ECN320 Exams and summary solutions: May 2020 – Dec 2025

Solutions Retake 2024 exam (Jan 2025): N=3; B=1, E=1, F=1; Avg of passing = 67

Part 1. Explain whether the statements are true, false, or whether it depends. Defend your answer. If depends is your answer, be sure to explain upon what it depends. (25 points)

1.1 An exchange rate overshooting its long-run equilibrium rate would be evidence that expectations are not correctly set.

F. Overshooting occurs because of expectations whether the expectations are set correctly or not. It is the change in expectations that causes $[i_F]^e$ to shift upward (in the case of overshooting). It is only after the expectations change back to what they were that E is restored to its long-run eqlbm.

1.2 The accumulation of (i.e., increase in) foreign currency reserves is a product of government decisions rather than a market phenomenon.

T. In general, we would expect that a period of -BOT would be offset by a period of +BOT without an accumulation or exhausting of fc reserves. If over extended periods there is a systematic accumulation of reserves, then it would be more likely the intervention of gov't is at play, such as an export-led growth strategy that helps to keep the lc value low to facilitate/promote exports. Otherwise, we would expect a country's currency to increase in value as its exports increase over time. E is the mechanism by which the BOP is brought into eqlbm.

1.3 In general, it does not make sense to make a financial investment abroad at a lower interest rate (or rate of return) than at home.

F. The real rate of interest depends on the rate of inflation, which in turn is affected by the expected exchange rate at a future date. The rate of return will also be affected by future exchange rate.

1.4 If policymakers want to correct a balance of trade deficit through policy intervention that affects the exchange rate, then an important aspect for the success of the policy is for expenditure switching to occur, i.e., that consumers change their consumption pattern away from imported goods towards exportable goods.

F. Expenditure switching is when devaluing or depreciating the currency is intended to increase exports and decrease imports. This increases the price of tradables relative to non-tradables. The expenditure switching requires consumption to shift away from tradables, to increase the export surplus and to decrease the import deficit, thus shifting consumption towards non-tradables. This is intended to improve the BOT by increasing production of tradables (both the exportable and import-competing goods). However, this increases domestic demand but can reduce overall domestic consumption. The share of non-tradable production activity can decrease even as the share of consumption of non-tradables increases. So, the shift toward domestic consumption of non-tradables is coupled with a decrease in overall consumption, which is what a -BOT tends to reflect.

1.5 Relative purchasing power parity is more likely to hold in a period of hyperinflation than in a more "normal" period of price behavior.

T. The higher is the rate of inflation, the faster price changes should occur. The faster is the $\uparrow\Delta$ general P, the faster is the ΔP^e which $\rightarrow$ faster $\Delta E^e \rightarrow$ faster ΔE. As E$\uparrow$, P is expected

to ↑. The two effects reinforce each other, ΔP and ΔE. As economic agents begin to expect faster PΔ, the ↑E is matched by ↑P. Thus, a period of hyperinflation will be more likely to ensure PPP.

Part 2. Answer each of the following questions or respond to the specific statements. Relate your answers to concepts discussed in class and avoid unnecessary information! (45 points)

2.1 Consider the following four possible exchange regimes between two countries: (1) the two countries have a common currency; (2) one country has a fixed exchange regime relative to the other county; (3) there is an indirect peg between these two countries (meaning they are not pegged to each other but fixed to the currency of a third country); and (4) the countries' currencies are flexible. Keep in mind the implications of fixed and flexible exchange regimes when answering the following:

2.1.1 Which of the four exchange regimes would likely result in the most trade between these two countries? Explain how you arrive at your answer. Make your assumptions clear. (5 pts)

2.1.2 Under which of these exchange regimes might capital controls be most appropriate to implement? What sort of capital controls might make sense? Be specific. (10 pts)

Depends on what is argued.

