

Assessment of overcompensation in the Irish PHI market

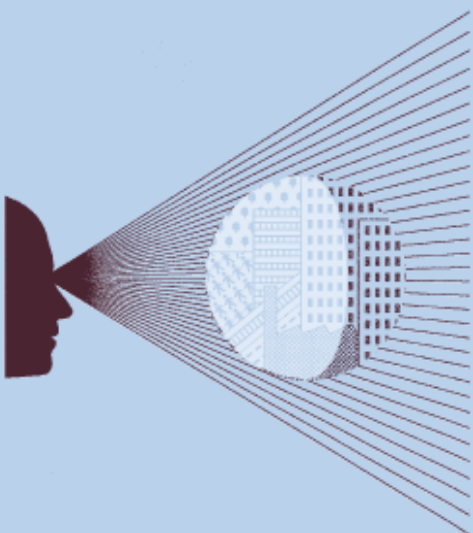
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1 Introduction

1.1 Background and objectives

In July 2009, the Irish government introduced a levy and tax credit scheme to promote intergenerational solidarity in the provision of private health insurance (PHI).¹ Insurers receive higher premiums in respect of insuring people over the age of 50, who in turn receive age-related tax credits (ARTC) equal to the amount of the additional premium so that all people continue to pay the same amount for their health insurance. (The tax credits are administered at source by the insurer.) The fiscal cost of the ARTC is funded by a levy on insurers that is based on the number of customers with health insurance.

The Health Insurance Authority (HIA) has commissioned Oxera to advise on assessing whether the Irish health insurance provider(s) that are net beneficiaries of the levy and tax credit scheme are being overcompensated, and to draft a report.

The context for this assessment is the European Commission's decision² that the levy and tax credit scheme satisfied the third criterion of the 'Community framework for state aid in the form of public service compensation'—hereafter, the service of general economic interest (SGEI) Framework.³ This criterion requires that the compensation for providing an SGEI should not exceed the costs incurred, and that these costs should include a 'reasonable profit'.

The methodology used to assess overcompensation is set out in Oxera's report commissioned by the HIA in March 2010, 'How to assess overcompensation in the Irish PHI market? Methodology and data requirements' (hereafter, 'Oxera's methodology report').

This current report assesses overcompensation of the Irish health insurance provider(s) that were net beneficiaries of the scheme in 2009. This fulfils the requirement in accordance with Section 7F of the Health Insurance (Miscellaneous Provisions) Act 2009.

1.2 Methodology

The Health Insurance (Miscellaneous Provisions) Act 2009, which provides for the levy and tax credit scheme, sets out the steps to be followed when seeking to establish whether an undertaking has been overcompensated for providing the SGEI:

- determine what would constitute a reasonable profit in respect of its health insurance business (Section 7F(4));
- identify net beneficiaries to the scheme (Section 7F(5)); and
- calculate whether the net beneficiary has made a profit in excess of a reasonable profit (Section 7F(6)).

This sub-section summarises the practical steps required to fulfil this requirement. A more detailed description of the issues is provided in Oxera's methodology report.

¹ As part of the Health Insurance (Miscellaneous Provisions) Act 2009, passed July 19th 2009.

² European Commission (2009), 'State Aid No N 582/2008—Ireland: Health Insurance Intergenerational Solidarity Relief', June 17th.

³ OJ C 297 November 2005, included as Schedule 2 to the Health Insurance (Miscellaneous Provisions) Act 2009.

1.2.1 Identifying the net beneficiary

Three health insurers currently participate in the levy and tax credit scheme in Ireland: Vhi, Quinn Healthcare and Aviva. Identifying the net beneficiary or beneficiaries requires determining which firms have received more in higher premiums funded by tax credits than they have paid in levies.

In 2009 Vhi was the only net beneficiary of the scheme, receiving a net total of €xxm from the scheme (this amount is the difference between Vhi's earned ARTC and earned levy). The scheme overall is intended to be fiscally neutral.

The analysis in this report therefore considers whether, in 2009, Vhi was overcompensated through the levy and tax credit scheme.

Although Vhi is the only net beneficiary, this may change if, for example, sufficient numbers of older customers switch to other providers, or a new provider with a relatively high proportion of older customers enters the market.⁴ The framework developed in Oxera's methodology report is applicable for a net beneficiary other than Vhi.

1.2.2 Determining a reasonable profit

Reasonable profit can be determined with reference to both internal and external benchmarks.⁵

- Internal benchmarks consist of Vhi's own cost of equity and cost of capital.
- External benchmarks consist of the profitability measures for comparable firms in Ireland and possibly in other countries.

In fulfilling the requirements of the Act, the approach adopted is to start by estimating the cost of equity and cost of capital for Vhi as the net beneficiary. This provides a basis for estimating the reasonable profit of Vhi for the purposes of assessing overcompensation.

Consistent with the requirements of the Act, the reasonable profit should not only be consistent with the internal benchmark but should also not normally exceed profitability in the sector (external benchmarks) over recent years. The degree to which profitability in the sector provides a valid benchmark for the maximum reasonable profit of Vhi depends on whether the risk and business characteristics of firms used to estimate external benchmarks are close to those of Vhi, and on whether profitability in the sector over recent years provides a reliable benchmark for a reasonable current profitability level.

Currently, in addition to Vhi, the two other firms that provided SGEI-related services in Ireland in 2009 were Quinn and Aviva.⁶ The profitability levels of their SGEI-related activities provide the best external benchmarks to the profitability of Vhi as a net beneficiary. Due to the changes in the SGEI framework (which among other things affect measures of profitability of the Irish PHI firms), at present data on SGEI-related activities for 2009 only provides a reliable indication of the profitability of other firms operating in this sector. Therefore the analysis of overcompensation can only use profitability levels observed in 2009. Going forward, as more data is accumulated, the profitability of PHI firms in Ireland

⁴ In its decision approving the scheme, the European Commission noted that the identity of the net beneficiary could change if a sufficient number of older customers switched from Vhi to other providers. European Commission (2009), 'State Aid No N582/2008—Ireland: Health Insurance Intergenerational Solidarity Relief', June 17th, para 22.

⁵ Internal benchmarks exist only for the standard measures of profitability developed in this report (return on equity and return on capital employed), not for other measures (eg, the combined ratio or return on revenues).

⁶ In 2009, these three firms thus constituted the health insurance sector in Ireland, as referred to in the Health Insurance (Miscellaneous Provisions) Act 2009, quoting the SGEI Framework.

might provide a reliable external metric, although this depends on whether there are any material changes to the levy and tax credit scheme.

In the Irish PHI sector, given changes in the legal structure over recent years and the specific environment and type of services offered, the emphasis at present should be placed on the internal benchmarks. As more data is accumulated going forward and the quality of external benchmarks improves, the analysis can increasingly rely on these external benchmarks to provide an indication of the maximum reasonable profit of Vhi as a net beneficiary.⁷

1.2.3 **Measuring the profits of the net beneficiary to determine overcompensation**

Establishing whether the net beneficiary has earned profits in excess of what can be considered reasonable requires Vhi's profits to be measured. The level of profits is estimated using standard measures of profitability. The return on equity (ROE) and return on capital employed (ROCE) are two measures that are best suited for assessing the profitability of SGEI-related activities, given the data available.

Since the analysis focuses on the profitability of SGEI activities, the profitability measures need to be estimated in relation to the SGEI-related activities of Vhi in isolation (as opposed to all its activities).

1.2.4 **Assessment of overcompensation**

Having measured the profitability of Vhi (as the current net beneficiary), as well as estimates of 'reasonable profit' with reference to both internal and external benchmarks, the report determines whether Vhi has been overcompensated. This is done by comparing Vhi's realised profitability with estimates of reasonable profit. Importantly, when considering whether profits are reasonable, it is necessary to assess whether any differences observed between Vhi's actual measured profits and the benchmarks are *persistent* and *significant*—ie, any such differences are observed over a sufficiently long period of time and are material.

In the current context, due to the fact that the levy and tax scheme was first applied in 2009, only one year of data is available for the profitability analysis in 2010. To draw conclusions on whether the net beneficiary's profits are reasonable, it will be necessary to assume that 2009 is representative of profitability at this point in time. Going forward, applying this methodology on an annual basis will allow an increase in the period over which the profitability of the net beneficiary is considered.

