

Research Section

The value based portfolio management in response to REACH – A manual of different strategies for the chemical industry

Christina Feldmeier*, Sebastian Kienert**

* University of Duesseldorf, Chair for Busines Administration - Auditing and Controlling, Geb. 23.31, Universitätsstraße 1, 40225 Duesseldorf, Germany, Christina.Feldmeier@uni-duesseldorf.de

** Alumnus of the University of Duesseldorf

The registration, evaluation and authorisation of chemical substances in the context of the European regulation called REACH influence the profit of the chemical industry. If the chemical enterprises want to keep their competitiveness and the availability of products in the European market they have to pursue a REACH-strategy. By using a value based portfolio management they are able to analyse their portfolio, to identify profitable and non-profitable strategic business units (SBUs) and to find adequate strategies for each of them.

1. Introduction

The costs for registration, evaluation and authorisation of the chemical substances in the context of REACH debit the profit of the chemical industry. In the long term reactive behaviour patterns like cutting costs or deleting substances out of the portfolio cause more losses than using an adequate REACH-strategy. This contains a value based portfolio strategy for each business unit, which is the fundament for further strategic measures like a systematic cost management (Feldmeier, 2008). Therefore the article demonstrates the possibilities of being competitive by using value based portfolio strategies. For this purpose the main features of a value based portfolio management are presented at first. Afterwards the effects of REACH on the portfolio of chemical enterprises are explained. Based on this analysis REACH-portfolio strategies are demonstrated and adopted for an example of different SBUs to give an overview of the strategies and their effects. Because REACH can influence several products within one SBU in a different way, it is also possible to choose the products as the level of analysis by using the same procedure in order to get a more dif-

ferentiated conclusion.

2. Value based portfolio management

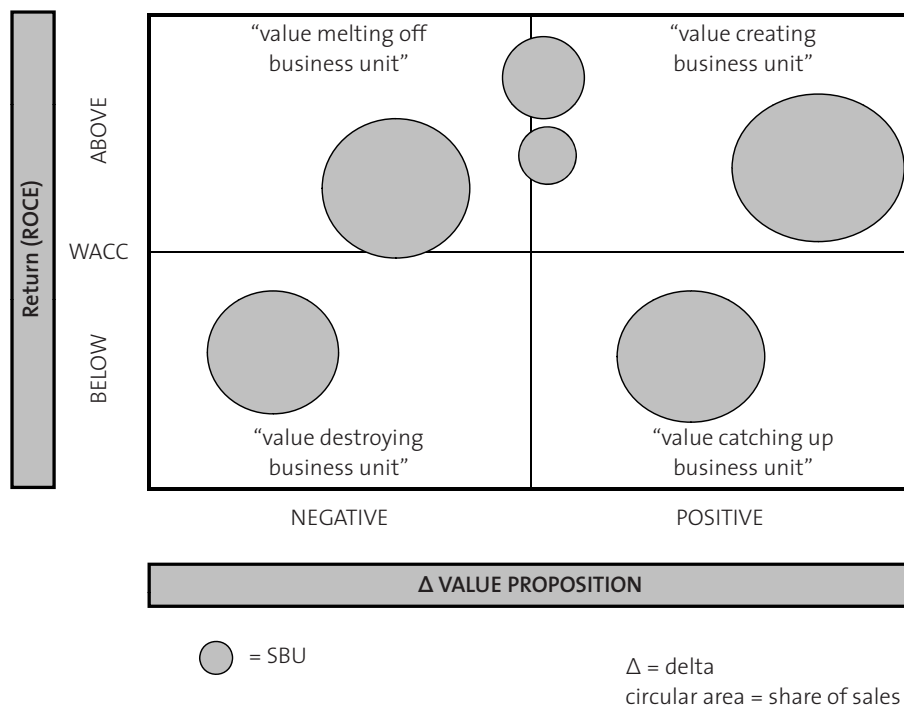
Portfolio management is used as an instrument of the corporate strategy. It supports managing the entirety of the SBU in the most profitable way. Therefore each business unit's contribution to the value of the enterprise should be controlled regularly. This can be realised by using the portfolio analysis. The objectives of this instrument are the control and coordination of the business units, the allocation of the (financial) resources, the accomplishment of a balance between cash consuming and cash creating business units as well as a balance between low-risk and high-risk ones and the identification of core businesses (Welge, 2003). To achieve these objectives the enterprises can use different types of portfolio analysis. The most common concept was created by the Boston Consulting Group in the late sixties: the so called BCG-Matrix, which uses the growth of the market and the market share as criteria to classify the units in different categories. Subject to the categories the strategies can be developed. Other concepts focus for example on competencies and

market attractiveness (Welge, 2003). The portfolio analysis used in this paper should support the main objective of the chemical enterprises, which is to gain profit. Nowadays it is not enough to achieve a profit that is accounted in the annual balance sheet. The investors risk the loss of their capital and therefore require an adequate return according to their taken risk. This return represents the cost of the equity for the firm, which is not included in the costs accounted in the profit and loss statement. Therefore it is possible that the annual balance sheet reports a profit, although value has been destroyed, because the profit is lower than the cost of equity. As a result the objective of the chemical enterprises should be a return above the capital costs in order to create a shareholder value to avert a disaffection of the investors (Kajüter, 2002). The value based portfolio analysis is a modern concept of the portfolio analysis and supports such a value creating corporate strategy by using the return-delta-value-proposition-Matrix, which is illustrated in figure 1.

