

## Whitepaper

# Standard software solutions for hedge accounting under IFRS

A market overview of selected system vendors



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## 1 Introduction

### 1.1 Management summary

With a special focus on fair value hedge accounting of interest rate risks under IAS 39 or IFRS 9, this whitepaper discusses the essential professional, technical and methodological requirements that preliminary studies and software selection projects typically concentrate on. For this reason, FAS AG conducted a survey among vendors of standard software solutions for hedge accounting in 2018 and again, considering a wider range of questions, in 2020. The result of these two surveys is a market overview of the range of performance and methodological approaches of hedge accounting software solutions.

To summarize, the suitability of software solutions differs primarily in terms of cases and objectives intended for hedge accounting. The relevant GAAP or accounting standards and the hedging strategy pursued are also of decisive relevance. Methodological requirements primarily result from the types of transactions used in combination with the valuation approaches applied, and various implementation options and restrictions result from the already existing system landscape.

A comparison of the information obtained reveals that system vendors set certain priorities in their software solutions and may therefore be particularly suitable for certain clients. Nevertheless, a specific selection decision should not be made without a detailed preliminary study taking into account the specific circumstances and preferences of the customers.

### 1.2 Disclaimer and copyrights

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## 2 Background

Hedge accounting is an accountancy practice which allows entities to show the effect of economic hedging relationships in their financial statements. This makes it possible to mitigate the profit or loss or equity effect arising from accounting mismatches between the hedged item and the hedging instrument.

If entities apply hedge accounting, they are obliged to fulfill a large number of requirements. Depending on the accounting principles<sup>1</sup>, there are different requirements for documentation, valuation, accounting, disclosure, internal reporting and processes.

Due to the wide range of complex technical and methodical requirements and the resulting effects on processes, an efficient system implementation is crucial. In a software selection process, it is therefore important to know which functionalities and requirements are already covered by standard software solutions.

FAS AG has gained extensive experience with the professional, process-related and technical aspects of hedge accounting, and based on the company's involvement with a number of projects, their teams have developed a profound knowledge of the aspects and functionalities which are relevant for the selection and introduction, enhancement as well as the operational use of an appropriate software solution.

On the basis of this knowledge and experience, FAS AG designed a survey addressed to vendors of hedge accounting software solutions for the first time in 2018. The participants were asked about their range of services and the information they provided is compared in a value-free manner. In 2020 a new survey was conducted with a wider range of participants and topics. A special focus was placed on fair value hedge accounting of interest rate risk under IAS 39 and IFRS 9, particularly since this is usually the most important aspect for banks to consider.

This whitepaper contains a summary and comparison of the information received from the latest survey of software vendors and a comparison with the information given in the last survey. This is based exclusively on the information provided by the respective system vendors. Only obviously incorrect or contradictory information was corrected. In case of feedback in text form, some editorial adjustments have been made to ensure a consistent and uniform comparison. This whitepaper aims to provide a professional and technical overview of the functionalities and services of software solutions. Other sources of information were not taken into account.

The information presented can be used for an initial assessment of the general suitability of a software solution for hedge accounting based on mandatory features. However, since there are methodologically different implementation options for individual functionalities, a general assessment of a software solution solely on the basis of the information provided is not reasonable. For a full analysis and corresponding selection decision, more detailed information should be obtained. Therefore, this whitepaper cannot represent a comparative

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<sup>1</sup> In particular IFRS (IAS 39 and IFRS 9), HGB and BilMoG (Section 254 HGB), US-GAAP (ASC 815). Entities applying IFRS have the permission to choose their accounting policies and can continue to apply the hedge accounting model for open portfolios in IAS 39 until the standard resulting from the IASB's project on hedges of open portfolios is effective. However, a continuation of IAS 39 requires an alignment with IFRS 9 disclosure and accounting requirements. Since the transition to general hedge accounting under IFRS 9 offers other or additional options, entities should choose wisely.

evaluation of individual system providers, but is rather a neutral comparison of different available setups for hedge accounting software solutions.

## 2.1 Survey

The survey was conducted in a standardized questionnaire in Excel, in which the system vendors filled in their feedback. The content of this year's survey was similar to the one released in 2018. Apart from this, various technical aspects as well as the self-assessment of each vendor were added to this year's survey.

The content and focus of the survey are displayed in the illustration below. New or updated topics are highlighted in blue.

Main topics and contents		
Main topic	Content	Chapter
General information	Customer structure	3.1
	Audit certificate/external certification	3.2
	GAAP and accounting principles	4.1
Hedge accounting functionalities	Risk categories and hedge types	4.2
	Qualified items and features	4.3
	Item selection and designation	4.4
	Measuring hedge effectiveness	4.5
	Valuation	4.6
	Functionalities for PFVH	4.7
	Reporting functionalities	5.1
Additional functionalities und usability	Posting functionalities	5.2
	System integration	6.1
Technology and pricing structure	License model	6.2
	Unique selling point	7.1
Software vendor's self-assessment of the product	Operating scenario	7.2
	Philosophy	7.3

Figure 1: Main topics and contents of the survey

## 2.2 Participating vendors

The identification and selection of vendors was based on industry knowledge and additional internet research. The participating vendors of the last survey were also included in this year's survey. In addition, the vendors technosis, Bellin, Compircus and msgGillardon were included.

Out of a total of eleven software vendors Calypso, ION Group, SAP, technosis, Bellin and Compircus did not participate. FIS Global participated only in the last survey, therefore, the information they provided is still present in this whitepaper and changes to already given information or new details are not available for this vendor. msgGillardon participated only in this year's survey.

In summary, the vendors shown below participated in the survey and provided the information presented in this whitepaper.

Feedback received from participating vendors			
System vendor	Software name	Feedback in 2018	Feedback in 2020
Wolters Kluwer	OneSumX	✓	✓
zeb	zeb.control.accounting	✓	✓
okadis Consulting	okadis Accounting Platform (iBox)	✓	✓
parclT	okular HEDGE IT!	✓	✓
FIS Global	Ambit Focus	✓	✗
msgGillardon	IFRS Solution	not contacted	✓

Figure 2: Feedback received from participating vendors

### 3 General information

In the following sections, general information on vendors' typical customer structure as well as software certifications are presented.

#### 3.1 Customer structure

In addition to the typical customer structure (number of customers, balance sheet total and number of employees of customers), the current survey included questions regarding the customers' industry sectors as well as the solution's average number of service years.

All software solutions are mainly used in the banking sector, by mortgage banks or real estate financiers. Customers of zeb.control.accounting and OneSumX are also from the insurance or commodity trading sectors. Every software solution has been in service for over ten years.

