

Experience with the collection and publication of data on structured products in Switzerland

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1. Introduction

In the context of this paper, structured products are defined as investment products whose repayment value derives from the development of one or more underlying assets. Structured finance products (asset-backed securities, collateralised debt obligations and similar products) for which the financing purpose or risk transfer is of central importance are beyond the scope of this paper.

Structured products are prepackaged investment strategies. They are often combinations of traditional investments in shares or bonds and financial derivatives. Traditional investments and derivatives are combined in a single financial instrument and securitised. Such "structuring" allows investment products to be created with risk-return characteristics that match the specific needs and expectations of investors. There is a vast range of publicly available structured products. In addition, there are tailor-made structured products for high net worth investors. The time to market for structured products is short, enabling them to react quickly to new trends in financial markets.

The Swiss market for structured products has seen considerable growth in recent years. This has prompted growing interest in data on this market, on the part of both economists and (potential) suppliers of structured products. Accommodating this interest has necessitated an expansion of the securities statistics and modifications to the financial accounts.

Section 2 of this paper describes structured products in general and defines categories of structured products. Features of the market for structured products in Switzerland are presented in sections 3 and 4. Section 5 describes data collection. The topic of section 6 is the classification of structured products in the financial accounts. Section 7 concludes.

2. Characterisation of structured products

2.1 General features

The structured products considered in this paper are investment products whose repayment value derives from the development of one or several underlying assets. Underlying assets are shares, bonds, foreign currencies, commodities etc. Legally, structured products are obligations for whose fulfilment the issuer is liable with all of its assets.

¹ Swiss National Bank. I would like to thank Yves-Alain Bicker and other colleagues from the Statistics Department of the Swiss National Bank for the fruitful discussions of earlier versions of this paper.

The views expressed in this paper are those of the author and do not represent those of the Swiss National Bank.

2.2 Categories of structured products

It is useful to distinguish the three categories defined by the Swiss Structured Products Association (SSPA): participation products, yield enhancement products and capital protection products. Their basic features are described below. For ease of exposition, only the most common underlying assets are mentioned: shares in the case of participation products, and shares and bonds in the case of yield enhancement and capital protection products. The investment strategies with payoff profiles equivalent to the three categories of structured products are shown in Table 1. Details on the structured product categories can be found in the Swiss Derivative Map published on the website of the SSPA (www.svsp-verband.ch).

Participation products:

The payoff of the basic participation product is tied to a share price index or to a basket of shares. The payoff may be one to one with the prices of the underlying shares, or with some leverage and certain discontinuities. However, unlike yield enhancement or capital protection products, the returns on participation products have neither a strict cap nor a strict floor.

Yield enhancement products:

Yield enhancement products offer returns well above those on traditional bonds if share prices move sideways or go up. The risk is that the investor will incur only a low return or even a loss if share prices fall. The price for the extra return in the case of stable share prices is a limit on the return (cap) if share prices go up. The payoff profile of the basic yield enhancement product is equivalent to that of an investment in a bond with the same maturity as the structured product plus the sale of a put option on a share, or – due to the put-call parity – a traditional investment in a share plus the sale of a call option on the same share.

There are two subtypes of the basic yield enhancement product: reverse convertibles and discount certificates. Reverse convertibles have coupons ten or more percentage points above the coupons of traditional bonds. Discount certificates have no coupon but are sold at prices below those of traditional investments in the underlying shares. The pretax payoff profiles of reverse convertibles and discount certificates are identical; despite this, the tax treatments differ.

Common extensions of the basic yield enhancement product are products with more than one underlying share and more complicated options. These extensions lead to significantly more complicated payoff profiles.