1.3 **Practical implementation**

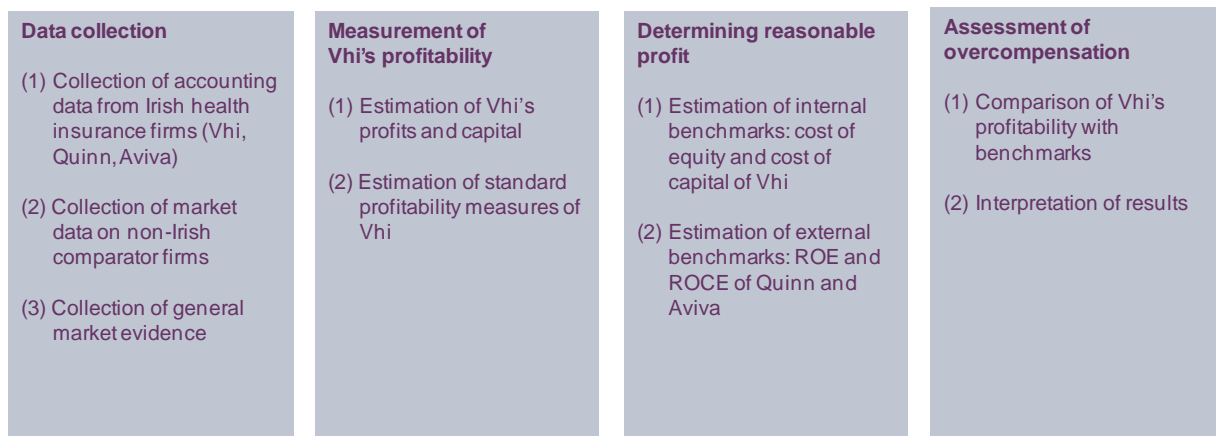
As summarised in Figure 1.1, the practical implementation involves:

- collecting the data;
- determining what constitutes a reasonable profit;
- measuring Vhi's profitability; and
- assessing whether there has been overcompensation.

Together, these four tasks ensure that the requirements set out in Section 7F of the Health Insurance (Miscellaneous Provisions) Act 2009 are fulfilled.

⁷ Quinn and Aviva operate under the same SGEI framework and are subject to the same industry-specific and market-wide risks as Vhi, and therefore constitute good comparators when assessing Vhi's profitability. While Quinn and Aviva differ in some significant respects from Vhi (eg, for-profit status and ownership structure), more comparable firms do not exist at present in other Member States (there are differences in the PHI regulations, market structure, nature of market-wide shocks, etc). Nevertheless, there could be circumstances under which it would become necessary to use external comparators. As regards specific circumstances that could arise which might affect the need to use comparators from outside Ireland, it is not possible to identify these in advance. Such judgements would have to be made when undertaking the assessment of overcompensation.

Figure 1.1 Practical implementation



Source: Oxera.

The remainder of the report is structured as follows.

- Section 2 sets out accounting data used in estimating Vhi's profitability and its external benchmarks.
- Section 3 estimates internal profitability benchmarks.
- Section 4 estimates external profitability benchmarks.
- Section 5 estimates Vhi's ROE and ROCE in 2009.
- Section 6 provides a summary and outlines the conclusions.

Appendix 1 sets out accounting data provided by Vhi, Quinn and Aviva. Appendix 2 sets out calculations of Quinn's ROE and ROCE, based on the alternative proportions of claims included in the Information Returns (ie, alternative assumptions on allocation of profit and loss (P&L) and balance sheet items between SGEI and non-SGEI activities). Appendix 3 provides Vhi ROE and ROCE estimates, based on alternative measures of Vhi's equity and total capital. Appendix 4 lists potential non-Irish comparators to Vhi.

2 Accounting data

To estimate the profitability of Vhi and benchmark it across external comparators, detailed P&L and balance-sheet data is required for Vhi and its Irish comparators, Quinn and Aviva, across both SGEI- and non-SGEI-related activities.⁸ This section provides an overview of the data received from Vhi, Quinn and Aviva, focusing on the methodology used for the allocation of various items across SGEI- and non-SGEI-related activities.

2.1 Data from firms

The HIA sent out data requests to Vhi, Quinn and Aviva on March 19th 2010 for a list of items for the purposes of Section 7F of the 1994 Act. The HIA requested the data to be allocated across the health insurance business in the State that comes within the definition of the Information Returns provided by the firms to the Authority under Section 7D of the 1994 Act ('Information Returns business') and the other health insurance business, along with a description of the methodology used for the allocation. The data received from each firm is presented below. As requested by the HIA, the firms provided separate data for SGEI- and non-SGEI-related activities using a number of assumptions to allocate the various metrics. Although the base case uses these allocations as provided by firms, a sensitivity analysis is also undertaken to assess the impact of alternative allocations on the profitability of Vhi and its Irish comparators.

2.1.1 Data from Vhi

Table 2.1 provides extracts from Vhi's P&L statement across the SGEI- and non-SGEI-related activities, together with a description of the methodology used for the allocation. A full version of Vhi's P&L can be found in Appendix 1.

⁸ To estimate internal benchmarks, the analysis also requires market data and evidence from academic and professional literature. The market data relates to insurance firms used as comparators to Vhi (eg, their equity returns and bond yields); and to wider Irish and European markets (eg, yields on government bonds, and returns on equity market indices). The evidence from literature relates to the equity risk premium. Market data and evidence from academic and professional literature is described in section 4 below as part of the analysis of internal benchmarks.

Table 2.2 Balance sheet of Vhi, 2009

	Closing value		Opening value		Methodology for allocation to SGEI related activities
	SGEI (€'000)	Non-SGEI (€'000)	SGEI (€'000)	Non-SGEI (€'000)	
Land and buildings					
Debtors from members arising out of insurance operations					
Other debtors					
Other assets (tangible and deferred taxation)					
Prepayments and accrued income					
Total assets					
Provision for unearned premiums					
Claims outstanding					
Other technical provisions					
Creditors arising from insurance operations					
Other creditors and accruals					
Retirement benefits liability					
Total liabilities					
Total reserves					

Note: Other creditors and accruals can be further broken down into ARTC and Levy; PAYE and PRSI, other creditors and accruals. Based on information provided in Vhi's 2009 Annual report and above breakdown of balance sheet between SGEI and non-SGEI activities, average other creditors of SGEI related activities in 2009 were €xxm.

Source: Vhi.

Appendix 2 sets out analysis based on the proportions of claims included in the Information Returns originally provided by Quinn. Under this allocation, xx% of claims are allocated to SGEI-related activities.

Unlike Vhi, Quinn’s allocations do not estimate what portion of premiums for each plan relates to the SGEI business directly; rather, it assumes that premiums and other P&L items have the same allocations as the claims paid. Another difference between the approaches adopted by Quinn and Vhi concerns the allocation of those items directly related to the levy and tax credit scheme. Vhi allocates 100% of these items to the SGEI-related business, while Quinn allocates these items between SGEI and non-SGEI activities using the same allocations as the claims paid.

Oxera is not aware of a single prescribed method for cost allocation between the SGEI and non-SGEI activities of insurance firms, and different methods are potentially considered valid.

The analysis in this report also considers the profitability of Quinn’s SGEI-related activities that are calculated using an approach to allocations that is most consistent with the approach adopted by Vhi. While it is not possible to apply Vhi’s method of premium allocation to Quinn using the information available, it is possible to adjust Quinn’s treatment of the levy and ARTC so that these items are fully allocated to the SGEI business. (This adjustment is applied to the P&L data that reflects SGEI and non-SGEI allocations that are based on the revised proportion of SGEI claims in the Information Returns).

Table 2.4 presents the amended P&L statement of Quinn. As can be seen, allocating the levy and ARTC to the SGEI business has the effect of reducing the profits associated with the SGEI-related activities.

Table 2.4 P&L of Quinn, alternative ARTC and levy treatment, 2009

	SGEI (€'000)	Non-SGEI (€'000)	Methodology for allocation to SGEI related activities
Gross earned premium			
Earned ARTC			
Earned levy			
Net earned premium (incl. earned ARTC and earned levy)			
Profit before taxation			
Corporation tax			
Profit after tax			

Source: Quinn and Oxera calculations.

Table 2.5 provides extracts from Quinn’s balance sheet across the SGEI- and non-SGEI-related activities, together with a description of the methodology used for the allocation. A full version of Quinn’s balance sheet can be found in Appendix 1.

Table 2.5 Balance sheet of Quinn, 2009

	Closing value		Opening value		Methodology for allocation to SGEI-related activities
	SGEI (€'000)	Non-SGEI (€'000)	SGEI (€'000)	Non-SGEI (€'000)	
Investments					
Other assets					
Total assets					
Technical reserves					
Other creditors					
Shareholder funds					

Source: Quinn and Oxera calculations.

All the balance sheet items have been allocated to SGEI activities using the approach adopted for allocating claims—ie, representing around xx% of the combined estimates for SGEI and non-SGEI activities. This differs somewhat from the approach adopted by Vhi, which allocates some items in proportion to premiums.

2.1.3 Aviva

Table 2.6 provides extracts from the P&L statement of Aviva across the SGEI- and non-SGEI-related activities, together with a description of the methodology used for the allocation. A full version of Aviva's P&L can be found in Appendix 1.

3 Reasonable profit—internal benchmarks

As set out in Oxera’s methodology paper, reasonable profit can be determined with reference to benchmarks both internal and external to the firm. This section and section 4 outline estimations of the internal and external benchmarks, respectively.

