

Criteria for success for Structured Retail Products in Germany

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Viel Erfolg!

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I Executive Summary

Structure Retail Products (SRPs) have laid down one of the great success stories of financial products in the past 15 years from virtually non-existence to a dominant investment vehicle all across Europe. The German SRP market has meanwhile become the largest listed market in the world with little short of 113'000 products at the end of 2006 compared to an overall 120'000 of listed products worldwide at the time. At the turn of the millennium this number was only a fraction of latter, which has then been ensued by a fantastic growth story catapulting these investment products into the focus of German investors.¹

The burst of the tech bubble and the subsequent bear market rally lasting until spring 2003 have contributed to the development of these products becoming as popular as they are today. They have contested and partially replaced traditional investments such as stocks, bonds, and cash. This can be seen as a result of the losses that the investors incurred during the bear market, which generated the need for products that provide suitable risk and return payoffs for all types of investors individually.²

The development of the SRP market in Germany can be expressed by the surge of the number of listed products, the AUM, the traded volumes, and many other benchmarks that reflect the evolution and size of this investment vehicle. Meanwhile the question emerges concerning the reason for this development and the factors that accelerated it. The analysis thus intends to give not only an overview of the evolution but also an understanding on the characteristics of the market, thus intending to bring near the reasons of not only the peerless overall increase of the market but also that of certain payoffs, product characteristics, and underlyings. The benchmark indicators on the SRP market are further analyzed, highlighted, and explained in order to get an understanding of what each individual expresses and what the coherence between latter and the evolution of the German equity capital market is.

The aim of the analysis is furthermore to understand which further exogenous factors could have contributed to this success story and the innovation and diversity of products that has come as a consequence of it. Among the exogenous factors the exchanges, the

¹ Holzer 2006, p. 5

² <http://www.zertifikatejournal.de/content/knowledge/index.php>, 11.03.08 (date of query)

regulatory circumstances, the marketing activities of the issuers, as well as further possible exogenous factors are discussed. The investors of SRPs are also dealt analyzed and categorized according to various factors, hence highlighting valuable characteristics and investment behavior that puts the success of individual payoffs, underlyings, and developments into perspective also from the demand side of the market.

The SRP market in Germany has evolved to be the most significant market of its kind over a period of just five years with its very own traits and characteristics. The above analysis shows the various aspects by which this tremendous evolvement has been able to take place as well as the characteristics of the product payoffs, product traits, underlyings, and reactivity of all the above towards market movements. As reasons for the immense success of the segment the high variety of products, the quick and cost efficient licensing procedure, the high transaction volumes at the exchanges, and the manner of the distribution of these products such as the marketing activities among others can be mentioned.

The German SRP market is characterized also by the investors that are balanced out among mass retail clients and UNHWI clients. The investors can be categorized in many other ways as well, such as according to their investment behavior or the bygone time span they take into consideration when investing, which gives an understanding to what products are most likely to be successful and what characteristics latter have to have to address the respective investor groups efficiently. This suggests that many product payoffs can be successful if the adequate investor group is approached again adequately, however if issuers and distributors intend to address the vastest group of investors they have to focus on retail investors with high risk averseness and seeking simple payoffs that are easy to understand.

With regard to the issuers these are rather diverse in terms of origin, namely ranging from local German banks to European and American banks. The largest players in the market are two German banks with vast retail networks while the remaining top eight banks do not have that channel of distribution while still highlight large volumes and numbers of outstanding products. The success of the top two banks may beside their extensive retail networks that help target mass retail clients also be accounted to the investors' tendency to prefer banks they have already dealt with or deal with in other aspects while being local. The product offering of issuers is generally extensive with a

certain specialization in one payoff type in order to have a competitive edge over the others in certain areas. The marketing activities of latter are generally focused on the capital guarantee feature, the inverse correlation between risk and return, the exposure to the equity markets, and further unique product features that are singular to one or the other product payoff. This shows that any bank in terms of origin and set up can be successful as long as they offer the whole range of products and further take a lead role in certain payoff types.

Investors in SRPs besides extensive product offerings tend to prefer underlyings such as the DAX index and the DJ Eurostoxx 50 index as well as the German blue chip companies. Alongside the German blue chips a large portion of large and renowned foreign companies are utilized as underlyings that are from neighboring western European countries or the U.S. as well as numerous German medium and small caps. This shows that the investors of SRPs are overall interested to invest in underlyings they know or can associate with and diversified indices granting them a diversification exposure to the equity capital markets.

The evolution of the traded volumes are explicable to some extend on a statistically significant level by the evolution of the DAX index, the most popular underlying for SRPs, on an absolute trend adjusted basis for the whole of the SRP market as well as for most of the conditional capital protected products and the index certificates. Certain payoffs' evolutions are however seemingly not impacted by the underlyings' movement, such as the unconditional capital protected products. On a relative month to month basis none of the payoffs or even the total SRP market can be explained by the DAX index's change suggesting that the impact of its evolution is not as immediate as to appear on a month to month comparison. This suggests that the SRP market is more impacted by other factors rather than the evolution of the German equity capital market with regard to traded volumes.

The evolution of the open interests are in many aspects more in cohesion with the DAX index as are the traded volumes highlighting higher levels of explicability even for single payoffs on a relative month to month basis. On a trend adjusted absolute change basis the discount certificates, thus again conditional capital protected products, and the index certificates highlight a correlation with the DAX index while the unconditional capital protected products again highlight none such relationship. The changes on a relative month to month basis of the DAX index explain some of the outperformance and sprint

certificates' and the basket, theme, and strategy certificates' evolution. With regard to the open interest it has to be however noted that a certain bias exists as the products value generally increases or at least not decreases when the underlying surges. This bias somewhat mitigates the significance of the obtained cohesions on open interest.

The number of issues can meanwhile be explained on an absolute trend adjusted basis by the evolution of the DAX index, however not on a relative month to month basis over a four year period. Instead, on a relative basis the issuance volumes can be explained to some extend by the number of issues; however this relationship does not have statistical significance on an absolute trend adjusted basis. Both observed relationships decrease greatly over the period from mid 2006 to the end of 2007 that includes the debut of the subprime crises. The decline of the relationships as well as the lack of the relationship between the issuance volumes and the number of listings can be found in the difference of accountability of the two, namely that the issuers are the sole cause for an increase in the number of listings whereas the investors are the sole cause for the increase of the issuance volumes. The lack of coherence thus suggests that investors do not necessarily increase their investments in SRPs directly as a result of an increase of existing products, so that a sole increase in listings does not lead to more issuance volumes.

The enormous surge of the SRP market in Germany can thus be seen as a result of numerous components starting from regulatory environments over the marketing behavior of the issuers and distributors to the design of products and their reactivity to the evolution of the German equity capital markets. It can be assumed that the SRP market will be playing an ever larger role as investment tools in German households over the years to come. The impact of the subprime crises that has started at around the end of the above analysis is however unclear as the DAX index had not yet declined significantly until the end of 2007 and the entire impact of the crises is to date not clear yet.

Whether the subprime crises will have a large effect on the German SRP market or not is thus open to discussion. However, it may be assumed that with regards to all other components of the SRP market that have boosted its surge that are not impacted by a downturn in the markets such as the regulatory environment or the innovational drive of the issuers will act as a buffer and support the further development of the market. Considering that SRPs still have plenty of room to develop and occupy an even larger ratio of the German households' financial asset allocation on a long term they will certainly play an ever more important role in Germany.

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V List of Abbreviations

ATM	At the money
AUM	Assets under Management
DDI	Deutsche Derivate Institut
EUR	Euro
IFA	Independent Financial Advisor
MiFID	Markets in Financial Instruments Directive
SEC	Securities and Exchange Commission
SRP	Structured Retail Product
UNHWI	Ultra High Net Worth Individuals
USD	U.S. Dollar
VaR	Value at Risk
WpKG	Wertpapierprospektgesetz

1 Introduction

Structure Retail Products (SRPs) have laid down one of the great success stories of financial products in the past 15 years from virtually non-existence to a dominant investment vehicle all across Europe. The German SRP market has meanwhile become the largest listed market in the world with little short of 113'000 products at the end of 2006 compared to an overall 120'000 of listed products worldwide at the time. At the turn of the millennium this number was only a fraction of latter, which has then been ensued by a fantastic growth story catapulting these investment products into the focus of German investors.³

The burst of the tech bubble and the subsequent bear market rally lasting until spring 2003 have contributed to the development of these products becoming as popular as they are today. They have contested and partially replaced traditional investments such as stocks, bonds, and cash. This can be seen as a result of the losses that the investors incurred during the bear market, which generated the need for products that provide suitable risk and return payoffs for all types of investors individually.⁴

The development of the SRP market in Germany can be expressed by the surge of the number of listed products, the AUM, the traded volumes, and many other benchmarks that reflect the evolution and size of this investment vehicle. Meanwhile the question emerges concerning the reason for this development and the factors that accelerated it. The analysis thus intends to give not only an overview of the evolution but also an understanding on the characteristics of the market, thus intending to bring near the reasons of not only the peerless overall increase of the market but also that of certain payoffs, product characteristics, and underlyings. The benchmark indicators on the SRP market are further analyzed, highlighted, and explained in order to get an understanding of what each individual expresses and what the coherence between latter and the evolution of the German equity capital market is.

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³ Holzer 2006, p. 5

⁴ <http://www.zertifikatejournal.de/content/knowledge/index.php>, 11.03.08 (date of query)

regulatory circumstances, the marketing activities of the issuers, as well as further possible exogenous factors are discussed. The investors of SRPs are also dealt analyzed and categorized according to various factors, hence highlighting valuable characteristics and investment behavior that puts the success of individual payoffs, underlyings, and developments into perspective also from the demand side of the market.

2 Background of Structured Retail Products in Germany

Structured Products have numerous properties that have helped their surge in popularity such as by granting the possibility to investors to be invested in foreign capital markets or even emerging markets, commodities, and indices.⁵ This has particularly been noticed by the investors of two countries when regarding the AUM that have flown into these products there. The largest markets for SRPs in Europe are thus the Swiss and the German with latter being estimated to be 142 billion EUR in AUM as of November 2007.⁶ The Swiss is meanwhile estimated to be between 80 to 200 billion EUR. The uncertainty of the size of the Swiss market is due to the fact that 120 billion EUR are invested by institutional investors who however regularly invest on behalf of private clients. Besides the simultaneous emergence and similar size of the two markets they are in many ways heterogeneous though.

The popularity of SRPs in Germany can also be illustrated through the upcoming of certain products. In the mid 1990s, due to the growing popularity of discount certificates investors had become ever more aware of such investment vehicles. The break through resulting in a broad usage of these products has then taken place in 2003 through the introduction of bonus certificates. These products have increased the popularity of SRPs significantly as they delivered decent returns during the period of sideways moving markets combined with more security than holding the underlying stock.⁷

Following the surge in the German SRP market the diversity of products has increased exponentially as well. Simultaneously the amount of utilized underlyings has grown from only the broadly known stocks and indices to previously not investable asset classes. For instance, as the German equity capital market is rich in the number of companies listed at

⁵ Holzer 2006, p. 5

⁶ Derivate Forum 2007k, p. 1

⁷ Gerhardt 2007, p. 1-7

the exchanges besides the blue chip and large cap stocks also the mid and small caps have become underlyings thus increasing the assortment of investment possibilities.⁸

This has led to the German SRP market consisting of approximately 100'000 different products with a total of 250'000 products listed on the exchanges at the end of 2007. The wide range of differing products therefore enables flexible and multiple usages of these instruments for various investment purposes. For instance, one way to use them is as a tool to invest into indices or into emerging markets in order to diversify the holdings or another way is however to use them for the purpose of taking a leveraged or enhanced position in a company or a group of companies or for the purpose of betting.⁹ The above can also be considered to be a source of success of these products as they enable an extensive usage in any market situation and for any purpose, namely ranging from the reduction of risk through the means of diversification or capital protection to the increase of risk through the leveraged exposure in for instance just a single underlying.

An important tool for getting investors to invest in SRPs has become marketing, which, in a European comparison, has particularly been the case in Germany. The aim of the marketing efforts of the issuers or distributors is to increase the awareness of the products and highlight the features that they possess. In Germany almost the entire media range is utilized for this purpose, namely from radio, print, television, internet, to e-mail.¹⁰ Most commonly the capital guarantee feature, the inverse correlation between risk and return, the exposure to the equity markets, and further unique product features are highlighted in such advertisements. The capital guarantee feature, irrelevant of its nature of full, partial or conditional protection, is particularly favored as it was the main product feature to make these investment vehicles so popular in the first place. The exposure to special underlyings in the equity capital market are also regularly highlighted as through the help of SRPs previously not investable underlyings have also become reachable for retail investors, which was before only possible for institutionals. Further, not only have such underlyings in addition to the commonly known underlyings become investable, but in a unique way, which is the point highlighted within the unique product features. Latter generally focuses on the peerless way the investor can be exposed to underlyings, which otherwise would at the most be possible by actually buying the asset, by increasing or decreasing the direct

⁸ Gerhardt 2007, p. 1-7

⁹ Fischer 2007, p. 7

¹⁰ Lyon 2007, p. 57

exposure.¹¹ That the above are the most popular features used to raise the awareness on SRPs by the issuers through marketing activities suggests that these are the primary characteristics of products to be guaranteeing success for SRPs in the market place.

2.1 Possible source of success

The increase of the AUM has amounted to a staggering 45.5% from 2005 to 2006, which in real terms has lead to an increase from roughly 50 billion EUR to 80 billion EUR. The following year the surge constituted 77.5% culminating in 142 billion EUR AUM by the year end of 2007. These enormous increases in assets are foreseen to hold on with a slightly lower pace by Deutsche Bank Research Department, namely by an estimated 15-20% p.a. under the assumption that certain criteria hold. The three main criteria for this as seen in the beginning of 2007 were a strong increase in demand by new customers, a high drive of innovation by the issuers, and a positive development of the financial markets.¹² The surprising factor is the stagnation to decrease of the equity capital markets throughout the second half of 2007 in the U.S. as well as in Europe shortly after above prediction has been made which however still lead to an overall increase of AUM as mentioned above. This evolvement at first sight suggests that stable financial markets are not ultimately imperative for the success of SRPs. It has however to be noted that the DAX index has only decreased in spring 2007 over the course of two month and recovered back to the original level by year end with the actual plummeting of index only starting at the beginning of 2008, hence the German equity capital market were arguably in good enough condition up until then.

