Porters 5-forces revisited.

Although widely critized Porters 5-forces probably still is the most widely used model for industry analysis among business school students today. As many students run into problems when they use the model it is of interest to see if the model could be updated in a way that took into account some the criticisms that has been raised against it. In the following I will present such a possible update.

As most readers will know the 5 main forces in Porters model are:

- Internal rivalry among existing competitors in the industry
- Bargaining power of suppliers
- Bargaining power of customers
- Threat of entry
- Substitute products

The three most important criticisms of the model, I have come across, are:

- the model presents a static view of the industry,
- it presents an inside –out view of an industry (the critique presented by the resource-based school)
- in to days world of global economy and internet many industry boundaries are blurring to such an extent that it becomes meaningless to talk about industries.
- the analysis is focused on a meso level. It does not take macro- and micro level factors into account

Personally I don't find the first criticism fully justified. It is true that Porters own conclusions based on the model were rather static (if there is fierce competition in an industry, stay away - because you will get low returns), but in his "Competitive advantage of Nations" his view is much more dynamic (fierce competition can be good for you, because you learn from it and if you survive it might be your route to become a world class player)[1]. This has however more to with how your application of the model is than with the model in itself. There is several dynamic elements in the model e.g. threat of entry and experience as and entry barrier.
The second criticism has Porter himself acknowledged
When it comes to the third I still find that the majority of industries have fairly stable boundaries. I think it is more a question of growing interdependence between different industries just as we see a growing interdependence between different markets in the ever more globalized world.
The fourth criticism has also been acknowledged by Porter in his development of the "Diamond" fra "The Competitive Advantage of Nations" and in his development of the Value Chain concept.

To the above criticism I will add a couple of my own. First I think it is a general problem in management and marketing theory that many of the prominent theorists do not relate their contributions to the generally recognized basic micro and macro economic models and theory like what is normal practice in other sciences. This also goes for Porter who has never drawn a line back

[1] For an analysis on this development in Porter´s views see "A Porter Exegesis" by A.P. De Man printed in Scandinavian Journal of Management Vol. 10, No. 4, pp 437-450, 1994

to the fundamental economic theories on how markets function although his thinking clearly is based upon it. Second one of the most common problems for students who use 5-forces in an industry analysis is that they overlook the fact that many industries are closely locked together with other industries like cars with petrol and roads, stereo equipment with music, computer hard ware with computer soft ware and so forth. It is true that Porter himself is aware of the fact and in his books refers to this as linkages to other markets. Many students however base their use of the model on Porters articles where this fact is not mentioned. And it is not something which is so to say “in focus” in his model.

In the following I will try to revise Porters 5-forces in a way that takes the above criticisms into account.

As might be expected from the above I find that the best starting point is our basic economic theory. And here I will start with the factors that economists have seen as the most important characteristics of a market. These characteristics have been described as the conditions for a perfect market. As the reader may know they are the following:

1. Large number of buyers and sellers of roughly equal size
2. Perfect information
3. Homogeneous products i.e. both buyers and sellers must be without preferences
4. No barriers to entry or exit
5. Absence of economic friction like transport costs

Now everybody agrees that these conditions are unrealistic for most markets in the world. But that is beside the point. The point is that according to our fundamental theory as a science within economics these factors characterises a market and determines how it will function. This should be understood so that it will have a great impact on the function of a market whether the sellers are few or numerous, if the information are unevenly distributed between sellers and buyers, if their are barriers to entry or exit and so on.

Implicit in the two conditions “no preferences” and no barriers is the condition that the market in question must not be linked to another market. From our micro economic theory we know that linkages take the form of – on the demand side – substitute or complementary products and on the supply side common cost between two different products or substitute production factors. Now as the relationship between products with common costs and complementary products are quite similar we can add the following market describing factors:

6. Substitute and complementary products and production factors.

Linkages between markets can however take another form. A form which Porter himself have dealt with namely the vertical chain of the industry. When we compare Porter and our model of the market this chain already partly has surfaced because we are dealing with suppliers – current players – buyers. The point made e.g. Supply Chain Management theorists is that you have to analyse the whole vertical chain because of the interdependencies between all actors in this chain. Porter use the term upstream and downstream vertical chain which we also will use. This will constitute our next market describing factor:

7. Length and complexity of upstream and downstream vertical chain

The last of the criticisms I will take into account here is the criticism that Porter is static. As mentioned earlier “threat of entry” is a dynamic element of Porters model because it focuses on a possible future event. The experience factor focuses on linkages back in time. But it is not only threat of entry which is of interest when we try to dynamize the model. Possible new suppliers and possible new customers are of the same interest. The eight describing factor is therefore:

8. Past, current and possible future “actors” and their activities on the market in question.

Now how can we put all these factors together in a model describing the factor which governs the competition in an industry.

