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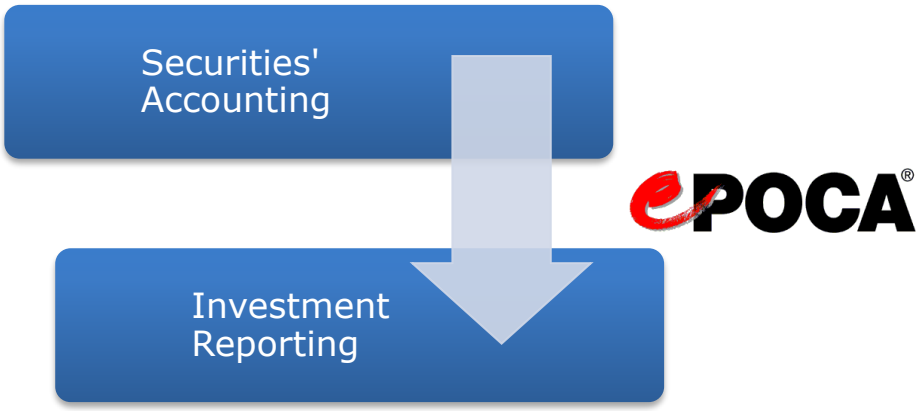
Securities' Accounting and Investment Reporting



Introduction

Securities' accounting is the centerpiece of the controlling, it is the node where all paths cross. It is the foundation of many reports and the legal basis for financial reporting and tax reporting. More effort is put into the monitoring and more precision is requested from the securities' accounting than from any other system. Securities' accounting contains most of the necessary information for the generation of the investment report, in any case it does not need more information than a specific investment reporting system. For these reasons it is often also the basis of investment reporting. Sometimes, however, the investment reporting is produced by another independent system, although this requires a considerable supplementary effort. We see three main reasons for this:

- If the securities' accounting data is to be used for the investment reporting it must be accomplished with great care. Shortcuts that would remain unnoticed in an accounting system might stand out in the investment report or even make it useless. It is however desirable that these shortcuts be avoided, since they distort not only the investment report but the securities' accounting as well.

- The securities accounting requires slightly more data and effort. As a rule all transactions should be booked at market values. This is straightforward for common transactions such as purchases, sales, dividends, interest payments, etc. The required market values are naturally present on the bank receipt since they are the basis for the treatment of the transaction. Some other transactions, however, can be treated by the bank without the knowledge of market values and it usually does not appear on the bank receipt. These transaction include for example corporate actions like a conversion or a stock dividend, realization of forward contracts and exercise of options. However, this

extra work is needed for a correct booking of gains and losses and should be considered as good accounting practice.

- Last but not least the securities accounting system requires a high level of flexibility. The investment report should not be compromised because a change that would be necessary for a sound investment report cannot be executed because of the securities' accounting. Changes in the asset standing data, chart of accounts and investment structure should be possible at any time with a minimum amount of effort.

This extra care and effort put into the securities' accounting however is more than compensated by its significant advantages:

- The congruence between the securities' accounting and the investment reporting is automatically given. You do not have to investigate and explain differences between them that often disturb the investor.

- The extra effort for the generation of the investment report is very small. All transactions are already treated, the reconciliation with the deposit bank is done: that is a large part of the work. What is this extra work then? The entry or import of prices, benchmark values, and interest rates, etc., all data that are needed for the investment reporting, independently of where it is produced.

- There is of course no extra effort needed for the reconciliation between accounting and reporting.

Performance Calculation

Let us start with the analysis of the performance calculation from the securities' accounting data, since performance is one of the main components of the investment report. We start by analyzing the MWR performance of the investment since, as we will later see, it is directly related to the accounting profit of the investment. What is needed in order to calculate the performance of an investment for a given time period?

- The market value of the investment at the beginning of the performance period.

- The market value of the investment at the end of the performance period.

- The capital flows during the performance period.

The market values of the investment at the beginning and at the end of the performance period can be directly derived from the securities' accounting data. Since the inventory of assets is part of the accounting, the calculation of market values depend only on the knowledge of security prices at these dates and the calculation of the accrued interests, which is part of a securities accounting system.

