

The standard phillips curve diagram economics essay

[Economics](#)



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The topic for this dissertation covers a vast area since it specifically focuses on the effect of interest rate on the business expenses. This therefore provides a room to consider the impact of interest rate on different categories of expenses that are usually incurred by the businesses. An introduction pertaining to the models that would be referred to while preparing this dissertation has already been provided in the introduction section.

Phillips Curve

The following contains the detail of the Phillips Curve, as to the study made in the past pertaining to establishing a relation between unemployment and inflation rate (which would ultimately be related to establishing a relation between interest rate changes and its impact on the exchange rate): In 1958 AW Phillips plotted 95 years of data of UK wage inflation against unemployment. It seemed to establish a short-term relation between unemployment and inflation. (Tutor2u, 2013a)The rationale behind this, that was established, was fairly straightforward. Falling unemployment was associated with rising inflation and with rate of unemployment increasing the inflation rate would be falling. It was argued that if the government wanted to increase employment rate in the economy it could do so by creating job opportunities. Increasing job opportunities means more activity within the economy which would result in increasing country's output and hence increasing GDP of the economy but, although this might result in job creation, it might also lead to impacting having inflationary implications in the labor and the product market. The rationale that was put forward for this reaction was that when additional jobs are created this would not only shift

the aggregate demand curve to the right but also shift the aggregate supply curve to the right. Sometimes, the effect on the aggregate demand curve and on the aggregate supply curve would not be the same hence this might sometimes result in inflationary pressure on labour and the product market. Another way of understanding this impact is to consider the possible inflationary effects in labour and product markets from an increase in national income, output and employment point of view. (Tutor2u, 2013a)The labour market: As employment rate increases this would result in skilled labor shortages and hence they would be in short supply. This puts pressure on wages and prices to riseOther factor markets: Cost-push inflation can also result from increasing demand for necessities. This is also sometimes referred to as wage-price spiral and would be discussed in more detail below. Product markets: Rising demand allows suppliers to lift prices to increase their profit margins. The risk of rising prices is greatest when demand is outstripping supply-capacity

The standard Phillips Curve diagram

<http://www.tutor2u.net/economics/revision-notes/a2macro-phillips1.png>

Figure 1: The Standard Phillips Curve Diagram (Source: Tutor2u, 2013a)Phillips Curve and its influence on the business expensesThe Phillips curve understanding mentioned above is focused upon creating a relation between the employment and wage inflation rate. Therefore the business expense that could be studied from this economic theory is, primarily, the wage costs. Therefore it could be said from the diagram above that according to the Phillips Curve, whenever the unemployment is going to fall there would be increase in the general wage level in the entire economy, <https://assignbuster.com/the-standard-phillips-curve-diagram-economics-essay/>

irrespective of the industry. Along with this, there would be some other expenses that would be directly related to wages and salaries expenses of the business i. e. the pension expenses, which carries a directly proportional relation with the wages and salaries expense of a business.

The NAIRU

After the introduction of Phillips curve, Milton Friedman criticized the basis for the original Phillips Curve and then introduced the concept of the NAIRU, which is defined as the rate of unemployment when the rate of wage inflation is stable. (Tutor2u, 2013b)The NAIRU is defined as the unemployment rate consistent with steady inflation under a specified set of conditions. It is meaningful only within a well-specified model of the inflation process. This is depicted by the introduction of the " triangle model" of the inflation process that incorporated and resurrected the Phillips curve from what Lucas and Sargent (1978) had called the " wreckage" of the early and mid 1970s. (NBER, 2013a)The NAIRU assumes that there is imperfect competition in the labour market where workers have bargaining power perhaps as a member of a trade union. Set against the influence of trade unions, some employers have monopsony power when they purchase labour inputs. (Tutor2u, 2013b)The equilibrium level of unemployment is the outcome of a bargaining process between firms and workers. In this model, workers have in their minds a target real wage which is influenced by what is happening to unemployment - it is assumed that the lower the rate of unemployment, the higher workers' wage demands will be. Employees will seek to bargain their share of a rising level of profits when the economy is enjoying a cyclical upturn. (Tutor2u, 2013b)The practical implication of the <https://assignbuster.com/the-standard-phillips-curve-diagram-economics-essay/>

NAIRU in the UK economy is demonstrated below: http://www.tutor2u.net/economics/revision-notes/a2-macro-phillips-curve_clip_image003_0000.gif

Figure 2: UK NAIRU (Source: Tutor2u, 2013a) As evident from the chart that the actual level of unemployment in the UK has risen sharply due to the recession. Actual unemployment is now well above the NAIRU and this is one reason why the rate of wage inflation in the UK has been low despite an inflation rate persistently above 3%. Many people in work have had to accept cuts in their real take home pay; they have little negotiating power. The NAIRU has risen towards six per cent of the labour force, but it remains lower than in the recession of the early 1990s. (Tutor2u, 2013b)

