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A COMPARATIVE ANALYSIS OF COST CALCULATION UNDER SOLVENCY II AND IFRS 17

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Abstract
This paper provides a comparative analysis of the cost calculation methodologies under the Solvency II regulatory framework and the IFRS 17 accounting standard, focusing particularly on their implications for actuarial practice. Although both frameworks require insurers to evaluate and distribute costs related to insurance liabilities, their underlying conceptual and operational principles differ significantly. Solvency II is based on a prescriptive, risk-based approach focusing on economic valuation and 'best estimate' assumptions, which directly influence cost determination and allocation for solvency purposes. In contrast, IFRS 17 is a principles-based accounting framework that gives insurers some flexibility in how they calculate costs, provided they uphold the relevant accounting principles of relevance, faithful representation, and consistency. The theoretical section of the paper outlines the core requirements of each framework, including the role of actuarial assumptions and the allocation of expenses to insurance contract groups. The comparative analysis reveals how regulatory and accounting objectives can result in different approaches to cost treatment, measurement bases and output interpretation. Attention is given to the implications of these differences for actuarial valuation, management reporting and internal control functions within insurance companies. To bridge the gap between theory and practice, the paper provides an example to show how a consistent set of cost drivers and assumptions can lead to different cost allocation outcomes when evaluated under Solvency II versus IFRS 17.

Keywords: Solvency II, IFRS 17, cost calculation, actuarial methodology, ABC method

JEL classification: G22, M41, G32

Introduction

Calculating costs is a fundamental part of financial analysis and decision-making in insurance companies because it affects valuation, pricing, financial reporting and performance assessment directly. Unlike in non-financial industries, insurance costs are inherently linked to uncertainty, long-term cash flow projections and actuarial assumptions, making their identification, allocation and measurement particularly complex. Cost calculation in insurance is an interdisciplinary concept situated at the intersection of actuarial science, accounting, and management control. In the European insurance market, Solvency II and IFRS 17 are the two

most influential frameworks governing the treatment of costs. Solvency II takes a predominantly risk-based and prescriptive approach, focusing on economic valuation and policyholder protection, while IFRS 17 is based on a principles-driven accounting standard designed to accurately reflect insurers' financial performance and position. These differing objectives lead to distinct methodological requirements regarding the recognition, allocation and projection of costs. How these costs are attributed to insurance contracts and reporting periods largely depends on the underlying valuation framework and its objectives. Consequently, different regulatory and accounting systems may require fundamentally different approaches to cost calculation, even when applied to the same economic reality.

Based on the objectives of the study, the following research hypotheses are formulated:

- H1: Total allocated costs under Solvency II are higher than those calculated under IFRS 17 due to the inclusion of unallocated costs.
- H2: The difference between cost allocation under Solvency II and IFRS 17 is most pronounced in the categories of initial costs.
- H3: The classification of costs into attributable and non-attributable categories is a primary driver of variation between Solvency II and IFRS 17 cost outputs.

These hypotheses are evaluated using an illustrative cost allocation model based on the Activity-Based Costing (ABC) methodology for a selected insurance product. The aim of this paper is to establish a conceptual foundation for the comparative analysis of cost calculation for insurance contracts under Solvency II and IFRS 17.

The paper is divided into six main chapters: introduction, literature review, theoretical background, methodology, comparative empirical study, and conclusion. The introduction presents the research hypotheses. The literature review summarizes existing studies on cost calculation, differences between Solvency II and IFRS 17, and the ABC method. The theoretical background explains the basic principles of cost calculation in insurance. The methodology describes the framework for cost calculation under IFRS 17 and Solvency II. The comparative empirical study highlights the differences between the European regulatory framework and the international financial reporting standard and forms the basis for the comparative analysis. The conclusion summarizes the research results, evaluates differences in selected types of expenses under Solvency II and IFRS 17, and outlines the limitations of the study and directions for future research.

