UNIVERSITY OF PITTSBURGH
JOSEPH M. KATZ
GRADUATE SCHOOL
OF BUSINESS

Final Project Report

Decision Making in a Complex Environment

Spring Term 2013

Qoros Cars – A Market Entry Decision

Name: Jan F. Klein

Submitted to: Prof. Thomas Saaty, PhD; Gabriela Sava

Submission Date: 04/23/2013

Table of Contents

1 Introduction

Over the last years, Chinese car manufacturer have miserably failed in capturing the European car market. The sedan "Brilliance" (2008) and the SUV Jiangling (2005), which both failed to keep up with European crash test norms vanished from the market in a short time[1], the Jiangling market launched canceled after disastrous NCAP Crash test and the Brilliance surviving for not even a year.[2] The low cost, low quality strategy seemed never to pay-off for Chinese manufacturer, eventually resulting in a bad reputation for Chinese manufacturers in the European market.[3] Despite facing this bad reputation in the European market almost six years after the last unsuccessful entry the newly established Chinese manufacturer Qoros considers to enter the European market, the third manufacturer to enter, the third to fail?

The timing for them to enter could not be worse:[4] the European car market experiences a huge decline, with even established players facing huge losses. In fact even, the chairman of the board admits that "this is actually not the right time to attack in Europe".[5]

However, there are also some promising prospects, which differentiate Qoros from competitors and may prevent making the same mistakes as the preceding Chinese manufacturer in Europe. In being a joint venture of the Chinese car manufacturer Chery Automobile, the biggest independent car manufacturer in China, and the Israeli industry holding Israel Corporation two powerful companies give Qoros a strong financial background. [6] By launch its Qoros 3 Sedan at end of 2013[7] Qoros chooses an new entry

[1] http://www.welt.de/motor/article113665144/Premium-aus-dem-Reich-der-Crashtest-Versager.html
[2] http://www.handelsblatt.com/auto/nachrichten/der-qoros-in-bildern-china-kracher-oder-blindgaenger/7563770.html
[3] http://www.wiwo.de/unternehmen/auto/automarkt-44-prozent-der-deutschen-wuerden-chinesisches-auto-kaufen-/7861954.html
[4] http://www.t-online.de/wirtschaft/unternehmen/id_62455798/chinesische-automarke-qoros-will-euopaeischen-markt-stuermen.html
[5] http://www.autobild.de/artikel/qoros-europaeischer-marktstart-noch-2013-3903690.html
[6] http://www.wiwo.de/unternehmen/industrie/weltpremiere-des-qoros-der-chinese-der-keiner-sein-will/7901160.html
[7] http://www.qorosauto.com/en/newscenter/news/article10

approach, focusing on safety and quality for low cost.[8] Thereby, Qoros shows a commitment to product and service quality[9] exactly those areas where Chinese brands used to be weak, which translates from Qoros point of view in innovative technology with" exemplary safety standards"[10]. For a picture of the care see Appendix A.

Consequently, Qoros choses an entirely different approach from all other brands that tried and failed to capture the Chinese market. But can a high quality strategy pay off for a Chinese brand, will the benefits from this strategy outweigh the cost, and will the opportunities generated by bigger than he risk associated with introducing a Chinese brand in the declining European market? Qoros goal is clear: "to become the first automobile company from China to be widely-known and respected on the international stage",[11] but is a market entry in Europe the best way to achieve this goal, or should the company rather decide not to enter.

This report is designed to guide the decision of Qoros by giving a structured approach to access the effect of a potential entrant in the European car market and aggregates them in one decision. The report thus the perspective of Qoros' Management team and will answer the question whether or not to they should decide to enter the European car market, and if yes, what strategy, i.e. large or small scale to choose.

The report is structured in the following way. In Section 2, the alternatives from which the management board can pick are outlined and discussed. Section 3, then discusses the model. First the strategic criteria with their resulting priorities are outlined, followed by a description of the BOCR-Model, including illustration by the use of screenshots from the SuperDecisions model. Subsequently, in section 4 the results of the model are presented and analyzed, a recommendation is given. Section 5 then reviews these results in the light of a sensitivity

[8] ebid
[9] http://www.qorosauto.com/en/aboutqoros/Company
[10] ebid
[11] http://www.qorosauto.com/en/aboutqoros/Company

analysis. The last section of the report than gives a summary of the results and its implications as well as derives further conclusions.

2 Alternatives

The management of Qoros basically faces three decisions

1) Enter the European market with a large scale
2) Enter the European Market with a small scale
3) Do not enter the European Market (status quo)

For a market entry scale plays a crucial role, since the decision which entry scale to shows impacts a variety of decision and influences on the success of the company, such as the strategic and operating as well as the competitive dimension. The competitive dimension is of interest here, as in choosing the scale the company signals to the competitors and may increase or decrease its success in the market place. A large scale entry for example yields economies of scale and increases the market penetration rate, thus makes the company more efficient and the brand faster known in the market, which directly translates into profits. However, a large scale also tries to capture a large part of the market, that is an aggressive signal to the competitors, who are more likely to respond with a price war when facing a large capacity then when facing an less aggressive low scale entry (an effect which usually is referred to as “Judo Economics”, cf. Kiwi’s low-scale entrance in the competitive US-Airline market). Qoros current factory in China is currently able to produce 150,000 carsfor then both the Chinese and the European market.[12] In seeing the sales of the competitors in Europe, for example VW selling 2.98 million cars and Toyota selling 507.800[13] Qoros current capacity surely mirrors a small scale. In order o get to a large scale Qoros hast to invest in production

[12] http://www.wiwo.de/unternehmen/industrie/weltpremiere-des-qoros-der-chinese-der-keiner-sein-will/7901160.html

[13] http://www.welt.de/wirtschaft/article113168486/Toyota-ist-wieder-groesster-Autohersteller-der-Welt.html

and make us of its factory's a maximum degree of capacity utilization of 450,000 and to build an additional factory; in this context one can even consider a factors in Europe.

