

## FINANCIAL MARKETS AND HEDGING APPROACHES

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**Abstract:** *In our days, if we look at the financial system of a country as a whole, we can see that is acting as an umbrella for the financial markets (e.g. stock exchanges, money markets), the financial institutions (e.g. banks, non-bank institutions, building societies, insurance companies) and nevertheless for the financial securities (e.g. mortgages, bonds, bills and equity shares). This paper is focusing on the key effect of inflation on companies is the role it plays in determining exchange rates. The main function of an exchange rate is to provide a means of translating prices expressed in one currency into another currency. The implication is that the exchange rate will be determined in some way by the relationship between these prices. This arises from the law of one price that will be detailed below. The law of one price states that in a free market with no barriers to trade and no transport or transactions costs, the competitive process will ensure that there will only be one price for any given good. If price differences happen, they would be removed by arbitrage; in these cases entrepreneurs would buy financial products in the low market and then resell them in the high market, as expected. This would eradicate the price difference. In order to have a healthy and secured financial environment system, it is vital that all the objectives should include also the social and economic wealth of stakeholders involved.*

**Keywords:** Financial analyse, Money markets, Interest, Derivates, Hedging.

**JEL Classification Codes:** G20, G21.

### 1. INTRODUCTION

In a normal economic environmental, within each sector of a country, there are moments in time when there are cash surpluses and times when there are deficits.

In the case of surpluses, the party concerned will seek to invest/deposit/lend funds to earn an economic return. In the case of deficits, the party will seek to borrow funds to manage their liquidity position.

The financial markets are mechanisms where those requiring finance (deficit units) can get in touch with those able to supply it (surplus units), i.e. allowing the buyers and sellers of finance to get together. In the light of those mentioned above, we can individualize the primary markets on one hand (deals in new securities) and the secondary markets (deals in 'second-hand' securities) on the other hand.

It is very common to companies to borrow (giving the fact that in many articles borrowing was demonstrated as being cheaper than other sources of finance like equity finance), and when they choose to borrow automatically another choice is if they do they should borrow at a fixed rate of interest (in the most cases is made by issuing bonds) or at a floating (variable) rate (possibly through bank loans).



A key concept in this economic matter is that they must assess the risk that it would be taken in deciding the mix or balance between floating rates and fixed rates debt.

Companies must bear in mind that if they use fixed rates, too much fixed-rate debt creates an exposure to falling long-term interest rates (debt for over 10-15 years for example used mostly to meet non-current liabilities) but if they choose to use too much floating-rate debt creates an exposure to a rise in short-term interest rates (debt for less than a year, used mostly to meet current liabilities).

It may appear that a company which has size-matched assets and liabilities, and is both receiving and paying interest, may not have any interest rate exposure. However, two floating rates may not be determined using the same basis. For example, one floating rate mentioned before in the text may be linked to a LIBOR or EURIBOR or ROBOR rate, but the other floating rate is not linked.

This makes it unlikely that the two floating rates will move perfectly in line with each other. If we analyse one rates, we can see if the rate increases then, automatically it can be noticed that the other rate might change as a reaction of the first movement by a different amount or also it might change later and therefore the business will be witness to an unanticipated gains and losses of interest. This is an example of basis risk, which is the risk that the investments which should, in theory, offset each other in terms of changing values do not do so perfectly.

In addition, companies face the risk that interest rates might change between the point when the company identifies the need to borrow or invest and the actual date when they enter into the transaction. If this is the case, what options they have in order to mitigate this risk, or, to try to reduce this impact on the financial statements and over shareholder's wealth.

## 2. MONEY MARKETS

As mentioned, the financial markets can be divided into different types, depending on the products being issued/bought/sold, but our attention is brought upon the money market, which provide short-term (< 1 year) debt financing and investment.