Literature review

Cost allocation methods are management accounting tools designed to more accurately assign costs to products and services. Traditional calculation approaches usually allocate overhead costs based on volume (e.g. the number of contracts or insurance premiums), which can lead to a distortion of the actual costs of individual insurance products. Activity-Based Costing is a method that identifies activities that consume resources and then allocates costs to products according to how much these activities are used. This allows the costs of underwriting, contract management and claims settlement to be captured more accurately. An alternative is Time-Driven Activity-Based Costing (TDABC), which uses time equations and capacity rates to simplify the calculation process. Another approach is Resource Consumption Accounting (RCA), which emphasizes the link between resources and capacity utilization. In the context of insurance, where indirect costs and process complexity dominate, accurately identifying cost

drivers is paramount. Of the methods, ABC appears to be the most suitable, as it enables a detailed analysis of process costs and their subsequent allocation to specific insurance products. For this reason, the ABC method will be used as the main analytical tool in this article. Adams (1996) and Swain & Fawcett (2000) point out that the high proportion of overhead costs and the wide diversification of the product portfolio in many life insurance companies create favorable conditions for implementing the ABC method. It is also assumed that implementing ABC could bring three key benefits to an insurance company: more accurate cost information, a deeper understanding of the cost structure of processes and a better basis for assessing the strategic implications of management decisions.

Delpachitra (2008) analyses the use of the ABC method for insurance processes, such as claim and insurance event processing, and focuses on cost benchmarking. The views of managers on ABC in an insurance company are described in detail in Norris & Innes (2002). Through a systematic literature review, Srbinoska (2017) reveals that research into the adoption and implementation of the ABC method primarily aims to identify technical, organizational and behavioral success factors. However, there is no consensus among studies on a single set of key factors, except for top management support. She also highlights the need to develop a shared research framework and to expand future research to encompass alternative viewpoints that consider the particularities of small businesses or developing countries, given that the ABC implementation process is considerably more intricate. EIOPA (2024a) specifically analyses the synergies and differences between the valuation approaches under IFRS 17 and Solvency II with relation to liabilities and technical provisions. EIOPA (2024b) impact study compares the differences following the implementation of IFRS 17 with Solvency II and reports that IFRS 17 liabilities are 9.5% higher for non-life business and 2.5% higher for life insurance business compared to Solvency II. Shehi & Shehi (2024) provide a comprehensive comparative analysis of issues related to IFRS 17 and Solvency II. A similar comparative analysis is conducted by Arató & Martinek (2022), who use both real and hypothetical data to compare risk margins and risk adjustments in stochastic reserving. Zha (2024) describes a modern implementation of the ABC method and highlights the difference between traditional and ABC costs, pointing out the underestimation of costs in traditional methods compared to the ABC model. Among recent trends, Reed & Murphy (2021) and Chen (2024) offers an interesting analysis of how AI can improve the accuracy of cost allocation in ABC systems using advanced analytical tools.

Cost calculation in insurance: Theoretical background

The assumptions used to model cash flows are the best estimate and are subject to assessment by a qualified actuary and the actuarial function. These assumptions are then approved by the insurance company's management. Different liability valuation methodologies may require different values for these assumptions. Actuarial assumptions are determined before the total premium rate is determined. During the insurance period, changes occur in the economic environment: inflation and interest rates fluctuate; the insurance company's operating costs change; and the probability of mortality and morbidity, of both the total and insured populations, evolves. For this reason, the best estimates of actuarial assumptions must be updated regularly so that they reflect current market values at the time of use. The cash flow forecast used to calculate the best estimate of liabilities considers all of the following costs, broken down by type, relating to the reported insurance and reinsurance liabilities of insurance companies:

- administrative costs, insurance management costs, premium matching,

- investment management costs, bank fees, depositary fees,
- insurance claim management costs – costs of settling insurance claims,
- acquisition costs – initial (acquisition) costs, such as marketing costs, underwriting insurance contracts, developing new products.

The above costs include overhead costs incurred in the management of insurance liabilities that cannot be clearly allocated. Examples include overhead costs of top management, control functions, office rent, and IT system administration and development. Overhead costs must be allocated realistically, objectively, and consistently over the long term to the parts of the best estimate and products to which they relate.

