Mergers & Acquisitions – a Simulation Model Used in the Negotiation Process

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Abstract. *Today, more than ever, an essential element of any corporate growth strategy is growth through mergers and acquisitions. A survey conducted by PricewaterhouseCoopers reveals the fact that mergers and acquisitions are seen not only as instruments to avoid the global economic crisis, but also as an opportunity for firms to either buy their way into new technologies and expand, or to merge and bulk up. Not since the beginning of the 20th century has the economy seen such a massive restructuring. Whole industries are consolidating at a rate and a scale that is off the chart of historical experience.*

In this article we will discuss the MAC, MAE and information disclosure clauses, used in designing an M&A contract agreement. They can represent very important tools in a negotiation and the most beautiful part is that they are equally valuable to the buyer as well as to seller. An interesting analysis could be to look deeper into a cooperative surplus if both the seller ant the buyer will be fully aware of these tools and will use them in a cooperative game strategy, but in this paper we will limit our analysis to investigating them and simulating broad acquisition scenario in which these tools can be used by the buyer to reduce the risks associated with the transaction.

In the next section we will analyze each clause as a separate tool to be used in negotiating a successful acquisition and then we will put them to work. For this, we will construct a reality based scenario for a real life acquisition, which took place in United States, to test the utility of these tools. The case we will analyze ended up in court and created losses for both the buyer and the seller. The purpose of our simulation is to create the incentives for a different outcome, this time a productive efficient one.

We believe that these tools have the great advantage of allocating the endogenous risk to the seller leaving the buyer only with the exogenous risk.

Keywords: M&As; MAC; MAE; information disclosure; scenario simulation.

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JEL Codes: L14, M21, G34.
REL Codes: 11G, 14C, 14K.

1. MAC and MAE clauses

What is a MAC clause? Material Adverse Change (MAC) clauses are most commonly used in acquisitions and project financing transactions. MAC clauses are a common means of allocating the risks presented by adverse business or economic developments occurring between the signing and the closing of an acquisition agreement.

A MAC clause aims to give the buyer the right to terminate the agreement before completion, or to provide a basis for renegotiating the transaction, if events occur that are seriously detrimental to the target assets/company (Gilson, Shwartz, 2005).

Why using a MAC clause? Two hypotheses could account for both the traditional role of MACs and for changes in MAC practice. First, a MAC clause can be used as an offsetting position under the so called *symmetry theory*. The law restricted the ability of parties to make a friendly deal to prevent the target from considering competing bids by agreeing in the acquisition agreement to "no shop" or "no talk" clauses. The result of these economic and legal innovations was to enable the seller always to accept a higher competing bid or to compel a renegotiation of the price; acquisitions require target shareholder approval, whether explicitly by vote or implicitly by tender, and the target shareholders would refuse consent to an initial offer in the face of another buyer's higher bid. If the seller's value at closing time, either to the buyer or to another acquirer, is above the bid price, the seller would either renegotiate the bid price or exit to accept a better offer. If the seller's ex post value were below the bid price, the seller in a contract without a MAC would make the original deal. The buyer thus would bear the full cost of low realizations, but receive only part of the gain (or no gain) from high realizations.

A seller functioning in this economic and legal environment has an incentive to offer a MAC to potential buyers. A broadly drafted MAC would increase a buyer's expected gain from an acquisition, and this would increase the likelihood that the seller would receive bids. Just as the seller would exit if its value turned out to be above the bid price, the buyer now would exit if the seller's value turned out to be below. Transaction costs would keep the seller in the deal if its value turned out to be slightly high and would keep the buyer in the deal if value turned out to be slightly low.

Thus the symmetry theory considers MAC as an offsetting position taken by the buyer. To explain this in financial terms, the MAC clause creates a call option for the buyer that is symmetric to the put option the law gave to the seller by shifting to the target the risk of exogenously caused reductions in the value of the new corporate combination.

The second hypothesis is the *investment theory* (Goetzmann, 1998), which rests upon the ability of a seller, in the post-execution/pre-closing period, to make relation-specific investments that will affect the value of the combined company. These investments fall into three categories. The first category consists in early efforts to facilitate integration, because the acquisition is motivated by the potential for post-closing synergy. As examples of investment, the target company may begin the process of integrating its product line with that of the acquirer by suspending or canceling the development or improvement of products; may freeze investments in capabilities that the acquirer already possesses; may shift its research and development to fit the anticipated post-closing strategic plan; and may discuss with its customers the buyer's capabilities in markets where the buyer has been a competitor. The second investment category comprises efforts by the target company to retain the cohesiveness of its workforce. The announcement of a friendly transaction could lead employees to suspect layoffs or unwanted changes in the work environment. These expectations could cause more mobile, and likely more valuable, employees to become less focused on the target and more focused on their own futures, with the potential of an adverse selection cascade. The third investment category focuses on seller's efforts to preserve the expected profitability of the new enterprise. A target firm's customers and suppliers may reconsider their relations with the target in anticipation of the post-closing situation.