Internal benchmarks consist of Vhi’s own cost of equity and cost of capital. The cost of equity is estimated using the capital asset pricing model (CAPM), while the cost of capital is estimated as the weighted average cost of capital (WACC). The cost of equity using the CAPM is estimated as the risk-free rate + equity beta × the equity risk premium (ERP). The WACC takes into account the cost of equity capital, cost of debt capital, and the ratio of equity to debt capital.

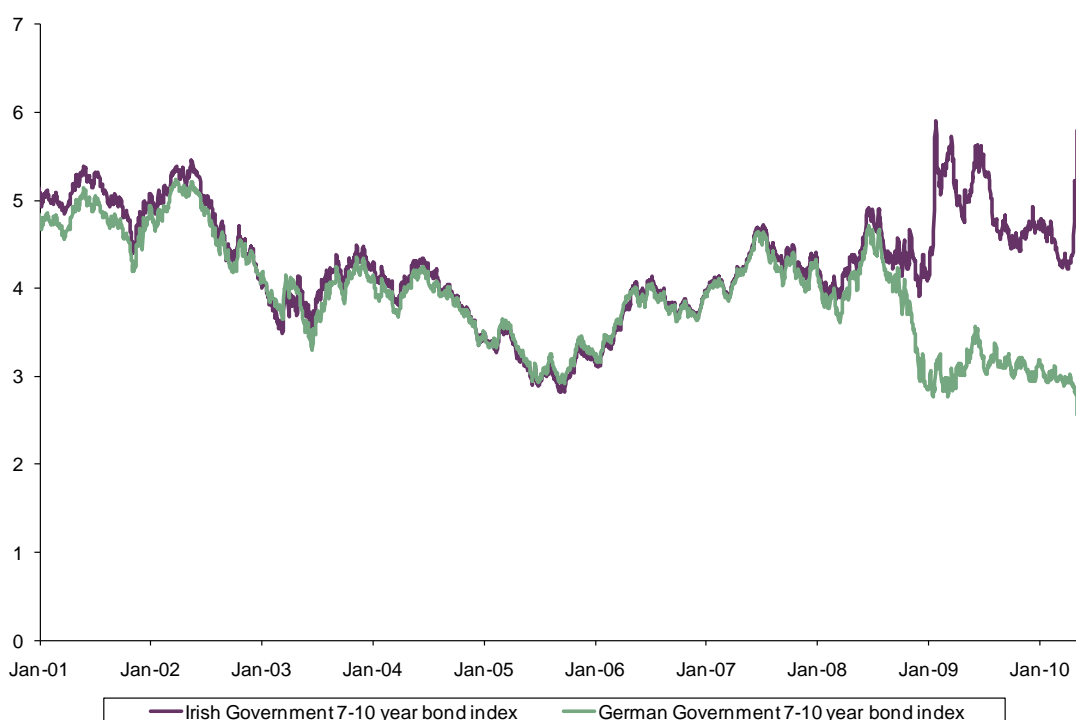
The remainder of this section estimates the cost of equity and the cost of capital of Vhi.

3.1 Risk-free rate

The risk-free rate is the return that investors require on an asset that yields certain returns. It can be estimated by considering the returns that investors require to hold government bonds. Under the current circumstances, however, it may not be appropriate to use Irish government bonds to estimate the risk-free rate: over 2009, Standard & Poor’s (S&P) lowered Ireland’s credit rating three times, from AAA to AA+ in March, from AA+ to AA in June and from AA to AA– in August, reflecting the deterioration in the country’s public finances and sizeable fiscal obligations.

As shown in Figure 3.1, there has been a significant increase in the spread between the yields of Irish government bonds and those of Germany since April 2009. Insofar as the risk-free rate should reflect the return that investors would demand in order to invest in the least risky asset available, Irish bond yields should not be used in the analysis. For the Euro area it is more appropriate to use the German government bonds as they represent a virtually risk-free investment in euro currency.

Figure 3.1 European government bond rates (%)



Source: Datastream and Oxera calculations.

Table 3.1, which shows the spot and averages of German government bond yields for different maturities and averaging periods as at year-end 2009, suggests that the current yields are broadly in line with yields observed over a six-month and two-year period.

Table 3.1 Yields of German government bonds, as at December 31st 2009

Maturity	Averaging period		
	Spot	Six months	Two years
Bonds with 7–10-year maturity (%)	3.2	3.1	3.5

Source: Datastream and Oxera calculations.

Bond maturities of between seven and ten years are used as a proxy for the risk-free rate. Furthermore, recognising that yields on government bonds tend to mean-revert,¹⁰ a combination of the spot, six-month and two-year averages is used. The risk-free rate of 3.2–3.5% is used when estimating the cost of capital of Vhi.

3.2 ERP

The ERP is the difference between the expected return on a diversified portfolio of risky equity securities and the expected return on a risk-free asset. It represents the compensation that investors require to bear the risk to which they expose themselves by investing in equity markets. The ERP is not directly observable and must be estimated using indirect

¹⁰ 'Mean reversion' refers to the concept that both extraordinary highs and lows are temporary and that, over time, a price will revert to a stable average. The current market environment is characterised by increased volatility and forecasting uncertainty, making it more difficult to estimate the stable average representing returns that investors require at present. This may be mitigated by extending the evidence base to include data over longer periods of time.

approaches, such as those using historical (realised) premiums, forward-looking (implied) premiums or forward-looking surveys.

Table 3.2 summarises the realised historical risk premium estimates (based on approximately 110 years of data) provided by Dimson, Marsh and Staunton (2010).

Table 3.2 Historical estimates of the ERP

	Mean
Ireland (%)	4.7
World (%)	4.9

Source: Dimson, E., Marsh, P. and Staunton, M. (2010), 'Credit Suisse Global Investment Returns Sourcebook 2010', February.

Given that the capital markets globally are becoming increasingly integrated, when considering the ERP for Ireland it is appropriate to use the historical ERP for Ireland and the world.¹¹ This approach yields a range of 4.7–4.9.

3.3 Accounting for Ireland-specific conditions (country risk premium)

The Irish economy has been more severely affected by the current economic crisis than most of its European counterparts. This means that in certain circumstances investors now require a premium in compensation for a high exposure to Irish assets; this is referred to as a 'country risk premium'. This part of the analysis estimates the country risk premium that can be applied when estimating Vhi's cost of equity and cost of capital.

Figure 3.1 above showed the divergence between Irish government bond yields and those of Germany.

Indications from the equity and bond markets therefore suggest that recent economic developments in Ireland may have increased uncertainty regarding the future path of economic variables, thereby increasing uncertainty around returns. While it is not possible to observe directly the implication of these factors for the country risk premium, this premium can be approximated using indirect indicators based on sovereign spreads.

Table 3.3 presents Ireland's sovereign spread against German government bonds for 7–10-year maturity. The evidence on German and Irish government bonds suggests a country risk premium of between 1.1% and 1.6%. For the purposes of this analysis, a mid range of 1.4% is used.

Table 3.3 Ireland sovereign spread against Germany (December 31st 2009)

	Averaging period		
	Spot	6-month	2-year
Spread (%)	1.6	1.6	1.1

Source: Datastream, Oxera calculations.

¹¹ The world index is a market capitalisation weighted equity index of 19 countries denominated in a common currency. The weightings are based on the market capitalisation at the start of the period of estimation, if available. In the absence of any market capitalisation for the relevant period, the weightings are determined by the relative GDPs of these countries.

3.4 Betas

The beta is a measure of a company's non-diversifiable risk relative to the risk on the market portfolio. It is defined as the covariance between returns on an asset and returns on the market portfolio, divided by the variance of returns on the market portfolio.

Since Vhi is not traded, its beta is estimated using a sample of listed firms with risk characteristics similar to those of Vhi. For the purposes of this analysis, Vhi's comparators are chosen from three insurance sectors: full-line insurance, life insurance, and property and casualty. (There are no 'pure-play' listed health insurance firms in the EU.)

The comparators are chosen from constituents of the DJ Stoxx Insurance index (as at May 31st 2010). 58 firms fall into one of the three sub-sectors¹² chosen for this analysis:

- full-line insurance–22 firms;
- life insurance–20 firms;
- property and casualty–16 firms.

Betas are calculated for the 58 companies in the sample, considering the three sub-sectors separately. For the estimation of betas, a three-year period (ending December 31st 2009) based on daily data has been used.¹³

Table 3.4 shows the number of firms, equally weighted average and median beta estimates for the three groups. The table suggests that equity betas lie in the range of 0.73–1.09, with the highest betas observed among the life insurance firms.

Table 3.4 Summary statistics of equity betas by insurer type

	Full-line insurers	Life insurance	Property and casualty
Number of firms	22	20	16
Mean	0.81	1.09	0.73
Median	0.86	1.08	0.77

Source: Bloomberg and Oxera calculations.

As well as reflecting different exposure to market risk, equity betas are influenced by the financial leverage of the individual firms. Estimating Vhi's equity beta therefore requires the comparators' equity betas to be adjusted for the leverage differential between Vhi and other insurers. This in turn requires de-levering the equity beta of benchmarks with their respective gearings to calculate the asset beta, and then re-levering the asset beta by Vhi's gearing levels.