Methodology

Various cost allocation models are employed to categorize cost items by type and product. This paper focuses on illustrative case study using the activity-based costing (ABC) method. This method allocates the direct costs of processes and inputs to related products and services as they arise, based on the activities that incur these costs. Indirect overhead costs are then assigned through allocation. Allocation factors are used to assign, divide and allocate individual cost items to cost types. These factors can include the number of employees or square meters in individual departments. Table 1 shows the selected expense items, their expense values, and the allocation factors for each cost item.

Table 1 also illustrates the cost model, which is updated and documented regularly. For each cost item, the sum of its allocation factors for all cost types must equal 100%, hence

$$100\,\% = \sum k_{j,d} \tag{1}$$

where

$k_{j,d}$ is the allocation factor in percent for the cost item I_j and the type of costs d,
d - type of costs, i - initial costs, r - administration costs, c - termination costs.

Table 1: Allocation factors for individual types of costs

Expense Item	**Expense value (€)**	**Allocation factor for initial costs (%)**	**Allocation factor for management costs (%)**	**Claim handling cost allocation factor (%)**
Personal Expenses	300,000	55	43	2
Marketing Expenses	50,000	100	0	0
IT software - amortization	90,000	55	43	2
Asset Depreciation	10,000	55	45	0
Training expenses	12,000	65	35	0
Rent expense	70,000	55	43	2
Sum of Expenses for 1st year	**532,000**	-	-	-

Source: Authors' own work

The total costs of the insurance company are 532,000 € in the first year and consist of cost items j and their allocation factors $k_{j,d}$ are shown in Table 1. The allocation factors presented in

Table 1 were determined using expert judgment, reflecting typical operational structures observed in insurance companies. The distribution of activities (e.g. initial costs, management costs, and claim handling costs) was designed to approximate realistic time and resource consumption patterns. They were also consulted with the actuaries from insurance company.

Best estimate of unit operating costs using the ABC method

Average factors for cost types K_d express the summarized allocated costs for a specific year for individual cost types, as determined by formula (2). There is also a reconciliation relation to check whether the individual allocated costs equal the total

$$K_d = \sum_{j=1}^{n} \frac{I_j \times k_{j,d}}{N_T} \tag{2}$$

$$N_T = \sum_{d}^{D} \sum_{i}^{n} \frac{I_j \times k_{j,d}}{N_T} \tag{3}$$

where
D is the number of cost types, in our case 3,
K_d are the average cost factors for the given year at the insurance company level, types K_r and K_i K_c in %,
I_j is the cost type *j* in €, e.g. personnel costs, marketing costs,
n is the number of cost items,
N_T are the total costs in €.
The summarized costs for individual cost types are expressed as follows

$$N_d = K_d \times N_T = \sum_{j=1}^{n} I_j \times k_{j,d} \tag{4}$$

N_d, where N_i, N_r, N_c are summarized costs for individual cost types *d* in €.

Table 2 shows the individual cost items in total, allocated costs by type of cost, which are initial costs, administration costs, and termination costs, and average cost factors. After allocating costs, the total planned initial costs N_i amount to 316,300 €, insurance administration costs N_r amount to 206,500 € and termination costs N_c amount to 9,200 €. From this information, it is possible to derive average allocation factors, for initial costs K_i is 59.5%, for insurance administration costs is K_r 38.8% and for termination costs K_c is 1.7%. The sum of these factors is 100%.

$$N_T = K_i \times N_T + K_r \times N_T + K_c \times N_T \tag{5}$$

Table 2: Cost factors and split of costs by type

Expense Item	Expense value of item (€)	Allocated initial Costs (€)	Allocated administration costs (€)	Allocated Claim handling Costs (€)
Personal Expenses	300,000	165,000	129,000	6,000
Marketing Expenses	50,000	50,000	0	0
IT software - amortization	90,000	49,500	38,700	1,800
Asset Depreciation	10,000	5,500	4,500	0
Training expenses	12,000	7,800	4,200	0
Rent expense	70,000	38,500	30,100	1,400
Total costs by type				
	532,000	**316,300**	**206,500**	**9,200**
Average cost factors				
	100%	59.5%	38.8%	1.7%

Source: Authors' own work

The process of planning costs may vary, as may the allocation factors. This approach is often used when there are no significant changes to the insurance company's strategy, such as changes to the product portfolio or significant costs associated with new projects. In such cases, these average factors can be used to allocate planned costs. However, this cost allocation model must meet legislative requirements for realism, consistency and transparency, and any changes must be justified and documented. To project costs for future periods, we increased the total costs for the first year by an estimated 4% inflation and by an estimated 3.3% inflation for the second year (NBS, 2025). We will determine the costs for the subsequent period using formula

$$N_{T,t+1} = N_{T,t} \times (1 + f_t) \tag{6}$$

Planned costs divided into cost types in subsequent years are determined according to relations (3) and (5) and are shown in Table 3.