Customer structure						
	OneSumX	zeb.control	iBox	okular HEDGE IT!	Ambit Focus	IFRS Solution
Number of customers	0 – 10	11 – 50	0 – 10	0 – 10	11 – 50	0 – 10
Customer's balance sheet total	> 50 € bn	> 50 € bn	1 – 50 € bn	1 – 50 € bn	1 – 50 € bn	1 – 50 € bn
Customer's number of employees	> 2,000	> 2,000	501 – 2,000	501 – 2,000	501 – 2,000	501 – 2,000
Customer's industry sector	Banking, insurance and energy trading	Banking, insurance	Banking, mortgage banks/real estate financiers	Banking	-	Banking
Solution's years in service	> 10	> 10	> 10	> 10	-	> 10

Figure 3: Customer structure

#### 3.2 Audit certificate/external certification

As described in the last survey, both the approval of a software by auditors and an external certification<sup>2</sup> provide a significant added value for the software or the respective software development process.

The current survey shows that the software vendors continue to attach great importance to a certification process. For example, zeb.control.accounting states that it has undergone an external certification process in 2019 according to IDW PS 880. IFRS Solution was also certified by auditors as well as by an external auditing company.

<sup>2</sup> Each with a different focus e. g. ISO 9001, ISAE 3402, SSAE 16, IDW PS 850, IDW PS 880 etc.

Audit certificate/external certification						
	OneSumX	zeb.control	iBox	okular HEDGE IT!	Ambit Focus	IFRS Solution
Audit certificate	✓	✓	✓	✓	✓	✓
External certification	✗	✓	✗	✓	✗	✓

Figure 4: Audit certificate/external certification



## 4 Hedge accounting functionalities

In order to be able to classify and compare the performance of hedge accounting software solutions, FAS AG collected information on various topics in the last survey. In the current survey, the questions on hedge accounting functionalities were basically the same as in the last survey. Only questions concerning the measurement of hedge effectiveness were extended. In the following sections the professional background is briefly outlined and the information received from software vendors is presented.

### 4.1 GAAP and accounting principles

The requirements for the methodical and therefore also the technical implementation of hedge accounting differ significantly between accounting principles. For some customers, different accounting principles may even be relevant in parallel.

Due to the special circumstance that the accounting requirements in IAS 39 still apply for fair value hedge of the interest rate exposure of a portfolio of financial assets or liabilities (PFVH) and the permission to choose accounting policies for hedge accounting, software solutions should guarantee conformity with both GAAP.<sup>3</sup>

All participating vendors except the okular HEDGE IT! solution, which only focusses on PFVH, support both hedge accounting requirements under IAS 39 and IFRS 9. In addition to this, some vendors also offer the mapping or parametrization of national accounting principles (local GAAP), such as HGB. All solutions support parallel accounting principles.<sup>4</sup>

Supported GAAP						
	OneSumX	zeb.control	iBox	okular HEDGE IT!	Ambit Focus	IFRS Solution
IAS 39	✓	✓	✓	✓	✓	✓
IFRS 9	✓	✓	✓	✗	✓	✓
Other	US-GAAP, HGB, UGB, others configurable based on IFRS	HGB, UGB	HGB, others flexible configurable	–	Individual adaption in cooperation with customer	–

Figure 5: Supported GAAP

### 4.2 Risk categories and hedge types

Depending on the risk category and the design of the corresponding hedging relationships (hedge types), there is a wide range of scenarios and special cases for the financial reporting of hedge accounting.

<sup>3</sup> IFRS 9.6.1.3 and IFRS 9.7.2.21.

<sup>4</sup> As already described in the last study, the accounting of interest rate hedging instruments in the banking book under HGB is based on the requirements for the loss-free valuation of interest-related transactions in the interest book in accordance with IDW RS BFA 3 n.F. No effectiveness test is required to prove compensation, but rather a provision test for anticipated losses on pending interest-related transactions. As a result, PFVH is not relevant under HGB and therefore the okular HEDGE IT! solution has a special position in this context.

The participating software vendors have different focuses in their range of services regarding supported risk categories and hedge types: OneSumX and iBox cover a broad spectrum. In contrast, IFRS Solution focuses on fair value and cash flow hedge accounting of interest rate and currency risks and the hedging of a net investment in a foreign operation<sup>5</sup>. Therefore, the solution is probably interesting for companies outside of the financial industry, since cash flow hedges are more common there.

Compared to the information given in the last survey, zeb.control.accounting now states that, in addition to fair value and cash flow hedge accounting, cash flow or micro fair value hedge accounting for currency or other price risks are also supported.

Okular HEDGE IT! continues to offer a very strong focus on PFVH of interest rate risks.

Interest rate risk						
	OneSumX	zeb.control	iBox	okular HEDGE IT!	Ambit Focus	IFRS Solution
Micro fair value hedge	✓	✓	✓	✗	✓	✓
Macro fair value hedge	✓	✓	✓	✗	✓	✓
Portfolio fair value hedge	✓	✓	✗	✓	✓	✓
Cash flow hedge	✓	✓	✓	✗	✗	✓
Foreign exchange risk						
Micro fair value hedge	✓	✓	✓	✗	✗	✓
Macro fair value hedge	✓	✗	✓	✗	✗	✓
Cash flow hedge	✓	✓	✓	✗	✗	✓
Net investment hedge	✓	✗	✓	✗	✗	✓

<sup>5</sup> Entity that is a subsidiary, associate, joint arrangement or branch of a reporting entity, the activities of which are based or conducted in a country or currency other than those of the reporting entity.

Commodity and credit risk						
	OneSumX	zeb.control	iBox	okular HEDGE IT!	Ambit Focus	IFRS Solution
Micro fair value hedge	✓	✗	✓	✗	✗	✗
Macro fair value hedge	✓	✗	✓	✗	✗	✗
Cash flow hedge	✓	✗	✓	✗	✗	✗
Other price risks						
Micro fair value hedge	✓	✓	✓	✗	✗	✗
Macro fair value hedge	✓	✗	✓	✗	✗	✗
Cash flow hedge	✓	✗	✓	✗	✗	✗

Figure 6: Risk categories and hedge types

### 4.3 Qualified items and features

In accordance with IAS 39 and IFRS 9, a hedged item can be a recognized asset or liability, an unrecognized firm commitment, or a highly probable forecast transaction with a party external to the reporting entity. In addition to this, under IFRS 9, aggregated exposures, components of nominal amounts, risk components as well as components of a group of items qualify as hedged item.

Under IAS 39 and IFRS 9, derivatives may be designated as hedging instruments. However, a non-derivative financial asset or liability may be designated as a hedging instrument only for a hedge of a foreign currency risk. IFRS 9 adds further non-derivative financial instruments measured at fair value through profit or loss to the list of qualified hedging instruments. Leaving aside the technical feasibility to map qualified hedged and hedging items, it is also important to support other features of financial instruments such as different interest rate agreements or call options.<sup>6</sup>

As already shown in the last survey, the participating system vendors support a wide range of hedged items, hedging instruments and product features. No software solution has a limit for supported transactions or hedging relationships.