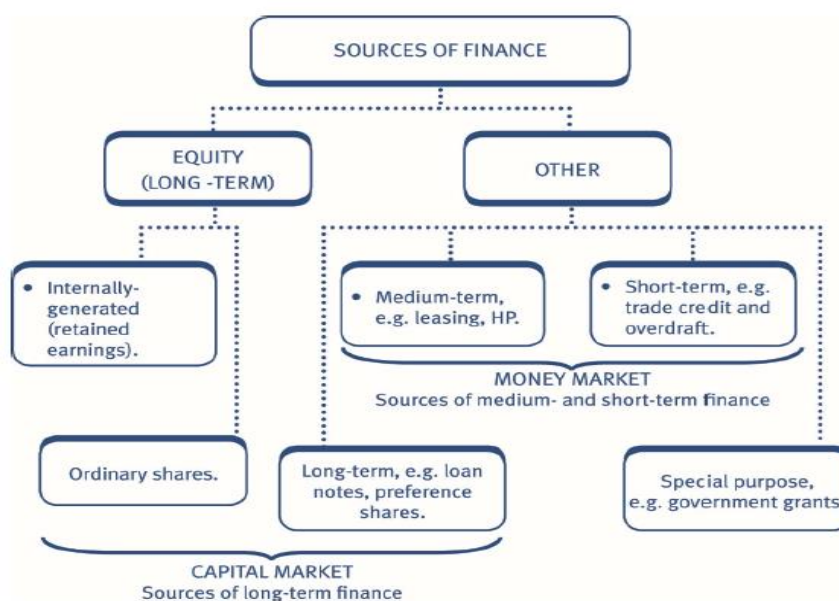
Money markets takes into consideration short-term funds and transactions are being finalized by phone or online, to make it easier as possible and also to attract more and more clients. It is not one single market but a number of closely connected markets.

All the markets in a money market closely inter-mesh with each other and in that way the market may be regarded as an entity. The players are the same and they pass the ball between each other.

However, since the global "credit crunch" of 2008, the liquidity in the money markets has reduced as the different players have begun to view each other with suspicion.

In order to classify the financial instruments traded on financial markets, the specialists have classified them based on their availability, as:

1. Short-term up to one year;
2. Medium-term 1–7 years;
3. Long-term 7 years or more.



**Figure no. 1 Divisions of sources of finance**

*Source: Kaplan Publishing UK, The Business Centre (2019), Financial Management, p. 341*

As you can see from the above diagram, which financial market the deficit unit will need will depend on the duration of the funds required. Equally, for the surplus unit (the provider of finance/investor), which market they deal in will depend on how long they are willing to invest for.

Even from the beginning, the heart of economy is trading in no matter the way is done, but modern economy highlights the effect of risks that trading may face. Giving the level of today's globalization and trading having no borders, one of the most important risks that must be assessed by international markets are the foreign currency risk and the interest risk.

The most important role of the money and financial markets is to mitigate the risk which may a company face. In the economic literature, the specialist has identified three main types of risk:

1. Transaction risk is defined by economic specialists as being the risk of a specifically exchange rate to change between the date of the transaction and the subsequent settlement date. In a more direct and simplest way we may say that is the gain or loss arising on conversion. It arises on any future transaction involving conversion between two currencies (for example, if a UK company were to invest in USD bonds, the interest receipts would be subject to transaction risk). The most common area where transaction risk is experienced relates to imports and exports.

A firm may decide to hedge the risk if it is a material amount, over a material time period or thought likely exchange rates will change significantly.

2. Translation risk arises on consolidation of financial statements prior to reporting financial results and for this reason is also known as accounting exposure. Consider an asset worth €14 million, acquired when the exchange rate was €1.4 per \$. One year later, when financial statements are being prepared, the exchange rate has moved to €1.5 per \$ and the statement of financial position value of the asset has changed from \$10 million to \$9.3 million, resulting an unrealised (paper) loss of \$0.7 million.

Translation risk does not involve cash flows and so does not directly affect shareholder wealth. However, investor perception may be affected by the changing values of assets and liabilities, and so a company may choose to hedge translation risk through, for example,

matching the currency of assets and liabilities (e.g. a euro-denominated asset financed by a euro-denominated loan).

3. Economic risk can be expressed as the changes in the value of the business (i.e. the present value of future cash flows) caused by unexpected changes in currency exchange rates. It can be seen also as the long-term version of transaction risk.

As mentioned above, transaction risk can be associated as being the short-term manifestation of the economic risk, which furthermore can be expressed as the risk of the present value of a company's expected future cash flows being affected by exchange rate movements over time. It is difficult to measure economic risk, although its effects can be described, and it is also difficult to hedge against it.