Besides having the decision to choose a small or large scale strategy, Qoros can also choose the outside option of not entering the European market. As mentioned, above, Qoros goal is "to become the first automobile company from China to be widely-known and respected on the international stage",[14] the company thereby focuses on the international market of which Europe is only a part. So that Qoros can achieve its company goal by far example enhancing its position in the Asian market and then focusing on the BRIC countries, which promise growth[15] instead of the decline faced in Europe. Thus not entering and in the following considering alternative strategies are an option which has to be carefully considered by the management.

But still Europe is seen as the cradle fo automotive manufacturing, and its premium an luxury segment build a reputation for a high-quality car market, for Qoros to be able to survive in this market would send a strong signal to its home market China and would facilitate further expansions. In other words, for Europe with respect to car manufacturing the saying "if you can make it there, you can make it everywhere" is more than valid.

With all interdependencies and all alternatives having a variety of associated benefits and costs, opportunities and risks in the long and in the short run, the choose the best from these three alternative becomes a complex decision that requires a systematic approach. The model which is used to derive this decision is outlined in the following section.

[14] http://www.qorosauto.com/en/aboutqoros/Company
[15] http://www.deloitte.com/view/en_gx/global/9c3b5e4f01c75310VgnVCM3000001c56f00aRCRD.htm

3 The Model

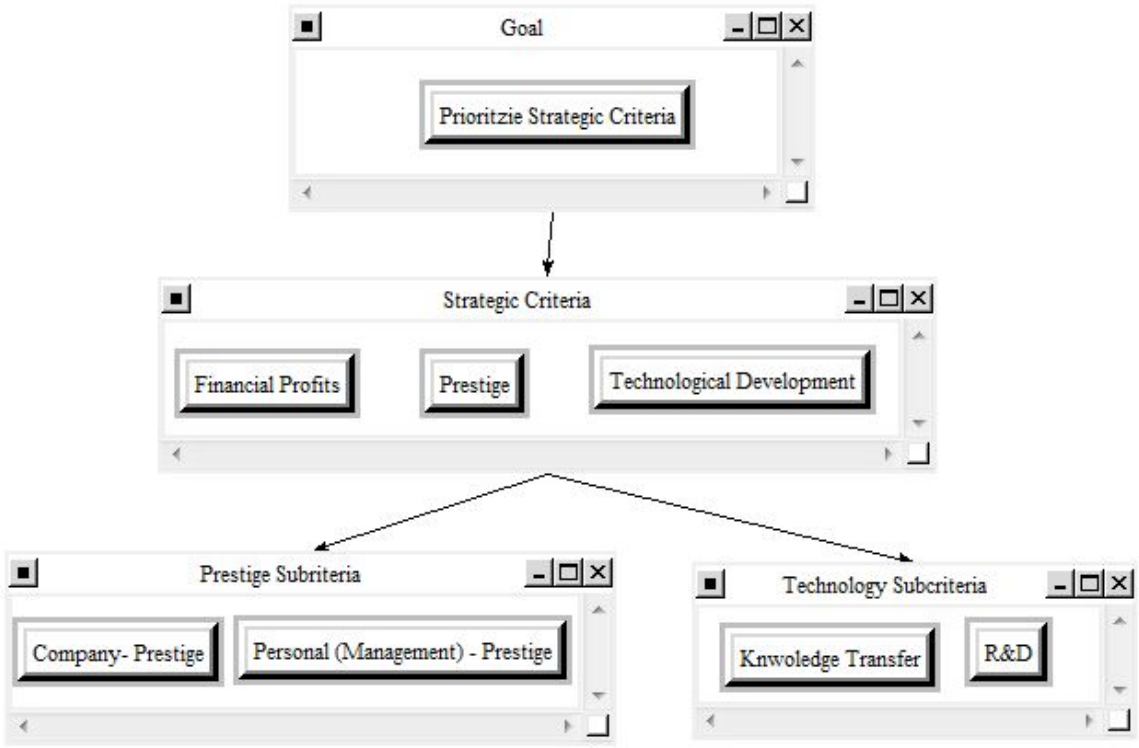
This section describes the model that was used to derive the decision what alternative, Large Scale entry, small scale entry or no entry is the best for Qoros. First the strategic criteria are outlined. Subsequently, the BOCR model is illustrated.

3.1 Strategic Criteria

The strategic criteria, that are those used by Qoros management team to asses which decision is the best in their daily operations. It is important to note that these strategic criteria "do not depend on any particularly decision for their priorities but are assessed in terms of the goals and values" [16] of the individuals making the decision, namely Qoros' management. The BOCR nodes are rated against the strategic criteria to determine the BOCR priorities. The top alternative for each Benefits, Opportunities, Costs and Risks, was rated with respect to the strategic criteria and the resulting priorities are then included in the model.

The Prioritization of the strategic criteria focused on three basic dimension that influence the decision of an automotive management team in general, and Qoros in particular. First, there financial profits, that is what is the return that I generate from my decision. Second, there is the criterion of prestige. In being a new car manufacturer with new manager this criterion is of increasing importance in particular for Qoros. When looking at the daily decision for the management "prestige" has to be divided in two sub criteria which drive decisions, the prestige of the company, as well as the prestige the management tries to generate for themselves. Thirdly, for Qoros as an automobile manufacturer there is the technology component that heavily influences decisions, transferring knowledge by expanding and focusing on research and development to keep up with that strategy of becoming a high quality but low cost manufacturer seem to be a fundament of Qoros' daily decision making. The following graph gives an overview of the strategic criteria.

