

## **Casting Negotiation (Rainbow Co. – Sunshine Co.)**

**Rong Kang**  
**Northwest University, China**

**Nona Jones**  
**Benedictine University**

*This case focuses on casting, the metal rough part of a machine tool. A casting is made by first pouring melting liquid metal in moulds. As this liquid is cooling off, it goes through post treatment such as clean-up and burnishing, after which a casting of a certain shape and size is formed. The casting, in its various kinds and diversified shapes, represents the largest quantity of parts in terms of usage. As further evidence of their importance, casting parts account for 60-70% of the total weight of the machine tool. The quality of a casting may be affected by a number of factors, including the design technique, the casting technique, the quality of the rough material used in casting, and the process of operation. Any assessment of the overall quality of a casting has to take into account the exterior and interior quality, as these both can affect the overall features of the machine tool. For example, the wearing quality and dimension stability affect the accuracy of machine tool products directly. Hence, it is important to monitor the quality of a casting production.*

### **INTRODUCTION**

#### **About the Two Companies**

Rainbow Co., a large enterprise located in the northwestern part of China, produces all kinds of machine tools, including smart machine tools, turning machine tools, and common machine tools. The company markets its product both domestically and internationally, with domestic markets accounting for the majority of its business. Although Rainbow has a small casting workshop, which concentrates on the production of key parts, assembly, and new product development, all of the castings for its regular products are provided by other companies. One of these companies is Sunshine Co., which produces casting professionally. Some of Sunshine's products are bought by Rainbow Co. and some by other companies, both home and abroad. Sunshine Co. and Rainbow Co. have cooperated for years.

#### **Course of Events**

In October 2008, a firm opened a tender for purchasing a kind of smart machine tool with specific technical features and the requirement that the tender finish the trial production and turn over 10 smart machine tools at the end of December 2009. After doing research, Rainbow Co. believed that this kind of smart machine tool deserved developing, not only for this bid from the firm, but also for future marketing potential of such a tool. Therefore, Rainbow Co. took part in the bid actively. From November 2008 to January 2009, the trial product was fulfilled. In February 2009, Rainbow Co. got the bid successfully, and

both sides agreed on the price and trial product. According to the contract, Rainbow Co. was to turn over 10 smart machines before the end of December 2009.

This kind of smart machine was later named the “Type-C Machine”. In March 2009, Rainbow opened a tender for buying the casting parts of the “Type-C Machine”. This machine needs a lathe bed casting and a case casting (See Figure 1, Figure 2, and Figure 3 respectively). Three (3) months will be required to allow for the processing of casting parts, the production of other key parts, and the purchase of the smart system. Assembly, debugging and spray-painting will require another 3 months. Rainbow Co. therefore asked the tender to finish the production of the lathe bed and case casting parts of 12 “Type-C” machines before the end of June 2009. According to the target cost analysis, the total price for the lathe bed casting and case casting should be no more than \$50000.

Subsequently, Rainbow received quotes from both Sunshine Co. and Lanzhou Casting Company. The quoted price of Sunshine Co. is \$60000, and TOD (Time of Delivery) is 5 months. The quoted price of Lanzhou Casting Company is \$71000, and TOD is also 5 months. Hence, one week ago, you chose Sunshine Co. to negotiate the supply of casting. At that time, you mentioned that the price cannot be more than \$50000 and that the TOD must be 3 months. Because you two focused only on the price and TOD issues, no deal was reached. However, the representatives of both companies agreed to negotiate after further research. So you decided to meet the next week to discuss new options.

### **The Result of One Week’s Research**

During this week, your team did a lot of research and came up with some new findings. As a result, several new negotiation options have been identified, options that could become breaking points in the new negotiation.