The abscissa shows the variation of the

value proposition with regard to the last period. A variation of value proposition lower than zero indicates a decrease, a variation higher than zero implies an increase of the value proposition. The ordinate demonstrates the return. If the return is lower than the weighted average cost of capital (WACC) the enterprise has destroyed value, if the return is higher, value has been created. The operating figures for both coordinates have to be compatible. It is possible to use figures which base on the profit or those which base on the cashflow. In opposite to the profit based key data, the advantage of the cashflow based ones is that it is more difficult to manipulate the data. Due to the fact that the cashflow contains the cumulated depreciations, the success cannot be influenced by the age of the assets. Within the profit based key data it is possible that the only reason for an increase of the return is the age of the assets, the terms stay the same. Therefore the recommended operating figures are the cashflow based ones: the Cashflow Return on Investment (CFROI) and the Cash Value Added (CVA) (Ballwieser, 2002). A value destroy-

Figure 1 The value based portfolio analysis (Kajüter, 2002)



ing business unit has a decrease in value proposition according to the former period and does not gain a CFROI above the WACC. If a turnaround is not possible the company has to disinvest the business unit. A value catching up business unit has an increasing value proposition, but it does not gain a CFROI over the WACC yet. Because the development is positive, the company should induce measures, which raise the CFROI, for example by increasing the success or decreasing the capital base. The melting off business unit is characterised by a positive value proposition which has developed negatively in comparison to the former period. A recommended strategy for this kind of business unit is to receive the profits as long as the CFROI is higher than the WACC. If it gets lower the company should prepare the business unit for disinvestment. A value creating business unit has a positive development of the value proposition and a CFROI over the WACC. Therefore the company should invest in growth and maintain the returns by implementing measures, which keep or raise the success and keep or decrease the capital base (Kajüter, 2002).

The value based portfolio analysis is a simple instrument to derivate strategies for different business units. Nevertheless, it should be combined with other tools, because it considers only one criterion per environment and one per company analysis. Other criteria may also be relevant for the strategic decision (Welge, 2003).

3. REACH-Effects on the portfolio of chemical enterprises

REACH stands for the **R**egulation, **E**valuation and **A**uthorisation of **C**hemicals. The objectives of this EU-regulation are the increase of the security level for humans and environment and the promotion of the European internal market and innovations (EG, 2006). Therefore only those substances are allowed to be placed on the market which are registered at the European Chemicals Agency (ECHA) in Helsinki (EG, 2006). The influence of the EU-regulation REACH on the portfolio depends on the duties which the chemical enterprises have to fulfil. These duties differ according to the position which an enterprise occupies concerning the chemical substance. A producer or impor-

ter has to enregister their substances at the ECHA. For this purpose they have to collect the chemical properties and the application of the downstream user as well as the pattern of exposure to evaluate the hazard of the substances. A package of technical information on the chemical and its hazard have to be provided to the ECHA for registration. Additionally, the producer or importer has to refer a Safety Data Sheet with recommendation for a secure appliance to the user down the supply chain. Downstream users, who apply the substance on their own or in a preparation for industrial or professional activities, do not have to register these chemicals. They have to consider the recommended measures in the Safety Data Sheet and inform the supplier about the appliances of the considered substance. Only if the producer or importer has not prepared a Safety Data Sheet it is the duty of the downstream user to arrange a safety evaluation of the substance. A distributor or consumer is not a downstream user. The distributor has fewer duties than a producer, an importer or a downstream user. He just has to refer the relevant information of Safety Data Sheet or the appliances to his direct customers or suppliers. (vbw, 2007)

The more duties an enterprise has to fulfil, the more costs will accumulate and impact the profit of the enterprise. Thus the portfolio of a producer or importer is more influenced by REACH than one of a downstream user or distributor. Therefore the effects of REACH on a portfolio are demonstrated for a producer. For this purpose the consequences of REACH are presented in general. After that the effects on the portfolio are shown for special business units.

