. As shown by Gerathewohl (1993), among others, the nature of the risks covered make life insurance less leveraged, since companies in the branch accumulate mathematical reserves in accordance with the mortality tables used. More-

cles imposed by the IEME on the use of foreign reinsurance, which in turn hindered the development of risk management strategies. In response to this situation, Spanish offices began to create alternate risk transfer mechanisms, which helped alleviate financial distress as from 1947. In fact, following the theoretical framework of ruin theory, two choices are available to reduce financial leverage in insurance companies: increase equity and reserves or purchase reinsurance. While the first option was difficult to achieve within an almost blocked Spanish financial system, the second was complicated by the legal requirements to purchase foreign reinsurance. Moreover, private companies were reluctant to share their policy information with public officers.¹⁶ Indeed, since insurers serve as managers of actuarial information, their main goal was to retain their knowledge of the market, so domestic companies had to avoid control by the Committee and search for alternate options within the country.

Even after the first attempts to control reinsurance flows in 1942, several primary insurers constituted subsidiary companies devoted to providing reinsurance services (Caruana, 2017). While there were 24 Spanish pure reinsurers operating in the period 1943-1953, 11 of them were directly owned or affiliated to direct insurance companies. Moreover, by taking the sample of the 75 most important companies accepting reinsurance in Spain in 1946 (both pure reinsurers and primary insurers), we found that more than 21 percent of the members of these companies' boards of directors were common directors (that is, shared by two or more companies); furthermore, when looking at chief executive officers employed by these insurers, more than 50 percent (38) were affiliated to other firms at the same time (Gutiérrez, 2017, pp. 247-250).¹⁷

over, the relatively small size of the risks reduces the volatility of losses, which in turn affects financial leverage.

16. ABE, Departamento Extranjero, IEME, Comité Oficial de Reaseguros, Correspondencia y Actas del Comité, c.64, f. 1-12.

17. Although the concept of interlocking directorates described by Mizruchi (1996) has been challenged, Lilljegen (2019) has shown the impact of these corporate networks in Swedish insurance, while Rubio and Garrués (2016) have successfully used them to explain the structure of Spanish business in sectors such as energy, banking and manufacturing. In a wider context, Fohlin (2006) underlines the relevance of interlocking directorates involving banking and industry firms for German industrialization.

TABLE 2 - *Primary insurers and pure reinsurers in the Spanish market, ranked according to the aggregate premiums reinsured in the main lines (life, fire, marine and accident) (1943-1951)*

| | Companya | Year of foundation | Market share (%) | Owner/Head office |
|----|----------------------------------------|---------------------------|-------------------------|-----------------------------------|
| 1 | <i>Mediterránea de Reaseguros</i> | 1942 | 10.74 | Compañía Hispano-Americana |
| 2 | <i>Compañía General de Reaseguros</i> | 1942 | 6.41 | Mutua General de Seguros |
| 3 | <i>La Equitativa Hispano Americana</i> | 1944 | 6.28 | La Equitativa (Fundación Rosillo) |
| 4 | La Unión y el Fénix Español | 1864 | 5.98 | – |
| 5 | <i>Cía. Española de Reaseguros</i> | 1941 | 5.52 | La Unión y el Fénix Español |
| 6 | <i>La Equitativa Reaseguros</i> | 1928 | 5.13 | La Equitativa Nacional |
| 7 | <i>Nacional de Reaseguros*</i> | 1942 | 4.53 | – |
| 8 | <i>Reaseguradora Española</i> | 1940 | 4.08 | Bilbao |
| 9 | Compañía Hispano Americana | 1924 | 4.01 | – |
| 10 | <i>Continental</i> | 1943 | 2.67 | Occidente |

a Pure reinsurers in italics.

* Constituted in Seville in 1939, and then moved to Madrid.

Source: Anuario Financiero y de Sociedades Anónimas, 1941-1952 and Revista del Sindicato Vertical del Seguro, 1943-1953

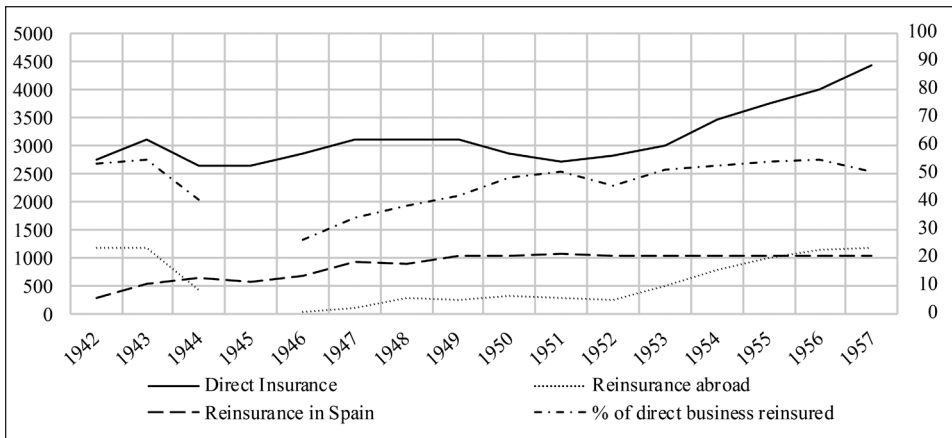
As shown in Table 2, interlocking directorates and property links helped shape a national reinsurance market characterized by a high level of concentration. Two of the top ten reinsurers in the main lines were primary insurers authorized to reinsure Spanish risks, while the rest were specialist companies. Among the latter, only La Equitativa Reaseguros had been constituted before the outbreak of the Second World War and the subsequent changes in the international reinsurance market. In addition, the last column shows, where applicable, the primary insurer's links to the company, usually as its owner. Thus it seems clear that the national champions in Spanish insurance, which were La Unión y el Fénix Español for the fire line, La Equitativa (Fundación Rosillo) for the life branch, Mutua General de Seguros for industrial accident business and Compañía Hispano-Americana for marine insurance, built a network of reinsurers around them during these years of isolation.