- (1) Because casting parts must be finished within 3 months in order to produce “Type-C Machine” successfully in time, compared to price, TOD is more important to Rainbow Co. So your company has decided that, if you can reach an agreement with Sunshine Co. on the 3-month TOD, you can increase the price of casting parts from \$50000 to \$52000.
- (2) According to the analysis of your own casting workshop, you identified the cost of casting production as consisting of four parts: the metal material, mould material, personnel costs, and miscellaneous costs.
- (3) In view of the importance of the “Type-C Machine” to the future of your company, you are willing to send the designer-in-chief of the “Type-C Machine” and technicians to Sunshine Co., and inform them of your experience and lessons learned in the trial production process. Hence, the technicians of both sides can work together, and promote the technical preparation of lathe bed and case casting production. According to your evaluation, this technical support will save 30% of personnel cost, decrease the waste loss by 50%, and lower the usage of mould wood by 20%.
- (4) The mould wood used by Sunshine Co. is pine. According to the evaluation of the casting workshop of Rainbow Co., the lathe bed and case need 7m<sup>3</sup> and 3m<sup>3</sup> pine woods respectively. In your last negotiation, the representative of Sunshine Co. mentioned the supply of pine wood falls short of demand. Because of your own channel for pine wood, you have sufficient supply of high-quality pine wood. Whereas the market price for pine wood is \$18000/m<sup>3</sup>, your purchasing price is \$15000/m<sup>3</sup>. Your company is willing to sell your own mould material at an attractive price to Sunshine Co.
- (5) As mentioned previously, the quality of casting influences the features of machine tools. Hence, it is important to monitor the quality of a casting in production. During last meeting, the representative mentioned that their current casting liquid metal analysis equipment cannot meet the requirement of the lathe bed and case casting of Rainbow’s “Type-C Machine”, so new analysis equipments must be bought. You are willing to pay 10% of this order beforehand, thus helping Sunshine Co. to solve some problems, such as avoiding the loan interest originated from borrowing money from bank, etc.

### Objective of This New Round of Negotiation

You represent Rainbow Co. to start new negotiations with Sunshine Co. On one hand, Sunshine Co. is the best counterpart now, not only because their quoted price is the best, but also because your two companies have a long history of cooperation. If this negotiation can lead to a deal, the production of the “Type-C Machine” can be carried out smoothly. However, if there is no deal, you have to look for another suitable supplier of casting parts. On the other hand, you need to make good use of the new information. (Please refer to the following table for the major issues.) You should learn as much as you can about Sunshine Co, to increase your chances of getting a better deal. To be specific, your aim is to lower the price for the casting parts; even in view of the element of TOD, the total price of lathe bad and case casting parts cannot be over \$52000.

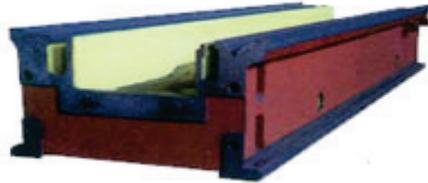
**TABLE 1  
MAJOR ISSUES AND RESULTS**

Issues	Results
First Round: Sunshine quoted \$60000, TOD: 5 months; you asked for \$50000, TOD: 3 months	No deal
If Sunshine can agree on 3-month TOD	You would like to increase the price from \$50000 to \$52000
If you provide technical support	Sunshine will save 30% of personnel cost
If you provide technical support	Sunshine will decrease the waste lose by 50%
If you provide technical support	Sunshine will lower the usage of mould wood by 20%
You are willing to sell your own mould material at attractive price to Sunshine	Sunshine will lower the cost for purchasing mould material
You are willing to pay 10% of this order beforehand	Sunshine need not to loan for purchasing casting liquid metal analysis equipment

**FIGURE 1  
TYPE-C MACHINE**



**FIGURE 2**  
**LATHE BAD CASTING PART**



**FIGURE 2**  
**CASE CASTING PART**



## CASTING NEGOTIATION (RAINBOW CO. – SUNSHINE CO.)

### TEACHING NOTE

#### Embryo Case Synopsis

This is a two-party negotiation case on casting, highlighting a typical business negotiation situation. This case involves the important rough part in machine tool industry: casting. A casting is the metal rough part made by the cast method.

For the purpose of teaching and class discussion, the authors changed the names of the involved companies. Rainbow Co. in the case represents Baoji Machine Tool Works located in a northwestern city of China, producing all kinds of machine tools. Sunshine Co. refers to Yinchuan Casting Factory located in Ningxia province in China. The company produces casting professionally. Some of Sunshine's products are bought by Rainbow Co., and the two companies have cooperated for years.