In the absence of the MAC clause, the seller would not make these investments as they have a potential to reduce its stand-alone value if the deal fails to close. The MAC solves these problems in a simple, but nice way. The traditional MAC permits a buyer to exit when a material adverse change or effect would make the deal unprofitable for it. The buyer's exit right encourages the seller to take actions that would protect and possibly enhance the value the new company is expected to have. The set of MAC exceptions, in contrast, encourages the buyer to take actions that would protect the new company against the materialization of risks that neither party could prevent, but that the buyer could best affect. The MAC term thus allocates transaction risks to the party that can most efficiently bear them.

2. Information disclosure clause

The information disclosure clause deals with disclosure of facts and information which the seller knows or should know they are of particular importance to the buyer. In this case, the buyer could walk away from the deal on the ground of deceit. That is, of course, if such a clause of duties of disclosure exists in the agreement contract. This clause of disclosure of information looks very similar with MAC and MAE clauses in a way that both have the same legal effect by allowing the buyer to avoid the contract and also because holding information can produce the same adverse effect on the resulting value of a merger or acquisition.

Another important resemblance concerns the impotence of law in presenting feasible formulas with operational power for courts in dealing with litigations concerning these clauses. Once again the economic analysis could provide more precise criteria and maybe a general principle to be applied by courts when judging these situations. This general principle can also be of great value to lawyers when designing agreement contracts and could even have a strategic importance for managers as information disclosure could give the buyer an important competitive advantage if the deal fails.

Duty of disclosure has two crucial questions to be answered. The first one is: *when there is a pre-contractual duty to disclose information, in other words, when does such a duty exist?* The first problem with this question is that there are significant differences among different European countries with respect to a legal answer to this question. Even the UNIDROIT Principles of International Commercial Contracts[1] is not very helpful in providing a reliable formulation of this clause. It states that a party may avoid the contract in the event of "non-disclosure of circumstances which, according to reasonable commercial standards of fair dealing, the other party should have disclosed." Here, economic analysis comes in and starts with two underlying assumptions: first is the allocative efficiency which states that the buyer offers to buy the target company because he values it more than he values the money and is the other way around with the seller. This is also Pareto efficient since both parties are richer after closing the deal and neither poorer. The second assumption is that informational symmetry should exist between the seller and the buyer so that the buyer would know what he is buying. Accordingly, the duty of disclosure can only apply to facts which are "material" to the other party's decision, and this is what the courts actually hold. What is "material" depends on all the circumstances of the case.

This leads us to the second crucial question: *What are the conditions that must be satisfied in order to permit a party to withhold information he knows to be relevant to the other party?* A first situation is when the contract has a duty of disclosure. In this case there can be no such right to withhold information if a party owes a duty of disclosure. If no disclosure clause exists then the seller should be allowed to withhold information if the information is *productive* and it is *costly to acquire*. The information is "productive" if it advances social welfare, that is, conduces to a better use of the scarce resources of the world. Unless these two conditions are together satisfied, disclosure must be made.

3. Merger simulation model

The scenario

The acquisition analyzed in our scenario is Riggs bank, a Washington D.C.-based bank, purchased by PNC, a Pittsburgh-based bank, for $24.25 per share – about $779 million overall. The deal was supposed to bring the largest Pennsylvanian bank into the underdeveloped branch-banking network of Washington D.C. Riggs saw it as a way of surviving its troubles. In our scenario we will play the role of PNC bank and we will incorporate the tools discussed above in the negotiation process. We will prove that using these tools we can transform a failure, which was the case here, in a success and, thus, instead of wasting money and time in court (this without mentioning the damages done to the reputation of the company) a company can negotiate an agreement that will bring future added value and will maximize the return of its investment (productive efficiency).

What happened in reality?

PNC negotiated a MAC clause to back out of the deal without penalty should a "material adverse change" occur in Riggs' regulatory or financial position. Riggs was accused and proved guilty of money laundering for people like Augusto Pinochet, Teodoro Obiang-Nguema, the dictator of the West African nation of Equatorial Guinea, or two of the hijackers of the 9/11 attacks. Riggs had to pay large amounts of money in fines and faced other lawsuits by the survivors of the attacks and its shareholders.

