SOCIAL ROBOTS, INC.

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CASE DESCRIPTION

The case deals with the topic of currency hedging and can be used in a basic course in International Finance at the undergraduate or graduate level. Before assigning this case, it is assumed that the following topics have been covered in class: basic exchange rate concepts and terminology, basic international derivative instruments (forward markets, put and call options), and the concept of money market hedges. The level of difficulty can be adjusted to suit the needs of the instructor and the availability of class time to cover these topics (described below under case description). Ideally, the complete case can be assigned as a homework project and can be covered in one 90 minute of class time. Students have indicated that they have spent approximately 4 hours preparing the case in a group.

CASE SYNOPSIS

A US based firm was buying robots from a US based supplier but now is faced with a problem when the supplier decides to raise prices. The CEO has to decide between alternate suppliers in China and South Korea. Unfortunately, this involves dealing with exchange rates and creates exchange risk. A late entry from another US supplier creates a third opportunity for purchase. Students are required to consider different hedging alternatives (forward markets, money market hedges, and options. Payment is also made at different intervals. Students are required to select the best method by maturity and evaluate costs against another proposal by a US based supplier. Opportunity is provided for exploring whether "upfront" payment is better if a discount is offered as well as whether changes in the cost of capital influence hedging choices. Instructors can also assign this case using piecemeal hedging choices, thereby varying the level of difficulty of the case. Finally, they can easily convert this importing problem into an exporting one.

Students are exposed to a real world type dilemma when they compute exchange exposures in different currencies and learn about the different methods of currency hedging (forward market hedge, options market hedge, money market hedge). They will also realize that they should seek the best method by maturity since it maybe that the forward works best for 60 days but the options prove better for 180 days. Since both puts and calls information is provided, the student is allowed to decide which instrument is more appropriate in this case. Similarly, they also get to decide if a bid or an ask quote is relevant, or, for the money market hedge, whether they should consider borrowing or lending. They can also learn more about options – some options seem feasible but on closer examination, have already expired and cannot be used in this instance. Finally, students get to explore other aspects of the case, such as, quality considerations, insurance cost when in transit, after sales service, etc. Students can also be exposed to international negotiations. Can they pit one exporter against another?

CASE BODY

Mr. Tom Madison, CEO of Social Robots, Inc. (a San Antonio based firm) put two Alka Seltzer pills into his mouth and reluctantly attempted to work on his current problem. Frankly, he was not sure what to do. He had never traveled out of San Antonio (except for the one time he went to Bangladesh, and that was an adventure worth forgetting!!), and now he may have to deal with the Chinese. This nightmare was keeping him from relaxing at home feeding squirrels.

Social Robots (SR) bought functioning robots from manufacturers and sold them to customers by adding some SR branding (much like a new car dealer would do). These robots are basically designed to assist people manage their social portfolio, etc. They also serve as an individual's personal assistant, and speak multiple languages. Much like a SIRI who walks. SR has been in this business since 2012 and has made a lot of money buying and selling robots. Last year (2016) SR recorded a profit of 15% on $ 6 million in sales (approximately 500 units were sold last year).

The problem emerged recently when the US firm manufacturing these robots (US Robotics, Inc) informed all clients that costs would increase by 20% from the current $ 10,000 per unit. This was a problem since it would potentially wipe out any profits to SR unless they could also raise prices. Tom was reluctant to do this since the industry now enjoyed cutthroat competition from other US based and foreign companies.

When Tom asked his COO, Mr. James Tobin, to provide potential solutions, Mr. Tobin immediately started going to work by conducting some painstaking research that kept him working many nights. He determined that they could order robots from the Chinese. Their catalogs looked attractive, but would they be able to meet SR's quality standards? Are there other US based suppliers who can provide robots at lower costs? If so, what would they be sacrificing? He was able to determine that they could get similar quality robots from the Chinese at lower costs, but that they would have to pay them in Chinese Yuan. Tom groaned when he heard James mention the Chinese. He was just recovering from the Bangladesh trip and now he had to go to China? And who would feed his squirrels? When he got back from his daydreaming activities, he realized that James was still talking - about currency risks and hedging; he better pay attention.