Table 1
Categories of structured products and equivalent investment strategies

Category	Investment strategy with equivalent payoff profile
Participation products	Investment in basket of shares, possibly with leverage
Yield enhancement products	Investment in bond plus sale of put option on share Investment in share plus sale of call option on same share
Capital protection products	Investment in bond plus purchase of call option on share Investment in share plus purchase of put option on same share

Capital protection products:

Capital protection products offer participation in the movements of share prices while guaranteeing a minimum return (floor). The floor is below the return on a traditional bond. The cost of the floor is usually less than one-to-one participation in upward movements in

share prices. The payoff profile of the basic capital protection product is equivalent to that of an investment in a bond with the same maturity as the structured product plus the purchase of a call option on a share, or – due to the put-call parity – to a traditional investment in a share plus the purchase of a put option on the same share.

The Swiss Derivative Map published by the SSPA includes a fourth category of investment products: leverage products. Leverage products are securitised options and futures. Since they do not differ fundamentally from the familiar OTC or standardised financial derivatives, they are not considered in this paper.

2.3 Maturity

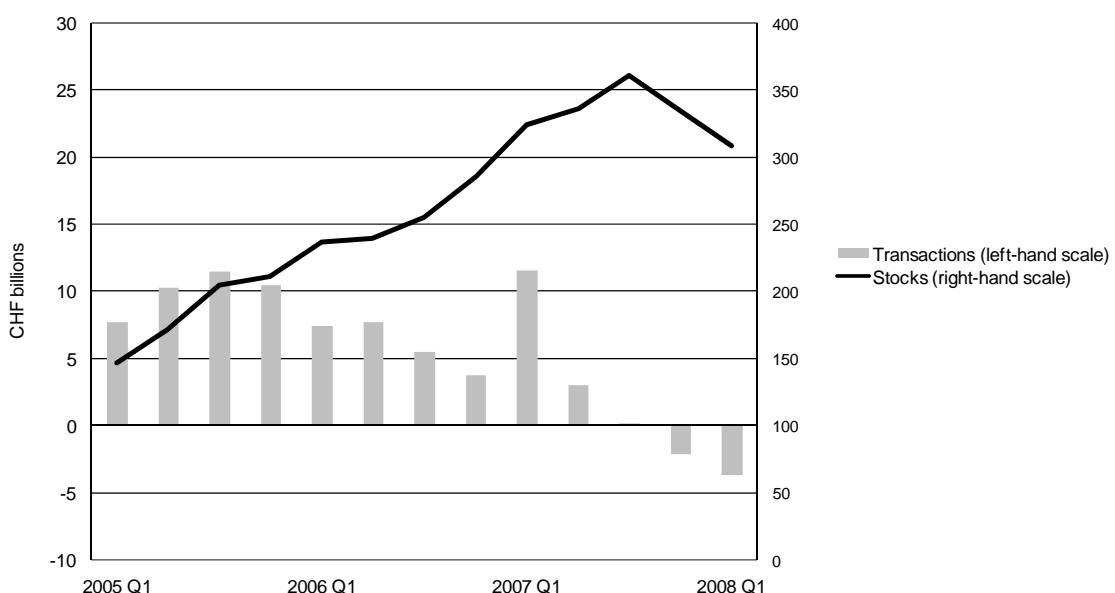
The maturity of participation products is usually between one and five years; some participation products are open-ended. The typical maturity for yield enhancement products is one year. Maturities for capital protection products are between three and five years.

3. Significance of the market for structured products

Data available on the Swiss market for structured products comprise the number of products listed on SWX's Scoach platform, turnover on Scoach, and the value of stocks and transactions of structured products in custody accounts. Graph 1 shows transactions and stocks of all structured products in custody accounts at banks in Switzerland. The graph starts in 2005, when data on structured products were collected for the first time. Until the third quarter of 2007 there were impressive net acquisitions of structured products. Stocks of structured products more than doubled, from CHF 150 billion in the first quarter of 2005 to CHF 360 billion in the third quarter of 2007 (EUR 220 billion; USD 310 billion). The share of structured products in all securities in custody accounts rose in the same period from 4% to 7%. However, in the fourth quarter of 2007 and the first quarter of 2008 there were net disposals of structured products. This coincided with the first significant fall in share prices since the emergence of the market for structured products in its present form, and with turbulence in other financial markets.