The capital flows during the period are of course known to the accounting system. This is not only true for capital flows at the level of the whole investment, for example cash deposits and cash withdrawals, but it is also true

at the level of any sub-portfolio. The purchase of a security belonging to a sub portfolio generates a capital flow into that sub portfolio that is perfectly known to the accounting, since the purchase transaction must be booked in the accounting. The accounting has even knowledge of all fees and taxes involved in a transaction and can therefore accommodate for the calculation of performance before or after fees, before or after taxes.

This analysis shows that the calculation of the performance of the investment is straightforward from the data of the accounting. The accountant does not have to put more effort into the accounting and he does not need special knowledge about performance calculation.

If the performance is calculated between two closing dates, the market values in the investment reporting agree 100% with the market values in the balance sheet since we assume that the valuation occurs at market values and that the accrued interests are booked as transitory transactions. In particular the value of the whole investment is directly visible in the balance sheet, independently of the chart of accounts.

Requirements for the Accounting / Reporting System

We will now see the main properties of the securities accounting that can be considered as requirements if the accounting is to be used as the basis for the investment reporting.

Correct Booking of Derivatives and Products with Embedded Derivatives

Obviously the first requirement is that all derivatives are booked into the accounting system, including short sales and forward contracts. But this not enough, it must also be assured that the gains and losses are assigned to the securities that produced them. For example the realization of a currency forward must be booked at the market exchange rates prevailing at that date, resulting in a realized gain or loss that must be booked to the currency forward itself. An accounting of the realization at the implicit forward rate of the contract would not generate any gain or loss. This means that all forward currencies have a performance of zero! The resulting investment report would be absolutely worthless. The same holds true for example for the exercise of options or the delivery of securities with a barrier reverse convertible. In all these cases an accounting at forward rates or strike prices would result in wrong performance figures, not only in the asset class of the derivative itself, but also in the asset class of its underlying.

We can see that this requirement is not only a necessity from the point of view of the investment reporting, it is also a condition for producing a sound and valuable securities' accounting. ePOCA encourages the exactness of such bookings through an optimal user support.

Flexibility

The accounting system must provide a great flexibility concerning changes of standing data. In a pure reporting system the data can usually be changed without restriction, for example the asset class of a security can be changed at any time. In an accounting system the change of asset data can have incidence on the accounting and is sometimes only possible with great effort. The flexible chart of accounts of ePOCA for example provides such a flexibility since

practically all standing data and all accounts can be changed at any time without concern about the accounting consequences.

Booking at Market Value

This is obviously always the case for common transactions such as purchases, sales, dividends, etc. It might be less obvious for some corporate actions like a conversion for which the book value is transferred from one position to another. Not booking the transfer usually has little consequence since the transfer occurs mostly between positions belonging to the same performance groups. If, however, the performance is computed at the level of single positions the transfer at market values is a necessity.

Booking Date

Again this is not an issue for most common transactions but must be more carefully analyzed for some corporate actions. A dividend for example should be booked at its "ex-date" since it is the exact date at which the price of the security is adjusted to the dividend payment. Booking the dividend at a later date, for example when the dividend is received, may result in a slightly incorrect performance between the "ex-date" and the payment date. It must be decided if the perfection in the computation results is worth the extra effort in the accounting.

Relationship between Securities' Accounting and Investment Reporting

Since we can directly derive the performance from the accounting data the question arises at to the relationship between them. In a first step assume that the valuation in the accounting is done at market values, that the accrued interests are booked and that the performance is computed between two closing dates, for example since the beginning of the year to the end of a month (YTD) with monthly intermediate closings. For a securities' accounting we have the following equation: Profit = Book value at the end of the period – Book value at the beginning of the period – Capital flows. But the book values are equal to the market values, so that we have:

Profit =	Market value at the end of the period – Market value at the beginning of the period – Capital flows