2.1.1 The common currency would be the most likely because the whole point of a monetary union is to promote economic integration, which includes encouraging free trade. The exchange rate cannot be used to affect trade between them. Under (2), there are ways to deviate from the fix. The indirect peg can mean that the value of the two countries' currency can be affected by the value of the third which might not reflect fundamentals between them. Under a flexible regime, changes in E can affect trade between them.
2.1.2 One could expect that under the strictest fix, there might be more interest in restricting K-flows which can affect E and trade. FDI could be the least likely target of a K control because FDI brings K and technology to increase productive capacity. Foreign portfolio flows – either a tax or some sort of restriction on the outflow or inflow – would be a more likely target because it is highly mobile capital that can result in instability in E and the macroeconomy. Int'al borrowing and lending could also be a target of K-controls to avoid fc debt and banking instability.

2.2 Suppose that a respectable national newspaper reports that the economy of Home surprisingly is heading for a "soft landing" after a period of fast growth, meaning that the economy is slowing, but is not now expected to go into recession. The outlook might have implications for household, firm, and investor behavior. It can also affect macroeconomic policymaking. Use this information to answer the following:

2.2.1 How might the new information about Home's economy change household, firm and investor behavior? Explain. (5 pts)

2.2.2 How might the new information affect macroeconomic policy actions? Be specific and make your assumptions clear. (10 pts)

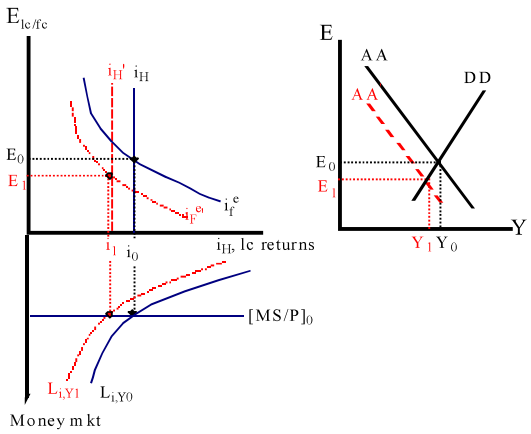
Depends on what is said.
2.2.1 The issue to focus on here is that the economy is not as bad off as one had previously thought it was going to be and so one must consider how private behavior may have changed as a result of things being worse. The implication is that economic growth is slowing and that inflation is lower. The economy not going into recession so there might be less concern about unemployment by HHs. HH might not have to reduce consumption by as much as thought. Producers can start to think about potential investments and investors might be more willing to provide funds through purchases of stocks or bonds.

Households: a lower than expected i_H and lower general prices increases might have encouraged some HHs to purchase more domestic goods, items that might require a loan (cars, HH appliances, etc.). This may have resulted in increased demand for Home goods rather than imports.
Firms: the better economic climate at Home (lower inflation) could mean that firms take on more investment at lower i-rates.
Investors: the lower than expected inflation could have made lc-denominated assets more interesting to hold, slowing K-outflows and maybe encouraging K-inflows.
2.2.2
That growth is slowing makes inflation (or inflation expectations) less of a concern for the central bank charged with monetary policy. That a recession is less likely means that unemployment subsidies will be less likely. This should allow the central bank to maintain or lower interest rates. Fiscal policy need not change as the economy is not likely to go into recession. A decrease in interest rates should lower the value of the local currency.
With lower inflation expectations and an outlook of no recession, both MP can avoid tightening and fiscal policy need not be expanded.

2.3 Under the scenario that follows, consider how macroeconomic equilibrium in an open economy is affected because of a change in the value of the local currency.