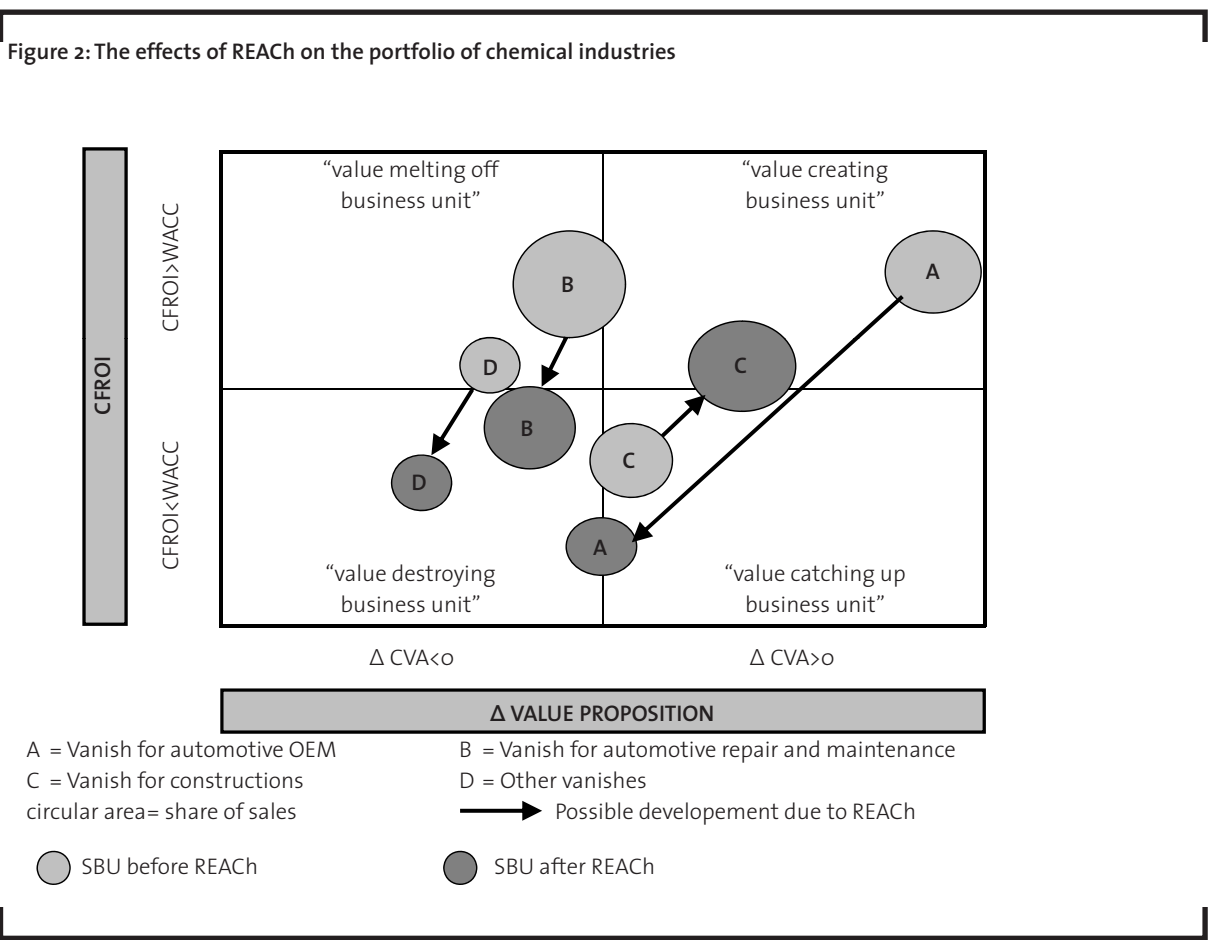
Firstly, REACH raises the direct and indirect costs. The direct costs result from the registration and include the costs for the evaluation of the chemical properties, the costs for creating the Safety Data Sheet and the fees of the ECHA, and - as the substance may be dangerous - the costs for the evaluation. The costs are not unitary fixed, but depend on factors like the volume of registration and production, the number of registered appliances, the quality of the existing documentations about the chemical properties, the appliances and the pattern of exposure, the rules for the use of it and the possibility of distributing costs

to the members of the Substance Information Exchange Forum (SIEF). According to the approximation of the Federal Environment Agency in Germany the costs for a production of 100-1.000t/a could rise about 282.130€ (UBA, 2004). The indirect costs for the chemical producers or importers are more difficult to quantify and include the costs for the employees who support the enterprise in the preparation for REACH, their advanced training and the costs for consultancy (UBA, 2004 and ECORYS, 2004).

Secondly, REACH can influence the availability of chemicals. Only substances which are registered by the producer or importer are receivable on the market. The decision for or against the registration is an investment decision. The non-recurring costs for the registration have to be compared with the revenues of the disposals. If they are higher than the revenues, for example because of the low demand, a registration is not profitable (UBA, 2004). There are two different levels, which have to be discussed considering the availability: the supply and the distribution portfolio.