Put briefly, in February 2009, Rainbow Co. got the bid for a smart machine, which was called the "Type-C Machine." The company needed to turn over 10 machines before the end of December 2009. The "Type-C Machine" needs a lathe bed casting and a case casting. In March 2009, Rainbow opened a tender for buying the casting parts of the "Type-C Machine" and asked the tender to finish the production of lathe bed and case casting parts of the machines before the end of June 2009. The price it quoted was no more than \$50000. After receiving quotes from a few companies, Rainbow chose to negotiate with Sunshine Co. In the first-round negotiation, there was no agreement. The case material presents the results of the research conducted by both sides subsequent to this first round of negotiations.

According to the new findings, an integrative negotiation should be structured because ZOPA (Zone of Possible Agreement) exists. But everything depends on how each party trusts the other party. For both versions of the case, one sentence in the introduction of the two parties is very important: "They have a long history of cooperation." In some cultures, such a cooperation relationship is enough for both parties to trust each other. But in some other cultures, such a relationship is not so important. If the instructor believes it is necessary to test the difference between cultures, he or she may change the sentence showing the relationship of both parties, which may also be very meaningful.

#### Learning Objectives

By applying such two-party negotiation case, the teacher should make students perform one role, help them understand the background of the negotiation, even the knowledge of this industry. The most important thing of such case is to give students a chance to "do and learn".

This case should follow a simulation – result analysis – class discussion process. In completing this case, the students should be able to:

1. Describe each party's current situation and difficult points in negotiation (Bloom's Taxonomy learning outcome level 1)
2. Analyze the most important issues involved in such business negotiation (Bloom's Taxonomy learning outcome level 4)
3. Analyze the important terms of negotiation, such as target price, reserve price, BATNA, ZOPA (Bloom's Taxonomy learning outcome level 4)
4. Compare the situations when trust exists and when trust does not exist, and conclude the importance of trust in doing business in some cultures (Bloom's Taxonomy learning outcome level 5)
5. Explain the reasons for the possible agreement in the second round negotiation (Bloom's Taxonomy learning outcome level 2 and 4)

#### Research Methods

Upon reading "Casting negotiation" and doing a simulation, students make decisions about business negotiation: whether to trust the counter party and follow an integrative negotiation. The embryo case was developed in close contact with Baoji Machine Tool Works, which is represented by Rainbow Co. A student of the author is the CFO of the company and he and some other involved personnel were

interviewed. Based on the field notes and some basic information about the industry from online sources, the author composed this case.

### **Intended Courses and Levels**

The Casting negotiation case can be used in a negotiation or general management class at the undergraduate level or for an executive training course. Through role-play and simulation, the case can be used as business negotiation material; the students can design a clear structure for a negotiation process. The case can also be used as an international business exercise. Basically, students may have an opportunity to know about some facts and business norms in China. If the teacher changes the information indicating the relationship between the two parties and makes situation occur in different countries or cultures, he or she can further test the element of “trust” in business negotiation in various cultures.

### **Teaching Plans**

This case can be presented without any specific questions. It can be presented in class or before class. If it is distributed before class, students will have the opportunity to research the machine tool manufacturing industry and understand the important issue of casting in this case. If the case is presented in class, the teacher should lead the class to familiarize them with “casting” in the case. The simulation can be performed in one-on-one form, or group-on-group form. If the teacher would like to test the impacts of the individual and a group on negotiation results, the simulation can also follow the one-individual-on-one group form. After simulation, students should report their negotiated results, which can be used as the starting points of class discussion. There may be agreement in some simulations, but not always. But whether there is agreement or not, the different results can be discussed. The most important discussion point should be trust. In both cases, the students are provided information that will help both parties reach a beneficial agreement. But if one party does not trust the other, the information is meaningless and, therefore, useless.

In the class discussion, the teacher can invite students to express their attitude about the negotiation process and outcome and raise any questions about the case content and the negotiation skills of each group. If possible, the simulation can be recorded, and upon further analysis, the teacher can direct students to pay attention to other students’ creative suggestions for ways the parties could demonstrate their trust of each other.