NAIRU and its influence on the business expenses Whether or not a business can meet that target real wage during pay negotiations depends partly on what is happening to labor productivity and the ability of the business to apply a 'mark-up' on average cost in product markets in which they operate. In competitive markets one would expect lower profit margins than for a monopolist enjoying high super-normal profits. (Tutor2u, 2013b)

If actual unemployment falls below the NAIRU, theory suggests that the 'balance of power' in the labor market switches to employees and away from employers. The consequence can be that the economy experiences acceleration in pay settlements. Ceteris paribus, an increase in wage inflation will cause a rise in cost-push inflationary pressure. (Tutor2u, 2013b)

It could therefore be said that the same consequences would occur as that was observed in the Phillips Curve influence on the business expenses. The primary expense that would be influenced with this too would be wage expenses followed by the cost-

push inflation impacting every other element (refer cost-push inflation explanation below)

Friedman's 'Expectations-Augmented Phillips Curve'

Another development in terms of establishing a relation between these two variables i. e. the interest rate and the inflation rate was that developed by Friedman. (Tutor2u, 2013b)Friedman accepted that the short run Phillips Curve existed - but that in the long run, the Phillips Curve should be drawn as vertical and, as a result, there was no trade-off between unemployment and inflation. (Tutor2u, 2013b)He argued that each short run Phillips Curve was drawn on the assumption of a given expected rate of inflation. So if there were an increase in inflation caused by a monetary expansion and this had the effect of driving inflationary expectations higher this would cause an upward shift in the short run Phillips Curve. The monetarist view is that attempts to boost Aggregate Demand to achieve faster growth and lower unemployment have only a temporary effect on jobs. Friedman argued that a government could not permanently drive unemployment down below the NAIRU - the result would be higher inflation which in turn would cost jobs and hit growth but with inflation expectations increased along the way. Friedman introduced the idea of adaptive expectations - if people see and experience higher inflation in their everyday lives, they come to expect a higher average rate of inflation in future time periods and they incorporate these changing expectations into their pay bargaining. Wages often follow prices. A burst of price inflation can trigger higher pay claims, rising labour costs and ultimately higher prices for the goods and services we need and want to buy. This is illustrated below - inflation expectations are higher for

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the short run Phillips Curve SPRC2. The result may be that higher unemployment is required to keep inflation at a level rate. The Monetarist School (another school of thoughts in economics) believes that inflation is best controlled through control of money and credit. Credible and effective policies to keep on top of inflation can have the beneficial effect of reducing inflation expectations - causing a downward shift in the Phillips Curve.

<http://www.tutor2u.net/economics/revision-notes/a2macro-phillips2.png>

Figure 3: Phillips Curve (Source: Tutor2u, 2013a) The long run Phillips Curve is normally drawn as vertical - but the curve can shift inwards over time. An inward shift in the long run Phillips Curve might be due to supply-side improvements to the economy - and a reduction in the natural rate of unemployment. For example labour market reforms might be successful in reducing frictional and structural unemployment - perhaps because of improved incentives to find work or gains in the human capital that improves the occupational mobility of labour.

What has happened to the inflation-unemployment trade off for the UK?

http://www.tutor2u.net/economics/revision-notes/a2-macro-phillips-curve_clip_image007.gif Figure 4: UK Employment and Consumer Price

Inflation (Source: Tutor2u, 2013a) In the late 1980s the UK overheated and suffered a sharp rise in inflation. Unemployment was falling (the economy was moving up a short run Phillips Curve) but the loss of control over inflation caused 15% interest rates and eventually a painful recession that caused unemployment to rise to nearly 10 per cent. Higher unemployment helped to bring inflation down once more but the cost was heavy. The period

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from 1993 through to 2005 was a remarkable one for the UK. We saw a sustained decrease in the unemployment rate, yet consumer price inflation remained low and fairly stable. Indeed in the mid 1990s both unemployment and inflation were on a falling trend and this was evidence of an improvement in the inflation-unemployment trade-off. (Tutor2u, 2013a) From 2006 onwards the picture began to change. Inflation edged higher from below the 2% target to 3% in the spring of 2007. Unemployment levelled off with the claimant count measure flat lining at 3% of the labour force. But in 2008 there was a sharp pick up in inflation with prices driven higher by a combination of higher fuel and food costs. The rate of inflation peaked at 5.2% in October 2008 just at the time when unemployment started rising again with the economy slowing down and then entering recession. (Tutor2u, 2013a) In 2008 the big policy danger was thought to be a return to stagflation - a combination of weak growth, high inflation and rising unemployment. (Tutor2u, 2013a) In the event the inflationary dangers ebbed away in 2009 as recession started to bite and global commodity prices fell back down. Indeed with unemployment rising and inflation falling, the policy risk has switched to the dangers of a deflationary recession - a combination of high unemployment and falling prices. (Tutor2u, 2013a) In 2010 the rate of unemployment stabilized but inflation picked up once more to 3% - driven higher by rising commodity prices and a low exchange rate. Fears of stagflation returned with the British economy struggling to maintain a decent recovery but with inflation rising above 5%. (Tutor2u, 2013a)

Why does a change in the NAIRU matter?