Believing that it could walk away from the original deal, based on the aforementioned events, PNC offered to purchase Riggs at a reduced price of \$19.32 per share, which would remain subject to further reduction if circumstances changed, plus a "contingent security" of as much as \$0.83 per share. The new deal offer also requested Riggs to settle at least one lawsuit filed against it and to settle or set aside reserves for several other outstanding lawsuits. Riggs board considered the offer to be unacceptable and filed a lawsuit against PNC for breaching the contract without a serious reason. After three days Riggs and PNC reached an agreement and PNC agreed to pay 20\$ per share and Riggs dropped the lawsuit. The final agreement was settled for 652 million USD. Since in this scenario we will consider only PNC we will not make any comments on the difference between the initial 779 million offer and the final sum. Instead, we would say that this negotiation was costly for PNC and that it was accompanied by serious reputation damages as they were not very happy about too much publicity of them acquiring a bank accused of corruption, money laundering and support of the terrorism. Also, as a part of the final agreement, PNC agreed to pay some of the damages Riggs had to pay to its shareholders. It is also obvious that the transaction costs were much higher than initially expected due to a substantial increase in the negotiation costs.

Could things have been done differently?

Let us imagine that, instead of drafting a standard acquisition agreement, PNC would have used the tools presented above. How? First, a simulation model could have been designed to estimate the future profits following the acquisition. This model should have been a Nash-Bertrand-Stackelberg model due to the fact that PNC had the leader position in this cooperative game and Riggs was the follower. Furthermore, PNC knew ex ante that Riggs would follow its actions. The general model used in merger simulations is a Nash-Bertrand model, where firms choose prices non-cooperatively. Thus, this model is not suitable for an acquisition because acquisition is a cooperative game. The Stackelberg component will allow us to incorporate into the model additional assumptions about the firm behavior such as the quantity setting, or the leader and follower game strategy. Such a model will reduce the prediction errors of the Nash-Bertrand model used by Craig Peters (2006) and would give us estimated profits very closed to the post-acquisition real profits.

Secondly, the information disclosure clause tool, which, inserted in the agreement contract, will give Riggs incentives to disclose information about all its trials and its future intentions to plead guilty. Pleading guilty means paying damages and these damages should be taken into account when considering post-acquisition cost of operating. Of course, this information is of obvious importance for refining the model. Since this information is not "productive" and it is costless to obtain it can be very easily disclosed even when they are not the object of the information disclosure clause.

Thirdly, the last tool, MAC and MAE clauses, are of tremendous importance for completing the model and for obtaining the most accurate results from the simulation. We will not use the traditional MAC and MAE clauses which have become almost a standard in designing an agreement contract, but instead we operate some significant changes when inserting them. The first change we intend to operate is to force Riggs to make synergy investments prior to closing the acquisition. These investments are extremely necessary if we take into consideration the fact that Riggs will have to close its international operations which were subject to public opprobrium since the discovering of money laundering operations for ruthless dictators. Another purpose of these synergy investments could be for Riggs to carefully analyze and to integrate its products with PNC's ones. The reason behind this lies in the fact that Riggs was known as the bank of the diplomats and its products were mostly designed to meet specific needs of very specific customers, foreign officials most of them. PNC, on the other hand, is a bank of the working people, with products designed to meet the needs of the working people in Pittsburg. These investments are meant to facilitate products integration. Then, there is a category of investment meant to retain the cohesiveness of the workforce, primarily very valuable employees like the ones from the treasury department, highly skillful risk managers and analysts who are more likely to feel their positions threatened. Third category of synergy investments focuses on preserving the expected profitability of the new enterprise. Behind the obvious importance of this clause there is another very important role in our scenario. This clause is important for simulation purposes as this clause is a warranty of the accuracy of the model since the model relies upon some assumptions connected to the production capacity, production costs and evolution of the prices.

4. Conclusion

To summarize, we have seen that a standard agreement contract is inefficient as it does not offer sufficient protection neither for the buyer and the seller because using the traditional clauses to exit the contract could be very difficult and very costly. Instead, by using the tools presented in this article and by refining them, the buyer could draft a contract that would almost guarantee him the value added he expects from closing the deal. We have used a simple scenario of a real acquisition of a bank, but the model works regardless of the industry or the company being purchased. The only condition for its success is preserving the validity of the initial assumption and this can be done by inserting specific clauses into the contract. If the seller chooses to comply with those clauses then the model is a very accurate simulation tool for estimating the post-acquisition revenues and profits and, hence, for obtaining the added value expected prior to closing the deal. Worse case scenario, if the seller fails to comply to these clauses, then the buyer can costly exit the contract and can easily avoid being sued for damages by the seller or this could serve as a base for diminishing the negotiated acquisition price.

We know that transaction costs are search costs, negotiation costs and enforcement costs. The value of these tools is that they reduce the negotiation costs and they make enforcement costs ridiculously low. And if you are the of an American company we are sure you can appreciate this, as the legal fees in USA are huge even for a company this size.

Ultimately, the entire negotiation process is about risk distribution and by all means we are talking about huge risks. We believe that these tools have the great advantage of allocating the endogenous risk to the seller leaving the buyer only with the exogenous risk. Of course, that too can be reduced by negotiating additional clauses but they are not the object of our paper.

Note

[1] See http://www.unidroit.org/english/principles/contracts/main.htm.

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