### **Relevant Theory and Literature**

Casting Negotiation is a two-party simulation negotiation case. The author emphasizes the idea of trust and integrative negotiation in this case. Many popular textbooks have references to trust and integrative negotiation in business negotiation. The case is based on a situation that took place in China; hence, it can be used for students from other culture to understand the negotiation style of Chinese people. The teacher using this case may refer to the following books:

1. Richard G. Shell. (2000), *Bargaining for Advantage*, Penguin Books (especially the chapter on “trust and ethics in negotiation” )
2. Bazerman, Max H. and Margaret Neale. (1992), *Negotiating Rationally*, New York: Free Press (especially the chapter on trust)
3. Carnevale, P. (2006), Creativity in the outcomes of conflict, *Handbook of conflict resolution*, 2<sup>nd</sup> edition, San Francisco: Jossey-Bass
4. Richard H. Solomon (1999), *Chinese Negotiating Behavior*, United States Institute of Peace Press
5. *Harvard Business Review on Doing Business in China*, Harvard Business School Publishing Corporation, 2004
6. Juan Antonio Fernandez and Laurie Underwood (2009), *China Entrepreneur, Voices of Experience from 40 International Business Pioneers*, John Wiley & Sons (Asia) PTE. LTD

### Discussion Questions

Before the simulation, no questions are necessary. After the simulation, the teacher may bring forward the following questions to the whole class:

1. Describe each party's current situation and difficult points in negotiation.
2. Analyze the most important issues involved in such business negotiations.
3. Analyze the important terms of negotiation, such as target price, reserve price, BATNA, ZOPA.
4. Compare the situations when trust exists and when trust does not exist, and discuss the importance of trust in doing business in some culture.
5. Explain the reasons for the possible agreement in the second-round negotiation.

### Answers to Discussion Questions

1. Describe each party's current situation and difficult points in negotiation.

The follow table shows the development of the case. The difficult points in this negotiation are mainly focused on the fact that there is no obvious agreement zone in the first-round negotiation.

**TABLE 1**  
**THE DEVELOPMENT OF THE ISSUES**

Time	Party	Issue
October 2008	A firm (anonymous)	Opened a tender for buying Type-C Machine
	Rainbow	Took part in the bid
Between November 2008 to January 2009	Rainbow	The trial product has been fulfilled
February 2009	Rainbow	Got the bid successfully
March 2009	Rainbow	Opened a tender for buying the casting parts of "Type-C Machine".
	Two companies, including Sunshine	Counter quoted.
One week ago	Rainbow and Sunshine	Had the first round negotiation
This week	Rainbow and Sunshine	Investigation
Next week	Rainbow and Sunshine	Start a second round negotiation

2. Analyze the most important issues involved in such business negotiations.

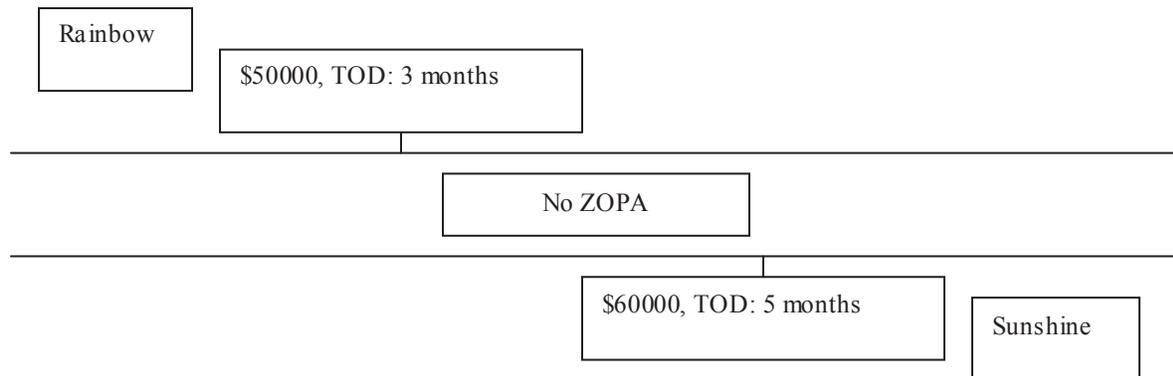
The most important issue in this kind of business negotiation is to look for the source of integrative negotiation. Since the two parties have cooperated for years, they have good reasons to seek creative methods to solve the conflict between them. The right way is to analyze the industry character and product cost structure. By emphasizing the possible cost-cutting elements, both parties can identify the source to reach a possible agreement that benefits both parties.

