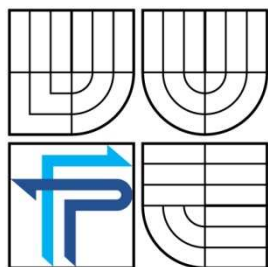


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ÚSTAV EKONOMIKY

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HEDGING AGAINST EXCHANGE RATE RISK

ZAJIŠTĚNÍ MĚNY PROTI KURZOVÝM RIZIKŮM -

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MASTER'S THESIS

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A B S T R A C T

Master's Thesis is focused on problem of hedging against exchange rate risk, considering current economical environment in the Czech Republic . The work contains theoretical framework from the area of the interantional trade, the exchange rate risk and overview of common financial instruments which are used for hedging. In the practical part it is conducted analysis of the international company and the propose of proper financial instrument for steering exchange rate risk.

Key words: hedging against exchange rate risk, hedging, exchange rate risk, futures, forward, options.

A B S T R A K T

Diplomová práce se zaměřuje na problém zajištění měny proti kurzovým rizikům s ohledem na aktuální ekonomickou situaci v České republice. Práce obsahuje teoretické poznatky z oblasti mezinárodního obchodu, řízení kurzového rizika a přehled finančních derivátů, které se běžně používají pro zajištění. V návrhové části je vypracována analýza mezinárodní firmy a výběr vhodného finančního nástroje pro řízení kurzových rizik.

Klíčová slova: zajištění proti kurzovému riziku, zajištění, kurzové riziko, futures, forward, opce.

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Čestné prohlášení

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Poslední poděkování si zaslouží moje rodina, která mě podporovala v dosavadních vysokoškolských studiích.

Content

Introduction	11
1 The objectives and methods of the work	13
1.1 Formulation of the work's objectives	13
1.2 Methods of the work	13
2 Review of the Literature	14
2.1 International trade	14
2.1.1 Forms of trade risks	16
2.1.2 Regulation of international trade	18
2.2 Exchange rate risk management.....	20
2.2.1 Exchange rate systems.....	20
2.2.2 Monetary system and monetary authority	22
2.2.3 Exchange rate risk and international trade	22
2.2.4 Exchange rate risk management strategy	24
2.3 Cash management.....	24
2.4 The dealing on the exchange rate market	26
2.4.1 The foreign exchange market	26
2.4.2 The OTC market	28
2.4.3 Financial derivatives	29
2.4.4 Instruments using for hedging in the Czech Republic	35
3 Analysis of the present circumstances in the company	36
3.1 TYM CENTRAL EUROPE Ltd.	36

3.1.1	History of the TYM CENTRAL EUROPE Ltd.....	38
3.1.2	Organizational structure.....	39
3.1.3	Tong Yang Moolsan Co., Ltd.	40
3.2	Analysis of the external environment.....	41
3.2.1	PEST Analysis.....	41
3.2.2	Analysis of the branch of business.....	43
3.2.3	Analysis of the market	46
3.3	Analysis of the internal environment.....	46
3.3.1	7S-Framework Analysis.....	47
3.3.2	Products	49
3.4	SWOT Analysis.....	51
3.5	Current economic situation in the world.....	52
3.6	Forecast for CZK/EUR exchange rate	54
3.7	Czech Republic and the euro.....	56
4	Proposal of the hedging against exchange rate risk	58
4.1	Definition of the problem with exchange rate	58
4.2	How the company eliminate the exchange rate risk - is there any hedging?	63
4.3	Research of the market with currency exposure.....	64
4.4	Choice of the hedging strategy - Selection of the hedging financial instrument	66
4.4.1	FX forward.....	66
4.4.2	FX Options.....	74
4.4.3	Technical progress of the contract	75
4.5	Recommendations	75
5	Conclusion.....	77
	List of Figures	80

List of Appendices 80

References..... 81

Introduction

Czech or Czechoslovak crown has undergone during its existence a number of interesting phases, whether it has been the introduction of the monetary reform in March 1919, the economic crises of the thirties in 20th century, interwar and post-war development, socialist monetary reforms, separation of the Czech and Slovak currency or the introduction of full convertibility and a managed floating rates.

All these historic circumstances have been more or less reflected in the performance of enterprises that have been highly participated in international trade (international business). It has been due to the tight connection between international business and currency management, which is mainly about currency risk. This connection has survived to the present time, which is strongly affected by globalization all around the world.

The current situation when the Czech crown is freely convertible and its rate is determined on the currency markets, will likely last until the introduction of the European Union's common currency, EURO. Managed floating exchange rate of the Czech crown will be a reality for next several years.

The main goal of each stable economy is the introduction of full convertibility and floating exchange rate of national currency. Free convertibility and floating exchange rate, however, bring with them for entrepreneurs and other participants of international relations considerable risks. Exchange rate mainly affects international exchange of goods, services and capital, but also indirectly affects those entities that are not participating in international relations primarily, but secondarily.

It would be wrong if the participants in international trade did not try to manage their risk arising from exchange rate movements. It is better to anticipate problems and try to integrate them into company's financial activities. Of course, every manager should take into account many other risks associated with international trade, not only problems of exchange rate risk.

Exchange rate risk can be hedged. Ensuring business against this risk can be done in many ways with different economic impact on business. One way is to ensure the currency through derivatives, which allow the efficient way to manage risk and allow him to transfer to another entity through an economic derivatives market.

These derivatives began to develop rapidly in the early seventies, when the the Bretton Woods monetary system collapsed. The development of derivatives caused a significant increase in the level of risk management in companies and financial institutions. But financial derivatives bring with them also high risks, which can be reflected in a financial crisis that has started in 2007.

Much of the survey and anecdotal evidence suggests that FX risk management is a key element of financial management, and many firms now use hedging techniques.

This finding and the fact, that in the foreseeable future the euro will not be introduced in the Czech Republic, will increase demands on managers in small and medium enterprises to become more interested in the possibility of the use of financial derivatives in practice in order to not endanger the company's stability in the current turbulent days.

Therefore, it is very likely that the importance of hedging against exchange rate risk in the coming years will increase, even in smaller companies.

1 The objectives and methods of the work

1.1 Formulation of the work's objectives

The main goal of this Master's Thesis is to read up the theoretical framework of the hedging exchange rate risk and then, on the basis of analysis of present circumstances in the company TYM CENTRAL EUROPE Ltd, propose the best feasible solution for hedging against exchange rate risk in the import company TYM CENTRAL EUROPE Ltd. This work contains basic theoretical background of the exchange rate risk in the international business and possibilities how to hedge this risk as well.

Thanks to this work, company TYM CENTRAL EUROPE Ltd would have:

- overviewed about the hedging exchange rate risk;
- known all possibilities how to manage exchange rate risk;
- be advised which hedging instrument is the best for the company;

Problem of the exchange rate risk is coupled with the company's cash-management. Thanks to the securing currency exchange rate is easier for company's management to plan financial cash-flow and company can avoid troubles with financial insolvency.

1.2 Methods of the work

When processing this Master's Thesis, author has used system and ratio analysis. In order to conclude the Thesis, there have been used also methods of induction and deduction. Indeed, these methods are closely linked, because due to the induction it is possible to reach, on the basis of examination of phenomena, the theoretical generalization of the practice. Otherwise theoretical conclusions is possible to verify by deduction in practice.

2 Review of the Literature

2.1 *International trade*

International trade can be defined as exchange of products, goods, capital and services across international borders. According to the Hill (2008) international trade occurs when a firm exports goods or services to consumers in another country. Another very similar Stonehouse's (2000, p. 4) point of view is that: "...international business simply implies that an organization is operating in more than one country or, to put it another way, organizations from different countries are trading across their national boundaries.

The major impact on international trade system has industrialization, advanced transportation, globalization, multinational corporations and outsourcing.

The history of international trade has began hundreds years ago (The Silk Routes¹), but the most important models of the international trade theory in history were Smith's "Absolute Advantage", Ricardo's "Comparative Advantage", Heckscher's and Ohlin's "Heckscher-Ohlin Theory", Vernon's "Product Life-Cycle Theory", "New-Trade Theory" and Porter's "National Competitive Advantage" (Hill, 2008).

Theories of Smith, Ricardo and Heckscher and Ohlin all make strong cases for unrestricted free trade. As an example is possible to use Ricardian model. This model focuses on comparative advantage. It is possible to say, that countries specialize in producing what they produce best. Unlike other models, the Ricardian framework predicts that countries will fully specialize instead of producing a broad array of goods (Hill, 2008).

In contrast, the new trade theory can be interpreted to support government intervention to promote exports through subsidies and to limit imports through tariffs and quotas.

As Hill (2008) states the major players on the international trade scene are firms, because business firms produce exports, and business firms import the products of other countries. On the basis of this knowledge of companies' pivotal role in international

¹ The Silk Routes were an extensive interconnected network of trade routes across the Asian continent connecting Asia with the Mediterranean world, as well as Africa and Europe (Wood, 2002).

trade is possible to say that business can exert a strong influence on government trade policy, lobbying to promote free trade or trade restriction.

The international trade is all around of us. If someone goes to buy a new television, he goes to buy a product of international trade. International trade is high affected by increasing globalization. What globalization is? As Stonehouse et al. (2000) states globalization is the world which is used to describe a range of related but distinct, sociological, economic, political and business phenomena. Generally we can say, that globalization refers to the development of global or worldwide business activities, competition and markets and the increasing global interdependence of national economies.

To sell internationally is easier due to falling barriers in cross-border trade. The prototypes of this trend are Coca-Cola soft drinks, Starbucks coffee, Sony Playstation video games and IKEA furniture (Hill, 2008).

The origins of globalization according to Stonehouse et al. (2000) has its roots in 19th and 20th century. The author indicates some attributes connected with globalization:

- manufacturing technology - making mass production possible;
- transportation technology - railways, motor transport, shipping and aeroplanes allowing the movement of people and goods from one place to another place more quickly and cheaply;
- information and communications technology - telephone, TV and the internet which have contributed to the globalization of markets;
- trade liberalization - through GATT and WTO have reduced tariff and other barriers to trade;
- rising real term incomes - due to this demand for products and services have increased worldwide.

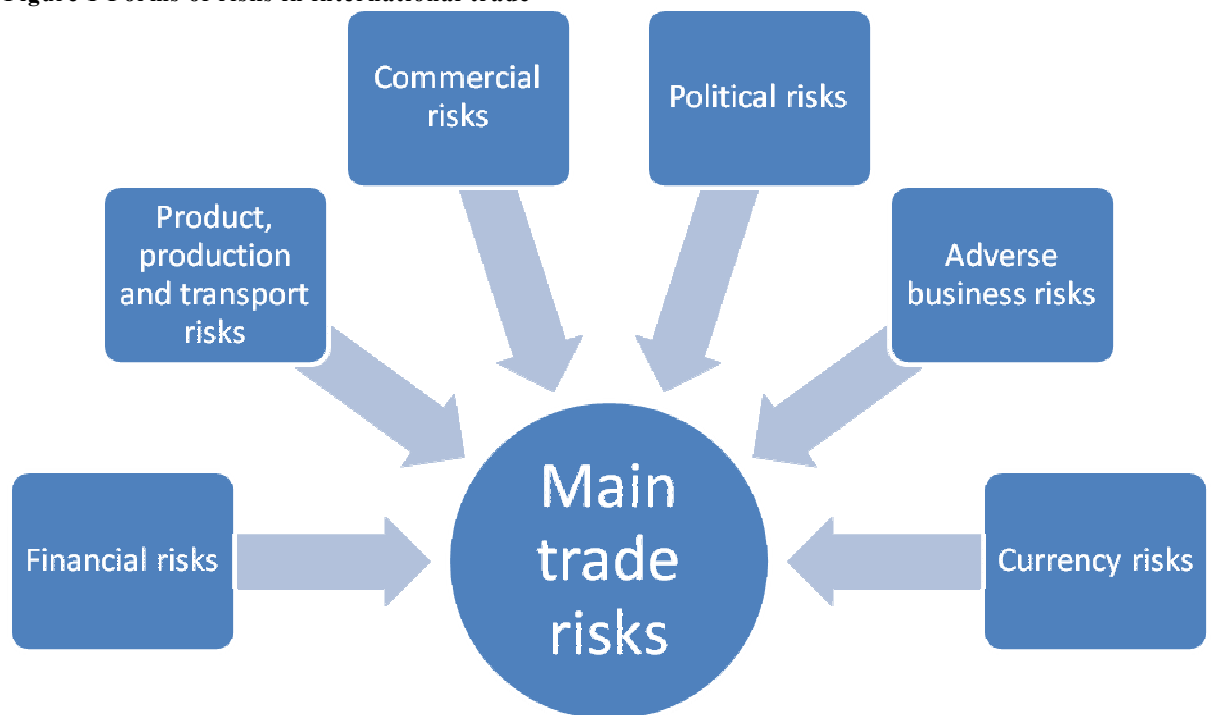
There are two macro factors, according to Hill (2008), underlie the trend toward to greater globalization. These two factors form drivers of globalization. The first is the

decline in barriers to the free flow of goods, services, and capital that has started since the end of World War II. The second factor is technological change. Especially the dramatic developments in recent years in communication (TV, the internet), information processing (IT technology) and transportation technologies (aeroplanes, etc.).

2.1.1 Forms of trade risks

There is always a lot of potential drawbacks in trying to categorize a general concept as trade risk which could have so many different forms. But there can be used very good concept of the main risk structure in international trade. Figure 1 shows the main risks, which affect both the seller's and the buyer's view (Grath, 2008).

Figure 1 Forms of risks in international trade



Source: Grath (2008, p. 11)

It is important for both parties to have a good knowledge about possibilities of the risks in order to secure a proper and meaningful assessment (Grath, 2008).

2.1.1.1 Financial risks

Is the risk that a company will not have adequate eligible funding to meet financial obligations. When is assessed more complex transaction, the financial aspect is more obvious. For the seller is important to obtain bankable collateral for the increased need for finance and guarantees, because even after delivery of goods, the seller could still be financially exposed in the case of unforeseen events and delays until final payment.

2.1.1.2 Product, production and transport risks

This kind of risks the seller has to accept as a part of the commitment. As a sample we can use warranty. There are many examples of how working condition (damage due to the climate, environmental reason) in the buyer's country have led to reduced performance of the delivered goods (Grath, 2008).

The risks with transportation has to be evaluated on aspects such as the nature of product, size of delivery, transport route etc. It's important to decide, which mode of transport will be used (land, sea or air) etc. (Grath, 2008).

2.1.1.3 Commercial risks

Commercial risk is characterized as the risk of the buyer going into bankruptcy or being in another way incapable of meeting an engagement. It covers all obligations of the buyer according to the contract, not only payment obligation. In most industrialized countries it is relatively easy to obtain a relevant data of potential buyers to evaluate the buyer's ability to fulfil their obligations. It is also possible to ask for an independent business credit report, which is a more reliable way of dealing with customer risks. (Grath, 2008).