2.1.1 Innovation and product range

The demand of new investors is believed to increase as the diverse product range is becoming increasingly more attractive. The already existing investors are most likely to reinvest their money into new products as in 2007 and the subsequent year many of the existing products from the first hype of the SRP market are to mature. As these have generally performed well there is a strong consensus that investors will stick to them by subscribing or buying into similar new ones.¹³ Also, the certificate market is steadily

¹¹ Lyon 2007, p. 59

¹² Dieckmann 2007, p. 1

¹³ Dieckmann 2007, p. 4

growing thus enjoying more and more coverage and attention by the press, which will presumably be contributing to entirely new or existing investors allocating increasing amounts of money into such structures.

The above mentioned drive of innovation by the issuers is rooted in a high innovative strength that creates new types of payoffs as well as using new types of underlyings for the whole bandwidth of products. The former argument of invention of new products is according to Deutsche Bank Research most probably to crystallize in the creation of actively managed certificates, the implementation of certificates with compartments that thus generate a reduced issuer risk, and in a further combination of already existing product features.¹⁴ The increase in the diversity of underlyings is a development that has been taking place since the inception of the first SRPs and is likely to go forward by exploiting previously non-investable markets and asset classes, such as further exotic emerging markets.

The first aspect, the high variety of products, is understood to be a result of the regulatory design and the broadness of the possible strategies that can be implemented in the SRP market. The products also serve as an alternative to existing investments and permit the investors to purchase into adequate and virtually tailor made risk and reward profiles due to the sheer amount of listed products. Most notably index certificates, which are inherently highly diversified, as well as fully and conditionally capital protected products, which have become particularly popular following the market downturn in 2001 to 2002, are enrichments to the range of investment opportunities for retail investors. The second aspect is the licensing procedure, which is in line with EU regulation 809/2004 and WpPG, make the flexible and cost efficient listing of products possible.¹⁵ Therefore, it allows the issuers to react instantly to market developments and the demand that may arise through that within the shortest possible timeframe without having to incur lengthy legal procedures.

2.1.2 Exchanges, regulatory circumstances, and exogenous factors

The high transaction volumes on the Frankfurt and Stuttgart stock exchanges, which combined are the highest transaction volumes in certificates worldwide, further contribute to the success of SRPs. Additionally, through the high volumes economies of scale are

¹⁴ Dieckmann 2007, p. 5

¹⁵ Dieckmann 2007, p. 13-14

generated with respect to technological developments and procedures. The behavior of the issuers in terms of distribution of information also plays a key role for the witnessed growth as they flood the internet, seminars, magazines, and newspapers with information on their product offering. However, not only the issuers but also the banks and other financial service providers are heavily investing into such marketing activity, which underlines the push of SRPs by virtually everyone involved in this segment on the supply side.¹⁶

According to the Derivate Forum the popularity of SRPs can also be associated with the existence of sufficient speculative investors in Germany. Further reasons are the difficulties incurred by investing into EUREX products and its lack of adequate products for the mass retail market, the simplicity of investing into SRPs that is identical with that of investing into stocks, the efficient handling of orders, the straightforward regulation of the public offering, and the quick listing of products as has already mentioned.¹⁷

According to Deutsche Bank Research a further source of success for SRPs are besides the prospect requirements and the exchange rules also the rules for the distribution of the products that have been enhanced by the implementation of MiFID and the creation of the Derivate-Kodex. Latter, namely the Derivate-Kodex, is a self-regulating guide helping to prosper the market without exogenous interventions with however intending the same effect and created by the members of the Derivate Forum.¹⁸ The German government has further more announced not to take any further steps in order to regulate the market of certificates for the purpose of ensuring transparency regarding cost, risk, and reward issues. Rather, such steps are left to the authorities of the European Union, namely the EU rules of financial markets.¹⁹

The German government has meanwhile also taken a stance on the large growth of this category of financial products. It sees the dynamics and the immense growth of the SRP market to be grounded in four characteristics of the German market environment, namely in a high variety of products, in the licensing procedure, in the high transactions volumes,

¹⁶ Deutsche Bundesregierung 2006, p.2 f

¹⁷ Derivate Forum 2007k, p. 24

¹⁸ Dieckmann 2007, p. 1

¹⁹ Deutsche Bundesregierung 2006, p. 8

and in the manner of the distribution of these products.²⁰ The government thus sees the roots of the evolution in the same aspects as have already been mentioned.

In a unique way, for the financial industry, the evolvement and the emergence of this industry have however taken place without any significant supervision. The transparency of the market is not particularly warranted by any regulatory authority as is the case for funds or insurances. Beside occasional discussions on this matter this status quo has not shown any signs of negative influence on the popularity of these investment vehicles among investors. Instead, the issuers themselves have made a great effort in recent years in order to ensure that certain standards and practices are maintained. It has been done by standardizing and categorizing products through the nomenclature, by ranking existing products into risk categories, and by introducing the concept of Value-at-Risk (VaR) as a risk parameter for each and every single product. Latter parameter is objective and comparable for differing types of products and differing issuers, so that investors have a homogenous benchmark helping them to compare among the extensive product offering regarding the risk of latter. In addition, two associations have been created, namely the Derivate Forum and the Deutsches Derivate Forum (DDI), while it was former that has implemented the VaR. The idea behind the establishment of these forums is that the issuers can thereby provide the information to investors, other issuers, each other, and the state. This generates a better visibility of the market.²¹ As of January 1st, 2008 these two organizations joined forces to increase the homogeneity in the German market place and to foster a common European initiative to establish similar forums on a national basis.²²

A significant development in the European and thus also German SRP market for ensuring transparency is the introduction of the already mentioned MiFID. This regulatory directive is valid for all capital markets in the European Economic Area and includes three important directives with the intention of protecting the investor community, namely the Best-Execution principle, the duty to warn, and the disclosure of the distribution allowance.²³ The Best-Execution principle states that any client order given to financial institutions is to be executed in the best possible manner which includes price, cost, pace,

²⁰ Deutsche Bundesregierung 2006, p.2 f

²¹ Holzer 2006, p. 6

²² http://www.derivate-forum.de/FILES/PM_2007-10-30_Konsolidierung_der_Interessenvertretungen.pdf, 13.03.08 (date of query)

²³ Holzer 2006, p. 6

likelihood of execution, likelihood of clearing, extent, type of order, and other relevant services.²⁴ The duty to warn intends to ensure that no investor purchases a product that is not appropriate for him regarding his knowledge and experience. This latter requirement leads to the sellers of SRPs having to ensure that the products they sell suit the clients that invest in them. If any doubt arises concerning the suitability the issuers are obliged to make corresponding risk warnings. The third significant principle of the MiFID directive is the disclosure of the distribution allowance.²⁵ The disclosure is intended to make the fees that distributors earn on each product more transparent as well as prevent excessive margins. This is particularly significant in the case of complex structures that by tendency incorporate higher margins than the more simple and widespread products.

The directive ensuring the best possible handling of the prospectuses that are to be published in conjunction with any product issuances and that ensure the above mentioned flexibility of issuers in regard to issuing new products quickly is known as the Financial Services Action Plan.²⁶ This directive has been introduced on July 1st, 2005 and it standardizes the prospectuses for products and allows approved prospectuses to be valid in all European Member States. If a certain prospectus has thus been approved by the authorities it can be referred to in any further prospectus. This leads to substantially reduced consumption of time and money on each new issuance for the issuers especially as it concerns fully standardized products.²⁷

The exchanges have similarly put a great deal of effort into support the growth of SRPs in Germany besides. For instance, the derivatives Exchange EUWAX has delivered the grounds for the listing of SRPs by considering them as a separate business area. This means that specific trading rules for these types of products have been set up in addition to numerous seminars and training courses that made them accessible and comprehensible.²⁸ As the grounds were laid out and growth is being stimulated the SRP market has solely due to the immense volumes that are being traded on a daily basis become an important trench

²⁴ Riess, R. / Wohlenberg, H. 2007, p. 5

²⁵ DDI 2007o, p. 4

²⁶ Gerhardt 2007

²⁷ http://deutsche-boerse.com/dbag/dispatch/de/listcontent/gdb_navigation/listing/60_Newsboard/60_Top_Story/Content_Files/lc_art_ts_eu-prospektrichtlinie.htm, 13.03.08 (date of query)

²⁸ Gerhardt 2007

for the two main exchanges, namely the Stuttgart and the Frankfurt stock exchanges, making them as already mentioned the largest exchanges in this segment worldwide.

2.1.3 Marketing, pricing aspects, and other SRP markets

The sophistication of investors across Europe is commonly believed to be poor to the extent where certain investors are not aware of the structure of the SRPs they are invested in. In some of the more sophisticated markets, such as Germany and Switzerland, the education of the investors has however increased resulting in a higher awareness of market activities and a higher frequency of trading actively on the exchanges.²⁹

Interestingly SRPs are neither seen as an expensive investment vehicle in most of the European countries and also Germany. A reason for this understanding is also the lack of knowledge among the majority of investors concerning the structure and design of the products. This is a result of them not being able to replicate the payoffs or check upon the pricing of the products making it somewhat non-transparent to them, while the payoffs are relatively complex. The combination of the two leads them to believe that they are cheap compared to other investment vehicles.³⁰ It may thus be seen as a result of the complexity of the products in combination with generally straight forward payoffs and good performance record over the course of the emergence of SRPs.

Additionally, in Germany as well as in most other European countries, the disclosure requirements are very low, which keeps the cost of new issues on a low level as they do not have to extensively elaborate on the risk and return profiles. The resulting anticipation in the investors view is that the operating cost of the issuers is not needlessly boosted through reporting costs. Simultaneously the numerous issuers and the resulting high competitiveness of the market are also seen as a source of lower cost as they suggest to the investors a relatively fair pricing of products.³¹

In Germany and Switzerland the investors have thus become very comfortable with investing into SRPs making these two markets parade examples for the success of this segment in the past years. However, this evolvement has not been witnessed in some other markets where growth has actually been slow or even stagnating. Two such examples are the UK and the U.S. markets. Former, namely the UK SRP market, has experienced modest

²⁹ Lyon 2007, p. 27

³⁰ Lyon 2007, p. 27

³¹ Lyon 2007, p. 21 f

growth in the 1990s to later stand still and even regress as in 2005. The explanation for this development is on the one side the dominance of other already existing investment vehicles, the cautious approach of investors to these investments, and the regulatory circumstances.³²

In addition to the stagnating market there have been cases of misselling of products, which has further lowered the attractiveness of the products among UK investors. To highlight the markets' loss in attractiveness the annual sales deliver a prime example as latter has seen a maximum size of 9.9 billion EUR in 2002 that has gradually dropped to as low as 7.3 billion EUR by 2006.³³ This evolvement has been accompanied with fewer issuing in 2005, which is explained by the increasing cost that comes with launching new products, namely full disclosure requirements and regulations regarding the prospectuses. A further explanation for the decline of the SRP market in the UK is the already well performing UK stock market that has led investors to be less interested in alternatives as for instance capital guaranteed products.³⁴

In the UK the FSA is regulating the SRP market with regard to the Financial Services and Markets Act, which is the source of the high regulatory standard mentioned above.³⁵ It was also the FSA that has been particularly strict on issuers since the precipice bond debacle that has cost investors billions of EUR during the market downturn in 2002. This debacle has been a particularly great loss caused by issuers not adequately highlighting the risks involved in the be named products.³⁶ The high profile case of misselling has further lowered the attractiveness of the SRP market among investors who then took their focus again on traditional investments.

The U.S. SRP market is as of 2005 half the size of the European market, namely 75 billion USD in AUM.³⁷ In EUR terms this translated at the time to roughly to 63.5 billion EUR.³⁸ The U.S. market is thus smaller than the European while overall it is a greater financial market. An explanation for the lower popularity of these products as compared to

³² Lyon 2007, p. 195 ff

³³ Lyon 2007, p. 195 ff

³⁴ Lyon 2007, p. 195 ff

³⁵ Lyon 2007, p. 198

³⁶ <http://www.guardian.co.uk/money/2004/jun/26/bonds.fundsbondstrusts>, 13.03.08 (date of query)

³⁷ Structured Retail Products 2008a

³⁸ Bloomberg L.P.

other markets is the investment behavior of U.S. investors who are traditionally invested in stocks and funds, hence showing less interest in partial exposure to these underlying. The products are generally of short tenors and used to highlight capital protection at the turn of the millennium, which has later mostly shifted into products with none or conditional capital protection. This market is also highly regulated, namely by the SEC, who require a registration of all retail products.³⁹ Latter can be seen as a major regulatory disadvantage that is also witnessed in the UK but not in the more significant SRP markets such as the German and the Swiss.

2.2 Investors in Structured Retail Products

2.2.1 Categorizing investors

It is estimated that as early as 2005 approximately 6% of the German population has been invested in SRPs.⁴⁰ Meanwhile SRPs accounted for 12% of households' financial asset allocations in Germany, which is a considerable stake taking into account that these investments had occupied no stake up until the early 1990s. Contrarily, in Germany the stake of bank deposits as a part of the financial assets has decreased gradually starting in 1990, which has been to the benefit of active investments. Investment certificates have thus become a stake of more than a third of the active investments by 2005, which constitutes an almost 50% increase over a just five year period. The definition of active investments gathers certificates, stocks, and bonds. The investments in these products have been growing substantially during the 1990s while encountering a slow down in stake from 2000 to 2005.⁴¹ The stagnation may instead of being interpreted as a decrease in popularity be much more explained with the burst of the tech bubble and the adjunct recession in the equity capital markets which has significantly erased the value of the active investments.