[16] Saaty, T. & Peniwati, K. (2008). Group Decision Making; RWS Publications, p. 251.

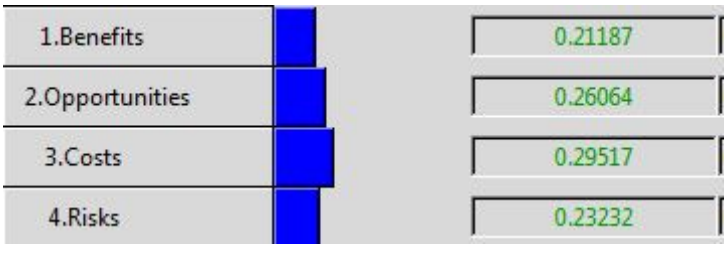


As already mentioned the top alternative for each benefits, opportunities, costs, and risks, was rated with respect to the strategic criteria and the resulting priorities are then included in the model. The following chart illustrates the ratings model used with the

Super Decisions Ratings

	Priorities	Totals	Financial Profits 0.191920	Knwoledge Transfe 0.116247	R&D 0.058124	Company- Prestige 0.422472	Personal (Managem 0.211236
Benefits	0.211872	0.717790	High	significant	existent	Medium	High
Opportunities	0.295173	1.000000	High	significant	significant	High	High
Costs	0.260640	0.883007	High	existent	neglectable	High	Medium
Risks	0.232315	0.787047	Medium	existent	neglectable	High	Medium

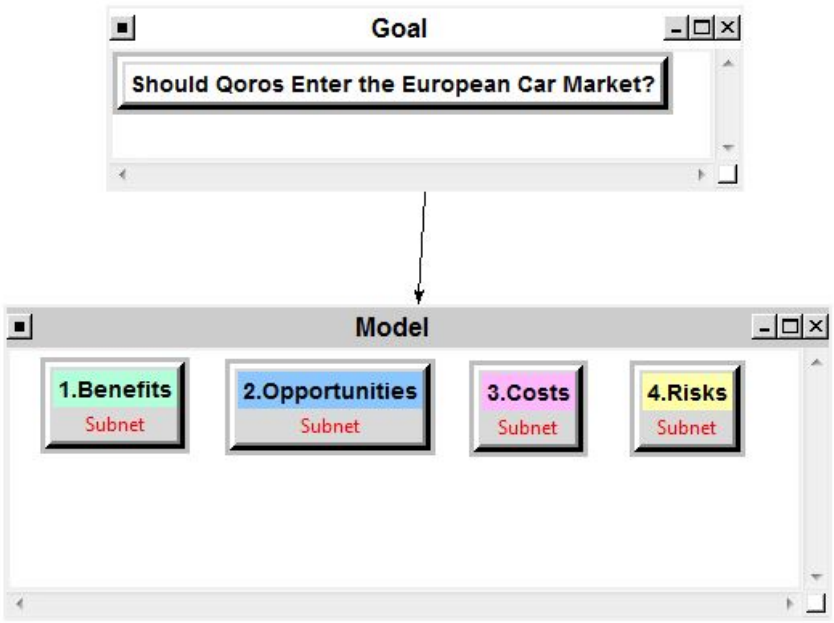
The resulting priorities for Benefits, Opportunities, Costs and Risk are the following.



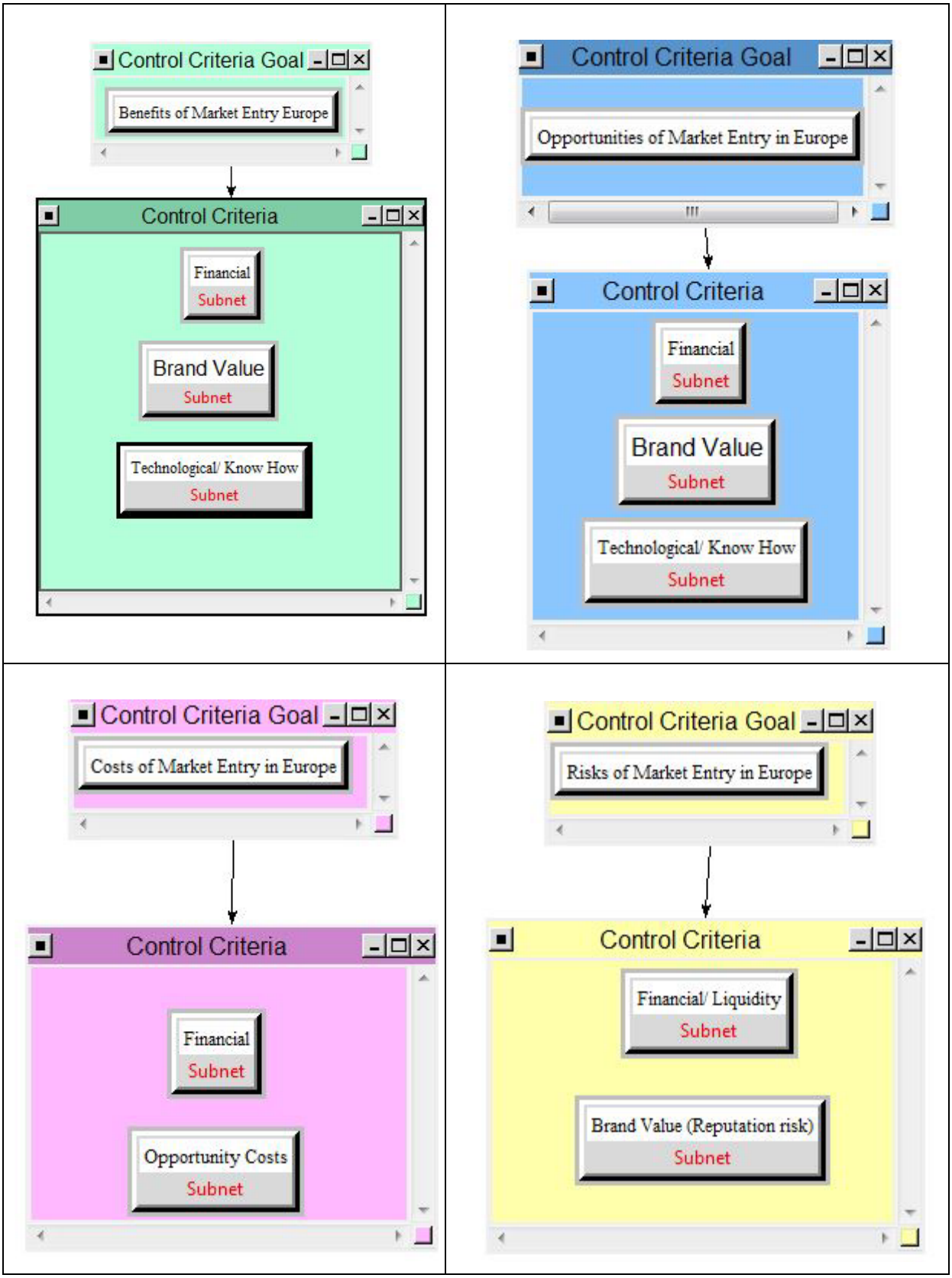
We can see that that priority of opportunities exceeds that of benefits and risks. However, costs being the main priority. This is not surprising for a young company that has not much equity and thus out of liquidity considerations has to carefully consider investments. The priorities are used as input parameters for the distinct priorities in the following BOCR-model to come to the final decision