2.1.1.4 Political risks

Grath (2005) defines political risk as: "the risk of a separate commercial transaction not being realized in a contractual way due to measures emanating from the government or authority of the buyer's own or any foreign country".

The obligations to the seller are dependent on the present situation in the buyer's country, no matter how reliable the buyer may be in meeting an engagement. In practice commercial and political risks are connected, because acts by local authorities affect the local company and its capabilities of honouring the contract.

Political risk could be divided as:

- political stability;
- social stability;
- economic stability (Grath, 2008).

2.1.1.5 Adverse business risks

This kind of risk include business practices of a negative nature. As an example of adverse business risks we have to take into account bribery, money laundering and variety of facilitation payments. This corruption practices in some part of the world have serious consequences for the general business, as well as reputation.

2.1.1.6 Currency risk

Because this Master's Thesis is about currency risk, the options of currency risk management and exchange rate risk will be mentioned in next parts much more specific.

2.1.2 Regulation of international trade

As we know, free trade refers to a situation in which government do not attempt to restrict what its citizens can buy from or sell to another country. But political reality of international trade in current time is little different. Many countries are committed to free trade, but still tend to intervene in international trade to protect the interests of politically important groups or promote the interests of key domestic producers.

Every government uses some instruments of trade policy to intervene in international trade. The basic review of these instruments:

2.1.2.1 Tarrifs

A tarrif is a tax levied on imports (or exports). Tarrifs can be divided into two categories. Specific tarrifs are levied as a fixed charge for each unit of a good imported and Ad valorem tarrifs are levied as a proportion of the value of the imported good. In most cases, tarrifs are placed on imported good in order to protect domestic producers from foreign competition (Hill, 2008).

2.1.2.2 Subsidies

A subsidy is a government payment to a domestic producer. There is a lot of forms of subsidies such as cash grants, low-interest loan, tax breaks, etc. Subsidies helps domestic producers in competing against foreign imports and gaining export markets² (Hill, 2008).

2.1.2.3 Important quotas and voluntary export restraints

An important quota is a direct restriction on the quantity of some good which may be imported into a country. The instrument which helps to use quotas is issued import licenses to a group of individuals or firms. There is also tariff rate quota which is a common hybrid of a quota and a tariff (Hill, 2008).

2.1.2.4 Administrative policies

Governments of all types sometimes use informal or administrative policies to restrict imports and boost exports. These policies are rules designed to make it difficult for imports to enter a country market³. Every country has also antidumping policies which is designed to punish foreign firms that engage in dumping. The objective is to protect domestic producers from unfair foreign competition.

² According to the World Trade Organization (WTO), in 2005 countries spent some \$300 billion on subsidies, \$250 billion of which was spent by 21 developed nations (Hill, 2008, p.208).

³ Hill (2008) mentions the Japanese as the masters of this trade barriers. Country's informal administrative barriers to imports more than compensate for low tarrifs.

2.2 Exchange rate risk management

The history of exchange rate risk management has started form since the early 1970's, when system of fixed currency rates finally collapsed. From the end of World War II until August 1971, most industrialized world operated under Bretton Woods fixed exchange rate system administrated by the International Monetary Fund. This system caused that the U.S. dollar was linked to gold⁴, and other countries were then tied to the dollar. There were big actions of central banks such as Bank of England or The Federal Reserve in the U.S. These operations matched supply and demand, keeping exchange rates stable. Unfortunately it didn't address the underlying inbalance. Many countries found it difficult and economically painful to maintain fixed exchanged rates required by Bretton Woods. The Bretton Woods system was replaced completely by the end of 1973 (Brigham and Ehrhardt, 2008). In these days exist several modern exchange rate systems.

2.2.1 Exchange rate systems

Overview of the exchange rate systems follows:

2.2.1.1 Freely, or independently, floating rates

After the U.S. dollar was cut loose from the gold standard and, in effect, was allowed to float in response to supply and demand caused by trade and investing activities. Currency prices are allowed to seek their own levels with only modest intervention of central bank to smooth out extreme exchange rate fluctuations (Brigham and Ehrhardt, 2008).

Among the currencies which have freely, or independently, floating rates are the dollar, euro, pound and yen.

2.2.1.2 Managed floating rates

The exchange rate in a managed floating rate system is manipulated by government. The intervention is significant in the currency's supply and demand.

⁴ U.S. dollar was linked to gold at \$35 per ounce.

Country's target of exchange rate levels is rarely published because it would make it too easy for currency speculators to profit (Brigham and Ehrhardt, 2008).

The Czech Republic uses this managed-floating regime to manage its exchange rate level.

2.2.1.3 Pegged exchange rates

When a country uses a pegged exchange rates system then locks, or "peggs", its currency exchange rate to another currency or basket of currencies. It's common that a country allow its currency to vary within the specified limits ($\pm 1\%$ of the target rate) before the country intervenes to force the currency back within the limits (Brigham and Ehrhardt, 2008).

The most important country that uses a pegged exchange rates is China. Its currency is pegged to a basket of currencies, but these currencies that make up the basket were never revealed. It is assumed the U.S. dollar is still likely the most important component of this basket (Brigham and Ehrhardt, 2008).

2.2.1.4 No local currency

When a country doesn't have its own separate legal tender then it uses the currency of another nation. For example, Ecuador has used the U.S. dollars since September 2000. Another example of no local currency is a monetary union. There are 16 European Monetary Union nations whose currency is euro⁵, which is allowed to float (Brigham and Ehrhardt, 2008).

⁵ The nations whose currency is Euro are Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, Netherlands, Portugal and Spain (since 1st January 1999), Greece (since 1st January 2001), Slovenia (since 1st January 2007), Cyprus and Malta (since 1st January 2008) and Slovakia (since 1st January 2009). (<http://www.ecb.int/euro/intro/html/map.en.html>)

2.2.2 Monetary system and monetary authority

Every nation has a monetary system and monetary authority. A monetary system provides the proper functioning of money by regulating economic agents, transaction types, and money supply and demand.

Ways the government handle changes in currency demands is realized by monetary authority. For example, in the United States the Federal Reserve is the monetary authority, in the Eurozone the European Central Bank is the monetary authority. The system which carry out these changes in currency is called Monetary system (Brigham and Ehrhardt, 2008).

Government can artificially prop up its currency by using its reserves of gold or other currencies to purchase its own currency in open markets. This causes that value of own currency is artificially high. Otherwise monetary authority can also keep its currency at an artificially low value by selling its own currency in open markets (Brigham and Ehrhardt, 2008).

2.2.3 Exchange rate risk and international trade

As Brigham and Erhardt (2008) mention we can compare the demand for currency with the demand for consumer goods such as Nike shoes or Levi's clothing. The demand changes over time. One factor affecting currency is the balance of trade between two nations⁶. Another factor which affects currency demand is a capital movements⁷.

⁶ As an example Brigham and Ehrhardt (2008) use this case: U.S. importers must buy yen in order to pay for Japanese good, whereas Japanese importers must buy U.S. dollars to pay for U.S. goods. If U.S. imports from Japan were to exceed U.S. exports to Japan, then the U.S. would have a trade deficit with Japan and, and there would be greater demand for yen than the dollars.

⁷ For example, suppose interest rates in the U.S. were higher than in Japan. Japanese banks, corporations would buy dollars with yen and then use dollars to purchase high-yielding U.S. securities to take an advantage of high U.S. interest rates. This would create greater demand for dollars than for yen (Brigham and Ehrhardt, 2008).

An artificially low or high currency might be an influencing problem in international trade.

Determinants of cheap currency:

- makes it less expensive for other nations to purchase the country's goods;
- creates jobs in exporting country;
- raises the cost of imports => increases inflation;
- high import prices also allow domestic producers to raise their prices => increases inflation;
- the supply of country's currency in open market by central bank leads to increasing inflation as well
- other countries may impose tariffs or other restrictions on the country with artificially low currency (Brigham and Ehrhardt, 2008).

Determinants of expensive currency:

- inflation is held down;
- citizens can purchase imported goods at low domestic prices;
- domestic industries that compete with the cheap imports are hurt as well as domestic exporting firms (Brigham and Ehrhardt, 2008).

On the basis of factors affecting currencies' demand and supply is clear proof that exchange rates and international trade are connected together. It is important to take into account the influence of international trade on exchange rates and vice versa.

Exchange rate risk is a major factor differentiating a global company from a purely domestic one (Brigham and Ehrhardt, 2008).

The volatility of exchange rate has, according to Hill (2008), a major impact on a business' competitive position of multinational companies, because it's difficult to predict exchange rate movements.

2.2.4 Exchange rate risk management strategy

According to the Kral'(2003), financial theory recognizes two basics strategies of exchange rate risk management in the company:

- conservative;
- aggressive.

Conservative strategy - security is based on elimination of all exchange and credit risk and their impacts to the economic results of the company at a reasonable price (generally 0,5% - 4% of the total value of the contract depending on the type of product). Company is oriented only on its main production activities and does not want to threaten its existence. This strategy is called "hedging".

Aggressive strategy - is oriented to the creation of open foreign exchange positions by the company, even beyond on its own production activities. In practise, company deliberately creates its open foreign exchange position in order to achieve extraordinary profits. It is possible to use it even in the company which does not participate in international trade to profit on the exchange market. This strategy is called "speculative"

2.3 Cash management

The cash management is tightly connected with the problem of the exchange rate. According to Brigham and Ehrhardt (2008), the enhanced volatility of exchanges rates under a floating system increases the uncertainty of the amount of the cash flows for international (or multinational) company.

The Capstaff and Marshall (2005) in their work indicate that the effective manipulation of short-term assets and liabilities is critical to the liquidity of any business. In an ever more global market place the use of international cash management techniques is increasingly important, not just to ensure liquid ity but to reduce foreign exchange risk.

What does “cash management” mean? Simply, cash is money that is easy accesible either in the bank or in the business. Cash is what the company must have to keep the doors of business open. Firm can't spend a profit, but firm can only spend a cash. And the managing of cash outflows and inflows is “cash management”. The outflow of cash is measured by the money company pays every month to salaries, suppliers, and creditors. The inflows are the cash company receives from customers, lenders, and investors (Kislingerova, 2007).

The goals of cash management in a multinational corporation are the same to those in a purely domestic corporation:

- to speed up collections, slow down disbursements => maxime net float;
- to shift cash as rapidly as possible from the part of business where it is not needed to the parts where it is needed;
- to maximize the risk-adjusted, after-tax rate of return on temporary cash balances (Brigham and Ehrhardt, 2008).

There is a wide range of techniques to manage exchange rate risk in cash management. These methods are generally categorized into external (transaction within the firm) and internal (using financial markets). Capstaff and Marshall (2005) identifies methods for managing exchange rate exposures in terms of international short term cash flows such as foreign exchange matching, multinational netting, leading and lagging pricing policies, foreign bank accounts and short term foreign currency borrowings⁸.

⁸ For more information and description of thes terms see the Buckley (2000).

This paper is mainly about exchange rate risk, thus the attention is focused on currency hedging by foreign exchange derivatives.

2.4 The dealing on the exchange rate market

According to the Sojka and Mandelik (2006) the most of investors wish to hedge their portfolio against volatility of the market, thus the value of the property would be stable, or in better case, would be higher.

How everything is going on the exchange market is described in the following chapters.

2.4.1 The foreign exchange market

The foreign exchange (or currency, forex, FX) market where currency trading takes place. It doesn't operate at any single exchange. Trading in foreign exchange occurs 24 hours a day. For example, as the European trading day comes to close, trading in the U.S. is already under way. Interbank trading provides liquidity for anyone wishing to trade in foreign exchange (it can be also private individuals). All these transactions represent a large trading activity (Grath, 2008). The foreign exchange turnover data from 1988 to 2007 represents the figure 2.

Figure 2 Foreign exchange turnover



Source: Bank for International Settlements, 2007.

2.4.1.1 The spot market

The spot rate is the rate at which a foreign exchange trade can be transacted immediately or “on the spot”. In reality, pairs exchanged will then settle two business days later (T+2) (Grath, 2008, Brigham and Ehrhardt 2008).

Grath (2008) shows some reasons for transactions in the spot market:

- to settle a commercial transaction through buying or selling local currency;
- to settle a financial operation (for example, transferring a loan in a foreign currency to local currency);
- to balance or hedge an unwanted position in foreign currency;
- to increase/decrease a currency position as a speculative move owing to expected future currency movements.

Currencies are basically quoted against the U.S. dollar in the interbank market, whilst major currencies can be traded directly. Smaller currencies are traded indirectly via USD.

The spread in the interbank market expressed as “pips” is the 1/10000 share of a unit of the currency (Grath, 2008). The spread will increase in environment of falling liquidity and for small customers.

The banks publish currency rates on a daily basis. The currency systems such as Reuter’s treasury information services⁹ are now widespread (Grath, 2008). It helps not only financial institutions, but also traders and big corporations.

2.4.1.2 The forward market

Grath (2008) describes the forward market as a market where currencies are traded for settlement on a day later than T+2 at the forward rate. There is obligation between bank and its customer to exchange a fixed amount of one currency to another, at an agreed rate and date.

The forward rates are determined by interest rates of the reflecting currencies. The interest differential between two currencies, which can be positive or negative, could be recalculated into forward rates. The interest rates are established on the free and unregulated international money markets (Grath, 2008).

It’s important to realize that both interest and currency rates are influenced by a number of external factors, such as expectations about future interest movements or by new or changing economic or political facts or expectations (Grath, 2008).

2.4.2 The OTC market

Basic definition of OTC (over-the-counter) trading is to trade financial instruments such as stocks, bonds, commodities or derivatives directly between two parties.

⁹ For more information see <http://www.reuters.com/finance/currencies>

There is no unified or centrally cleared market for the majority of exchange rate trades, and there is very little cross-border regulation. Due to the over-the-counter (OTC) nature of currency markets, there are rather a number of interconnected marketplaces, where different currencies instruments are traded.

This implies that there is not a single exchange rate but rather a number of different rates (prices). In practice the rates are often very close.

There is London's dominance in the market, so the main trading center is London, but New York, Tokyo, Hong Kong and Singapore are all important centers as well.

OTC trading contrasted with exchange trading, which occurs via facilities created for the purpose of trading (i.e., exchanges).