<sup>6</sup> IAS 39.72 et seq. and IFRS 9.6.2 for qualified hedging instruments and IAS 39.78 et seq. and IFRS 9.6.3 for qualified hedged items.

Supported hedged items						
	OneSumX	zeb.control	iBox	okular HEDGE IT!	Ambit Focus	IFRS Solution
Fixed rate instruments	✓ <sup>all</sup>	✓ <sup>1, 2, 3, 5</sup>	✓ <sup>all</sup>	✓ <sup>1, 2, 3</sup>	✓ <sup>all</sup>	✓ <sup>1, 4, 5</sup>
Floating rate instruments	✓ <sup>all</sup>	✓ <sup>all</sup>	✓ <sup>all</sup>	✓ <sup>1, 2, 3, 4</sup>	✓ <sup>all</sup>	✓ <sup>1, 4, 5</sup>
Zero bonds	✓ <sup>all</sup>	✓ <sup>1, 2</sup>	✓ <sup>all</sup>	✓ <sup>1, 2, 3, 4</sup>	✓ <sup>1</sup>	✓ <sup>1, 4, 5</sup>
Model transactions	✓ <sup>all</sup>	✓ <sup>1, 2, 3</sup>	✓ <sup>all</sup>	✓ <sup>1</sup>	✓ <sup>1</sup>	✓ <sup>1</sup>
Others	✗	✗	✗	✗	✓ <sup>1</sup>	✗
Comments	-	-	A separate valuation system is required.		-	-

Legend (superscript):

1	Plain vanilla (no feature)	4	Interest rate caps/floors/collars
2	Single callable	5	Multicurrency agreement
3	Multi callable	all	All features

Figure 7: Supported hedged items

Supported hedging instruments						
	OneSumX	zeb.control	iBox	okular HEDGE IT!	Ambit Focus	IFRS Solution
Interest rate swaps (fix-float)	✓	✓	✓	✓	✓	✓
Basis rate swaps (float-float)	✓	✓	✓	✗	✓	✓
Cross currency interest rate swaps	✓	✓	✓	✗	✓	✓
Swaptions	✓	✓	✓	✗	✓	✓
Interest rate caps/floors/collars	✓	✓	✓	✗	✗	✓
Forward rate agreements	✓	✓	✓	✗	✓	✓
Interest rate future	✓	✗	✗	✗	✗	✓
Comments	-	-	A separate valuation system is required.		-	-

Figure 8: Supported hedging instruments

#### 4.4 Item selection and designation

An automatized selection and designation can be particularly beneficial in the case of a large number of items which can be designated or that have many hedging relationships, such as macro hedging relationships or PFVH.

Depending on the type of hedge supported, all vendors offer both manual and algorithm-based functionalities.

Item selection and designation						
	OneSumX	zeb.control	iBox	okular HEDGE IT!	Ambit Focus	IFRS Solution
Manually	all ✓	all ✓	1, 2, 4 ✓	3 ✓	1, 2 ✓	all ✓
Autom./algorithm	all ✓	all ✓	1, 2, 4 ✓	3 ✓	3 ✓	all ✓
Comments	Preprocessing with algorithm not included in standard, configuration is possible.	-	Separate module for automatic selection/designation. Approval for quality assurance necessary.	Different designation algorithms available.	-	Autom. definition of sub-portfolios. Basis point value designation planned in 2021.
Legend (superscript):						
	1 Micro fair value hedge		3 Portfolio fair value hedge			
	2 Macro fair value hedge		4 Cash flow hedge			

Figure 9: Item selection and designation

All vendors which support the macro fair value hedge accounting model (MFVH) consequently also offer the required proof of proportionality (test of homogeneity).

Test of homogeneity according to IAS 39.83						
	OneSumX	zeb.control	iBox	okular HEDGE IT!	Ambit Focus	IFRS Solution
Macro fair value hedge	✓	✓	✓	✗	✓	✓
Comments	Configurable with „Business Rule Engine“.	Performed using basic positions (e. g. callable hedged items) and a sensitivity test.	Part of the prospective measurement of hedge effectiveness.	Not relevant for PFVH.	-	-

Figure 10: Test of homogeneity according to IAS 39.83

## 4.5 Measuring hedge effectiveness

A key requirement for the application of hedge accounting is the effectiveness of the hedging relationship. Hedge effectiveness is the extent to which changes in the fair value or the cash flows of the hedging instrument offset changes in the fair value or the cash flows of the hedged item. However, there are a lot of things to consider in the assessment of hedge effectiveness.

IAS 39 requires at least an explicit assessment at each reporting date<sup>7</sup> for which both the expected future hedge effectiveness (prospective hedge effectiveness) and the actual hedge effectiveness (retrospective hedge effectiveness) is demonstrated. For the assessment of prospective hedge effectiveness, entities may simply demonstrate that the main terms and conditions of the hedged item and hedging instruments match (critical terms match). However, for the retrospective assessment entities need to quantitatively show that the actual results of the hedge are within a range of 80 % and 125 %.<sup>8</sup>

Key objectives of the updated requirements for hedge accounting in IFRS 9 were to reduce complexity and to align hedge accounting with risk management objectives.

In terms of the measurement of hedge effectiveness, this means that under IFRS 9 entities still have to assess hedge effectiveness on an on-going basis (at least at each reporting

<sup>7</sup> IAS 39.AG106.

<sup>8</sup> IAS 39.AG105.

date), but there is no retrospective effectiveness testing required.<sup>9</sup> Furthermore, IFRS 9 does not require the 80 % - 125 % bright-line for the application of hedge accounting. However, ineffectiveness still needs to be calculated and accounted for in profit and loss.

IFRS 9 also introduces the concept of rebalancing. Rebalancing refers to adjustments to the designated quantities of either the hedged item or the hedging instrument of an existing hedging relationship for the purpose of maintaining a hedge ratio that complies with the hedge effectiveness requirements. This allows entities to respond to systematic changes arising from underlying or risk variables (i.e. in case of an existing basis risk).

Neither IAS 39 or IFRS 9 specify a single method for assessing hedge effectiveness and therefore several methods are applicable. As a result, various methods for assessing hedge effectiveness have become established in practice. However, methods differ significantly in terms of complexity and robustness of results.<sup>10</sup> For example, the popular dollar offset methods which compare the ratio of the change in the fair value or cash flows of the hedging instrument with the change in the fair value or cash flows of the hedged item attributable to the hedged risk, indicate ineffectiveness of a perfect hedge in case of small changes in the value. To avoid this so-called “small number” effect and a resulting termination of the hedge relationship, dollar offset methods can be extended by specific threshold values.