Table 3.5 shows median leverage estimates for the three groups of firms. The estimates of leverage for each firm are consistent with the period of estimation of the equity betas (ie, they are based on the three years of data).

¹² Sub-sectors are defined in accordance with the Datastream Level 4 classification.

¹³ The analysis shows that, on average, beta estimates have not been affected by recent turbulence in financial markets, whereby average estimates across firms for the three-year period ending December 31st 2009 are similar to three-year beta estimates for the period ending December 31st 2007.

Table 3.5 Summary statistics of leverage by insurer type

	Full-line insurers	Life insurance	Property and casualty
Number of firms	22	20	16
Median	0.17	0.40	0.13

Note: leverage is calculated using the formula: net debt/(net debt + total shareholder equity).
Source: Datastream and Oxera calculations.

The mean equity beta and the median leverage for each of the three groups of firms are used to calculate the respective asset betas. Table 3.6 presents estimates of the asset betas for the three groups of firms. The table suggests that asset betas across different types of insurance firm are very similar, ranging from 0.63 to 0.67. The midpoint of 0.65 is used as an estimate of Vhi's asset beta.

Table 3.6 Asset beta by insurer type

	Full-line insurers	Life insurance	Property and casualty
Mean equity beta	0.81	1.09	0.73
Median leverage	0.17	0.40	0.13
Asset beta	0.67	0.65	0.63

Note: Asset beta is calculated as: mean equity beta × (1 – median leverage).
Source: Bloomberg, Datastream and Oxera calculations.

Based on the analysis of comparators, Vhi's asset beta estimate is equal to xx. Given that the leverage of Vhi's SGEI activities is xx, this implies an equity beta of xx.¹⁴

3.5 Debt premium

Sections 3.1 to 3.4 above considered the components necessary for estimating Vhi's cost of equity. To estimate the WACC, it is also necessary to calculate the cost of debt and the ratio of debt to total capital (ie, the firm's leverage). These are now considered in this and the following sub-section.

The debt premium is the return demanded by lenders to the firm over and above the risk-free rate. It can be estimated by comparing the yields on a firm's bonds and government bond yields. Since Vhi does not currently have any publicly listed bonds, listed bonds issued by comparators are used to estimate the debt premium.

Debt premiums of bonds issued by comparators in the insurance industry within a certain credit rating band may provide an estimate of Vhi's debt premium. Firms with credit ratings of 'A' are assumed to be relevant comparators for estimating Vhi's debt premium. This relies on the assumption that Vhi's credit rating is no greater than that of the Irish government ('AA-' at the end of 2009) and is in line with the rating of most of its comparators.

Table 3.7 presents the current and historical debt spreads on the bonds of comparator firms with maturities up to 20 years. The firms and bonds in this sample were selected from listed bonds of A-rated European insurance firms.¹⁵ On average, the debt spreads for the comparators vary between 1.37% and 1.96% depending on the measurement period.

¹⁴ Equity beta = asset beta / (1 – leverage).

¹⁵ All bonds with maturity of more than 20 years, those with hybrid features (eg, a conversion option), and those with a variable-rate coupon were excluded from this analysis.

Table 3.7 Spot and average debt spreads as at December 31st 2009

Name	Year of maturity	Bond rating	Spot (%)	Six-month average (%)	Two-year average (%)
Swiss	2014	A+	1.02	1.13	-
AEGON	2014	A-	1.34	1.53	2.53
AEGON	2015	A-	1.92	-	-
Ing Groep	2016	A	1.50	1.48	1.59
Ing Groep	2017	A	1.50	1.57	1.92
AEGON	2019	A-	2.00	2.02	1.56
Assic. Generali	2024	A+	0.90	1.01	-
Average			1.45	1.46	1.90

Note: Bonds with no longer-term averages are those that were not traded throughout the period for which the historical averages are being calculated.

Source: Datastream and Oxera calculations.

Based on the debt spreads of comparator firms, the debt premium of Vhi's SGEI activities for the purposes of this analysis is 1.5–1.9%.

3.6 Leverage

To calculate a firm's WACC, its leverage (ie, the share of debt of its total capital) needs to be estimated. It is estimated as the ratio of (total capital employed less total shareholder funds) to the total capital employed. Table 3.8 shows estimates of Vhi's leverage for SGEI activities.¹⁶

Table 3.8 Leverage of Vhi's SGEI activities, 2009 average

	SGEI activities
Proxy for total shareholder funds (€'000)	
Total capital employed (€'000)	
Leverage	

Source: Vhi and Oxera calculations.

3.7 Summary

Table 3.9 shows the selected range of parameters, the cost of equity and the cost of capital of Vhi's SGEI activities.

¹⁶ Section 5 provides calculations of proxy for total shareholder funds and total capital employed.

Table 3.9 The cost of equity and cost of capital of Vhi's SGEI activities, 2009

	Low	High
Risk-free rate (nominal) (%)	3.2	3.5
Debt premium (%)	1.5	1.9
Cost of debt (%)	4.6	5.4
ERP (%)	4.7	4.9
Asset beta	0.65	0.65
Equity beta	0.76	0.76
Country risk premium (%)	1.4	1.4
Post-tax cost of equity (%)	7.9	8.3
Leverage		
Effective tax rate (%)	0	0
Pre-tax cost of capital (nominal, %)	7.4	7.9
Post-tax cost of capital (nominal, %)	7.4	7.9

Note: Figures may not add up due to rounding.

Source: As indicated in each section by parameter, and Oxera calculations.

The table suggests that:

- Vhi's SGEI activities' post-tax cost of equity capital lies in the range of 7.9–8.3%, with a midpoint of 8.1%;
- Vhi's SGEI activities' pre-tax cost of capital lies in the range of 7.4–7.9%, with a midpoint of 7.7%.

For the purposes of assessing whether Vhi has been overcompensated, an internal benchmark of 7.9–8.3% with a midpoint of 8.1% is used when considering the level of ROE, and an internal benchmark of 7.4–7.9% with a midpoint of 7.7% is used when considering the level of ROCE.

4 Reasonable profit—external benchmarks

The previous section estimated Vhi’s cost of equity and cost of capital in accordance with the Health Insurance (Miscellaneous Provisions) Act 2009, which requires an assessment of what a reasonable profit might be. As a further check, the Act also states that a reasonable profit should be assessed with reference to other firms in the industry (ie, external benchmarks).

The external benchmarks approach compares the ROE and ROCE for the Vhi against the equivalent profitability measures of its comparator firms. In Ireland, two other firms that currently provide SGEI-related services are Quinn and Aviva. Both are used as comparators to Vhi. Sections 4.1 and 4.2 estimate the ROE and ROCE of Quinn and Aviva.

The profitability levels of Quinn and Aviva’s SGEI-related activities provide the closest external benchmarks to the profitability of Vhi as a net beneficiary. Due to the changes in the SGEI framework, currently data on SGEI-related activities for 2009 only provides a reliable indication of the profitability of other firms operating in this sector. The analysis of overcompensation can therefore only use profitability levels observed in 2009. Going forward, as more data is accumulated, the profitability of PHI firms in Ireland might provide a reliable external metric, although this depends on whether there are any material changes to the levy and tax credit scheme.

While Quinn and Aviva differ in some significant respects from Vhi (eg, for-profit status and ownership structure), more comparable firms do not exist at present in other Member States. Therefore, in this analysis the estimation of external benchmarks is based on Quinn and Aviva.

Nevertheless, in future there could be circumstances under which it would become necessary to use external comparators. To provide the basis for future assessments of overcompensation (if the non-Irish comparators become necessary for the analysis), section 4.3 below describes the selection of the non-Irish comparators of Vhi.

4.1 ROE

4.1.1 Base case—SGEI and non-SGEI allocations provided by firms

Table 4.1 shows the unadjusted ROE estimates for Quinn and Aviva using financial statements and the allocation of revenues, costs and balance sheet items between SGEI and non-SGEI businesses.

Table 4.1 Unadjusted ROE estimates for Quinn and Aviva’s SGEI activities, 2009

	Quinn’s SGEI activities	Aviva’s SGEI activities
Profit after tax (€’000)		
Total shareholder equity (€’000)		
Return on equity (%)		

Source: Quinn, Aviva and Oxera calculations.

Similar to Vhi, the accounting P&L and balance sheet items of Quinn and Aviva may need to be adjusted to better reflect the profitability of their ongoing activities (see section 5.2 for the

4.2.2 Alternative treatment of the levy and ARTC for Quinn: consistent with Vhi's approach

Table 4.4 shows the ROCE estimates for Quinn using the same adjustments to revenue and cost recognition and allocation between SGEI and non-SGEI businesses as above. Section 2 presented the data underlying these calculations.