2.4.3 Financial derivatives

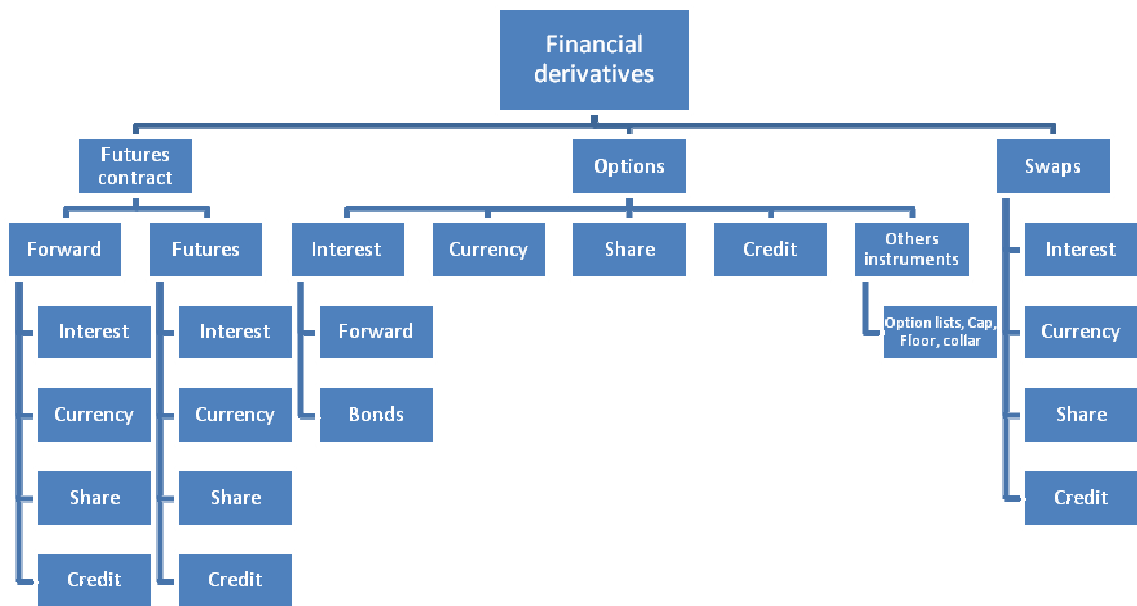
The history of derivatives is dated back a hundred years ago to market with wheat. Farmers were concerned about the price they would receive for their wheat when they sold it in the autumn, and millers were concerned about the price they would have to pay. Each party reduced the risk if they established a price earlier in the year. Thus, hedging with futures lowered risk in the economy (Brigham and Ehrhardt, 2008).

In these days are derivatives very important for corporate risk management, but on the other hand they are also very dangerous. These instruments are highly leveraged and are also complicated and misunderstood by most people. One small mistake in misuse can lead tu huge loss. It is even sometimes hard for a firm's top management to understand and exercise proper control over derivatives transactions¹⁰.

Sojka and Mandelik (2006) divides financial derivatives as follows:

¹⁰ In recent years some large and well-respected companies suffer a huge losses. As an example is possible to notice companies such as Procter & Gamble, Barings Bank and Enron. All these losses were either attributed to or associated with inappropriate use of derivatives.

Figure 3 Financial derivatives



Source: Sojka and Mandelik (2006)

The primary characteristic of the derivatives:

2.4.3.1 Forward

A forward contract, or simply a forward is an agreement between two parties to buy or sell an asset at a certain future time for a certain price agreed today (Hull, 2006). There are no costs to enter a forward contract. The party, who agrees to buy the underlying asset in the future assumes a long position, and the party, who agrees to sell the asset in the future assumes a short position. Delivery price is the agreed price, which is equal to the forward price at the time the contract is entered into (Hull, 2006).

The difference between the spot and the forward price is the forward premium or forward discount, it depends on the purchasing party.

2.4.3.2 Futures

Futures contract, in finance, refers to a standardized contract to buy or sell a specified commodity of standardized quality (some asset) at a certain date in the future, at a market determined price (the futures price). The contracts are traded on a futures exchange. The price of futures is determined by the forces of supply and demand on the

exchange at the time of the purchase or sale of the contract. The underlying asset to a futures contract may not be only traditional commodities (such as wheat, oil etc.), but the underlying asset also can be currencies, stock indexes or interest rates (Hull, 2006).

As it was mentioned, futures contract are exchange traded derivatives. The exchange's clearinghouse acts as counterparty on all contracts, sets margin requirements¹¹, and crucially also provides a mechanism for settlement (Hull, 2006).

The major difference is that futures are exchange traded contracts, while forwards are traded over-the-counter (OTC).

Figure 4 Differences between forwards and futures



Source: Author's own research

¹¹ A margin is collateral that the holder of a position in futures contracts (it could be options and securities as well) has to deposit to cover the credit risk of his counterparty (mostly broker). The margin is typically 5-15% of the contract's value. Margin requirements are reduced in some cases for hedgers who have physical ownership of the covered. Types of margin requirements: (1) current liquidation margin, (2) variation margin, (3) premium margin, and (4) additional margin.

2.4.3.3 Options

An option is a contract that gives its holder the right - but not the obligation - to buy or to sell an asset (the underlying asset) at some predetermined price within a specified period of time (Brigham and Ehrhardt, 2008).

There are 2 types of options: (1) European option - an option that may only be exercised on expiration, (2) American option - an option that may be exercised on any trading day on or before expiration (Brigham and Ehrhardt, 2008).

There are some terms which are linked together with options:

- The strike price - fixed price at which the owner of an option can purchase. It is the price at which the underlying asset will be bought or sold when the option is exercised;
- A call option - it is the option to buy underlying asset at a specified time in the future. The buyer of the option has the right to buy an agreed quantity of a particular the underlying instrument, the seller is obligated to sell the the underlying instrument. The buyer pays a fee (called a premium) for this right;
- A put option - it is the option that gives the right, but not obligation, to sell an underlying instrument at a specified price within some future period.
- Expiration - it is the date on which the contract expires. The option holder must decide to exercise the option or allow it to expire worthless (Hull, 2006).

Options could be used alone in conjunction with stocks, or even with other options. The overview of basic strategies which can be used for speculation or hedging follows. Examples of these options' strategies are shown in Appendix 4 :

Long call

A trader who believes that a underlying asset's price will increase might buy the right to purchase the assets (a call option) rather than just buy the assets. He would have no obligation to buy the assets, only the right to do so until the expiration date. The long call is most profitable option strategy and it is the most bullish of option strategy. It offers the trader unlimited profit potential and limited downside risk (the most can loose is the premium price).

The breakeven point for long calls is calculated as:

Strike Price + Option Premium = Breakeven Price For Long Calls

Long put

A trader who believes that an underlying asset's price will decrease can buy the right to sell the asset at a fixed price (a put option). He will be under no obligation to sell the asset, but has the right to do so until the expiration date. It is the most bearish of option strategy. Put buying has limited risk and a large, but limited reward (underlying asset can only go down to zero).

The breakeven point for the long put is calculated as:

Strike Price Put Price = Breakeven For Puts

Short call

A trader who believes that a underlying asset's price will decrease, can sell the assets short or instead sell, or "write," a call. The trader selling a call has an obligation to sell the assets to the call buyer at the buyer's option. If the underlying asset's price decreases, the short call position will make a limited profit (to the premium received). If the asset price increases over the exercise price by more than the amount of the premium, the short will lose money, with the potential loss unlimited. Call selling is a

neutral strategy. Selling options on underlying asset that investor don't already own is known as going naked and this is very dangerous strategy.

The breakeven would be calculated as:

Strike Price + Premium = Breakeven For Call Sell

Short put

A trader who believes that an underlying asset price will increase can buy the asset or instead sell a put. The trader selling a put has an obligation to buy the asset from the put buyer at the put buyer's option. If the underlying asset price at expiration is above the exercise price, the short put position will make a profit in the amount of the premium. If the asset price at expiration is below the exercise price by more than the amount of the premium, the trader will lose money. It is a bullish strategy. Put selling has a limited reward and a large, but limited risk (underlying asset can only go to zero).

The breakeven point for put selling is calculated by subtracting the put premium from the strike price:

Strike Price - Put Premium = Breakeven For Put Sell

2.4.3.4 Swaps

With reference to Brigham and Ehrhardt (2008, p. 45) it is possible to say, that: "...a swap is just what the name implies - two parties agree to swap something, generally obligations to make specified payments streams."

The most used type of swaps are swaps involving either interest payments or currencies. Instead, swaps are customized contracts that are traded in the over-the-counter (OTC) market between private parties (McCaffrey, 2009).

The five basic types of swaps are: interest rate swaps, currency swaps, credit swaps, commodity swaps and equity swaps.

Even though this work is concerned about exchange rate risk management, the most common used swap is interest rate swap. For this reason, example of using swap is conducted on the interest rate swap. It is also important to notice, that currency swaps are not commonly used to ensure exchange rate risk, but they are possible to use it for hedging (Jilek, 2005).

The most common type of swap is a “Plain Vanilla” interest rate swap. It is the exchange of a fixed rate loan to a floating rate loan. The reason for this exchange is to take benefit from comparative advantage. Some companies may have comparative advantage (Brigham and Ehrhardt, 2008).

2.4.4 Instruments using for hedging in the Czech Republic

On the basis of the theoretical background (Jilek, 2005; Cernohlavkova, Sato, Taušer, et. al., 2007; Kislingerova, et. al., 2007) and own research of the instruments using for hedging against exchange rate risk in the Czech Republic, is possible to say that instruments using in Czech Republic, in order of their quantitative importance, are:

- FX forward
- Currency futures¹²
- Currency options
- Currency swaps

Practical implications of FX (currency) forward follows in the Chapter 4.4.

¹² Basic value for trading futures is 20 000 USD (Černohlávková, Sato, Taušer, et al., 2007)

3 Analysis of the present circumstances in the company

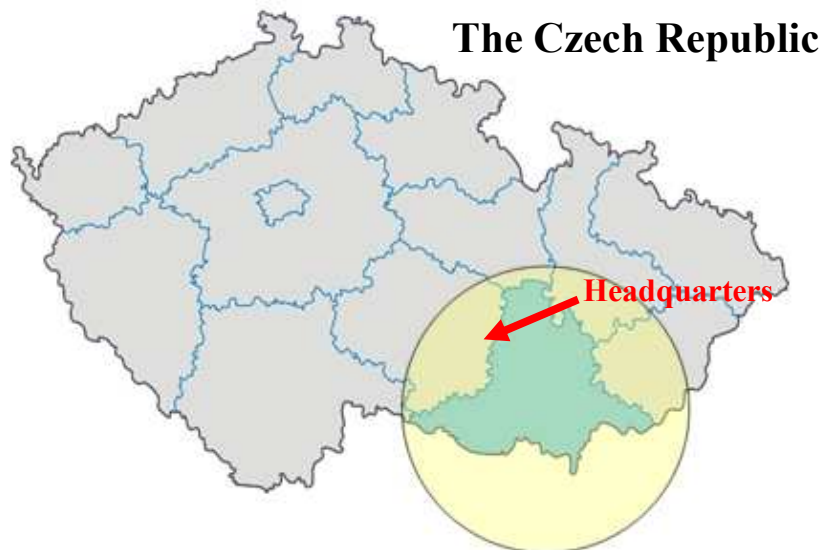
Master's Thesis is conducted for company TYM CENTRAL EUROPE Ltd., which is import oriented company. Company is an importer of South Korea's machinery Tong Yang Moolsan Co., Ltd.

The analysis of the current situation in the company is very important from the complex view of the company. Due to this analysis, the reader will be familiar with the internal process in the company. On the basis of this chapter will be carried out the proposal part.

3.1 TYM CENTRAL EUROPE Ltd.

The company TYM CENTRAL EUROPE Ltd. was establish in 2005 and is, especially, an importer of South Korea's machinery Tong Yang Moolsan Co., Ltd. (TYM). Company is located in the Czech Republic's second largest city Brno, in South Moravia. This location is very advantegeous, because it is not far away to Slovakia, Austria, Hungary as well as to Prague. With a little exaggeration, one can say Brno is in the middle of Europe.

Figure 5 Location of the company



Source: Author's own research

Data from the Commercial Register:

Date of registration: 20.12.2000

Business name: TYM CENTRAL EUROPE Ltd.

Headquarters: Holzova 9, 628 00 Brno

Identification number: 434 419 80

Legal form of company: Limited liability company (Ltd.)

Business activities:

- purchase of goods for resale and sale
- facility management
- intermediation activities
- real estate

Statutory body:

executive: Ing. Josef Chytka

condfidential clerk: Ing. Tomáš Chytka

Method of representation: Executive acts and signs

Partners with deposit: Ing. Josef Chytka

Deposit: 200 000,- CZK

Share: 100%

Capital: 200 000 ,- CZK

Recorded in the Commercial Register kept by Regional Court in Brno, Section C, insert 20285.

3.1.1 History of the TYM CENTRAL EUROPE Ltd.

The company TYM CENTRAL EUROPE Ltd. was founded by Milan Maly in July 2005. At the end of the year 2005, in November, Ing. Josef Chytka joined the company and there were 2 owners of the company with split share. At the beginning of the business, the company has established cooperation with TYM International Ltd., the United Kingdom's company, which was the major importer of the Tong Yang Moolsan in Europe. TYM CENTRAL EUROPE Ltd. then purchased Korean's TYM machinery indirectly from UK. TYM CENTRAL EUROPE also has started to create own distribution network in the Czech Republic to ensure sales and services for their customers.

Due to the problems of Tym International Ltd. and increasing sales in the Czech Republic, the company has agreed a deal with Tong Yang Moolsan for exclusive representation of TYM brand in the Czech Republic in 2008. On the basis of this agreement, TYM CENTRAL EUROPE Ltd. imports machinery directly from the manufacturing plants in Korea and every transaction are carried out with Tong Yang Moolsan. In 2007 the company has become the exclusive importer of the italian backhoe's manufacturer Iron Power s.r.l.

TYM CENTRAL EUROPE Ltd., seeks to extend their influence in neighbouring countries. The first foreign dealer become Profigrass SK in the Slovakia, which is the Chytka's company in Slovakia. The second dealer from foreign, with whom company has established cooperation was Agrowolf in Hungary. Moreover this dealer has also own sales network in his country.

The sales and services network in the Czech Republic has been developing during the years and nowadays is stabilised with 9 partners scattered throughout the Czech Republic.

In June 2009 Milan Maly sold his share to Ing. Josef Chytka, so in these days company has one owner - Ing. Josef Chytka, which is owner of the company Profigrass Ltd. as well. Company TYM CENTRAL EUROPE Ltd. and Profigrass Ltd. has been cooperating from the beginnig TYM CENTRAL EUROPE's activities. It is possible to say that TYM CENTRAL EUROPE Ltd. is Profigrass's sister company.

At the end of June 2009 Ing. Ondrej Soukal, who was the product manager, terminated the employment in the company and was replaced by Ing. Ales Raab. Ing. Raab will be responsible for the managing of the TYM CENTRL EUROPE Ltd. and will be responsible for the development of the business strategy as well.