For example a special substance is necessary to produce one of the chemicals of the distribution portfolio. If not only one of the suppliers of this special substance, but all of them come to the same decision against the registration, it is no more available in the European internal market. The enterprise has to examine if it is possible to use a substitute or if it is profitable to register and produce it by oneself. Otherwise the chemical of the distribution portfolio cannot be produced and the business unit must be closed. If most of the producers do not register the substance the price will rise because of the altered competition. Consequences are higher exercise prices, which debit the profit. Therefore the availability of the resources influences the availability of the products and in consequence the price. The registration of a substance, which is too expensive for other enterprises, has the advantage to achieve a product which is distributed by only a few other producers. The revenues rise because of the increase in price and amount. (UBA, 2004)

Figure 2: The effects of REACH on the portfolio of chemical industries



Thirdly, REACH can influence competitive ability of the enterprises in the European internal market. Producers, importers, downstream users and distributors, which conduct their businesses in the EU, are similarly affected by REACH. Therefore effects on the competitive ability result from enterprises which work outside the EU. They may lose their interest in exporting products into the European market. This would be an advantage for the European enterprises, because of the fewer stress of competition, so it would also lead to an increase in the revenues. On the other hand it could influence the functionality of the European Market in a negative way, what would lead to higher prices for the customers. Contrariwise, REACH causes a competitive disadvantage for European enterprises which export products into countries outside the EU. There, they compete against enterprises, which do not have to fulfil the duties of REACH and can offer their product at a lower price. The price depends on factors like the number of competitors and substitutes and the force of the customers. If there is a high competition, the European enterprises cannot fix the price and therefore the revenues decrease. (UBA, 2004)

The total effect on the portfolio depends on the special situation of the SBU. For example there is an enterprise with four SBUs: vanish for automotive original equipment manufacturer (OEM) (A), vanish for automotive repair and maintenance (B), vanish for constructions (C) and other vanishes (D). SBU "A" supplies one half of its products in the European market and the other half in countries outside Europe. SBU "B" operates in the European internal market and expects a supply stop for one resource. SBU "C" places its products on a market which is characterised by a high contingent of products from outside the EU. SBU "D" expects no further problems than the additional costs caused by REACH. The size of the circles represents the share of sales of each business unit. The effects are demonstrated in figure 2.

SBU "A" is no more competitive outside the EU. Just a few non-European customers will carry on purchasing its products. Therefore the demand for their products decreases by about 40-50%. This has a large negative influence on the CFRoI and the CVA. "A" is no longer a value creating business unit, but almost

a value destroying one. SBU "B" has to buy the resources for a higher price as long as it is still available in the European market. Consequently, the profit decreases. "B" is no longer a value melting off business unit, but a value destroying one. The situation of "C" depends on the reaction of the competitors. If the imports in the EU diminish, a higher price and an increase of the amount of sold products are the consequences. The costs are lower than the revenues, therefore a registration is profitable. The CFRoI and the CVA heighten. "C" is no longer a value catching up business unit, but a value creating one. The CFRoI and the CVA of "D" decrease because the costs of the registration debit the profit. Furthermore, they cannot raise the price because the strength of competition remains on the same level. "D" is no longer a value melting off business unit, but a value destroying business unit. On closer examination of the importance of the business units for the portfolio, "B" has the largest, "A" the second largest and "C" the third largest share of sales. The improvement of the competitiveness for "C" caused by REACH is advantageous for the whole enterprise. By contrast, "A" and "B" feature a serious impairment of competitiveness. "D" is the business unit with the lowest share of sales and experiences losses as well. "A", "B" and "D" debit the profit of the whole enterprise. Therefore REACH-portfolio-strategies are necessary to raise the shareholder value.

4. Managing the portfolio in context to REACH

Within the framework of the strategic portfolio management decisions have to be made with regard to the portfolio as a whole. The previous comments have shown that the consequences of REACH can influence the performance of the different SBUs. Therefore corporate management has to determine the strategic direction for the several SBUs to maintain an ideal portfolio. In context to the value based portfolio management the optimal composition of the portfolio is the one with the best prospective performance. The fundamental decision, which has to be made for each SBU, is: invest, stabilise or disinvest (Bea, 2005).

4.1 Investment strategy

An investment strategy should be chosen for those SBUs which will achieve a CFROI above the WACC in the future. In this case c.p. the growth will lead to value enhancement.

In current markets growth can be reached by market penetration or product development.