Table 4.4 Unadjusted ROCE estimates for Quinn's SGEI activities, alternative treatment of the levy and ARTC, 2009

Quinn's SGEI activities
Profit before tax (€'000)
Total capital employed (€'000)
Return on capital employed (%)

Note: The capital employed is calculated as a sum of other creditors, bank overdraft, pension deficit and total shareholder funds. In the case of Quinn, due to data availability, 'creditors' including 'creditors arising out of insurance operations' were used in calculating total capital employed. Only other creditors and bank overdraft were used when calculating total capital employed for Vhi and Aviva (ie, creditors arising from insurance operations item is not included). Assuming that a ratio of other creditors and bank overdraft to creditors of Quinn is similar to that of Vhi, Quinn's total capital employed would be €xxm, and associated ROE would be xx%. Source: Quinn and Oxera calculations.

4.3 External benchmarks—other comparators

In future years it might be necessary to supplement the analysis by using additional non-Irish comparators. For example, due to mergers in the industry or any other material changes in the industry structure, Quinn and Aviva might no longer provide sufficiently good benchmarks for measuring the reasonable profits of Vhi.

This section identifies possible comparators that could be used in future years. If it were necessary to perform this part of the analysis in future, the profitability metrics for these companies could be calculated for the relevant year using methods similar to those used for Quinn and Aviva. Since it would not be possible to isolate those activities most similar to SGEI (ie, the companies would not be allocating revenues and costs between activities), it is likely that the results obtained from external benchmarks would be less reliable than the estimates for Quinn and Aviva's SGEI-related activities obtained for 2009.

The choice of comparator firms includes consideration of the business mix and risk characteristics (ie, whether the firm is active in the same insurance segment as Vhi), and the location (ie, located in EU). At a practical level, it is difficult to find 'pure-play' comparators in other countries whose main activity is PHI. For the purposes of this illustration of potential comparators, they are selected as follows:

- consider EU countries that are of similar size to Ireland, and that have PHI (broadly) similar to that in Ireland; and
- select firms that are active in the PHI segment in those countries.

The following countries in the EU meet the above criteria (country size and broad similarities in the PHI segment): Belgium, Denmark, Finland, Netherlands and Sweden. Subject to further analysis, these countries could be suitable for the analysis of external benchmarks if PHI firms outside Europe are required.

Table 4.5 shows the number of firms active in this segment across countries. The full list of these firms is provided in Appendix 4. Although required accounting information is available for most of these firms, some are likely to need to be excluded from the profitability analysis due to lack of data.

Table 4.5 Possible EU comparators

Country	Number of firms	Comment
Belgium	15+	Largest 15 health insurance companies operating in Belgium
Denmark	6	Accident and illness insurance firms operating in Denmark
Finland	21	Non-life insurance companies offering accident and health insurance services in Finland
Netherlands	30	Health insurance companies operating in the Netherlands
Sweden	56	All non-life insurance companies supervised by the Swedish regulator

Source: Assuralia (Belgian trade association); Danish Financial Supervisory Authority; Dutch College for Health Insurance; Swedish Financial Supervisory Authority and Finnish Financial Supervisory Authority.

4.4 Summary

The analysis in this section provides evidence on the ‘reasonable profit’ of Vhi for financial year 2009. Table 4.6 summarises the evidence, providing an equity-weighted average ROE and capital-weighted ROCE for Quinn and Aviva. The table shows that the estimates of reasonable profit based on external benchmarks are somewhat above the internal benchmarks calculated in section 3.

Table 4.6 ROE and ROCE of Irish comparators, 2009

	Quinn’s SGEI-related activities	Aviva’s SGEI-related activities	Weighted average
ROE (%)			
ROE (alternative treatment of the levy and ARTC) (%)			
ROCE (%)			
ROCE (alternative treatment of the levy and ARTC) (%)			

Source: Quinn, Aviva and Oxera calculations.

Under the current circumstances, the analysis using external benchmarks based on the Irish comparators is sufficient. Therefore, an estimation of the external benchmarks based on non-Irish comparators is not required. If the use of non-Irish comparators becomes necessary for future assessments of overcompensation, then subject to further assessment and data availability, health insurance firms from Belgium, Denmark, Finland, the Netherlands and Sweden could provide the basis for such analysis.

5 Profitability of Vhi

The level of Vhi's profits is estimated in this section using the ROE and ROCE measures. Consistent with the requirement in accordance with Section 7F of the Health Insurance (Miscellaneous Provisions) Act 2009, the focus of this analysis is on Vhi's SGEI-related activities.

The remainder of this section:

- estimates ROE and ROCE measures of Vhi's SGEI-related activities based on unadjusted accounting data provided by Vhi;
- estimates ROE and ROCE measures of Vhi's SGEI-related activities using P&L and balance sheet items that are adjusted to better reflect ongoing activities, and thereby providing more robust profitability measures;
- considers allocations between the SGEI and non-SGEI activities that Vhi has used, and the impact of changes in these allocations on the ROE and ROCE measures of Vhi's SGEI-related activities.

5.1 ROE and ROCE: unadjusted P&L and balance sheet data

Estimations of Vhi's profitability in 2009 are presented below. Section 5.1.1 and 5.1.2 discuss the approach employed in estimating the ROE and the ROCE, respectively, for Vhi's SGEI-related activities using accounting data provided by Vhi, and summarise the underlying estimates.

While simple to calculate in the first instance, these accounting measures require a number of adjustments for them to reflect the firm's true underlying profitability. These calculations are discussed in section 5.2.

5.1.1 ROE

At a general level, the ROE is calculated as profits after tax divided by total shareholder funds. For publicly listed firms, both of these items would be available from financial statements. In particular, total shareholder funds would be directly available from the balance sheet, and include such items as:

- accumulated profit/loss (retained earnings);
- called-up share capital;
- share premium; and
- capital redemption reserve.

In the case of not-for-profit companies such as Vhi, shareholder equity will not appear explicitly on the balance sheet, making it necessary to use a proxy for shareholder equity. As discussed in Oxera's methodology paper, a proxy for equity capital can be estimated from various items on the balance sheet, considering which items are most akin to equity shareholder funds in a privately owned health insurance firm.¹⁹

¹⁹ An alternative approach that can be used to cross-check direct estimates is to consider the capital structure of comparator firms and then apply this hypothetical capital structure to Vhi. Appendix 3 of this report outlines the estimates of ROE and ROCE of Vhi's SGEI-related activities based on these alternative measures of capital.

In Vhi's case, the balance sheet item most similar to equity capital is the firm's general reserve. From an accounting perspective, it is similar to equity in that it is the repository for accumulated profits and losses. From an economic perspective, it is available to absorb unexpected losses, assuming that technical provisions would be sufficient to cover the expected levels of claims. In addition, were the company to be wound down, the general reserve (if more than zero) would be distributed to owners, as would the shareholders' equity in the case of a publicly held firm.

The general reserve of Vhi's SGEI-related activities was €xxm at year-end 2009 and €xxm at the end of 2008, as shown in Appendix 1. The average level for 2009 is therefore €xxm.

Using the general reserve as a proxy for equity, Table 5.1 shows ROE estimates for Vhi's SGEI-related activities using the allocation of revenues and costs between SGEI and non-SGEI businesses as submitted by Vhi and shown in Tables 2.1 and 2.2 above.

Table 5.1 Unadjusted ROE estimates for Vhi's SGEI activities, 2009

Vhi's SGEI activities
Profit after tax (€'000)
Proxy for equity capital (€'000)
ROE (%)

Source: Vhi and Oxera calculations.

To obtain measures that better reflect the profitability of ongoing activities, it is necessary to make adjustments to the calculation of post-tax profit to take into account deferred taxes, investment returns and provisions for the unexpired risk reserve. These adjustments, as well as the ROE estimates based on these adjusted P&L and balance sheet items, are discussed further in section 5.2 below.

5.1.2 ROCE

The ROCE is an alternative proxy for economic profitability, and is estimated as profits before tax divided by total capital. Total capital employed is a wider measure than equity capital, and includes other funds necessary for running the business. In the case of non-state-owned firms, total capital would include debt items in addition to shareholders' equity.

In the case of Vhi, total capital employed is estimated as the sum of the general reserve (used as a proxy for shareholder funds), liabilities to financial creditors, and retirement benefits liabilities, less cash and equivalents.

Table 5.2 presents the estimate of the total capital employed of Vhi's SGEI-related activities for 2009 (Section 2 sets out data underlying these calculations). The table shows that in 2009 it was €xxm.

Table 5.2 Measure of capital employed for Vhi's SGEI activities, 2009 average

Vhi's SGEI activities
Other creditors (€'000)
Bank overdraft (€'000)
Retirement benefits liability (€'000)
General reserve (€'000)
Less:
Cash (€'000)
Total capital employed (€'000)

Source: Vhi and Oxera calculations.

Using this measure of total capital employed and unadjusted pre-tax profit produces ROCE estimates as shown in Table 5.3.

Table 5.3 Unadjusted ROCE estimates for Vhi's SGEI activities, 2009

Vhi's SGEI activities
Profit before tax (€'000)
Estimate of total capital (€'000)
ROCE (%)

Source: Vhi and Oxera calculations.