Figure 1 shows the aggregated data of the transformation caused by these legal and management changes: the introduction of the first waves of control in 1942 led to a decline in cessions abroad through reinsurance and, in turn, to a slow growth of the exchange of risks among Spanish reinsurers. Moreover, the amount of premiums accepted by Spanish reinsurers increased almost fourfold between 1942 and 1951. As a result, the chronic trend of capital out-

flows financing the import of reinsurance and risk management services was abruptly interrupted by the new regulatory framework imposed by the dictatorship between 1942 and 1952.

Indeed, regulatory changes forced the displacement of foreign reinsurance and, consequently, a sort of nationalization of the reinsurance industry: it could be argued that, in order to avoid the increasing costs of access to foreign risk-management facilities, domestic insurers built up their own reinsurance networks. The first trends towards liberalization in 1952 and the withdrawal of the Committee from the direct inspection of risks reinsured abroad reopened the international reinsurance market to Spanish offices. From 1953 onwards, national reinsurance remained stagnated, while the foreign market covered the increasing demand for risk management services from the Spanish insurance industry.¹⁸

FIGURE 1 ▪ *Direct-insurance premiums underwritten and premiums reinsured in Spain and abroad, in 1951 million pesetas (left axis), and total share reinsured, in percentage, (right axis) (1942-1957)*



Source: AGA (12) 1.14 Libro 473 Top. 65/79101; abe, Departamento Extranjero, IEME, Comité Oficial de Reaseguros, C. 84, Estadísticas y Memorias Anuales del Comité Oficial de Reaseguros, años 1946-1955 y libros 113- 115, Libro de Registro del Impuesto del 1%; Memoria de la Dirección General de Banca e Inversiones, 1951; Revista del Sindicato Nacional del Seguro, 1943-1958; Caballero (1960).

To determine the actual role of these corporate networks and their effect on the performance of the insurance industry, our empirical analysis address-

18. Several attempts to control reinsurance flows appeared in other countries during this period. The case of Peron's Argentina, where reinsurance business was nationalized, shows a similar pattern of evolution to the Spanish one. For a detailed analysis of the Argentinian experience, see Zappino (2007).

es the reinsurance practices and financial indicators of both core primary insurers and dependent reinsurers. While we can infer a substitution of foreign reinsurance by national companies from the previous figures, the following analysis focuses on the microeconomic behavior of linked firms, so we can ascertain whether reinsurance practices are based on firm-specific conditions or, on the contrary, they are the outcome of a systemic role.

Sources, data and research design

The Committee on Marine Insurance made the first estimates on cross-border reinsurance transfers for the year 1942. From 1945, these statistics were prepared every year until 1952, although public officers complained about the difficulties in obtaining information from private companies.¹⁹ Hence there was no comprehensive and unified collection of reinsurance data in Spain, so we have to resort to several different sources: aggregate data on direct insurance premiums from the *Memoria de la Dirección General de Banca e Inversiones* and total reinsurance cross-border flows from the *Memorias Anuales del Comité Oficial de Reaseguros*; firm-specific data on reinsurance acceptances of Spanish risks from the *Revista del Sindicato Nacional del Seguro*; and main financial indicators from the balance sheets and accounts of insurance and reinsurance companies from the *Boletín Oficial de Seguros y Ahorro*. In order to complete this firm-specific data, we have compiled the main accounting sheets of companies from the *Anuario Español de Seguros*: namely, statements of financial positions and profit and loss accounts. To complete this information, we have consulted archival resources at the *Archivo General de la Administración* containing financial sheets and reports of several companies included in the sample. Finally, we use the information on members of the management boards of the companies included in the *Anuario Financieros y de Sociedades Anónimas de España* to sketch the property links between companies and the role of common or multiple directors or interlocking directorates and to determine whether a company belonged to a corporate group and what its role in the group was.

Between 1943 and 1952, there were 205 companies authorized to reinsure Spanish risks in at least one line. However, only 121 firms were active during the whole period, oscillating between the 129 registered in 1943 and a peak of 178 in 1950. Due to the low number of companies reporting their financial information in the years 1942 and 1943, we have built an unbalanced pan-

19. ABE, Departamento Extranjero, IEME, Comité Oficial de Reaseguros, C. 84, Estadísticas y Memorias Anuales del Comité Oficial de Reaseguros, *Report on the operations of the year 1948*.

el dataset restricted to the period 1944–1953. We exclude life business in order to avoid disturbances among quite different reinsurance strategies.²⁰ As a result, our working sample includes 107 companies accepting no less than 88 percent of the reinsured premiums for Spanish risks in non-life branches. This is expressed through 816 observations including 80 primary insurers authorized to reinsure and 27 pure reinsurers. As regards their origin, there are 70 domestic companies and 13 from the United Kingdom, 12 from France, and a further 12 from the United States, Switzerland, Italy and Portugal. The sample also includes 3 mutual societies that offered reinsurance services before the war and after 1950, one of them also being the owner of a subsidiary reinsurer: Mutua General de Seguros, which obtained a leading position in the industrial accident branch through the use, from 1944, of a dependent reinsurer, CRESA, as a main component in its risk management strategy.²¹