### 3. PRACTICAL HEDGING APPROACHES

Text The foreign exchange or forex market is an international market in national currencies. It is considered to be highly competitive and has, in a virtually manner of saying, no difference between the prices in one market (e.g. New York) and another (e.g. London).

Another important topic in hedging with currency risk is the spot market is where you can buy and sell a currency now (immediate delivery), i.e. the spot rate of exchange and the forward market is where you can buy and sell a currency, at a fixed future date for a predetermined rate, by entering into a forward exchange contract.

One of the most common question is my exchange rates fluctuate. A very possible answer that we may assess for this question is that the main reason for changes in exchange rates are due to the changes that result in the demand for and supply of the currencies, at a worldwide level.

These changes may occur for a variety of reasons, e.g. due to changes in international trade or capital flows between economies. If we analyse the balance of payment of one country, with a current account deficit where imports exceed exports may expect to see its exchange rate depreciate, since the supply of the currency (imports) will exceed the demand for the currency (exports).

There are also capital movements between economies. These transactions are effectively switching bank deposits from one currency to another. These flows are considered to be now more important than the volume of trade in goods and services.

The specialists that are using Purchasing Power Parity Theory (PPPT) for measurement, claims that the rate of exchange between two currencies depends on the relative inflation rates within the respective countries. In this scenario, the PPPT is based on 'the law of one price' and predicts that the country with the higher inflation will be subject to a depreciation of its currency.

The Purchasing Power Parity Theory (PPPT) is calculated as:

$$S1 = S0 \times (1+hc / 1+hb) \quad (1)$$

Where:

S0 = Current spot

S1 = Expected future spot

hb = Inflation rate in country for which the spot is quoted (base currency)

hc = Inflation rate in the other country (counter currency)

Although the PPPT is very often used by financial institutions in economic activities, the future inflation rates are only estimating and the market is dominated by speculative transactions (98%) as opposed to trade transactions; therefore, purchasing power theory breaks down. Also, official governments may undertake actions that could result in better management of the exchange rates, thus defying the forces pressing towards PPPT.

The Interest Rate Parity Theory (IRPT) is the theory that underlies the relationship between the spot rate and the forward rate in a country, by saying that “the difference between the spot and the forward exchange rates is equal to the differential between interest rates available in the two currencies”. In another way of saying, this theory help to predict the depreciation faced by the country that has the higher interest rate from the comparison, meanwhile in the same manner may predict different exchange rate movements by referring to differences in nominal interest rates.

The Interest Rate Parity Theory (IRPT) is calculated as:

$$F_0 = S_0 \times (1+ic / 1+ib) \quad (2)$$

Where:

$F_0$  = Forward rate

$ib$  = interest rate for base currency

$ic$  = interest rate for counter currency

The IRPT generally holds true in practice, not only in theory is applicable. If we look at the money markets, it can be argued that they are markets for wholesale (at a large-scale) lending and borrowing, or it can be argued to trade in short-term financial instruments. Therefore, at a worldwide level there are many large or medium size companies that can use both borrowing and deposit funds through their bank in the money markets.

Instead of hedging a currency exposure with a forward contract, a company could use the money markets to lend or borrow and achieve a similar result.

Giving the fact that forward exchange rates use in their calculation both spot rates and money market interest rates, the result from hedging should be roughly the same by either method.

Money market hedges are more complex to set up than the equivalent forward.

When you are hedging a future payment, the following steps must be followed to perform a calculation of how much money is needed:

1. Divide the foreign currency payment amount by (1 plus the foreign currency deposit rate for the time period in question);
2. Take the figure calculated and translate it to the home currency at the spot rate;
3. Take the figure calculated and multiply it by (1 plus the home currency borrowing rate for the time period in question).

In order to illustrate better the way in which we can use forward hedge and money hedge, we can take the following example:

Nedwen Co is a UK-based company that expect in one-month time to receive \$240,000 and to pay \$140,000. Also, another receipt is expected in three-months' time of \$300,000. The finance manager has the following additional information: Spot rate (\$ per £):  $1.7820 \pm 0.00021$  one-month forward rate (\$ per £):  $1.7829 \pm 0.0003$ ; three months forward rate (\$ per £):  $1.7846 \pm 0.0004$ ; one year sterling interest rate (borrowing 4,9% and deposit 4,6%) and One year dollar interest rate (borrowing 5,4% and deposit 5,1%). In order to choose the most suitable way to hedge the transaction risk faced by the company, a both forward hedge and money hedge is recommended, and the lowest should be chosen.