3.2 BOCR-Model

The following BOCR-Model includes the merit nodes of benefits, opportunities, costs and risks on the top level network, as can be seen in the following screen shot. The goal is the decision of the best alternative with respect to the question: “Should Qoros enter the European car market” that the management of Qoros faces.



On the second level the sub networks for all merits are derived, they include the control hierarchies and the control criteria for the respective nodes. The sub networks are illustrated separately in the following for each individual merit, explanations why these control criteria where chosen are given.


Control Criteria Goal
Benefits of Market Entry Europe
Control Criteria
Financial
Subnet
Brand Value
Subnet
Technological/ Know How
Subnet
Control Criteria Goal
Opportunities of Market Entry in Europe
Control Criteria
Financial
Subnet
Brand Value
Subnet
Technological/ Know How
Subnet
Control Criteria Goal
Costs of Market Entry in Europe
Control Criteria
Financial
Subnet
Opportunity Costs
Subnet
Control Criteria Goal
Risks of Market Entry in Europe
Control Criteria
Financial/ Liquidity
Subnet
Brand Value (Reputation risk)
Subnet

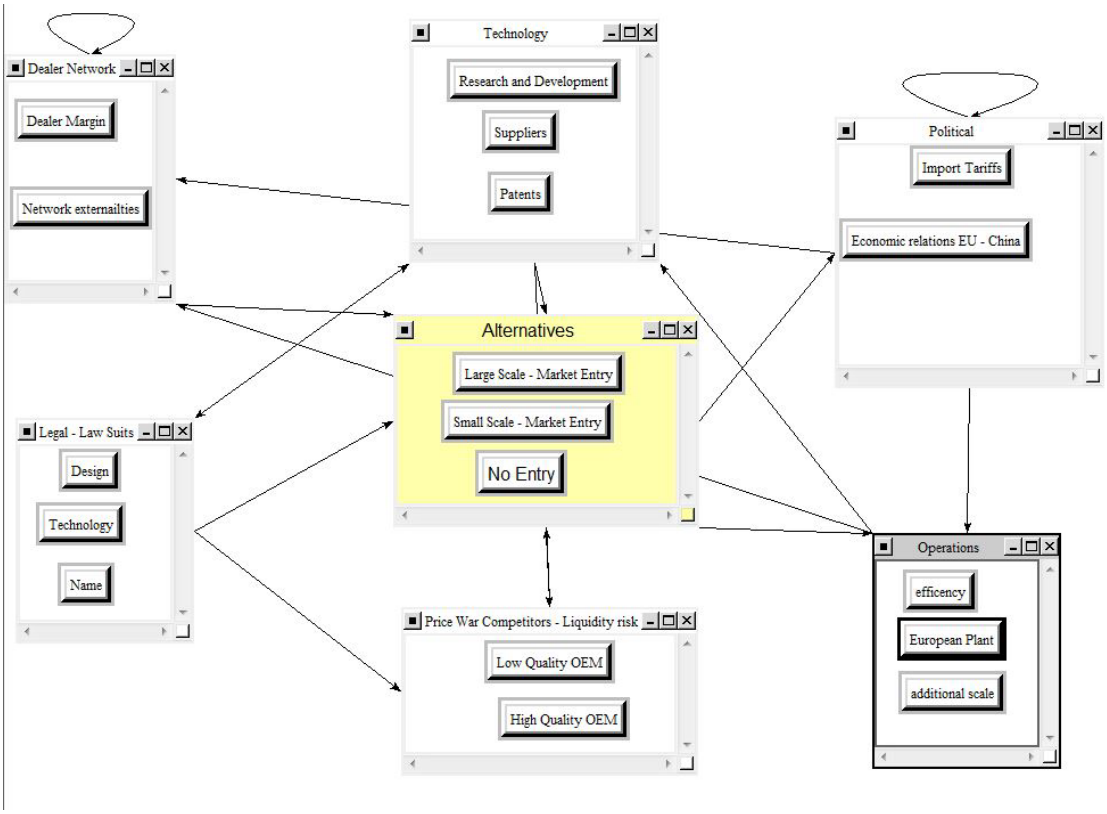
For benefits it was decided that financial, brand value as well as technological know how will impact the decision. The brand value seems of significant importance here, as an entry in the European market will have a direct signaling affect for the Qoros brand and its Chinese home market, it will thus result in a direct benefit from a positioning perspective that pay in the account of the overall brand. For the opportunities the same control criteria hold, developing on the brand value example we can see that the better Qoros manages the decision the better it will be perceived and the more it will develop an image of being a strong competitor. For the criteria of technological there exits also both, benefits and opportunities, as for example a knowledge transfer to the home market is directly possible and might even be further enhanced, generating important access to research and development. The cost of market entry can be divided in two control criteria, financial and opportunity cost. The financial cost are the costs directly associated with an entry, such as market launch and market development. The opportunity cost look at the cost associated with choosing to entre the European market over another market, or investing the funds used to launch in Europe to further enhance the brand in China. The risks are mirrored in the financial/ and liquidity risk, which is in-depth illustrate below and the risk of brand damage. The risk of brand damage relates to the different markets of China, Europe and International, choosing one alternative over will generate different risks which have to be ratted and compared. Note that the control criteria are pairwise compared to determine the priorities.

