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Reihe Ökonomie

Economics Series

The Austrian Insurance Industry:
A Structure, Conduct and Performance Analysis

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Founded in 1963 by two prominent Austrians living in exile – the sociologist Paul F. Lazarsfeld and the economist Oskar Morgenstern – with the financial support from the Ford Foundation, the Austrian Federal Ministry of Education and the City of Vienna, the Institute for Advanced Studies (IHS) is the first institution for postgraduate education and research in economics and the social sciences in Austria. The **Economics Series** presents research done at the Department of Economics and Finance and aims to share "work in progress" in a timely way before formal publication. As usual, authors bear full responsibility for the content of their contributions.

Das Institut für Höhere Studien (IHS) wurde im Jahr 1963 von zwei prominenten Exilösterreichern – dem Soziologen Paul F. Lazarsfeld und dem Ökonomen Oskar Morgenstern – mit Hilfe der Ford-Stiftung, des Österreichischen Bundesministeriums für Unterricht und der Stadt Wien gegründet und ist somit die erste nachuniversitäre Lehr- und Forschungsstätte für die Sozial- und Wirtschafts-wissenschaften in Österreich. Die **Reihe Ökonomie** bietet Einblick in die Forschungsarbeit der Abteilung für Ökonomie und Finanzwirtschaft und verfolgt das Ziel, abteilungsinterne Diskussionsbeiträge einer breiteren fachinternen Öffentlichkeit zugänglich zu machen. Die inhaltliche Verantwortung für die veröffentlichten Beiträge liegt bei den Autoren und Autorinnen.

Abstract

There exist a vast number of studies on the banking industry. However, the insurance industry remains relatively unexplored. Increasingly, Austrian insurance institutions are becoming important as financial intermediaries in the domestic market, and – based on proximity advantage – also in the Central and Eastern European markets. This paper applies the structure, conduct and performance (SCP) approach to a sample of 52 Austrian insurance firms. The main finding is that the standard SCP hypothesis of highly concentrated markets, which create incentives to engage in collusive behaviour and which in turn leads to higher industry profit rates, cannot be supported by the Austrian insurance industry. leads to higher industry profit rates, cannot be supported by the Austrian insurance industry.

Keywords

Insurance industry; market structure, conduct and performance, industrial organisation

JEL Classification

G22, L1

Contents

1. Introduction

The evolution of certain financial intermediaries–especially, in the industrialized countries–classified as non-bank financial institutions[1] or other financial institutions[2] (OFIs), are increasingly augmenting the traditional roles of banks. Amongst them are the insurance company (with its two variants the life insurance and the property and loss insurance company), pension funds, finance companies, investment companies, venture capital funds, and several security market institutions (investment banks, security brokers and dealers, stock exchanges). These institutions constitute the non-deposit-taking[3] branch of a financial system. Whereas banks take deposits from numerous lenders and provide loans to borrowers[4], non-bank financial institutions do not receive their funds as deposits but they provide a wider range of services[5] as compared to banks. Thus, they differ from banks in the way they receive their funds (i.e., there are no loans on the passive side of the balance sheet) and have a distinct assets structure that optimally serves their purpose.

In the current study, we will concern ourselves with the Austrian insurance industry. Progressively, Austrian insurance institutions are becoming important as financial intermediaries in the domestic market, and—based on proximity advantage—also in the Central and Eastern European (CEE) markets. North (1993) and Rodrik (1997) argue that institutions matter in smoothing the path of globalisation. For that reason and from the point of view of the leading role that Austrian firms play as financial intermediaries in integrating the CEECs, first into the European Union and second, into the global economy, it is noteworthy to gain insights into the functioning of the Austrian insurance industry and how its behaviour might be influenced by competition and regulatory policies to the benefit of society.

We examine the structure-conduct-performance (SCP) relationship of Austrian insurance companies. This standard approach used in industrial economics establishes a relationship between the structure of an industry[6], firm behavior within this industry and the market's performance. Most empirical studies solely estimate the relationship between structure and performance for the fact that there appears to be a positive relationship between concentration and profitability[7]. Thus, when a few dominant

[1] Another denomination is non-bank financial intermediary (NBFI).
[2] http://www.ecb.int/home/glossary/html/glosso.en.html
[3] Goacher, Curwen, Apps, Cowdell, Boocok, and Drake, (1987, p. 24 and 27) Finance companies, however, are deposit takers but are still classified as a non-bank financial institution.
[4] Fama (1980, p. 39, 42, 44) argues that banks transfer wealth by holding a portfolio of accounts operating through debits and credits. A bank's main output is the loan service. Non-bank financial institutions constitute an increasing competition in that industry in recent years because the market is demanding for alternatives.
[5] Lee (1966, p. 442) Despite their differences the basic functioning of both, banks and non-bank financial intermediaries is similar: they both issue debt (securities) and use the proceeds to grant credits.
[6] In the SCP framework, industry and market are used equivalently (see for example Curry and George 1983, p. 213). Our approach in general is to establish an economic definition of the tasks a firm within a given industry has to perform in order to be qualified to belong to that particular industry and then gather information form various sources to include all relevant firms into the sample.
[7] Molyneux and Forbes (1995) find a positive performance-concentration relationship in the European banking market, Mann (1966) finds a higher return in the group of industries with a concentration of greater then 70%, Amir (2000, p. 23), however, does not find a clear correlation between concentration and profitability.

firms produce an industry's output, firms should be able to yield higher rates of return in the long run (Mann, 1966, p. 296). The incumbent's ability to earn and sustain such higher returns depends on an industry's entry barriers. Berger (1995, p. 404, 429) explains this positive concentration-profit relationship by two alternative hypotheses: First, the relative market power hypothesis states that only large, well-diversified firms can earn higher profits. Alternatively, abnormal returns may be explained by superior management and production technology. We test whether the causal relationship of high concentration leads to incentives to collude and thus attain higher profitability.

The remainder of the study is organized as follows: Section 2 highlights the status quo of the Austrian insurance institutions and draws attention to the increasing attractiveness of Central and Eastern European (CEE) markets. Section 3 expounds the data and methodology. Section 4 presents and interprets the results, whilst section 5 concludes the study.

2. The Austrian insurance industry

2.1 Overview

In Austria, the insurance sector is divided into three branches[8], instead of the conceptual two. These are personal insurance, property insurance and liability insurance. Personal insurance covers life insurance, health insurance and casualty insurance. Property insurance insures the risk of owning property, which basically means that it covers losses due to fire, theft, malpractice, earthquake, automobile accidents, and other hazards (Fabozzi and Modigliani 1996, p. 76-78). Liability insurance insures against future expected costs, shortfall in revenue or costs arising from litigation. Another classification divides insurance contracts into life insurance and property and casualty insurance (non-life insurance). This classification is the most common in the academic literature[9] and that which will be adopted in the current study. Thus, in the following the study will adopt the division between life insurance companies and property and casualty insurance companies (or non-life insurance sector).

There are significant differences between life insurance and property and casualty insurance. In the case of a life insurance contract, the event triggering the payment can be the death of the income generating part of the family or retirement. Events[10] leading to a payout in the case of a property and casualty insurance are much more diverse. As a result, the two branches differ in the certainty with which the occurrence of the events can be predicted. For instance, by means of actuarial data[11] it is easier to predict a person's life expectancy than the probability of a car being involved in an accident.

[8] „Die Versicherung und ihre einzelnen Sparten", p.8

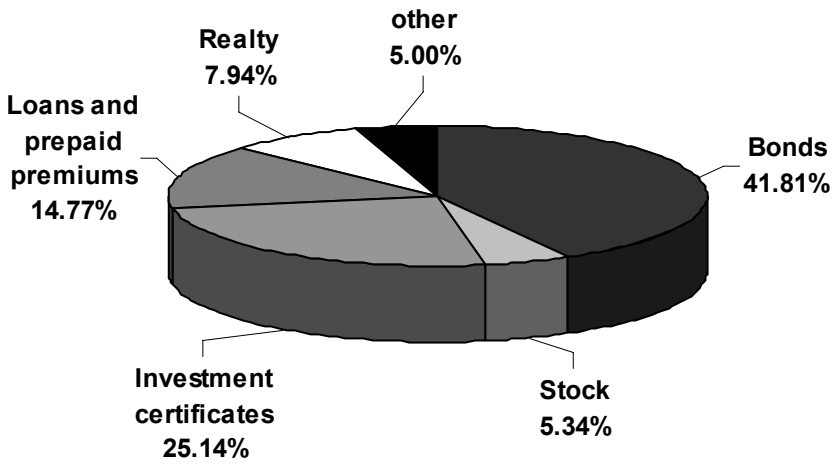
[9] See for example Saunders (1997), Mishkin and Eakins (2000), Mishkin (2001) or Fabozzi and Modogliani (2003). See also Joskow (1973, p. 378).