Graph 1

Structured products in custody accounts at banks in Switzerland



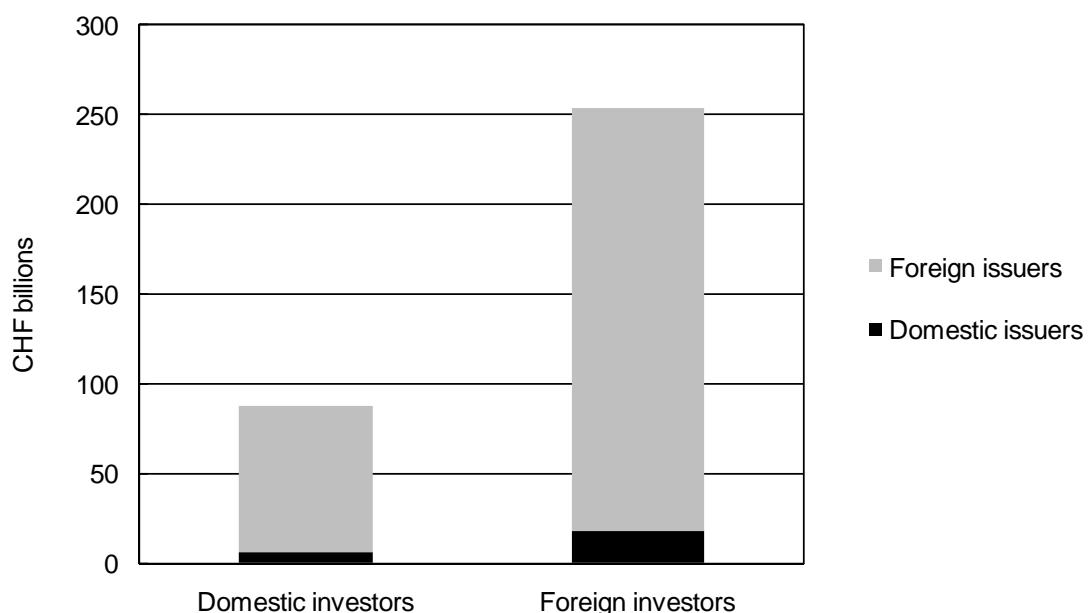
Source: Swiss National Bank.

A breakdown into product categories is not yet available for structured products in custody accounts. However, the number of listed structured products and turnover on Scoach suggest that the markets for participation and yield enhancement products are larger than for capital protection products.

Structured products in custody accounts at banks in Switzerland comprise products held by domestic and foreign investors and products issued by domestic and foreign issuers. As Graph 2 shows, at the end of 2007, CHF 254 billion worth of structured products were in custody accounts of foreign investors and CHF 87 billion worth were in custody accounts of investors resident in Switzerland. Graph 2 also shows that the majority of structured products are issued outside Switzerland; the reason for this will be discussed in the next section.

Graph 2

**Structured products in custody accounts at banks in Switzerland
by domicile of investors and issuers at the end of 2007**