The DAX index has for instance dropped from a record high of little above 8000 points in the summer of 2007 to little below 4000 points by autumn 2001 and further to just 2200 points in the spring of 2003, latter being the lowest level over the entire observed period. The initial drop was already slightly more than a halving of the value of the index while the

³⁹ Structured Retail Products 2008b

⁴⁰ DDI 2007o, p. 1

⁴¹ Weber 2006, p. 8

change over the entire period has been little more than -72%.⁴² Thus, the stake of investment certificates has most likely still increased in absolute number terms whereas that of stocks has dropped by up to 30% during the same period.⁴³

The investors can besides considering the stake they hold in SRPs also categorized and split into group according to their investment behavior. They can for instance be split into retail and institutional investors. Within the group of retail investors a further split into mass retail and UHNWI can be done for the sake of distinction. In terms of AUM the retail market has been the dominating segment at the end of 2005 with 80.7% of the total 169.7 billion EUR accounted by this investors group in Europe. Within the group of retail investors at the end of 2005 the mass retail market has been dominant in Europe with a 108.6 billion EUR in AUM, which is 79.33% of the entire retail market. The remaining size is accounted by the UHNWI investors.⁴⁴

Germany's market structure is characterized by an overall split of 10% to 90% into institutional and retail investors respectively in terms of AUM at the end of 2005 allowing the German market to be regarded genuinely as a primarily retail market.⁴⁵ The retail business is however balanced out between mass retail and the UHNWI business unlike in most of Europe, namely with 44.5% accounted by the UHNWI and 55.5% accounted by the mass retail business.⁴⁶

The popularity of SRPs among the mass retail investors is actually the latest success story among all the investor groups as their portion has increased most since the market slump at the turn of the millennium. It is an investment group that primarily emerges from the middle class and that has become very cautious following the market slump in addition to their already conservative investment behavior. Typically, in Germany the bonus certificates have been developed for this investor group. In terms of risk evaluation the most important aspect to such investors is the value at risk and not the volatility as is the case for instance with institutional investors.⁴⁷ As this is a crucial criterion to investors the

⁴² Bloomberg L.P.

⁴³ Weber 2006, p. 8

⁴⁴ Lyon 2007, p. 26 f

⁴⁵ Lyon 2007, p. 55 f

⁴⁶ Lyon 2007, p. 26 f

⁴⁷ Lyon 2007, p. 26 f

implementation of VaR is a genuine enhancement to the reporting provided by the issuers on each individual product.

The mass retail investors are generally looking for growth products that exceed the payoff that they may get from bonds while still enjoying some kind of capital protection. In addition, these investors prefer to acquire SRPs from banks instead of through IFAs or brokers. Thus, dependent on the reach and scope of retail banks the portion of the mass retail business is likely to be larger or smaller.⁴⁸ In Germany 65% of the annual retail sales have been conducted through banks in 2005 with the remaining portion of 35% being handled by brokers. The popularity of banks is further explained by the convenience of mass retail investors not having to pay commissions charged by brokers or fees by IFAs. The UHNWIs on the contrary prefer the usage of brokers, which explains the anyhow high rate of sales conducted through brokers, as compared to the general 86% to 14% split among banks and IFAs or brokers respectively across Europe.⁴⁹

The other category of retail investors, namely the UHNWIs, are equally important than the mass retail investors in Germany. These investors have however a different investment approach focusing more on high returns of up to 30% and therefore being more risk taking. It is therefore the high risk and high return products that are being sold to these investors generally equipped with knock-out or knock-in features. Also, they are through this more receptive towards new products and underlyings, thus they utilize a greater portion of the product offering than the mass retail investors. This investment behavior of this investors group is further encouraging the issuers to be innovative.⁵⁰

The investors who are typically invested into SRPs can also be split into two categories contemplating solely their investment behavior. One type of investor is oriented on speculative investments finding time and having the knowledge to trade frequently with generally a broader knowledge on the equity capital markets. They can be considered to be semiprofessional day traders and are thus generally the investors who are invested into the structured leverage products. The other type of investor is more self reliant than the general investment public or is invested due to the counsel of an investment adviser. They often

⁴⁸ Lyon 2007, p. 27

⁴⁹ Lyon 2007, p. 55 f

⁵⁰ Lyon 2007, p. 28

find themselves to be invested in SRPs due to their poor experience with pure equity or fund investments. They are typically invested in the structured investment products.⁵¹

The investors of SRPs can however also be categorized into short-term memory investors and long-term memory investors. The short-term memory investors focus on the most recent trends in the markets and experienced a drop in risk aversion toward the end of 2006. The drop can most likely be explained through the mostly steady growth of the equity capital markets from 2003 to 2006. This group of investors is interested in products indexed to growth, products with early redemption features, and partially guaranteed products.⁵² Growth products have for instance experienced a great momentum in 2004 and 2005 leading to 85% of the SRPs' new issues being such products in Germany.⁵³

The long-term memory investors unlike the previous group still remember the bear market at the turn of the millennium and rather keep investing in fully capital protected products. As these products serve as an alternative to the mainly low interest rate environment there have been certain product trends such as click-income products, multi-asset class products, and products based on absolute return strategies that have been developed for primarily these types of investors.⁵⁴

The categorization of the investors into several groups aims to give an understanding for the structure and nature of the German SRP market. It suggests that any kind of structures and underlyings can possibly be successful if the adequate investor group is targeted again adequately. Further, it shows that the German SRP market is dominated by retail investors, which are responsible for much of the AUM that has been generated in the last years. It can be generalized though, that if issuers and distributors want to target the vastest investors group they have to keep their focus on retail investors that have relatively high risk averseness thus searching for some kind of capital protection and simple payoffs due to the arguably low sophistication of this investors group.

2.2.2 Investment behavior studied

According to a survey the use of SRPs is primarily done with the aim of diversification of existing portfolios, hedging against risks encountered in these very portfolios, and the

⁵¹ Derivate Forum 2006m, p. 23

⁵² Societe Generale Corporate & Investment Banking 2007, p. 11

⁵³ Societe Generale Corporate & Investment Banking 2007, p. 13

⁵⁴ Societe Generale Corporate & Investment Banking 2007, p. 11

reduction of costs incurred due to investment in funds. Surprisingly, also betting seems to be a considerable motivation for the use of these investment vehicles, which is particularly interesting for issuers of structured leverage products. The survey also found that higher risk tolerance, a broader use of the product offering, and greater use of information channels tend to lead to more irrational behavior of investors. This irrational behavior can however be slimed when investors take financial advice when making their investment decisions from professionals.⁵⁵ The implication of this is that the enhancement of the distribution through description of, advertisement on, and advice about products by issuers and distributors leads to a higher precision in placing the right products to the right investors thus possibly increasing.

Although investors intend to use SRPs as the means to diversify their portfolios they actually tend to be extensively under diversified and invested into some few stocks they are familiar with and they prefer.⁵⁶ It is however unclear as to why this investment behavior is observed taking into account that higher risk is encountered with no adequate reward from a rational view point of the investors.⁵⁷ These results have been obtained in several studies but can also be highlighted by the popularity of German single stocks as underlyings for SRPs that will be shown in the following.

2.3 Typical Structured Products in the German market

2.3.1 Issuers

The issuers of SRPs in Germany are as all across Europe are the genuine drivers of the success of this product segment. While the amount of issuers is immense in the German market with at least 47 as of the middle of 2007 there is a high concentration of just a couple of issuers holding the bulk of the volumes. Deutsche Bank and Commerzbank are in both product categories, namely the structured leverage products and the structured investment products, the leading issuers together holding 45.47% of the overall volumes. The following eight issuers in terms of volumes hold 87.04% of the remaining market in the following order as of mid 2007: ABN Amro, Citigroup, Sal. Oppenheim, Societe Generale, Dresdner Bank, UBS, Goldman Sachs, and BNP Paribas. In terms of volumes

⁵⁵ Fischer 2007, p.3

⁵⁶ Guiso / Jappelli 2005, p. 3

⁵⁷ Fischer 2007, p.3

ABN Amro and Citigroup strike out from the rest with a market share of 9.38% and 6.92% respectively whereas the latter six range on average between 3% and 5% each.⁵⁸ The significance of the issuers in the individual segments, namely in structured leverage and structured investment products, is much the same in terms of order ranking. However, the dominance of the two major issuers is significantly larger among structured leverage products with a combined volume of 57.79% in the second quarter of 2007. The following two major volume generators, namely Citigroup and ABN Amro, hold 11.86% and 9.94% of the volumes, respectively. The subsequent six issuers' stake is significantly lower with the tenth largest holding little more than 1.6% of the whole market only. In the case of structured investment products the major two players hold a combined 36.89% of the volumes in the second quarter of 2007 while the following eight issuers' generated volumes decline only gradually from one to the other in market share. The tenth largest issuer in terms of volumes in structured investment products thus still holds 3.36% of the market.⁵⁹

The above numbers highlight that the two largest competitors by generated volumes are local German banks that have an extensive retail network through which they can distribute much of their products. The remaining eight top issuers, which comprise most of the remaining market, are six European and American banks that have no significant to none retail network in Germany and two German banks with substantially smaller retail networks than that of the major two. This suggests that extensive retail networks can possibly be of significance as mass retail clients generally have deposits in such banks whereas it is not a necessity in order to be able to generate large volumes. The success of Deutsche Bank and Commerzbank has also to be credited to the fact that investors will tend to prefer banks that they know well, they have already dealt with in other aspects, and that are local.

The amount of products issued by each individual of the above ten largest issuers is generally in line with the volumes they generate in the market, however there appears to be no linear relationship between their dominance in generated volumes and in the number of products they are listing. In mid 2007 Commerzbank was heading up the list of listed products with nearly 35'000 highlighting a balanced amount of leverage and investment products with just slightly more investment products. Deutsche Bank follows with over

⁵⁸ Armbruster, S. / Schölzel, M. / Titze, N. 2007b, p. 3 ff

⁵⁹ Armbruster, S. / Schölzel, M. / Titze, N. 2007b, p. 7 f

25'000 products of which two thirds are leveraged products, closely followed by Sal. Oppenheim with about 20'500 products that in turn are two thirds investment products. BNP Paribas has about 17'000 products with a slight dominance of leverage products, HSBC Trinkhaus & Burkhardt has little more than 13'500 with a similar dominance of investment products, while UBS, Goldman Sachs, Citigroup, Societe Generale, and ABN Amro all have about 10'000 all with slightly more leverage products.⁶⁰ The dominance of German banks in terms of amounts of products listed is larger than in terms of volumes as the top three are German whereas the seven subsequent are European and American.

Table No. 1 – Top Issuers in June 2007

Top Issuers in June 2007	SIP	SLP	Total
Commerzbank	18'189	16'112	34'301
Deutsche Bank	9'122	15'894	25'016
Sal. Oppenheim	13'640	6'773	20'413
BNP Paribas	6'627	10'334	16'961
HSBC Trinkhaus & Burkhardt	5'590	8'100	13'690
UBS	11'125	2'441	13'566
Goldman Sachs	4'000	7'411	11'411
Citigroup	3'911	7'180	11'091
Societe Generale	4'377	5'839	10'216
ABN Amro	3'264	6'937	10'201
	91'641	100'402	192'043

Source: Own representation

The above underlines that the top issuers in terms of volumes are at the same time also offer the most extensive product portfolio in terms of quantity. The subsequent eight issuers however highlight an inconsistent appearance on the above list with at times large volumes that are however generated through a smaller product offering than others. Thus, besides the top two issuers there does not seem to be a clear cohesion between number of products issued and volumes achieved.

The issuers have all contributed to the growth of the market in their own individual way through product offerings and innovations. Deutsche Bank, which is the largest provider in terms of volumes, has for instance one of the widest product offerings. Particularly their “X-pert” product line of open-end certificates is very popular as well as their wide range of discount certificates. They are also renowned for their dynamic discount-strategies as well as the “Warrant Alternative Vehicles”, which are leverage products. Commerzbank, the second largest issuer, is also renowned for the open-end

⁶⁰ DDI 2007p

certificates as well as their so called “COMAS”-series, which is the hedge fund linked product line. They are very innovative in the existing product range through the “PlusPro” mechanism introduced in their discount certificate offering as well as in bonus certificates. ABN Amro is the largest non German bank with a rather small retail banking branch located in the country. It is instead renowned for its innovation on the field of entirely new products such as turbos and mini-futures as well as actively managed certificates. Citigroup has been one of the pioneers in the SRP market in the 1990s and has since played a significant role in the structured leveraged products segment, which has been the first existing product segment. They have also built up a large index, discount, bonus, and fully capital protected certificates product offering in order to become a more significant player in the structured investment products segment. The Dresdner Bank is renowned for its coverage of the entire sector offering of Dow Jones Global Titans indices, for strategy certificates based upon technical indicators, and for certificates on private equity. Sal. Oppenheim is the market leader in reverse convertible bonds and a leading issuer in listed options. They are considered to have popularized the bonus certificates and are known for their wide range of discount certificates on particularly exotic underlyings. Societe Generale is renowned for their commodity as well as their airbag certificate offering. UBS is primarily focused on the structured investment products segment and has become one of the major players in it, particularly in discount certificates where it has become a major player. UBS has also come up with the innovation of rolling discount certificates and offer one of the most extensive ranges of products with numerous capital guarantee variations on major European indices. Goldman Sachs has initially focused on trading products, namely structured leverage products, but has started issuing large amounts of bonus certificates as well as certificates on their in house GSCI indices, which are commodity indices. BNP Paribas has meanwhile primarily been issuing discount certificates through cooperation with an in house broker house.⁶¹

The characteristics and amount of the product offering of the issuers suggests that it is important to offer the entire product portfolio available in the market while at the same time having a particular specialization in and focus on some product segments. This maybe explained by the issuers having to be omnipresent and being able to offer every single

⁶¹ <http://www.zertifikatejournal.de/content/knowledge/emittenten.php>, 13.03.08 (date of query)

product to their clients while making sure with through a specialization that they have a competitive edge in one or the other category.

2.3.2 Types of products

In Germany the categorization of SRPs for the purpose of distinction and overview has been conducted by the Derivate Forum following its establishment in 2003. Thus, two main groups of SRPs are identified, namely the structured leverage products and the structured investment products. The group of leveraged products is further split into warrants, knock-outs with and without stop-loss, and exotic products. The leveraged products are defined as to generally costing a fraction of the value of the underlying they replicate while participating exponentially in latter's development.⁶²

Structured investment products on the other hand are split into two further groups, namely investment products and reverse convertible bonds. The investment products are further split into numerous sub groups that all have in common the property of delivering at maturity in a predetermined manner the performance of the underlyings' performance. Reverse convertible bonds are not further split into sub groups and pay a yield component in addition to the underlyings' performance depending on latter's evolution throughout the life span of latter.⁶³

2.3.2.1 Structured leveraged products

The warrants, knock-out products, and exotic products belong to the group of so called structured leveraged products that have been popular in Germany since the mid 1990s. In 1996 for instance the volumes traded in these products have been 32.40 billion EUR and growing over the course of the years to as much as 155.77 billion EUR by mid 2007. On an annualized basis this amounts to 311.34 billion EUR by mid 2007. Interestingly, the evolvement has not been continuous as the volumes jumped to 75.70 billion EUR by 1997, dropping back to 55.13 billion EUR by the end of 1999 and then almost doubling to 93.26 billion EUR the subsequent year. As a result of the plummeting equity markets at the turn of the millennium the volumes of these products have experienced a similarly heavy drop back, namely decreasing to 48.80 billion EUR by the end of 2001. Thereafter the volumes

⁶² <http://www.ddi.de/ddi/basiswissen.htm?u=0&k=0&seite=basiswissen>, 13.01.08 (date of query)

⁶³ <http://www.ddi.de/ddi/basiswissen.htm?u=0&k=0&seite=basiswissen>, 13.01.08 (date of query)

climbed to 104.01 billion EUR by 2004, 119.23 billion EUR by 2005, and 220.69 billion EUR by 2006.⁶⁴

Structured leverage products can be split into the above mentioned three categories with the warrants constituting the simplest version. Warrants are essentially call and put options that are packaged into commercial papers to make them more easily accessible for retail investors than buying listed options.⁶⁵ The price of a warrant increases when the implied volatility of the underlying rises and the rationale for investors to be invested into these products is generally to gain a cheaper exposure to an underlying when having a specific view on its future evolution than by buying the underlying itself. The cheaper exposure is granted by the fact that only a portion of the underlying's value has to be paid for a warrant while incurring the risk of losing the initial investment if the underlying moves in the opposite way from which has been anticipated.