- i. Forward market approach:

Net receipt in 1 month =  $\$240,000 - \$140,000 = \$100,000$

Nedwen Co needs to sell dollars at an exchange rate of  $1.7829 + 0.003 = \$1.7832$  per £

Sterling value of net receipt =  $\$100,000 / 1.7832 = \pounds 56,079$

Receipt in 3 months =  $\$300,000$

Nedwen Co needs to sell dollars at an exchange rate of  $1.7846 + 0.004 = \$1.7850$  per £

Sterling value of receipt in 3 months =  $\$300,000 / 1.7850 = \pounds 168,067$

ii. Money market approach:

Expected receipt after 3 months = \$300,000

Dollar interest rate over three months =  $5.4/4 = 1.35\%$

Dollars to borrow now to have \$300,000 liability after 3 months =  $300,000/1.0135 = \$296,004$

Spot rate for selling dollars =  $1.7820 + 0.0002 = \$1.7822$  per £

Sterling deposit from borrowed dollars at spot =  $\$296,004/1.7822 = £166,089$

Sterling interest rate over three months =  $4.6/4 = 1.15\%$

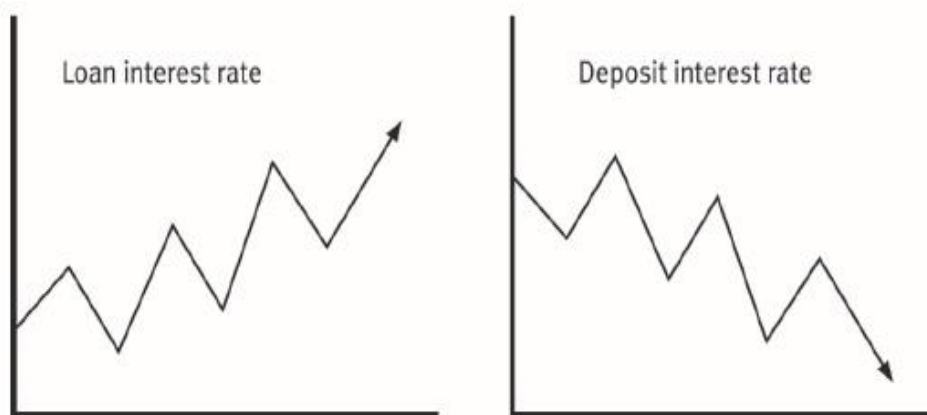
Value in 3 months of sterling deposit =  $£166,089 \times 1.0115 = £167,999$

Giving the calculation above for the example, the forward market is marginally preferable to the money market hedge for the dollar receipt expected after 3 months.

Many companies borrow, and if they do, they have to choose between borrowing at a fixed rate of interest (usually by issuing bonds) or borrow at a floating (variable) rate (possibly through bank loans).

There is some risk in deciding the balance or mix between floating rate and fixed rate debt. The main issue here to be analysed is that if we take into consideration a greater proportion of fixed-rate debt than floating rate, we will be witness to an exposure to falling long-term interest rates. By the other hand, if we take into consideration a greater proportion of floating-rate debt than fixed rate, we will be witness to an exposure to a rise in short-term interest rates. So, a balance between them is mandatory to hedge the foreign risk.

As we highlighted above, it can be argued that interest rate risk defines the risk of an adverse movement in interest rates and, in an automatically manner it also gives a reduction in the company's net cash flow that may cause liquidity problems (this may be a very serious problem for the companies as money is the blood of them and it is mandatory to meet current liabilities in order to survive on the market).



**Figure no. 2 Interest rate exposure**

*Source: Kaplan Publishing UK, The Business Centre (2019), Financial Management, p. 416*

If we make a comparison between the two rates, the first thing that may be highlighted is that interest rates, despite currency exchange rates, do not change continually throughout the day and it is also very important to highlighted that interest rates can be stable for a much longer periods than currency exchange rates changes but in interest rates the change can be substantial.

In the specialist literature it has been highlighted the importance of the Fisher Effect who takes into consideration the relationship between interest rates and expected rates of inflation.