Within the market penetration the enterprise tries to achieve a higher market share in current markets. In context to REACH this is a successful strategy for SBUs with small market shares (respectively a CFROI below the WACC) in diminishing markets (respectively with a negative value proposition) and is called "Under-Dog-Strategy" (Gelb, 1982). The enterprise would normally tend to a disinvestment, but in context to REACH it could be profitable to stay in the market and register the substance, because the competitors also intend to exit the diminishing market. In consequence the SBU named Under-Dog gains its market shares and uses its new market power for achieving higher prices. As a result the CFROI and the value proposition increase. (Macharzina, 2005). Furthermore, a higher market share means a higher production volume. Because the registration costs are gradually fixed costs, a degression of costs per kg by using an investment strategy is possible. Nevertheless, this strategy is dangerous if a CFROI above the WACC cannot be achieved and needs a detailed analysis of the competitor behaviour and the market development.

Within the product development enterprises intend to grow by developing new products for current markets. As described above one serious problem for the chemical sector – concerning REACH – is the availability of substances. If a resource is no longer available, product development is the only chance to stay in the market. If a complete functionality is dropped, big growth opportunities accrue for an enterprise, which is able to develop a new product with this functionality. The market shares will be redistributed. Nevertheless, this strategy is dangerous because of the high costs of development. Therefore it is just recommended for enterprises with an outstanding high innovative and financial strength.

Another alternative to meet with the consequences of REACH is to invest in the deve-

lopment of new markets. Through new customers the sales could increase respectively the loss in sales that has been caused by REACH could be balanced. With higher sales the costs of REACH – at least the direct costs – would proportionally decrease. However, development costs have to be considered. If the development costs compensate the positive effects – prospective payments surplus – the enterprise should not step into the new market. In connection with the outsourcing of the production the development of non-European markets could be an alternative to escape from the REACH-requirements. Especially for medium-sized businesses, which often produce specialties in small volume and for this reason are disproportionately high affected by REACH, it is a strategic alternative. Their customers, e.g. the automotive industry, shift their production into other countries. As the local presence is a critical factor within the choice of the supplier, the enterprise has to decide if they follow their customer or lose them (Follmann, 2007). Therefore the tendency to follow the customers will be strengthened by REACH.

A further possibility for growth against the background of an increasing commoditisation and a decreasing growth rate (especially for specialties) is the change of the business model from the "normal" supplier to a "performance contractor" by offering added services (diversification). By this, it is possible to realise higher revenues without having additional REACH-costs.

A further trend, which could be supported by the consequences of REACH, is the increase of the dynamic in transactions within the chemical industry. The valuation of the enterprises is close to the peak in the year 2000/2001. For 2008/2009 an economic slowdown in the chemical industry is expected. These matters of fact in connection with the changes through REACH may dispose many owners to consider the sale of the whole or a part of their business as a strategic option (Fitzner, 2007). In this context a big chance for growth through mergers & acquisitions could arise. Nonetheless, there are considerable risks because the seller is often not able to give adequate information about the effectiveness of the EU-regulation. Therefore the buyer cannot evaluate the situation adequately. He can use

this fact to lower the price. Whether an investment turns out to be a bad buy or not depends to a great extent on the quality of the REACH-Due Diligence (Schneider, 2007). Furthermore, strategic investors, which have already built the necessary infrastructure to deal with the REACH regulations, are able to realise synergies. Through mergers & acquisitions the existing SBUs can be starched and completed or the portfolio can be adjusted by new SBUs.

However, for each investment strategy there has to be enough financial strength to avert insolvency before reaching amortisation.

Relating to the sample enterprise an investment strategy can be considered for the SBUs "A", "B" and "C".

The SBU "A" – without the effects of REACH – has shown the highest positive value proposition and realises a CFROI above the WACC. "A" is a "value creating business unit" and generates the second largest share of sales. This SBU belongs to the core business of the sample enterprise. Through REACH it will lose a high degree of competitiveness on the non-European markets, where it realises half of its sales. Without a strategic reaction REACH will have a huge negative influence on the CFROI and the CVA. In consequence there is a high risk that one of the top-selling SBUs becomes a "value destroyer". In the case of "A" a shift of the production into the non-European countries, where its customers are located, seems to be an option to meet with the consequences of REACH. Approximately, half of their customers are already located outside the EU. Because of the existing tendency of the automotive industry to shift the production there is a great chance that the rest of the customers are also planning to go abroad. If the enterprise follows their customers, the option to continue as a fixed vendor can be used. The company escapes from the REACH-regulations. In addition, there is a great chance to penetrate the market, because the local presence acquires new customers, which are in business relations with competitors from abroad. An investment strategy by relocating the production should come along with a penetration strategy in the market abroad to tap the full potential of growth.