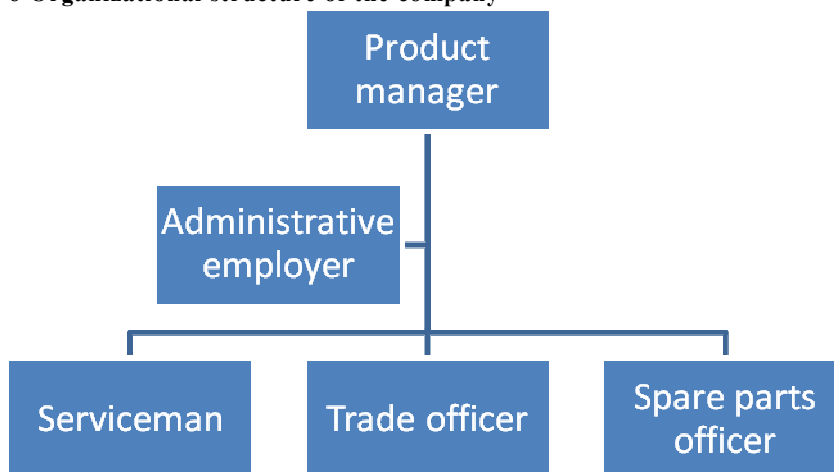
3.1.2 Organizational structure

As shown in figure 6, the company has only 5 employees included Product Manager. Executive power is concentrated in the hands of the owner Ing. Josef Chytka, but the manager who is responsible for the running of the company is Product Manager. Product Manager is also responsible for the distribution and sales network. Positions, which are subordinated to Product manager are Serviceman, Trade officer and Spare parts officer and Administrative employer.

Big advantage for the company is to be in close connection to Profigrass company, because company can use the servicemen from the Profigrass company as a outsourced service. Another very important thing is outsourced. Company uses and external accountant.

In such a small company like TYM CENTRAL EUROPE is, make non-sense to speak about top management. But it is possible to say, that top management of the company represents Ing. Josef Chytka.

Figure 6 Organizational structure of the company



Source: Author's own research

3.1.3 Tong Yang Moolsan Co., Ltd.

Tong Yang Moolsan Co, Ltd was established in 1960 as a Bokkun Enterprise Co., Ltd. Two years later, company changed its name to Tong Yang Moolsan Co., Ltd. First, company began to produce and export stainless steel flatware. Thanks to merger with Korea Light Metal Co., Ltd. company commenced agricultural Machinery production in 1968. Over the next few years the company has bought and merged with another companies, which caused that the company is, by the way, the cigarette filter producer from 1972. Company opened to the public its shares in 1972 and shares¹³ are traded in Korea Stock Exchange (Koscom).

In these days, company has four division:

- Machinery Division - tractors, harvestors;
- Metal Division - silverware;
- Cultural Services Division;
- Cigarette Filter Division.

Probably the most famous is Machinery Division. From its establishment, TYM has played a pivotal role in the modernization of the Korean farm industry with the manufacture of various farm and garden machinery based on state-of-the-art facilities and technology.

In early years, tractors were based on Iseki designs, from Japan. After a long time in tractor and machinery industry, TYM has gained very good reputation not only in the Korean market but also worldwide. TYM tractors are used extensively in all areas of agriculture, horticulture and professional grounds maintenance, including golf courses, soccer stadiums, polo fields and race tracks.

As a sign of quality of the product can be considered that Tong Yang Moolsan Co., Ltd. have built tractors for other companies and been sold under various brands. As

¹³ The actual price for share on 15th July 15 2009 is 6,930.00 KRW, which is approximately 3.82664 EUR.

an example: Same and Nibbi of Italy; Mahindra of India sold in USA and JCB of United Kingdom.

The company's stainless steel flatware product line comprises spoons and forks, knives, hollow handle buffetware, and ceramic coated products. Its cigarette filters products include triple filters, dual charcoal filters, solid filters, and the acetate mono filters. In addition, the company distributes various periodicals, including newspapers, magazines, and books.

Some other information about company is included in Appendix 1.

3.2 Analysis of the external environment

3.2.1 PEST Analysis

PEST Analysis describes a framework of the external macro-environmental factors used in the analysis of the company's business position (Rais, 2007).

3.2.1.1 Political analysis

Company TYM CENTRAL EUROPE Ltd. during its existence has not noted political factors that significantly affect its operation negatively.

Political factors may affect the export and import between different countries, but the business activities of the company TYM CENTRAL EUROPE are related to the developed countries such as South Korea, Germany, Italy, Slovakia, Hungary, etc.

Positive impact on the political determinants of membership in the European Union, is the possibility to draw subsidies from the European Structural Funds, either the company itself, or farmers (municipalities, etc.) who are interested in buying machinery from TYM CENRAL EUROPE.

3.2.1.2 Economic analysis

The situation in the company affects the condition of the nation's economy. Economic factors may make it easier or complicate the achievement of the company's objectives.

The situation in the business activity of the company is most affected by development of the exchange rate. Company doesn't use any hedging instruments to eliminate this risk. Another important factor is interest rate. Whereas the Czech Republic is not a member of the EU, the interest rates are governed by the CNB. Actual interest rate is 1,50%. The forecast of the GDP in the Czech republic is -2,4% in 2009 and 1,4% in 2010 and forecast of inflation is below 2% in the period 07/2009 - Q3/2010. Based on the data published by CNB.

3.2.1.3 Social analysis

Due to economic crisis, in the Czech republic is increasing unemployment, which could be advantage for the company. Company can afford to select potential employees with with the appropriate qualification.

On the other hand, at the time of financial crisis is a problem with sales to the all branches of business.

3.2.1.4 Technological analysis

In terms of technology and technological development, the company is insufficient equipped. There is a lack of modern information system with CRM and ERP which are common in small firms.

Because the company is mainly trading company, the absence of R&D center can be understood. The possibility of outsourcing some activities in Czech Republic is increasing in last decade, that's why company should take into account this opportunity to use outsourcing.

Overview of the PEST analysis is conducted in Appendix 2.

3.2.2 Analysis of the branch of business

Analysis of the branch of business is influenced by several factors. The most important factors can be analysis of customers sector and the analysis of the competitors sector.

3.2.2.1 Suppliers

As the company TYM CENTRAL EUROPE is an exclusively distributor of Korean Tong Yang Moolsan machinery in the Czech Republic, the main and key supplier of the products is Tong Yang Moolsan. Tong Yang Moolsan supplies tractors, backhoes, loaders, cabins and obviously supply of spare parts.

Among other important suppliers company can add Italian IRON POWER, which produces backhoe, Austrian WALTER MAUSER, which produces cabins for the smallest type of tractors, PRODAG Zlin, which produces distributor spreader, German Bohnenkamp, which supplies tyres, Czech Trac-lift, which produces loaders, and many other czech smaller firms. A relationship with suppliers is good, but the problem is small volume of purchased goods.

3.2.2.2 Customers

The ideal users of the machinery which company TYM CENTRAL EUROPE sells are farmers, municipalities, companies for maintenance of their facilities, football clubs, golf clubs, racing stables, etc. In recent years have gained popularity compact tractors, ideally suited for maintenance of larger turfs or gardens around the house.

In recent years company TYM CENTRAL EUROPE haven't sold machinery to the customers directly, but through the dealers. It has advantage, that company can attend to business and doesn't need to solve the problem with service, because it's object of the dealers.

TYM CENTRAL EUROPE has network of dealers in Czech Republic as well as in some Central and Eastern Europe (CEE) countries. The list of maps and dealers is enclosed in Appendix 3.

3.2.2.3 Competitors

The biggest competitors of TYM CENTRAL EUROPE Ltd. are distribution networks of foreign machinery producers, who are well known throughout the whole world. Rule is, that each brand has its exclusively importer for the territory. And the importer has also its own dealer network.

The list of main competitors:¹⁴

Kioti

Is the trade name for DaeDong tractors in North America and Europe. DaeDong is based in Daegu, South Korea, and was founded in 1947, and produced its first tractor in 1968. Kioti tractor brand was established in 1993 in North Carolina. The official importers of Kioti in the Czech Republic are P&L and Agrospektrum Belerus.

Kubota

The company was founded in 1890 in Osaka, Japan. In these days company produces many products, especially tractors and agricultural equipment, engines, construction equipment etc. The products are distributed in more than 130 countries. Distribution network in Czech republic is at very high level and the products are very easily accessible. The official importer of Kubota in the Czech Republic is BONAS Ltd.

Iseki

The company is based in Tokyo, Japan, and was founded in 1926. In these days manufactures a variety of machinery, components, and engines. First tractor was

¹⁴ List was conducted on the basis of own research.

produced in 1961. Its tractors have been sold worldwide under various brands. Early Tong Yang or TYM tractors were based on Iseki's designs.

John Deere

Deere & Company, well known as John Deere, was founded by John Deere. Company began to expand its range of equipment to include the tractor business in 1912. The Deere Company briefly experimented with building its own tractor models. In these days John Deere is the world's leading manufacturer of agricultural equipment. The company offers a complete range of machines, services and solutions for the agriculture. Machinery is sold and serviced by the excellent dealer network available in nearly 230 countries around the world.

New Holland

The company is a part of the company CNH Global, a division of the Fiat Group. New Holland branded agricultural equipment is sold around the world. This company is one of the three most famous and largest manufacturer of agricultural equipment in the world. Company sells its products to 160 country markets through more than 10 000 dealers.

There is much more producers of the tractor, but in a segment of compact tractors, which company TYM is mainly focused, the main competitors are shown above.

Other major brands on the czech tractor market are: Zetor (CZE), Landini (ITA), Antonio Carraro (ITA), Same Deutz-Fahr (ITA), Massey-Ferguson (FRA), Valtra (FIN), Belarus (BLR), Goldoni (ITA), JCB (GBR), LS (KOR), Shibaura (JAP), and small czech producers: Wisconsin Engineering CZ and Agroservis Pavel Sálek.

3.2.3 Analysis of the market

Competitiveness in the industry in which the company TYM CENTRAL EUROPE operates, is based on factors such as technical parameters, quality of product, speed of delivery, comprehensiveness of delivery, warranty period and especially availability of service for the machinery.

Despite some problems with sales at the start of the business, the company develop itself as a respected distributor and importer of TYM machinery and additional equipment for tractors not only in Czech Republic.

According to market analysis in the Czech Republic, it is clear that there is further potential to expanse with the sales of tractors and their equipments.

On the basis of the data from Automotive Industry Association¹⁵, it is 149,893 registered agricultural tractors in Czech Republic (data valid at 2008-12-31), which is 2,685 more than previous year. But very interesting fact is that the average age of the tractors is more than 28,33 years. The need for replacement of the old tractors for the new ones is obvious. The situation with average age of machinery is the same in another CEE countries, where the company TYM CENTRAL EUROPE is trying to export.

The possibility of the obtain subsidies from the EU or Ministry of Agriculture¹⁶ of the Czech Republic is another challenge for farmers to purchase a new machinery.

3.3 Analysis of the internal environment

Analysis of the internal environment in the company is carried out on the basis of 7S-Framework of McKinsey. This concept describes seven elements to organize a company in an effective way.

¹⁵ Data are available at: <http://www.autosap.cz/sfiles/a1-9.htm>

¹⁶ More information about subsidies available at: <http://www.mze.cz/>

3.3.1 7S-Framework Analysis

Strategy

Corporate strategy is focused on maximum benefits and utility for customers who will use services of the company.

TYM CENTRAL EUROPE is able to cover whole territory of the Czech Republic through the dealers. The method of the entry and operation on the foreign market for the company is, according to the Stonehouse et al. (2006), characterized as a market-servicing strategy. For the company TYM CENTRAL EUROPE is the most characterized way how to service international markets as a direct exporting type of entry through the distributors (dealers). And company wants to continue in this type of entry. It's also important to choose right dealers.

Structure

Structure of the company is very simple. Product Manager is responsible person for the running of the company. Company's Executive head provides oversight and monitors the operation of firm as a whole. Among technoeconomic staff includes employees of the business department.

Systems

It's important to have up-to-date picture of the real situation in real time for the execute right decisions in the company. For these purposes company requires correctly chosen Information System (IS).

TYM CENTRAL EUROPE is without any complex Information System such as ERP, which would cause some problems in near future. Company uses common office systems as Microsoft Office with Word, Excel, Outlook and Access and accounting system Pohoda.

Staff

As I have already said the company currently employs 5 permanent workers. The number of employees have had an upward trend, because the company has enhanced a number of items sold.

During the last quarter, the company have come through the replacement of the staff, which was crown with the exchange of Product Manager. This, of course, can negatively affect the operation of the entire company in near future. The work team is made up of people of different education.

Style

Style, as part of the 7S-Framework analysis is based on corporate strategy. Employees of the company seeks endeavour to do improvement in customer relationships. The owner of the company requires friendly and willing approach in relation to customers.

Skills

Business activities of the company are only 5 years old and if it is taken into account the fact, that new Product Manager was hired at the beginning of July, the working team of the company is quite unexperienced. There would be some problems with smooth runnig of the business in the next weeks.

On the other side, the personality of the owner, Ing. Josef Chytka, guarantees overcoming the initial problems of new manager. Chytka has a long experience with sale of tractors and with the running a business.

Company TYM CENRAL EUROPE constantly seeks to improve the skills of their workers. Employees attend some qualification courses etc.

Share values

TYM CENTRAL EUROPE's business philosophy is the maximum customer satisfaction and highest quality products and services for affordable price. Company uses Tong Yang Moolsan's motto "QualityMatters".

To achieve these objectives the company uses some motivation systems to motivate their employees, who have work better and have more efficient performance. Employees are remunerated on a month wage.

3.3.2 Products

TYM CENTRAL EUROPE is exclusive importer of the TYM machinery. Product range of TYM machinery includes tractors from 23 to 100 horse power, loaders, backhoes and mowers.

Company sells to its costumers additional equipment such as:

- loaders;
- backhoes;
- lawn mowers;
- cabins;
- tyres;
- and other equipments from various producers from all around the world.

Figure 7 Example of TYM machinery: tractor TYM T433 NC



Source: TYM CENTRAL EUROPE

3.4 SWOT Analysis

Figure 8 SWOT Analysis

Strenghts	Weaknesses
<ul style="list-style-type: none"> + The brand TYM is certificated by ISO 9001:14000 + High-quality and affordable price products + Distribution network covers the whole Czech Republic + Chytka's experiences in the tractor business + Comprehensiveness of product range 	<ul style="list-style-type: none"> - Insufficient distribution network in some CEE countries - Insufficient credit of the TYM brand on the Czech market - Weak marketing activities - Outdated workspaces
Opportunities	Threats
<ul style="list-style-type: none"> ➤ Captures of new foreign markets ➤ Subsidies from the EU funds for farmers and municipalities ➤ Municipalities has to maintance a public path 	<ul style="list-style-type: none"> ! High competition ! Change of macroeconomical environment due to economic and financial crisis ! Volatile of the Czech crown against euro and dollar

Source: Author's own research

3.5 Current economic situation in the world

Everyone and everywhere around us is talking about the fact that the world economy is in recession. But how this situation actually happen?