As we are looking for systematic changes to both financial balance and risk management strategies of insurance companies, we have built the following set of variables. Our dependent variable, reinsurance (REIN), expresses reinsured premiums as a percentage of the total amount of premiums earned and serves as a proxy for the demand for risk management services. In line with previous literature, insurers used to purchase reinsurance services to reduce their exposure to catastrophic losses (Mayers and Smith, 1982; Adiel, 1996). Consequently, we use the loss ratio (LOSS), expressing total claims paid as a percentage of premiums earned, as a trigger for reinsurance demand. In parallel, within the framework of ruin theory, insurers are more prone to reinsure when they face higher levels of financial leverage (Powell and Somner, 2007; Deelstra and Plantin, 2014). Following previous studies, we use the premium to surplus ratio as a proxy for leverage (Cole and McCullough, 2006; Kader *et al.*, 2010; Adams *et al.*, 2012). We express leverage (LEV) as premiums written as a percentage of share capital plus reserves. Ruin theory argues that those companies with less liquid assets (LIQ) purchase more reinsurance services, since they try to avoid liquidity constraints triggered by unexpected losses (Plantin, 2006). We express liquidity as cash

20. The nature of insured risks in the life branch and the extended utilization of mortality tables makes life reinsurance to be driven by other managerial strategies different from property lines (Gerathewohl, 1993).

21. We follow the idea of Mayers and Smith (1982) that mutual societies tried to maintain their position in the market and overcome their lack of share capital by using reinsurance: this strategy allowed them to increase their risk portfolio and, by means of reinsurance cession, to manage new financial commitments and protect their assets against eventual claims. However, within the new regulatory framework, mutual societies faced additional difficulties to access the reinsurance market: from 1944, only those operating with standardized systems of premium calculations (also known as fixed premium or technical premium mutual societies) could purchase reinsurance services. See Decree of 29 September 1944, in *BOE* no. 293, 19 October 1944. As a result, we can only include these three societies that held a significant share of the market and, at the same time, were authorized to purchase reinsurance.

and bank account resources as a percentage of ongoing-risk reserves. Literature on risk management has analyzed the impact of reinsurance strategies on the profitability of the company. In this respect, more profitable companies would be less prone to use reinsurance, since they keep higher liquid assets to cover unexpected losses (Adams *et al.*, 2008). We measure profitability (PROF) as the total return on assets, expressed as total net earnings as a percentage of the book value of total assets. Finally, smaller companies are more sensitive to unexpected losses, which makes them more prone to purchase reinsurance. We express SIZE as the natural logarithm of total assets (Adams, 1996; Adiel, 1996).

Since we seek to capture different risk management strategies inside the sample, we classify the companies according to their organizational form (ORG = 1 for mutual societies). In parallel, we expect nationality to have a relevant impact on reinsurance practices, since foreign companies had easier access to international capital markets. Finally, we use dummy variables to introduce the organic nature of companies acting as reinsurers (PURE = 1) and we differentiate between independent companies and those affiliated to a corporate group as a subsidiary (DEP = 1) or as group leader (HQ = 1). In parallel, we distinguish between foreign and domestic offices (NAT_SP = 1). Along with this set of firm-specific variables, we include three macroeconomic indicators as country-level variables affecting risk management practices. First, we use the real GDP growth estimate made by Prados, included in the *Estadísticas Históricas de España* (Carreras and Tafunell, 2005). As noted in previous literature, we expect a direct relationship with reinsurance, since economic growth is supposed to boost the demand for risk management services. Second, we use the exchange rates of the peseta with the US dollar to control for the purchasing power of Spanish insurers when dealing with foreign reinsurers, in such a way that a lower (higher) rate of exchange would improve (worsen) the position of domestic firms in order to purchase foreign reinsurance, which would result in higher (lower) reinsurance ratios (Table 3).

Table 3 displays the main descriptive statistics (mean and standard deviation) for the variables constructed from the collected data. As shown in the table, the inclusion in the sample of figures from the whole period and, consequently, from different regulatory frameworks, contributes to reducing differences between groups. However, it seems clear that insurers in the Spanish market made significant use of reinsurance during the period of analysis, despite the regulatory restrictions. Indeed, reinsurance rates fluctuate around 50 percent for all kind of primary insurers. Loss ratio, liquidity and profitability indicators show homogeneous behavior, though foreign companies showed lower rates of profitability. For the case of financial leverage, differences between primary insurers and reinsurers became wider when examining the case of dependent companies within corporate groups. In the group of foreign

TABLE 3 • Insurance and reinsurance companies in Spain, property-casualty lines (1944-1953). Descriptive statistics for firm-specific variables. Mean and standard deviation (in parentheses)