As already described in the previous whitepaper, all solutions, including the new participant IFRS Solution, offer a wide range of methods for assessing hedge effectiveness and thus extensive flexibility for customers. Some vendors even support the implementation of further methods, or the possibility to increase or enhance methods by extension (iBox), or the connection of other systems (OneSumX).

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<sup>9</sup> IFRS 9.B6.4.12.

<sup>10</sup> For an overview of popular prospective and retrospective methods for hedge effectiveness measurement, please refer to our previous whitepaper.



One option is to integrate the valuation functionality into the respective software solution and to generate cash flows and discounting data on the basis of delivered financial condition and market data. The advantages of this approach are the uniformity of the valuation methodology and the resulting avoidance of undesired profit or loss effects, as well as less the reconciliation effort for users. Furthermore, integrated modules usually offer a flexible starting point for simulation or scenario calculations. A disadvantage of an integrated valuation functionality, however, is the complexity of the valuation requirements resulting from the support of a wide range of features of financial products. In case of integrated valuation modules, valuation differences between the portfolio management system and the hedge accounting software solution must also be taken into account.

Another implementation alternative is the partial or even complete delivery of cash flows from a separate upstream or trading system. The partial delivery of data from upstream systems makes it possible to support even complex product features. However, this procedure can lead to valuation differences, reconciliation effort and therefore ineffectiveness of the hedge relationship.

Compared to the last survey, the information given by participating vendors concerning the implementation of valuation functionalities did not change: iBox uses the valuation functionalities of upstream systems. Okular HEDGE IT! offers an interim solution. OneSumX, zeb.control.accounting, Ambit Focus and IFRS Solution support a wide range of valuation alternatives. Moreover, in this year's survey OneSumX states that combinations of delivery options, depending on the instrument, are possible.

Valuation functionalities						
	OneSumX	zeb.control	iBox	okular HEDGE IT!	Ambit Focus	IFRS Solution
CF generation and discounting in system	✓	✓	✓	✓	✓	✓
CF delivery and discounting in system	✓	✓	✗	✓	✓	✓
Delivery of valuation data	✓	✓	✓	✗	✓	✓
Comments	Combination of delivery options for different instruments.	–	SAP: Valuation functionality provided by upstream systems. Else: Delivery of valuation data necessary.	CF generation for hedging instruments. Standard functionality for CF delivery for hedged items, but CF generation in separate module possible.	Delivery of product specific sensitivities as additional feature.	Delivery of fair values if necessary.

Figure 12: Valuation functionalities

## 4.6.2 Hedging instruments

The aim of fair value hedge accounting of interest rate risks is to hedge the interest rate risk of a fixed-rate instrument using an interest rate swap with an offsetting fixed leg. According to IAS 39 and IFRS 9, the interest rate swap must be designated in its entirety as a hedging



instrument.<sup>12</sup> Since the variable leg of the interest rate swap is not part of the hedging relationship, the inclusion can lead to non-compensated effects and consequently to hedge ineffectiveness.<sup>13</sup>

Similar to the variable swap leg, other valuation adjustments, for example, for the counterparty risk as well as the bank's own default risk, also have to be taken into account.<sup>14</sup> Thus, even if the interest rate risk is perfectly hedged, hedge ineffectiveness may be caused by a change in default risk.

In contrast to IFRS, under HGB only the components for which opposite changes in value or cash flows of the hedged item and the hedging instrument exist can be designated.<sup>15</sup> Therefore, the variable swap leg is not part of the HGB valuation unit.

In this context, software vendors offer a high degree of flexibility in the inclusion of different components of hedging instruments.

Components of interest rate swaps						
	OneSumX	zeb.control	iBox	okular HEDGE IT!	Ambit Focus	IFRS Solution
Variable swap leg	✓	✓	✓	✓	✓	✓
Valuation adjustments	✓	✓	✓	✓	✗	✓
Comments	Selectable inclusion. Configurable for local GAAP.	Selectable inclusion.	Selectable inclusion.	Inclusion of variable swap leg mandatory, at designation optional.	Inclusion of variable swap leg mandatory.	Inclusion of variable swap leg at delivery mandatory.

Figure 13: Components of interest rate swaps

### 4.6.3 Hedged items and assessment of hedge effectiveness

For hedge accounting under IFRS, the nature of the risk being hedged must be identified and documented accordingly upon designation.<sup>16</sup> For the hedge item, this risk can only be associated with portions of cash flows or fair values, provided that the corresponding portion can be separately identified and reliably measured. For example, a portion of the interest rate exposure of an interest-bearing asset or liability can be designated as the hedged risk (such as a risk-free interest rate or benchmark interest rate component of the total interest rate exposure of a hedged financial instrument).<sup>17</sup> This, however, must also be taken into account in the valuation of the hedged item and hedging instrument.

For the assessment of hedge effectiveness as well as the subsequent measurement of hedged items, changes attributable to a specific risk or risks must be determined and isolated, too.

<sup>12</sup> Also only a proportion of the entire hedging instrument may be designated as the hedging instrument in a hedging relationship (IAS 39.74/75 and IFRS 9.6.2.4.).

<sup>13</sup> If the variable interest cash flows match the transaction costs of refinancing or income from the reinvestment of the hedged item liquidity, there is no economically unhedged component and the inclusion of the variable swap leg does not cause hedge ineffectiveness.

<sup>14</sup> Credit Valuation Adjustment (CVA) and Debt Valuation Adjustment (DVA).

<sup>15</sup> IDW RS HFA 35 Tz. 4.

<sup>16</sup> IAS 39.88 or IFRS 9.6.4.1.

<sup>17</sup> IAS 39.81 or IFRS 9.6.3.7.

In practice, different trading dates of hedged item and hedging instruments and therefore different pull-to-par effects can cause hedge ineffectiveness.

Similarly, hedge ineffectiveness can arise from basis risks or the use of options as hedging instruments, which can be avoided by separating effects accordingly.<sup>18</sup>

As already shown in the last survey, system vendors offer extensive possibilities for the separation of valuation effects. The separation of the time value and intrinsic value of options or of spot and forward elements are supported by OneSumX and iBox. Only okular HEDGE IT!, which focuses on PFVH, neither supports the designation of risk components or the separation of foreign currency basis spreads.

Separation of valuation effects						
	OneSumX	zeb.control	iBox	okular HEDGE IT!	Ambit Focus	IFRS Solution
Designation of risk components	✓	✓	✓	✗	✓	✓
Pull-to-par	✓	✓	✓	✓	✓	✓
Time value/ intrinsic value or forward rate/ spot rate	✓	✗	✓	✗	n. a.	✗
Foreign currency basis spread	✓	✓	✓	✗	✓	✓
Others	✓	✗	✓	✓	✗	✓

Figure 14: Separation of valuation effects

## 4.6.4 Multi-curve capability

Since the financial market crisis, a differentiated recognition of tenor-specific risk premiums (tenor basis spreads) has become standard for the valuation and adequate risk measurement of derivatives. In comparison to the single-curve approach, different yield curves are used for the calculation of variable cash flows and for discounting. Also, different basis spreads are considered.