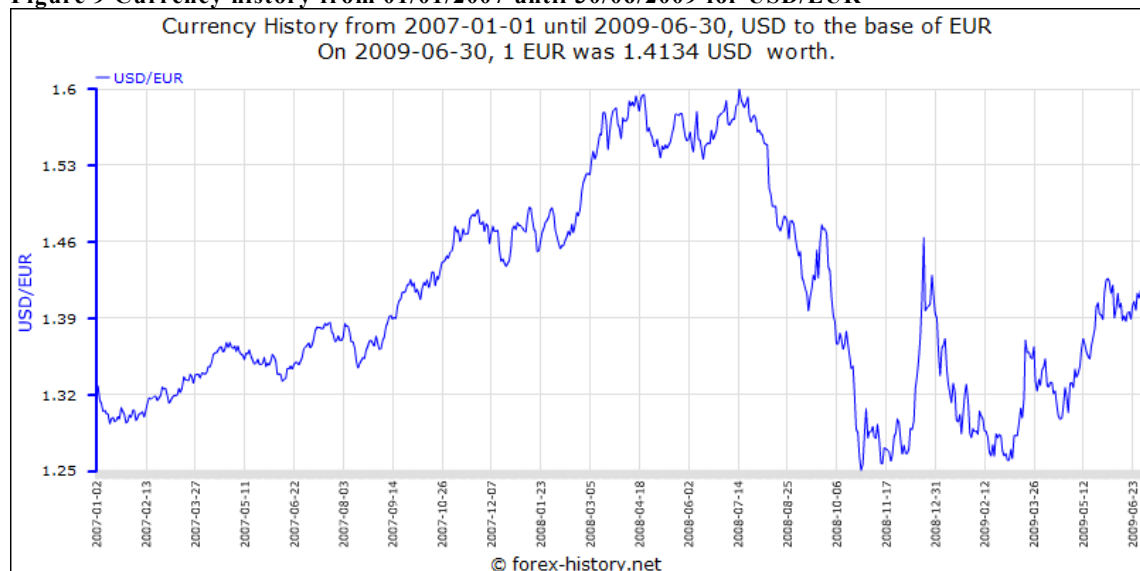
As Hull (2008, p.12) mentions in his paper: "...The credit crisis that started in 2007 had a devastating effect on financial markets throughout the world. Its origins can be found in the U.S housing market. The U.S government was keen to encourage home ownership. Interest rates were low. Mortgage brokers and mortgage lenders found it attractive to do more business by relaxing their lending standards. Products for securitizing mortgages had been developed so that the investors bearing the credit risk were not necessarily the same as the original lenders. Rating agencies gave a AAA rating to senior tranches that were created by securitization. There was no shortage of buyers for the AAA-rated securities that were created because their yields were higher than the yields on other AAA-rated securities. Banks thought the "good times" would continue and, because compensation plans focused their attention on short-term profits, chose to ignore the housing bubble and its potential impact on the very complicated products they were trading. House prices rose as both first-time buyers and speculators entered the market. Some mortgages had included a low "teaser rate" for two or three years. After the teaser rate ended, there was a significant increase in the interest rate for many borrowers. Unable to meet the higher interest rates they had no choice but to default. This led to foreclosures and an increase in the supply of houses be sold. The price increases between 2000 and 2006 began to be reversed in 2006 and 2007. Speculators and others who found that the amount owing on their mortgages was less than the value of their houses (i.e., they had negative equity) defaulted. This accentuated the price decline".

Shortly, the financial crisis with its global effects is characterized by the failure of key businesses, declines in consumer wealth, substantial financial commitments incurred by governments, and a significant decline in economic activity. And there still remains significant risks for the world economy.

Hull (2008, p. 12) in his work mentions a number of steps that need to be taken to avoid futures crisis: “...The interests of the originators of loans should be aligned with the interests those who ultimate bear the credit risk. This could be achieved by requiring originators of loans to keep some of the risk in each instrument created from the loans. The compensation plans within financial institutions should be changed so that there is much less emphasis on short-term performance. Some banks such as UBS moved in this direction in late 2008, and early in 2009. The products that are traded should be made more transparent so that their risks are widely understood. Risk management should involve a heavy dose of managerial judgment, not just the mechanistic application of models. Finally collateralization, either through clearinghouses or through bilateral collateralization agreements should become a compulsory feature of derivatives markets“.

As a demonstration of unstable economic situation and the turbulent time since the beginning of crisis is possible to see figure 9 with the exchange rate of USD/EUR. For this example is nice to see that at current situation is hedging against exchange rate risk absolute necessity.

Figure 9 Currency history from 01/01/2007 until 30/06/2009 for USD/EUR



Source: www.forex-history.net

3.6 Forecast for CZK/EUR exchange rate

Prediction monitoring of the exchange rates is very important for all the companies. Analysis of the current and future development of the exchange rates is necessary to conduct on the basis of macroeconomic forecasts published by CNB quarterly or by other privat financial institution¹⁷.

Whereas the company TYM CENTRAL EUROPE, Ltd. purchases the products in euro, author take into account analysis and prediction about exchange rate of CZK/EUR

Figure 10 Trend in CZK/EUR exchange rate over the past 12 months



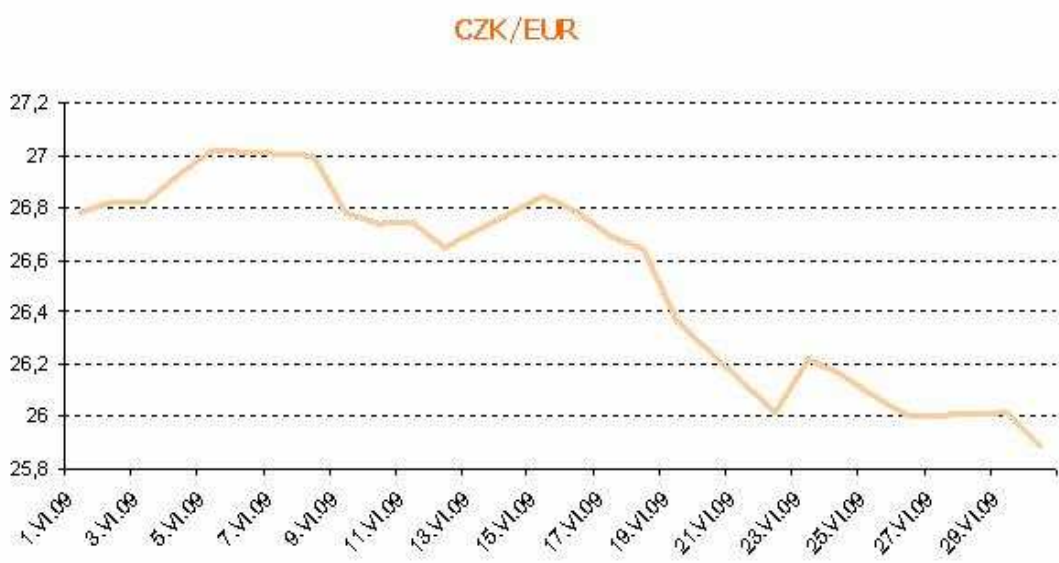
Source: CITCO - Finanční trhy¹⁸

As figure 10 shows, the volatility of the exchange rate was relatively high, this was mainly due to unstable worldwide economic environment. Other important factor, which is effecting exchange rate is that Czech Republic is an open economy.

¹⁷ Examples of private financial institution in the Czech Republic: CITCO - financni trhy, Patria Finance, Ceska sporitelna, etc.

¹⁸ CITCO - Finanční trhy publishes monthly reports. This report was accessed on July 15, 2009 and is for July.

Figure 11 Trend in CZK/EUR exchange rate in July



Source: CITCO - Finanční trhy

Volatility in June in the foreign exchange market increased again. During the first half of the month we saw the crown moving between levels of 26,60 to 27,00 CZK/EUR. In the second half of the month CZK strengthened significantly during the two days to receive the level of 26,80 CZK/EUR and then continued to 26,00 CZK/EUR, and at this level is maintained until the end of the month. Strengthening the crown may correspond to the fact that investors have already begun to distinguish between the currencies in the Central European region.

Perspective by the end of the year 2009

According to the dates and information from CITCO - finanční trhy is possible to say, that for the development of the Czech crown in the coming months is expected weakening over the level of 27,00 CZK/EUR. There is a risk, that the Czech crown more than the economic fundamentals will respond to the growth or decrease in risk aversion in the markets.

Due to the global economic development is not expected that the Czech economy would bounce back from the bottom before the end of this year. It is assumed

a return to level of 25,00 CZK/EUR in the end of the year 2009 earliest. At this time there could be seen signs of recovery of world economy already.

3.7 Czech Republic and the euro

The issue of adopting euro in the Czech Republic is one of the most discussed topic not only for the heads of the political parties in the Czech Republic.

It's a little surprise, that Czech's old partner - Slovakia - has adopted Euro on January 1st, 2009, and Czech Republic still doesn't have the firm target date for adopting. The former Prime Minister Mirek Topolánek announced, that: "...he can say with certainty that on November 1st, 2009, this government will announce the date for euro adoption" (Cameron, R., 2009). But the situation is more complicated, because of early voting to the House of Representatives.

Vaclav Klaus, czech President and profesor of economy, belong to the best-known opponent of the introduction of the euro in Czech Republic. Robert Holman, member of the CNB board, shows some arguments on his presentation in Linz¹⁹ for later adoption of euro: slower real convergence, low business cycles synchronization, labor market rigidities (high long-run and structural unemployment, low regional mobility), different structure of the economy -> larger share of industry, slow economic growth in eurozone countries in comparison to those EU countries that did not adopt euro (Holman, 2006).

On the other hand, there is a lot of arguments, why is good to adopt euro as soon as possible. Tomáš Sedlacek, czech respected economist, have been talking about problem for the czech exporters: "...because eighty percent of Czech GDP – eighty percent of all that we produce, ends up being exported abroad. And of course, the majority of those exports end up in the Euro-using countries" (Jun, 2008). According to the executive director of Skoda, Radek Spicar, volatility of crown is problem for Czech firms. He's added: "...it's hard to predict the development of the currency. And of

¹⁹ Presentation is available at: www.oenb.at/de/img/holman_tcm14-41281.pdf

course when you are in business that makes your life very difficult. Actually in both ways. When the Czech crown is getting stronger, then of course you lose profit. And when it gets weaker, yes it helps companies, but the problem is that a lot of them, in order to protect themselves against the strong currency used hedging – and now, despite the fact the Czech currency is weak – are losing a lot of money”. (Willoughby, I., 2009).

According to the governor of the Czech National Bank, Zdenek Tuma, the most likely time for the Czech Republic to adopt the euro is between 2013 and 2015 (Willoughby, I., 2009). Much more sceptical about adopting the euro are Erste’s bank analysts. They do not expect that Czech Republic to join the Eurozone before 2015.

It is clear that in the foreseeable future the euro will not be introduced in the Czech Republic and the demand for hedging will increase.

4 Proposal of the hedging against exchange rate risk

Proposal of the exchange rate hedging in the international company is elaborated for conditions in the Czech business environment, because TYM CENTRAL EUROPE, Ltd. is company with headquarter in Brno, Czech Republic, and is importer of the goods mostly from South Korea and Italy. Company's export is predominantly to the Hungary and Slovakia, but large part of imported goods is sold in the domestic market of Czech Republic.

4.1 Definition of the problem with exchange rate

Company TYM CENTRAL EUROPE, as it was mentioned in previous chapters, imports machinery from South Korea, Italy and another parts of the world. Because masterfully the largest turnover is between TYM CENTRAL EUROPE and Tong Yang Moolsan in Korea, the proposal part of the Master's Thesis is about the problem with exchange rate between these two parties.

When is compared the import from Tong Yang Moolsan and another foreign suppliers, the difference is apparent.

Figure 12 Comparison of amount of import in 2008

	Tong Yang Moolsan Co., Ltd	Another foreign suppliers
Import in 2008	155 000 €	5 000 €

Source: TYM CENTRAL EUROPE

On the basis of the research of the import size from foreign suppliers, author decides to focus on the business relationship between TYM CENTRAL EUROPE and Tong Yang Moolsan with specific focus on the exchange rate exposure for TYM CENTRAL EUROPE.

Company TYM CENTRAL EUROPE have been importing the machinery from Tong Yang Moolsan since September, 2008, when the direct cooperation has started. Before this agreement, company TYM CENTRAL EUROPE was only a dealer for

Central Europe for Great Britain's company TYM INTERNATIONAL. But the financial and delivery problems of TYM INTERNATIONAL and increasing demand for compact tractors on the market of CEE countries has led to negotiations with the manufacturer of the TYM machinery - Tong Yang Moolsan. Negotiations were successful and company has obtained status: "exclusive importer for the Czech Republic".

Together with the acquisition of large benefits, the company also had to commit certain obligations. One of the most important obligation is the purchase of certain amount of the tractors per year. The original request of one hundred tractors per year was changed to approximately forty-five tractors per year. When is considered, that company has sold cca ninety tractors before the agreement of this contract, it is clear, that company could have some problems with sales. But thanks to better prices from direct supplier and good employee's sale skills, company doesn't have had the problem with distribution of the machinery yet.

On the figure 13, it is possible to see Delivery schedule of the TYM's tractors and additional equipments in 2009. On the basis of this sheet, it would be seen that delivery of thirty-nine tractors is divided into eight months. It is due to necessity of the full-load container. Transport takes place by sea, and is operated by Tong Yang Moolsan to the port in Hamburg (CIF Hamburg, Germany) for € 2,800 and from Hamburg to Brno by long-vehicle, it is operated by the company DB Schenker and it costs € 1,290. Therefore total transportation costs are € 4,090.

The quantity of the delivery in 2009 is planned one year in advance and there is possibility to confirm the firm order 3 months in advance changeable within 10% according to contract between TYM CENTRAL EUROPE and Tong Yang Moolsan. For example, in March it is possible to change the order quantity in July (in April it is possible to change the order quantity in August etc.). The confirmed quantity for the April, May and June is firm order which was done 3 months before each month.

The payment for the goods should be done before the time of delivery in Pusan, South Korea, where the goods is loaded and then send by ship to the port in Hamburg and then by truck to the Brno. In practice it means, that company have to pay for the goods from three to four weeks before having goods (tractors) in stock in Brno.

Figure 13 Delivery schedule

MODEL		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL QUANTITY
TRACTORS	T233 HST(TF)													0
	T233 HST(IN)													0
	T273 HST(w/o wheels)										4			4
	T273 HST(IN)			8							4			12
	T353 (AG)	2												2
	T353 HST(TF)		2											2
	T433 NC (AG)				1									1
	T433 ST (AG)		1				1			1				3
	T503 NC (AG)						2							2
	T503ST (AG)				2		1						1	4
	T503ST (IN)	1								1				2
	T603ST (AG)	1	1		1						1			4
	T603SP (IN)									1				1
	T903ST (AG)				1								1	2
TOTAL TRACTORS		4	4	8	5	0	4	0	0	3	9	0	2	39
LOADERS	LT200		2		6									8
	LT500	2												2
	LT700				1									1
MOWER	TMB60SH				10									10
BACKHOE	BT200		1											1
TOTAL EQUIPMENTS		2	3	0	17	0	0	0	0	0	0	0	0	22
TOTAL PRICE OF DELIVERY		49 927 €	51 650 €	56 472 €	92 102 €	- €	45 294 €	- €	- €	40 164 €	70 748 €	- €	34 999 €	TOTAL PRICE: 441 356

Source: TYM CENTRAL EUROPE

On the basis of this information it is clear, that company knows three months in advance, how much will pay for delivery of goods.