| | Expected sign | Full Sample | Spanish offices | | | | | Foreign offices |
|--------------|---------------|-------------------|-------------------|------------------|--------------------|-------------------|--------------------|-------------------|
| | | | Primary insurers | | | Pure Reinsurers | | |
| | | | All | Mutual | HQ | All | Subsidiary | |
| REIN | . | 43.17 (26.14) | 49.21 (23.90) | 48.95 (27.27) | 54.50 (21.18) | 31.88 (26.43) | 23.13 (24.29) | 47.38 (25.51) |
| LOSS | + | 43.09 (30.49) | 43.76 (32.70) | 38.46 (26.04) | 45.58 (30.56) | 41.51 (24.60) | 42.33 (23.37) | 40.57 (40.32) |
| LEV | + | 4.01 (5.68) | 3.99 (4.99) | 3.88 (4.76) | 4.14 (4.44) | 4.06 (7.05) | 4.39 (6.28) | 4.19 (6.51) |
| LIQUID | - | 99.31 (133.05) | 99.48 (131.93) | 79.33 (91.56) | 101.55 (120.31) | 98.92 (135.91) | 106.67 (132.26) | 96.22 (137.61) |
| PROFIT | + | 10.97 (19.15) | 9.72 (17.71) | 9.31 (11.79) | 10.38 (19.71) | 13.21 (21.37) | 12.69 (21.56) | 6.66 (4.17) |
| SIZE | - | 15.10 (1.46) | 15.31 (1.50) | 15.04 (1.38) | 15.47 (1.39) | 15.25 (1.36) | 15.21 (1.41) | 15.15 (1.42) |
| No. of firms | | 107 | 46 | 3 | 16 | 24 | 11 | 37 |

Source: Boletín Oficial de Seguros y Ahorro, 1945-1951; Revista del Sindicato Nacional del Seguro, 1943-1954; Anuario Español de Seguros, 1946, 1948, 1952-1954; Anuario Financiero y de Sociedades Anónimas de España, 1945, 1949, 1954.

companies, the value for leverage appears overestimated: this is because we are only including the data on reserves to calculate leverage.²² Due to its significance, the group of subsidiary or dependent reinsurers deserves special attention. In fact, looking at the figures, reinsurers inside corporate groups appear to purchase less reinsurance (that is: to be more prone to retain risks) but, despite this, they are also the companies facing higher levels of financial leverage. This is consistent with the expected role of a subsidiary company, in which risk management strategies would be designed not to enhance the financial position of the firm, but to provide risk diversification services to improve the performance of the risk portfolio of its corporate group. Finally, we do not find a deviation of the risk management performance of mutual societies, except the fact that they appear to operate with less liquid resources than the rest of the sample.

22. Foreign companies declare the amount subscribed and deposited in their country of origin as share capital. Due to the size of these multinationals, if we introduce the data on capital for the whole company and we contrast it to the amount of premiums subscribed only in Spain, the figure on leverage would be extraordinarily low and, moreover, unreal.

TABLE 4 • Insurance and reinsurance companies in Spain, property-casualty lines (1944-1953). Correlation coefficients matrix

| | REIN | LEV | LOSS | LIQUID | PROFIT | SIZE | PURE | DEP | HQ | NT_SP | ORG | EX_US |
|-------|----------|---------|---------|----------|----------|-------|----------|----------|---------|---------|-------|---------|
| LEV | .113*** | 1.000 | - | - | - | - | - | - | - | - | - | - |
| LOSS | .068 | .208*** | 1.000 | - | - | - | - | - | - | - | - | - |
| LIQ | .087* | .413*** | .048 | 1.000 | - | - | - | - | - | - | - | - |
| PROF | .126** | .075 | -.067 | -.163*** | 1.000 | - | - | - | - | - | - | - |
| SIZE | .025 | .180*** | .055 | -.128*** | -.222*** | 1.000 | - | - | - | - | - | - |
| PURE | .071 | -.084* | -.037 | -.004 | -.051 | .036 | 1.000 | - | - | - | - | - |
| DEP | .050 | .242* | .115*** | .005 | -.006 | .005 | .582*** | 1.000 | - | - | - | - |
| HQ | .148** | .103*** | .143*** | .090*** | .115*** | -.002 | -.311*** | -.167*** | 1.000 | - | - | - |
| NT_SP | .017 | -.061 | .053 | -.012 | .026 | -.011 | .383*** | .227*** | .311*** | 1.000 | - | - |
| ORG | .027** | -.015 | -.048 | -.074 | -.028 | .000 | -.207*** | -.144*** | .179*** | .169*** | 1.000 | - |
| EX_US | -.123*** | .043 | .049 | .036 | -.058 | .025 | -.003 | .003 | .005 | .017 | .011 | 1.000 |
| GDP | .029 | -.063 | -.063 | -.108** | -.061 | .001 | .009 | .012 | -.001 | .012 | .000 | .098*** |

*p-values in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$*

Source: Boletín Oficial de Seguros y Ahorro, 1945-1951; Revista del Sindicato Nacional del Seguro, 1943-1954; Anuario Español de Seguros, 1946, 1948, 1952-1954; Anuario Financiero y de Sociedades Anónimas de España, 1945, 1949, 1954.

In order to delve into the relationships between the firm-specific variables, Table 4 shows the pairwise correlations of the sample. As shown in the table, Reinsurance shows a statistically significant and positive correlation with Profitability, which is consistent with previous literature, and a positive correlation with Liquidity, which does not concur with ruin theory.²³ Beyond that, we find that the set of operational variables including Leverage, Loss ratio, Liquidity, Profitability and Size are slightly correlated (coefficients between 0.12 and 0.22 with *p*-values under 0.10), which could suggest problems of multicollinearity among the variables. With regard to nationality, unlike previous research on the Spanish case, it shows no correlation with reinsurance, which may be attributable to the regulatory transformations of the period of study and the systematic exclusion of foreign companies from the Spanish market in this period. In the same way, organizational form loses the significance reached in previous research, probably due to the aforementioned restrictions placed on the access of mutual societies to reinsurance. Since those included in the sample operate with the same risk calculation principles as their stock counterparts, the “mutual effect” would be partially mitigated. Consequently, we drop both nationality and organizational form from the model in the next section.