[10] A detailed description can be found in Ennsfellner and Gassner-Möstl (2000, p. 93-348) where the most important types of insurance are described on p. 96-99, 112, 118, 130, and 159.

[11] The Austrian Statistical Society (Statistik Austria) publishes mortality tables (Sterbetafeln) indicating the development of life expectancies for each year of birth divided by men and women.

Insurance institutions can be organized as stock companies or as mutual insurance association[12], meaning that they are owned by the policyholders. The asset allocation of the Austrian insurance sector is shown in Figure 1. As can be seen in the figure, insurance companies have chosen a very conservative investment strategy with bonds, investment certificates (shares in a mutual fund) and loans amounting to roughly 80 % of assets.

Figure 1: The asset allocation of Austrian insurance companies



Source: Finanzmarktbericht 2003, p. 95.

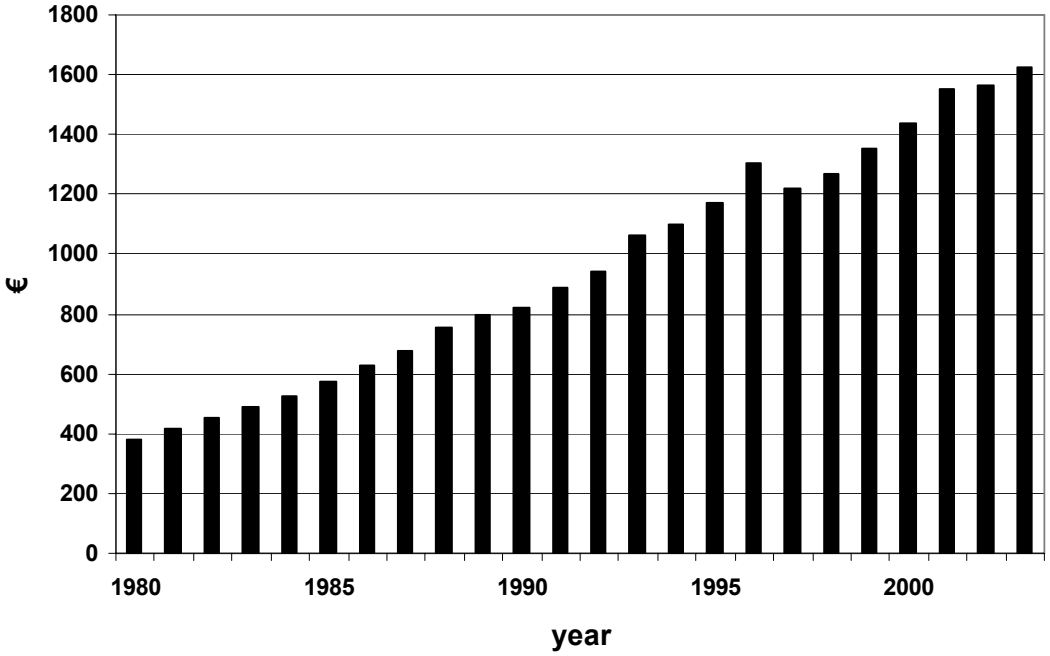
In order to reduce a company's risk exposure several insurance companies may join and write a reinsurance contract[13], which enables one company to get rid of some risk in exchange for parts of the premium. This mainly is relevant for small firms.

2.2 The increasing importance of the Austrian insurance institutions

Characteristics of the insurance industry can be examined by means of several indicators. One such indicator is the insurance density, which is a measure of sophistication of a country's insurance sector. It is defined as the premiums paid per capita. Since 1980 the insurance density pertaining to Austria has increased steadily, except for a slack in the year 1996 (see Figure 2).

[12] According to § 26 VAG.
[13] Johnson (1977, p. 56) who states that "…reinsurance is nothing more than insurance for insurers."

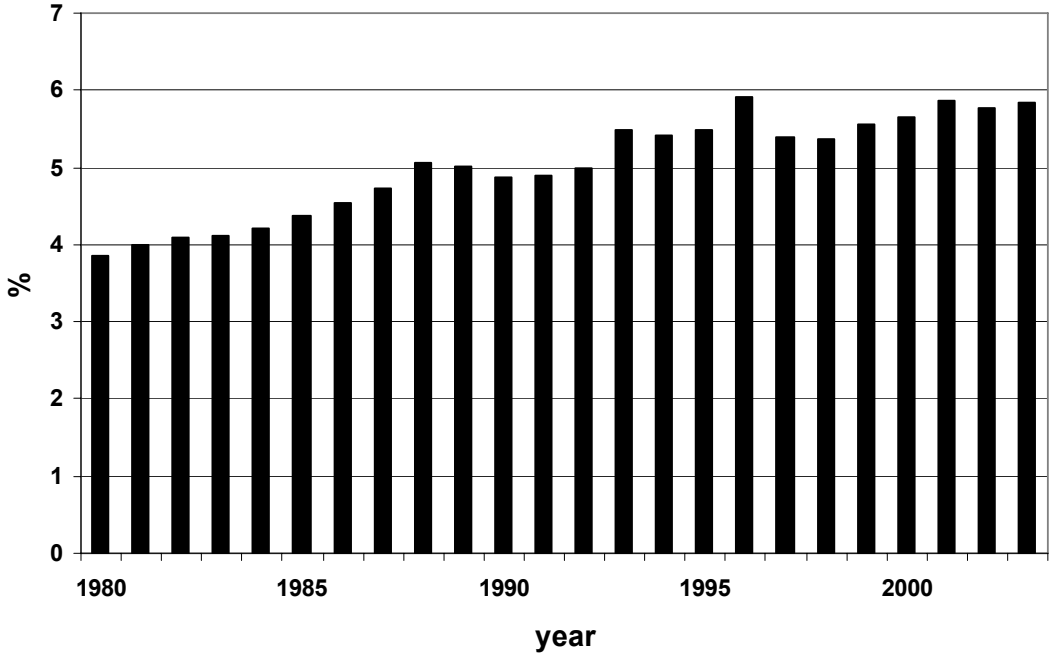
Figure 2: Track series of Austria's insurance density



Source: www.vvo.at (Wirtschaftsverband Österreich)

From Figure 3, however, the insurance pervasion which is the ratio of the premiums paid to a country's gross domestic product (GDP), shows a less volatile pattern than the insurance density. The insurance pervasion has been fluctuating within the last 23 years, reaching an all time high of 5.87 in 1996 to then oscillate between values of 5.36 and 5.87 in the late nineties and early 2000.