2.3.1 Suppose the appreciation of Home's local currency is the result of a change in expectations, but that the domestic inflation rate has not changed. Assume that policymakers do not take any action to prevent the currency's appreciation. What would be the effect on the short-run macroeconomic equilibrium in Home? Explain how expectations matter and the effect they have. Use a graph(s) if you think it will help your answer. (10 pts)

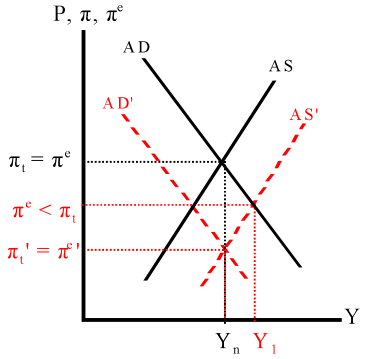
In the graph, an appreciation of the lc is a ↓E caused by expectations → ↓ $[i_F]^e$. This Δexp → ↓ AA and ↓Y. The change in expectations are not caused by ΔP^e nor is there an issue with inflation. This could be some K-inflow that occurred as a result of the expectations, even at lower rates of interest at Home. If no policy action is taken, then output decreases shifting real MD to the left.



2.3.2 Think of the initial macroeconomic equilibrium as depicted by aggregate demand (AD) and aggregate supply (AS). Suppose that the appreciation of Home's local currency is as in 2.3.1, but now general prices (i.e., the rate of inflation) have time to change. How might general prices, output, and employment be affected relative to the initial equilibrium? Explain. Use a graph if it helps your answer. (5 pts)

The appreciation in E, ↓E → ↓ P_H. The AD is affected thru ↓E.
AD = Y[M/P; C(Y), I(I,Y), G; BOT(E·P_F/P_H;Y)]
The ↓AD → ↓P.
AS = Y(W/P, P/P^e,Z) where Z are other factors
↓P falls relative to P^e but as ↓P^e occurs, AS shifts to the right. The new price (general inflation), π_t', is equal to the new exp inflation, π^e' and there is

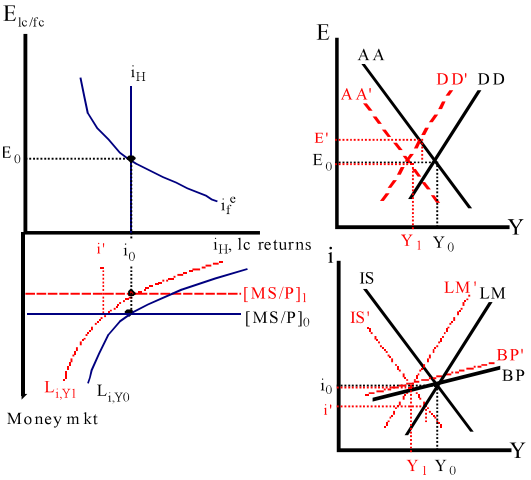
no more adjustment. This occurs at $Y_n = Y_t$ such that the actual output is at the natural rate. Unemployment is at the natural rate of unemployment and nominal wages fall to keep real wages the same (to match the decrease in P).



Part 3. Answer the questions related to the macroeconomic scenario described. Explain your answers to the best of your ability. Label and explain your graphs clearly. Define concepts you think will support your answer. Make your assumptions explicit. (30 points total)

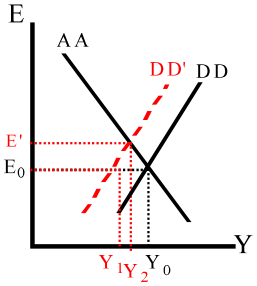
3.1 Consider a situation where there is a temporary decrease in demand for Home's exports by Foreign. Suppose that the policymakers in Home intend to maintain a fixed exchange regime. Use the Mundell-Fleming modeling framework (IS-LM-BP and the AA-DD model) and the asset market-money market to analyze the macroeconomic implications of this scenario. Explain the cause-and-effect changes and the short-term outcome. (15 pts)

[1] ↓ X → ↓BP, a shift in BP to BP'.
[2] ↓ X → ↓AD which → ↓ IS and DD.
↓DD → ↑E (E')
↓IS → ↓i (i')
[3] ↑E requires CB to take MP action to ↑i
↓MS/P → ↑i, ↓E
Outcome: E at E_0 and i at i_0 at Y_1 where $Y_1 < Y_0$