The SBU "B" has a negative CVA variation but a CFROI above the WACC. "B" is a "value melting off business unit". Against the back-

ground of the fact that "B" is the top-seller and belongs to the core business an investment strategy seems to be wise. In consequence of REACH, "B" expects a supply stop for a substance, which is essential for their customised products. Provided that the sample enterprise has the necessary know-how and capabilities, they should invest in the product development to produce and register it by themselves. Through this the sample enterprise is the only or at least one of a few suppliers which is able to offer the specific product. This will lead to a positive value proposition. "B" could become a "value creating business unit". Without a strategic reaction "B" will not be able to serve its customers and would probably become a "value destroying business unit".

SBU "C" has a CFROI lower than the WACC, but a positive value proposition in comparison to the period before. With an adequate investment strategy "C" becomes a "value creating business unit". In the current market (inside the EU) there are many competitors from outside the EU. If these competitors decide to stop their engagement in the EU, there is a big chance to expand the market share by using a market penetration strategy. In this case the SBU should stay in the market as the "Under-Dog". However, this strategy is only profitable if a CFROI above the WACC can be achieved through a systematic cost management (Feldmeier, 2008). Otherwise, a greater market share will lead to negative Δ CVA and "C" will become a "value destroyer". Therefore the sample enterprise should first take measures to raise the efficiency and reduce the WACC before making the investment.

4.2 Stabilisation strategies

Stabilisation strategies are geared to hold the previous position of the SBU. Therefore they have a defensive character. They should be chosen for SBUs with an uncertain future: the "value melting off business unit" and the "value catching up business unit". Stabilisation strategies constitute a form of "transitional strategy". They conduce to gain time to make an informed decision on the definite strategic direction, namely to invest or to disinvest (Bea, 2005). The benefit of the stabilisation strategy is to watch for the changes and to avoid overhasty decisions, which may turn

out to be wrong. However, there is a risk to miss the optimal moment for (dis)investment.

In context to REACH, a stabilisation strategy means to hold the position as it has been before REACH. Strategic measures are the shift of the production into non-European countries, the allocation of costs onto the customers and the syndication for registration-purposes.

The shift of the production into non-European countries is only profitable if a part of the production is already there. Otherwise, the costs will be too high just to make an informed decision. Furthermore, there are more relevant criteria for the determination of the location, e.g. the closeness to the customers. Nevertheless, with a shift of the production the enterprise can escape from the REACH-registration. According to a study of the German Chamber of Industry and Commerce the probability of a shift of the production into non-European countries will increase by REACH up to 31% for the chemical enterprises. Broken down by size range the probability of a shift rises up to 41% for the big enterprises, to 32% for the middle-sized businesses and decreases to 23% for the small enterprises (DIHK, 2004). The reason for the higher probability of the big enterprises is caused by the fact that these enterprises often already pursue global or at least international locations. Therefore the risks and costs are not as high as for the first engagement abroad. In case the customers are located in the EU a shift of production is not reasonable, because the imported goods have to be registered as well.

Another possibility to stabilise the existing position is to transfer the additional costs through REACH directly to the customer. This option is only profitable if the enterprise does not anticipate a relevant decline in sales in connection with the rise in price. This opportunity depends on the market power of the enterprise, which is determined by the intensity of competition in- and outside the EU as well as the degree of substitutability. To make an informed statement if the transfer of costs is possible or not, the enterprise has to know the price elasticity of demand. Because of its market power the contractor of customised specialties has the best ability to allocate the additional costs.

The syndication for registration-purposes

is another chance to reduce the costs and therefore to stabilise the former position. Through the "one substance, one registration-principle" (OSOR-Principle) the costs and work should be reduced. With the pre-registration the potential registrant gets the access to the SIEF where he should meet other enterprises which are also willing to register the same substance. In the SIEF they could bargain about sharing information and documentations, co-registration and therefore sharing costs (Heitmann, 2007). But in practice, the opportunity of syndicating depends on the existence of other enterprises that register the same substances. In addition, the enterprise has to consider if production of the substance is a core competence. In this case it is dangerous to share information with the competitors, because it leads to a loss of competitive advantage.

A stabilisation strategy should, for the present, be chosen for every SBU, because the changes through REACH couldn't be evaluated accurately for now.

As described above a shift of the production into non-European countries is only advisable if a part of the production respectively the customers are already located abroad. In the sample enterprise "A" offers its products on markets outside the EU. Therefore "A" is the only SBU, for which a relocation of the production could be profitable.

The strategy to pass the REACH-costs to the customers cannot be used for the sample enterprise because of the stagnation of sales in the vanish industry. Only the SBUs "A" and "B", which offer specific customised products, have a slim chance to transfer the additional costs. "C" and "D" offer standardised products. A rise in price will lead to a migration of the customers to the competitors.

The syndication for registration purposes as a strategic alternative to stabilise the current position depends, as aforementioned, on the risk of losing know-how. The more specific the products are, the higher the risk is. This leads to the conclusion that syndication could be possible in "C" and "D" and not in the know-how-based SBUs "A" and "B".