The focus for the government here is the possible consequences for the operation of macroeconomic policy. Setting interest rates: Firstly a reduction in the NAIRU will have implications for the setting of short-term interest rates by the Monetary Policy Committee. If they believe that the labour market can operate with a lower rate of unemployment without the economy suffering a big rise in inflation, then the Bank of England may be prepared to run monetary policy with a lower rate of interest. This has knock-on effects for the growth of aggregate demand as lower interest rates work their way through the transmission mechanism. (Tutor2u, 2013a) Forecasts for economic growth: The trade-off between unemployment and inflation affects forecasts for how fast the economy can comfortably grow over the medium term. This information is a vital for the government when it is deciding on its key fiscal policy decisions. For example how much they can afford to spend on the major public services education, health, transport and defence. Forecast growth affects their expected tax revenues, which together with government spending plans then determine how much the government may have to borrow (the budget deficit). (Tutor2u, 2013a)

Does the NAIRU rise because of the recession in the economy?

During the recession the actual rate of unemployment for the UK and for many other leading advanced nations has risen above the estimated NAIRU. Taking the UK as an example, the labour force survey unemployment rate in June 2010 spiked up to 7.5% well above an estimated NAIRU of 5.5% (using data from the OECD). (Tutor2u, 2013a) Much of this increase in

unemployment is cyclical because of a fall in aggregate demand for goods and services and the lay-offs and redundancies from factory closures and business failures. A recession means that the pool of unemployed labour inevitably rises but hopefully when the recovery arrives, businesses will start to hire more labour and unemployment will fall. But if a sizeable number of those who have lost their jobs in the recession find it hard to get new work, a deeper structural problem develops leading to occupational and geographical immobility, a loss of skills and a reduction in the intensity of job search among the unemployed. (Tutor2u, 2013a)http://www.tutor2u.net/economics/revision-notes/a2-macro-phillips-curve_clip_image009.gif

Figure 5: NAIRU Estimates for Selected Countries (Source: Tutor2u,

2013a)The recession has also caused a partial reversal of inward labour

migration, a feature of the economy in recent years that helped to increase the size of the labour supply and sustain growth without causing an unsustainable acceleration in wage inflation. Lower net migration will also make it harder to fill the type of low paid jobs that migrants have taken up over the past decade. (Tutor2u, 2013a)If cyclical unemployment becomes structural, then the NAIRU will rise. Actual unemployment may revert back towards previous levels if the labor market successfully matches people to the new work opportunities. However this process can take many years to happen. In Britain we have become used to thinking of 3% unemployment on the claimant count and 5% on the labor force survey as 'normal' rates. If the recession damages the employability of a generation of workers made redundant because of the credit crunch and subsequent slump, the measure of what is a normal rate of unemployment may have to change. (Tutor2u,

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2013a)A recession will force businesses and workers to restructure and retrain because many of the new jobs in a recovery are not the same as those that were required in previous economic cycles. (Tutor2u, 2013a)All in all, the Phillips Curve and the future development in it all shows that the change in unemployment would directly influence the wage inflation rate which would in turn result in cost-push inflation.

Wage Price Spiral

For a long time, the " wage price spiral" was a central element of macroeconomic dynamics. An increase in aggregate demand, it was argued, would increase output and employment, leading firms to desire higher prices and workers higher wages; this would start a wage price spiral, which would end only if and when this " demand pull" inflation decreased real money balances sufficiently to return the economy to steady state. Or the spiral could start from a desire from workers to increase their real wages, or from firms to increase their profit margins, or from the attempts by both sides to maintain the same wage and price in the face of an adverse supply shock these would also start a wage price spiral, lead to " cost push" inflation, and through the effect of inflation on real money balances, lead to a recession. With the advent of rational expectations, the wage price spiral left center stage. (NBER, 2013b)With rational expectations, workers and firms had to understand that there could not be a simultaneous increase in all real wages and all markups (of prices above wages). The effect of an increase in aggregate demand was to increase nominal wages and prices simultaneously and instantaneously, in order to decrease real money balances and leave output unchanged. The same reasoning applied to supply