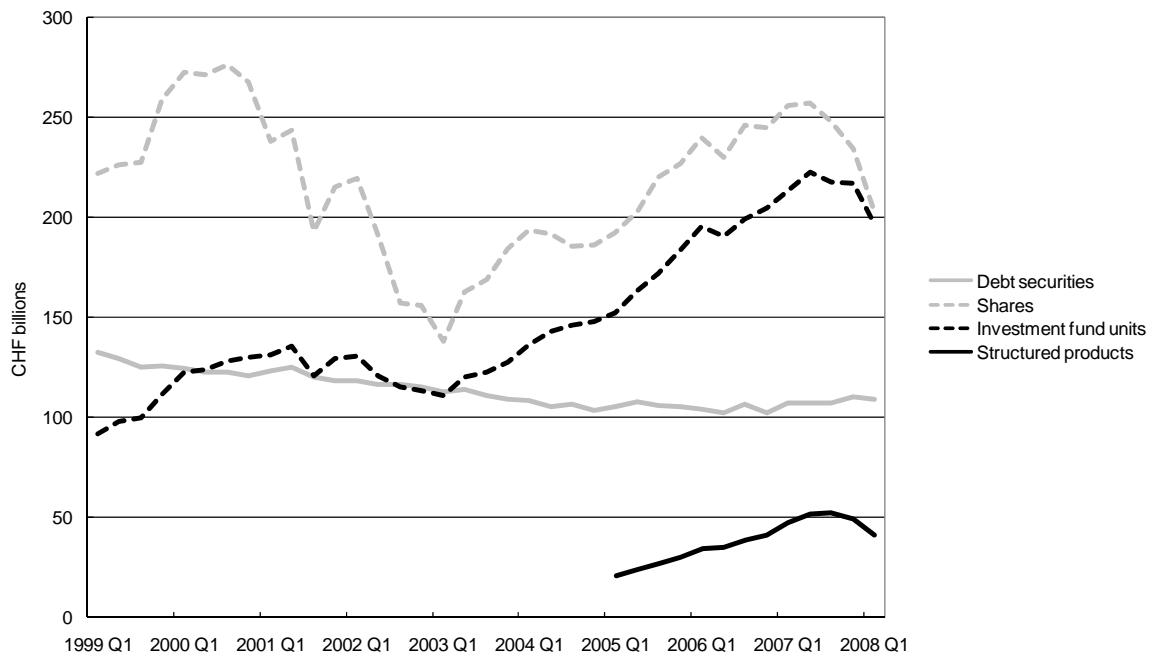


Source: Swiss National Bank.

In order to assess the significance of structured products, it is useful to look at structured products and other assets of specific groups of investors. Among those resident in Switzerland, the most important investors in structured products are households. In the third quarter of 2007 structured products held by households peaked at CHF 52 billion; at the end of 2007 they stood at CHF 51 billion. Holdings of structured products by insurance corporations and pension funds stood at CHF 12 billion at the end of 2007, as did holdings by the remaining financial institutions.

Graph 3 shows structured products held by households together with holdings of debt securities, shares and investment fund units. The graph puts the spectacular growth rates for stocks of structured products into perspective: measured in billions of Swiss francs, the changes in stocks of structured products were significantly below the corresponding changes in stocks of investment fund units. Compared to investment fund units or direct holdings of shares, the level of structured products is still rather modest. On the other hand, the level of structured products is almost half that of debt securities. As discussed in section 6, this has consequences for the interpretation of standard financial accounts data.

Graph 3
Securities held by households in Switzerland



Source: Swiss National Bank.

4. Organisation of the market for structured products in Switzerland

4.1 Managers and issuers of structured products

Most structured products are issued by banks. It is important to note that the lead manager and the issuer may be different units of the same bank group. In the case of Swiss banks supplying the Swiss market, lead managers are normally resident units but the issuers are often branches or subsidiaries abroad. The main reason is to avoid withholding tax and – in contrast to special purpose entities issuing asset-backed securities – not to limit bank liabilities. Coupon payments on structured products issued in Switzerland are subject to withholding tax. Payment of withholding tax is tilted towards the holder of the product at maturity. Thus, Swiss banks issue yield enhancement products (except for discount certificates) and capital protection products abroad.

4.2 Time to market

Investment funds can provide investments with risk-return profiles similar to structured products. Indeed, in view of the success of structured products, a range of such investment funds has been offered since 2007 under the name “exchange-traded structured funds”. While each fund needs approval from the Swiss Federal Banking Commission (SFBC), this is not the case for structured products. This allows structured products to react very quickly to new trends in financial markets. Recent evidence of this flexibility is the rapid growth in the number of structured products with commodities as underlying assets in the first half of 2008.