The starting point is naturally the current players and their rivalry just as it is in 5-forces. Now their rivalry is determined on basically these factors:

- Numbers and relative size
- The relative distribution of information
- The existence of preferences and their relative strengths
- The existence and level of entry and exit barriers
- The level of economic friction like transport cost, capacity build in “large increments” etc.

These factors are actually and not surprisingly very close to Porters factors. But they are expressed in terms and a language that directly connect to basic economic theory. A few more comments may be appropriate. Traditionally textbooks when dealing with preferences and distribution of information (market transparency) have focused on these factors among buyers, assuming that sellers where more or less equal on these factors. But that is not the case in real life and the existence of preferences and unevenly distributed information among sellers is the current players own goals, intents and resources regarding what kind of business they want to and can manage (based upon their knowledge and experience = level of information). In this way the model takes the resource-based view[2] or Hamel and Prahalads “strategic intent”[3] into account.

The factors mentioned by Porter in this context are: A) number and size of competitors, B) industry growth, C) differentiation and switching costs, D) high fixed costs or a perishable product, E) capacity build in “large increments”, F) high exit barriers and G) diversity among sellers in goals. Point A, C, E, F and G follows directly from my points. Industry growth B) is actually connected to the number of potentially new customers and is therefore a factor which must be analyzed as part of the relation between “the industry” and its customers. High fixed costs and perishable products D) relates both to the fact that if these factors are present in a market they create a strong preference (for the seller) for sale in the current period over sales in coming periods[4]. So using our basic economic term “preferences” in a dynamic sense also covers the factor mentioned by Porter.

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[2] See for example ”A Ressource-based View of the Firm” by Birger Wernerfelt in Strategic Management Journal, Vol 5., 1984.

[3] ”Strategic Intent” by Gary Hamel and C.K. Prahalad in Harvard Business Review May_june 1989

[4] E.G. is the mobile communication market where the sellers offer large incentives to consumers in order to make them use mobile communication earlier than they would have if they have had to pay full price from day one. That way the mobile communication operators utilise their capacity (costs) earlier than otherwise possible. Their capacity is very much like a perishable product in that it is not possible to sell the unused 50 % capacity in one period in any future periods. That sale is forever lost.

The next point is the customers and their bargaining power. As our starting point we will again use our basic economic factors:

- Numbers and relative size
- The relative distribution of information
- The existence of preferences and their relative strengths
- The existence and level of entry and exit barriers
- The level of economic friction like transport cost, capacity build in “large increments” etc.

Porters own factors in this connection were:

A) Concentration or purchases in large volumes
B) Product differentiation
C) Level of profit
D) Importance of product (seen from a buyer point of view)
E) Product influence on buyers profit
F) Integration threat

Factor A) has a lot to do the relative distribution of numbers and size between buyer and sellers and it is certainly logical seen from traditional economic point of view that size includes the size of orders placed by buyers on sellers market. Factor B) has to do with preferences and whereas Porter concentrates on preferences among buyers I think it just as important to look at preferences among the sellers towards the buyers. It can be very important for a seller if a high profiled buyer by his product! Factor C relates to numbers and relative size. Factor D and E both relates to the existence of preferences. So actually the relative distribution of preferences between sellers and buyers comes out as a very important factor in determining their relative bargaining power.
Factor F has to do with a combination of relative size, relative distribution of information, the existence of barriers and economic friction.
It is easier and therefore more credible (all things being equal) for the larger company to integrate backwards or forwards, it is easier for a company operating in a very complex environment (high content of information) to integrate a up- or downstream company that it is the other way round and it is easier to enter a market with low barriers and low economic friction that the other way round. So its is the relative distribution of these factors between buyers and sellers that determines the credibility of forward or backward integration.

Now according to my earlier remarks there are still some factors missing in this analysis.
First their is the relative distribution of information regarding sellers upstream vertical chain among buyers and information among sellers concerning buyers downstream vertical chain. This information is of course connected to credibility of integration. It can however work two ways. The more complex the more difficult to integrate but on the other hand if control and direct access is of importance to e.g. seller the mere complexity can be a motivation to integrate and see/build this as part of a core competence.

Porter mentioned market growth as an important factor in the internal rivalry. But growth for the existing sellers is something happening among their customers – either more customers appearing in the market or the existing customers buying more per customer. But growth is a factor connected to number and size of players and has therefore already been dealt with. What can be added is that the really important factor is the relative growth among sellers versus buyers. If the number and size

of sellers is growing faster than the number and size of buyers the sellers will experience this as very hard competition although the market is growing and you therefore per se would expect a lower level of competition than in a market with low growth. Similarly you can have markets were there is stagnation among buyers, but because the sellers leave the market at an even faster rate there is very little competition among the remaining sellers. You can argue that this is what happened to market for record players, where the remaining no. 1 player Ortofon enjoys healthy profits in a market, which until recently shoved negative growth. Gillette could until the eighties be used as a similar example.
The last factor I will deal with is the existence of complementary or substitute products. Typically substitute products will strengthen the bargaining power of buyers whereas complementary products will weaken the position of the buyer. That is why sellers often find it profitable to sell complete systems to buyers (and especially systems that makes it impossible for buyers to use substitute parts) – they can charge a higher price. The existence of substitute and complementary products is of course part of the preference factor in that substitutes can weaken a buyers preference for a specific product whereas the existence of a complementary product can strengthen a preference for a specific product.