Knock-out products are a further development of warrants as they have an additional feature besides obtaining the right to buy or sell a certain underlying at a certain strike, namely that they have a knock-out feature. The so named knock-out feature will trigger the product to immediately redeem once the knock-out level has been reached with or without a stop loss that will or will not pay a residual value.⁶⁶ These products become cheaper with the increase of the implied volatility while they are already cheaper than warrants due to the possibility of losing the right to buy or sell the underlying when latter goes beyond a certain level. The rationale for investors to choose these products is the same as that for warrants with the addition of having the view that the knock-out level will not be reached anyway and thus profiting from the discount they get for the additionally taken risk.

The exotic products bundle any further option payoffs that exist beyond warrants and knock-out products. They allow the investors to not profit only from an increase or a decrease of the underlying's value, but in some cases also when latter do a lateral movement.⁶⁷ As this product group is a compilation of all other investable leverage

⁶⁴ Armbruster, S. / Schölzel, M. / Titze, N. 2007a, p. 4

⁶⁵ <http://www.ddi.de/ddi/basiswissen.htm?seite=lexikon&id=1826&u=0&k=0&awert=W>,
13.01.08 (date of query)

⁶⁶ <http://www.ddi.de/ddi/basiswissen.htm?seite=lexikon&id=956&u=0&k=0&awert=K>, 13.01.08
(date of query)

⁶⁷ <http://www.ddi.de/ddi/basiswissen.htm?seite=lexikon&id=566&u=0&k=0&awert=E>, 13.01.08
(date of query)

products it can not be specified as to what the investment rational of the investors is or how they react to the change of implied volatility.

2.3.2.2 Structured investment products

The structured investment products are more diverse in terms of payoffs than the leverage products and can be, as mentioned above, split into more differing groups, namely initially into investment certificates and reverse convertible bonds. The investment certificates can then be split further into guarantee certificates, bonus and partially protected certificates, discount certificates, express certificates, outperformance and sprint certificates, index and participation certificates, basket, theme and strategy certificates, and hedge fund certificates.⁶⁸

Structured investment products have emerged at the height of the tech bubble with the first emerging at around 1998 then accounting for only 2.14 billion EUR in traded volumes. The burst of the tech bubble has shown no impact on the growth of this product group but actually seemingly giving it a boost as it has steadily grown throughout that period from 10.55 billion EUR in 2000 to 48.34 billion EUR in 2002 in terms of traded volumes. In 2005, for the first time, the investment products eventually outgrew the leverage products in these terms by climbing to 141.74 billion EUR. The following years it could maintain the status quo with volumes growing to 240.85 billion EUR by 2006 and 333.82 billion EUR on an annualized basis by mid 2007.⁶⁹

The above evolvement highlights a steady increase of 22% in 2003, 41% in 2004, 71% in 2005, 70% in 2006, and 40% p.a. by mid 2007.⁷⁰ The increase of outstanding products has however been even larger during those years as there have been 10'533 in 2003, 23'084 in 2004, and 63'471 in 2006. By mid 2007 there have been 99'349 products, which is a 57% increase in just half year following an already stunning 174% increase from 2005 to 2006.⁷¹

In order to understand the evolution of this category of products it is however essential to understand the different types of products, their particular features, and their design. As above already mentioned, generally there are six main groups of payoffs that are being

⁶⁸ <http://www.ddi.de/ddi/basiswissen.htm?u=0&k=0&seite=basiswissen>, 13.01.08 (date of query)

⁶⁹ Armbruster, S. / Schölzel, M. / Titze, N. 2007a, p. 4, p. 4

⁷⁰ Armbruster, S. / Schölzel, M. / Titze, N. 2007a, p. 4, p. 6

⁷¹ Armbruster, S. / Schölzel, M. / Titze, N. 2007b, p. 4, p. 9

differentiated within the group of investment certificates plus the reverse convertible bonds.⁷²

The guarantee certificates are products that at maturity guarantee a return of the full invested notional, namely 100% of the investment, as well as a participation of the underlying if that has performed in favor of the initially agreed terms, for instance growing beyond the initial level.⁷³ They are generally a combination of a zero coupon bond with a notional of 100% and a certain degree of participation on long call or put option positions on the underlying. The structure of the product thus generally reacts negatively to rate cuts as well as negatively to a rise in implied volatility which increases the cost of gaining exposure on the underlying. This product payoff is very defensive and ensures that any investment will be fully recovered so that in a worst case scenario the investor solely incurs opportunity cost of not having received the risk free rate on the bond. Simultaneously it allows an exposure to an underlying with a predetermined leverage.

Bonus and partially protected certificates are certificates that are equipped with a conditional capital protection that is gained through knock-in or knock-out options. In the case of bonus certificates this very specifically leads to a capital protection that holds unless the underlying has never decreased beyond the knock-out level on an intraday, close-to-close, or maturity basis. If the underlying stays above the knock-out level the investor receives a guaranteed bonus payment unless the underlying increases beyond the amount the bonus would pay. If latter is the case the investor again participates in the underlyings' rise with certain participation. In the case of a knock-out event however the investor generally loses the chance for the bonus payment and gains in addition to the upside the entire downside potential. The terminology of partially protected certificates sums up further payoffs that include a partial capital protection due to knock-in and knock-out components.⁷⁴ In the case of the bonus certificate an increased level of implied volatility is raising the partial capital protection level or the bonus level while this can not

⁷² <http://www.ddi.de/ddi/basiswissen.htm?u=0&k=0&seite=basiswissen>, 13.01.08 (date of query)

⁷³ <http://www.ddi.de/ddi/basiswissen.htm?seite=lexikon&id=665&u=0&k=0&awert=G>, 13.01.08 (date of query)

⁷⁴ <http://www.ddi.de/ddi/basiswissen.htm?seite=lexikon&id=186&u=0&k=0&awert=B>, 13.01.08 (date of query) and

<http://www.ddi.de/ddi/basiswissen.htm?seite=lexikon&id=1658&u=0&k=0&awert=T>, 13.01.08 (date of query)

be said clearly of all the other partially protected certificates as it depends on the type of the option utilized and the direction taken on them. The rational behind an investment in a partially protected product is generally a neutral to bullish view on an underlying that is combined with a certain degree of protection never the less. The protection can be sought after due to the belief that the underlying can regardless of the neutral to bullish view decline, however not further than beyond a certain level. Therefore an optimized exposure to the underlying is granted that is an alternative in-between unconditional capital protection and buying the underlying directly.

A discount certificate is similar to a bonus certificate, however instead of granting a possible bonus payment the product is issued at a discount, so that the investor purchases the product at a level below 100% of its nominal value. A conditional capital protection is ensured as long as the underlying does not quote below a certain knock-in level on an intraday, close-to-close, or maturity basis. If the knock-in is triggered the investor is exposed to the full downside potential while there is no upside potential beyond 100% of the initial value of the underlying, hence the most possible an investor can earn is the discount at which the product has been purchased at.⁷⁵ The reverse convertible bonds have virtually the same concept as the discount certificates with the only difference that instead of a discount the investor receives a generally guaranteed coupon while the possible downside is the same.⁷⁶ An increase of implied volatility has got a positive effect on both the discount level for discount certificates and the coupon amount for reverse convertible bonds. The investment rational for these two products is a less bullish to neutral view on an underlying than for a bonus certificate that however generates a higher discount level or coupon level than what the bonus level for a bonus certificates would be, everything else the same.

Express certificates are products that are equipped with so called autocallable features and can vary in many ways.⁷⁷ The autocallable feature enables the investor to recoup his investment and gain an additional yield when the underlying of the product is above a

⁷⁵ <http://www.ddi.de/ddi/basiswissen.htm?seite=lexikon&id=404&u=0&k=0&awert=D>, 13.01.08
(date of query)

⁷⁶ <http://www.ddi.de/ddi/basiswissen.htm?seite=lexikon&id=35&u=0&k=0&awert=A>, 13.01.08
(date of query)

⁷⁷ <http://www.ddi.de/ddi/basiswissen.htm?seite=lexikon&id=566&u=0&k=0&awert=E>, 13.01.08
(date of query)

certain level on certain observation dates, so that a five year express certificate can potentially mature after one year already.⁷⁸ These kinds of products are generally equipped with a conditional capital protection that holds until the underlying never quotes under a certain knock-in level on an intraday, close-to-close, or maturity basis. The yield that is received at maturity or in the case of an autocallable event can vary greatly as a yield can be paid continuously, only in the case of an autocallable event taking place and then only for the given period or multiplicatively for all elapsed periods, and so on. An increase in the implied volatility has a positive effect on the yield in any case as well as on the level of conditional capital protection. The rationale behind such a product is similar to that of a reverse convertible bond but with a longer investment outlook. The autocallable feature then ensures that the investor does not miss out on the possibility of the underlyings' rapid increase during the life span of the product.

The outperformance and sprint certificates are a very bullish way of investing as they generally return the full downside performance in the case of a retreat of the underlying. In turn the investor receives an optimized upside exposure, which in the case of the outperformance certificates is a leverage greater than one from a certain point onward, which is generally from ATM upwards. The sprint certificates have an even greater leverage than the outperformance certificates, which is however capped, so that once the underlying exceeds a certain level the investor is no longer participating on that further increase.⁷⁹ An increase in implied volatility has a negative effect on both these types of certificates as they decrease the upside leverage that becomes more expensive. The rationale of these products is in both cases very bullish as the investor is taking the full downside risk while anticipating an increase of the value of the underlying. The outperformance certificate is more bullish when it comes to the extent of the upside move of the underlying as there is no upper limit to the participation as is to the sprint certificate.

The index and participation certificates and the basket, theme, and strategy certificates are very similar as they replicate an index, a basket of underlyings, a basket of underlyings with a certain theme that justifies the composition of the basket, or a basket of underlyings

⁷⁸ http://www.lasallebonds.com/structured_products/autocallable_notes.html, 13.03.08 (date of query)

⁷⁹ <http://www.ddi.de/ddi/basiswissen.htm?seite=lexikon&id=1286&u=0&k=0&awert=O>, 13.01.08 (date of query) and <http://www.ddi.de/ddi/basiswissen.htm?u=0&k=0&seite=lexikon&awert=S>, 13.01.08 (date of query)

that are composed with the help of a certain strategy. The difference between the first type and the second type of certificates is however the rational of the investment decision itself. The index and participation certificates are a way of diversifying an investors' portfolio by purchasing just one investment vehicle that enables them to gain an exposure to entire sectors, regions, countries, and so on. The basket, theme, and strategy certificates have the same rational of diversification and on top of that intend to produce an outperformance over the market through the unique selection or composition of the underlyings.⁸⁰ In contrast to all previous types of products the reactivity of these is at any time throughout the tenor of the products one to one with respect to the underlying and the implied volatility has no impact on the construction of the products or their outcome. The earlier mentioned payoff types guarantee the payoff only at maturity and generally react lesser to even differently from the underlying during the lifespan of the product.

The hedge fund certificates are very similar to the above mentioned certificates as they very specifically replicate the performance of only one asset class, namely hedge funds. More specifically they replicate hedge fund indices or securitized shares of fund of hedge funds and thus are one of the seldom ways for retail investors to gain exposure to this asset class. The investment rational is to be invested into hedge funds with a lower level of risk as the indices or fund of hedge funds themselves are already diversified and allow a high liquidity as well as making it even possible.⁸¹ These certificates will however not be dealt with in more detail as they are in many ways different from all the other payoff types.

3 Historical development of the SRP market

3.1 Evolution of SRP market

Germany is the most diverse market for SRPs in the European Union alone due to the sheer amount of products listed on the exchanges. The immense growth of the German market is partially a result of its own success as more and more investors become aware of these investment vehicles as a result of the overall attention and coverage it receives. At the end of 2006 this has lead the AUM in SRPs to culminate to 109.6 billion EUR. Structured

⁸⁰ <http://www.ddi.de/ddi/basiswissen.htm?u=0&k=0&seite=lexikon&awert=T>, 13.01.08 (date of query) and <http://www.ddi.de/ddi/basiswissen.htm?u=0&k=0&seite=lexikon&awert=I>, 13.01.08 (date of query)

⁸¹ <http://www.finanztip.de/recht/bank/hedgefonds-zertifikate.htm>, 13.03.08 (date of query)

investment products however accounted for the bulk share of the AUM, namely 98.8% of the total volume while the structured leveraged products accounted for only 1.2%. Meanwhile the total traded volumes culminated to 461.5 billion EUR at the end of 2006. The earlier observed trend of the investment products accounting for the larger part of the volumes has been consistent with the previous year with 240.9 billion EUR as opposed to 220.7 billion EUR.⁸²

As seen above the AUM of the structured leveraged products are significantly lower than those of the structured investment products while the traded volumes are almost equal. This disparity can be explained by the nature of structured leverage products whose value tends to be a fraction of the underlying. This property makes them highly leveraged as they participate one on one on the change of the value of the underlying at maturity according to the predetermined terms and direction and only costing a fraction while during the tenor of the products even this fraction will not increase one on one as does the value of the product with regard to the evolution of the underlying at maturity. Structured investment products in turn are generally worth as much as the underlying and change over time according to latter's evolution.