Figure 3: Track series of Austria's insurance pervasion



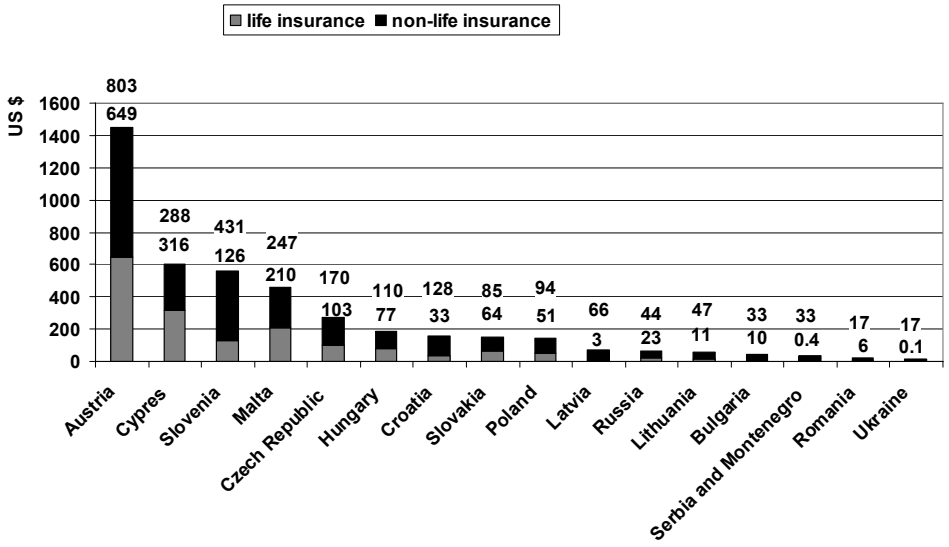
Source: www.vvo.at (Wirtschaftsverband Österreich)

There are other indicators that are also useful in interpreting growth trends of the Austrian insurance market. One such indicator is the amount of investment in insurance contracts. Investments in Austrian insurance contracts have increased by 36 % over the past 5 years. The premiums paid in the year 2003 increased by 4.1 % as opposed to the year before[14]. These developments are clear indications that the industry is booming.

2.3 Austrian insurance institutions and Central and Eastern Europe

The CEE countries represent a high profit potential outlet for Austrian insurance companies. Referring to Figure 4, Austria's insurance density exceeds those of all the ten new EU member countries in addition to some other eastern European countries such as Russia or Romania with the implication that there exists an enormous potential to be exploited in these markets by Austrian insurance companies. The undeveloped nature of the insurance market in these former communist countries, combined with their rapid economic growth trends could provide Austrian insurance companies with a first mover advantage. Certainly, Austria's geographical proximity to this region by no means provides an additional advantage for expansion into those markets.

Figure 4: The insurance density of various CEE countries



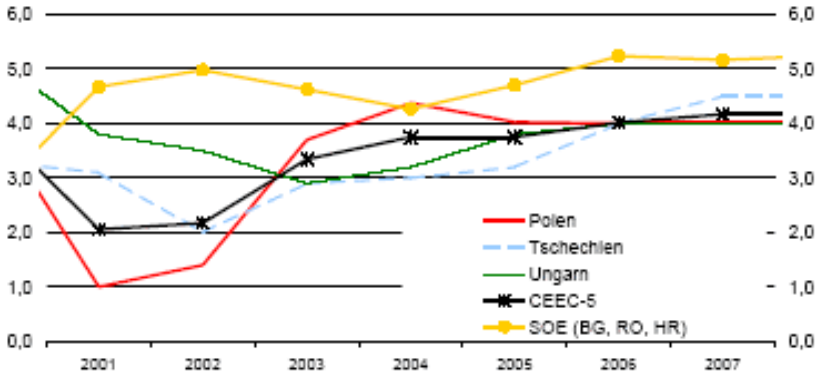
Source: Gewinn extra: "Wirtschaftsatlas Österreich im Zentrum der EU Erweiterung"

Other economic developments also help to explain the region's high potential. For example, the premiums paid for insurance contracts have been growing at 13.9 % on the average in the new EU member countries as opposed to 8.2 % in the former EU-15. Poland is said to bear the highest potential in the life insurance sector since it accounts for almost half of the market of the new EU member countries. Traditionally, Austrian companies are very much involved in their neighbouring countries such as Hungary, the Czech Republic and Slovakia[15].

[14] "Finanzmarktbericht 2003"
[15] "Gewinn extra: Wirtschaftsatlas Österreich im Zentrum der EU Erweiterung", 6e/04, Juni 2004

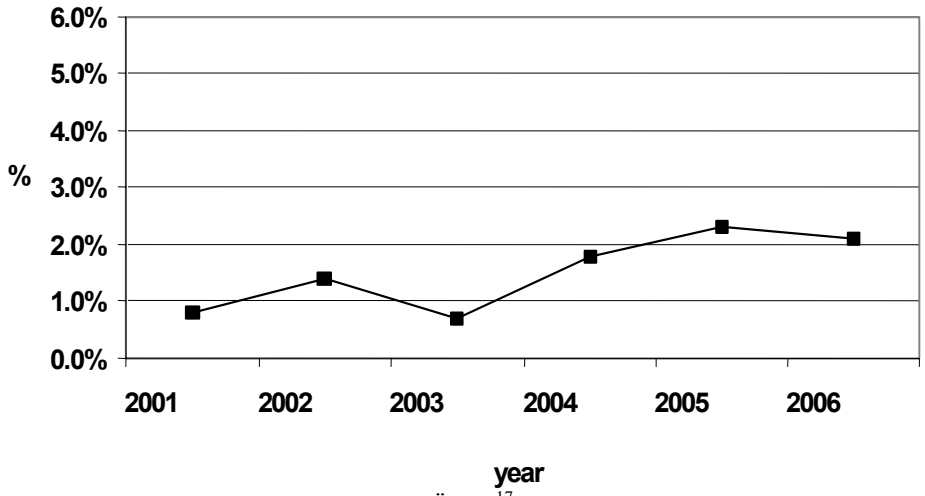
Basically, the economies of the CEE countries have been growing at a much faster rate than Austria's economy and this trend is expected to continue into the future as illustrated by Figures 5 and 6 below. Indeed, the region denoted as Central and Eastern Europe as well as Southern and Eastern Europe is expected to grow at rates well above 3 % p.a. which is two to three times the predicted growth rate for Austria. This offers bright prospects for Austrian companies.

Figure 5: Real GDP growth in CEE



SOE (Southern and Eastern Europe): Bulgaria, Romania, and Croatia

Figure 6: Austria's actual and forecasted GDP growth



Source: Oesterreichische Nationalbank (ÖNB)[17]

It is interesting to assess the extent to which foreign firms in general invest in assets of the CEE markets. An important indicator capturing this effect is foreign direct investment (FDI). Blanchard (2000, p. 470) defines FDI as the purchase of firms or the development of new plants by foreign firms. Table 1 presents FDIs of the various CEE countries, expressed as an absolute amount for the years 2001 through 2005. In addition, the table displays FDI as a percentage of GDP of those countries for the year 2003.

[16] Definitions according to a telephone conversation with Stefan Bruckbauer, deputy head of Konzernvolkswirtschaft, Bank Austria-Creditanstalt (BA-CA) on February 10th, 2005.
[17] For historical numbers see http://www.oenb.at/isaweb/report.do?&lang=DE&report=7.3 and for forecasts see http://www.oenb.at/isaweb/report.do?&lang=DE&report=7.2.1

Table 1: FDI in Central and Eastern Europe (mill. Euros)

Country	2001	2002		2003	2004	2005
Bosnia and Herzegowina	133	275	335	5,40%	310	320
Bulgaria	896	951	1235	7,02%	2000	1800
Croatia	1743	1188	1727	6,77%	850	1100
Czech Republic	6114	8791	2086	2,62%	3462	4811
Estonia	377	167	670	8,38%	540	510
Hungary	2303	2669	2320	3,17%	2500	2800
Latvia	126	265	235	2,40%	372	369
Lithuania	490	754	126	0,77%	700	640
Macedonia	492	82	83	2,02%	120	120
Poland	6373	4371	3760	2,06%	4090	4500
Romania	1312	1194	1590	3,16%	3000	2500
Russia	3423	3866	5243	1,37%	6800	4600
Serbia and Montenegro	184	594	1232	6,73%	600	1000
Slovakia	1674	4069	520	1,80%	1340	1780
Slovenia	251	1582	-115	-0,47%	200	400
Ukraine	858	732	1260	2,89%	1300	1200

Source: CEE Economics Data

The table reveals that FDI is quite low for most of the countries in 2003. For some countries, however, FDI amounted up to 5-8 % of GDP in 2003. FDI is expected to increase by 65 % on average from the year 2001 until the year 2005 for the whole region[18]. The table reveals the fact that most CEE countries have not yet succeeded in attracting foreign investors. In view of the highly predicted growth rates, firms from western European countries could gain a first mover advantage by investing in assets in the CEE region.