4.3 Distribution, market-making and listing of structured products

Private and institutional investors acquire a substantial part of their investments in structured products by subscription. Lead managers act as market-makers for their issued structured products. Roughly 6,000 structured products were listed on SWX's Scoach platform at the end of 2007. However, the majority of structured products are unlisted.

4.4 Hedging market risks of issued structured products

In principle, banks could hedge their liabilities by buying the traditional investments and financial derivatives that characterise the risk-return profiles of the structured products (static hedge). In practice, banks employ hedging techniques, which absorb only a fraction of the proceeds from the sale of the structured products (delta and vega hedging). Moreover, they manage market risks by considering structured products together with other trading book positions that have offsetting risk-return profiles.

Funds received from the issuance of structured products may be used to finance the trading books of banks or other investments. However, in contrast to convertible bonds issued by non-financial companies, profit margins rather than funding are the primary drivers of structured product issuance.

4.5 Swiss Structured Products Association (SSPA)

The SSPA was established in 2006 by the major issuers of structured products to represent their shared interests and to strengthen the image of structured products. An important task of the SSPA is the management of the Swiss Derivative Map, which defines categories and types of structured products. It is the aim of the SSPA to establish the Swiss Derivative Map as a standard in Europe.

5. Data collection

5.1 Securities statistics

The first indications of the growing market for structured products were a surge in advertisements for structured products in the financial market press and a significant increase in the "other securities" category of the securities statistics in 2003. The Swiss securities statistics compiled by the Swiss National Bank (SNB) are based on an aggregate reporting system. Thus, to accommodate structured products, it was necessary to expand the questionnaire; they were introduced as a separate category during a general revision of the questionnaire. The first data collection took place in March 2005. In order to take account of the variety of risk-return profiles of structured products, it has since been decided to collect data on the subcategories of structured products defined in the Swiss Derivative Map. The first collection of data on the subcategories will take place in December 2008.

Data are published by the SNB in the Monthly Bulletin of Statistics. They are a major statistical source for the market reports produced by the SSPA as well as for the financial accounts.

5.2 Identification of structured products in balance sheets of banks

In the financial accounts, structured products are recorded as assets of the investing sector and liabilities of the issuing sector. Therefore, in order to compile consistent financial

accounts, structured products on the liabilities side of banks' balance sheets have to be identified.

Ideally, banks would report their structured products issued as a separate category. However, this is not the case in the balance sheets currently collected by the SNB. The accounting rules (either IFRS or the accounting rules of the SFBC) are not very explicit concerning structured products. For instance, a bank may decompose reverse convertibles and capital protection products into bonds and financial derivatives. The bond part is reported under "bonds issued" (at nominal value) and the derivatives part under "positive/negative replacement values of financial derivatives" (at fair value). Participation products and discount certificates may be reported in full as part of "liabilities towards customers" (at fair value). Other reporting methods are also possible.

Owing to a lack of accurate information, for the purposes of the Swiss financial accounts it is currently supposed that all structured products are issued abroad. More qualitative and quantitative information on the reporting practices of banks combined with data on the sub-categories of structured products in the securities statistics should allow a more satisfactory solution in the future.

6. Classification of structured products in the financial accounts

Structured products as defined in this paper are not explicitly mentioned in the System of National Accounts (SNA93) or the European System of National and Regional Accounts (ESA95). It is not obvious how structured products should be classified in the financial accounts.

In the description of structured products in Section 2, the equivalence of the payoff profiles of structured products and investment strategies with traditional financial instruments and financial derivatives was stressed. Section 5 discussed how, in their balance sheets, banks decompose some categories of structured products into bonds and financial derivatives. However, it is not feasible to obtain decompositions of structured products using securities statistics. Nor would it, in my view, be in the spirit of ESA95: for convertible bonds, ESA95 recommends decomposition only if the underlying bond and the conversion option can be traded separately (ESA95, paragraph 5.62).