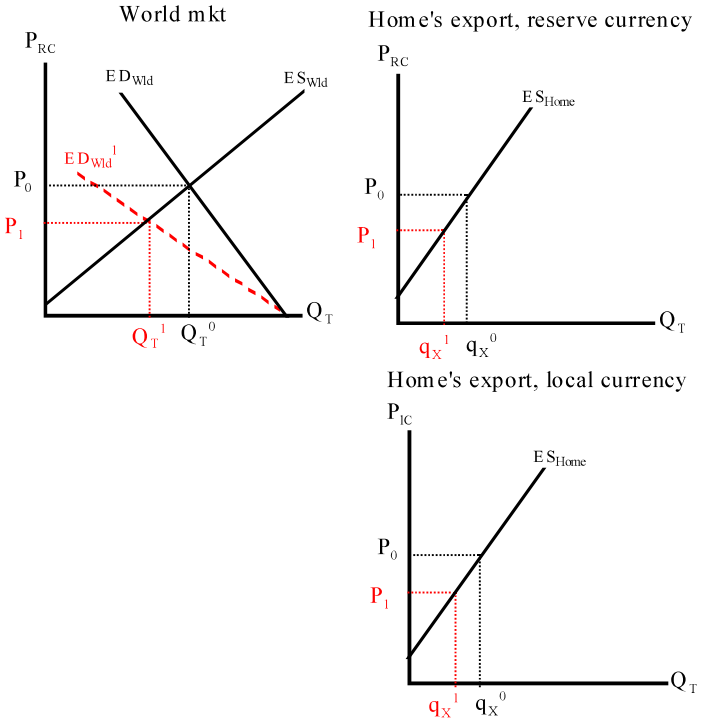
3.2 Think about how the situation might differ if there was a flexible exchange regime instead. How might you explain the differences? You do not need to graph this, but if you do just limit your graphical analysis the AA-DD modeling framework. Explain carefully. (5 pts)

If there was a flexible E regime, then AA (or LM) does not shift. DD shifts to the left to DD' and E ↑. Because there is no CB action Y↓ but not be as much as when MP is tightened. $Y_2 > Y_1$.
Not possible to show nicely with the IS-LM-BP framework because The short run starts to look like the long run as expected ΔE needed to affect BP curve.



3.3 Let Home's exchange rate be fixed to an international reserve currency. Home competes on a world market with many exporters and importers, but trade is denominated in the reserve currency. Using a simple partial equilibrium model of the world market for this good (where exports = imports at a world price), explain whether the temporary decrease in import demand could have been the result of a change in the value of the reserve currency against importers' local currencies. Is the result consistent with the result in 3.1? [Hint: graph only the world market and Home's export supply in the reserve currency and in Home's local currency]. (10 pts)

The top left panel shows the world market. The decreased demand for Home's imports could be a temporary depreciation of imports' local currency relative to the reserve currency (RC). Home's fix to the RC means that the ES of Home is unaffected by the appreciation of RC. The ES of Home has the same slope in RC and local currency because it is assumed the fix is at one-to-one between them. The decrease in import demand, or excess demand (ED^1), is shown as a % depreciation of other currencies against the RC, which causes the world price to decrease. Export earnings decrease, helping to explain the decrease in output in 3.1.



Aug 2024 exam: A=1; B=6; C=6; D=0; E=3; F=4; avg of 16 exams ≈ 70 or a C grade

Part 1. Explain whether the statements are true, false, or whether it depends. (25 points)

1.1 The move of central bankers toward a monetary policy aimed at targeting inflation means that interest-rate parity is a less relevant concept for macroeconomic theory.