5.2 ROE and ROCE: adjustments to P&L and balance sheet items

The previous sub-section calculated returns on equity and capital employed using measures of profits taken from financial statements provided by Vhi. As accounting measures, these profit figures include non-recurring items that are unrelated to the ongoing business of Vhi. It may therefore be possible to adjust these measures to provide a better estimate of the ongoing profitability of the underlying business. This sub-section estimates Vhi's profitability using adjusted P&L and balance sheet figures.

5.2.1 P&L adjustments

The following adjustments are made to the P&L to allow a more robust measurement of the profitability of ongoing activities.

- Short-term fluctuations in investment returns reflect the volatility in investment returns from their long-term projections. Directly reflecting this volatility in income, and therefore profits, is likely to give a distorted picture of profitability in any given year. Hence, in the context of the current analysis, only the long-run expected income on investment portfolio is used in estimating profits—ie, short-term fluctuations in investment returns are excluded from the estimates of current-year profits.
- Deferred taxes—in general, only taxes (paid and payable) relating to the profits earned in a given financial year are relevant in the context of profitability analysis covering a specific period. As deferred taxes relate to profits in earlier years, these are excluded from the estimates of current-year profits.

Adjusting the P&L of Vhi's SGEI activities for these two items reduces its post-tax profits by approximately €xxm. The most significant impact arises from adjusting for deferred taxes (€xxm), followed by adjustment for short-term fluctuations in investment returns of €xxx m.

Pre-tax profit falls by €xxm due to the effects of adjusting for the short-term fluctuations in investment returns.

5.2.2 Balance sheet adjustments

Section 5.1 set out estimates of the equity capital and total capital employed of Vhi based on accounting measures of general reserves and liability items necessary for the ongoing operation of the business. This sub-section considers whether it may be necessary to make adjustments to these accounting-based equity estimates in order to take account of intangible assets not included in financial statements. The rationale for making such adjustments would be that companies may incur costs that are treated as expenses for accounting purposes, but that nevertheless generate future (rather than current) economic benefits, thereby fitting the definition of an asset.

For example, in a 2002 report into the supply of banking services to SMEs, the UK Competition Commission considered whether certain intangibles should be treated as assets for the purpose of calculating profitability.²⁰ Of the intangibles considered (brand, staff, customers and IT systems), the most relevant for Vhi is customers.

With regard to quantifying the potential intangible asset associated with customer relationships, the approach taken by the Competition Commission was to examine whether marketing costs created a benefit that would be realised in the future. The Commission considered that some portion of marketing costs merely cancelled out the expenditures of competitors, a further portion was ineffective, and that the portion relating to maintenance of existing customer relationships was properly classified as an expense. In line with the principle that only that portion of expenditure that created a future benefit should be capitalised as an asset, the Commission's view was therefore that the share of marketing expenditure relating to customer acquisition could properly be considered an intangible asset.

In Vhi's case, it already reports customer acquisition costs separately from administrative expenses. Furthermore, it splits the expenditure between a P&L item labelled 'acquisition costs' and a balance sheet asset labelled 'deferred acquisition costs'. According to Vhi's annual report, the expensed portion relates to the premium revenue realised from a policy in the year of sale, while the deferred portion relates to the unearned premium income for the portion of a policy that is accounted for in the subsequent year.²¹

Vhi's accounting approach is therefore in line with the general principles, for example those set out by the Competition Commission. Thus, no adjustments to accounting data have been made in this analysis.

5.2.3 ROE and ROCE based on adjusted P&L items

Table 5.4 shows Vhi's ROE and ROCE based on adjusted P&L items. The table shows that the adjustments reduce both profitability measures. The effect of reducing profit after tax by €xxxm without any adjustments to equity is to lower the estimated ROE from xxxx% to xxx%. The effect of reducing profit before tax by €xxm is to lower the estimated ROCE from xxx% to xx%.

²⁰ Competition Commission (2002), 'The supply of banking services by clearing banks to small and medium-sized enterprises', March.

²¹ Vhi (2009), 'Annual Report and Accounts 2008', p. 33.

Table 5.4 Adjusted ROE and ROCE of Vhi’s SGEI activities, 2009

Vhi’s SGEI activities	
ROE (%)	
ROCE (%)	

Source: Vhi and Oxera calculations.

5.3 ROE and ROCE: sensitivities of SGEI and non-SGEI allocations

The analysis of the profitability of Vhi’s SGEI activities requires P&L and balance sheet items to be allocated between SGEI and non-SGEI activities. As explained in section 2, Vhi allocates costs based on the split shown in the Information Returns, while premiums are allocated depending on the costs of the plan relative to Plan B. This has the effect of allocating more claims than premiums to the SGEI business, which in turn results in lower profitability for the SGEI business compared with that for the company as a whole. This is consistent with the differences in the economic characteristics of the SGEI and non-SGEI activities of Vhi, and Oxera is not aware of any particular allocation method being a priori more appropriate than another. It is nevertheless useful to understand whether the conclusions on Vhi’s profitability are sensitive to the allocation method used.

This part of the analysis therefore considers the impact of changing the allocation approach used by the Vhi on the ROE and ROCE of SGEI-related activities. The approach taken is to allocate all items on the P&L and balance sheet in proportion to the gross claims. In other words, all P&L items are allocated between SGEI and non-SGEI activities using the same proportion as that used for gross claims.

This implicitly assumes that the profitability of the SGEI business is the same as the non-SGEI business. Given the characteristics of the SGEI and non-SGEI businesses, these allocation sensitivity assumptions might be considered extreme and could overstate the underlying profitability of SGEI-related activities. Nevertheless, they provide insight into the degree to which the conclusions of the analysis carried out in this report are sensitive to the precise methodology used to allocate the various P&L items between SGEI and non-SGEI activities.

Table 5.5 shows ROE and ROCE based on an alternative allocation between SGEI and non-SGEI activities. The table shows that changes in the allocation approach have a material effect on the ROE and ROCE estimates. The ROE of SGEI activities (unadjusted) is xx%, compared with xx% using Vhi’s allocation; the ROCE (unadjusted) is similarly affected, increasing from xx% to xx%. Similar increases in ROE and ROCE are observed for the adjusted measures.

Notably, even under these extreme allocation assumptions, Vhi’s SGEI-related activities still have negative ROE and ROCE measures. The interpretation of these results in the context of assessing overcompensation is provided in the conclusions section of this report.

Table 5.5 ROE and ROCE of SGEI-related activities, based on alternative SGEI allocations

	Unadjusted		Adjusted	
	Allocations as provided by Vhi	Alternative SGEI allocations	Allocations as provided by Vhi	Alternative SGEI allocations
Profit before tax (€'000)				
Profit after tax (€'000)				
Proxy for equity capital (€'000)				
Capital employed (€'000)				
ROE (%)				
ROCE (%)				

Source: Vhi and Oxera calculations.

6 Summary and conclusions

This report has assessed whether Vhi as a net beneficiary of the levy and tax credit scheme was overcompensated in 2009. This fulfils the requirement in accordance with Section 7F of the Health Insurance (Miscellaneous Provisions) Act 2009.

Whether Vhi has been overcompensated is determined by comparing its realised profitability in 2009 with the estimates of a reasonable profit. The reasonable profit is determined with reference to both internal and external benchmarks. Internal benchmarks comprise Vhi's own cost of equity and cost of capital. External benchmarks comprise the profitability measures for Quinn and Aviva. Together with Vhi, these firms make up the PHI sector in Ireland, as referred to in the Health Insurance (Miscellaneous Provisions) Act 2009, quoting the SGEI Framework.

6.1 Reasonable profit

6.1.1 Internal benchmarks

In fulfilling the requirements of the Act, the approach adopted is to start by estimating the internal required rate of return for Vhi as the net beneficiary. This provides a basis for estimating the reasonable profit of Vhi for the purposes of assessing overcompensation. Table 6.1 shows estimates of Vhi's cost of equity and cost of capital.

Table 6.1 Internal benchmarks of profitability of Vhi's SGEI-related activities in 2009

	Estimates	Mid-point
Post-tax cost of equity (nominal) (%)	7.9–8.3	8.1
Pre-tax cost of capital (nominal) (%)	7.4–7.9	7.7

Source: Vhi, Datastream, Bloomberg and Oxera calculations.

6.1.2 External benchmarks

Consistent with the requirements of the Act, reasonable profit should not only be consistent with the internal benchmark, but also normally not exceed profitability in the sector (external benchmarks) over recent years.

In addition to Vhi, the two other firms that provided SGEI-related services in Ireland in 2009 were Quinn and Aviva. The profitability of Quinn and Aviva's SGEI-related activities provides the best external benchmark for Vhi's profitability as a net beneficiary. Due to the changes in SGEI framework, currently only data on SGEI-related activities for 2009 provides a good indication of the profitability of other firms operating in this sector. The analysis of overcompensation therefore uses profitability observed in 2009 only. Going forward, as more data is accumulated, the profitability of PHI firms in Ireland may provide a more reliable external metric, although this depends on whether there any material changes are made to the framework.