In the casting business, the raw material of the metal, technology, personnel, test instrument, waste, mould wood, loan and interest are all the influential issues.

3. Analyze the important terms of negotiation, such as target price, reserve price, BATNA, ZOPA.

In analyzing the first-round negotiation, students may understand the basic terms in negotiation very well. Such terms as target price, reserved price, the ZOPA (The Zone of Possible Agreement, that is, the zone between the reserved price and condition of both sides) can be identified. BATNA is important in understanding the choices and strategies of any negotiation party. In this case, both sides have BATNA. They can follow other choices, but this is a good cooperation for both sides, so both parties have very good incentive to cooperate and continue the negotiation.

**FIGURE 1**  
**THE SITUATION OF THE FIRST ROUND NEGOTIATION**



4. Compare the situations when trust exists and when trust does not exist, and discuss the importance of trust in doing business in some cultures.

One of the most important issues in business negotiation is trust. When parties in negotiation trust each other, the integrative negotiation can be structured. Compared with competitive negotiation, in integrative negotiation, both parties are willing to cooperate, to compromise on certain issues. Hence, the question is changed to how to establish trust in business negotiation.

Many books on negotiation caused the readers to pay attention to the cultural difference between western world and eastern world. The case shows the real negotiation in China, a typical eastern culture. According to many experts, Chinese people highlight relationship, or the social network in business negotiation. The reality proved the idea. In fact, in the interview with the involved personnel, the author was told that the negotiation process was much simpler; the companies had good relationship for years, and were willing to put themselves in the other party's shoes in negotiation.

5. Explain the reasons for the possible agreement in the second-round negotiation.

In the first-round negotiation, both parties paid attention to the price and TOD issues. Since there was no ZOPA, no agreement was easy to understand. After investigation, both parties put forward different conditions. In these conditions, cost-cutting elements are very important for Sunshine Co. Just because Sunshine Co. can lower their cost, and Rainbow Co. agrees to raise its purchase price, the new ZOPA appears. The following table presents the important information in both cases, helping the teacher to understand the sources of the possible agreement.

**TABLE 2**  
**SOURCES OF POSSIBLE INTEGRATIVE NEGOTIATION ON CASTING**

<b>Issues</b>	<b>Rainbow</b>	<b>Sunshine</b>
3-month TOD	Willing to increase the price from \$50000 to \$52000	Willing to adjust the current operation plan
Personnel Cost and technical support	Willing to offer technical support	Save 30% of personnel cost (\$14000×30%=\$4200), thus personal cost is \$9800
Miscellaneous cost and technical support	Willing to pay beforehand to help Sunshine to purchase casting liquid metal analysis equipment	No need for loan, so need no need to pay interest of \$2000.
	Willing to offer technical support	Decrease the waste loss by 50% (\$5000×50%=\$2500) The subtotal of miscellaneous costs will decrease from \$8000 to \$3500
Mould material (pine wood)	Willing to sell their own mould material at lower price	Lower the price from \$18000/m <sup>3</sup> to \$15000/m <sup>3</sup>
	Willing to offer technical support	Lower the usage of mould wood by 20% (12m <sup>3</sup> ×20%≈2m <sup>3</sup> ) The subtotal of mould material cost will decrease from \$18000 to \$12500 (\$15000×10m <sup>3</sup> ÷12 sets=\$12500)
	Can avoid the possible delay resulted from re-production of casting parts and the transportation.	Willing to do the rough machining
First Round: No deal. Sunshine quoted \$60000, TOD: 5 months; Rainbow asked for \$50000, TOD: 3 months (No ZOPA)		
If two parties can investigate and negotiate deeply, there will be a ZOPA	Willing to pay \$52000	Total cost will change to \$45800: \$20000 (raw material) +\$9800 (personnel) +\$12500 (mould material) + \$3500 (miscellaneous)