F. Inflation targeting affects E thru CPI. Say something about how inflation targeting related to E, ΔE and E^e. If CBs target inflation and MP is successful at meeting the target, then E should be more stable from a PPP perspective because $E = CPI_H / CPI_F$, and from an i-rate parity perspective because ΔE should be small. Nevertheless, the ΔE (from E^e) is still relevant to maintaining i-rate parity. So, an inflation target does not make i-rate parity any less relevant.

1.2 A decrease in the real demand for money, for some reason, has the same macroeconomic implications as an increase in real money supply.

T. Both effects cause the dom i-rate to decrease and E to increase (decrease in the value of the lc). Both effects cause a rightward shift in AA and LM causing an increase in output. Could have shown a graph of the money market-asset market.

1.3 If exchange rate overshooting does occur, then expansionary macroeconomic policies (to increase GDP growth) should be even more effective.

F. Macro policy can have a positive effect on growth when P is slow to change. If E overshooting is occurring, then it implies that there is a change in expectations ($\uparrow E^e$ or P^e either or both of which cause $\uparrow[i^e]_F$). This means that even in the short-run, P should/could be catching up faster. If P^e cause P to increase, then nothing real changes (or expansionary macro policies have less effect on the real sector). Thus, macro policy will be less effective.

1.4 An optimal currency area that involves sovereign states (e.g., the eurozone) requires a supranational institution to set monetary policy (i.e., the European Central Bank). Not having a supranational institution that sets fiscal policy is a sign that common monetary policy is more important than common fiscal policy for stability of the monetary union.

F. MU is a fixed E regime among the states involved. Recall the criteria – fiscal transfers is one of the criteria for stability of an OCA. As with any fixed E regime control over MP and FP is constrained. MU is the strictest form of a fixed E regime and requires one MP for all (same P and i) but also requires constraints over FP. FP tends to remain in nat'al hands because its objectives (G, T, and G-T) involve nat'al priorities. However, because (G-T) > 0 can affect i, there needs to be a limit. Moreover, an increase in debt has implications for risk and a risk premium which can cause i-rates to diverge (undermining the common MP of the ECB). Recall that one of the criteria for an optimal currency area requires fiscal transfers). This would most effectively be done thru a supranat'al institution.

1.5 A country whose current account is in deficit must imply that the country is experiencing a twin deficit (i.e., a negative balance of trade and a budget deficit).

F. $BOT = (S^P - I) - (G - T)$. A neg BOT can be the result of $I > S^p$ while G =T and there is no budget deficit. Private borrowing for investment or consumption can be the reason for the net K-inflows which offset the deficit in the current account into deficit (rather than gov't spending or for taxes being too low).

Part 2. Answer the following questions or respond to the specific statements. (45 pts)

2.1 Different countries approach the international transactions that make up their balance of payments (BOP) differently. For example, a country has a choice of their exchange rate regime, fixed or flexible, and their policies that relate to capital flows. Think about the components of the BOP when answering the following:

2.1.1 Provide a *list* of macroeconomic characteristics of a country (i.e., a country profile) that might explain why it would choose a fixed exchange regime. (5 pts)

- A developing country with an open economy and an econ development strategy based on X-led growth
- A stable E will promote macro stability for a small country
- Country with a history of inflation might tie its currency to the currency of a country with low, stable inflation
- Country with responsible FP can coordinate its macropolicy (FP and central bank actions) to make FP powerful

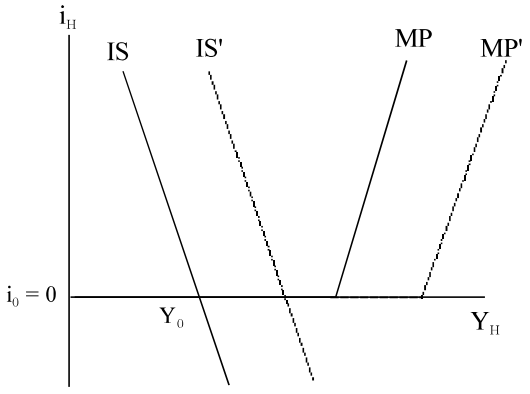
2.1.2 Given your list in 2.1.1, what might be that country's approach to policies that relate to capital flows and the rest of the components of the BOP? Explain. (10 pts)