Thanks to the overview of the delivery in year 2009, author has carried out the illustration how company proceed when order and pay for goods and does not use any hedging instruments and how the exchange rate is different in the time:

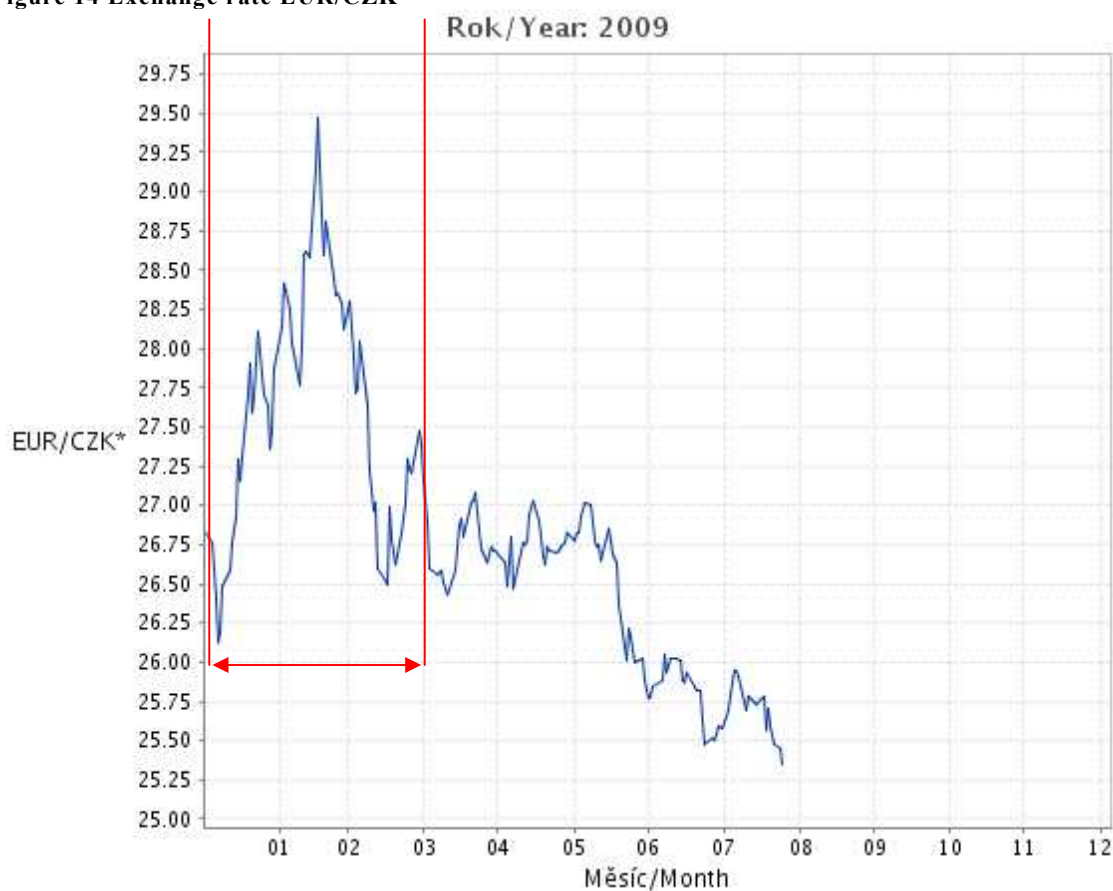
In January 2009, company TYM CENTRAL EUROPE confirmed the April's order of 5 tractors and 17 equipments. It means, that company should pay € 92 102 to

the Tong Yang Moolsan until 1st April, 2009. We also should take into account transportation costs € 4 090. The total amount is € 96 192.

After that, company knows 3 month in advance, how much have to pay for the order.

On this illustrated example it is easy to show, how the exchange rate was different in the time from 1st January 2009 and 31st March 2009.

Figure 14 Exchange rate EUR/CZK



Source: ČNB²⁰

²⁰ Accessed on 25th August 2009 and available at:
www.cnb.cz/cs/financni_trhy/devizovy_trh/kurzy_devizoveho_trhu/graf.jsp?rok=2009&mena=EUR

In this period company had to buy euros in order to pay for the goods. Because of the lack of money on the bank account at the start of the period, company would not buy the euros earlier than the end of the March. Due to this situation company suffer loss.

The example of the loss in spot trade follows:

As an example we can say, that company bought the euros on 5th March, when the exchange rate for EUR/CZK on was 27,745. But on the otherside, the exchange rate for EUR/CZK on 5th January was 26,760, but as was mentioned, company could not buy the euros, because of lack of money.

Reckon the loss:

Purchase on 5 th March:	$92\,102 * 27,745 = 2\,555\,369,99$ CZK
Eventually purchase on 5 th January:	$92\,102 * 26,760 = 2\,464\,649,52$ CZK
Total difference:	90 720,47 CZK

As we can see, the total difference in purchase on 5th March and eventually purchase on 5th January is 90 720,5 CZK. More than 90 000 CZK is for small company such as TYM CENTRAL EUROPE is, indispensable amount.

On the otherside it is important to note, that the exchange rate in the Czech Republic is volatile, especially in the last half year and due to spot trade company could profit as well. But as the previous exapmle shows, the necessity of the hedging in the company increases.

4.2 How the company eliminate the exchange rate risk - is there any hedging?

The company TYM CENTRAL EUROPE have not used any external financial instruments to hedge exchange rate yet. According to the owner of the company Ing, Josef Chytka, it is because of insufficient employee's capacity. Company employs only 5 workers. And another reason is, that company didn't have as big turn over previous years as it should have this year. And the last reason is, that company haven't believed the hedging could be paid off.

Although the company haven't used any external hedging instruments, there have been some internal processes, which would be characterised as an internal hedging.

Company uses these methods of hedging internally:

- Matching - company "matches" its foreign currency inflows and outflows with respect to amount and timing. Considering the company difference between purchase and sale in euros is huge, this method is insignificant.
- Leading and lagging - refer to adjusting credit terms between seller and buyer, where "leading" means paying an obligation in advance of the due date and "lagging" means after the due date. This is a tactic aimed at capturing expected currency appreciation or depreciation.

This is the most TYM CENTRAL EUROPE's used tactics of internal hedging. Company uses currency account at the company CITCO - Finanční trhy, a.s. This company has better exchange rates then Komerční banka, a.s., where company TYM CENTRAL EUROPE has company's bank account. It means, company TYM CE send CZK from KB account to the currency account in CITCO - FT then wait for an advantageous exchange rate, if the exchange rate is bargain converts CZK to EUR and send them back to the KB account and then pay to the Tong Yang Moolsan.

- Price adjustment - it involves increasing/decreasing selling prices to counter exchange rate moves. But these technique is not often used in

TYM CENTRAL EUROPE. Could be used when the exchange rate is changed massively and constantly.

- Invoicing in foreign currency - it reduces transaction risk relating specifically to exports and imports. This is not used in the company yet, but should be one of the steps leading to effective internal hedging. Because company would have inflows in EUR as well as outflows in EUR for domestic buyer. But on the otherside, there would be problems with customers - they would not be willing to buy products for EUR in Czech Republic.

4.3 Research of the market with currency exposure

Before author carry out the choice of the hedging instruments, which are fitted for the company TYM CENTRAL EUROPE, it is important to conduct a survey in the field of financial instruments.

There is a lot of banking and non-banking institutions which provide services related to derivatives. As it is mentioned in previous chapters, especially in chapter 2, the most suitable instruments for currency hedging are currency forward and currency options. Author decides to introduce only these two instruments in the figure 15, which overviewed mostly famous bank institutions in Czech Republic and one non-bank institutions - CITCO - FT and their conditions for the conclusion of the contract.

Figure 15 Bank survey

	Raiffeisenbank	Komerční banka	GE Money Bank	UniCredit Bank	ČSOB Banka	CITCO - FT
Currency forward:	YES	YES	YES	YES	YES	YES
Minimum amount:	20 000 €	individual	500 000 Kč	15 000 €	20 000 €	10 000 €
Costs of transaction:	undisclosed	undisclosed	undisclosed	undisclosed	undisclosed	undisclosed
Bank account required:	NO	NO	NO	NO	NO	NO
Notice:		Dealing of contract by phone	Dealing of contract by internet application			Dealing of contract by phone, 3% deposit required
Currency options:	YES	YES	undisclosed	YES	YES	NO
Minimum amount:	undisclosed	individual		100 000 €	100 000 €	
Costs of transaction:	premium	premium		premium	premium	

Source: Author's own research

As shown in the table, there is a lot of empty field. In these cases author didn't find out more information about specific product. Moreover, the situation was made difficult by the fact that neither the client center of banks know more about this product.

In the current situation it is possible to conclude contract even without any fee as it is possible to obtain free advice and continuous tuition. However, the price of that concluded contract is reflected in the agreed exchange rate, which is usually more advantageous for the bank. Some banks also charge a fee, whose amount ranges usually go away within 0.25% of the contract value.

Usually, the amount of the contract, in which banks are willing to negotiate forward with the clients, starting at 20 000 EUR, but may be vary.

Whereas the company has the bank account at Komerční banka, a.s. and another non-bank account at CITCO - FT, author has decided to select one of these two companies. Moreover, as it is shown in the table, there is no big difference between conditions for concluded contract.

Compared CITCO's and KB's exchange rate helped the author to choose one of these two banks. This comparison is shown in next table:

Figure 16 Comparison of the exchange rate

	16.1.2009		28.1.2009		21.5.2009	
	bid	ask	bid	ask	bid	ask
CITCO - FT	27,252	27,514	27,318	27,582	26,534	26,790
Komerční banka	26,898	27,772	26,988	27,972	26,124	27,076

Source: Author's own research

On the basis of this comparison, author has decided to choose the company CITCO - FT for the following practice example, how the company TYM CENTRAL EUROPE should hedge their currency risk. Compared bid and ask rates in Komerční banka there is relatively large spread, in some cases almost 1 CZK per EUR, while CITCO - FT offers much more competitive exchange rate. It is demonstrated on the

example of the spread between ask and bid rate. For the select of company CITCO - FT also speaks existing smooth cooperation on exchange market, as it was mentioned in previous chapter. Their individual approach to small companies such as TYM CENTRAL EUROPE and good experience from previous cooperation are other benefits why select CITCO - FT.

4.4 Choice of the hedging strategy - Selection of the hedging financial instrument

With theoretical framework referred to the first chapter of this Master's Thesis and also thanks to the analytical part in the third chapter of this Master's Thesis, the author has considered that the best instruments for hedging against exchange rate risk in the field of TYM CENTRAL EUROPE's business is Currency Forward and Currency Options.

According to the delivery schedule for 2009 and payments for the machinery, it can be illustrated situation, how would it look if the company used FX forward for hedging against exchange rate risk.

4.4.1 FX forward

In practice example, author decided to use delivery schedule of the machinery for the first half of the year 2009. As it was described in chapter 4.1., company would suffered loss even on the spot market. This example shows, how could company protect themselves against exchange rate fluctuations and losses during this half year. Moreover, company could know in advance how many CZK exactly will cost this purchase. It could be used for better sales strategy (price strategy, etc.).

Figure 17 Delivery schedule for the first half of year 2009

MODEL		JAN	FEB	MAR	APR	MAY	JUN
TRACTORS	T233 HST(TF)						
	T233 HST(IN)						
	T273 HST(w/o wheels)						
	T273 HST(IN)			8			
	T353 (AG)	2					
	T353 HST(TF)		2				
	T433 NC (AG)				1		
	T433 ST (AG)		1				1
	T503 NC (AG)						2
	T503ST (AG)				2		1
	T503ST (IN)	1					
	T603ST (AG)	1	1		1		
	T603SP (IN)						
	T903ST (AG)				1		
TOTAL TRACTORS		4	4	8	5	0	4
LOADERS	LT200		2		6		
	LT500	2					
	LT700				1		
MOWER	TMB60SH				10		
BACKHOE	BT200		1				
TOTAL EQUIPMENTS		2	3	0	17	0	0
TOTAL PRICE OF DELIVERY		49 927 €	51 650 €	56 472 €	92 102 €	- €	45 294 €

Source: TYM CENTRAL EUROPE

If the company knows 3 months in advance how many will pay, it's the ideal solution to arrange FX forward with 3 month maturity as a shown in following example:

JANUARY

Company is going to pay € 49 927 for machinery and € 4 090 transportation costs on 2.1.2009 and knows this information 3 months in advance, when the order is confirmed. In 2.10.2008 company closes a deal for 3M FX forward.

The ČNB forward points on 2.10.2008:

Figure 18 Forward points 2nd October 2008

EUR/CZK	
maturity	forward points
3M	-61,75

Source: ČNB²¹

CITCO - FT's exchange rate:

Figure 19 CITCO - FT's exchange rate 2nd October 2008

EUR/CZK	
bid	Ask
24,499	24,735

Source: CITCO- FT²²

On the basis these information, it is possible to determine the effective exchange rate for the FX forward:

Figure 20 Effective exchange rate

EUR/CZK		
	bid	ask
3M	24,437	24,673

Source: Author's own research

According to the teoretical background, company has to use ask exchange rate. In this case it is 24,673 CZK/EUR for 3 month maturity.

Amount of CZK on 2nd January 2009 when company uses FX forward:

$$24,673 \text{ CZK/EUR} * (49\,927 + 4\,090) \text{ EUR} = 1\,332\,761,441 \text{ CZK}$$

²¹ Accessed on 25th August 2009 and available at:

http://www.cnb.cz/en/financial_markets/foreign_exchange_market/forward_exchange_rates/daily.jsp

²² Accessed on 25th August 2009 and available at:

<http://citco.cz/cz/devizovy-trh/srovnani-kurzovnich-listku.html>

Amount of CZK on 2nd January 2009 when company doesn't use FX forward (actual exchange rate is 26,962 CZK/EUR):

$$26,962 \text{ CZK/EUR} * (49\,927 + 4\,090) \text{ EUR} = 1\,456\,406,354 \text{ CZK}$$

Difference: - 123 644,913 CZK

On the basis of this example in January, when company suffered 123 644,913 CZK loss, author continues with quantifications of loss (profit) in next months using the same procedure.