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shocks. Workers and firms had to understand that either real wages or profit margins or both had to decrease; the adjustment was instantaneous. (NBER, 2013b) Price level dynamics are indeed the result of attempts by workers to maintain (or increase or decrease as the case may be) their real wage and by firms to maintain (or increase or decrease) their markups. Furthermore, there is a direct relation between the inflexibility of real wages and markups to shifts in demand and the degree of price level inertia. The smaller the effect of shifts in the demand for goods on the markup, and the smaller the effect of shifts in the demand for labor on the real wage, the more slowly will the nominal price level adjust to offset aggregate demand disturbances. (NBER, 2013b) As the nominal price level adjusts slowly to its equilibrium value, changes in nominal money have long lasting effects on real money and aggregate demand. If movements in aggregate demand are not too large, in a sense to be made precise later, aggregate demand determines output suppliers willingly accommodate the increased demand for goods and labor. (NBER, 2013b) Finally, if the economy is predominantly affected by aggregate demand shocks, there is, as a first approximation, no relation between output and real wage movements. In response for example to an increase in nominal money, output temporarily increases before returning back to its equilibrium level. During this adjustment process, the real wage is neither systematically lower nor higher but simply oscillates around its equilibrium value. (NBER, 2013b)

Methodology

The previous section brought us to the point where a reasoned understanding of past work could be achieved, in relation to the

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understanding and creating a relationship between interest rate and business expenses. In this section, the methodology used for the analysis as well as the aims to be achieved are discussed. The methodology is based on the types of information being used which includes the primary source of information as well as the secondary sources of information. The primary source of information covers aspects like conducting short surveys from different personnel in different field of life ranging from managing director of a multinational company to the assistant manager finance of a local company. The companies that are included in the short surveys include a multinational company, four audit firms, two listed and two non listed companies.

Data

Data were taken from a number of sources of information most prominent among them are mentioned below: The interest rates of developed and developing countries have been taken from the Trading Economies. The interest rates used refers to the central bank benchmark interest rate. Normally, the central bank benchmark interest rate is the overnight rate at which central banks makes loans to the commercial banks under their jurisdiction. The central bank influences the level of benchmark interest rate to make an impact upon the interest rate of the commercial banks, inflation level of the country and exchange rate of the national currency. (Trading Economies, 2013)The unemployment rate has been taken from International Labor Organization (ILO), where the data has been used to gather the unemployment rate for selected developed and developing economies. The inflation rates has been obtained from the Inflation. eu. (Inflation. eu, 2013).

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The inflation rate that has been considered are the rates based upon the consumer price index (CPI). The index is a measure of the average price which consumers spend on a market -based ' basket' of goods and services. The average inflation rate has been considered for every year which is itself the average monthly inflation rate of a calendar year. The timeframe for this data is 2008-2011. The short period of time allows for in-depth examination of various changes that took place over the period of these four years. During this time, China became the second largest global economy (surpassing Japan) and therefore this historical shift will also be considered (Bloomberg, 2010). As well, a focus on the global financial crisis that led to the downfall of many economies will also be included in the analysis. GDP and GNP calculation is performed on a nominal level expressed in local currency, and GDP change as a simple percentage increase in nominal levels. Inflation and other factors are taken from figures provided by the Economist Intelligence Unit's Country Report for each country at the ending of each year, i. e. December.

Hypotheses

Reason and explanation of hypothesis questions: While the research question was about evaluating whether the interest rates affect the business expenses, this went much further than simply a number-based comparison. These questions, in their individual capacity, help to define the macroeconomic indicator such as inflation, unemployment etc of each type of economy (i. e. developing and developed). The first hypothesis states to establish a positive correlation between the level of interest rate and the level of business expenses being incurred. This hypothesis is directly related

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to the topic of the dissertation, commenting upon which would aid the explanation and discussion of other hypothesis being considered. The interest rate might have different impacts on the business expenses of the countries being classified as developed or developing country. The second hypothesis therefore aims to address this and evaluate whether the changes in interest rate has more effect on business expenses of a developed economy. There might be other major macroeconomic factors that might also influence the level of business expenses. The third hypothesis, more of an extension to the first, tends to address this question and tries to consider such macroeconomic factors that might in isolation or influenced by other factors might influence the business expenses. Business are generally divided into three categories, primary, secondary and tertiary sectors. The primary sectors deals in with the raw material production or excavation such as farming, mining etc. The secondary sector is related to manufacturing the raw materials provided by the primary sector whereas; the tertiary sector is associated with providing services. The fourth hypothesis therefore considers whether the level of interest rate has a greater impact on influencing the business expenses of the manufacturing sector of a country. Since the analysis employs a broad range of data and variables, it is important to state the key hypotheses of this study. As sub-categories of these hypotheses, issues that are less important yet can be supportive indirectly or directly to the analysis will also be discussed. Hypothesis 1: A positive correlation exists between level of interest rate and the inflation rate level.

Here the alternative hypothesis was the concept that the level of interest rates do influences the level of inflation rate which in turn influences the expenses incurred by the businesses. The null hypothesis presented the idea that the level of interest rates does not influences the level of inflation rate and hence, they do not significantly influence the expenses incurred by businesses.