Therefore, this logic for the valuation and accounting of derivatives must also be applied to the valuation of the hedged item and hedging instruments in hedge accounting. As a result, the multi-curve capability is an important requirement for a modern hedge accounting software solution.

All system vendors surveyed support the multi-curve approach, and with the except iBox, all providers also support the methodologically simpler single-curve approach.

<sup>18</sup> IAS 39.AG110Af., IFRS 9.6.2.4.

Multi-curve capability						
	OneSumX	zeb.control	iBox	okular HEDGE IT!	Ambit Focus	IFRS Solution
Multi-curve setup	✓	✓	✓	✓	✓	✓
Single-curve setup	✓	✓	✗	✓	✓	✓
Comments	-	-	Usage of SAP yield curve framework.	Separate module for multi-curve capability necessary.	-	-

Figure 15: Multi-curve capability

### 4.6.5 Hedge adjustments

In the case of fair value hedge accounting of interest rate risks, changes in the value of the hedged item attributable to the hedged risk are recognized in the result from hedge accounting.<sup>19</sup> For hedged items measured at amortized cost, the hedging gains or losses adjust the carrying amount of the hedged item and are recognized in profit and loss.<sup>20</sup> In case of PFVH, a separate line item for the so-called hedge adjustment has to be reported.<sup>21</sup>

The amortization of the hedge adjustment to profit and loss should begin no later than when the hedged item is no longer part of the hedging relationship.<sup>22</sup> In the case of MFVH, the effective interest method has to be used. Since this method is not practicable in the case of PFVH, the adjustment can be amortized using a straight-line method.

As the update and calculation of these hedge adjustments can be very time-consuming in practice, all software vendors surveyed offer functionalities for both of the above mentioned methods.

Amortisation of hedge adjustments							
		OneSumX	zeb.control	iBox	okular HEDGE IT!	Ambit Focus	IFRS Solution
MFVH	straight-line	✓	✓	✓	✗	✗	✓
	effective interest rate	✓	✓	✓	✗	✓	✓
PFVH	straight-line	✓	✓	✗	✓	✓	✓
	effective interest rate	✓	✓	✗	✗	✗	✗
Comments		-	-	Eff. interest method requires access to calculator of upstream system. No PFVH.	Only PFVH.	-	-

Figure 16: Amortisation of hedge adjustments

<sup>19</sup> IAS 39.89 and IFRS 9.6.5.8. Exceptions are equity instruments under IFRS 9 for which the so-called OCI option is used.

<sup>20</sup> For hedged items measured at fair value through other comprehensive income, the change in value attributable to the hedged risk is transferred from OCI to the result from hedging.

<sup>21</sup> IAS 39.89A.

<sup>22</sup> IAS 39.92 and IFRS 9.6.5.10.

## 4.7 Functionalities for PFVH

Banks usually manage their interest rate risk on an aggregated portfolio level instead of on the basis of individual transactions. Portfolios consisting of a large number of financial assets and liabilities, and subject to constant changes due to additions or unexpected repayments, are hedged using a dynamic hedging strategy.

The accounting policies for PFVH under IAS 39 reflect this dynamic risk management approach by periodic designation and dissolution of portfolio hedging relationships.<sup>23</sup> Since the IASB decided to separate the accounting for dynamic risk management from the introduction of IFRS 9 and treat this as an independent project, the existing requirements for PFVH remain effective.

### 4.7.1 Hedged items

Due to the large number of items the relevant portfolio of hedged items can be analyzed and aggregated to time periods.<sup>24</sup> The analysis into time periods can be performed in various ways. In practice, this is usually based on the interest rate repricing dates and must be parameterized accordingly in a software solution. The hedging period is usually set to one month in line with the reporting period.

All participating software vendors which offer PFVH support the allocation of cash flows and aggregation of hedged items. In addition, OneSumX, zeb.control.accounting and IFRS Solution support the recognition of individual cash flows.

Recognition of hedged items in the context of PFVH						
	OneSumX	zeb.control	iBox	okular HEDGE IT!	Ambit Focus	IFRS Solution
Individual cash flows	✓	✓	✗	✗	✗	✓
Time period allocation	✓	✓	✗	✓	✓	✓
Comments	Amounts/ cash flows subject to frequency of repricing and maturities supported.	Recognition of aggregated cash flows per hedge without generation of time periods possible.	No PFVH.	-	-	-

Figure 17: Recognition of hedged items in the context of PFVH

### 4.7.2 Cancellation rights

In case of uncertain payment dates due to, for example, cancellation rights, cash flows can be allocated to several repricing time periods on the basis of expected rather than contractual repricing dates. However, the methodology for such an allocation needs to be in accordance with the entity's risk management procedures and objectives.<sup>25</sup> Alternative methods are the modeling of cash flows without recognition of cancellation rights and the separate measurement of these options, or the separate designation of cancellation rights. All software solutions which support PFVH offer the probability-weighted modeling of cancellation

<sup>23</sup> For example on a monthly basis.

<sup>24</sup> IAS 39.AG114.

<sup>25</sup> IAS 39.AG117.

rights. The separate valuation or designation of termination options is supported by OneSumX and zeb.control.accounting.

Recognition of cancellation rights in the context of PFVH						
	OneSumX	zeb.control	iBox	okular HEDGE IT!	Ambit Focus	IFRS Solution
Probability-weighted cash flows	✓	✓	✗	✓	✓	✓
Separate measurement	✓	✓	✗	✗	✗	✗
Separate designation	✓	✓	✗	✗	n. a.	✗
Comments	Relevant market and behavior models are part of the OneSumX risk valuation engine for hedging.		No PFVH.	Capability to model fictional cancellation cash flows.	-	-

Figure 18: Recognition of cancellation rights in the context of PFVH

### 4.7.3 Allocation of cash flows of the portfolio to time periods

There are different ways to allocate cash flows of the hedged items to time periods. On the one hand, the individual interest and principal cash flows can be scheduled into the periods in which they are expected to occur (in accordance with contractual repricing periods). Whereas, on the other hand, only principal cash flows can be scheduled into the periods in which they are expected to occur (in accordance with contractual repricing periods) and all interest cash flows are either neglected or scheduled into the same time period.<sup>26</sup> Another alternative is to schedule notional principle amounts into all periods until the contractual repricing is expected to occur. However, this procedure results in the sum of all amounts in the time periods exceeding the sum of the expected cash flows.