FEBRUARY:

To pay: € 51 650 + € 4 090

FX forward deal: 3.11.2008

Conditions:

Figure 21 February quantification

Forward points on 3.11.2008:

EUR/CZK	
maturity	forward points
3M	40,00

1000

CITCO - FT exchange rate on
3.11.2008

EUR/CZK	
bid	Ask
24,196	24,429

Effective exchange rate on 3.11.2008

EUR/CZK		
	Bid	ask
3M	24,236	24,469

Exchange rate on 3.2.2009

EUR/CZK	
bid	ask
24,196	24,429

With FX forward: 1 363 902,1 Kč

Without FX forward: 1 361 672,5 Kč

Difference: 2 229,6 Kč

Source: Author's own research

MARCH:

To pay: € 56 472 + € 4 090

FX forward deal: 1.12.2008

Conditions:

Figure 22 March quantification

Forward points on 1.12.2008:

EUR/CZK	
maturity	forward points
3M	25,00

1000

CITCO - FT exchange rate on
3.11.2008

EUR/CZK	
bid	ask
25,460	25,706

Effective exchange rate on 3.11.2008

EUR/CZK		
	bid	ask
3M	25,485	25,731

Exchange rate on 3.2.2009

EUR/CZK	
bid	ask
28,000	28,270

With FX forward: 1 558 320,8 Kč

Without FX forward: 1 712 087,7 Kč

Difference: - 153 766,9 Kč

Source: Author's own research

APRIL:

To pay: € 92 102 + € 4 090

FX forward deal: 2.1.2009

Conditions:

Figure 23 April quantification

Forward points on 2.1.2009:

EUR/CZK	
maturity	forward points
3M	25,00

1000

CITCO - FT exchange rate on
2.1.2009

EUR/CZK	
bid	ask
26,705	26,962

Effective exchange rate on 2.1.2009

EUR/CZK		
	bid	ask
3M	26,730	26,987

Exchange rate on 2.4.2009

EUR/CZK	
bid	ask
26,741	26,999

With FX forward: 2 595 933,5 Kč

Without FX forward: 2 597 087,8 Kč

Difference: - 1 154,3 Kč

Source: Author's own research

JUNE:

To pay: € 45 294 + € 4 090

FX forward deal: 2.3.2009

Conditions:

Figure 24 June quantification

Forward points on 2.3.2009:

EUR/CZK	
maturity	forward points
3M	50,50

1000

CITCO - FT exchange rate on
2.3.2009

EUR/CZK	
bid	ask
28,238	28,51

Effective exchange rate on 2.3.2009

EUR/CZK		
	bid	ask
3M	28,289	28,561

Exchange rate on 2.4.2009

EUR/CZK	
bid	ask
26,649	26,907

With FX forward: 2 747 291,6 Kč

Without FX forward: 2 588 238,1 Kč

Difference: 159 053,5 Kč

Source: Author's own research

To quantification how much money the company lost in the first half of 2009 is in the following table:

Figure 25 Quantification of loss

Month	Amount in CZK
January	- 123 644,9 Kč
February	2 229,6 Kč
March	- 153 766,9 Kč
April	- 1 154,3 Kč
May	0
June	159 053,5 Kč
TOTAL	- 117 283,1 Kč

Source: Author's own research

As is shown in the table, company TYM CENTRAL EUROPE suffered loss 117 283,1 CZK due to not hedging against exchange rate risk.

4.4.2 FX Options

Other possible instrument, which can be used for the small companies is FX options.

In the case of the company TYM CENTRAL EUROPE is solution to secure its short foreign exchange position by buying "Long call option". The using of options is presented in theoretical chapter. The price of option is premium. The problem of option's contract in the Czech Republic is, that financial institutions deal a contracts only with big corporation. Author could not get an important data for option contracts (option premium etc) in the Czech financial institutions in order to draw up the case study for FX options.

And author also presumes on the base of theory, that currency options are not ideal financial instrument for company such as TYM CENTRAL EUROPE. It is mainly due to administrative cost, excellent technical knowledge and time-consuming process.

4.4.3 Technical progress of the contract

How does it work, when client wants to sign the FX forward contract?

The client should contact the Dealing department of the bank or financial institution in which it wants to sign the contract. In most cases, company must have in this institution account. Furthermore, signs framework agreement, and if he wants to close FX forward contract, make phone order to the employee of Dealing department of the bank.

4.5 Recommendations

Recommendation is written on the basis of the case study in practice, which is presented in previous chapter. The loss of 117 283 CZK during last half year as a result of a failure of hedging against exchange rate risk, is for a small company like TYM CENTRAL EUROPE too much.

Author's recommendation is to start using these financial instruments. From the list of those financial instruments in the theoretical part of this work, author recommends to use FX forwards (or currency forward). This instrument have been used as a presentation of how much money the company lost in the last half year, when didn't secure its exchange rate position.

Benefits of FX forward:

- non-standardized contract (OTC);
- requirements contained in the individual agreement of the forward contract;
- various maturity dates (but usually 3, 4, 5 and 6 days, 1, 2, 3 weeks, and 1-12 months, but exists also longer maturity dates);
- nearly maintenance-free administration;

Disadvantages of FX forward:

- must be a deposit (in our case CITCO - FT requires 3% of total FX forward amount) -> the amount of money can't be used by company;
- large sums for bank transfers;

Other types of financial derivatives can also serve as hedging instruments, but for smaller businesses are less possible, because the minimum amount of the contract is several times higher than forward. And in particular, are also more complex and therefore more difficult to expertise, which may be for a small company that hasn't specialized financial risk department, the problem.

For example, for the futures contract, there is basic unit one for transaction on famous exchange stock with derivatives CME (Chicago Mercantile Exchange) one lot. One lot has these amounts: 125 000 EUR, 62 500 GBP, 12 500 JPY, 125 000 CHF, 4 000 000 CZK etc.

5 Conclusion

This Master's Thesis is conducted thank to placement in the company TYM CENTRAL EUROPE, Ltd. Whereas the company TYM CENTRAL EUROPE, Ltd. is import oriented company, topic of the work "Hedging against exchange rate risk" is in the current situation in a world economy very important element in managing company's finance.

The main goal of the author's Master's Thesis is on the basis of analysis of present circumstances in the company TYM CENTRAL EUROPE, Ltd, to propose the best feasible solution for hedging against exchange rate risk in the import company TYM CENTRAL EUROPE, Ltd. Subs goals of the Thesis are to provide theoretial framework of the financial instruments(in particular derivatives), which are suitable for hedging against exchange rate risk .

When working thesis, author has proceeded in three main steps.

Firstly, author has conducted theoretical framework for the issue of exchange rate risk. Large part of the first chapter is devoted to the international trade, which is tightly connected with problem of exchange rate risk as well as the development of exchange rate risk management and cash management. In the following part of the chapter is a description of all financial instruments applicable to hedging against exchange risks for small and medium-sized businesses in the level of the Czech Republic. There are also added examples of each instrument.

In the second part of the Thesis is conducted analysis of the current situation in the company. This analysis is important in order to understand how the life in the company goes. Company TYM CENTRAL EUROPE, Ltd. is importer of the agricultural machinery of TYM. This machinery is produced in South Korean Tong Yang Moolsan Co., Ltd. In the analytical part is carried out analysis of the external environment as well as internal environment. External macro-environmental factors are important in the analysis of the company's business position on the market.

According to the internal analysis it is clear, that company is a small and developing company. Sales of high-quality Korean technology is limited by ignorance of TYM brand on the Czech market. On the otherside, the company has experienced and hard-working staff.

Some part of the second chapter is devoted to the introduction of acceptance of single european currency - EURO - in the Czech Republic. This issue is in these days often mentioned, because EURO would be one of the solution for the export and import companies in the Czech republic. Moreover, the Czech Republic is a small, open economy, which depends mainly on exports and is highly influenced by the economical situation in Germany.

Thirdly, author describes the problem of hedging against exchange rate risk in the company and conducts the analysis, how much money company lost during first half of year 2009. This comparison is conducted when company didn't hedge its exchange rate and if the company would hedge exchange rate. This chapter contains also current situation of internal hedging, which company partially uses, but insufficiently.

The example of case study in the fourth chapter is based on actual data of the first half of 2009 and demonstrate the absolute amount, which the company could save if ensures through forward contract against exchange rate movements. The amount of 117 283 CZK per half year is indispensable for company whose turnover is in the millions of crown per year. Moreover, not only company's exchange rate profit, but especially also the possibility of managed its outflows in cash-flow is very important element.

Due to risk management under the conditions set out in the forward contract, the company has nearly 3 months in advance certainty, how many Czech crowns it will be the next purchase for machinery. With this "exchange rate risk policy" the company will be able to respond in better way to competitors' price policy in the Czech Republic. Thus TYM CENTRAL EUROPE could achieve competitive advantage in setting prices for the machinery, because especially price plays a major role in this industry.

If the company adequately consider all the risks to which it is exposed because it does not hedge their foreign exchange rate position, the necessity of risk management is clear. On the basis of this Master's Thesis is possible to manage exchange rate risk in small or middle-sized company such as TYM CENTRAL EUROPE, Ltd.

Author believes that the processing Thesis has met the objectives set out in the introduction, and that this work will serve to the company TYM CENTRAL EUROPE as a guidance on how to effectively hedge against exchange rate risk.

List of Figures

Figure 1 Forms of risks in international trade	16
Figure 2 Foreign exchange turnover	27
Figure 3 Financial derivatives.....	30
Figure 4 Differences between forwards and futures.....	31
Figure 5 Location of the company	36
Figure 6 Organizational structure of the company.....	39
Figure 7 Example of TYM machinery: tractor TYM T433 NC	50
Figure 8 SWOT Analysis	51
Figure 9 Currency history from 01/01/2007 until 30/06/2009 for USD/EUR.....	53
Figure 10 Trend in CZK/EUR exchange rate over the past 12 months	54
Figure 11 Trend in CZK/EUR exchange rate in July	55
Figure 12 Comparison of amount of import in 2008	58
Figure 13 Delivery schedule	60
Figure 14 Exchange rate EUR/CZK	61
Figure 15 Bank survey	64
Figure 16 Comparison of the exchange rate.....	65
Figure 17 Delivery schedule for the first half of year 2009	67
Figure 18 Forward points 2 nd October 2008.....	68
Figure 19 CITCO - FT's exchange rate 2 nd October 2008	68
Figure 20 Effective exchange rate	68
Figure 21 February quantification	70
Figure 22 March quantification	71
Figure 23 April quantification	72
Figure 24 June quantification	73
Figure 25 Quantification of loss.....	74

List of Appendices

Appendix 1.....	Tong Yang Moolsan Co., Ltd.
Appendix 2.....	SWOT Analysis
Appendix 3.....	List of dealers
Appendix 4.....	Example of derivatives in practice

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TONG YANG MOOLSAN Co., Ltd.

Established:	February 1. 1960
Address:	12F KTB Network B/D, 826-14 Yeoksam-dong, Kangnam-gu, Seoul, Korea
Listed in stock market:	1973
Capital:	30 mil USD

History:

- 1960 Bokun Enterprise Co. founded.
- 1962 Firm name changed to Tong Yang Moolsan Co., Ltd.
- 1964 Took over Korea Convenience Ind., Co., Ltd. and commenced manufacture export of stainless steel flatware and castings.
- 1968 Merged Korea Light Metal Co., Ltd. and commenced agricultural Machinery production.
- 1972 Far-East Filter Co. founded and cigarette filters produced.
- 1972 The first factory of stainless steel flatware established.
- 1973 Anyang Farm Machinery Factory established. Company Share opened to the public
- 1975 The second factory of stainless steel flatware established in Gunsan
- 1976 The First Stainless Steel Flatware Factory moved to Iri Industrial Complex
- 1977 Light Metal Mill Factory moved to Changwon Industrial Complex from Seoul
- 1978 Designated as General Agricultural Machinery Manufacturer by the Government. Anyang Farm Machinery Factory moved to Changwon Industrial Complex
- 1979 Far-East Filter Co. Merged into Tong Yang Moolsan Co., Ltd.

- 1983 Stainless Steel Flatware Factory moved to Iri Industrial Complex from Seoul
- 1985 Agricultural Machinery Factory designated as First Grade Quality Manufacturer from the Government
- 1986 Stainless Steel Flatware Factory designated as First Grade Quality Manufacturer from the Government. Stainless Steel Flatware obtained "KS" mark from the Government
- 1988 Filter Factory moved to Jinchon
- 1991 Head Office moved to Byucksan 125 Building, Tongja-Dong, Yonsan-Ku, Seoul. A joint corporation established in Indonesia for manufacturing Stainless Steel Flatware
- 1992 Established TYM's R&D Institute and Agricultural Machinery Training Institute
- 1993 Entered to Environment Business Division
- 1994 A corporation established in China for manufacturing Stainless steel Flatware
- 1995 Obtain ISO 9002 Certificate
- 1996 Take over whole shares of other shareholders of PT.MITRA Tong Yang MoolSan
- 1997 Acquisition of ChangShin Co., Ltd and change its name into the second ChangWon Plant of Tong Yang MoolSan
- 1999 Established TongYang Agricultural Machinery(Suzhou) Co., LTD.
- 2001 Established JiangSu TongYang Rice Transplanter Co., LTD.
- 2001 Obtain ISO 9001 Certificate
- 2002 Obtain ISO 14001 Certificate
- 2004 Established TYM-USA
- 2004 Established LTYM(Liao Ning, China)

(Source: Tong Yang Moolsan Co., Ltd. available at www.tym.co.kr)

SWOT ANALYSIS:

Political factors	Economic factors
<ul style="list-style-type: none"> ✓ early elections in the CR – reputation in the world suffered ✓ Company imports (and exports) to (from) developed countries => good law enforcement ✓ Company doesn't sell products to countries with unstable political situation (Middle East, etc.) 	<ul style="list-style-type: none"> ✓ forecast of GDP in Czech Republic is -2,4% ✓ interest rate in Czech Republic is 1,5% ✓ Czech Republic is open, mainly export focused, country => dependent on the future economic situation in foreign countries (especially Germany) ✓ Reduction of investment projects
Social factors	Technologické faktory
<ul style="list-style-type: none"> ✓ Due to financial crisis the consumption of the people is decreasing ✓ Unemployment rate is increasing ✓ More ecological way of living - the opportunities for farmers => need of agricultural machinery 	<ul style="list-style-type: none"> ✓ Outsourcing of some activities in the company => company outsources financial accounting ✓ Machineries are constructed more ecological ✓ Absention of Information system ERP (or CRM) in the company

THE LIST OF DEALERS IN FOREIGN COUNTRIES:

Bulgaria:

Kirov JSCo, Sofia

Hungary:

Agrowolg Kft., Szolnok

Slovakia:

Rappa, Nové Zámky

Profigrass SK, Senec

Albera Slovensko, Nové Mesto nad Váhom

Slovenia:

Agromechanika d.d., Kranj



THE LIST OF DEALERS IN THE CZECH REPUBLIC:

Ing. Miloslav Šípál, **Tuřany u Slaného**

Z-tech spol. s r.o., **Vodňany**

KOBRA kovo s.r.o., **Ústí nad Orlicí**

B AGRO Březová s.r.o., **Humpolec, Březová**

STEMP s.r.o., **Třebíč**

Albera Morava s.r.o., **Strání**

PROPARK s.r.o., **Opava-Komárov**

PROFIGRASS, s.r.o., **Brno**

AZ stavební servis s.r.o., **Brno**



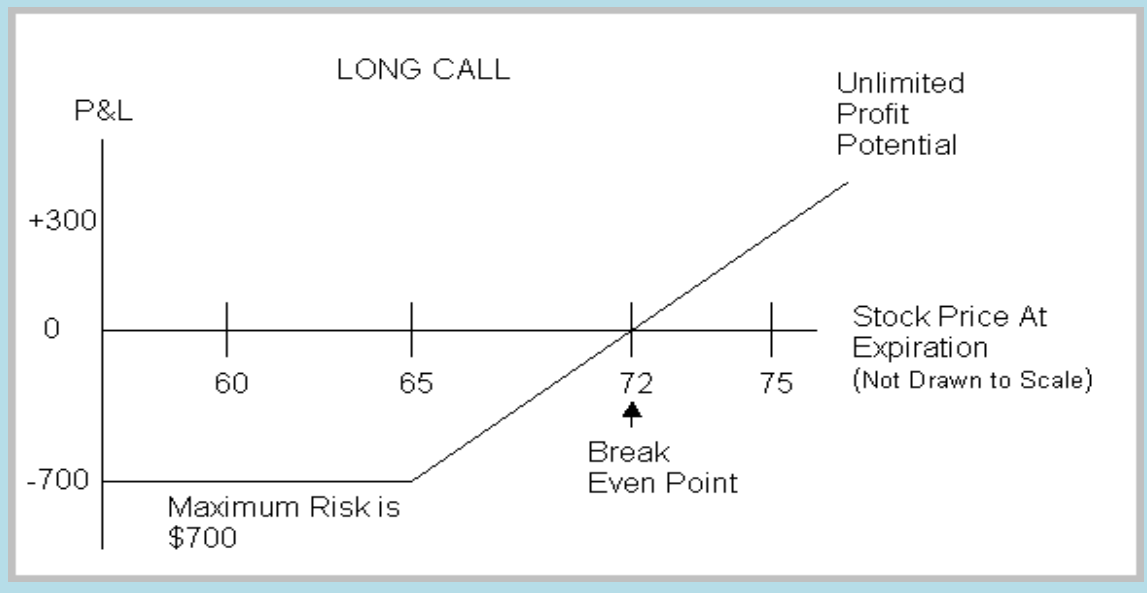
EXAMPLES OF DERIVATIVES IN PRACTICE:

EXAMPLE 1 according to Mao (2009): LONG CALL

There is a share which is currently at \$65, and investor think that it's going to move up. Investor could buy one in February, when call is at \$7 per share (it is \$700 for 100 shares, which is minimum). The amount of the premium (\$700) is the most that investor can lose. It doesn't matter if the stock goes to zero. At expiration, in order to profit from this transaction, shares of the company must be above investor's breakeven price of \$72.