This hypothesis addresses the topic of this dissertation and therefore takes into account the theories, concepts and research that has been made in the past to determine that it continues to apply in the world of today and if yes, to how much extent. The hypothesis then can be used to comment upon how this explanation of the hypothesis could lead to affect the business expenses being incurred. Hypothesis 2: Interest rate movements have differing impact on developing economies rather than developed ones

The null hypothesis expected that the business expenses of developed nations are influenced more by the changes of interest rate. The alternative hypothesis considers that it is the developing nations, of which the business expenses are more prone to the level of changes in interest rates.

An extension to the first hypothesis is that whether the business expenses incurred by businesses in developed countries are more prone to the changes in the interest rate level than the businesses in the developing countries. Macroeconomic movements themselves may have different impacts within differing economic systems. For instance, while interest rate affects both types of economies, its impact on the business expenses may be numerically dissimilar on a significant level. For this very reason, these variables and the impact will be compared across developed and developing

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economies and the results compared to see to what extent does the idea stand true. The significance of each variable tested to ensure results are supported by their valid impact. Hypothesis 3: Interest rate is the most denominating macroeconomic indicator that influences the level of business expenses.

The null hypothesis expected that the interest rate is one of the major macroeconomic indicator that influences the business expenses. The alternative hypothesis considers that it is the only macroeconomic factor that dominantly influences the business expenses level.

Hypothesis 4: The 2008 financial crisis affected the business in the developed economies more than developing ones. It is accepted that the recent financial crisis caused many businesses to close down and the economy across the world to negatively drop for 2008 and the last few years. Hence, this hypothesis not only focuses upon the financial crisis that occurred in 2008 but also looks at how it has influenced the business and therefore the level of business expenses in the developed and developing countries. Many researchers, such as Bano (2011) found differing results for the stock returns of some of the developing economies when compared to developed ones (changes in stock returns would provide us some knowledge of how the business expenses behaved in times of this financial crisis). Furthermore, while the focus of Bano (2011) was on the 1997 East Asian crisis, this case can be used to examine the 2008 financial meltdown in greater detail and perhaps draw a conclusive result regarding the validity of this hypothesis.

The null here was that the financial crisis affected developing countries more, however our assumption on the alternative hypothesis was that the developed economies were the one who took a greater proportion of economic damage from it.

Hypothesis 5: The business expenses of the manufacturing sector are to the greatest extent are influenced by the changes in the interest rate level.

The null hypothesis expected that the interest rate do influences the level of business expenses for all the three sectors of industry. The alternative hypothesis considers that it impacts the most on the level of business expenses for the manufacturing sector.

It is therefore important to mention here that this analysis will also briefly look at the industrial level impact within economies, as the effects were more prominent within some industries (such as banks and automotives) than others.

Limitations

Among the limitations of the analysis include the fact that the timeframe may include biases that relate to changes in the economic cycle. According to many estimates, the average economic life cycle lasts around ten years and therefore any one point may not be representative of the entire cycle. This is an inherent limitation and will be taken into consideration while rationalising the results of the analysis. Also included in the limitation is ethical restraint. At many points during the research phase, information that may assist in the research may be sourced, however, its validity will be rigorously questioned, i. e. the source will be ignored if it is either

unidentifiable or lacks the standard of reliability needed for dissertation. The next chapter contains the analysis based on the hypotheses presented above.

Chapter 4

Analysis

The previous sections have paved the way for a comparative analysis that examines both macro level indicators and industry-specific circumstances for each country. This section will attempt to answer the five hypotheses laid out in the previous chapter and comment on the findings and possible implications of the results. Each hypothesis will be discussed below.

4. 1 Hypotheses Testing

4. 1. 1 Hypothesis 1: A positive correlation exists between level of interest rate and the level of inflation rate.

In the previous sections we have considered the possibility that the different theories such as Phillips Curve and the wage price spiral were used to consider the type of relationship between the level of interest rates and its influence on the inflation rate, the study undertaken as follows has been used to consider that whether it continues to support this fact or not. The hypothesis therefore arises from the fact that the ongoing debate of whether there exists a positive relation between the interest rate and the inflation rate. To answer this we have considered the consumer price index and the interest rate level of three developed and three developing countries in order to judge whether the interest rate do impact the general price level of the businesses present in these countries. CountryCPI in % (Annual average

Inflation rate) Average Interest Rate % Correlation

Coefficient	2008	2009	2010	2011	2008	2009	2010	2011	2008 - 2011	Country	
2.	370.	311.	782.	913.	000.	570.	601.	000.	83	UK	
3.	612.	173.	294.	484.	600.	800.	500.	500.	67	USA	
3.	85	-0.	341.	643.	162.	100.	250.	250.	250.	82	China
5.	97	-0.	723.	175.	537.	005.	305.	406.	350.	85	Brazil
5.	674.	905.	046.	6312.	4710.	259.	8511.	751.	00	Turkey	