23. Kader *et al.* (2010), p. 279, found similar results in their study, and attribute them to the inclination of companies to reinsure in order to protect their liquid assets.

Regarding the rest of the variables, we focus on the features of dependent reinsurers and primary insurers inside corporate groups (DEP and HQ). Indeed, the positive and statistically significant relationship between these variables and the Reinsurance ratio, in the case of HQ companies, and with Leverage and Loss ratio, in both cases, could indicate the following. First, companies acting as the head of a corporate group would face higher levels of leverage and loss ratio which, in turn, would result in a higher inclination to reinsure. Second, dependent reinsurers would have to face higher levels of financial leverage and loss ratios, since they had to assume the risks ceded by their mother companies instead of designing a sound risk portfolio. As a result, dependent reinsurers would act as the alleviators of the financial distress of their owners. However, we do not find any statistically significant evidence of a higher inclination of these dependent companies to retain risks (that is, an aversion to purchase reinsurance). Finally, we find that the country-level variables show quite different results: while the exchange rate with the dollar shows a significant and negative correlation (as expected) with reinsurance, the GDP growth rate shows no relationship with reinsurance practices, which could be attributed to the restrictive regulatory environment of the market.

Corporate responses to regulatory change: Reinsurance determinants in an isolated economy

To address the impact of regulatory changes on the financial balance and actuarial performance of the Spanish insurance industry, we utilize a panel data regression analysis, testing for the determinants of reinsurance through the period of study. To examine these interactions, we seek to estimate the following equation:

$$REIN_{it} = \alpha + \sum \beta X_{it} + \beta Y_i + \beta U_t + \varepsilon_{it}$$

where $REIN_{it}$ is the rate of reinsurance of company i in year t ; X_{it} is the vector of firm-specific variables including Size, Loss ratio, Leverage, Liquidity and Profitability of company i in year t ; Y_i is the vector of firm-specific variables defining the role of company i , namely: Pure reinsurer (PURE), dependent reinsurer (DEP) or head of a corporate group (HQ). Finally, to control for country-level variations, we insert the vector U_t including the exchange rate of the peseta with the US Dollar.

Since a relevant set of our explanatory variables (the company's condition of affiliated or non-affiliated and its role within a corporate group) are time

invariant, we run the specification tests in order to identify if a random-effects model may be used instead of a fixed-effects one. A Hausman test was conducted to assess unobserved heterogeneity. As the test was not statistically significant ($p\text{-value} > 0.10$), we assume that unobserved influences among firm-specific variables are unimportant and a random-effects model is appropriate. To deal with the problems of multicollinearity among firm-specific variables, we use Size as an instrumental variable capturing most of the variations of the set (see Appendix A1). In parallel, as we try to explain the impact of regulation on reinsurance practices, we run different models for the whole period 1944-1953. Then we introduce the period 1944-1945, in which the restrictions on international reinsurance flows were not in force (we have not included the 1952-1953 period of re-liberalization, because the low number of observations did not allow statistically significant results to be obtained from the model). Finally, we examine reinsurance determinants during the period of tight regulation and control on foreign reinsurance operations, that is: the years 1946-1951.

Table 5 displays the determinants of reinsurance demand, including firm-specific indicators and the role of the company as explanatory variables. As shown in the table, the random-effects models confirm the negative impact of the exchange rate of the peseta on reinsurance purchases. At the same time, the coefficients underline the relevance of corporate networks in the design of reinsurance strategies. Certainly, while the condition of being a specialist reinsurer (PURE) shows a diverse effect on the inclination to cede risks, companies acting as the head office of a corporate group (HQ) were systematically more prone to reinsure. Moreover, this preference would be especially strong during the period in which restrictions to accessing international reinsurance networks were in force. At the same time, those dependent or subsidiary reinsurers within corporate groups also showed a particular behavior in their risk management strategies. In this case, subsidiary companies owned by the heads of corporate groups were significantly less prone to reinsure, that is: they were systematically oriented to retain the risks accepted instead of ceding them. Furthermore, comparing the coefficients for the different models, we see that this systematic preference to retain risks would be significantly higher during the years 1946-1951, when the controls on reinsurance flows were tighter (see Equations 5 and 6). In this way, and beyond firm-specific conditions, the role of the company accounted for around 20 percent of purchases of reinsurance services by head offices; in the case of subsidiary companies, the condition of dependent reinsurer determines between 11 and 21 percent of reinsurance decisions. The contrast with the fixed-effect aggregated term by corporate role confirms this impact: Appendix A2 shows 19% lower reinsurance ratio for dependent companies compared to the rest of the sample.

TABLE 5 ▪ *Determinants of reinsurance in the Spanish insurance industry. Random-effects linear regression models (1944-1953)*