In this case, breakeven price is calculated as $65 + 7 = 72$. This is the price that company's share price must be above at expiration for investor to profit from this transaction.

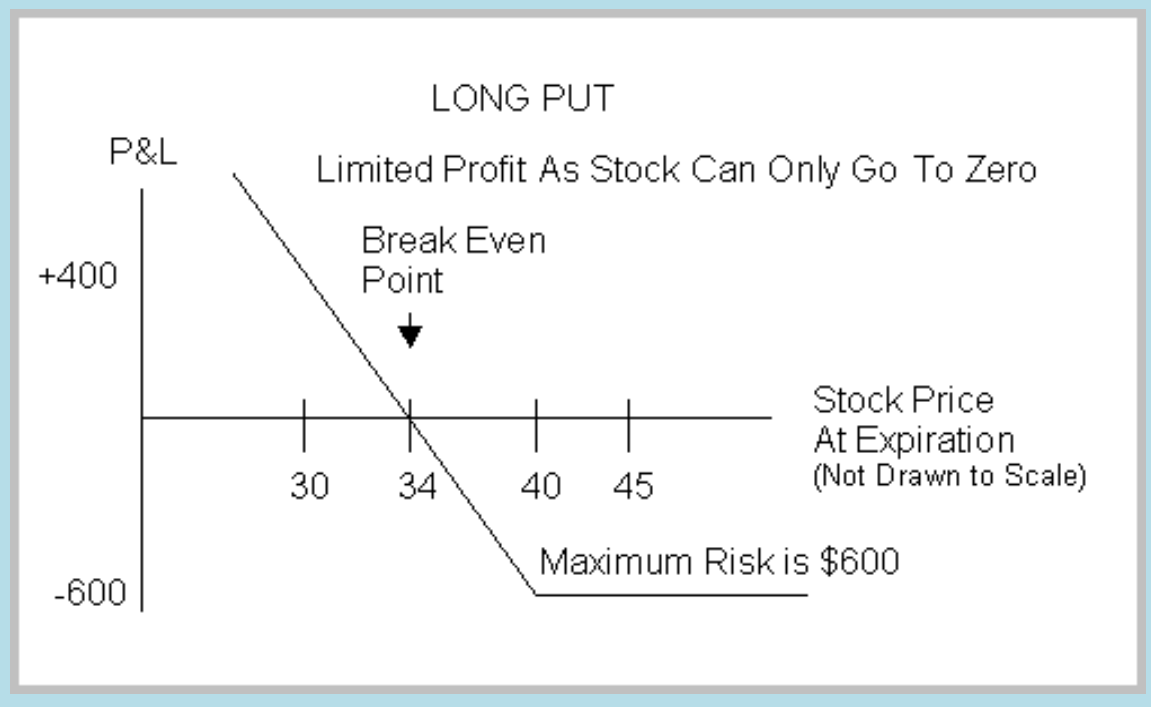
At expiration, there are three possible scenarios: (1) The stock price could be above the strike price. Let say it is at \$75, which is 10 points above our strike price of \$65. The option would be 10 points in-the-money. This is great, because investor bought the option at \$7 and he could now sell it for \$10. Investor's profit in this case would be 42.8% while the stock moved only 15.4%. (2) The share price could be equal to the strike price at expiration. Recall that investor paid \$7 for the option. If investor did use this option to buy 100 shares at \$65, he would really be paying \$72 per share for the share. (3) The share price could be below the strike price. Let's say at expiration drops to \$55. In this case, option would be worthless, and investor would lose \$700, or 100% of the money.



EXAMPLE 2 according to Mao (2009): LONG PUT

Investor think that Cisco Systems share is going to move down, then he could buy a put on Cisco. If Cisco is currently trading at \$36, and investor decide to buy a Cisco in February for \$40 per share and put is for \$6 (\$600), then investor bought the right to sell 100 shares of Cisco shares at \$40 per share.

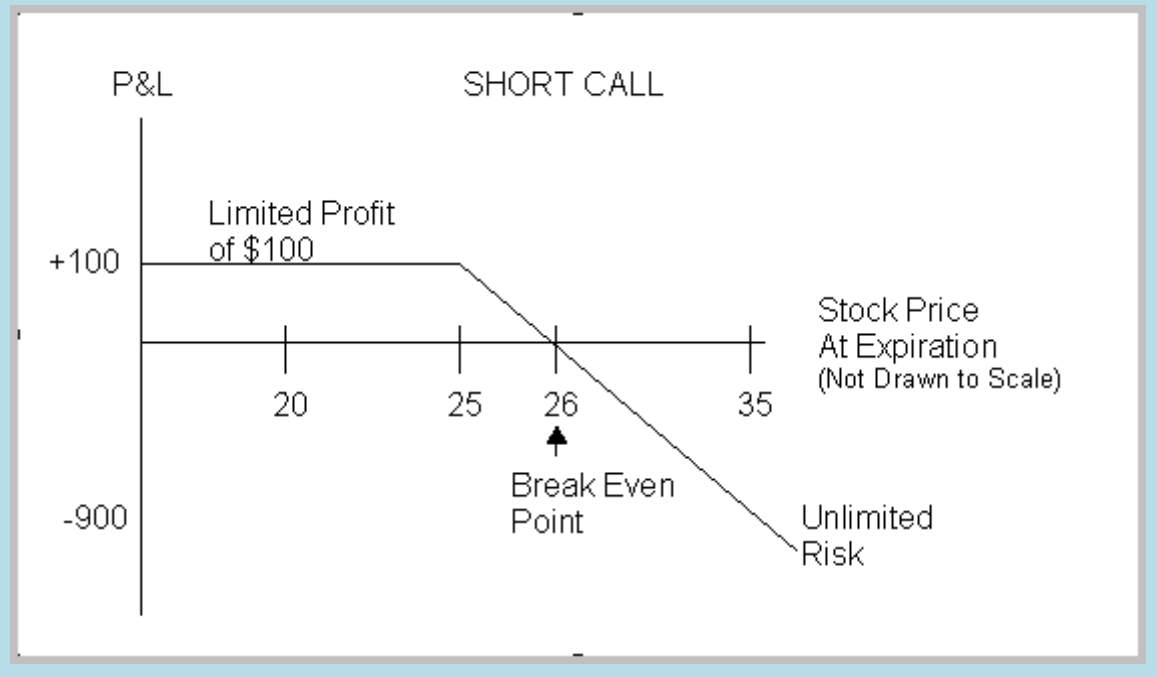
Breakeven point in this case would be \$34 ($40-6=34$). Investor would not profit from this transaction until the stock goes lower than 34. Again there are three possible scenarios at expiration. (1) The stock could be above the strike price. In this case, let's say Cisco is at 50, than put with a strike price of 40 would be ten points out-of-the-money. Option would be worthless and investor would lose \$600 or 100% of money. (2) The share could equal the strike price. Let's say that at expiration, Cisco is trading at \$40. The put option would also be worthless because no one would buy it to sell the stock at \$40 while it's already trading at \$40. (3) The share could be below the strike price. If at expiration, Cisco were at \$30, investor's put option would be worth at least \$10. In this case you would make \$400 or a 66% return.



EXAMPLE 3 according to Mao (2009): SHORT CALL

Say that investor thinks company's share is likely to stay neutral. With the stock at \$25, you could sell in February call for \$1 (\$100 per 100 shares). That \$100 is investor's maximum profit.

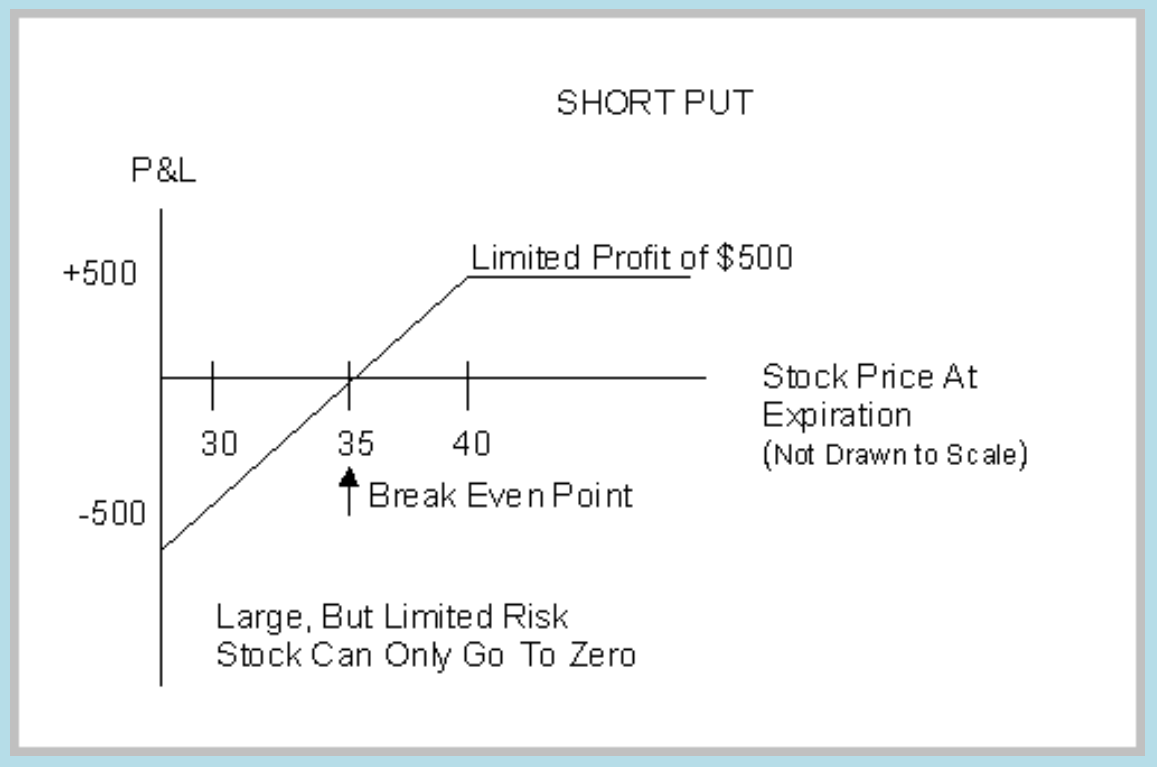
Breakeven price in this case would be \$26 ($25+1=26$). If the stock goes to 26, investor would lose the \$100 profit. There are three possible ways at expiration again: (1) The stock price could be above the strike price. If the stock goes up to 30, investor would have forced to sell the stock at \$25, but since he doesn't own the stock, he would have to buy it on the open market at \$30. Then he lose \$500 in the share transaction, but got paid \$100 for selling the call. Investor would end up losing \$400. (2) The share price could be the same as the strike price. If the stock ended up at 25, then investor would keep the \$100. (3) The stock could be below the strike price. Let's say that the stock ended up at 18, then investor would keep the premium \$100, because no one is going to exercise their call option to buy the stock at 25 while it's trading at 18.



EXAMPLE 4 according to Mao (2009): SHORT PUT

Let's say that there is a stock at \$35, investor decide to sell in February when rate is \$40 per share and put is for \$5 (\$500 for 100 shares). The \$500 is investor's maximum profit. Breakeven is calculated to be 35 (40-5).

Breakeven price is \$35, from that put buyer would exercise the option. At expiration, there are three likely scenarios: (1) The stock could be above the strike price. At expiration, with company's share at \$50, put buyers would not exercise their option and investor would keep the premium. (2) The stock could equal the strike price. In this case, the put buyer would most likely not exercise the option and investor would also keep the premium. (3) The share could be under the strike price, let's at \$30, the put buyer would definitely exercise their option to sell the stock at \$40. Investor would be obligated to buy 100 shares at \$40 while it's trading at \$30. Since we were paid \$5 per share (\$500), for selling the put, investor would really be buying Cisco at \$35 while it's trading at \$30, therefore he was faced with a \$500 loss.



EXAMPLE 5 according to McCaffrey (2009): SWAP

For example, on December 31, 2006, Company A and Company B enter into a five-year swap with the following terms: (1) Company A pays Company B an amount equal to 6% per annum on a notional principal of \$20 million. (2) Company B pays Company A an amount equal to one-year LIBOR + 1% per annum on a notional principal of \$20 million. And let's assume the two parties exchange payments annually on December 31, beginning in 2007 and concluding in 2011.

At the end of 2007, Company A will pay Company B $\$20,000,000 * 6\% = \$1,200,000$. On December 31, 2006, one-year LIBOR was 5.33%; therefore, Company B will pay Company A $\$20,000,000 * (5.33\% + 1\%) = \$1,266,000$. In a plain vanilla interest rate swap, the floating rate is usually determined at the beginning of the settlement period. Normally, swap contracts allow for payments to be netted against each other to avoid unnecessary payments. Here, Company B pays \$66,000, and Company A pays nothing.

Figure xx shows the cash flows between the parties, which occur annually.