96 Table 1: Correlation Coefficient between CPI and Interest Rates

The consumer price index indicates the increase in the general price level of commodities, which in turn makes it a measure to gauge inflation. If the consumer price index is positive it depicts that there is increase in inflation which in turn would increase the price of different inputs used by business to operate, these different inputs could range from the raw material prices to the wage of labor and may also impact to increase the rent paid by the companies. Thus, while considering the *ceteris paribus* to remain constant, an increase in Consumer Price Index (CPI) would lead to increase in business expenses. While examining the data provided in the table it can be observed that the interest rate for every country has fallen after 2008 and this has also led to a fall in the consumer price index as well, it therefore establishes that there is a positive correlation in the year from 2008 to 2009. However, as we consider the year 2009 and 2010 this relation seems to get different for each country, where some countries such as Canada and China showed a positive relationship between the two variables at the same time there were some countries like UK, Brazil and Turkey that experienced negative correlation between the two variables while USA showed a completely different picture for where its interest rate stood at 0.25% constant from

2009 but its CPI have increased from -0.34% in 2009 to 1.64% in 2010. In 2010 till 2011 period, this odd instance of increase in CPI while interest rate being constant has been experienced by USA as well as by the UK. This might establish the reason that interest rate do have a medium to long term impact and is not a macroeconomic measure that could be used to attain short term objectives, unless if there is a significant change in the level of interest rates. Other countries like Canada, China, Brazil and Turkey all witnessed a positive correlation during the period from 2010 till 2011. The overall correlation for all these countries over the period from 2008 till 2011 have all shown a positive correlation while Brazil reported an absolute positive correlation during this period, followed by Turkey which also almost reached the level of absolute positive correlation. The correlation coefficient for Canada, USA and China were all in the range of 0.85 while the figures for the UK were the lowest standing at 0.67, showing the least correlation of all the countries selected. It therefore brings us to the fact that there exists a positive correlation, if not absolute positive correlation, between the level of interest rate and the level of inflation rate which in turn influences the level of business expenses being incurred by different organization in the economy irrespective of whether they are in the primary sector of industry or the secondary or the tertiary sector of the economy.

4. 1. 2 Hypothesis 2: Interest rate movements have differing impact on developing economies rather than developed ones.

As stated earlier the impact of interest rate changes may affect the developed and the developing differently due to different economic features both types of countries contain. While developed countries being considered

better off in every way (such as reduced unemployment rate, inflation rate and better GDP growth than the developing countries) might be the reason that the business in both these countries may differently feel the impact of interest rate changes on their operations and expenses. Country Labor costs (Index points) Average Interest Rate % Correlation

Country	2008	2009	2010	2011	2008	2009	2010	2011	2008 - 2011
Canada	120.00	122.45	123.40	126.00	3.00	0.57	0.60	1.00	0.78
UK	95.80	100.00	101.60	102.00	4.60	8.00	5.00	5.00	6.60
USA	108.30	106.50	105.30	107.60	2.25	2.25	2.25	2.25	2.25
China	120.00	122.00	130.00	115.00	7.00	5.30	5.40	6.35	5.99
Brazil	123.00	124.00	142.00	164.00	12.47	10.25	9.85	11.75	9.99
Turkey	143.00	141.00	164.00	187.00	15.90	9.65	6.80	6.00	8.89

Table 2: Correlation Coefficient between Labor Costs (Index points) and Interest Rates

The table above considers the labor costs in terms of index points and the average annual interest rate for each country. Before we move on to consider the impact of changes in interest rate upon the labor costs index of the developed and developing economies, from the previous hypothesis we have already reached the conclusion that there is a positive correlation between the level of interest rate and the consumer price index of all the six developed and developing countries. However, if we refer back to the previous table in the previous hypothesis it could be seen clearly that the correlation is stronger in case of developing rather than the developed countries. Taking out the average for the correlation coefficient for the three developed countries it comes to 0.94 as opposed to 0.77 of the coefficient that pertains to that of developed countries. We have to consider this and test further to ascertain that whether the interest rate can influence the