Table 3: Total planned costs in future years by type

Year T	Total planned costs (€)	Initial costs (€)	Administration costs (€)	Claim handling costs (€)
1	532,000	316,300	206,500	9,200
2	553,280	328,952	214,760	9,568
3	**571,538**	**339,807**	**221,847**	**9,884**

Source: Authors' own work

The planned costs of the insurance company, broken down by cost type, provide the input data required to derive the best estimate of unit expenses. For the model insurance company, these costs are fixed because it has just started operating. To calculate the cost per insurance contract or insurance coverage, it is necessary to know how many insurance contracts the company will have in the future. It is assumed that the same volume of new business will be sold in future years as in the first year. The projected insurance contract portfolio in future years is determined by adding together the expected sales of new business in future years and the expected status of the insurance portfolio.

Table 4: Number of insurance contracts together with supplementary insurance policies

Year	**1st year of sale**		**2nd year of sale**		**3rd year of sale**		**Planned number**	
	Insurance contracts	**Supplementary insurance**	**Insurance contracts**	**Supplementary insurance**	**Insurance contracts**	**Supplementary insurance**	**Insurance contracts**	**Supplementary insurance**
1	2,100	1,850					2,100	1,850
2	1,943	1,651	2,100	1,850			4,043	3,501
3	1,817	1,490	1,943	1,656	2,100	1,850	5,860	4,996
4	1,707	1,360	1,817	1,498	1,943	1,656	5,467	4,514
5	1,610	1,254	1,707	1,369	1,817	1,498	5,134	4,121

Source: Authors' own work

Table 4 shows the planned number of insurance contracts, with 2,100 new contracts planned for the second year and 1,943 active contracts planned for the first year of the previous period. The same applies to supplementary insurance. The insurance portfolio consists of three insurance products and two supplementary insurances.

The model case is simplified. Planned new sales are subject to management decisions by the insurance company and are prepared using a more complex approach. The aim is to calculate unit costs per contract E_i, E_r, and E_c, which are the best estimates of these assumptions.

$$E_{i,t} = \frac{N_{i,t}}{WPK_t(NB)},\ E_{r,t} = \frac{N_{r,t}}{WPK_t(IF)} \tag{7}$$

where

$E_{i,t}$ are the unit initial costs at time *t*,

$E_{r,t}$ are the unit administration costs at time *t*,

$WPK_t(NB)$ is the weighted number of new insurance policies at the beginning of the year t,

$WPK_t(IF)$ is the weighted number of in force insurance policies at the beginning of the year t.

$$WPK_t = \sum_{i=1}^{m} p_{i,t} \times w_i \tag{8}$$

where

p_i number of active insurance policies for product *i* at time *t* for *IF* (*In Force*), or newly concluded for NB (*New Business*),

w_i is the weight assigned to the *i*-th product of insurance coverage,

m is the number of products (in our case 5).

In insurance practice, the costs of supplementary insurance are given less weight than those of primary insurance. In our example, the weights were set at 100% for the initial costs of the main insurance and 50% for the supplementary insurance; and at 100% for the administrative costs of the main insurance and 20% for the supplementary insurance. These weights are set for a reason.