Having ruled out decomposition, it is necessary to compare the characteristics of the integral structured products with SNA93/ESA95 financial instruments. The results of such a comparison concerning initial payment, risk-return profile, counterparty risk and sector of the issuer (counterparty) are summarised in Table 2.²

Legally, structured products are obligations, like traditional bonds. However, assigning structured products to debt securities ignores the dependence of structured products on the prices of shares or other underlying assets. In the case of participation products in particular, but also for yield enhancement and capital protection products, investment funds provide investments with similar risk-return profiles. This makes it attractive to assign structured products to investment fund units. But the counterparty risk of investment fund units and the sector of the issuer are different from those of structured products. Like financial derivatives, the value of structured products depends on the price of the underlying assets. However, assigning structured products to financial derivatives extends this category to instruments with significant initial payments, whereas the initial payments on option-type and forward-

² The term "debt securities" adopted in the revision of SNA/ESA is used instead of the less specific, current SNA/ESA term "securities other than shares".

type financial derivatives are low or even zero. A consequence of the initial payment is lower leverage of structured products compared to traditional financial derivatives.

Table 2
Comparison of structured products with SNA93/ESA95 financial instruments

SNA93/ESA95 financial instrument	Similarities to structured products	Differences compared to structured products
Debt securities	Initial payment Counterparty risk Sector of issuer	Risk-return profile
Investment fund units	Initial payment Risk-return profile	Counterparty risk Sector of issuer
Financial derivatives	Risk-return profile Counterparty risk Sector of counterparty	Initial payment

Given the unsatisfactory result of the comparisons above, and taking account of the significance of and the great interest in the market for structured products, a new financial instrument category for structured products has been introduced into the Swiss financial accounts. Of course, financial accounts data transmitted to Eurostat and the OECD have to conform to the traditional financial instrument categories. It was decided to assign structured products to debt securities in the Eurostat/OECD data.

Table 3
National publication of Swiss financial accounts and data reported to Eurostat and OECD: stocks of financial assets of households

2007, CHF billions

	National publication	Data reported to Eurostat and OECD
Currency and deposits	458	458
Debt securities	121	172 (structured products: 51)
Shares and other equity	253	253
Investment fund units	225	225
Insurance technical reserves	813	813
Financial derivatives
Structured products	51	..
Other assets
Total	1,921	1,921

.. Currently no data available.

Source: Swiss National Bank.

As an example, Table 3 shows the two different data sets for stocks of financial assets of households. For households, structured products make up almost one third of debt securities

in the Eurostat/OECD data. As a result, the capital gains and losses in the “debt securities” position are strongly influenced by share prices, rather than by interest rates alone, or possibly exchange rates as most data users would expect. This is the effect of the significant holdings of structured products as well as the relatively low share of debt securities in total financial assets. In the case of insurance corporations and pension funds – due to the significantly larger holdings of debt securities and the smaller holdings of structured products – as well as in the remaining sectors of the financial accounts, the consequences of assigning structured products to debt securities are less severe.

7. Concluding remarks

The considerable size of the Swiss market for structured products has required an expansion of the securities statistics and changes in data publication. Since none of the traditional financial instrument categories accommodates structured products well, a new category has been introduced into the Swiss financial accounts. In the financial accounts data transmitted to Eurostat and the OECD, structured products are assigned to debt securities. As a result, the “debt securities” position is significantly influenced by share prices. Data users are probably not aware of this fact. Whether measures at the international level to maintain and enhance the usefulness of the financial accounts are appropriate depends on the significance of structured products worldwide. This paper focuses on the Swiss market. It would be interesting to compare it to the markets for structured products in other countries.

Additional literature

Tolle, S, B Hutter, P Rüthemann and H Wohlwend (2007): “Swiss derivatives guide 2008”, supplement to the Swiss weekly *Handelszeitung* (in German only).

Kursner, I (2007): “Traitement comptable des produits structurées: L'exemple d'une banque universelle”, *L'expert-comptable Suisse*, 11/2007, pp 849–53 (in French only).