Table 6.2 presents estimates of the profitability measures of Vhi's comparators.

Table 6.2 External benchmarks of profitability of Vhi’s SGEI-related activities in 2009

	Quinn’s SGEI-related activities	Aviva’s SGEI-related activities	Weighted average
ROE (%)			
ROE (alternative treatment of the levy and ARTC) (%)			
ROCE (%)			
ROCE (alternative treatment of the levy and ARTC) (%)			

Source: Quinn, Aviva and Oxera calculations.

The table suggests that, based on the unadjusted data provided by firms, the ROE of the two comparator firms is between xx% and xx%, with a weighted average estimate of xx%. The ROCE of the two comparator firms is between xx% and xx%, with a weighted average estimate of xx%.

Table 6.2 also shows that, under the most consistent treatment of the levy and ARTC, the weighted average ROE of the two comparator firms is xx%. The weighted average ROCE of the two comparator firms is xx%.

6.1.3 Estimate of reasonable profit

Consistent with the requirements of the Act, the reasonable profit should be in line with the internal benchmarks, and should not normally exceed the external benchmarks.

The analysis shows that in this instance, the external benchmarks exceed the internal benchmarks. Therefore, overcompensation in 2009 can be assessed by comparing profits of Vhi with reasonable profits calculated with reference to the internal benchmarks.

The analysis developed in this report estimates two internal benchmarks—the cost of equity (8.1%) and the cost of capital (7.7%) of Vhi. The cost of equity can be used in comparison with the ROE, and the cost of capital in comparison with the ROCE of Vhi in 2009.

Given data availability and robustness of estimates,²² when assessing overcompensation in 2009, the emphasis is put on comparison between the cost of equity and ROE of Vhi. **For the purposes of the assessment of overcompensation in 2009, the reasonable profit of Vhi is therefore defined as the cost of equity of 8.1%.**

A cross-check to the assessment based on the cost of equity and ROE measures is provided by assessment of how Vhi’s profitability expressed in terms of ROCE compares with its cost of capital (7.7%).

6.2 Profitability of Vhi’s SGEI-related activities

Table 6.3 presents estimates of Vhi’s profitability in 2009. It shows ROE and ROCE estimates using the allocation of revenues and costs between SGEI and non-SGEI activities, as submitted by Vhi, and ROE and ROCE estimates using P&L and balance sheet figures that have been adjusted to allow a more robust measurement of the profitability of ongoing activities.

²² In principle, both equity-based and capital employed-based measures provide a strong basis for assessing overcompensation. In this instance due to data availability, estimates of the capital employed are somewhat less robust than the estimates of total shareholder capital, and therefore the capital employed-based measures are less robust than the equity-based measures. Nevertheless, the capital employed-based measures provide an important cross-check to the analysis based on the equity-based measures.

A1 Accounting data from Vhi, Quinn and Aviva

A1.1 Vhi

Tables A1.1 and Table A1.2 show Vhi's P&L and balance sheet for 2009.

Table A1.1 P&L of Vhi, 2009

	SGEI (€'000)	Non-SGEI (€'000)	Methodology for allocation to SGEI related activities
Gross earned premium			
Earned ARTC			
Earned levy			
Change in the gross provision for unearned premiums			
Net earned premium (incl. earned ARTC and earned levy)			
Gross claims paid			
Claims handling			
Change in the provisions for claims			
Change in the unexpired risk reserve			
Unexpired risk reserve			
Administrative expenses			
Acquisition costs			
Net operating expenses			
Allocated investment return			
Short-term fluctuations in investment return			
Investment return (incl. short-term fluctuations)			
Profit before tax			
Current taxation for year			
Deferred taxation—credit			
Profit after tax			

Source: Vhi.

Table A1.2 Balance sheet of Vhi, 2009

	Closing value (€'000)		Opening value (€'000)		Share allocated to SGEI activities
	SGEI	Non-SGEI	SGEI	Non-SGEI	
Investments					
Land and buildings					
Other financial investments					
Debtors					
Debtors from members arising out of insurance operations					
Other debtors					
Other assets					
Tangible assets					
Deferred taxation					
Prepayments and accrued income					
Prepayments					
Accrued interest					
Deferred acquisition					
Total assets					
Liabilities					
Technical provisions					
Provision for unearned premiums					
Claims outstanding					
Other technical provisions					
Creditors					
Creditors to members arising out of insurance operations					
Other creditors and accruals					
Bank overdraft					
Retirement benefits liability					
Total liabilities					
Reserves					
General reserve					
Total reserves					

Note: Other creditors and accruals can be further broken down into ARTC and Levy; PAYE and PRSI, Other creditors and accruals. Based on information provided in Vhi's 2009 Annual report and above breakdown of

balance sheet between SGEI and non-SGEI activities, average Other creditors of SGEI related activities in 2009 were €1.55m
Source: Vhi.

A1.2 Quinn

Tables A1.3 and Table A1.4 show Quinn's P&L and balance sheet for 2009.

Table A1.3 P&L of Quinn, 2009

	SGEI (€'000)	Non-SGEI (€'000)	Methodology for allocation to SGEI related activities
Gross earned premium			
Earned ARTC			
Earned levy			
Net earned premium (incl. earned ARTC and earned levy)			
Gross claims paid			
Change in the provision for claims			
Administration expenses			
Allocated investment return allocated to the health insurance technical account			
Short-term fluctuations in investment return			
Profit before tax			
Corporation tax			
Profit after tax			

Source: Quinn and Oxera calculations.

Table A1.4 Balance sheet of Quinn, 2009

	Closing value		Opening value		Methodology for allocation to SGEI- related activities
	SGEI (€'000)	Non-SGEI (€'000)	SGEI (€'000)	Non-SGEI (€'000)	
Investments					
Other assets					
Total assets					
Technical reserves					
Other creditors					
Shareholder funds					

Source: Quinn and Oxera calculations.

A1.3 Aviva

Tables A1.5 and Table A1.6 show Aviva's P&L and balance sheet for 2009.

Table A1.5 P&L of Aviva, 2009

	SGEI (€'000)	Non-SGEI (€'000)	Methodology for allocation to SGEI related activities
Gross earned premiums (excl. ARTC and levy)			
Earned ARTC			
Net earned premiums (incl. earned ARTC, excl. earned levy)			
Premiums ceded to reinsurers			
Gross claims paid (gross)			
Gross claims paid (re-insurance)			
Change in the provisions for claims (gross)			
Change in the provisions for claims (re-insurance)			
Administrative expenses (incl. levy)			
Total levy			
Administrative expenses (incl. total levy)			
Acquisition costs			
Income from reinsurance commissions, profit share net of risk charge			
Deferred acquisition costs			
Investment income			
Profit before tax			
Tax expense			
Profit after tax			

Source: Aviva.

Table A1.6 Balance sheet of Aviva, 2009

	Closing value		Opening value		Methodology for allocation to SGEI-related activities
	SGEI (€'000)	Non-SGEI (€'000)	SGEI (€'000)	Non-SGEI (€'000)	
Investments					
Provision for unearned premiums					
Claims outstanding					
Debtors					
Debtors from members arising out of insurance operations					
Other debtors					
Other assets					
Tangible assets					
Cash at bank and in hand					
Deferred taxation					
Prepayments and accrued income					
Accrued interest					
Deferred acquisition costs					
Prepayments					
Total assets					
Technical provisions					
Provision for unearned premiums					
Claims outstanding					
Other liabilities					
Tax payable					
Creditors					
Creditors					
Creditors arising out of insurance operations					
Accruals					
Pension Deficit					
Capital and reserves					
General reserve					
Paid up share capital					
Share premium reserve					

Source: Aviva.

A2 Alternative SGEI allocation for Quinn

This appendix sets out analysis based on the proportions of claims included in the Information Returns originally provided by Quinn, ie, assuming that the claims included in the Information Returns are xx% (compared to the revised proportion of xx% used in the analysis in Section 4 of this report).

A2.1 P&L and balance sheet data

Table A2.1 provides extracts from Quinn's P&L statement across the SGEI- and non-SGEI-related activities, together with a description of the methodology used for the allocation.

Table A2.1 P&L of Quinn, alternative SGEI allocation, 2009

	SGEI (€'000)	Non-SGEI (€'000)	Methodology for allocation to SGEI-related activities
Gross earned premium			
Earned ARTC			
Earned levy			
Net earned premium (incl. earned ARTC and earned levy)			
Gross claims paid			
Change in the provision for claims			
Administration expenses			
Allocated investment return allocated to the health insurance technical account			
Short-term fluctuations in investment return			
Profit before tax			
Corporation tax			
Profit after tax			

Source: Quinn.

Table A2.2 provides extracts from Quinn's balance sheet across the SGEI- and non-SGEI-related activities, together with a description of the methodology used for the allocation.

Table A2.2 Balance sheet of Quinn, alternative SGEI allocation, 2009

	Closing value		Opening value		Methodology for allocation to SGEI-related activities
	SGEI (€'000)	Non-SGEI (€'000)	SGEI (€'000)	Non-SGEI (€'000)	
Investments					
Other assets					
Total assets					
Technical reserves					
Other creditors					
Shareholder funds					

Source: Quinn.