3.3 Overview

The Following chart gives a comprehensive overview over the BOCR merits, their associated control criteria on the second level as well as third level clusters.

BOCR	Control Criteria	Cluster
Benefits	Financial	Sales and Services, Marketing, Employees, Market Positioning
	Brand Value	Qorors China, Strategic, Europe
Opportunities	Financial	Financial Services, Sales, Customer Base, Car Service
	Brand Value	Signaling, Expansion, Strategic
	Technological/ Know How	Contract Relationships., Knowledge Transfer (“Copying”), Experience
Costs	Financial	Market Launch, Production, Market Development & Overhead, Employee Hiring, Car Development
	Opportunity Costs	Expansion, Overhead Advancements, China
Riks	Financial/ Liquidity	Dealer Network, Legal – Law Suits, Technology, Price War Competitors – Liquidity risk, Operations, Political
	Brand Value (Reputation risk)	Chinese Market, European, International

The clusters on the third level contain further elements that are pairwise compared to evaluate the different dimensions with respect to the BOCR merits. A decision subnet used to evaluate the “Financial/ Liquidity – Risk” for the BOCR merit risk is shown below.



The liquidity risk is of significance for Qoros, as when facing price competition that aims at driving them out of the having a "deep pocket" is crucial for surviving.[17] Whether a price war is started will depend on a low quality or high quality strategy. On the legal side, if they enter Qoqors will face the risk of law suits, because of copying the design and technology of the established brands when developing their car. This can for example be shown when comparing Skoda's Octavia with the Qoros 3 Sedan[18] (for a picture comparing the two cars see Appendix B). How Skoda and its parent company Volkswagen will react to this competition create by a copy of their successful Octavia has to be included in the model as a potential risk, when looking at the alternatives of large scale, small scale and no entry. Note that even with no entry a law suits might be possible, as Qoros will sell its "cloned" car in China. However, an entrance with this car on the European market will impact Volkswagen's

[17] http://www.autobild.de/artikel/qoros-zahlt-nicht-3919985.html
[18] http://www.autobild.de/artikel/qoros-3-skoda-octavia-vergleich-genf-2013-3901867.html

reaction. How the Volkswagen concern might react even if there is no entry could already be seen by the lawsuit that is launched against naming of the Qoros as “Qoros 3" sedan.[19]

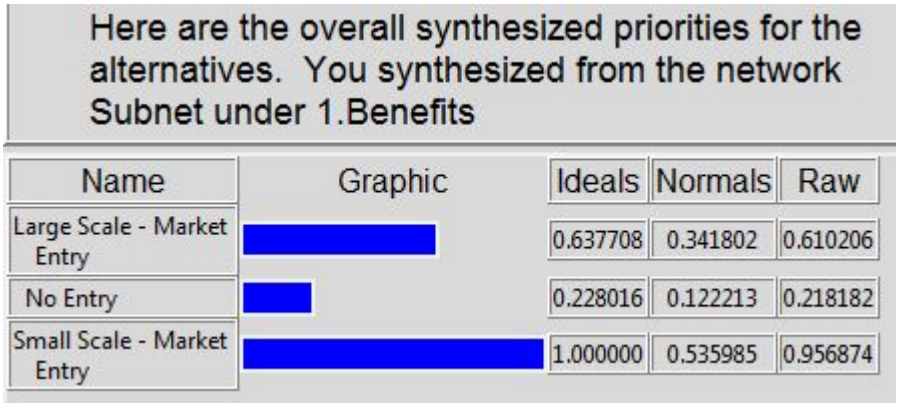
As we can see the different clusters are linked to each other and the alternative section. The clusters as well as the elements within are pairwise compared. In this example we can see how the different clusters impact each other.

4 The Result

The following section analyses the results for each BOCR merit and the final synthesized result which is derived by the Additive (Negative) Formula to show long-term effects as well as by the multiplicative formula to illustrate short-term effect.

4.1 Results Benefits

The following chart shows the results as synthesized form the benefit merit.