Tom had taken International Finance classes during his college days and knew that this venture involved exchange risks, and something called currency hedging. He did not want to visit that nightmare again! James informed him that a Chinese firm from Nanjing called Zhang Enterprises was willing to sell "equal quality" robots for 60,000 Yuan per robot, but they needed to be paid in Yuan and in Euros. He was considering a purchase of 500 robots (their current level of sales). James had also done some research and informed Tom that the Chinese were willing to accept a down payment of 50% of the cost, with the rest equally split up in payments 30 and 60 days from now. In addition, the Chinese firm requested that the 60 day payment be denominated in Euros at current exchange rates, since the firm was considering equity investments in Germany and these Euros would help.

While James and Tom were pondering on what to do while drinking beer at a local pub where they were frequent customers, they received a call from Lim Enterprises in South Korea. The CEO of this company, Mr. S.B. Lim suggested that they could supply the robots at 12 million Won per unit, and they would take no down payment. They also indicated that they were willing to receive 25% of the payments every 60 days in South Korean Won. While digesting this information, James received another call from a US based firm who offered to sell them high quality robots at $ 9,500 per unit, but the monies needed to be paid up front. Upon receiving all this new information, he was not sure what to do. Which option was the best option to consider? Since they already had two beers each, they decided to sleep over it and postpone the decision for the next day.

Early next morning, since James knew that Tom would ask these questions, he decided to assemble the additional data required for analysis:

Exchange rates (Direct quotes in the US)

Exchange rate	**Period**	**Bid**	**Ask**
Chinese Yuan	spot	0.1613	0.1625
Chinese Yuan	30 days	0.1700	0.1725
Chinese Yuan	60 days	0.1722	0.1752
Euro	spot	1.3327	1.3356
Euro	30 days	1.3310	1.3320
Euro	60 days	1.3300	1.3312
South Korean Won	Spot	0.00089	0.00092
South Korean Won	60 days	0.00079	0.00082
South Korean Won	120 days	0.00072	0.00075
South Korean Won	180 days	0.00068	0.00071
South Korean Won	240 days	0.00065	0.00069

In addition, James, being real smart, decided to pull out the cost of borrowing in these currencies. He noted that money market hedges could be used as an alternative if they reduced costs.

Currency	**Period**	**Borrowing**	**Lending**
Chinese Yuan	30 days	7%	6%
Chinese Yuan	60 days	7.5%	6.25%
Euro	30 days	4.25%	3.75%
Euro	60 days	5.2%	4.1%
South Korean Won	60 days	3%	2.2%
South Korean Won	120 days	3.5%	2.6%
South Korean Won	180 days	3.75%	2.8%
South Korean Won	240 days	4%	3%
US	30 days	1.5%	1.0%
US	60 days	1.6%	1.1%
US	120 days	1.65%	1.2%
US	180 days	1.70%	1.3%
US	240 days	1.99	1.42%

As James was winding down, he received a call from Tom, who reminded him not to ignore currency options since they may be able to save money with these hedging instruments. James groaned since he had barely understood this instrument when he was taking the International Finance course in college. But, he better check on this alternative because Tom would ask for it. He found out that options were not available for many maturities he was seeking:

Currency options information (Unless otherwise stated, all options are American Options):

Option currency	**Put or Call**	**Maturity**	**Strike Price**	**Option Premium**
Chinese Yuan	Call	90 days	0.1611	5%
Chinese Yuan	Put	90 days	0.1611	8%
Chinese Yuan	Call	30 days	0.1611	3%
Euro	Call	30 days	1.3400	10%
Euro	Put	60 days	1.3400	8%
South Korean Won	Call	60 days	0.00070	4%
South Korean Won	Call	90 days	0.00075	6%
South Korean Won	Put	240 days	0.0078	9%

James called Mr. Gatt, Milley, the accountant for the company and determined that SR's cost of capital was 8%. Now he believed that he had all the information necessary for making the right decision. Should SR import from China or South Korea? Or buy from the new US firm? What other considerations will enter into this decision? If they import from China, they can hedge or not hedge. As he was assembling all the information, he received a call from the Chinese exporter. They indicated that they could offer a 15% discount if SR paid everything up front. Should James recommend acceptance of this offer? Can he use the forward rate for one maturity and the money market rate for another maturity? Decisions, decisions. James decided to postpone his weekend trip to a nearby forest to shoot game to give this problem his undivided attention.

When James brought these details to his attention, Tom heaved a sigh of dismay. This all looked so complicated. Oh well, he better get back to solving this problem. The squirrels have to wait……..(Aw nuts!).