Cost calculation under the Solvency II framework

In accordance with Solvency II and the Delegated Regulation, the best estimate of cost projections considers all costs incurred in relation to reported liabilities (European Union, 2009). Therefore, to derive assumptions about unit costs, these must be based on the expected development of the insurance company's insurance portfolio, including planned new business and costs in future years, see Table 5. Solvency II regulation requires that all realistic costs be used to derive the best value for unit initial costs, administrative costs and termination costs.
All costs are used to project cash flows of best estimate liabilities under Solvency II regulations; all planned costs in accordance with the business plan can be considered a suitable source. The change in the assumptions for the best estimate of costs under Solvency II is in the initial costs per contract $E_{i,t}^{SII}$ and administrative costs $E_{r,t}^{SII}$ in the first few years. This is because the company does not have a financial plan for longer than three years and has set a cost coverage target for the third year. After reaching the break-even point in the third year, unit costs continue to increase by the rate of inflation in future years.

Table 5: Best estimate of initial and administration unit costs under Solvency II

Year	**Total costs (€)**	**Initial costs (€)**	**Administ. costs (€)**	**Termination costs (€)**	**Number of insurance contracts (€)**	**Number of supplementary insurance contracts (€)**	**Unit initial costs (€)**	**Unit administrative costs (€)**
T	$N_{T,t}$	$N_{i,t}$	$N_{r,t}$	$N_{c,t}$	$p_{i,t}$	$p_{i,t}$	$E_{i,t}^{SII}$	$E_{r,t}^{SII}$
1	532,000	316,300	206,500	9,200	2,100	1,850	104.56	83.60
2	553,280	328,952	214,760	9,568	4,043	3,501	108.74	45.28
3	**571,538**	**339,807**	**221,847**	**9,884**	**5,860**	**4,996**	**112.33**	**32.34**

Source: Authors' own work

Based on the results of the cost analysis and its allocation, we derived the most accurate unit cost estimate according to relationships 7 and 8, which converge in the third year — the expected break-even year. The break-even year is the period in which the projected costs, calculated from insurance contracts, and the unit costs used for product pricing, equal the planned costs in the business plan. While this method is not prescribed by regulation, insurance companies often allocate costs as fixed or variable. Fixed costs are linked to the number of insurance policies, while variable costs are linked to the premium percentage, insurance coverage value and similar factors.

In this example, claims costs are determined by expert estimates based on the expected number of insurance claims. Alternatively, if unit costs are determined as a percentage of the sum insured, the total amount of insurance claims paid is used. In practice, the best estimate of long-term unit costs is first derived by recalculation, and these are then used to price insurance products. These assumptions meet the requirements for stable long-term unit costs over the planned period, which may exceed three years for new insurance companies.

The actuarial function is responsible for assessing the realism of these assumptions and, if necessary, proposing adjustments. The unit cost assumption is updated regularly depending on the planned sale of new contracts, the development of the insurance portfolio and cost items. The degree to which Solvency II has been implemented has direct implications for operational

efficiency, as these variations may result in differing levels of potential efficiency gains when aligning Solvency II and IFRS 17 processes. (European Union, 2009)

Cost calculation under the standard IFRS 17

For the purposes of IFRS 17, a different approach to cost allocation is taken, whereby costs must be divided into those attributable to insurance contracts and those not. Only the latter are used to determine the best estimate of cash flows. Directly attributable expenses are those that the insurer can attribute directly to a group of insurance contracts and that relate to:

- acquisition
- service
- administration
- claim handling

during the lifetime of these contracts. (IASB, 2020)

According to IFRS 17 (IASB, 2020), paragraphs B65 and B66, directly attributable costs include:

- commissions to intermediaries for concluding specific contracts,
- costs of processing insurance contracts (e.g., IT systems that process contracts),
- costs of managing insurance contracts (including claims handling),
  internal costs (including salaries), if they can be directly attributed to a specific group of contracts.

These costs are included in the calculation of 'fulfilment cash flows' when valuing insurance contract liabilities. They must be directly and reliably attributable to a portfolio or group of contracts, rather than being general or overhead costs. Table 6 compares the definitions, accounting, allocation and measurement of attributable and non-attributable costs.

From an actuarial valuation perspective, in accordance with the requirements of IFRS 17, only costs that are directly attributable to groups of insurance contracts are considered when determining best estimate cash flows.

To value insurance contracts under IFRS 17, it is necessary to determine different allocation factors and adjust them according to whether costs are directly attributable or not, Alhawtmeh (2023). An example is shown in Table 7.