We can see that small scale will yield the highest benefit, followed by large scale and no entry. It seems to be surprising that large scale yields fewer benefits than small scale, but this result can be explained in the light of the control criteria. Large scale and small scale to not differ largely in technology, as the same benefits can be derived using either strategy. However, with a small scale strategy brand positioning is more easily possible and the benefit

[19] http://www.autobild.de/artikel/qoros-3-skoda-octavia-vergleich-genf-2013-3901867.html

of differentiation that pays in the account of the brand value will be higher, eventually making small scale the more preferred option.

4.2 Results Opportunities

The results for opportunities are illustrated below.

Here are the overall synthesized priorities for the alternatives. You synthesized from the network Subnet under 2.Opportunities

Name	Graphic	Ideals	Normals	Raw
Large Scale - Market Entry		1.000000	0.488791	1.000000
No Entry		0.404928	0.197925	0.404928
Small Scale - Market Entry		0.640935	0.313283	0.640935

Large Scale market entry yields the highest opportunities, which might be due to the increasing opportunities associated with the control criterion of financials when a large market entry is chosen. No entry receives again the lowest priority, which results from lower the opportunities, in particular branding and technological, when deciding not to enter the European market.

4.3 Results Costs

Costs yield the following priorities.

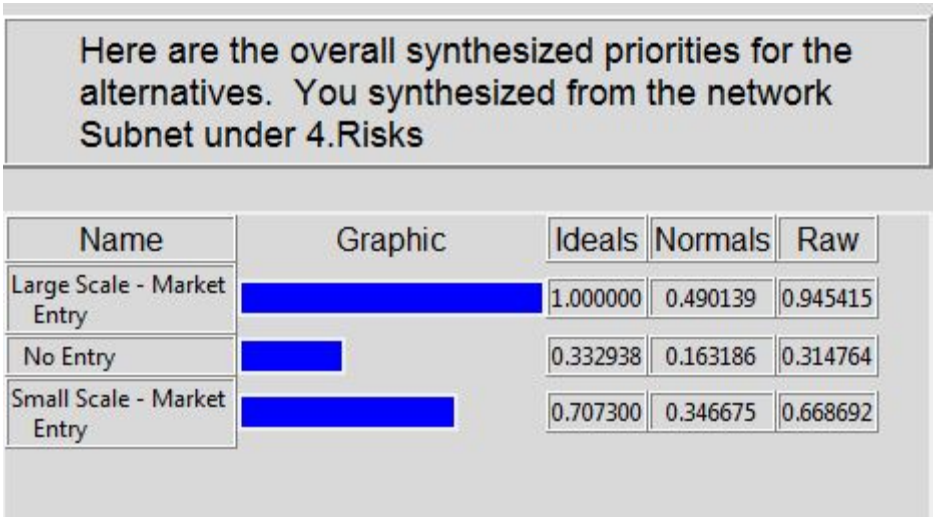
Here are the overall synthesized priorities for the alternatives. You synthesized from the network Subnet under 3.Costs

Name	Graphic	Ideals	Normals	Raw
Large Scale - Market Entry		1.000000	0.593238	1.000000
No Entry		0.198635	0.117838	0.198635
Small Scale - Market Entry		0.487030	0.288925	0.487030

Costs priorities turned out as expected: large scale is the most costly, followed by small scale entry and no entry. That the decision not to enter results in cost is related to the opportunity cost control criterion which rates that decision in comparison on different markets Qoros does or might operate in. The cost of large scale entry exceed those of small scale in particular because of the additional market development (e.g. Dealer network) necessary and the additional human resource cost that are needed to enter a market in large scale.

4.4 Results Risks

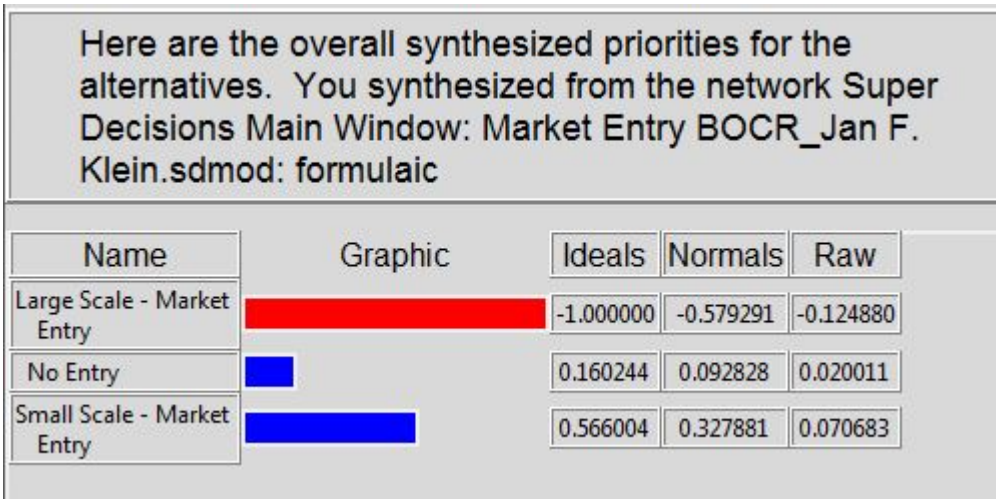
The priorities for risks are plotted in the following graph:



The risk associated with a large scale entry is the highest and no entry being the lowest. However, note that also the no entry alternative has a considerably high risk associated with it. That as in the cost example the large scale entry alternative is the riskiest does not come as a surprise. We can relate this result to the liquidity risk as described above. The large scale entry is more likely to trigger a price war by the competitors and thus will put pressure on Qoros' resources, making the large scale entry the most risky in this respect. Taken together it seems as the large scale entry is a high risk and high cost option, that yields only medium benefits but the highest opportunities. We develop on this thought and will look at the synthesized effects in the following section.