As an example for the leverage of the products when at the beginning of January 2005 230 million EUR of assets have been invested in structured leverage products this corresponded to a notional value of 6,5 billion EUR, which put into comparison with the then roughly 50 billion invested in structured investment products finally becomes comparable. In turn, the traded volumes can not be put into comparison either as the investment behaviour of investors of the leverage products is far more short term with an estimated average holding period of just six days as compared to the long term structured investment products.⁸³ Also as a result of these properties each of the aspects of size of the SRP market have to be taken into account individually as they suggest different aspects of the characteristics, size, and evolution of the market.

The importance of the traded volumes is further highlighted in the finding that according to experts solely a one digit percentage share of the outstanding certificates is being purchased through subscriptions and the rest is acquired via secondary market trades.⁸⁴ The traded volumes therefore do not account for primarily sell orders that result in

⁸² Dieckmann 2007, p. 11

⁸³ Derivate Forum 2005a, p. 1f

⁸⁴ Dieckmann 2007, p. 11

investors selling their stakes in the products that they had previously subscribed to, but are therefore considerably balanced out in terms of buy and sell side orders. This characteristic further increases the relevance of the traded volume statistics as they indicate the activity of the entire market, hence constituting more of an overall volume that flow into the products as opposed to only the bid orders.

In Germany the retail investors' behaviour of investing is also reflected in their ratio of exchange and off-exchange traded volumes of certificates, which is assumed to be balanced in a 50:50 ratio according to Deutsche Bank Research.⁸⁵ This assumption ultimately increases the significance of the high traded volumes witnessed on the German exchanges as it means that the actual cumulated traded volumes actually capture only half the market's true volumes.

3.2 Development of Products

The development of the SRP market in Germany can be depicted through several factors such as the number of listed products, the volumes of newly listed products, the traded volumes, and the open interest. The following section will highlight these developments over differing periods in recent years and analyze whether there has been any relationship between the growth of the German equity capital market and the changes of the above mentioned parameters. The German equity capital market is taken as subject of the analysis for not only is it the most common underlying in form of the DAX index and its components, but also the reference for most investors for the state of the equity capital markets. The importance of the DAX index as an underlying for SRPs will later be elaborated upon in more detail.

3.2.1 The DAX index and volatility during the subprime crises

The DAX index and the volatility of the markets, both historical and implied, are thus playing a crucial role in the evolvement of the SRP market in Germany. As a result in the following they will be viewed at in more detail in order to get an understanding on the possible impact of their evolution over the period from the January 2005 to October 2007, which is the observed time frame in the following analysis.

The DAX index highlighted a steady growth over the three year period with two incursions in spring 2006 and in spring 2007 both lasting approximately two month. The

⁸⁵ Dieckmann 2007, p. 11

steady increase of the DAX index has even lead to it almost doubling in value over this period with the highest value having been reached at the end of October 2007 with the DAX index closing at 8019.22 points. On an annualized basis the index has thus surged by 27% in 2005, 16% in 2006, and by 18% in the first 10 month of 2007. The German equity capital market has thus been in a steady bull market reaching record levels that have only been witnessed at the height of the tech bubble at the beginning of 2000.⁸⁶ The DAX index and naturally also its components have thus surged over most of the period as has the SRP market itself.

The one year historical volatility has meanwhile been staying roughly in the same range, namely between 12% and 16%. Initially the markets were calming down in terms of nervousness from the beginning of 2005 from almost 16% down to the low point of 12% only to gradually increase back to its original level in spring 2006 by the time of the first correction of the index during the observed period. The level has been maintained until spring 2007 when the DAX had its second correction followed by a gradual decrease in historical volatility. The levels are however below average when observing the data from 1990 to 2008, particularly when taking into account the highly volatile period at the surge and burst of the tech bubble and the subsequent bear market. During latter period the one year historical volatility had increased from 20% to up to almost 47%.⁸⁷ It can be argued that in terms of one year historical volatility the markets were thus calm, which is generally observed during bull markets, with a slight overall increase towards the end of the period.

The implied volatility of 12 month ATM put options has meanwhile been moving more dramatically. The lowest observed value over the three year period is 14% while the highest figure was almost 23% which constitutes a significant change. The implied volatility of the ATM put options have on average been 16% throughout 2005, almost 18% in 2006, and in excess of 19% during the first ten month of 2007, hence increasing gradually towards the end of 2007. These values are similarly to the historical volatility levels in the lower band widths as what has been observed throughout the 1990s and 2000s with one significant difference though, namely that the implied volatility has increased more dramatically.⁸⁸ The implied volatility indicator of the German equity capital market has even switched into a higher volatility regime towards the end of the period, namely

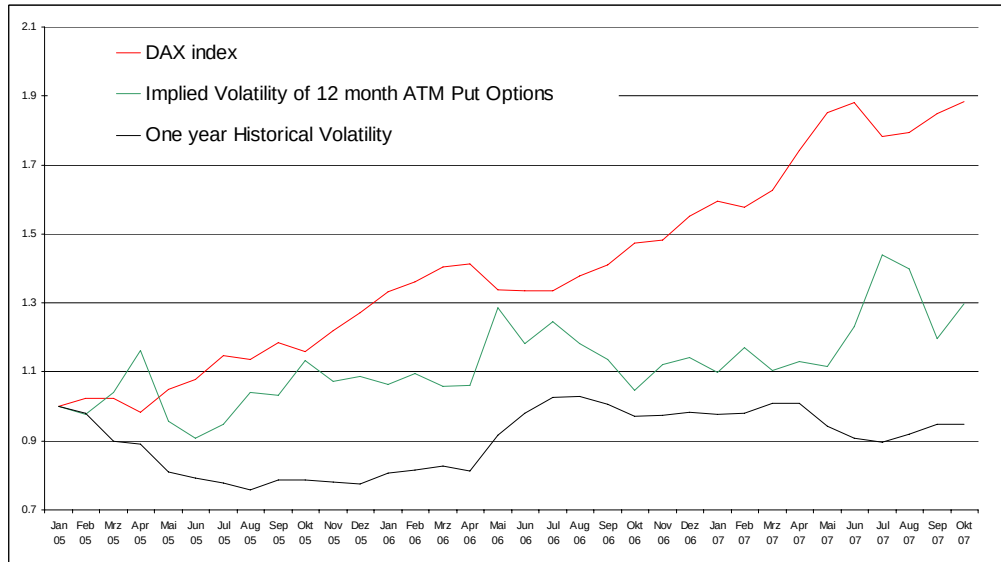
⁸⁶ Bloomberg L.P.

⁸⁷ Bloomberg L.P.

⁸⁸ Bloomberg L.P.

from the low to the intermediate level. The low level can be seen as levels below 18% and the intermediate level being between 18% and 25%. This also implies a higher nervousness in the German equity capital market toward the end of 2007.

Figure No. 1 – Evolution of DAX index, Implied Volatility, and Historical Volatility



Source: Own representation

3.2.2 Statistical analysis on open interest and traded volumes

A way of analyzing the evolution of the SRP market in Germany is to take the recorded evolution of the open interest and the traded volumes and study the impact the evolution of the equity capital markets has had on it. For this purpose the SRP market is segmented into product payoffs as described and categorized above. The DAX index is taken as the reference for the equity capital market as it highlights a significant correlation to the DJ Eurostoxx 50 index, which is the second most popular underlying, and the remaining top underlyings are anyway the components of the DAX index.⁸⁹ The absolute trend adjusted and the relative changes are compared respectively with the absolute values being adjusted and revoked of the trend they display over the given period for all compared sets of data. The aim is to rule out the possibility of the trend causing an explicability bias among the SRP market and the DAX index and thus eliminating the spurious effect the trend might have on the evolution of the figures.

⁸⁹ Structured Retail Products 2008c

The absolute trend adjusted change of the total traded volumes over the monthly observed period from January 2005 to December 2007 can be explained in 20% of the cases by the absolute trend adjusted change of the DAX index with a confidence level in excess of 99.5%. Simultaneously the absolute trend adjusted change of the open interest of the German SRP market can be explained in 37% of the cases by the absolute trend adjusted change of the DAX index with a confidence level also in excess of 99.95%.⁹⁰ The relationship between the absolute trend adjusted numbers suggest that during the three year period the overall evolution of the SRP market can be explained to a certain extend also by the change of the underlyings' evolution, in this case the German equity capital market, regardless of its trend. The greater coherence observed for open interest is explained and a more detailed analysis is obtained when breaking the SRP market down into its core payoff types to see the impact individually. Further, the payoff types are grouped into four major categories, namely unconditional capital guarantee, conditional capital guarantee, participation, and leverage products, for the purpose of analyzing how the features and characteristics of different products instead of the products themselves are impacted by the change of the German equity capital market.

3.2.2.1 Traded Volumes

The break down of the SRP market into its major product payoffs paints a slightly different picture than that of the overall market in terms of coherence for recorded traded volumes. This can in some cases even be explained by the inconsistency of the volumes in certain product payoffs as is the case with the guarantee certificates, the express certificates bonds, the outperformance and sprint certificates, and the basket, theme, and strategy certificates. The latter four payoff types highlight recorded traded volumes that are in no statistically relevant coherence with the evolution of the DAX. The index certificates are similarly volatile in terms of traded volumes and their evolvment can only in 11% of the cases be explained by the evolution of the DAX index with a relatively low statistical significance at the 5.5% level.⁹¹

In contrast to the above mentioned product payoffs the evolution of the German equity capital market explains some of the changes in the bonus and partially protected certificates, the discount certificates, and the reverse convertible bonds. The absolute trend

⁹⁰ Derivate Forum 2005b-m / 2006a-l / 2007a-j

⁹¹ Derivate Forum 2005b-m / 2006a-l / 2007a-j and Bloomberg L.P.

adjusted traded volumes of the bonus and partially protected certificates can be explained in 24% of the cases with the evolution of the DAX with a confidence level beyond 99.5%. In the case of discount certificates the same relationship can be explained in 13% of the cases with a confidence level beyond 99.5%. For the reverse convertibles bonds the explicability amounts to 13% of the cases with a confidence level in advance of 98%.⁹²

The above findings suggest that overall the evolution of the DAX index is to some extent accountable for the evolution of the overall traded volumes, which is however only true for 20% of the product payoffs in terms of traded volumes. On an individual payoff basis this relationship fades to statistical insignificance in some cases and only maintains statistically relevant confidence levels and high R squares for the partially protected payoffs and the index certificates. These payoff types however constituted for on average over 56% of the total traded volumes while the index certificates contributed on average with an additional 16%, hence in total these payoffs composed over 72% of the total traded volumes. At the end of October 2007 the portion that latter two embodied rose to over 85%, which suggests that the traded volumes of particularly these payoffs had risen once the effects of the subprime crises developed and the DAX index started stagnating.⁹³

If however the relationships of the statistically significant coherences from the absolute trend adjusted analysis are studied in detail by analyzing the relationships that can be observed when applying the relative month to month changes even these fade. This is true also for the total traded volumes that on a relative change basis show no statistically significant relationship to the relative change of the DAX index.⁹⁴ The fading of the coherences on a month to month basis may suggest that the reactivity of the SRP market in traded volumes to its underlyings' is not as immediate so that it could be observable on a month to month basis. On an individual payoff basis it however appears that on an absolute and overall basis the SRP market is driven in its evolution to some extent by the evolution of its underlyings while certain payoff types such as guarantee certificates evolve independently. The impact of the underlyings' development however is lower than what might have been expected.

⁹² Derivate Forum 2005b-m / 2006a-l / 2007a-j and Bloomberg L.P.

⁹³ Derivate Forum 2005b-m / 2006a-l / 2007a-j and Bloomberg L.P.

⁹⁴ Derivate Forum 2005b-m / 2006a-l / 2007a-j and Bloomberg L.P.

Table No. 2 – Statistical Analysis of absolute and relative change of traded volumes of product payoff

Period 01/05 - 10/07	Independent	Dependent	R Square	t-statistic	X Variable	p-value
	DAX	Traded Volumes				
Absolut (trend adjusted) (34 Observations)	DAX	total	0.1999	2.8276	2157.0541	0.0080
	DAX	guarantee certificates	0.0001	0.0670	23.2139	0.9470
	DAX	bonus and partially protected	0.2390	3.1699	732.0952	0.0033
	DAX	discount certificates	0.1349	2.2334	499.2313	0.0326
	DAX	reverse convertible bonds	0.1287	2.1741	73.0193	0.0372
	DAX	express certificates	0.0001	0.0601	13.5772	0.9525
	DAX	outperformance and sprint certificates	0.0008	0.1626	4.3583	0.8718
	DAX	index certificates	0.1106	1.9945	510.7194	0.0547
	DAX	basket, theme and strategy certificates	0.0324	1.0347	114.5377	0.3085
Relative (33 Observations)	DAX	total	0.0058	-0.4259	-0.6245	0.6731
	DAX	guarantee certificates	0.0001	-0.0528	-0.3981	0.9583
	DAX	bonus and partially protected	0.0015	0.2124	1.5409	0.8332
	DAX	discount certificates	0.0165	-0.7204	-1.4029	0.4766
	DAX	reverse convertible bonds	0.0302	0.9830	2.1247	0.3332
	DAX	express certificates	0.0459	-1.2210	-3.3542	0.2313
	DAX	outperformance and sprint certificates	0.0032	-0.3169	-1.0420	0.7534
	DAX	index certificates	0.0269	0.9249	1.6585	0.3622
	DAX	basket, theme and strategy certificates	0.0481	1.2518	9.3523	0.2200

Source: Own representation

3.2.2.2 Open Interest

The open interest analysis suggests a greater cohesion between the evolvement of the open interest of payoff types and the German equity capital market than is the case for the traded volumes. The total trend adjusted change of the open interest can thus be explained in more than 37% of the cases by the changes of the DAX index with a confidence level of beyond 99.95%. Among the individual payoffs that highlight coherences the two major types are again the discount certificates with explicability of almost 30% and the index certificates with almost 34%, both with statistical significances beyond 99.95%. In addition, the evolution of the absolute trend adjusted open interest of express certificates can be explained in almost 14% of the cases with the evolution of the DAX index with a statistical significance beyond 97.5%.⁹⁵

The remaining payoff types do not highlight statistically relevant relationships that may be explained through the evolution of the DAX index. The above three on average constituted over 29% of the open interest of SRPs in Germany throughout the observed period, however with the exception of reverse convertible bonds and outperformance and sprint certificates all payoff types have increased in open interest on average by 3.75 times

⁹⁵ Derivate Forum 2005b-m / 2006a-l / 2007a-j and Bloomberg L.P.

their initial value. This suggests that the be named payoff types that stand in no cohesion with the DAX index surge independent from the equity capital markets' overall direction, at least on an absolute trend adjusted basis.