The third point is the suppliers which as Porters also remarks more or less mirrors buyers bargaining power. I will therefore not elaborate on this category. I will however remind the reader about my earlier remarks concerning the fact that just as customers has preferences regarding which suppliers to use, suppliers might have preferences regarding which customers to serve and that their bargaining power thereby is diminished. It should be sufficient to mention just-in-time arrangements or small parts producers with equipment dedicated to serve a large OEM-producer as examples.

The fourth factor is threat of entry. Now as can be seen from above I have already dealt with two types of entry. Forward or backward integration from suppliers or customers. If we use normal business logic other types of entry will typically come from either actors in possession of either substitute products/production factors or complementary products/production factors. The first type could be PLM which engages in both plastic, aluminium and glass containers for beers and soft drinks. The second type could be Philips or Sony that invests in the music business. These types of entry (and the possibility of) clearly influences how these industries works. The only form of entry that is not connected to the above is a purely financial entry. It is unlikely that such an (possible) entry actually influences the competition in an industry and it could therefore in my opinion be excluded from an industry analysis. Remember if an entry in any way is determined by a logic whereby the entering company can leverage an existing competence the entry will be categorised as an entry based on a complementary production factor. And if the entry is successful it is because the existing players has overlooked the importance of that competence (which might in earlier times have been unimportant in that particular industry).

But when the kind of entry which poses a threat to an industry can come from both customers, suppliers, actors with substitute products or production factors and actors with complementary products or production factors it is not logical to have a separate force in the model called "threat of entry". All 4 boxes contain potential candidates that could conceive entering the existing players "business".

In my model the "threat of entry" – box is therefore substituted with a box consisting of actors using complementary products or complementary production factors. This also connects the model to the resource-based view of the firm. The analysis must now contain both companies outside the business but with (core) competencies that potentially can be leveraged in the business analysed. Similarly the analysis must constitute competencies that current players possess that can be leveraged in other thereby creating cost linkages between these businesses and the business in question.

The factors you have to look into her is

- The relative size between the "linked" industries. If one of the industries is considerably larger than the other entry is only likely from the larger to the smaller not the other way
- Similarity of information (or know-how) between the industries – the more similar the more likely is cross-over entry. Porters experience effect curve is an example of barrier to entry based differences in the possibility of gaining information on how to operate in a specific market.
- Value of leveraging the complementarity versus the customers – e.g. value of sale of systems, use of same distribution channels etc. Microsoft's merge of windows and internet explorer can explain their engagement in both these two businesses. The value for the two complementary systems for customers were large and the distribution channels were the same. Here we analyse how leveraging complementary products can influence customer preferences.
- Cross-over of preferences. It was likely that customers that relied on Windows would rely on Internet explorer whereas it is probably not likely that drivers would be willing to pay more to drive on a highway constructed by GM, should they consider entering that industry.

The last box contains as in Porter substitute products. As mentioned earlier I also include substitute production factors.

The factors you have to look into here is

- The relative size of the use of the substitute in your industry vs. the potential use of that substitute. If the substitute is under utilised the likelihood of entry increases.
- The number of substitutes – the fewer the number of substitutes the more likely an entry will be because only in the case of few substitutes will the entering company by entering effectively reduce the amount of competition it is facing
- The relative profits in industries producing substitutes. An entry from a low profit industry to a high profit is more likely than the other way round especially if this factor is combined with the fact that the companies in the low profit industry is larger than the companies in the high profit industry
- The relative distribution of information concerning customers and suppliers. Entry is more likely from businesses that know more about (often have closer relationships with) the customers of the industry in question than from industries where the level of knowledge is lower.
- The relative level of preferences in the industries concerned. An entry from business with high level preferences to a business with low level of preferences is more likely than the other way round. A good example of that was Golgates entry into the toothbrush market. A vice versa entry would have been virtually impossible. This points to the fact that companies selling products with low levels of Brand Identity are vulnerable even in positions were they enjoy healthy profits and their current competitors also sell products with low levels of Brand Identity.