All software solutions which support PFVH offer the allocation of cash flows to time periods on the basis of the expected repricing dates. The other methods mentioned above are supported by OneSumX, zeb.control.accounting and IFRS Solution.

Allocation of cash flows in the context of PFVH						
	OneSumX	zeb.control	iBox	okular HEDGE IT!	Ambit Focus	IFRS Solution
Single cash flows expected repricing date	✓	✓	✗	✓	✓	✓
Principal cash flows expected repricing dates	✓	✓	✗	✗	✗	✓
Principal cash flows in all time periods	✓	✓	✗	✗	✗	✗
Comments	-	-	No PFVH.	Present value neutral duration mapping of payments to time periods.	-	-

Figure 19: Allocation of cash flows in the context of PFVH

<sup>26</sup> However, interest cash flows must be taken into account when determining the fair value.

As already explained above, cash flows from individual items can be allocated to a time period structure. However, this means that a precise assignment of underlying legal transactions to aggregated and potentially synthetic transactions in the time periods is no longer possible. Nevertheless, IFRS 7 requires disclosure of the carrying amount of the designated hedged items and thus a possibly approximate determination of the designated proportion of the individual hedged items. Out of the participating system vendors, OneSumX, zeb.control.accounting and IFRS Solution continue to determine this information on an appropriately granular level.

Determination of designated proportion of hedged items in the context of PFVH						
	OneSumX	zeb.control	iBox	okular HEDGE IT!	Ambit Focus	IFRS Solution
Individual hedged items	✓	✓	✗	✗	✗	✓
Comments	-	-	No PFVH.	-	-	-

Figure 20: Determination of designated proportion of hedged items in the context of PFVH

#### 4.7.4 IAS 39 temporary EU carve-out

As already explained in detail in the last study, institutions are basically free to apply the IASB or EU approach for PFVH. The main differences between the two approaches are the consideration of core deposits (savings and current account deposits), the recognition of changes in prepayment expectations and the designation approach for hedged items.

IASB and EU approach in the context of PFVH						
	OneSumX	zeb.control	iBox	okular HEDGE IT!	Ambit Focus	IFRS Solution
IASB approach	✓	✓	✗	✓	✓	✓
EU approach	✗	✓	✗	✓	✗	✓
Comments	-	-	No PFVH.	-	-	-

Figure 21: IASB and EU approach in the context of PFVH

#### 4.7.5 Use of internal derivatives

Under IAS 39, only instruments that involve parties external to the reporting entity can be designated as hedging instruments.<sup>27</sup> However, entities usually use transactions with internal counterparties in order to transfer risk between the banking and the trading book. Therefore, IAS 39 allows the consideration of contracts with external parties which offset the exposure hedged in internal contracts.<sup>28</sup> In order to apply the hedge accounting requirements entities have to demonstrate the mapping of external and internal derivatives respectively the sufficient offsetting between internal and external derivatives which are not fully passed on internally. This proof can be provided on both a prospective and retrospective basis.

<sup>27</sup> IAS 39.73.

<sup>28</sup> IAS 39.IG F.1.4.

Compared to the last survey, all vendors, including zeb.control.accounting, are now offering a manual mapping and the corresponding proof of offsetting. OneSumX and zeb.control.accounting continue to support a retrospective demonstration, the latter also offers the functionality on a prospective basis.

Mapping and proof of offsetting in the context of PFVH						
	OneSumX	zeb.control	iBox	okular HEDGE IT!	Ambit Focus	IFRS Solution
Manual mapping and proof	✓	✓	✗	✓	✓	✓
Retrospective mapping and proof	✓	✓	✗	✗	✗	✗
Prospective mapping and proof	✗	✓	✗	✗	✗	✗
Comments	Prospective mapping on Roadmap 2021.	Prospective mapping as extended functionality of hedge selection.	No PFVH.	Proof of offsetting via key rate basis point value.	-	-

Figure 22: Mapping and proof of offsetting in the context of PFVH

## 5 Additional functionalities and usability

### 5.1 Reporting functionalities

Hedge accounting requirements also have an impact on the related reporting process. Capable reporting tools which provide postings, an effectiveness report or flexible analysis, and simulation functionalities, are essential to analyze systematic or false issues or to derive recommendations for action. Accordingly, all participating vendors offer extensive standard reporting functionalities.

In addition to questions concerning postings, effectiveness report and alert functionalities, in this year's survey vendors were also asked about existing BI functionalities, flexible configuration options for reports, and the availability of the solution on mobile devices. Especially in cases of individual or time-critical enquiries, this can be of particular benefit to users.

Reporting functionalities						
	OneSumX	zeb.control	iBox	okular HEDGE IT!	Ambit Focus	IFRS Solution
Posting record	✓	✓	✓	✓	✗	✓
Effectivity report	✓	✓	✓	✓	✓	✓
Alert functionality	✓	✓	✓	✓	✗	✓
BI functionality	✓	✓	✓	✗	n. a.	✓
Definable reports	✓	✓	✓	✗	n. a.	✓
Availability on mobile devices	✓	✗	✓	✗	n. a.	✗
Comments	BI functionalities via additional module. Freely definable reports.	BI functionalities via additional module. Reports to be defined during software implementation.	BI functionalities via SAP S/4HANA Embedded Analytics. Freely definable reports.	-	-	BI functionalities via additional module. Freely definable reports in additional module.

Figure 23: Reporting functionalities

### 5.2 Posting functionalities

Period-end closing as well as the inception or termination of hedging relationships can lead to an extensive amount of postings. Therefore, an implemented flexible posting logic and automatic generation of postings or posting proposals by the hedge accounting software can be advantageous for users. Particularly important for the connection to other systems are specific details such as the distinction between different accounting principles (ledger vs. account model) and the posting procedure (delta vs. reversal procedure).

Accounting principles can either be distinguished by the identification of respective accounts or by using different ledgers. The former method requires the creation of different accounts for each relevant accounting principle and a respective number of postings. Due to the smaller number of accounts and postings required, the ledger model is more common in practice.



In the context of the delta procedure, only the difference between values or transactions is recognized as a posting. However, postings are very difficult to reconcile since they have to be considered in their entirety. In the context of the reversal procedure, already existing postings are eliminated by a reverse posting and the full amount is posted again on each key date.

Posting functionalities					
	OneSumX	zeb.control	iBox	okular HEDGE IT!	IFRS Solution
Generation of postings	✓	✓	✓	✓	✓
Delta/ Reversal procedure	Delta and Reversal	Delta and Reversal	Delta	Reversal	Delta and Reversal
Ledger model	✓	✓	✓	✗	✗
Comments	-	-	Posting in general ledger via SAP-FI interface.	Posting proposal via account entry and values.	Delta procedure is leading. Reversal via additional module.