The analysis on the relative month to month changes leads to most of the earlier obtained relationships to vanish and for two payoff types suddenly highlighting cohesions that earlier did not do so. Latter two are the outperformance and sprint certificates and the basket, theme, and strategy certificates whose month to month relative change can be explained in 16.5% and 11% of the cases, respectively, by the relative change of the DAX index with a statistical significance beyond 99% and nearly 97.50%, respectively. For the basket, theme, and strategy certificates the statistical significance is thus arguably low.⁹⁶

The relationships that are obtained for the open interest analysis on absolute trend adjusted figures as well as on the relative figures are however likely to be biased. The bias emerges through the payoff types generally having a long position in the underlying, so that they will either advance or at least not decrease when the underlying rises, which then increases the open interest of the corresponding products. This mitigates the force of expression of the open interest analysis to some extend. It becomes even more evident when witnessing the disappearance of most of the statistically significant relationships on a relative basis compared to the results that have been obtained on the absolute values, while in this cases the low level of immediate effect of the DAX index on the open interest can be assumed to be the same as was observed for the traded volumes. Further reasons for the lack of cohesion between the DAX and the relative changes of open interest can be found in various components influencing the value of options other than the change of the underlying such as volatility, which will naturally reflect on the value of SRPs that are composed of such options, as well as the low immediate relationship between relative month to month issuances, investors response to market changes, and the development of the equity capital market.⁹⁷

⁹⁶ Derivate Forum 2005b-m / 2006a-l / 2007a-j and Bloomberg L.P.

⁹⁷ Derivate Forum 2005b-m / 2006a-l / 2007a-j and Bloomberg L.P.

Table No. 3 – Statistical Analysis of absolute and relative change of open interest of product payoff

Period 01/05 - 10/07	Independent	Dependent	R Square	t-statistic	X Variable	p-value
Absolut (trend adjusted) (34 Observations)	DAX	Open Interest				
	DAX	total	0.3738	4.3706	10226.6810	0.0001
	DAX	guarantee certificates	0.0134	-0.6581	-1536.7371	0.5152
	DAX	bonus and partially protected	0.0920	1.8007	2450.0439	0.0812
	DAX	discount certificates	0.2796	3.5245	3356.9837	0.0013
	DAX	reverse convertible bonds	0.0667	1.5129	133.5307	0.1401
	DAX	express certificates	0.1390	2.2727	2727.8615	0.0299
	DAX	outperformance and sprint certificates	0.0163	0.7280	70.7311	0.4719
	DAX	index certificates	0.3397	4.0575	1199.5312	0.0003
	DAX	basket, theme and strategy certificates	0.0300	-0.9943	-496.5421	0.3276
Relative (33 Observations)	DAX	total	0.0751	1.5864	0.5582	0.1228
	DAX	guarantee certificates	0.0668	1.4899	1.7718	0.1464
	DAX	bonus and partially protected	0.0003	-0.1013	-0.0734	0.9199
	DAX	discount certificates	0.0079	0.4962	0.5214	0.6233
	DAX	reverse convertible bonds	0.0004	0.1161	0.0510	0.9084
	DAX	express certificates	0.0087	0.5231	3.9968	0.6046
	DAX	outperformance and sprint certificates	0.1649	2.4740	0.9525	0.0190
	DAX	index certificates	0.0739	1.5725	0.8249	0.1260
	DAX	basket, theme and strategy certificates	0.1104	1.9613	1.5150	0.0589

Source: Own representation

3.2.2.3 Four product features

The eight payoff types that are analyzed above can be further categorized into four types of product features, namely into products with unconditional capital protection, conditional capital protection, participation, and leverage. The reason for splitting the products into such product feature categories is to analyze the popularity of not only the products themselves but their primary payoff traits compared to the change of the equity capital market.

The analysis highlights a statistically relevant relationship between the absolute change of conditional capital protected products and participation products in traded volumes. The absolute trend adjusted change of the conditional capital protected products can thus be explained in nearly 17% of the cases by the absolute change of the DAX index with a confidence level beyond 99% while the absolute trend adjusted change of participation products can be explained in nearly 11% of the cases with the respective change in the DAX index with a confidence level slightly less than 97.5%. The changes in the unconditional capital protected products and the leverage products can however not be explained with statistical significance.⁹⁸

⁹⁸ Derivate Forum 2005b-m / 2006a-l / 2007a-j and Bloomberg L.P.

The lack of statistical significance between the unconditionally protected products and the DAX index do not state that the traded volumes had not increased in absolute terms in these products over the period rather than that the movement of the DAX index had no direct effect on it. This would then suggest that the unconditional capital protection is a product trait that is likely to be also successful under bear market conditions or at least less impacted by during such markets. It is unclear though how big the impact of a bear market on the trend of the SRP market would be and if investors would elude investing into SRPs and thus also unconditional capital protected products as no true bear market has yet been experienced since the debut and surge of the SRP market.

In relative terms however none of the changes in the traded volumes of the four groups highlight a statistically significance coherence with the DAX index.⁹⁹ These results indicate that the previously observed strong relationship are not as direct and reactive thus resulting in the same conclusion as what has been obtained on the individual payoff level on a relative comparison basis. The cohesion has thus also to be judged with the same caution for the possibility of it being somewhat biased as is the case for the open interest of the product payoffs as the traded volumes will naturally also increase when the value of the products increases due to a surge in the underlying.

Table No. 4 – Statistical Analysis of absolute and relative change of traded volumes of payoff characteristics

Period 01/05 - 10/07	Independent	Dependent	R Square	t-statistic	X Variable	p-value
	DAX	Traded Volumes				
Absolute (trend adjusted) (34 Observations)	DAX	unconditional capital protection	0.0001	0.0670	23.2139	0.9470
	DAX	conditional capital protection	0.1694	2.5547	1317.9230	0.0156
	DAX	participation	0.1080	1.9685	625.2572	0.0577
	DAX	leverage	0.0008	0.1626	4.3583	0.8718
Relative (33 Observations)	DAX	unconditional capital protection	0.0001	-0.0528	-0.3981	0.9583
	DAX	conditional capital protection	0.0205	-0.8061	-1.3730	0.4263
	DAX	participation	0.0546	1.3386	2.9520	0.1904
	DAX	leverage	0.0032	-0.3169	-1.0420	0.7534

Source: Own representation

The open interest analysis of the four product traits highlights a statistical relationship only for the conditional capital protection on the absolute trend adjusted basis where the evolution of it can be explained in 18% of the cases by the evolution of the DAX index with statistical significance of over 99%. The change in open interest of the unconditional

⁹⁹ Derivate Forum 2005b-m / 2006a-l / 2007a-j and Bloomberg L.P.

capital protection, participation, and leverage traits is however not explainable with statistical significance with the DAX index on an absolute trend adjusted basis.¹⁰⁰

The relative change of the conditional capital protection trait can in turn not be explained with the relative change of the DAX index. In turn however the participation and the leverage products can be, with the evolution of former explained in 12.14% and for latter explained in 16.49% of the cases, respectively, with the evolution of the DAX index with confidence levels beyond 95%.¹⁰¹ It is however not surprising that particularly the participation and the leverage products are the only ones highlighting statistically relevant relationship whereas the other two do not. The results can be explained in the same manner as for the single payoffs, namely by the fact that the open interest of participation and leverage products is linked more immediately to the change of the underlying whereas that is not the case for fully or partially capital protected products. This puts the results obtained on the absolute trend adjusted analysis into another perspective as it further increases the significance of the partial explicability of the evolution of the conditional capital protection trait.

Table No. 5 – Statistical Analysis of absolute and relative change of open interest of payoff characteristics

Period 01/05 - 10/07	Independent	Dependent	R Square	t-statistic	X Variable	p-value
	DAX	Open Interest				
Absolut (trend adjusted) (34 Observations)	DAX	unconditional capital protection	0.0134	-0.6581	-1536.7371	0.5152
	DAX	conditional capital protection	0.1799	2.6491	8668.4197	0.0124
	DAX	participation	0.0616	1.4493	702.9891	0.1570
	DAX	leverage	0.0163	0.7280	70.7311	0.4719
Relative (33 Observations)	DAX	unconditional capital protection	0.0668	1.4899	1.7718	0.1464
	DAX	conditional capital protection	0.0003	-0.0924	-0.0670	0.9270
	DAX	participation	0.1214	2.0695	1.0979	0.0469
	DAX	leverage	0.1649	2.4740	0.9525	0.0190

Source: Own representation

3.2.3 Impact of subprime crises on volumes and issuance

The traded volumes and the number of listed products are further benchmarks that can be compared with another to understand the characteristics of the German SRP market. Deutsche Börse has for this purpose been recording the traded volumes and the number of listed products at the exchanges since the beginning of 2007 with a breakdown into the

¹⁰⁰ Derivate Forum 2005b-m / 2006a-l / 2007a-j and Bloomberg L.P.

¹⁰¹ Derivate Forum 2005b-m / 2006a-l / 2007a-j and Bloomberg L.P.

individual payoffs for both structured investment and structured leverage products. The only difference to the above mentioned categorization of products is the lack of express certificates. The analysis of these figures gives an insight into the impact of the subprime crises on the German SRP market as well as on the individual payoffs starting in the second half of 2007. The traded volumes are especially interesting due to the fact that a large portion of the purchases and sell offs by investors is taking place in the secondary market of which half goes through the exchanges. Hence, it indicates not only the amounts that are withdrawn from the market but gives a good insight into the trading activities of investors. The increase of traded volumes also explains which the most prominent payoff types are during such nervous market circumstances as they would most likely increase exponentially as compared to the traded volumes of most other products.

The traded volumes over the given period, namely from February 2007 to January 2008, have first been 14.7 billion EUR on a monthly basis to increase to 18.3 billion EUR by July 2007. After the record high volumes during the summer months the volumes have decreased back to even below 13 billion EUR later increasing back to as much as 18.7 billion EUR in January 2008. The most dramatic change in volumes has been recorded from December 2007 to January 2008 with a net increase of almost 50% from one month to another, however the decrease from August to September 2007 with -27%, the subsequent increase to October 2007 with 24%, and the decrease from November to December 2007 with -24% have been equally dramatic.¹⁰² The dimensions of the changes highlight the psychological impact the subprime crises in the U.S. and the coherent issuer solvency fears have had on German investors in September.¹⁰³ The decrease in volumes in December can be explained similarly as a result of the U.S. banks disclosing their year end earnings and the coherent write downs on subprime assets during that particular month. Surprisingly however the impact has never lasted long in both cases with the volumes back on high levels already the following month.

Analyzing the impact of the subprime crises on the traded volumes on each payoff specifically serves a more detailed understanding on the immediate impact that the market conditions have had on the SRP market. Over the twelve month observation period the payoffs that have experienced the largest surge in traded volumes are for instance discount

¹⁰² Börse Frankfurt 2008a-k

¹⁰³ DDI Statistik Oktober 2007 p.1

certificates and bonus and partially protected certificates. They have surged by 47% and 33% respectively, which is partially explainable by the increase of the outstanding number of such products as will be shown later. The exponential increase in volumes compared to the overall increase of 27% can also be seen as an indicator for a higher risk averseness of German investors during such market circumstances and news flow. The design of these products and the increase of their popularity can be explained by investors searching for some kind of capital protection during the time of uncertainty while simultaneously getting better conditions in terms of conditional capital protection due to the rise in implied volatility during such market conditions. These reasons apparently increases lead investors to start trading in and out of such products more intensively.

Meanwhile the outperformance and sprint certificates as well as the guarantee certificates had retreated most dramatically, namely by -50% and -32%, respectively.¹⁰⁴ The drop in the traded volumes in outperformance and sprint certificates can be explained by the decrease in the equity markets which made leveraging the upside less attractive. However, the amount traded in guarantee certificates had also dropped contrarily to what might be expected when risk awareness increases.

The explanation for latter may not be found in the behavior of the investors more than in the spiking of implied volatility and the decrease of the interest rates, which both lower the attractively of unconditional capital protection as has been shown earlier.¹⁰⁵

Table No. 6 – Traded volumes of SIPs and SLPs

Product Type	Payoff Type	Traded Volumes in Million EUR		
		2/28/2007	7/31/2007	1/31/2008
Investment Products	reverse convertible bonds	138	118	101
	basket, theme and strategy certificates	475	281	344
	bonus and partially protected certificates	3.217	3.719	4.293
	discount certificates	1.851	2.144	2.697
	guarantee certificates	283	209	193
	index certificates	1.922	2.264	2.206
	outperformance and sprint certificates	223	128	112
	further	735	453	755
	total	8.844	9.317	10.701
Leverage Products	exotique products	30	41	51
	knock-out products	3.438	5.461	5.030
	warrants	2.376	3.466	2.939
	total	5.844	8.968	8.020
Total		14.688	18.285	18.721

Source: Own representation

¹⁰⁴ Börse Frankfurt 2008a-k

¹⁰⁵ Bloomberg L.P.

Among the structured leverage products the knock-out products had witnessed an increase in trade volumes by 46% whereas that of warrants had increased by 24%.¹⁰⁶ The increase in trading of knock-out products is however more interesting as it underlines the evolvement seen among structured investment products, because most of the conditionally capital protected products also consist of knock-out or knock-in options.

The number of outstanding products during the twelve month period has meanwhile increased dramatically from just 169'697 in February 2007 to 275'996 in January 2008, which is a 72% increase. In contrast to the traded volumes there is no observed drop in the number of outstanding products throughout the period. The opposite is even true and compared to the 29% surge, which is an increase of 46'279, from February to July in the following period, namely from August to January, the number of products has increased by 33% or 69'020 in absolute terms. Among the mentioned winners and losers of payoffs during the period the number of bonus and partially protected certificates has been surging the most, namely by almost 200% during just twelve month. The number of outstanding discount certificates has in comparison surged by 65% during the same period.¹⁰⁷

In contrast to the development of the volumes the number of outstanding products has, as already mentioned, seemingly not been affected by the subprime crises. This even appears to be true for the individual payoffs themselves as the only payoff that has decreased in number are the outperformance and sprint certificates, namely by -9%. The guarantee certificates have increased by 77% in the number of outstanding products while the leverage products have increased by an average 50% over the same period.¹⁰⁸ The reason for theses discrepancies between changes in volumes and in the number of outstanding products can be found in the difference of subjects responsible for the two, namely that it is solely the issuers who determine the number of outstanding products while its solely the investors generating the traded volumes. This effect will be dealt with in more detail in the section devoted to the analysis of the development, but the above phenomenon can be explained with the same effect.