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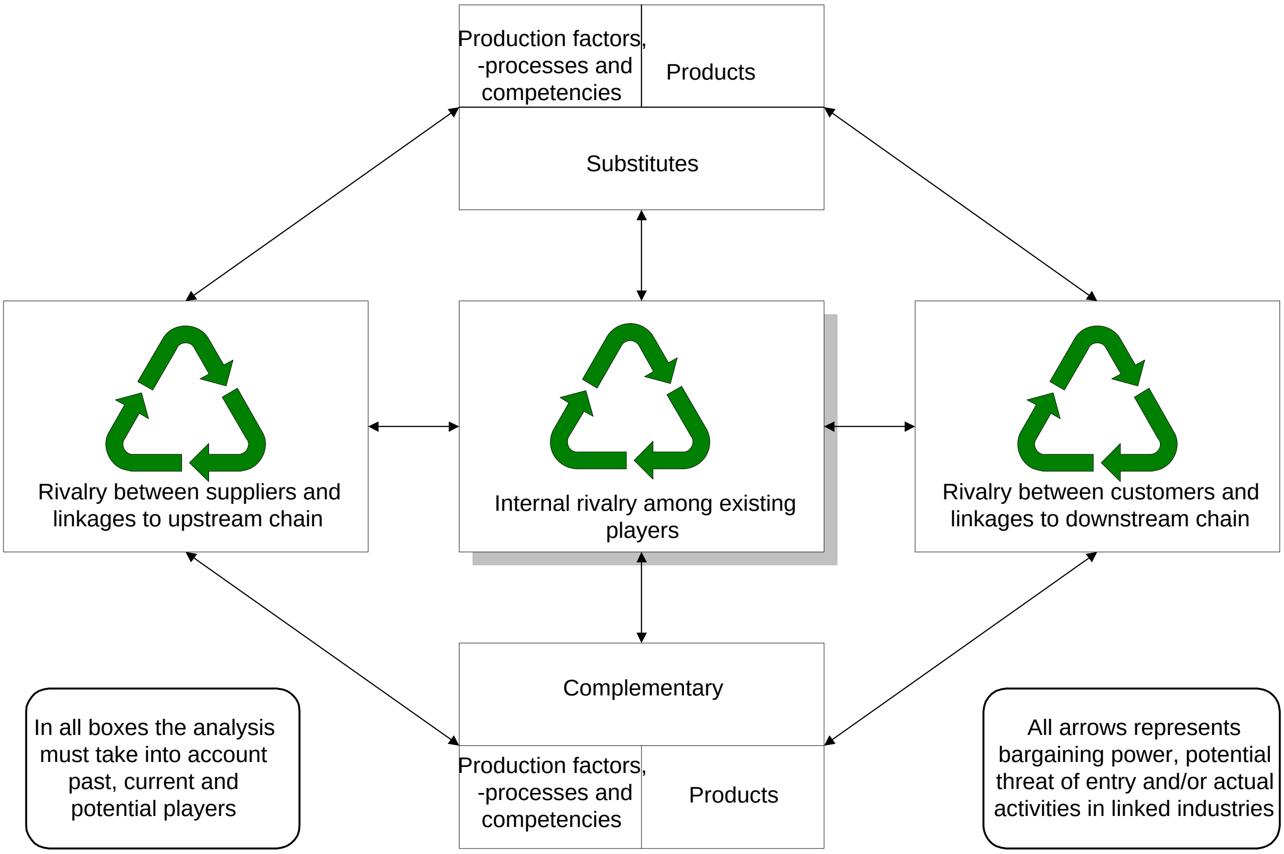
As threat of entry is general for all boxes it is treated as a factor concerning all these boxes and it is especially the inclusion of this element that makes the analysis dynamic. The factors you have analyse here is:

- Economies of scale – but not only within the existing industry – you will have to analyse whether actors coming from one of the other four boxes also will enjoy economies of scale deriving from joint cost (reduction) they incur by leveraging their competencies.
- Capital requirement – which of the 4 boxes represents players with sufficient capital to enter your industry
- Switching cost – which players from the 4 boxes will face the lowest switching cost and are therefore the most likely to enter
- Cost disadvantages independent of scale – no different from Porter, but the point is important because it is here that “the past” brings to bear. In a truly dynamic analysis we will have to analyse both the past, the present and the future. Important points here are the experience curve, established relationships, proprietary rights, governments licensees, favourable locations, access to raw materials etc.

The above revised version of Porters 5-forces takes into account the criticisms that I initially raised against his model. I might add a remark concerning the premisis – relatively stable industry barriers – that Porter bases his model on. One might argue that my revision doesn’t alter this fact. To this I will say first and foremost that industry barriers in most cases still are rather stable and secondly that the revised model focuses much more on linkages with other industries by explicitly including complementary products and production factors and substitute production factors in the model.

It is my hope therefore that this revised model can be of use to many industry analyst by at the same time using probably the most popular model for this purpose, changing it according to criticism from other business theorists and – in my opinion – not least linking the model and its content to established economic theory.



Steen Ehlers, november 2009