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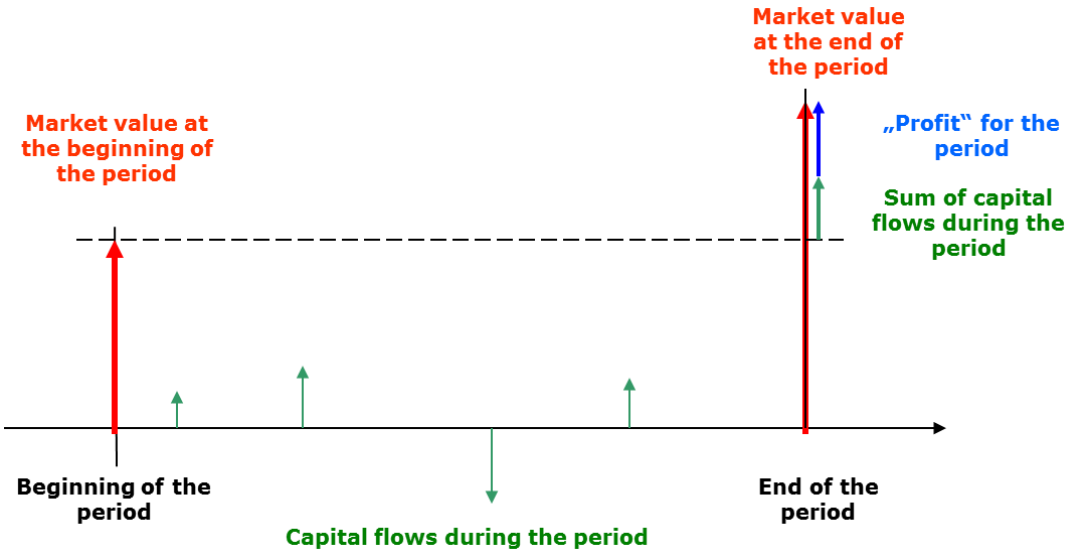
This is illustrated in the following graph:



Now the right hand side of the equation above is equal to the numerator in the formula for the computation of Modified Dietz performance, the denominator being the average invested capital. So the Modified Dietz performance is equal to the accounting profit divided by the average invested capital. The relationship between accounting and investment reporting is therefore obvious.

Since the MWR performance is often computed as the internal rate of return (IRR), let us see how the accounting profit relates to the IRR. Recall the definition of the internal rate of return. Suppose that the initial investment (market value of the investment at the beginning of the period) is deposited on an account with constant interest rate during the performance period. Suppose that all cash flows occur on this same account. The interest rate that would produce an account balance equal to the market value of the investment at the end of the performance period is the internal rate of return. The accounting profit of the investment is therefore equal to the "interests" produced by the IRR, again an intuitive relationship between accounting and performance.

One of the goals of performance computation is the comparison with other investments (peer group) or benchmarks. To this end the TWR performance must also be computed. The TWR performance does not directly relate to the accounting profit, since it is the performance of the portfolio manager and not the performance of the invested money. Normally, at the level of the whole investment, the MWR and the TWR performances do not greatly differ, if we assume that the capital flows are small relative to the investment. This is illustrated in the following graph:

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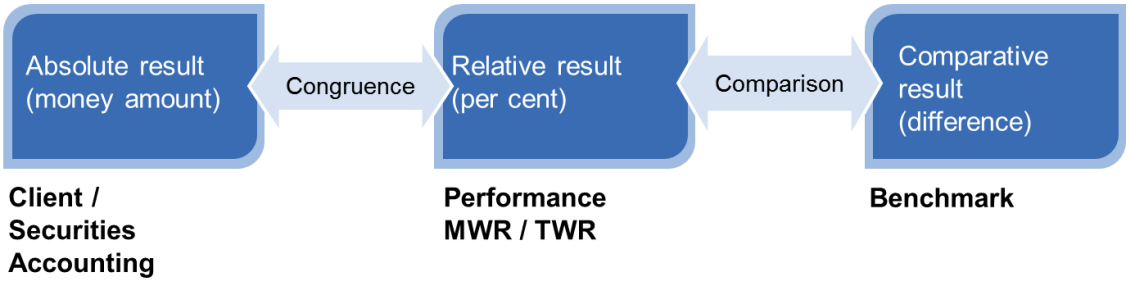
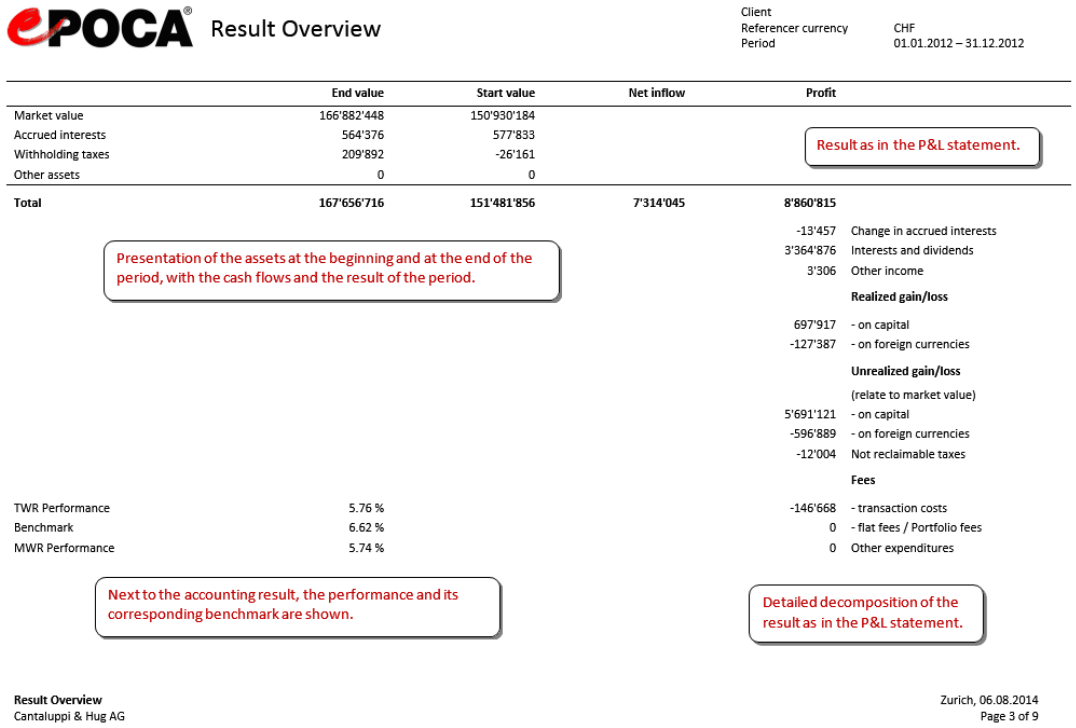


The combination of securities accounting and investment reporting allows the generation of reports presenting both types of data, as the following report shows:



ePOCA Result Overview

Client
Referencer currency CHF
Period 01.01.2012 – 31.12.2012

	End value	Start value	Net inflow	Profit	
Market value	166'882'448	150'930'184			
Accrued interests	564'376	577'833			
Withholding taxes	209'892	-26'161			
Other assets	0	0			
Total	**167'656'716**	**151'481'856**	**7'314'045**	**8'860'815**	
				-13'457	Change in accrued interests
				3'364'876	Interests and dividends
				3'306	Other income
					Realized gain/loss
				697'917	- on capital
				-127'387	- on foreign currencies
					Unrealized gain/loss
					(relate to market value)
				5'691'121	- on capital
				-596'889	- on foreign currencies
				-12'004	Not reclaimable taxes
					Fees
TWR Performance	5.76 %			-146'668	- transaction costs
Benchmark	6.62 %			0	- flat fees / Portfolio fees
MWR Performance	5.74 %			0	Other expenditures

Result as in the P&L statement.

Presentation of the assets at the beginning and at the end of the period, with the cash flows and the result of the period.

Next to the accounting result, the performance and its corresponding benchmark are shown.

Detailed decomposition of the result as in the P&L statement.

Result Overview
Cantaluppi & Hug AG

Zurich, 06.08.2014
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As seen above if the valuation in the accounting is done at market values we have a perfect congruence between both. The balance sheet, for example, gives the same figures as the inventory at market prices. If the valuation of the securities is not done at market values, but for example at "lower of cost or market", a certain congruence is still possible. However the book values have to be corrected by the unrealized gains and losses that are not booked in the accounting in order to get the market values. The same holds for the accounting profit, which must be corrected according to these same values.

Other Computations for the Investment Reporting

Of course the performance is not the sole component of an investment report. Many other elements build it such as the allocation of sectors of stocks of the allocation of currencies of bonds. Moreover the strategic and tactical allocation

have to be checked and are the basis of performance attribution. An investment report would be incomplete without a risk analysis consisting of modified duration, volatility, correlations, VaR, etc.

There is however nothing here that an extended securities' accounting system cannot do!

Link to our website
www.chsoft.ch