4.5 Model Result Additive (Negative) Formula – Long Term

When the additive (negative) formula bB+oO-cC-rR is used to synthesize the model results we get the following outcome. Note that this outcome shows long-term priorities.



We can see that in the long-run large scale yields the worst result (even the negative outweighing the positive) whereas small scale is the most preferred option. This is due to the fact that large scale is the most risky and the most costly alternative. Moreover, the priorities derived from the strategic criteria are such that the costs have the highest priority so that the "negative" of large scale is multiplied by a high factor. Moreover it is the small scale that yields the most benefits, but is less costly and less risky, so that is preferred to the large scale. That no entry comes in second, and thus is preferred to large scale seems surprising on first sight, but as outlined below it is the large cost and the high risk that drive the priority of large scale below no entry, since even though no entry does not have significant benefits and opportunities it also does not face the cost and risks as the large scale alternative does. In summary, according to the additive (negative) formula the small scale option is the most preferred, that is looking at the long term perspective Qoros should choose the small scale entry.

4.6 Model Result Multiplicative Formula – Short Term

Using the multiplicative formula BO/CR is the results are as follows. Note that this is a .short-term evaluation.

Here are the overall synthesized priorities for the alternatives. You synthesized from the network Super Decisions Main Window: Market Entry BOCR_Jan F. Klein.sdmod: formulaic

Name	Graphic	Ideals	Normals	Raw
Large Scale - Market Entry		0.342742	0.163748	0.645437
No Entry		0.750360	0.358492	1.413047
Small Scale - Market Entry		1.000000	0.477760	1.883158

We can see that when using the multiplicative formula instead of the additive (negative) formula we get the same ranking of results as for the long term. Again the small scale option is the most preferred. This means that even in the short run it is better for the company to choose a small scale. Note that even in the short run no entry is preferred to the large scale. This is due to the fact of the costs and risks associated with large scale that not outweigh benefits and opportunities as compared to the outside option of no entry.

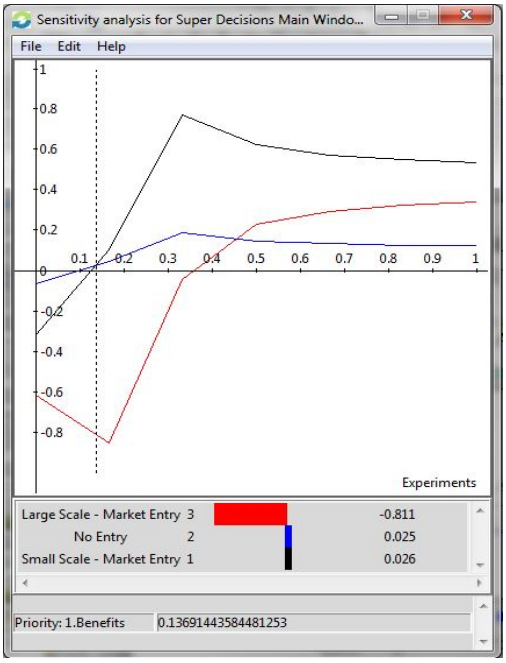
4.7 Comparison Long-Term and Short-Term Results

The Additive (Negative) Formula and the Multiplicative formula yield the same ranking of alternatives and thus lead to the same decision. In other words, in the long as well as in the short term Qoros should decide for a small scale entry. At first it seems to be surprising that in the long as well as in the short run a large scale is the worst alternative to choose. As already illustrated above, large scale is the most risky and the most costly alternative, and the benefits and opportunities in the long as well as in the short run cannot outweigh this, which might be due to the fact that an entrant will be in particularly hurt by a price war in the short run with no possibility to make up for these losses in the long-run; that is the company might even by

driven out of the market as it happened to the Chinese manufacturer who tried to capture the European market in previous years. In this context, note that the small scale entry has a higher priority over no entry in the long run as well as in the short run.

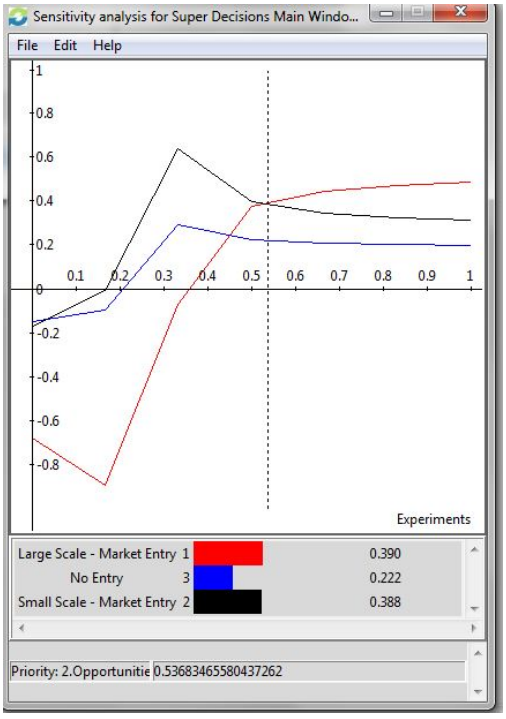
5 Sensitivity Analysis

5.1 Sensitivity Analysis for Benefits



For the benefits we see that small scale strictly dominates large scale for any priority level. Moreover, for a priority bigger than 0.137 the small scale is preferred to no entry, so that at that point the benefits are large enough to justify an entry. Interestingly, with a priority of bigger than 0.45 the large scale will be preferred to no entry, that is if the priority is sufficiently high even large scale entry is better than no entry at all; however, also note that as already mentioned small scale entry strictly dominates large scale entry for any priority levels.