4.3 Disinvestment strategies

The disinvestment is often defined as the last (enforced) reactive behaviour based on a

strategic danger and not on an active, systematic, anticipative portfolio management. But through the gain in importance of the Shareholder Value-approach and the concentration on core competences a strategic disinvestment management becomes more and more important (Bea, 2005). A disinvestment strategy should be chosen for those SBUs, which have shown a CFROI below the WACC and for which a positive value proposition in the future is not expected (“value destroying business unit”).

Within the disinvestment strategies there are two cases of disinvestment: Firstly, the object of the disinvestment should be obtained by selling it as a whole or secondly, it should be liquidised.

In case of obtaining the object, there are different possibilities to disinvest. Within a “sell-off” an external buyer is the new owner. If a SBU becomes an independent entity – with current or new shareholders – formed by split from the rest of the enterprise it is called “spin-off”. In case the former management acquires the enterprise as a whole or a part of it and continues it as an independent business, it is

called “management buy-out”.

If a further existing is not possible or not wanted by the former respectively the new shareholders a “liquidation” is the last option. Within this strategy it is possible to generate cash from fixed assets.

As aforementioned the dynamic in transactions in the chemical industry has raised through REACH. In this context there are not exclusively chances for growth. The chemical enterprises have to decide if a disinvestment strategy is advisable. However, the disinvestment strategy can fail if most of the competitors also want to disinvest their business units. In this case it could be difficult to find an investor, who offers an adequate price.

The consequences of REACH will not be the only reason for a disinvestment of a business unit. Most of these SBUs do not belong to the core business and have bad performances. Because of the low spread between revenues and costs the REACH-costs easily debit the profit. REACH therefore just has an influence on the date of disinvestment, not really on the strategic decision. The revenues from the disinvestment could be used for investment

Figure 3: The possible REACH-strategies for the classified strategic business units

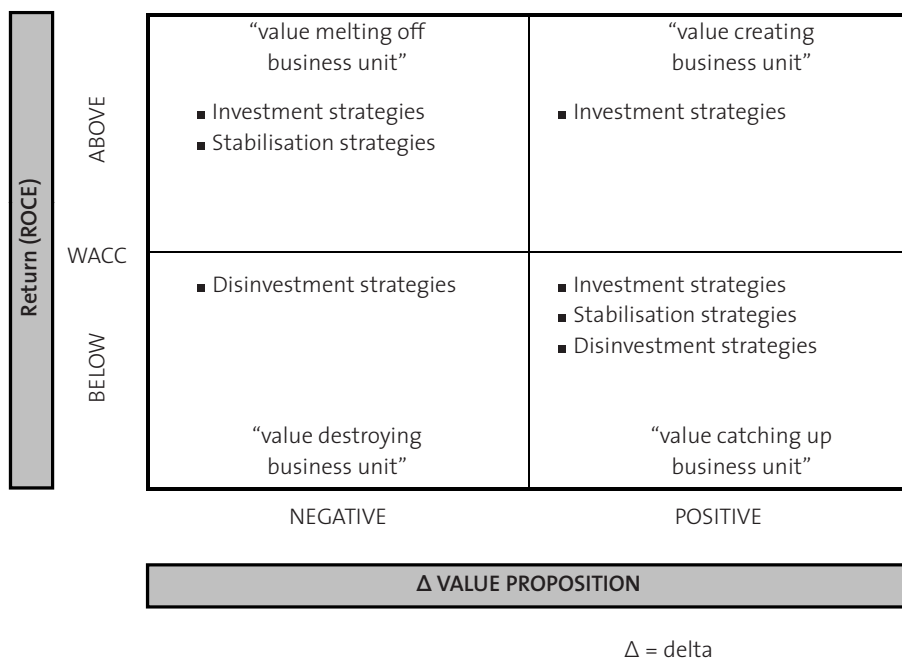
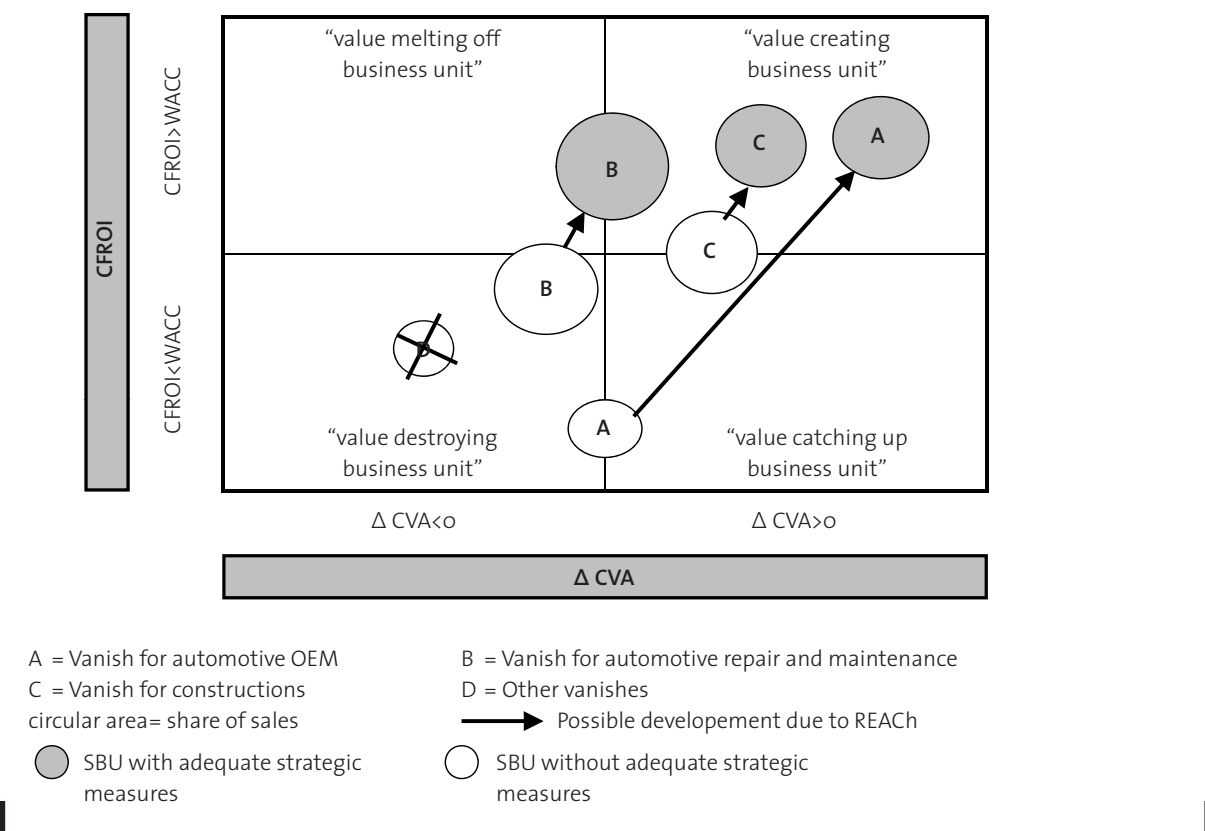