¹⁰⁶ Börse Frankfurt 2008a-k

¹⁰⁷ Börse Frankfurt 2008a-k

¹⁰⁸ Börse Frankfurt 2008a-k

Table No. 7 – Number of listed products of SIPs and SLPs

Product Type	Payoff Type	Number of listed Products		
		2/28/2007	7/31/2007	1/31/2008
Investment Products	reverse convertible bonds	4.439	5.023	6.856
	basket, theme and strategy certificates	934	1.277	2.362
	bonus and partially protected certificates	20.014	34.063	59.638
	discount certificates	41.921	51.002	69.107
	guarantee certificates	1.341	1.485	2.376
	index certificates	1.358	1.833	2.029
	outperformance and sprint certificates	2.315	2.163	2.098
	further	1.256	1.296	1.350
Leverage Products	total	73.578	98.142	145.816
	exotique products	3.373	5.074	4.519
	knock-out products	20.324	26.091	32.362
	warrants	63.422	77.669	93.299
	total	87.119	108.834	130.180
Total		160.697	206.976	275.996

Source: Own representation

3.3 Development of Underlyings

Table No. 8 – Top 25 underlyings in SRPs

Top 25 Underlyings	2007	2006	2005	2004	2003
DAX	30082	10361	3282	731	122
DJ Eurostoxx50	6947	4480	2285	722	144
Daimler	3114	1517	856	281	47
Siemens	2738	1310	613	287	42
Deutsche Bank	2731	1471	785	267	38
Allianz	2594	1581	847	313	51
BASF	2569	1187	652	216	27
Commerzbank	2463	999	405	114	15
E.ON	2351	1454	696	219	24
RWE	2296	1228	690	189	23
Bayer	2281	1240	716	192	27
Volkswagen	2271	1190	605	187	26
Thyssen Krupp	2242	1278	552	189	15
Deutsche Telekom	2151	1626	686	239	31
SAP AG	2095	1227	488	235	40
Münchener Rück	2078	1374	764	271	35
Deutsche Boerse	2000	911	298	81	2
MAN	1983	774	327	46	2
BMW	1912	815	422	152	17
Lufthansa	1706	1060	450	196	23
Adidas	1608	796	421	122	5
Deutsche Post	1589	840	389	143	7
Continental	1574	772	404	84	3
Postbank	1552	465	120	29	0
Metro	1470	548	291	74	3
Top 25	84927	39956	17753	5505	766
All listed products	162296	78894	35327	9620	1163
% share of Top 25	52.33%	50.65%	50.25%	57.22%	65.86%

Source: Own representation

The German SRP market can also be analyzed through the choice and frequency of choice of underlyings. The choice of the underlying is similar to that of the adequate product, namely the issuers decide reflecting on the investors interest and demand. The choice of the underlying is thus strongly bonded to the universe of stocks and indices that are known to the investors or that they can be made familiar with. In the case of mass retail investors these are generally national companies that are highly exposed in the public, which also seems to be the preference of institutional investors. Institutional investors' focus on primarily local companies may be explained by the benchmarking procedure of such investors, which is generally linked to the local equity capital markets.¹⁰⁹

When regarding the split of the most utilized equity underlyings in the German SRP market it strikes out that the DAX index and the DJ Eurostoxx 50 index are the most popular underlyings followed by all the components of the DAX index itself. The DAX index accounts for the largest stake, namely 30'082 products alone have been issued on it in 2007, which is 18.5% of all the products issued in that given year. The DJ Eurostoxx 50 index is the second most utilized underlying in 2007 with an issuance share of 4.3%. The remaining 23 most utilized underlyings that are all components of the DAX index have on average been utilized 2'146 times, which cumulates to an average share of 1.3%. In the give year 1'492 different underlyings have been utilized for a total of 162'296 new products, however in terms of issues the top 25 most popular make up over 54% of the total listings and the top 100 even constitute approximately a 84% share of the total listings.¹¹⁰ This highlights the concentration of the market as seen in the below table.

Table No. 9 – Share of most common Underlyings

	Share of most common Underlyings				
	2007	2006	2005	2004	2003
Top 5	28%	26%	23%	21%	31%
Top 10	36%	35%	33%	33%	44%
Top 15	43%	43%	42%	43%	54%
Top 20	49%	49%	48%	52%	63%
Top 25	54%	54%	53%	58%	66%

Source: Own representation

The above table does highlight that the tendency of certain underlyings dominating the market has been such since the major boost of this investment vehicle in 2003. The

¹⁰⁹ Structured Retail Products 2008c

¹¹⁰ Structured Retail Products 2008c and Bloomberg L.P.

concentration has actually decreased over the course of the four years with the average popularity of the top 20 subsequent to the top five underlyings having fallen from 1.88% in 2003 to 1.32% in 2007. In 2007 the top five underlyings had a stake of 28% of the overall underlying offering while the subsequent top 20 only contributed by an additional 26% culminating in the above mentioned total 54%. The dominance of the top five have peaked in 2003 when still only few products and thus underlyings had been issued and utilized with a stake of 31%. It can be observed that this increase in dominance has particularly been accounted by the increase in popularity of the DAX index as an underlying whereas the remaining underlyings in the tier group of top five and even top twenty have gradually been decreasing in terms of relative stake. More specifically, the gain in popularity of the DAX index as an underlying has been exceeding 40% in both 2006 and 2007 in terms of relative stake as compared to all other underlyings.¹¹¹

Table No. 10 – Share of stocks, indices, and other as underlyings

	2007	2006	2005	2004	2003
Stocks	78%	84%	82%	85%	78%
Index	10%	8%	9%	8%	10%
Other	12%	8%	9%	7%	12%

Source: Own representation

In terms of split between stocks and indices there is a clear tendency towards stocks, which are even generally used individually. Stocks have been the underlying of 78% to 85% of the overall issuances over the five year period while indices were in the range of 8% to 10%. The remaining 7% to 12% have been consisting of others, namely other asset classes or further underlyings.¹¹² This result, namely that stocks contribute the largest stake as compared to indices, actually describes the observed tendency of individual investors to underdiversify their holdings as cited mentioned earlier. This means that certain investors have idiosyncratic risks in their portfolios, namely investments in just few stocks rather than in diversified indices.¹¹³

¹¹¹ Structured Retail Products 2008c and Bloomberg L.P.

¹¹² Structured Retail Products 2008c and Bloomberg L.P.

¹¹³ Fischer 2007, p. 5

Table No. 11 – Country of Origin of Top 100 Underlyings by occurrence

Country of Origin of Top 100 Underlyings by occurrence					
	2007	2006	2005	2004	2003
Austria	0%	2%	1%	0%	0%
Belgium	1%	1%	1%	0%	0%
Finland	1%	1%	1%	1%	2%
France	19%	13%	15%	18%	4%
Germany	58%	56%	58%	56%	73%
Ireland	1%	1%	1%	1%	2%
Italy	5%	2%	1%	1%	2%
Netherlands	10%	11%	12%	13%	12%
Taiwan	1%	1%	1%	0%	0%
United States	1%	11%	8%	9%	4%

Source: Own representation

The above analysis has so far proven that investors in SRPs in Germany tend to invest in the major German blue chips and large caps while the DAX index and the DJ Eurostoxx 50 index being the major two indices used as underlyings. Out of the top 100 most utilized underlyings there are however many international stocks serving as underlyings. From 2004 until 2007 the portion of German stocks had been consistently between 56% and 58% while Dutch, French, U.S., and Italian companies have been the most popular international origins. The Dutch underlyings have been represented in 10% to 13% of the cases from 2004 onwards, the French between 13% to 19%, the U.S. between 1% and 11%, and the Italian have been between 1% and 5%. Among the most popular international stocks companies such as ING, Total, France Telecom, Royal Dutch Shell, Telefonica, and Apple may be found.¹¹⁴ These results further highlight that investors in SRPs are keen to invest in underlyings they know due to their dominance in Germany, such as the DAX index members, or international companies that are from surrounding countries or large enough to be renowned in Germany.

¹¹⁴ Structured Retail Products 2008c and Bloomberg L.P.

Table No. 12 – Sector split weighted by occurrence

Weighted by occurrence	2007	2006	2005	2004	2003	2007	2007	2007
Top 100 Underlyings by Origin						DAX	EuroStoxx 50	EuroStoxx 600
Basic Materials	8%	12%	12%	11%	12%	13%	8%	8%
Communications	10%	9%	10%	12%	8%	3%	14%	10%
Consumer, Cyclical	12%	19%	20%	19%	21%	23%	6%	11%
Consumer, Non-cyclical	14%	8%	10%	8%	6%	13%	10%	16%
Diversified	1%	0%	0%	1%	0%	0%	2%	1%
Energy	6%	4%	3%	2%	3%	0%	6%	5%
Financial	27%	25%	25%	24%	25%	23%	32%	23%
Industrial	12%	10%	8%	9%	9%	10%	10%	17%
Technology	5%	7%	5%	7%	9%	7%	2%	4%
Utilities	5%	7%	7%	6%	7%	7%	10%	5%

Source: Own representation

The top 100 underlyings in terms of popularity can be further divided into their sector affiliation. Thus, the top 100 most utilized underlyings are sorted by sectors and analyzed during the growth period of the SRP market from 2003 to 2007. In the above table as a comparison the sector break down of the DAX index, the DJ EuroStoxx 50 index, and the DJ EuroStoxx 600 index are highlighted as well.

The comparison with the DAX index for 2007 highlights a discrepancy in many sectors and in dominance compared to the sector breakdown of the SRP underlyings. The DAX index is however only composed of the 30 largest capitalized stocks that are listed in Germany, which leads to a distortion of the diversification of sector allocations.¹¹⁵ The DJ EuroStoxx 50 index and DJ EuroStoxx 600 index in contrast highlight very similar sector allocations and dominance with that of the SRP market. More specifically, the dominance of the sectors of the top 100 underlyings are mostly in line with those of the two European indices. This means that values are within the range bounded by the values observed in those two indices. For instance the financial sector has a weight of 27% in 2007 while the two indices highlight values of 23% and 32%. Exceptions such as the technology sector in 2007, which has a 5% weight among the underlyings as compared to a 2% weight in the DJ EuroStoxx 50 Index and 4% in the DJ EuroStoxx 600 Index, are however minor divergences from the norm.¹¹⁶

While the allocation in 2007 is in line with the overall split of sectors in the major European indices there have also been significant changes over the observed period in

¹¹⁵ Bloomberg L.P.

¹¹⁶ Structured Retail Products 2008c and Bloomberg L.P.

terms of sector dominance. There for instance is a trend for cyclical consumer stocks to lose in stake from a high of 21% in 2003 to 12% in 2007 and for basic materials that have been in the top league in terms of dominance with a 12% stake in 2003 and then dropped to as low as 8% in 2007. Among sectors that have gained in popularity there is the non-cyclical consumer sector that has advanced from 6% in 2003 to 14% in 2007 as well as the energy sector that has been represented only with 2% in 2004 and by 2007 already with 6%.¹¹⁷

The dominance of certain sectors is noticeable as is the case for the financial sector that seemingly always occupied roughly one fourth of the sector allocation throughout the course of the five year period. The consumer sectors, namely the cyclical and the non-cyclical, have constituted another combined one fourth of the sector allocation, with the dominance of the cyclical gradually being gradually replaced by the non-cyclical. Meanwhile sectors such as the utilities sector or the technology sector have been throughout the period occupying one digit percentage stakes.¹¹⁸ The dominance of the above sectors is however due to the fact that they are in line with the segmentation witnessed in the diversified European indices not particularly surprising. Rather, the dominance of certain and the lack of dominance of other sectors can be considered natural keeping in mind the different characteristics of firms operating in certain sectors, such as the high revenues produced by and high market capitalization of financial stocks in general, which thus generates a greater amount of large financial companies.¹¹⁹ This conclusion regarding the sector split can be reflected on the entire SRP market as the 100 most popular underlyings constitute 84% of all newly issued products in 2007, namely of 135'948 products, and even a higher a portion in preceding years.¹²⁰ This extent eliminates the possibility of a bias of the sector break down of only 100 underlyings having and kind of bias toward one or the other sector.

3.4 Development of Volumes

The development of the issuances of products throughout the course of the past five years, namely from the beginning of 2003 to the end of 2007, has been extensive as can be

¹¹⁷ Structured Retail Products 2008c and Bloomberg L.P.

¹¹⁸ Structured Retail Products 2008c and Bloomberg L.P.

¹¹⁹ Bloomberg L.P.

¹²⁰ Structured Retail Products 2008c and Bloomberg L.P.

seen in the below table. The number of issues has increased from a mere 275 in the first half of 2003 to 93'352 in the second half of 2007 in a mostly steady manner. Over the same period the volumes of an average issue have declined from 2.18 million EUR to just 260'000 EUR, which is almost a tenth of the original average size of issues. This however still adds up to issue volumes of 24.5 billion EUR in the second half of 2007 alone. It is to be noted that the issued volumes are always reflecting the newly issued volumes of the given period and are thus not impacted by the change of the underlyings' value as the newly issued products obviously do not participate in the historical rise of the underlyings prior to the launch. The development of the volumes is in distinction to the number of issues not steady, namely there has been a slowdown in the first half of 2006 and even a significant reduction in the second half of 2007 of issued volumes.¹²¹

Table No. 13 – Number of Issues, Volumes, and Average size of Issues

	Number of Issues	Volume in EURm	Average EURm
2003 H1	275	599	2.18
2003 H2	896	1601	1.79
2004 H1	2854	3884	1.36
2004 H2	6775	6666	0.98
2005 H1	11186	10787	0.96
2005 H2	24149	18625	0.77
2006 H1	34329	18184	0.53
2006 H2	44559	30984	0.70
2007 H1	66973	37798	0.56
2007 H2	95352	24543	0.26
Total	287348	153671	1.01

Source: Own representation

The slow down that has been witnessed in the first half of 2006 maybe explained by the correction in the equity capital markets in May 2006 in Europe and the U.S., which however ended soon thereafter also bringing back the volumes by the end of June 2006.¹²² The rapid recovery may actually be a reason for the briefness of the SRP market's slowdown and its small extend. The contraction of volumes in the second half of 2007 has however been far more significant and has lead to the first serious fall back in issued volumes, namely to a decline of 13 billion EUR from the first to the second half of 2007. The decrease is approximately 35% while the increase in issues during the same period has

¹²¹ Structured Retail Products 2008d

¹²² Structured Retail Products 2008d and Bloomberg L.P.

been 42% as can be seen in the above table.¹²³ This adverse movement of issues and issued volumes highlight the importance of analyzing these characteristics of the size of the SRP market separately as an increased number of issuance apparently wrongfully suggests a surge of the SRP market also in volumes. The reason for it can presumably be found in the difference of accountability, namely that the listing of products is conducted by the issuers whereas the volumes are more dependent on the amounts that the investors put into the newly launched products. This means that a decrease in the volumes is a more predicting indicator for the state of the SRP market as the issuers will keep on issuing products even if they can generate only half the volumes through the same amount of newly issued products.