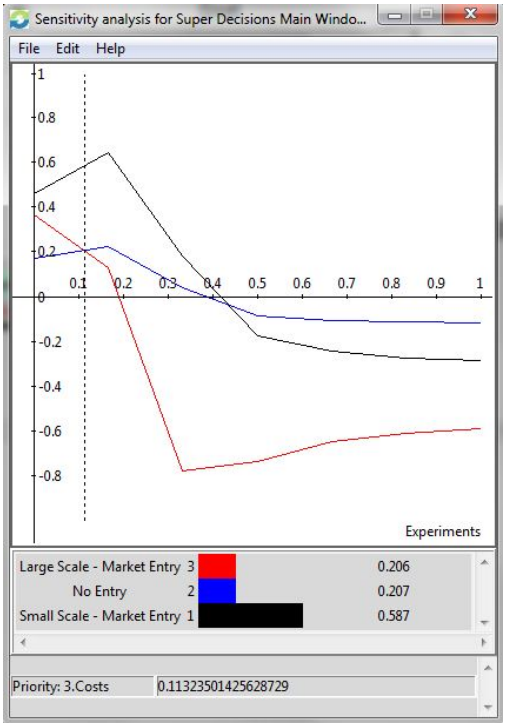
5.2 Sensitivity Analysis for Opportunities



For opportunities we get a different picture. Even though being dominated for low priorities the large scale entry is the most preferred decision for any priority above 0.537. One should also note that for low priorities large scale entry gets a least and least preferred alternative with a negative peak at approximately 0.18. Moreover, starting at a priority of 0.0.5 small scale entry strictly dominates no entry for any priority levels and is the most preferred

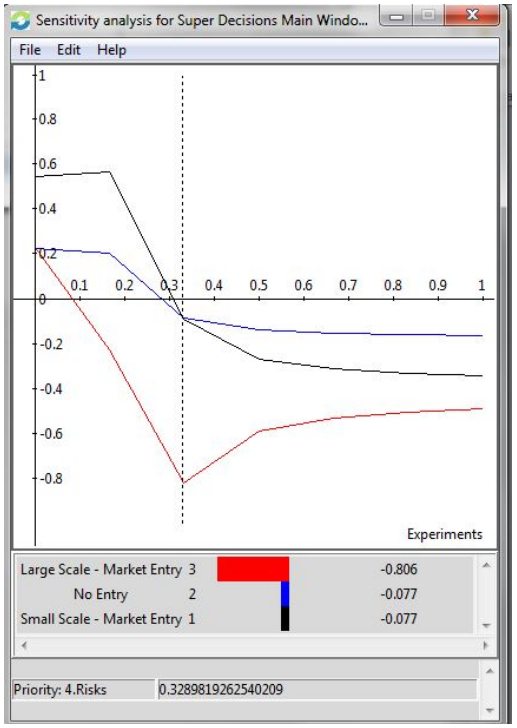
option until a priority level of 0.537 when large scale becomes the most preferred.

5.3 Sensitivity Analysis for Costs



For cost we can see that starting with a priority of approximately 0.425 no entry becomes the most preferred alternative. Moreover we can see that choosing a small scale entry dominates a large scale entry for all level of priorities. However, for a priority level below 0.11 large scale is preferred to no entry, but yet dominated by small scale entry. In conclusion, for any priority level below 0.425 the company should enter the market with low scale.

5.4 Sensitivity Analysis for Risks



The risk sensitivity analysis is interesting in that sense that the all alternatives behave in a similar manor. However, small scale entry is the most preferred option for priorities below 0.328. For priorities above this level the evaluation of risk is so high that no entry becomes the most preferred alternative. See here again, that small scale entry strictly dominates large scale entry for any priority, i.e. small scale entry is at any priority preferred to large scale entry. Moreover, the risk associated with large scale entry is such that this alternative is also strictly dominated by no entry for any priority level. Taken together we see that for sufficiently low priority of risk the company will choose to enter the industry with a small scale but will never choose a large scale approach.

6 Summary and Conclusion

Given their priorities as derived by the use of the strategic criteria Qoros management team should enter the European market with a small scale. The model derived that the small scale entry is the best decision in the long as well as in the short run. Moreover, sensitivity analysis unveiled that for the three out of the four merits (i.e. benefits, costs, and risks) small scale entry strictly dominates large scale entry, so that even with a change of priorities in these categories small scale entry will always be preferred to a large scale. Only for sufficiently high priorities with respect to the opportunities a large scale entry should be considered. Additionally, for increasing priorities with respect to costs and risks not to enter the market becomes the most preferred solution, this illustrated that a true assessment of the priorities as derived by the strategic criteria is important to make the best decision out of the three alternatives. However, with the assessment as derived from the strategic criteria Qoros management should implement a small scale market entry in the European market.

Current Action and Future Research

When looking at the current actions, we can see that Qoros is about to enter the European market with a small scale and the market launch to be scheduled for the end of 2013.[20] [21] The model as presented in this report predicts that this is the best alternative in the long as well as in the short run. As Qoros actually implemented this alternative, the conclusions and the results of the model as presented can be evaluated over the next years when comparing whether Qoros will remain in the market or will be the third Chinese manufacture in a row to be driven out.

[20] http://www.qorosauto.com/en/newscenter/news/article10

[21] http://www.wiwo.de/unternehmen/industrie/weltpremiere-des-qoros-der-chinese-der-keiner-sein-will/7901160.html

Appendix

Appendix A: Qoros 3 sedan[22]

Appendix B: Qoros vs. Octavia[23]

[22] http://www.qorosauto.com/en/models/qoros3sedan

[23] http://www.autobild.de/bilder/messe-vergleich-qoros-3-vs.-skoda-octavia-3901930.html