Each type of expense is adjusted by an allocation factor for that type of expense for attributable expenses. This factor is prepared by the finance department in cooperation with actuaries. The allocation factor K_d^{pr} for expenses under IFRS 17 is

$$K_d^{pr} = \sum_{j=1}^{n} \frac{I_j \times k_j^{pr}}{N_T} \tag{9}$$

The sum of all attributable and non-attributable costs equals the company's total costs.

$$N_T = N_T^{pr} + N_T^{nepr} = \sum_j I_j \times k_j^{pr} + \sum_j I_j \times k_j^{nepr} \tag{10}$$

Table 6: Comparison of directly attributable and directly non-attributable costs

Criterion	Directly attributable costs	Directly non-attributable costs
Definition	Costs that can be directly attributed to a specific group of insurance contracts	Costs that cannot be directly attributed to a specific group of contracts
Examples	Commissions, contract processing, contract servicing, claims management	Training, product development, general marketing, brand building
Accounting under IFRS 17	Included in fulfilment cash flows, affecting the amount of insurance liabilities	Charged directly to the income statement (as operating expenses)
Relevance for valuation	Yes – affecting the amount of liabilities and profitability of the group of contracts	No – they do not affect the calculation of liabilities under IFRS 17

Source: Zelinová et al. (2025)

Table 7: Allocation factor for directly attributable and directly non-attributable costs

Expense Item	Expense value of item (€) I_j	Allocation factor for attributable costs (%) k_j^{pr}	Allocation factor for non-attributable costs (%) k_j^{nepr}	Allocation factor for initial costs (%) $k_{j,i}$	Administrative costs (%) $k_{j,r}$	Claim handling cost (%) $k_{j,c}$
Personal Expenses	300,000	90	10	55	43	2
Marketing Expenses	50,000	50	50	100	0	0
IT software - amortization	90,000	80	20	55	43	2
Asset Depreciation	10,000	75	25	55	45	0
Training expenses	12,000	0	100	65	35	0
Rent expense	70,000	70	30	55	43	2
Total 1st year in €	**532,000**	338,500	106,500			
allocation factor for IFRS costs		**76.1%**	**23.9%**			

Source: Authors' own work

The IFRS defines cash flows related to initial costs as follows: 'Cash flows arising from the costs of selling, underwriting and establishing a group of insurance contracts (issued or expected to be issued) that can be directly attributed to the insurance contract portfolio to which the group belongs.' Such cash flows include those that are not directly attributable to individual contracts or groups of insurance contracts within the portfolio' (IASB, 2020).

Unallocated costs cannot be directly attributed to a portfolio of insurance contracts (e.g. general brand marketing, product development and training) and are not included in the measurement of insurance contract liabilities. Instead, they are recognized in the income statement as ordinary expenses when incurred. They are not projected as part of the cash flows of insurance contracts, but unallocated costs are included in the overall economic result. Newly established insurance companies have higher unallocated costs because they are building up greater capacity to process insurance contracts, as well as incurring costs such as software development and the present value of the insurance portfolio. A reconciliation relationship also applies to check whether the individual allocated costs equal the total.

$$N_T^{pr} = \sum_{d}^{D} \sum_{i}^{n} \frac{I_j^{pr} \times k_{j,d}}{N_T^{pr}} \tag{11}$$

where

$k_{j,d}$ are the average cost factors for the given year,

for individual cost types K_r a K_i K_c in %,

I_j^{pr} is a type of cost *j*,

N_T^{pr} are the total attributable costs in €,

$$N_d = K_d \times N_T = \sum_{j=1}^{n} I_j \times k_{j,d} \tag{12}$$

N_d, where N_i, N_r, N_c are summarized the costs for individual cost types.

