1. Explain how macroeconomic factors influence FX evolution

Exchange rates are simply the value at which one currency can be converted to another. Because this value is constantly changing, the floating exchange rate is always in flux. Exchange rates fluctuate due to a wide range of interrelated factors, but the market reaction to changes is rarely so straightforward. Exchange rates move due to supply and demand factors. In simple terms, when there is an excessive supply of something the value attached to it decreases, while an increase in demand raises value. However, more deliberate macroeconomic factors can influence foreign exchange (FX) evolution. These include:

* macroeconomic policy, disseminated by government agencies and central bank. This comprises of government fiscal policy (budget/spending practices) and monetary policy (the means by which a government's central bank influences the supply and "cost" of money, which is reflected by the level of interest rates).
* macroeconomic conditions, generally revealed through economic reports, such as geopolitical evolutions, Foreign Direct Investments (FDI), GDP, employment levels, retail sales, capacity utilization and others, which detail the levels of a country's economic growth and health.

Therefore, a currency can be overvalued or undervalued, in view of its misalignment from an equilibrium level, as a result of these factors. For instance, the market usually reacts negatively to widening government budget deficits, and positively to narrowing budget deficits. The impact is reflected in the value of a country's currency. While, the trade flows between countries illustrating the demand for goods and services, indicates demand for a country's currency to conduct trade. Surpluses and deficits in trade of goods and services reflect the competitiveness of a nation's economy. As such, trade deficits may have a negative impact on a nation's currency. Moreover, a currency will lose value if there is a high level of inflation in the country or if inflation levels are perceived to be rising. This is because inflation erodes purchasing power, and consequently the demand for that particular currency. However, a currency may sometimes strengthen when inflation rises because of expectations that the central bank will raise short-term interest rates to combat rising inflation.

Question 4

The individual coefficients from the error-correction model are hard to interpret in the case of vector-auto-regressive model. Consequently, the dynamic properties of the model are analyzed by examining the impulse response functions. The impulse response functions trace the dynamic responses to the effect of shock in one variable upon itself and on all other variables i.e. it is a tool that portrays the expected path over time of the variable to shocks in the innovations. These impulse response functions were plotted and show that one standard deviation shock applied to exchange produces negative effects on the FX evolution over time.

A one standard deviation shock to US industrial production index has a no perceptible effect on JPY/US FX in the short, but gradually increases in the medium to long term and eventually corrects the increase with a decrease in the long run. Therefore, the relationship is mean reverting in the long run. A one standard deviation shock to CPI has a negative effect on FX evolution in the short run, and is mean reverting in the medium term and will increase FX in the long run. While, one standard deviation shock in the FEDRATE will have a negative effect on the JPY/US FX in the short to medium term, with a mean reverting property in the long run. The main implications of the findings are that the JPY/US exchange rate is decreasing over time, which means the JPY likely undervalued at the moment and it is advisable to invest in the JPY short to medium term as there may be opportunities for arbitrage. Additionally, the US Industrial production will likely improve in the near term, especially with the current administration pushing for protectionist policies. This will see an increase in the JPY/US FX as the increase in domestic production will strengthen the US dollar against major currencies. However, the increased access to exchange rate for production could have significant impact on industrial production in the long run. This, therefore, suggests that more foreign exchange should be made available to reduce the gap between the supply and demand for exchange rate thereby enhancing the value of the domestic currency.