In addition, the economies of all the ten new member states have been boosted by their 2004 EU accession. A general trend that the new EU member countries are economically on an upswing can be observed[19]. This is a logical consequence of economic, social and political improvements that have had to be implemented in order to become full EU member states.

[18] "CEE Economic Data – Outlook for 2005"
[19] "CEE Report – Business Information on Central and Eastern Europe"

3. Methodology

3.1 The structure-conduct-performance approach

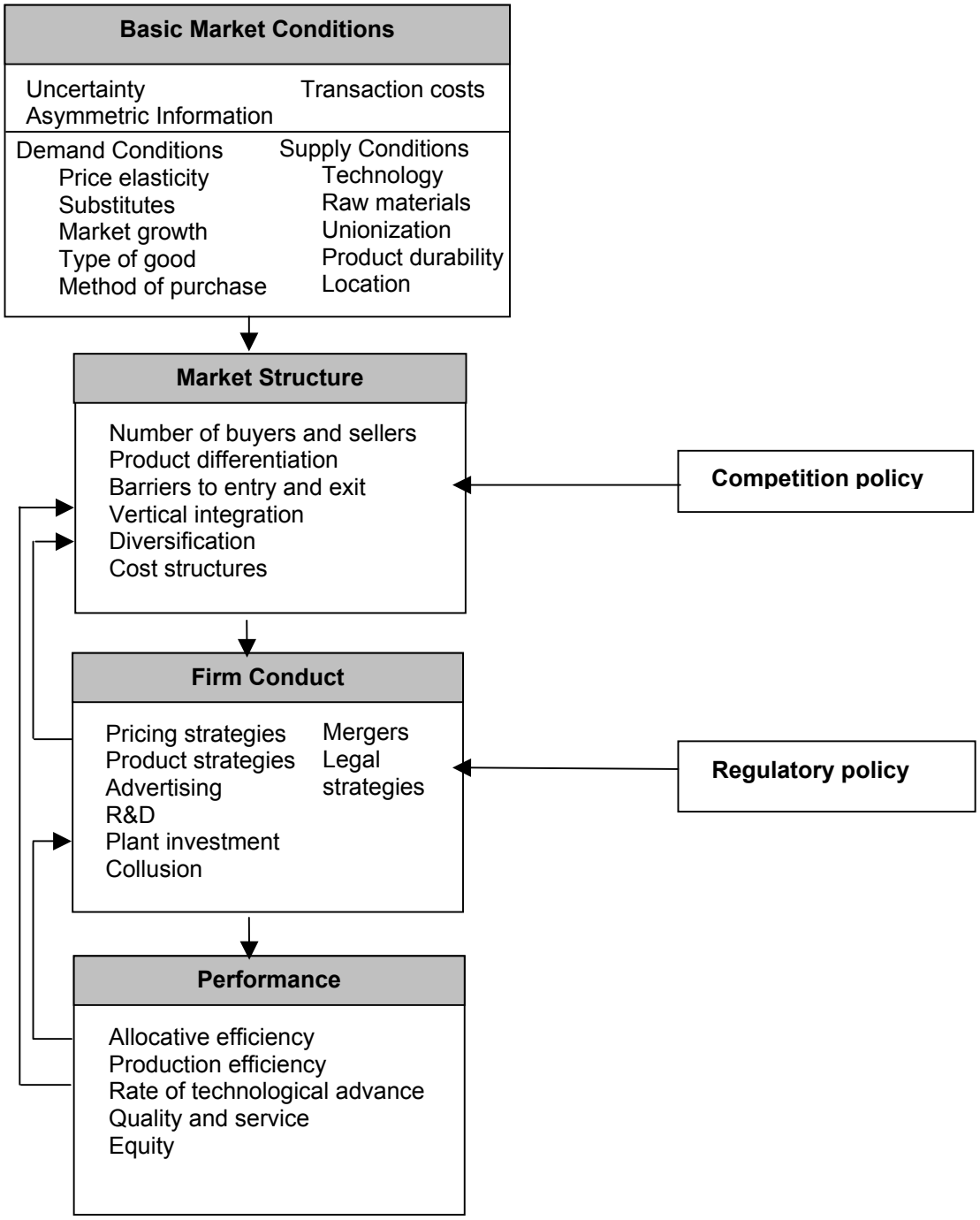
The structure-conduct-performance (SCP) approach[20] is a standard economics tool used in analysing industries. The approach establishes a causal relationship between industry structure, firm conduct and market performance. Empirically, the relationship between structure and performance is more easily observable (Carlton and Perloff, 2000). Typically, firm conduct is omitted from such analyses since measurement from given data poses severe problems.

Once the relationship has been established, the resultant information then can be used to set policy goals. In this context, Jerger (2004, p. 15) distinguishes between competition policy and regulatory policy. Competition policy attempts to influence industry structure while regulatory policy aims to alter the economic agent's conduct. Not all of the mentioned criteria will be useful in the current study, due to the fact that some are not applicable–to a large extent–to financial companies.

Prior to defining the structural, behavioural and performance variables, one has to analyse the basic demand and supply conditions of the insurance institutional sector. In addition, Neuberger (1997, p. 3,4) suggests that uncertainty, asymmetric information and transaction costs be examined as well, in order to help explain basic market conditions. The foregoing discussion is summarized in Figure 7 below.

[20] See for example Waldmann and Jensen (1998. p. 7).

Figure 7: The SCP Paradigm



Sources: Waldman and Jensen (1998, p. 7), Jerger (2004, p. 15) and Neuberger (1997, p. 3,4)

When preparing a SCP analysis one systematically goes through the following steps: first, a set of structural variables is selected and defined. Second, variables measuring firm conduct have to be identified. Finally, market performance measures have to be specified.

3.1.1 Defining the structural variables

A commonly used indicator is the market concentration ratio. It is defined as the accumulated percentage of market share[21] of the 4, 8, 10 (or some other number) largest firms in the industry. Usually, the 4-firm concentration ratio (CR4) is used (Scherer and Ross, 1990). Theory predicts high market power in terms of price setting ability if the CR4 has a high value. The explanation for a high value of the CR4 is that only a few firms account for the major share of economic activity in the market.

A measure closely related to the market concentration ratio is the Herfindahl Hirschmann Index (HH-Index). It is defined as the sum of the *i*th firm's squared market share considering all the market relevant firms. Clearly the weights assigned to big players in a market are relatively larger than for small firms. Formally, the HH-Index is expressed as:

$$HH - Index \quad = \quad \sum S_i^2 \qquad (1)$$

with S_i = market share of the *i*th firm.

The index can either be expressed in absolute terms or as a percentage. A high HH-Index indicates a few dominant firms with a large market share each. A low HH-Index infers a market consisting of a large amount of firms each with a small market share. These results are important in analysing the type of market structure (i.e., monopolistic competition, oligopoly or perfect competition).

A categorization for HH-Index values proposed by the European Commission on Competition Policy[22] foresees that a value below 1000 suggests a low market concentration, a value between 1000 and 1800 a medium concentration and a HH-Index of 1800 or above indicates a highly concentrated market.

It is argued that the HH-Index outperforms the concentration ratio[23] in terms of expressiveness. Results obtained by Kwoka (1979, p. 103), however, do not support this thesis. According to Hall and Tideman (1967), the most important axioms that a concentration measure should satisfy are as follows:

1. If one firm augments its market share with a resulting reduction of another firm's market share then the concentration should increase (principle of transfers)[24].
2. If entry of a new firm occurs concentration should decrease.
3. If mergers occur concentration should increase.

These axioms cannot be met by a measure like the concentration ratio that does not capture all the firms of an industry since changes outside the considered group of

[21] Curry (1983, p. 213) argues that revenues as a measure of market share are preferable for the analysis of firms within the same market and especially preferred over assets since these heavily depend on accounting rules. Unfortunately, It is not possible to consistently compute market share using revenues since in some cases only balance sheet data is available and therefore total assets have to taken.
[22] http://europa.eu.int/comm/competition/general_info/glossary_en.html
[23] Hall and Tideman (1967, p. 165) argue that the HH- Index is superior to the concentration ratio with respect to certain criteria which the most important ones have been presented in this section.
[24] See also Hall and Tideman (1967, p. 164).

firms are neglected[25]. Following Curry (1983, p. 207), on the other hand, the HH-Index does satisfy all the above-mentioned axioms and is from this point of view superior to the CR4[26].