Table 8: Allocation factors for attributable costs

Expense Item	**Attributable costs (€)** N_T^{pr}	**Allocated initial costs (€)** N_i^{pr}	**Allocated administrative costs (€)** N_r^{pr}	**Allocated claim handling costs (€)** N_c^{pr}
Personal Expenses	270,000	148,500	116,100	5,400
Marketing Expenses	25,000	25,000	-	-
IT software - amortization	72,000	39,600	30,960	1,440
Asset Depreciation	7,500	4,125	3,375	-
Training expenses	0	-	-	-
Rent expense	49,000	26,950	21,070	980
Total 1st year	**423,500**	**244,175**	**171,505**	**7,820**
	K_T^{pr}	K_i^{pr}	K_r^{pr}	K_c^{pr}
allocation factor for IFRS costs		**57.7%**	**40.5%**	**1.8%**

Source: Authors' own work

Training costs are classified as directly non-attributable costs under IFRS 17, paragraph B66 d) (IASB, 2020). The classification of costs into attributable and non-attributable categories is a primary driver of variation between Solvency II and IFRS 17 cost outputs. This is confirmed by the amount of the unit costs shown in Tables 9 and 5. This statement also lead to accept hypothesis H3.

Table 9: Directly attributable costs for one insurance contract

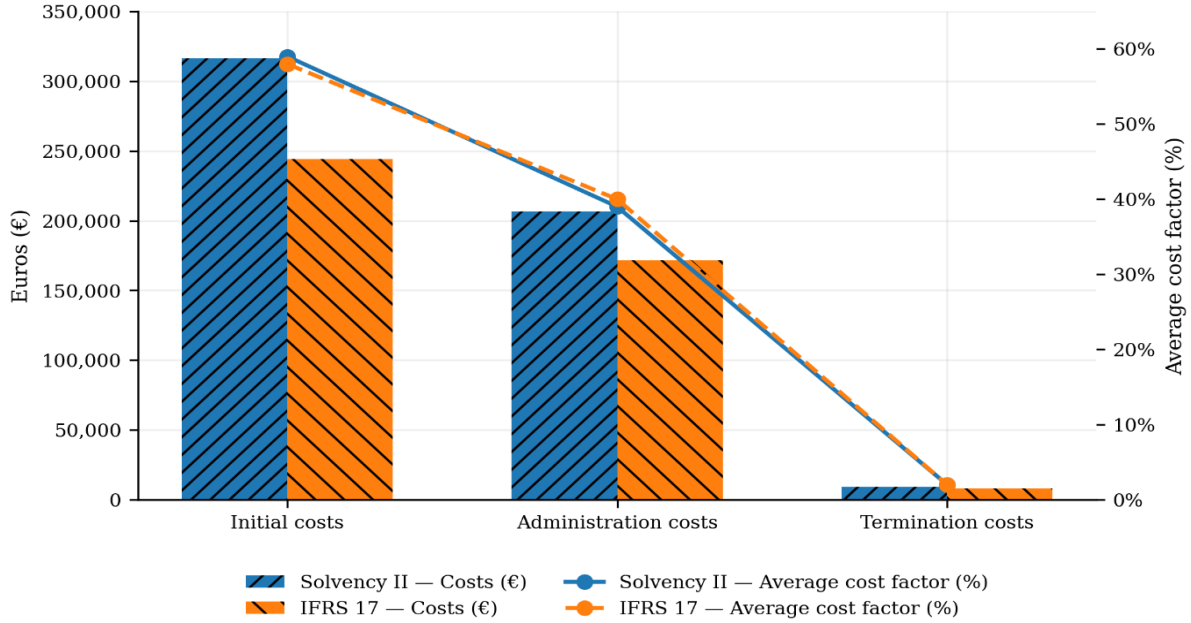
Year	**Total attributable costs (€)** $N_{T,t}^{pr}$	**Initial attributable costs (€)** $N_{i,t}^{pr}$	**Administrative attributable costs (€)** $N_{r,t}^{pr}$	**Claim handling attributable costs (€)** $N_{c,t}^{pr}$	**Number of insurance contracts** $p_{i,t}^{pr}$	**Number of supplementary insurance contracts** $p_{i,t}^{pr}$	**Unit initial costs (€)** $E_{i,t}^{pr}$	**Unit administrative costs (€)** $E_{r,t}^{pr}$
T								
1	423,500	251,791	164,385	7,324	2,100	1,850	83.24	66.55
2	440,440	261,863	170,960	7,617	4,043	3,501	86.57	36.04
3	**454,975**	**270,505**	**176,602**	**7,868**	5,860	4,996	**89.42**	**25.75**