Figure 4: The use of strategies for the portfolio performance



strategies in other SBUs.

A disinvestment strategy should be taken into account for “D”. This SBU has a negative value development and a CFROI only marginal above the WACC. In addition it does not belong to the core business and has the fewest share of sales. Through REACH the negative development of this SBU will be strengthened and “D” will become a “value destroying business unit”.

A review of possible strategies according to the classified SBUs is given in figure 3.

4.4 Effects on the sample enterprise

Through the mentioned strategic measures the portfolio structure of the sample enterprise could be optimised in terms of the value based view. Present potentials for value enhancement could be realised respectively upcoming value destruction – e.g. through REACH – detected and eliminated, which c.p. will also lead to an increase in value. The neg-

ative effects by REACH on the costs and the income of the several SBUs could be alleviated and emerging chances could be perceived. Figure 4 shows the possible development of the portfolio of the sample enterprise after REACH. The white circular areas represent the position without adequate strategic measures and the coloured ones the possible position, which could be achieved by the mentioned measures. After a period of stabilisation the sample enterprise decides to invest in the SBUs “A”, “B” and also “C” (by using the aforementioned strategic measures) and disinvests in “D”. In comparison to the situation without adequate measures the negative consequences by REACH can be attenuated through a value based portfolio management.

These strategic measures should exemplarily show which development the sample enterprise is able to fulfil through a value based portfolio management. In practice, an internal and external analysis for every SBU is also necessary to find the ideal REACH-strategy.

5. Conclusion

The explanations above have shown that REACH influences the performance of enterprises in the chemical industry. The impact on each enterprise can differ within the different SBUs. The value based portfolio management is an instrument for the corporate management to show these different effects for each SBU and to offer a database to decide on the general strategic direction. Therefore the chemical enterprises can identify the negative consequences. By the use of the strategies "invest", "stabilise" or "disinvest", the performance of each single business unit and, as a consequence, the performance of the whole portfolio can be improved. Due to these facts the value based portfolio management as the basic of business tools is necessary for the chemical industry for staying competitive. To implement these strategies and to earn more market power other adequate business tools should be applied to REACH in the chemical enterprises, e.g. a systematic cost management and a suitable reporting system and – in case of mergers – the REACH-Due Diligence. The development of these tools with regard to REACH is one of the future tasks for the theory and praxis.

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