In addition to the preceding concepts, one often considers a measure of barriers to entry as a structural variable. These can generally be defined as the fixed costs of entry[27,28] for new entrants according to Jerger (2004, p. 15). Baumol and Willig (1981, p. 408) state that there is no equivalent cost for the incumbent firms. Three common barriers to entry are used in a SCP analysis according to Bain (1956): (1) economies of scale, (2) product differentiation advantages, and (3) absolute cost advantages. The impact of barriers to entry is visible in "…the advantages of established sellers…reflected in the extent to which [they] can persistently raise their prices above a competitive level without attracting new firms to enter the industry[29]". Thus, barriers to entry are a means of incumbent firms' ability to protect a profitable industry from competition.

Most studies solely focus on the concentration-profit relationship but as Bain (1956, p. 201) puts it, one has to consider "…that seller concentration alone is not an adequate indicator of the… excess profits… The concurrent influence of the condition of entry should clearly be taken into account.[30]" Schmalensee (1989, p. 968) defines an adequate measure of economies of scale as the ratio of a firm of minimum efficient scale (MES) to the market output:

$$Economies\ of\ Scale \quad = \quad \frac{MES}{Market\ Output} \qquad (2)$$

MES is the output level that relative to demand minimizes the average costs (Carlton and Perloff, 2000, p. 41; or Varian, 1999, p. 427). It can be approximated by the average firm[31] size of the largest firms accounting for half of the industry output. In our study we adopt this approximation. Comanor and Wilson (1967, p. 428) an Kwoka (1979, p. 102) recommend this measure to be divided by the market's total

[25] Curry (1983, p. 207) points out that the CR4 is unaffected by a shift in market share from one firm to another within the largest four firms when no turnover within the same group occurs. See also Hall and Tideman (1967. p. 165).

[26] Hall and (1967) introduce a new concentration measure called TH- Index which fulfills all their properties and which turns out to be superior to all existing measures of concentration. This measure is not chosen since it is shown to be highly correlated with the well-known HH-Index.

[27] Baumol and Willig (1981, p. 416-417) state, however, that fixed costs constitute a barrier to entry but can be distinguished in three major points: (1) fixed costs unlike entry barriers do not lead to suboptimal industry performance, (2) if an entry barrier can be expressed in costs it need not be fixed costs and (3) *entry costs*, not *fixed costs*, may be influenced by incumbents in order to protect their status (see also Caves and Porter (1977, p. 246) for this reasoning).

[28] Comanor and Wilson (1967 p. 426) relate these fixed costs to advertising expenses but the logic behind applies to all expenses. They argue that if there exists a threshold expense in order not to lose market share, larger firms can more easily spread these costs among different lines of business than smaller firms and, therefore, reduce average unit costs.

[29] Bain (1956, p. 3)

[30] Mann (1966, p. 268-300) finds that barriers of entry have a separate influence on profit rates apart from the influence of concentration. He finds a higher average profitability in the high than in the medium and low barrier groups.

[31] Comanor and Wilson (1967, p. 428) suggest to take *plant* size rather than *firm* size. Since we are talking about financial intermediaries which produce services it is reasonable to use firm size.

output which results in a variable approximating scale economies. The higher this measure, the greater the influence of economies of scale.

3.1.2 Defining variables of firm conduct

The common variables used as indicators for a firm's conduct are pricing strategies, advertising expenditures, R&D expenditures (Jerger, 2004, p. 16), and diversification (Jacobson and Adréosso-O'Callaghan, 1996, p. 151 and 168). Advertising expenditures are used in order to approximate product differentiation. Others are shown in Figure 7. In addition, the Lerner Index developed by Lerner (1934), measures the degree to which a firm can exercise monopoly power[32] by measuring the deviation of price from marginal costs [33] (see e.g., Miller; 1955, p. 123,124). Usually, it is not possible to obtain estimates for most of the variables required for calculating these measures. As a result, this section will focus on measures of collusion, which basically describe the state in which the largest firms in a market jointly set prices above the competitive level.

3.1.2.1 Collusion

Measuring collusion by means of an index or ratio is a difficult task, primarily because collusion is a legal term (Asch and Seneca, 1975, p. 225). There are distinct economic outcomes though. Thus, the approach suggested by Geroski (1988, p. 108), which is mainly used in empirical studies, relies on the observation of variables that render collusion and its outcome, namely higher profits more likely. These variables listed by Asch et al. (1975, p. 224, 225) are mainly those describing market structure: industry concentration, barriers to entry, product differentiation, firm size and diversification (the latter two being at the firm level). Thus, we can see that a SCP analysis could be broken down to only the structure-profitability relationship.

3.1.3 Defining measures of market performance

There is a vast range of possible ways to measure a firm's profitability. In general, we are concerned with identifying a largely unbiased rate of return defined as profit per unit of sacrifice as exemplified by Miller (1969 p. 108). When computing a firm's profitability one can generally choose between accounting based measures or market based measures. All accounting based measures of performance follow the same principle and therefore suffer from the same inconsistencies discussed below. The accounting rate of return has been shown[34] to be a misleading indicator of firm performance. Despite its drawbacks, it is still widely used because it offers an approximation that can also be easily calculated. The simple principle of an accounting ratio is to relate the investment to the stream of profits it generates. There are different methods of expressing such a ratio discussed in this section.

[32] Some textbooks, however, list that particular index as a measure of profitability. See for example Waldman and Jensen (1998, p. 437, 438) or Carlton and Perloff (2000, p. 246)
[33] Developed by Abba P. Lerner in his pioneering work Lerner (1934, p. 169).
[34] See for example Fisher and McGowan (1983) or Waldman et al. (1998 p. 434)

The true yield, or internal rate of return[35,36] (IRR), is the only unbiased measure of a company's performance. When calculating the IRR one would have to predict all future cash flows. This method lacks objectivity since it highly depends on the forecasts. Due to the difficulties in computing the IRR, the only feasible way to assess a company's profitability is to calculate an approximation[37].

A rate of return is not equivalent to a true yield for the following reasons: First, since accounting ratios depend on the underlying figures and, as result, on the accounting rules applied or the inventory valuation method, one will obtain different numbers when computing the same ratio using accounting statements established according to different rules (US-GAAP, IAS, Austrian HGB).

A second drawback constitutes the treatment of certain positions. Depreciation, for example, does not affect an actual cash outflow but is treated as such in the profit and loss (P&L) statement. This results in hidden reserves, which actually, are assets employed in the income generating process but are no longer visible as such in the financial statement.

Third, when adopting a value creation point of view one has to reconsider the treatment of capital expenditures (Demsetz 1982, p. 47) such as research and development (R&D) (Fisher and McGowan 1983, p. 82) and advertising expenditures to achieve consistency with an economist's definition of profits. These two prime examples rather constitute an investment yielding a deferred payoff and should, therefore, be considered as capital invested in the operations[38] as suggested by Grabowski and Mueller (1978, p. 329). The aforementioned points give rise to the need for reorganizing balance sheet and P&L data in order to compute meaningful ratios. There are, however, objections[39] to the capitalization of such expenditures. It is argued that this might even yield a larger error.

Accounting based fundamentals are easily computed and data is available to outsiders. However, most of those multiples do not satisfy the requirements set out above. The return on assets (ROA) is not suitable for the present study due to the "overall" approach and the limited statements that can be drawn from it. The return on equity (ROE) leaves aside the fact that the operating income is earned using both, equity and debt. A more appropriate measure is the return on invested capital (ROIC), which relates net operating profit less adjusted tax (NOPLAT) to the invested capital. The concept of corporate performance called economic value added (EVA) is expressed in

[35] The IRR is defined as the rate that makes a project's initial investment and its future expected cash flows equal to zero. For a definition see for example Brealy and Myers (2003, p. 96), Fischer (1996, p. 39) or Grinblatt and Titman (2002, p. 345).
[36] Solomon and Laya (1967, p.157) and Fisher et al. (1983, p. 82) argue that the IRR can be applied to a company's profitability when we consider a company as a bundle of projects each yielding a certain return.
[37] Solomon et al. (1967) argue that accounting statements do contain the required information and, therefore, a book rate or return should be calculated as an approximation.
[38] These two items do not appear in our investigation though. They are just mentioned as examples and shall reflect the point of view that we take on profitability: we are concerned, which will be shown subsequently, with reorganizing data in such a way that invested capital and profit both are best approximated to their true value within the operations.
[39] See for example Stauffer (1971, p. 435).

money terms and incorporates all relevant details[40] to measure true profit. It is rejected due to the difficulty in determining the weighted average cost of capital (WACC), which requires the use of an asset-pricing model[41] in order to compute the return to equity holders. In addition the return to debt holders has to be estimated which is quite an involving undertaking when a firm issues diverse debt instruments.