Figure 24: Posting functionalities

## 6 Technology and pricing structure

### 6.1 System integration

A key question in a software selection process is in which context the system should and will be used, either as a stand-alone solution without further prerequisites or within an existing SAP landscape. Another important question is whether the hedge functionalities are just one part of an overall solution including other modules with further functionalities or whether the tool only supports hedge accounting functionalities.

As already shown in the last survey, most system vendors, and also IFRS Solution, offer both a stand-alone and an integrated implementation of their software. iBox, however, requires an existing SAP infrastructure.

Possibilities and restrictions for system integration						
	OneSumX	zeb.control	iBox	okular HEDGE IT!	Ambit Focus	IFRS Solution
Stand-alone tool	✓	✓	✗	✓	✓	✓
Integrated module	✓	✓	✓	✓	✓	✓
Comments	Modular design of software solution for finance, risk and reporting. Hedge accounting functionality is submodule of finance.	Part of integrated solution zeb.control.	Based on SAP R/3 or SAP ERP, independent application system fully integrated in system landscape.	Integration in okular software suite possible.	Usually integrated use together with ALM or liquidity risk.	Usability in context of overall bank management tool (Gesamtbanksteuerungstool) by msg possible.

Figure 25: Possibilities and restrictions for system integration

In addition to the different integration possibilities, the duration as well as the related costs and resources of a typical implementation project are important aspects for potential users. The number and frequency of updates provided by vendors in case of system errors also has to be taken into account.

The majority of the participating software vendors indicate that the typical duration of an implementation project for their solution is up to 6 months. All providers update their solutions on a regular basis.

Another important decision criterion in a software selection process is the guaranteed maintenance period. If the maintenance of a module is no longer guaranteed by the vendor, users either have to live with existing defects or they have to implement a new module. Therefore, a long maintenance period guaranteed by vendors can be advantageous for customers. Most of the participating vendors state that they offer a guaranteed maintenance period of 5 years. Others treat it as a matter of individual negotiation.

Introduction and maintenance					
	OneSumX	zeb.control	iBox	okular HEDGE IT!	IFRS Solution
Duration of implementation	up to 6 months	up to 6 months	6 – 12 months	3 – 9 months	up to 6 months
Update frequency	on a quarterly basis	on an annual basis	given	regularly updated	minimum on an annual basis
Guaranteed maintenance period	5 years	5 years	individual agreement	individual agreement	5 years
Comments	-	-	-	Maintenance period usually last release + predecessor module (approx. 2 – 3 years).	-

Figure 26: Introduction and maintenance

In addition to the aspects described above, this year’s survey also considered other technical aspects, including the availability of standard interfaces, cloud capability of the solution, and its programming language.

Advantages of a standard interface compared to an individually developed interface are, on the one hand, the fast availability, but, on the other hand, the support and maintenance of the interface provided by the vendor. Both aspects usually result in a lower price compared to an individually developed interface. Also, users of standard interfaces benefit from documentation or practical guidelines which are usually already available.

Furthermore, software vendors were asked about the cloud computing capability of their solution. The use of cloud services can help clients to reduce costs and increase flexibility.<sup>29</sup> For example, cloud solutions often eliminate the need for costly and less scalable hardware purchases and maintenance. Especially for banks, however, regulatory aspects and the associated analysis and documentation requirements must also be taken into account in the decision-making process.<sup>30</sup> Out of all participating vendors, the majority states that their solution is cloud-ready.

In addition, vendors were asked about the programming language of their solution. A common programming language can be advantageous regarding administration and support of the solution.

<sup>29</sup> In practice, different deployment models, including public and private cloud, have to be distinguished.

<sup>30</sup> Depending on the cloud model, the complexity and risk of the functionality transferred to the cloud, financial institutions have to check whether regulatory guidelines for outsourcing arrangements apply. For example BaFin: Orientierungshilfe zu Auslagerungen an Cloud-Anbieter, [https://www.bafin.de/Shared-Docs/Downloads/DE/Merkblatt/BA/dl\\_181108\\_orientierungshilfe\\_zu\\_auslagerungen\\_an\\_cloud\\_anbieter\\_ba.pdf](https://www.bafin.de/Shared-Docs/Downloads/DE/Merkblatt/BA/dl_181108_orientierungshilfe_zu_auslagerungen_an_cloud_anbieter_ba.pdf), last downloaded 2020-05-04.

Technical aspects					
	OneSumX	zeb.control	iBox	okular HEDGE IT!	IFRS Solution
Standard interface	✓	✓	✓	✓	✓
Cloud computing capability	✓	✓	✗	✗	✓
Programming language	C (+, ++, #)	vb.net	ABAP	smalltalk	JAVA (J2EE)
Comments	Interface template available, e.g. Murex. Available in private cloud, public cloud on roadmap 2021.	Comprehensive integration in overall bank management system (Gesamtbanksteuerungslösung) zeb.control plus standard interface.	Interface for all SAP subledgers, Summit, SAP FI, SAP BW available.	Comprehensive integration to okular software, standard interface for postings to iBox exists. Transformation in Java planned.	Simple interface and standard interface to overall bank management tool (Gesamtbanksteuerungstool) by msg available.

Figure 27: Technical aspects

## 6.2 License model

On the one hand, costs for the implementation and use of a software solution are incurred by the rental or procurement as well as the maintenance of hardware on which the system is operated, but on the other hand, there are expenses for the implementation and connection of system components to other systems. However, in case of a modular extension of an already existing integrated and standardized overall architecture, cost advantages may have to be considered.

In addition, costs may arise from provider-specific license and service fees. License fees cover the use of the system and are usually payable once at the start of use or in the form of an annual rental license. Depending on the software vendor, the amount of the license fee is often determined by the size of the customer and the number of users. For modular systems or system architectures, the number of modules and functionalities used is also a common relevant factor for the amount of the license fee.

The service fee covers the ongoing support and maintenance of the software solution and is payable either annually or as part of a customer-specific maintenance model, defined in an individual support agreement.

The participating vendors usually offer models with a license fee and a separate service fee.

## Standard software solutions for hedge accounting under IFRS



Licensing model						
	OneSumX	zeb.control	iBox	okular HEDGE IT!	Ambit Focus	IFRS Solution
Licensing model	Initial license fee (5 years use) plus annual service fee	Software as a service and rental license, or on premise installation with buying license	Initial buying license plus annual maintenance fee	Initial license fee plus annual service fee	Initial license model or rental license, subscription or managed services	Buying license or in consultation rental model possible
Licensing fee	Depending on size of the bank, number of concurrent users, number of CPU, number of modules	Buying license with nonrecurring fee	Depending on balance sheet total and number of modules	Depending on modules and functionalities (unlimited number of user)	Depending on balance sheet total and number of users	Depending on balance sheet total and number of users
Support and maintenance fee	Every year 20 % of initial license fee	–	Annual maintenance fee. Or support contract and maintenance performed by customer	Annual fee for the license, service and maintenance 18 % of license fee	–	Service contract: 18 % of the license fee per year for maintenance

Figure 28: Licensing model

## 7 Software vendor’s self-assessment of the product

In addition to the range of services, software vendors were also asked about their own assessment of their product. In detail, vendors were asked to give insights into the unique selling point, the typical operating scenario, and the philosophy of their solution.