| | 1944–53 | | 1944–45 | | 1946–51 | |
|-----------------------|-----------------------|-----------------------|----------------------|---------------------|-----------------------|-----------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| PURE | 4.748 (3.621) | 5.774 (4.183) | -1.292 (5.210) | -5.855 (6.194) | 9.569** (5.005) | 11.292** (5.096) |
| HQ | 7.465*** (2.912) | 7.718*** (3.269) | 0.674 (4.596) | 0.351 (4.999) | 10.651*** (3.774) | 11.351** (3.798) |
| DEP | -16.305*** (3.747) | -16.036*** (3.994) | -12.504** (5.983) | -11.008* (6.565) | -21.519*** (5.149) | -22.221*** (5.170) |
| EXCH_US | -0.117* (0.066) | -0.119* (0.072) | -0.016** (0.002) | 0.571 (0.390) | -0.133** (0.098) | -0.179 (0.119) |
| SIZE | 1.073* (0.615) | 0.072 (4.085) | 2.187** (1.083) | 9.345*** (3.453) | -1.142 (0.760) | -5.030 (4.626) |
| LEV | -0.003 (0.082) | - - | 0.132 (0.356) | - - | 0.015 (0.082) | - - |
| LOSS | -0.066** (0.029) | - - | -0.006 (0.041) | - - | -0.022 (0.044) | - - |
| LIQ | 0.001 (0.002) | - - | -0.001 (0.003) | - - | 0.002 (0.002) | - - |
| PROFIT | -0.001 (0.002) | - - | 0.352** (0.139) | - - | -0.001 0.002 | - - |
| Const. | 33.052*** 9.633 | 54.306 (59.091) | 4.434 (17.841) | -99.371 (52.293) | 50.481*** (12.059) | 106.415 (67.342) |
| R ² within | 0.022 | 0.004 | 0.075 | 0.038 | 0.034 | 0.017 |
| between | 0.113 | 0.115 | 0.114 | 0.061 | 0.145 | 0.120 |
| overall | 0.097 | 0.083 | 0.088 | 0.056 | 0.137 | 0.085 |
| N. of obs. | 816 | | 245 | | 478 | |

*p-values in parentheses. *** p<0.01, **p<0.05, *p<0.1*

Note: Models (2), (4), and (6) use SIZE as an instrumental variable.

Source: Boletín Oficial de Seguros y Ahorro, 1945-1951; Revista del Sindicato Nacional del Seguro, 1943-1954; Anuario Español de Seguros, 1946, 1948, 1952-1954; Anuario Financiero y de Sociedades Anónimas de España, 1945, 1949, 1954.

In parallel, the explanatory power of the firm-specific financial indicators remains insignificant when we take the whole set of variables. Indeed, only Size shows explanatory power for reinsurance, since it seems to serve as a catchall variable for the rest of the firm-specific indicators. As expected, Size shows a substantial and positive effect on reinsurance purchases during the

period 1944-45; however, when we examine its performance after the change in the regulatory environment, it seems to lose its explanatory power for reinsurance practices.

All the above would be in accordance with the hypothesis of a network of captives serving as preferential reinsurers for the head of the corporate groups. Therefore, regulatory restrictions on accessing foreign reinsurance would lead primary insurers to constitute their own channels of risk diversification. In this scheme, dependent or subsidiary reinsurers would have to assume and retain those risks that could not be spread abroad because of barriers to purchasing foreign reinsurance. Moreover, this could be explained as a systemic function in which dependent reinsurers accepted the risks of their head offices as a way to alleviate the financial and actuarial distress of their owners. Furthermore, we could affirm that, when leading primary insurers such as La Unión y el Fénix Español, La Equitativa, Mutua General de Seguros or Bilbao, constituted dependent companies as corporate reinsurers (such as Compañía Española de Reaseguros-CERSA, Minerva, CRESA, La Constancia, La Equitativa Hispanoamericana or Guipúzcoa Reaseguros) they created the densest network of captive reinsurance companies in Europe, as an alternative to sharing their risks and their portfolio information with the regulatory agencies.²⁴

The link with these captive reinsurers was either established through a direct ownership relationship or by means of the personal proprietorship of company managers. In this way, these reinsurers were exploited not only as a mechanism to obtain reinsurance services, but also to earn additional profits through commissions on ceded reinsurance, on top of the surpluses generated by the reinsurers. However, the trends of liberalization initiated in 1952 alleviated the tight control of the IEME over the foreign exchange market. In this new context, interest in these subsidiary reinsurers was modified: the opening up of the international reinsurance industry made it easier to access wider risk diversification networks, while national dependent reinsurers appeared to be financially exhausted due to the managerial strategies implemented by their owners (Pons, 2015, pp. 211-212; Gutiérrez, 2017, p. 284). Consequently, the interest of primary insurers in the reinsurance business became insignificant, and they returned to the international risk exchange networks.

We have confirmed this process in several cases. The managers of the market leader, La Unión y el Fénix, planned the creation of a dependent reinsurer in a meeting of the board of directors on February 23, 1940. Concerns about possible changes to the regulation of the foreign exchange market and

24. Although the concept of captive reinsurer is applied in a strict sense to the management trend initiated in the 1950s, Gerathewohl (1993) identified several examples of dependent reinsurers since the 1850s.

their effects on the company's reinsurance business in the French market led the board to anticipate events and to constitute a pure reinsurer devoted to providing the mother office with risk spreading services. The drafting of statutes and procedures to register the new company were accelerated in the following months, and CERSA started its operations in 1941.²⁵

Corporate control of subsidiary reinsurers became a key issue for Spanish insurers in the 1940s. When the group La Equitativa (Fundación Rosillo) had to face the family conflict between its founders in 1944, access to reinsurance services was one of the main concerns of the managers, since the corporate reinsurers, La Equitativa Reaseguros, split from the group.²⁶ Indeed, after the separation of the group, Miguel Rosillo received the life insurance company La Equitativa, Fernando received the property-casualty insurer La Equitativa Riesgos Diversos, and Fermín took the reinsurance company. Miguel and Fernando kept their companies acting as a group and, trying to rebuild the family corporation, they founded the reinsurer La Equitativa Hispano Americana, with a share capital of 5 million pesetas. This company was intended to provide the group's insurers with reinsurance services. The president of the company was Miguel Rosillo, while the vice-president was Fernando (Pons, 2007b, pp. 360-361).