Market based measures are said to be the true indicator of profitability (Hancock et al., 2001, p. 5) since the market is assumed to be efficient in organizing and interpreting information and, therefore, pricing securities and firms. There are, however, difficulties in computing market based measures. Furthermore, all market-based measures imply that the company's stock is traded which is not always the case. Tobin's q serves as an indicator of the management's ability to run the operations profitably. However, Tobin's q is rejected as a profitability measure in the current analysis since assumptions about the replacement costs have to be made and this approach lacks objectivity compared to a book rate of return[42]. Alternatively, the market value added (MVA) or market to capital ratio is defined as the market value of a firm's equity and debt minus the capital invested or the ratio of these two numbers. Those measures require the availability of market data, which is often not given.

In view of the above-mentioned reasons, the return on invested capital (ROIC) is chosen in the present analysis[43]. Reese and Cool (1978, p. 29) point out that ROIC bears some distinct advantages as an accounting based measure[44]: (1) as a ratio it allows for comparability across firms and even industries; (2) being expressed as a return on capital it enables comparison with the cost of capital (also expressed in percentage terms); and (3) it is easily computed by outsiders. ROIC is preferred over Tobin's q due to its difficulty in measuring the firm's replacement costs. In addition, under certain circumstances[45] the error in estimating the book rate of return is smaller than the error in estimating Tobin's q. Finally, McFarland (1988, p. 620-622) finds that both, Tobin's q and the book rate of return are highly correlated to the true economic profitability. EVA is not used in the study due to its absolute denomination and the difficulties in computing the WACC.

3.1.3.1 Framework for computing the performance[46]

As stated above, ROIC is found to be the optimal measure needed to assess a firm's profitability. In order to calculate the ROIC the framework suggested by Copeland et al. (2000) is adopted. Copeland et al. (2000, ch. 4 and p. 137-143) argue that the ROIC is one of the drivers of firm value. Using this framework one has to reorganize

[40] EVA measures the excess amount of cash a firm earns over its costs especially including opportunity costs as financing costs which is not given when considering a book rate of return on its own. See for example Reese and Cool (1978, p. 30).
[41] Such as the Capital Asset Pricing Model (CAPM) or the Arbitrage Pricing Theory (APT).
[42] Alternatively, Hirschey (1985) suggests the relative excess valuation which is defined as the market value of a firm less the book value of its tangible assets divided by sales.
[43] The choice of an accounting based measure is also in line with past research, see for example Hirschey (1985, p. 91).
[44] Hirschey (1984, p. 375) points out the fact that accounting data is the best data available to outsiders.
[45] MacFarland (1988, p. 615) shows that if a firm's intangible assets grow at a rate smaller than the rate of return, the error in estimating a book rate of return is smaller than in estimating Tobin's q.
[46] The following section is based on Copeland, Koller and Murrin (2000, ch. 9)

balance sheet and P&L data[47] in order to compute the optimal approximation. The goal is to obtain more of an economic performance than an accounting view. One has to avoid inconsistencies between the numerator and the denominator. This means that the income generated by assets included in the invested capital should be considered in NOPLAT and vice versa.

It has been argued earlier that ROIC is the most adequate measure of corporate performance. Formally, ROIC is defined as net operating profit less adjusted taxes divided by invested capital:

$$ROIC = \frac{NOPLAT}{invested\ capital} \qquad (3)$$

The nominator (NOPLAT) is calculated using the P&L statement. The starting point is EBITDA[48] (earnings before interest, taxes and amortization). It includes all types of operating income. EBITDA is calculated starting with profit before tax (PBT). In order to obtain EBITDA, the interest expense as well as the depreciation is added. PBT does not include extraordinary earnings or expenses. This fact is in line with the framework by Copeland et al. (2000). Copeland et al. (2000, p. 164) also recommend that interest income be excluded from the NOPLAT calculation. This approach, however, is not followed since a financial institution's profitability[49] is measured. The taxes[50] disclosed in the P&L statement have to be deducted. Finally, taxes on non-operating income have to be added back[51] to EBITDA. This yields the information depicted by Table 2 below:

Table 2: NOPLAT calculation

PBT
+ interestexpense
+ depreciation of fixed assets
EBITDA
– taxes on EBITDA
– tax on non-operating income
NOPLAT

Source: Copeland et al. (2000)

According to this calculation, NOPLAT is a concept that incorporates everything considered to be essential when analysing a financial company: (1) interest income and expense have been addressed, and (2) non-operating income has been deducted.

In order to compute the amount of capital that has been invested by shareholders and creditors (operating invested capital) one starts with total assets. First, non-operating

[47] The need for adjustments is also pointed out by Carlton and Perloff (2000, p. 239).
[48] See http://boersenlexikon.faz.net/ebitda.htm for a definition of EBITDA.
[49] Therefore, the tax shield is not deducted as well.
[50] Including current and deferred taxes.
[51] The (flat) tax rate for legal entities amounted 34 % in 2003, see § 22 (1) KstG in: Kodex Steuergesetze 15.10.2002.

assets are deducted from total assets[52]. Subsequently, non-interest bearing current liabilities have to be netted out. These are typically liabilities that are payable on deferred terms and have a short-term character (i.e., certain liabilities to business partners or tax liabilities). Formally, one can express these calculations as represented in Table 3 below:

Table 3: Invested capital calculation

Total assets
– non-operating current assets
– non-interest bearing current liabilities
Operating invested capital

Source: Copeland et al. (2000)

In order to facilitate valuation, excess cash has to be deducted, treating it as temporary imbalances. Given that a one period profitability measure is computed, excess cash is not deducted. This would not be consistent with the economic definition of a return[53,54]. The capital invested is measured as an average of the beginning (1-1-2003) and end of the period (31-12-2003) capital, as suggested by Copeland et al. (2000. p. 165) and Egger and Samer (1999, p. 526).

3.2 The data

Throughout the analysis, financial statement data is used[55]. Some drawbacks that this methodology presents have already been highlighted. Others will be mentioned here. First and foremost, small[56] limited liability companies are not required to disclose a P&L statement according to Austrian commercial law[57]. This imposes severe limitations on the calculations. More broadly, the nature of financial statements restricts the computations.

Second, certain variables cannot be computed from the available database. Especially, the variables of firm conduct presented earlier can barely be computed. Those variables could only be described verbally instead. Third, some companies choose a financial year different from the calendar year. However, since it does not deviate much from the calendar year, ratios are computed ignoring this deviation.

In the following, we will characterize the insurance industry by the chosen structural variables that have been discussed in the previous section. In addition, all other relevant information and their corresponding peculiarities would be highlighted. The

[52] According to Frick (2001, p. 188) the position accounts receivables is typically not related to revenues.
[53] Although, Copeland et al. (2000) argue that excess cash is typically not related to a company's operations but we do not see a fact that disproves that this cash balance has not been generated with the capital invested and thus is a part of a firm's profitability.
[54] In addition, cash is used to cover potential losses that might occur to security holders or policyholders and thus has an operational character.
[55] The primary source for financial statements is the industrial court. Some companies publish their statements in the official journal of the "Wiener Zeitung". Only a few companies make their financial statements available online.
[56] See § 221 HGB for the size categorization.
[57] § 278 HGB

market share variable is obtained using published data by the Association of the insurance companies in Austria (VVO) as in the case of the life insurance industry. Else, market share is computed using revenues. In financial theory, the rate of return on government bonds is widely accepted as a risk free benchmark return. The return on a government bond, which was 4 % for the year 2003, was used as a proxy[58].