In order to see the relationship between the numbers of listings, the volumes of the newly listed products, and the evolvement of the equity capital markets the results of a statistical regression analysis are highlighted. It suggests that from the beginning of 2004 to the end of 2007, which constitutes 48 monthly observations, 45% of the absolute trend adjusted evolution of the DAX index explains the evolution of the number of issues with a confidence level of more than 99.95%. The change of the DAX index meanwhile does not explain the change in issuance volumes on a statistically significant level. The lack of a statistically significant relationship among the issuance volume and the number of issues is however highly surprising even when, as earlier mentioned, highlighting the different source of impact on the evolution of these two figures.¹²⁴ The implication of this result is that a higher rate of issuance generated by the issuers directly does not lead to higher issuance volumes, which in turn is generated by the investors. This means that the issuers can not generate larger volumes solely by issuing more products even if in absolute terms both have been grown similarly over the observed period. The issuers are meanwhile impacted by the change of the DAX index when making their decision on how much to issue even if this bond seemingly decreases when latter is stagnating.

The period from June 2006 until December 2007, which comprises the subprime crises and includes 19 observations, provides the same result when comparing the absolute trend adjusted figures. The evolution of the number of issues can be explained with the change of the DAX in 21% of the cases with a confidence level of little more than 97.5% whereas the

¹²³ Structured Retail Products 2008d

¹²⁴ Structured Retail Products 2008d and Bloomberg L.P.

issuance volumes are not explained by the DAX and nor are the issuance volumes explained by the number of issues. The observed relationship is however 25% lower than that over the longer period.¹²⁵ A possible reason for this can be the subprime crisis that has already appeared to have an impact on the DAX index in terms of it stagnating throughout the second half of 2007 whereas the number of issues has steadily increased over the period with even certain boosts from one month to the other. A further reason is the significantly smaller sample allowing the statistical analysis to decrease in accuracy. Latter somewhat relativises the stark contrast of the two periods.

When applying a regression analysis to the relative changes from month to month during either the extended period from 2004 to 2007 or to the shorter period from mid 2006 to 2007 the previously recorded relationship between the number of issues and the DAX index vanishes. Instead the relative development of the issuance volumes can be explained in 60% of the cases by the relative development of the number of issues with a confidence level of 99.95% over the extended period. During the shorter time period this relationship fades to merely 21% of the cases with a confidence level of slightly more than 97.5% while being only just statistically significant at the 5% level.¹²⁶ On a relative month to month development basis the issuance volumes are thus explained by the number of issues, hence if the number of issues is increased from one month to another than this will have an impact on how much the issuance volumes increase. The fading of the relationship between the number of issues and the DAX index can meanwhile be sourced in the immediacy of the change of the DAX index on the issuers' decision to issue more products in the given month. The issuers' behavior could be explained by the investors equally reacting less immediately to the change of the DAX index as can be seen through the lack of a statistically significant relationship between the issuance volumes and the DAX index.

The fading of the relationship between the DAX index and the issuance volumes may also be explained by the relationship between the two not being as immediate as investors do not necessarily consider the latest changes of the equity capital markets when making investment decisions, but an extended period and also taking other aspects such as news flow into account. The consideration of many aspects and different absorption of market developments can also explain the results obtained from mid 2006 to 2007 as the investors'

¹²⁵ Structured Retail Products 2008d and Bloomberg L.P.

¹²⁶ Structured Retail Products 2008d and Bloomberg L.P.

sentiment were already dismal due to the news flow on the subprime crises whereas the German equity capital market was still overall in a stable condition. The subprime crisis in particular has evolved throughout the second half of 2007 with continuously bad news coming from the U.S. and Europe. These could have impacted the investors' sentiment and thus their investment behavior as well and thus decreasing their willingness to invest in newly launched SRPs.

Table No. 14 – Statistical analysis of DAX index, Issuance Volumes, and Number of Issues

	Period	Independent	Dependent	R Square	t- statistic	X Variable	p- value
Absolute (trend adjusted)	01/04-12/07	Number of Issues	Issuance Volumes	0.01	0.56	0.05	0.58
	01/04-12/07	DAX	Number of Issues	0.45	6.19	3.47	0.00
	01/04-12/07	DAX	Issuance Volumes	0.07	1.89	0.91	0.06
	06/06-12/07	Number of Issues	Issuance Volumes	0.00	-0.27	-0.05	0.79
	06/06-12/07	DAX	Number of Issues	0.21	2.10	2.44	0.05
	06/06-12/07	DAX	Issuance Volumes	0.02	0.53	0.98	0.60
Relative	01/04-12/07	Number of Issues	Issuance Volumes	0.60	8.27	0.80	0.00
	01/04-12/07	DAX	Number of Issues	0.00	-0.39	-0.68	0.70
	01/04-12/07	DAX	Issuance Volumes	0.01	-0.80	-1.45	0.43
	06/06-12/07	Number of Issues	Issuance Volumes	0.22	2.16	0.57	0.05
	06/06-12/07	DAX	Number of Issues	0.00	-0.05	-0.08	0.96
	06/06-12/07	DAX	Issuance Volumes	0.00	-0.05	-0.08	0.96

Source: Own representation

4 Conclusion and future outlook

The SRP market in Germany has evolved to be the most significant market of its kind over a period of just five years with its very own traits and characteristics. The above analysis shows the various aspects by which this tremendous evolvement has been able to take place as well as the characteristics of the product payoffs, product traits, underlyings, and reactivity of all the above towards market movements. As reasons for the immense success of the segment the high variety of products, the quick and cost efficient licensing procedure, the high transaction volumes at the exchanges, and the manner of the distribution of these products such as the marketing activities among others can be mentioned.

The German SRP market is characterized also by the investors that are balanced out among mass retail clients and UNHWI clients. The investors can be categorized in many other ways as well, such as according to their investment behavior or the bygone time span they take into consideration when investing, which gives an understanding to what products

are most likely to be successful and what characteristics latter have to have to address the respective investor groups efficiently. This suggests that many product payoffs can be successful if the adequate investor group is approached again adequately, however if issuers and distributors intend to address the vastest group of investors they have to focus on retail investors with high risk averseness and seeking simple payoffs that are easy to understand.

With regard to the issuers these are rather diverse in terms of origin, namely ranging from local German banks to European and American banks. The largest players in the market are two German banks with vast retail networks while the remaining top eight banks do not have that channel of distribution while still highlight large volumes and numbers of outstanding products. The success of the top two banks may beside their extensive retail networks that help target mass retail clients also be accounted to the investors' tendency to prefer banks they have already dealt with or deal with in other aspects while being local. The product offering of issuers is generally extensive with a certain specialization in one payoff type in order to have a competitive edge over the others in certain areas. The marketing activities of latter are generally focused on the capital guarantee feature, the inverse correlation between risk and return, the exposure to the equity markets, and further unique product features that are singular to one or the other product payoff. This shows that any bank in terms of origin and set up can be successful as long as they offer the whole range of products and further take a lead role in certain payoff types.

Investors in SRPs besides extensive product offerings tend to prefer underlyings such as the DAX index and the DJ Eurostoxx 50 index as well as the German blue chip companies. Alongside the German blue chips a large portion of large and renowned foreign companies are utilized as underlyings that are from neighboring western European countries or the U.S. as well as numerous German medium and small caps. This shows that the investors of SRPs are overall interested to invest in underlyings they know or can associate with and diversified indices granting them a diversification exposure to the equity capital markets.

The evolution of the traded volumes are explicable to some extend on a statistically significant level by the evolution of the DAX index, the most popular underlying for SRPs, on an absolute trend adjusted basis for the whole of the SRP market as well as for most of the conditional capital protected products and the index certificates. Certain payoffs'

evolutions are however seemingly not impacted by the underlyings' movement, such as the unconditional capital protected products. On a relative month to month basis none of the payoffs or even the total SRP market can be explained by the DAX index's change suggesting that the impact of its evolution is not as immediate as to appear on a month to month comparison. This suggests that the SRP market is more impacted by other factors rather than the evolution of the German equity capital market with regard to traded volumes.

The evolution of the open interests are in many aspects more in cohesion with the DAX index as are the traded volumes highlighting higher levels of explicability even for single payoffs on a relative month to month basis. On a trend adjusted absolute change basis the discount certificates, thus again conditional capital protected products, and the index certificates highlight a correlation with the DAX index while the unconditional capital protected products again highlight none such relationship. The changes on a relative month to month basis of the DAX index explain some of the outperformance and sprint certificates' and the basket, theme, and strategy certificates' evolution. With regard to the open interest it has to be however noted that a certain bias exists as the products value generally increases or at least not decreases when the underlying surges. This bias somewhat mitigates the significance of the obtained cohesions on open interest.

The number of issues can meanwhile be explained on an absolute trend adjusted basis by the evolution of the DAX index, however not on a relative month to month basis over a four year period. Instead, on a relative basis the issuance volumes can be explained to some extent by the number of issues; however this relationship does not have statistical significance on an absolute trend adjusted basis. Both observed relationships decrease greatly over the period from mid 2006 to the end of 2007 that includes the debut of the subprime crises. The decline of the relationships as well as the lack of the relationship between the issuance volumes and the number of listings can be found in the difference of accountability of the two, namely that the issuers are the sole cause for an increase in the number of listings whereas the investors are the sole cause for the increase of the issuance volumes. The lack of coherence thus suggests that investors do not necessarily increase their investments in SRPs directly as a result of an increase of existing products, so that a sole increase in listings does not lead to more issuance volumes.

The enormous surge of the SRP market in Germany can thus be seen as a result of numerous components starting from regulatory environments over the marketing behavior

of the issuers and distributors to the design of products and their reactivity to the evolution of the German equity capital markets. It can be assumed that the SRP market will be playing an ever larger role as investment tools in German households over the years to come. The impact of the subprime crises that has started at around the end of the above analysis is however unclear as the DAX index had not yet declined significantly until the end of 2007 and the entire impact of the crises is to date not clear yet.

Whether the subprime crises will have a large effect on the German SRP market or not is thus open to discussion. However, it may be assumed that with regards to all other components of the SRP market that have boosted its surge that are not impacted by a downturn in the markets such as the regulatory environment or the innovational drive of the issuers will act as a buffer and support the further development of the market. Considering that SRPs still have plenty of room to develop and occupy an even larger ratio of the German households' financial asset allocation on a long term they will certainly play an ever more important role in Germany.

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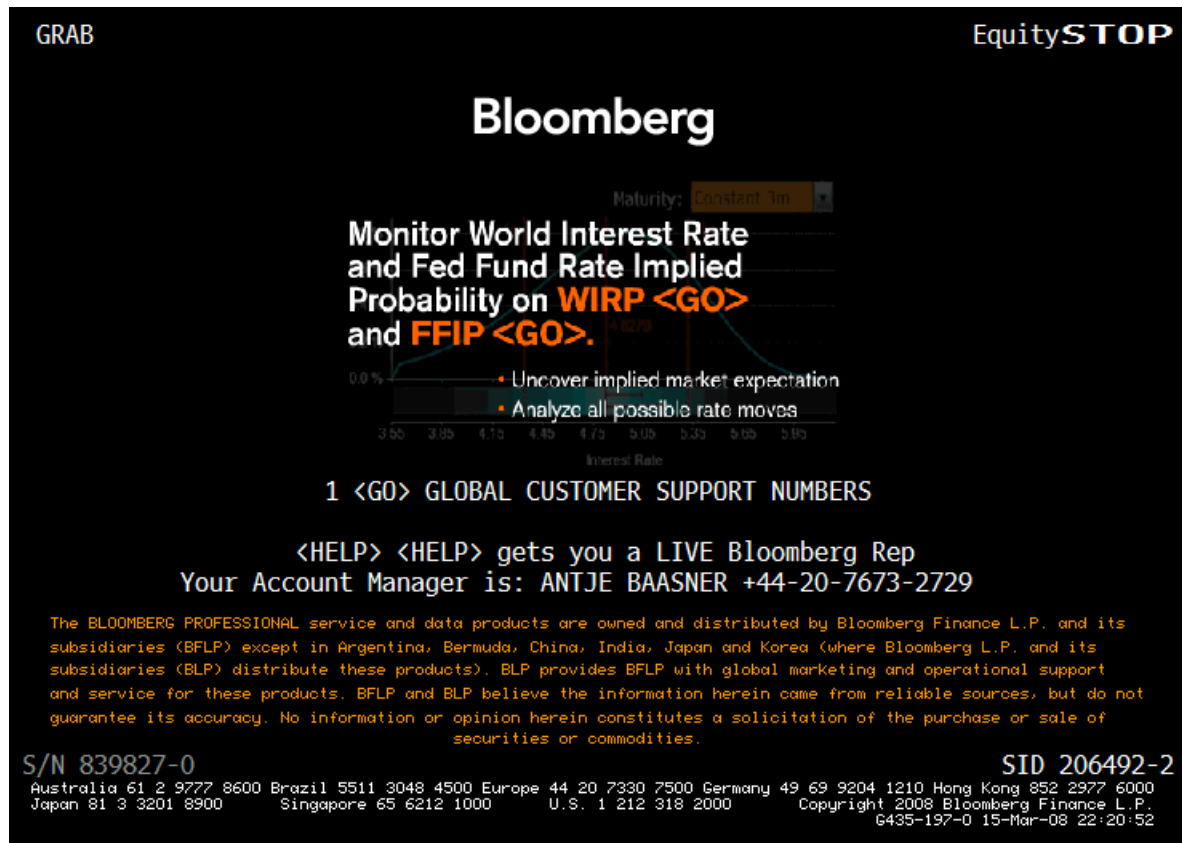
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Special thanks to structuredretailproducts.com who have allowed the utilization of their entire data base for the purpose of this analysis. Access has been granted by structuredretailproducts.com directly.

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