labor costs to the in the same way and to the same extent when the changes in interest rates were correlated against the Consumer Price Index (CPI). The period 2008 to 2009 saw a decline in interest rate and mixed trends were observed between all the six countries. The labor cost index for the Canada, UK, China and Brazil increased whereas that of Turkey and USA decreased. In 2009 to 2010 the labor costs index for all countries increased except for that of USA in relation to the mixed interest rate trend observed and in 2010 to 2011 saw the experience of the same trend as that of in the previous period where the labor costs index for all countries except for China increased in relation to generally declining and constant interest rate policy being introduced by the six countries. The result however in the end showed a positive correlation between the interest rate level and the labor costs index which explains that there exists a positive correlation between not only the interest rate and the Consumer Price Index (CPI) but also between the interest rate level and the labor costs index too. It is interesting to note that the correlation being observed between the interest rate and the labor costs index is almost absolute positive correlation reaching to 0.99 as opposed to less correlation being observed for the three developed countries the average of which reaches makes up 0.70. This not only supports the previous hypothesis conclusion that the correlation observed between the interest rate and the CPI is the same as the correlation observed between the level of interest rate and the labor cost index but the correlation movement is more significant in the later case for the developing economies as compared to that of the developed ones. This further proves that the level of interest rate changes do quickly reflect in the labor costs at all levels of

the industry sector of the developing countries where for developed countries it takes less than proportional increase in the labor costs.

4. 1. 3 Hypothesis 3: Interest rate is the most dominating macroeconomic factor that influences the level of business expenses.

This hypothesis is in direct relation to the topic of the dissertation and considers the possibility that the interest rate only is the source of change that may influence the business by influencing the expenses they incur. While the interest rate are described as cost of borrowing money, this hypothesis considers that the influence of interest rate is greater than other macroeconomic indicators like inflation rate on the business expenses or not. (In this dissertation the labor costs has been considered as one of the most important expense for any business. The reason being that in any type of business there would be labor involved which would constitute to be the variable cost for any business. The wages are often linked in line with the profits earned by businesses where the employees are provided with bonus when a company achieves a higher level of profits or the company might implement the profit participation policy. While being considered as variable costs, the wages provide a more logical expense item to be considered since it is directly linked with the level of production and hence provides a more rational representative expense among the other variable costs incurred by businesses. Further, a better expense item would have been the expenditure made on the purchase of raw material and semi finished goods but due to the limitation of data not being available, the next best option has been considered i. e. labor costs)

CountryCorrelation between Interest rate and the

Labor cost index
 Correlation between CPI and Labor costs Index
 Correlation between Unemployment rate and Labor costs Index
 Correlation between Unemployment rate and CPI
 Correlation between Interest rate and unemployment rate

Year	Canada	UK	USA	China	Brazil	Turkey
2008 - 2011	0.78	0.66	0.67	0.85	0.99	0.89
2011 - 2012	0.89	0.97	0.96	0.72	0.99	0.97
2012 - 2013	0.99	0.99	0.58	0.70	1.00	0.94
2013 - 2014	0.85	0.96	0.70	0.98	0.97	0.97

Table 3: Correlation Coefficient between different macroeconomic indicators

The table above considers three macroeconomic factors comprising of the interest rate, inflation rate and the unemployment rate and their correlation with the labor cost index. While we have considered the correlation between the interest rate and the labor cost index we would be looking at the remaining two macroeconomic factors i. e. the Consumer Price Index and the unemployment rate. While looking at the correlation between the consumer price index and the labor costs, the average correlation of all six countries is greater than that of the average correlation of interest rate and labor costs index. Although it is interesting to note that there was a similar relation being observed in terms of correlation when Interest rates were compared with labor cost index as opposed to when CPI was compared with Labor cost index. This is depicted from the fact that the correlation between the CPI and labor cost for China stood at 0.78 while for Brazil and Turkey stood at 1 and 0.96 denoting almost an absolute positive correlation. Similar odd instance was noted for USA where its correlation coefficient was the lowest among the all three standing at 0.8 where that of Canada and UK stood at 0.89 and 0.97. The correlation between the labor costs and the unemployment rate shows almost an

absolute positive correlation for all the six countries. However, this would be incorrect to state that the unemployment rate is the macroeconomic factors that dominate among others to influence the level of business expenses being incurred. The reason being that unemployment rate in turn directly impact one business expense i. e. wages, we would have to consider the factor that would be most influential of the three considered here. That leaves us with the choice of interest rate and the inflation rate. To reach a conclusion we need to consider the level of correlation between the interest rate and the inflation rate, between the inflation rate and the unemployment rate and between the interest rate and the unemployment rate. Since we have already considered that the unemployment rate is not the most influential factor of all, therefore which ever correlation i. e. of interest rate or inflation rate is higher in relation to unemployment that factor would be the most influential of all on the expenses incurred by the business. The average correlation for all the six countries is more stronger in the case of considering unemployment rate with inflation rate as compared to unemployment rate being compared with interest rate, therefore by considering this data it could be said that it is inflation that has a more dominating influence on the level of business expenses rather than the interest rate. Although, this area could further be researched upon to determine which of the macroeconomic factor has a dominating influence upon the business expense level of an organization.

4. 1. 4 Hypothesis 4: The 2008 financial crisis affected the business in the developed economies more than developing ones.