A2.2 ROE and ROCE estimates

Table A2.3 shows ROE and ROCE estimates based on original data on proportion of claims in the SGEI returns (data set out in sub-section A2.1).

Table A2.3 ROE and ROCE estimates of Quinn SGEI-related activities, 2009

	Estimates
ROE (%)	
ROE (alternative treatment of the levy and ARTC) (%)	
ROCE (%)	
ROCE (alternative treatment of the levy and ARTC) (%)	

Source: Quinn and Oxera calculations.

A3 ROE and ROCE of Vhi based on external measures of capital

Section 5 calculated Vhi's ROE and ROCE using estimates of equity and total capital employed, based on identifying the items in Vhi's own balance sheet that most closely match the economic function of equity and capital. An alternate approach would be to examine the capital structure of comparable companies to establish a benchmark ratio of equity and capital with respect to assets or gross premiums, and then to apply this ratio to Vhi. Doing this provides alternative estimates of equity and total capital, which can then be used to calculate ROE and ROCE.

A3.1 ROE

Using this approach, a proxy for equity capital can be estimated by first considering the ratio of equity capital to gross premiums for Quinn and Aviva, and then applying this hypothetical capital structure to Vhi. Equity as a percentage of gross premiums for Quinn and Aviva (weighted average) is xx%.

Table A3.1 present estimates of Vhi's ROE based on these alternative measures of equity.

Table A3.1 Unadjusted external ROE estimates for Vhi, 2009

	ROE based on comparators' capital structure
Profit after tax (€'000)	
Estimated equity based on comparators' ratio of equity to gross premiums (€'000)	
Return on equity (%)	

Source: Vhi, Quinn, Aviva and Oxera calculations.

A3.2 ROCE

As with measures of equity, it is also possible to estimate a proxy for Vhi's level of total capital using comparator firms. Total capital as a percentage of gross premiums for Quinn and Aviva (weighted average) is xx%.

Alternative measures of ROCE using these two different measures of capital are shown in Table A3.2.

Table A3.2 Unadjusted external ROCE estimates for Vhi's SGEI activities, 2009

	ROCE based on comparators' capital structure
Profit before tax (€'000)	
Estimated capital employed based on comparators' ratio of capital to gross premiums (€'000)	
Return on capital employed (%)	

Source: Vhi, Quinn and Aviva and Oxera calculations.

A4 Lists of comparator firms

Table A4.1 Largest 15 health insurance companies operating in Belgium

ERGO	Allianz	Mercator / Baloise
AG Insurance	Argenta	Chartis Europe
AXA	DEXIA	AMMA
KBC	Inter Partner Insurance	FEDERALE Assurance
P&V Assurances	Justitia	ING

Source: Assuralia (assuralia.be)

Table A4.2 Accident and illness insurance companies operating in Denmark

Codan Forsikring A/S	Forsikringselskabet Danica, Skadeforsikringsaktieselskab af 1999
Danske Forsikring A/S	Sirius International Danish Branch, filial af Sirius International Försäkringsaktiebolag(publ)
E.N. Sak Försäkring I Europa AB	Ulykkesforsikringsforbundet for dansk Søfart, gensidigt Forbund

Source: Danish Financial Supervisory Authority (finanstilsynet.dk)

Table A4.3 Health insurance companies operating in the Netherlands

N.V. Univé Zorg	Delta Lloyd Zorgverzekering N.V.	Ohra Ziektelkostenverzekering N.V.
Fbto Zorgverzekering N.V.	Pno Onderlinge Ziektelkostenverzekeringmaatschappij U.A.	Asr Basis Ziektelkostenverzekering N.V.
Maatschappij Voor Zorgverzekering Gouda N.V.	Onvz Ziektelkostenverzekeraar N.V.	Iza Zorgverzekeraar N.V.
N.V. Zorgverzekeraar Umc	Zilveren Kruis Achmea Zorgverzekering N.V.	Groene Land Achmea Zorgverzekering N.V.
Interpolis Zorgverzekeringen N.V.	N.V. Ongevallen-En Ziektelkostenverzekeringmaatschappij Ozf	Owm Menzis Zorgverzekeraar Ua
Owm Anderzorg Ua	Avéro Achmea Zorgverzekering N.V.	Agis Zorgverzekering U.A.
O.W.M. Azvz U.A.	Owm Zorgverzekeraar 'Dsw' U.A.	Salland Zorgverzekering U.A.
Stad Holland Zorgverzekeraar U.A.	Trias Zorgverzekeraar N.V.	Ohra Zorgverzekering N.V.
Owm Azivo Zorgverzekeraar U.A.	Owm De Friesland Zorgverzekeraar U.A.	Owm Zorgverzekeraar Zorg En Zekerheid U.A.
Vgz Zorgverzekeraar N.V.	Owm Centrale Zorgverzekeraars Groep Zorgverzekeraar Ua	Izz Zorgverzekeraar N.V.

Source: College for Health Insurance, 2009 Yearbook (www.cvz.nl/financiering)

Table A4.4 Non-life insurance companies operating in Sweden

Accept Försäkringsaktiebolag (publ)	AFA Sjukförsäkringsaktiebolag
AFA Trygghetsförsäkringsaktiebolag	Agria International Försäkring AB
Anticimex Försäkringar AB	Bliwa Skadeförsäkring AB (publ)
Brandförsäkringsverket	Cardif Försäkring AB
Cosa Försäkrings AB i likvidation	DIAL försäkringsaktiebolag (publ)
Dina Försäkring AB	E.N. Sak Försäkring i Europa AB
ERIKA Försäkringsaktiebolag (publ)	Euler Hermes Kreditförsäkring Norden AB
Europeiska Försäkringsaktiebolaget (publ) (The European Insurance Company Ltd (publ))	Falck Försäkringsaktiebolag
Fjällförsäkringar AB	Folksam ömsesidig sakförsäkring
Försäkrings AB Suecia (publ) (Suecia Insurance Corporation Ltd)	Försäkringsaktiebolaget Agria (publ)
Försäkringsaktiebolaget Assuransinvest MF	Försäkringsaktiebolaget Bostadsgaranti
Försäkringsaktiebolaget INSA (publ)	Försäkringsaktiebolaget Nordisk Garanti
Försäkringsaktiebolaget Viator	Försäkringsbolaget PRI Pensionsgaranti, ömsesidigt
GAR-BO FÖRSÄKRING AB	Gard Marine & Energy Försäkring AB (publ)
GF Försäkringsaktiebolag	Holmia Försäkring AB i likvidation
If Skadeförsäkring AB (publ)	IKANO Försäkring AB
Järnvägsmännens Ömsesidiga Olycksfalls-försäkringsbolag	Landstingens ömsesidiga försäkringsbolag
LRF Försäkring Skadeförsäkrings-aktiebolag	Länsförsäkringar Sak Försäkringsaktie-bolag (publ)
Medicover Försäkrings AB (publ)	Moderna Försäkringar Sak AB i likvidation
Roppongi, ömsesidig sakförsäkring i likvidation	SACO SalusAnsvar Försäkrings AB
SEB Suecia Försäkringsaktiebolag (publ)	Sirius International Försäkringsaktie-bolag (publ)
Solid Försäkringsaktiebolag	Stockholms Stads Brandförsäkringskontor
SveLand Försäkringar, ömsesidigt	Sveland Sakförsäkringar AB
Svenska Konsumentförsäkringar AB (publ)	Svenska Läkemedelsförsäkringen AB
Sveriges Ångfartygs Assurans Förening	Tennant Försäkringsaktiebolag
Tre Kronor Försäkring AB	Trygg-Hansa Försäkringsaktiebolag (publ)
Unionen Medlemsförsäkring AB	WI Försäkringsaktiebolag
Återförsäkringsaktiebolaget Luap i konkurs	Återförsäkringsaktiebolaget Stockholm

Source: Swedish Financial Supervisory Authority.

Table A4.5 Non-life insurance companies offering accident and health services in Finland

Aaland Mutual Insurance Company	A-Insurance Ltd
Aktia Non-Life Insurance Company Ltd	Alma Insurance Company Ltd
Bothnia International Insurance Company Ltd	Eurooppalainen Insurance Company Ltd
Fennia Mutual Insurance Company	Försäkringsaktiebolaget Alandia
Garantia Insurance Company Ltd	If P & C Insurance Company Ltd
IngoNord Insurance Company Ltd	Hannu Mäkelä
Keskinäinen Vakuutusyhtiö Palonvara	Local Insurance Mutual Company
Non-life insurance companies	Osuuspankkien Keskinäinen Vakuutusyhtiö
Pohjantähti Mutual Insurance Company	Pohjola Insurance Ltd
Redarnas Ömsesidiga Försäkringsbolag	Spruce Insurance Ltd
Tapiola General Mutual Insurance Company	

Source: Finnish Financial Supervisory Authority (finanssivalvonta.fi)

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