3.3 Limitations of the study

The present study draws criticism along the following lines: being based on a one-period analysis, and relying solely on accounting data presents some drawbacks. The results obtained can only be interpreted in that light. In the absence of data containing the relevant information, however, accounting data is the most reliable data available. Second, one has to bear in mind that this study does not make any statements about changes over time. It constitutes a "snapshot" showing the current situation of the insurance industry for the year 2003 over the year 2002. Nevertheless, the study represents the most recent situation for which data was available. Moreover, it is the first of its kind to make an attempt at applying SCP analysis to the Austrian insurance industry.

4. Results and interpretation

4.1 The life insurance industry

4.1.1 Structure

The results of the study are derived from Appendices 1 and 2. Domestic market participants of both the life and the non-life insurance industry can be found on the FMA's webpage[59,60] (Financial Market Authority). The vast majority of life insurance companies are stock companies. For example, in the year 2003, 37 life insurance companies conducted business (32 as corporations, 4 as mutual insurance association, and 1 as a limited liability company). Of the 37 companies, 5 were pure life insurance companies. Generali Versicherung AG merged with Interunfall Versicherung AG in September 2004[61]; both companies are represented on the list for 2003.

Health insurance is a constituent part of life insurance. In most cases, life insurance in the narrow sense and health insurance are disclosed separately in the company's financial statement. Thus, both were consolidated into one component in order to achieve consistency with the definition adopted in this study. Market share was calculated using data published by the VVÖ[62]. With a CR4 of 42.65 %, the results reveal that the four largest firms in the industry accounted for less than 50 % market share, thereby implying that the Austrian life insurance industry can be characterized

[58] http://www.oenb.at/isaweb/report.do?&lang=DE&report=2.11
[59] http://www.fma.gv.at/en/fma/marketpa/insuranc/domestic.htm
[60] Companies that are organized as small mutual insurance associations (§ 62 VAG) do not represent a large share of the market (according to a telephone interview with DI Pareder, Department of Reporting and Statistics, Austrian National Bank) and are, therefore, not included in the list. See also: "Finanzmarktbericht 2003", p. 88 supporting that logic.
[61] http://www.generali.at/__C1256A6F0044EA06.nsf/0/724854A9F05743B0C1256F010027482E?OpenDocument
[62] www.vvo.at

as an industry with a low concentration and a significant number of firms. The HH-index of 689, which is far below the EU-stipulated threshold value of 1000, confirms this view. Furthermore, the measure of the economies of scale is quite low.

4.1.2 Conduct

From the given data, it was not possible to compute the Lerner Index. The reason being that the P&L statement of the insurance companies is divided into respectively, a technical statement and a non-technical statement, both of which do not reveal the information needed. Analysis of the given market structure and profitability data, did not support the thesis of few firms colluding and earning higher profits than the firms at the fringe. The average profitability (in terms of ROIC) of the four largest players (0.50 %) is virtually the same as for the rest of the market (0.43 %). Thus, the life insurance market cannot be characterised by colluding firms.

4.1.3 Performance

The industry profit rates were found to be very low with the average profit rate amounting to 0.44 %. This suggests a mature industry with characteristics close to perfect competition. Only three firms yielded a return of 1 % or more. No firm is able to yield abnormal returns. Compared to the benchmark rate of return, investors would have been better off investing in risk-free government bonds than putting their money into insurance contracts. The generally low performance of the Austrian Stock Exchange at the time could have partially contributed to the low performance of the insurance industry.

4.2 The non-life insurance industry

4.2.1 Structure[63]

Contrary to the life insurance industry the non-life insurance industry is highly concentrated. Both, the HH-index of 2785 as well as the CR4 of 81.16 % suggest the existence of a highly concentrated market. There are two market leaders, UNIQA Versicherung AG and Generali Holding Vienna AG, together accounting for 73 % of industry assets. Each of the other market participants accounted for less than 5 % market share. Although the market leaders account for the major share of the industry they yield rather poor results in terms of ROIC. Economies of scale are reasonably significant. On the whole, the market structure results for the Austrian non-life insurance industry point in the direction of an industry where firms have an incentive to collude.

4.2.2 Conduct

As in the case of life insurance companies, the Lerner Index cannot be computed. The hypothesis that the two market leaders that account for the major part of the industry assets collude in order to raise profits cannot be supported. Average profitability of the two market leaders accounting for about 73 % market share is 0.3676 % as

[63] The company General Cologne Re Rückversicherungs-AG is dropped although it is mentioned on the FMA's list since it is neither an Austrian company nor an Austrian subsidiary.

opposed to 1.7296 % for the remaining firms. Thus, the two market leaders are not able to collude. As an interesting observation, one firm that accounted for only 0.026 % market share generated the highest profit of 14.169 %.

4.2.3 Performance

Returns across the sample of firms in the non-life insurance sector were found to have a much more higher variance than those in the life insurance sample and as mentioned earlier, one of the smallest companies–Union Versicherungs AG–surprisingly yielded the highest profit. One could even observe situations of negative structure-profit relationships, i.e., higher profits occurred rather in the lower third of the industry. The average profitability was 0.0783 % for the first 15 firms, 0.9938 % for the next 16 firms and 3.9843 % for the last 15 firms, due to the high performance of Union Versicherungs AG and Bank Austria Creditanstalt Versicherung AG–two fringe firms with market shares of less then 1 %.

5. Summary and conclusion

The main aim of this research is to fill a blank spot that exists in the analysis of Austrian insurance industry. There exist a vast number of studies on banks and banking markets. However, the insurance industry seems to remain relatively unexplored. In view of the ever-increasing importance of the global insurance industry–and that of Austria in particular–as a financial intermediary, it has become imperative to investigate this sector of the Austrian economy. The present study applies the structure, conduct and performance (SCP) method to a sample of 52 firms. The main finding is that the standard SCP hypothesis of highly concentrated markets, which create incentives to engage in collusive behaviour and which in turn leads to higher industry profit rates cannot be supported by the Austrian insurance industry. Arguably, the firms face intra-industry competitive pressures in obtaining policyholders and extra-industry competitive pressures in locating investment outlets.

Berger and Humphrey (1997, p. 21) suggest that the primary contributions of an SCP study be grouped into three cases:

- to inform government policy;
- to address general research issues and;
- to improve managerial performance.

According to the SCP paradigm, higher market share leads to higher market power in terms of the ability to increase prices and thus ultimately lead to higher returns. Theory predicts a positive relationship between market concentration (measured by either CR4 or the HH-Index) and profitability[64]. The Austrian life insurance sector shows no sign of such a causal relationship: it is a mature and competitive industry. The non-life insurance industry shows a high market concentration but no sign of collusion and in addition a low overall level of performance.

[64] See for example Miller (1969 p. 105).

There are several parties that might show interest in the current study. First, there are two important regulatory entities in Austria surveying the conduct of firms within an industry. The federal competition authority is responsible for detecting violations against competitive restrictions[65]. Also, the federal cartel prosecutor represents public interests in such matters at the industrial court[66]. Both bodies are interested in establishing whether anticompetitive rules have been violated and could be beneficiaries of the study.