Mutual societies were also involved in these practices. The case of Mutua General de Seguros is especially relevant because of the multiple and divergent interests involved in the creation of a subsidiary reinsurer. In fact, one of its subsidiaries, CRESA, was created in 1942 and registered as a reinsurer in 1943. In 1944, it was acquired by the members of Mutua General's board of directors. Although during its first years it concentrated on reinsuring a large part of Mutua General's fire business, in 1947 it was registered as a primary insurer in order to initiate a line of business based on coinsurance. In fact, coinsurance treaties in non-life branches were signed with Mutua General: with a 10 percent share for CRESA and 90 percent for Mutua, the company alleviated its demand for reinsurance.

Following this unusual strategy performed with CRESA, in 1948 Mutua General's management board decided to purchase a relevant share of Compañía General de Reaseguros (REASE). In this case, Mutua's main goal was to gain direct access to reinsurance services for its own portfolio, but also to make profit on the business of reinsurance itself, since mutual societies were not allowed to accept reinsurance premiums. Subsequent to the acquisition of a share of REASE's capital, the mutual society enjoyed beneficial treatment which can be confirmed in the company's reinsurance treaties. For ex-

25. Book of Minutes of the Board of Administration of La Unión y El Fénix, 27 January 1940, 17 May 1940 and 28 January 1941.

26. See Pons (2007b) for a concise history of the group and its evolution until 1960.

ample, the agreement signed in Barcelona on November 9, 1953, established a surplus reinsurance treaty under which Mutua would cede all its surpluses to REASE. One of the major features of the agreement was that Mutua retained the right to choose the potential reinsurers to which REASE could retrocede reinsured risks. In parallel, Mutua would receive 25 percent of the profits generated by these retrocessions. As a result of these onerous conditions, Mutua's relationship with its subsidiary remained completely asymmetrical: although the reinsurer served as an extraordinary source of profits for the mutual society, Mutua imposed spurious interests on REASE's management, which led to a decline in its financial position.

With these practices, Mutua achieved several objectives: first, it overcame the institutional barriers to accessing foreign reinsurance introduced under the autarky; second, as a mutual society, it gained indirect access in quite beneficial conditions to a line of insurance, the reinsurance business, from which it was legally excluded. Nevertheless, the new institutional trend of liberalization in the 1950s and the financial distress faced by REASE forced the decision to get rid of the reinsurer. In 1955, Mutua's board of directors decided to cancel the agreements with the reinsurer and sign new reinsurance treaties with the British Royal Insurance. Finally, the public regulator of the insurance business, the Dirección General de Banca, Bolsa e Inversiones, ordered the dissolution of REASE in 1959, given that its balance losses exceeded 50 percent of share capital.²⁷

Conclusions

As with other fields of the financial industry, insurance and risk management services are extremely sensitive to regulatory changes. Restrictions on accessing international risk exchange networks cause profound changes to both the actuarial and financial performance of the insurance industry and the management strategies implemented by firms. These modifications, which affect the capacity of the overall economy to manage the risks arising from economic growth, become structural in those countries dependent on global insurance and reinsurance networks.

In the case of Spain, the convergence of domestic shortcomings with global events at the beginning of the 1940s triggered the transformation of the insurance industry. The changes to the global marine insurance market from the outbreak of the Second World War, Spain's non-belligerency and the

27. Archivo Mutua General de Seguros, REASE files. "Documento convenio entre Compañía General de Reaseguros, S.A. y sus acreedores". 12 November 1959, and Carta del Ministerio de Hacienda, Junta Consultivo de Seguros a la Compañía General de Reaseguros, S.A., 27 January 1959.

financial shortcomings of Spanish insurers after the Civil War boosted the demand for foreign reinsurance by domestic companies. Nevertheless, this trend, which had been a structural feature of the Spanish insurance industry, was interrupted by the interferences of the Franco dictatorship and its autarkic orientation. Indeed, regulatory restrictions on the access to foreign currencies and the breakdown of the principle of confidentiality of reinsurance treaties posed additional costs to accessing foreign reinsurance networks.

Although Spanish insurers had relied heavily on the international reinsurance industry to manage their growth for decades, when access to those financial services was blocked by regulatory restrictions, they had to seek alternate tools to implement their risk management strategies. In this scenario, primary insurers created subsidiary and dependent reinsurers devoted to providing risk diversification services to the main corporate groups. Moreover, these dependent reinsurers actually served as a substitute for international risk exchange networks. According to the empirical results, the flows of risk exchange within corporate groups played a key role in maintaining the underwriting capacity of Spanish insurers and served as a device to deal with unexpected losses. As hypothesized, the role of the company as a group leader or as a dependent reinsurer showed high explanatory power for reinsurance strategies. We certainly find that the design of risk management strategies relied heavily on membership of these corporate groups and the role assumed therein.

As we have illustrated in specific cases, among the leaders of the market, both stock companies and mutual societies used these strategies. Indeed, corporate groups headed by La Unión y el Fénix, La Equitativa (Fundación Rosillo) and Mutua General de Seguros resorted to dependent reinsurers to overcome the blockade against foreign reinsurance. Furthermore, while group leaders used these circumstances to obtain extraordinary profits from a closed market, the practices imposed on those dependent reinsurers made them financially weak and extremely leveraged. Consequently, when the regulatory restrictions to reinsure abroad were lifted, foreign reinsurers recaptured the Spanish market.