This hypothesis considers impact that the recent financial crisis had upon the level of interest rate and the therefore the level of business expenses being incurred by business. (The level of business expenses is considered by looking at the level of returns being provided over the years by the businesses in the six countries being considered. With increasing profitability could only be due to two reasons, first the increase in the overall activity and hence production and sales by the business which would be reflected upon in the GDP of the economy and the second reason would be the operational efficiencies in controlling the costs incurred by the business. Therefore by keeping GDP constant for instance and assuming that the businesses continues to provide same level of returns, the increase in returns would be associated with reduction in business expenses being incurred) The 2008 financial crisis led to many countries around the world seeing their stock markets (and economies) plummet to double-digit negative figures. The crisis caused foreclosures of many financial institutions, including Lehman Brothers, one of the biggest names in the financial services industry. The main tool for this analysis is an evaluation of social as well as macro-level indicators. This is due to the fact that while macro indicators such as GDP show the economic side of the picture, the impact on an individual is best measured through social indicators. The analysis includes comparing the Human Development Index 'standard of life', (see table 7, below) a tool that encompasses several areas that define the social environment of a country.

Table 6: HDI Values Human Development Index (HDI)

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value2008200920102011China0. 6650. 6740. 6820. 687Brazil0. 7160. 7190.
7260. 728Turkey0. 7040. 7090. 7150. 720Canada0. 9090. 9070. 9090.
910United Kingdom0. 860. 860. 8620. 863United States0. 9070. 9060. 9080.

91Table 4: Human Development Index for selected countriesAs is evident from the table, there is a substantial difference between the values for developed and developing markets, with Brazil being the closest to developed markets (its HDI value being just 0. 144 points lower than the UK).

We can see from the analysis that the 3 yr growth rate remains constantly positive for all of the developing markets. This is in contrast to values for developed countries, which have either declined or seen constant results, especially between 2008 and 2009. While one could argue that the level of saturation reached by these economies would mean only large changes in values could increase the HDI, it can also mean that core components of the wider society - such as GNI and standard of living - were more affected in the developed nations from 2008-09. Another important analysis tool is the Gini index. This is simply the measure of income inequality, and therefore, a higher number represents inadequate form of income distribution. The Gini index for 2011 is shown below. Table : The 2011 Gini Index

Gini Index2011China42. 7Brazil55. 9Turkey39Canada32. 6United

Kingdom36United States35Table 5: Gini Index for selected countries for

2011This figure shows a slightly more equivalent picture of social development than compared to HDI. Here China has a better result than the United States, and is very close to the other developed markets. Read in conjunction with other data on social development, the results show a suitable positive change in the social development result for emerging

markets. The results from this table, as well as the results obtained from Hypothesis 2, somewhat enable us to concur with the findings of Bano (2011) that index based returns generated higher volatility for developing markets and in fact, showed a significant decline in 2008-09, the social indicators displayed a consistent rise towards betterment. In addition, the reduction in numbers itself cannot suitably be reason enough to conclude that a particular hypothesis is valid. For instance, an important component of HDI is the standard of living, measured by taking the natural log of per capita GDP at purchasing power parity (PPP). Assuming that the close down of businesses themselves lead to deflation, as GDP per capita drops, so would PPP and therefore the results may remain consistent or even improve, despite the actual living conditions having worsened or stayed the same. Also, other aspects of HDI (such as life expectancy and adult literacy) are based on medical and educational advances made over a long period of time. Eventually adopting these advancements may cause the HDI to rise quicker for developing nations and show growth that surpasses developed economies, but, for example, this does not mean the developed markets do not already possess these medical facilities. The lack of data on past Gini results would hamper the findings for growth on social development components here. However, another key component of evaluating the impact on an economic scale is the GDP. Using GDP comparisons (as shown below), it is possible to see the change in trends in the six economies from 2008-2011. Figure 4: GDP Growth (2008-2011) Figure 5: Real GDP growth (%) for selected countries The trend in the figure above shows how most of the developed economies fell during 2008-09. This is a natural movement;

considering that most of the crisis took shape in 2008, the impact reflected on the numbers for 2009. It is interesting to note, however, that recovery was rather fast-paced with all of the three developing countries reaching positive growth indicators back in 2010, despite drops as low as -4.7% (Turkey). Surprisingly, 2009 was a year of favorable growth for nearly all three of the emerging markets, with China consisting on 2008's growth rate of 9% with 9.1% growth, a strong positive result. This could be explained due to reduction of interest rate which increased the money supply within the country allowing more production to take place. Subsequent years show a more normalized rate for developing markets, and a boost for developed markets returning to business. However, portfolio returns during the period 2008-09 were higher (mainly due to the decrease in the average interest rates and increase in the unemployment rate for all six countries allowing the production activities to pick up more quickly) for markets in developing regions as compared to others. By the set of results above, it is possible to say that there is some evidence explaining how the financial crisis affected developed markets more than emerging ones.