It is calculated by the following formula:

$$(1 + i) = (1 + r)(1 + h)$$

Where

i = money rate

r = real rate

h = inflation

This formula expresses the idea that the money rate or nominal real is formed by two mandatory part, the real rate and the inflation rate. In order to use a appropriate rate in expressing the present values of future cash flows, it is mandatory to use the nominal rate that take into consideration all the aspects of an economic environment – taxes, transactions cost, inflation etc.

This relationship between the nominal, real and inflation rates are the main core of the International Fisher formula, and the effect of this relationship may claim that the interest rate differentials between two countries provide an unbiased predictor of future changes in the spot rate of exchange.

The International Fisher Effect states that no matter the country, the real interest rate is the same and may give the same present values of future expected cash flows, but the money or nominal rate is not the same from a country to another one. The differences are given by the inflation rate that is personalized by each country and, as a conclusion, the interest rate differential between two countries should be equal to the expected inflation differential.

The expectations theory claims that the current forward rate is an unbiased predictor of the spot rate at that point in the future. If a trader takes the view that the forward rate is lower than the expected future spot price, there is an incentive to buy forward. The buying pressure on the forward raises the price, until the forward price equals the market consensus view on the expected future spot price.

In practice, it is a poor unbiased predictor – sometimes it is wide of the mark in one direction and sometimes wide of the mark in the other.

If we put together all the theories mentioned we can observe the overall relationship between spot rates, interest rates, inflation rates and the forward and expected future spot rates.

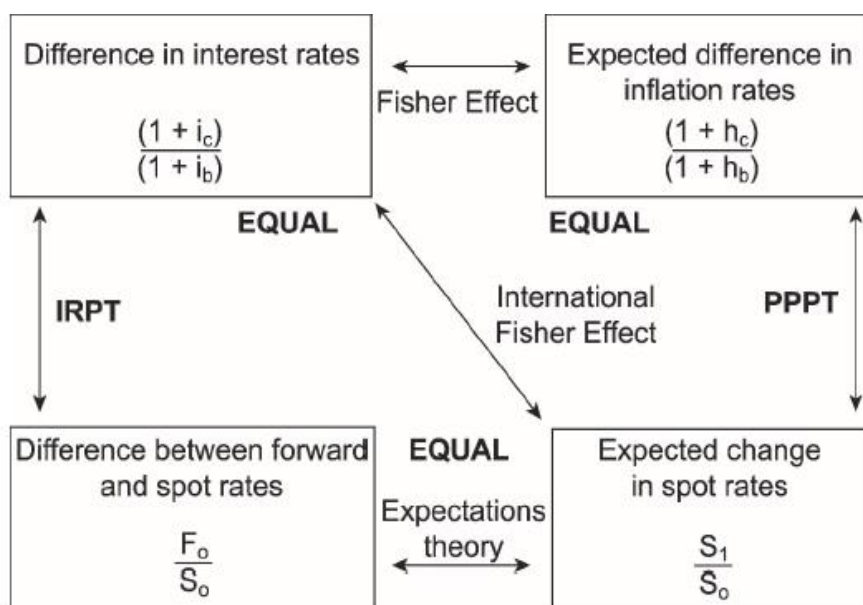


Figure no. 3 Relations of rates used in forecasting the exchange rates

Source: Kaplan Publishing UK, The Business Centre (2019), Financial Management, p. 338

As shown above, these relationships can be used to forecast exchange rates.

#### 4. CONCLUSIONS

The contemporary economy is characterised by dynamics, modern commerce, continuous improvement of financial markets, by the volatilities of financial relationships that requires a greater speed of adaptation and administrative capacity by modern stakeholders.

In order to fulfil their primary financial management goals, all managers must seek ways of maximizing the value of the company and avoid bankruptcy, will have to think of strategies that will make it possible for them to acquire management and risk mitigation tools, in which the financial derivatives play a crucial role, as the companies appropriate these instruments with knowledge on the different products and hedging strategies that apply insofar as the derivative markets attain a greater development

The international travel of the money is the main recipe for each economy and macro-economy to become strong and sustainable. In order to facilitate the international transaction and to build a win-win relationship for all stakeholders, it is essential to make use of the facilities created by the money market and by hedging the currencies and interests' risks.

The international relationships are the future of the economy and we all must facilitate an economy without borders.

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