### 7.1 Unique selling point

A particular feature or asset which distinguishes a software solution from the competition can be quite different depending on the individual situation or preferences of the customer. This is also reflected in the vendors’ answers below:

Unique selling point	
OneSumX	<ul style="list-style-type: none"> <li>» Modular and flexible: Parts of the solution can be integrated to complement the existing system landscape. Flexibility to take into account banking specific features concerning hedge strategies or designation policies.</li> <li>» Finance, risk and regulatory solutions for the whole software suite: Extensive coverage of all aspects of hedging and hedge accounting. Regulatory update service for new initiatives and reporting policies.</li> </ul>
zeb.control	<ul style="list-style-type: none"> <li>» zeb Hedge Engine ideal for IFRS group management/p&amp;l volatility reduction including simulation und forecast.</li> </ul>
iBox	<ul style="list-style-type: none"> <li>» The solution provides a complete accounting subledger for accounting with different ledgers (IFRS, HGB, US-GAAP) including hedge accounting.</li> <li>» Full integration in SAP and ready for operation at short notice within already existing SAP infrastructure.</li> </ul>
okular HEDGE IT!	<ul style="list-style-type: none"> <li>» Stable and save implementation of PFVH for interest rate risk with all possible features.</li> <li>» Individual requirements can be implemented by experts and programmers from parcIT.</li> </ul>
IFRS Solution	<ul style="list-style-type: none"> <li>» Flexible connection possibilities, use of modern software architectures.</li> <li>» Uniform valuation engine for a consistent fair value measurement for credit risk, market risk, hedge accounting and earnings forecast.</li> <li>» Earnings forecast calculation for hedge accounting planned in 2021.</li> </ul>

Figure 29: Unique selling point

## 7.2 Operating scenario

The situation of clients varies both in terms of the performance and scope of existing accounting solutions as well as the size and complexity of their portfolio of financial instruments. As shown in the illustration below, software vendors have therefore adjusted to this heterogeneous customer situation.

Typical operating scenario	
OneSumX	<ul style="list-style-type: none"> <li>» OneSumX is usually used by big and small banks or energy traders with a link to the trading ledger.</li> <li>» OneSumX is implemented as a single solution for hedging, within the framework of a full IFRS 9 implementation project or as comprehensive software for finance, risk and regulatory compliance.</li> </ul>
zeb.control	<ul style="list-style-type: none"> <li>» In a persistent environment of low interest rates, the p&amp;l effect without the use of hedge accounting or a not optimized approach is too high. Test calculations realize optimizations as well as a positive business case for customers within a few days.</li> <li>» zeb Hedge Engine is seamlessly integrated in zeb.control.treasury or usable as stand-alone tool out of the box.</li> </ul>
iBox	<ul style="list-style-type: none"> <li>» The solution integrates all finance SAP subledgers as central accounting and reporting platform for all financial instruments.</li> <li>» Full transparency for all subledgers in the general ledger including a full internal control system process.</li> </ul>
okular HEDGE IT!	<ul style="list-style-type: none"> <li>» Customers who explicitly need a PFVH solution and appreciate a well established product with full functionality and stability.</li> <li>» Cost-efficient tool.</li> </ul>
IFRS Solution	<ul style="list-style-type: none"> <li>» Usability in the context of msgGillardon bank management THINC.</li> <li>» Usability as service on consumer specific database.</li> <li>» Interface for SAP FSDM (planned).</li> </ul>

Figure 30: Typical operating scenario

## 7.3 Philosophy

Like the other chapters above, the philosophy of the software solutions also reflects the heterogeneity of customer needs and the respective positioning of vendors.

Philosophy	
OneSumX	<ul style="list-style-type: none"> <li>» Unraveling of separated finance, risk and regulatory structure according to regulatory and market trends. Idea: Holistic approach based on the same fundamental data in the software application, coordinated design and usability by finance, risk and regulatory compliance.</li> <li>» OneSumX can be expanded modularly, all modules can be integrated automatically.</li> </ul>
zeb.control	<ul style="list-style-type: none"> <li>» Extensive experience in all fields of corporate management is transferred to software solutions. This specialty can hardly be covered by products on the market.</li> <li>» Integrated advisory approach is reflected in the modular integration of zeb.control: Common target data model and central cash flow generator as basis for risk, accounting and finance.</li> <li>» For users: Easy expandability, high transparency and easy reconciliation of results between modules.</li> </ul>
iBox	<ul style="list-style-type: none"> <li>» Smart and simple: Low overhead but full flexibility for the customer.</li> <li>» Sustainable solution, which accompanies customers over years with manageable maintenance and service costs.</li> </ul>
okular HEDGE IT!	<ul style="list-style-type: none"> <li>» IFRS software solutions are an integral part of the okular product family for the overall bank management.</li> <li>» The software solution okular HEDGE IT! established on the market for many years.</li> <li>» Usage of the same valuation methods for derivatives within okular. I. e. swap in okular HEDGE IT! has the same present value and cash flow as in okular ZIRIS/ZIABRIS.</li> </ul>
IFRS Solution	<ul style="list-style-type: none"> <li>» Comprehensive, pragmatic and cost-efficient solution for medium to large institutions.</li> <li>» Happy and long-term customer relationships.</li> <li>» We make banking stable and future-proof.</li> </ul>

Figure 31: Philosophy



## 8 Conclusion and outlook

This year's survey on hedge accounting software solutions once again asked vendors about essential professional functionalities, as well as, for the first time, extended technical details and their own assessment of their solution. On the basis of the information obtained, it was again possible to provide a detailed overview of the performance and services of various software solutions in the market.

This comparison illustrates that the surveyed system vendors focus on certain aspects within their solutions and these can be particularly suitable for a specific customer requirement. Nevertheless, the information obtained is not sufficient to make a specific software selection decision. Instead, a detailed analysis of the individual customer needs and preferences, the current and future system architecture, as well as the planning of the implementation project, must be performed within the framework of a preliminary study. In addition, interviews with vendors should be conducted to obtain further information.

Due to our extensive professional and technical expertise in hedge accounting as well as our experience in software implementation projects, FAS AG can support you here! Our profound know-how can also provide added value for the application of the general hedge accounting requirements or the still outstanding requirements for PFVH under IFRS 9.

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