Managers of the firms surveyed constitute a second group to which this study might be of interest. It provides a useful comparison in terms of profitability across firms. Executives might find it interesting to analyse the aggregated results and set their business policy in terms of, for example, mergers and acquisition in order to benefit from economies of scale and thereby improve their profit situations. This refers especially to the life insurance industry that suffered from very low returns

[65] http://www.bwb.gv.at/BWB/Aufgaben/default.htm
[66] "Leitbild des Bundeskartellanwalts", www.bmj.gv.at/_cms_upload/_docs/bka_leitbild.pdf?nav=65

Appendix 1

Life insurance industry SCP summary

Insurance Companies	Market share	Cumulative market share	ROIC
Sparkassen Versicherung Aktiengesellschaft	13.32%	13.32%	0.4580%
Wiener Städtische Allgemeine Versicherung AG	12.07%	25.39%	0.4331%
Raiffeisen Versicherung AG	10.24%	35.63%	0.5702%
UNIQA Personenversicherung AG	7.02%	42.65%	0.5361%
Generali Versicherung AG	6.97%	49.62%	0.1628%
Allianz Elementar Lebensversicherungs-Aktiengesellschaft	6.13%	55.75%	n/a
Wüstenrot Versicherungs-Aktiengesellschaft	5.76%	61.51%	0.2342%
Union Versicherungs-Aktiengesellschaft	5.23%	66.74%	1.0251%
Donau Allgemeine Versicherungs-Aktiengesellschaft	3.18%	69.92%	0.7740%
Skandia Leben AG Lebensversicherungs-AG	2.60%	72.52%	0.5774%
Interunfall Versicherung AG	2.50%	75.02%	0.0411%
Bank Austria Creditanstalt Versicherung AG	2.41%	77.43%	0.5772%
Victoria-Volksbanken Versicherungsaktiengesellschaft	2.40%	79.83%	0.2291%
Finance Life Lebensversicherung AG	2.39%	82.22%	0.1715%
Österreichische Beamtenversicherung Versicherungsverein auf Gegenseitigkeit	2.30%	84.52%	0.1813%
Zürich Versicherungs-Aktiengesellschaft	2.09%	86.61%	0.5045%
Nürnberger Versicherung Aktiengesellschaft Österreich	1.56%	88.17%	0.2727%
BAWAG-Versicherung Aktiengesellschaft	1.54%	89.71%	0.3200%
Oberösterreichische Versicherung Aktiengesellschaft	1.54%	91.25%	0.1449%
Der Anker Allgemeine Versicherungs-Aktiengesellschaft	1.48%	92.73%	0.1837%
Grazer Wechselseitige Versicherung Aktiengesellschaft	1.39%	94.12%	0.7760%
ASPECTA Lebensversicherung AG Niederlassung Österreich	1.03%	95.15%	n/a
Postversicherung Aktiengesellschaft	1.01%	96.16%	1.3363%
Merkur Versicherung Aktiengesellschaft	0.80%	96.96%	0.1765%
Die niederösterreichische Versicherung	0.59%	97.55%	0.0244%
Gerling Financial Services GmbH (Gerling-Konzern Leben)	0.37%	97.92%	0.3019%
Vorarlberger Landes-Versicherung V. a. G.	0.35%	98.27%	0.2746%
Basler Versicherungs-Aktiengesellschaft In Österreich	0.34%	98.61%	0.1592%
Drei-Banken Versicherungs-Aktiengesellschaft	0.33%	98.94%	0.6036%
Hypo Versicherung AG	0.24%	99.18%	0.2434%
Tiroler Landes-Versicherungsanstalt V. a. G.	0.22%	99.40%	0.1031%
Salzburger Landes-Versicherung Aktiengesellschaft	0.19%	99.59%	0.6060%
Quelle Lebensversicherung Aktiengesellschaft	0.17%	99.76%	0.3528%
Kärntner Landesversicherung auf Gegenseitigkeit	0.11%	99.87%	0.3386%
APK-Versicherung Aktiengesellschaft	0.04%	99.91%	0.4104%
CALL DIRECT Versicherung AG	0.04%	99.95%	2.8445%
HDI Hannover Versicherung Aktiengesellschaft	0.02%	99.97%	-0.6576%
HH-Index	689.03		
Economies of Scale	0.1212		

Appendix 2

Non-Life insurance SCP summary

Insurance Company	Market share	Cumulative market share	ROIC
UNIQA Versicherungen AG	40.9206%	40.9206%	0.3971%
Generali Holding Vienna AG	32.4380%	73.3587%	0.3381%
Allianz Elementar Versicherungs-Aktiengesellschaft	4.2406%	77.5992%	0.0176%
Wiener Städtische Allgemeine Versicherung Aktiengesellschaft	3.5569%	81.1562%	1.4656%
Generali Versicherung AG	2.5375%	83.6937%	0.7039%
UNIQA Sachversicherung AG	2.2252%	85.9188%	-0.3786%
Interunfall Versicherung AG	2.1318%	88.0507%	-0.2456%
Grazer Wechselseitige Versicherung Aktiengesellschaft	1.8075%	89.8582%	1.9567%
Donau Allgemeine Versicherungs-Aktiengesellschaft	1.8014%	91.6596%	0.2035%
Zürich Versicherungs-Aktiengesellschaft	1.2384%	92.8980%	2.2955%
Die Niederösterreichische Versicherung	1.0377%	93.9357%	0.0451%
Oberösterreichische Versicherung Aktiengesellschaft	0.9646%	94.9003%	0.7563%
Der Anker Allgemeine Versicherungs-Aktiengesellschaft	0.6227%	95.5230%	-0.0294%
Generali Rückversicherung Aktiengesellschaft	0.6064%	96.1294%	1.1180%
Wüstenrot Versicherungs-Aktiengesellschaft	0.4048%	96.5342%	-7.4698%
D.A.S. Österreichische Allgemeine Rechtsschutz-Versicherungs-Aktiengesellschaft	0.3743%	96.9085%	3.2076%
Tiroler Landes-Versicherungsanstalt V. a. G.	0.3319%	97.2403%	2.1578%
Vorarlberger Landes-Versicherung V. a. G.	0.2831%	97.5235%	1.5427%
Basler Versicherungs-Aktiengesellschaft In Österreich	0.2524%	97.7759%	-3.0716%
VAV Versicherungs-Aktiengesellschaft	0.2129%	97.9888%	0.0049%
Salzburger Landes-Versicherung Aktiengesellschaft	0.2059%	98.1947%	1.0686%
ARAG Österreich Allgemeine Rechtsschutzversicherungs-Aktiengesellschaft	0.2030%	98.3977%	3.6283%
UNIQA Personenversicherung AG	0.2027%	98.6004%	1.2089%
Österreichische Hagelversicherung Versicherungsverein auf Gegenseitigkeit	0.1839%	98.7843%	-3.3963%
Österreichische Kreditversicherung Coface AG	0.1534%	98.9376%	1.8645%
Raiffeisen Versicherung AG	0.1324%	99.0700%	-0.5157%
Kärntner Landesversicherung auf Gegenseitigkeit	0.1306%	99.2006%	0.9302%
OeKB Versicherung AG	0.1153%	99.3159%	3.0473%
Victoria-Volksbanken Versicherungsaktiengesellschaft	0.1018%	99.4177%	0.0232%
Merkur Versicherung Aktiengesellschaft	0.0872%	99.5049%	4.1998%
Prisma Kreditversicherungs-Aktiengesellschaft	0.0803%	99.5852%	0.0000%
Sparkassen Versicherung Aktiengesellschaft	0.0751%	99.6603%	4.2127%
SK Versicherung Aktiengesellschaft	0.0614%	99.7218%	0.9533%
Österreichische Beamtenversicherung Versicherungsverein auf Gegenseitigkeit	0.0592%	99.7809%	6.7559%
Europäische Reiseversicherung Aktiengesellschaft	0.0515%	99.8324%	1.9119%
Porsche Versicherungs- Aktiengesellschaft	0.0428%	99.8752%	4.6691%
Garant Versicherungs-Aktiengesellschaft	0.0405%	99.9157%	0.0000%
Union Versicherungs-Aktiengesellschaft	0.0262%	99.9420%	14.6190%
CALL DIRECT Versicherung AG	0.0125%	99.9545%	-1.4456%
Bank Austria Creditanstalt Versicherung AG	0.0100%	99.9645%	9.1964%
Nürnberger Versicherung Aktiengesellschaft Österreich	0.0095%	99.9740%	3.4692%
BAWAG-Versicherung Aktiengesellschaft	0.0074%	99.9814%	2.2097%
Hypo Versicherung AG	0.0057%	99.9871%	2.3933%
Postversicherung Aktiengesellschaft	0.0049%	99.9920%	0.5119%
OAFA Versicherung AG	0.0048%	99.9967%	0.6604%
Quelle Lebensversicherung Aktiengesellschaft	0.0033%	100.0000%	9.6477%
MuKi Versicherungsverein auf Gegenseitigkeit	0.0000%	100.0000%	n/a
HH-Index	2784.98		
Economies of Scale	0.4092		

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