Source: Authors' own work

Discussion

Figure 1 compares the costs of insurance contracts under Solvency II, (European Union, 2009) and IFRS 17, (IASB, 2020), across three categories: initial, administrative, and claim handling. In absolute terms, the costs for Solvency II reporting purposes are always higher as these include both attributable and non-attributable costs. Therefore, we can accept hypothesis H1. For accounting purposes, however, only attributable costs are included in the calculation of liabilities from insurance contracts under IFRS 17. Solvency II costs are for reporting purposes only and are not included in accounting. The purpose of costs calculated under IFRS 17 is different, however: these costs are included in accounting and are therefore recognizable. Non-attributable costs are included directly in the income statement. Cost allocation factors have been selected and each insurance company must choose them according to their actual purpose, justifying their choice in their financial statements and to auditors. All allocation factors must comply with the principles defined in IFRS 17. The division of costs into initial, administrative and claim-handling costs is governed by the same initial factors. However, after division into attributable and non-attributable costs, the final allocation factor differs slightly.

Figure 1: Costs for insurance contracts by category Solvency II vs IFRS 17



Source: Authors' own work

We can conclude that all the research hypotheses defined in the introduction have been confirmed. Figure 1 also shows that the difference between cost allocation under Solvency II and IFRS 17 is most pronounced in the categories of initial costs, as we defined in the research hypothesis H2.

Under Solvency II, all overhead expenses incurred in servicing insurance obligations must be considered. According to EFRAG (2020), under IFRS 17, expenses are allocated to groups of contracts if they are directly attributable to fulfilling insurance contracts. These differences primarily relate to the requirement to perform parallel calculations at different levels of aggregation, allocate expenses to insurance liabilities, determine discount rates and calculate risk adjustment. While some entities have developed comprehensive, contract-level cash flow databases and achieved a high degree of integration between actuarial and financial systems,

others have relied on interim or workaround solutions, such as spreadsheet-based tools and manual processing.

The limits for this paper are individual costs in euros; these are hypothetical and therefore provide a simplified view of a single type of insurance product. The topic could be expanded by comparing other products using the ABC method or another cost-based method. A comparison of the effects of increasing or decreasing actuarial assumptions could also serve as a starting point for further research.

Conclusion

From an economic perspective, managing acquisition costs offers the greatest potential for improving the overall cost efficiency of insurance products. Similar cost distributions also indicate that both regulatory regimes consistently capture the underlying cost profiles of insurance contracts, despite differences in measurement scope and regulatory objectives.

This analysis shows that, despite being based on the same economic principles, Solvency II and IFRS 17 use fundamentally different methods to calculate expenses. Solvency II requires the comprehensive inclusion of all expense categories, including overheads, in the valuation of insurance liabilities. By contrast, IFRS 17 acknowledges the full cost structure of the insurer but only incorporates directly attributable costs into unit cost calculations. Non-attributable expenses are recognized in profit or loss. This definitional divergence produces non-equivalent outcomes, even under identical economic assumptions. The application of activity-based costing further enhances transparency in cost driver identification and strengthens the methodology alignment across actuarial and accounting functions. The successful implementation of both frameworks depends on data quality, process maturity, and cross-functional integration. Cost management exerts its greatest influence during the early stages of the product lifecycle, when strategic interventions can meaningfully impact profitability. Appropriately calibrated allocation keys are therefore crucial for ensuring comparability across regulatory regimes. Despite their differing objectives, Solvency II and IFRS 17 provide complementary perspectives on the cost profile of insurance portfolios. Solvency II emphasizes prudential stability and capital adequacy, whereas IFRS 17 focuses on the economic substance of contractual obligations. The interaction between these frameworks enables insurers to develop more coherent and analytically robust cost management approaches. Accurate cost calculation is essential for both regulatory compliance and strategic decision-making in areas such as pricing, product design and operational planning.

Future research could investigate the quantitative differences in unit cost outcomes under alternative allocation structures, as well as their implications for solvency and accounting performance. Further work could analyses how sensitive cost projection models are to shifts in portfolios, digital transformation and operational modernization.

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