From a macroeconomic viewpoint, our analysis shows that this dynamic entailed a temporary breakdown of the structural effects of reinsurance in Spain's international position. While the use of foreign reinsurance for the first third of the twentieth century had exacerbated the deficits of the balance of payments due to importing services, regulatory restrictions forced the Spanish insurance industry to work without foreign financial assistance. Moreover, by working as an imperfect substitute for capital, the provision of reinsurance services by dependent companies helped Spanish insurers to deal with the problems deriving from the post-Civil War recession and the subsequent stagnation during a period of international isolation.

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Appendix

A1 ▪ Variable SIZE as dependent of the rest of firm-specific variables. Random-effects and fixed-effects models

| | Fixed-effects model | Random-effects model |
|----------------|----------------------|----------------------|
| LEVERAGE | 0.033*** (0.007) | 0.030*** (0.006) |
| PROFIT | 0.087*** (0.010) | 0.075*** (0.009) |
| LIQUID | -0.002*** (0.000) | -0.002*** (0.000) |
| LOSS | 0.001 (0.002) | 0.001 (0.002) |
| Const. | 14.301*** (0.154) | 14.551*** (0.137) |
| R ² | | |
| within | 0.232 | 0.230 |
| between | 0.104 | 0.110 |
| overall | 0.175 | 0.176 |

*p-values in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$*

Source: Boletín Oficial de Seguros y Ahorro, 1945-1951; Revista del Sindicato Nacional del Seguro, 1943-1954; Anuario Español de Seguros, 1946, 1948, 1952-1954; Anuario Financiero y de Sociedades Anónimas de España, 1945, 1949, 1954.

A2 ▪ T-test on fixed effects term by functional roles within corporate groups (Dependent companies)

| | N | Mean (Standard Error) |
|------------|-------------------|-----------------------|
| DEP = 0 | 638 | 4.180 (0.656) |
| DEP = 1 | 178 | -14.982 (1.193) |
| Combined | 816 | 0.000 (0.638) |
| t = 13.755 | P (T > t) = 0.000 | Diff. |
| | | 19.162 (1.393) |

Boletín Oficial de Seguros y Ahorro, 1945-1951; Revista del Sindicato Nacional del Seguro, 1943-1954; Anuario Español de Seguros, 1946, 1948, 1952-1954; Anuario Financiero y de Sociedades Anónimas de España, 1945, 1949, 1954.



Risk management regulation and corporate demand for reinsurance in the Spanish Autarky (1940-1952)

ABSTRACT

This paper examines the changes to reinsurance regulation implemented during the Spanish autarky to analyze how the restriction of imports of financial services affects the performance of the insurance and risk management industry. We build a novel dataset on domestic insurers and reinsurers to identify the effects of the barriers to purchasing foreign reinsurance on corporate strategies and ultimately, on the determinants of reinsurance demand. We find that, in spite of a chronic dependence on foreign risk exchange networks, Spanish insurers faced this period of isolation by means of an intensive use of captive reinsurance. This strategy helped to alleviate financial distress and resulted in the substitution of foreign reinsurers by domestic companies, as far as the restrictive regulation was in force.

KEYWORDS: insurance, risk management, reinsurance, regulation, Spain

JEL CODES: G22, G32, N14, N24, N44



La regulación de la gestión de riesgos y la demanda empresarial de reaseguro en la Autarquía española (1940-1952)

RESUMEN

Este artículo examina los cambios en la regulación del reaseguro implementados durante la Autarquía en España, con el objetivo de analizar cómo la restricción a las importaciones de servicios financieros afecta al funcionamiento del sector del seguro y de la gestión de riesgos. A través de una nueva base de datos de aseguradores y reaseguradores españoles, indagamos en la naturaleza de las barreras impuestas al acceso al reaseguro extranjero, en sus efectos en las estrategias corporativas y, en definitiva, en los determinantes de la demanda de reaseguro. Encontramos que, a pesar de la dependencia crónica del seguro español de las redes internacionales de intercambio de riesgos, las compañías españolas afrontaron este período de aislamiento mediante el uso intensivo de reaseguradoras cautivas. Esta estrategia contribuyó a aliviar los desequilibrios financieros del sector y a la sustitución de reaseguradores extranjeros por compañías nacionales, al menos mientras la regulación restrictiva se mantuvo en vigor.

PALABRAS CLAVE: Seguro, Gestión de riesgos, Reaseguro, Regulación, España

CÓDIGOS JEL: G22, G32, N14, N24, N44



La regulació de la gestió de riscos i la demanda empresarial de reassegurança durant l'Autarquia espanyola (1940-1952)

RESUM

Aquest article examina els canvis en la regulació de la reassegurança implementats a Espanya durant l'autarquia, amb l'objectiu de demostrar que la restricció de les importacions de serveis financers afectà el funcionament del sector de l'assegurança i la gestió de riscos. Mitjançant una nova base de dades d'asseguradors i reasseguradors espanyols, s'indaga en la naturalesa de les barreres imposades en l'accés a la reassegurança estrangera, en els seus efectes en les estratègies corporatives i, en definitiva, en els determinants de la demanda de reassegurança. Malgrat la dependència crònica de l'assegurança espanyola de les xarxes internacionals d'intercanvi de riscos, les companyies espanyoles afrontaren aquest període d'aïllament amb l'ús intensiu de reasseguradores captives. Aquesta estratègia contribuï a alleugerir els desequilibris financers del sector i a substituir reasseguradors estrangers per companyies nacionals, si més no mentre la regulació restrictiva es mantingué en vigor.

PARAULES CLAU: assegurança; gestió de riscos; reassegurança; regulació; Espanya

CODIS JEL: G22; G32; N14; N24; N44