Recall the trilemma (Fixed E, K-mkt liberalization, and CB independence) that suggests that only two of the three can be achieved. It might be necessary for K-flows to be restricted thru controls on inflows or outflows. Also, If the country is successful at exporting and maintaining a +BOT, then it can accumulate R to keep the currency relatively cheap to further the growth objective through X. Depends on what you argued for the choice of a fixed E.

2.2 The macroeconomic effects of the global financial crisis (GFC) and the pandemic posed serious challenges to policymakers and central bankers, deflation and interest rates near zero. Think about the effect that these events had on output and employment and the macroeconomic policy responses that were taken.

2.2.1 How does traditional monetary policy work and why was unorthodox monetary policy the response to the GFC? Explain carefully. (5 pts)

Need to explain QE and neg i-rates and the role they play in increasing liquidity. Trad MP works thru [CB using open mkt operations, setting the discount rate (policy rate), and the reserves requirements of banks] to affect MS growth which: (1) affects cost of borrowing, (2) asset prices, and (3) changes E. In situations where there is a liquidity trap, an ↑ MS leaves i,Y unaffected (see chart). Trad MP is useless in situations of deflation from ↓AD. Non-trade MP involves QE or of negative i-rates. Both increased liquidity by the CB buying assets whose prices fell because there was no demand for them (asset bubble burst). The central bank became the buyer of last resort using private bank reserves at the CB. In selling their poorly performing assets, investors could gain confidence in buying safe assets that gave them better returns than zero (or negative). Neg real



i-rates were also a way to ensure liquidity. Big savers and banks would be reluctant to deposit savings with the CB to avoid having to pay a tax on those funds. Better to loan at a small loss to HH and firms than to pay a fee in the form of neg i-rates, or to channel those funds, increasing liquidity.

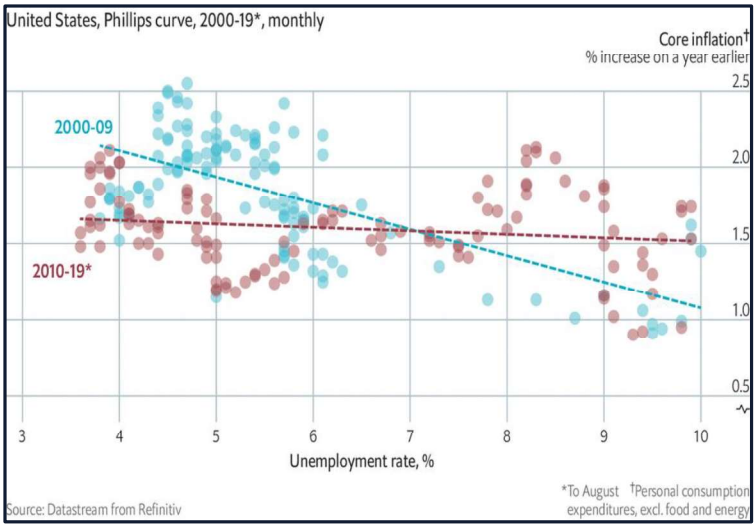
2.2.2 Lessons from the GFC were learnt during the pandemic. Explain how the macroeconomic policy responses under the GFC and pandemic were similar/ different and *list* some policy debates that reopened in the post-pandemic? (10 pts)

QE was used in both. The QE response was more immediate under the pandemic. FP stimulus was also much deeper and broader under the pandemic to avoid the criticism of only bailing out the rich. HH and labor were provided stimulus. Deflation causes a liquidity trap in which trad MP does not work. FP becomes more powerful as (G-T) can have a more direct effect on AD and AS (depending on how it is targeted). Debates that reopened:

- relative importance of FP and MP; blurring of the distinctions of the two policies
- loss of CB independence, politicization of the CB
- the return of the business cycle and end of a great moderation (business cycle still matters
- the PC relation of inflation and unemployment; concerns with how well inflation targeting works given expectations of the public

2.3 The Phillips curve (PC) started as an observed inverse relationship between wage inflation and unemployment levels, but it was an empirical relation that had no formal theoretical macroeconomic foundation. Nevertheless, it began as being useful for policymaking and policymakers and central bankers still refer to it. Think about this relation when answering the following:

2.3.1 Think about how the shift from a system of fixed exchange rates to flexible rates changed macroeconomic policymaking. Could the change in policymaking have influenced the relationship as it is presented for 2000-2019? Explain. (10 pts)



The PC as presented in the 1950s was a trade-off between inflation and unemployment. The data from 2000-19 show changes in inflation to be much flatter and more stable. Focus on the big Δ MP that comes with the move toward a flexible E regime. Discuss the shift of dominance from FP to MP and the CB ability to

demonstrate that it could control inflation. This led to inflation targeting. The CB was able to keep inflation within a narrow band even as the unemployment rate varied. Policymakers were able to set expectations of inflation. Basically, the data show that inflation is stable at any rate of unemployment.

2.3.2 Recall how aggregate supply (AS) is specified: AS $=Y^S$ (W/P, P/P^e, Z) where W/P is the real wage rate, P are prices and P^e are expected prices, and Z includes other factors that shift AS. Think about the theoretical behavior underlying the AS curve. Does the current thinking about how the AS works discredit the idea of the PC as a tradeoff between inflation and unemployment? Explain. (5 pts)

The behavior of the AS curve would suggest the PC is vertical and not a smooth tradeoff between U and P. Behind the AS is the idea that the economy tends toward its natural rate of output, Y_n. Any ↑ P such that $Y > Y_n$ implies that a W ↑ is likely to follow as W/P is what determines the L mkt (because $U < U_n$, the natural rate of unemployment). This increases P^e and shifts AS to the left bringing the economy back toward eqlbm at Y_n at a higher rate of inflation. Y moving back to Y_n pushes U back to U_n.

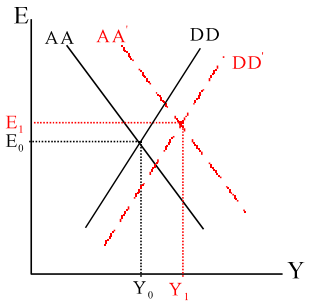
Part 3. Answer the questions related to the macroeconomic scenario described. (30 pts total)

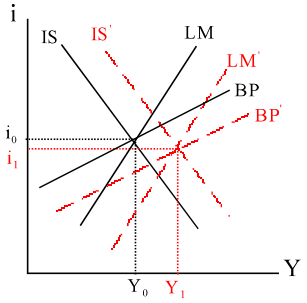
Prior to becoming the elected leader of a country, that candidate campaigned on a promise to implement various policies related to improving the domestic macroeconomy. Assume that this newly elected leader has the power to implement the policy agenda that is described in the questions below. Use the Mundell-Fleming framework (i.e., the AA-DD model and IS-LM-BP model), the asset-money market model, and the aggregate demand and supply model (AD-AS) model to answer the following questions.

3.1 Suppose that the candidate promised changes in fiscal policy and trade policy, by reducing domestic taxes and raising import tariffs (taxes on imports). In addition, the candidate stated that the central bank's independence would be limited. Think about what the loss of central bank independence might imply for monetary policy considering the changes in fiscal policy and trade policy. Illustrate what the short-run macroeconomic effects might be of these policy actions using the IS-LM-BP model. Discuss and explain the change in equilibrium (and the logical chain of causality). Would the AA-DD model provide results consistent with those from the IS-LM-BP model?

The decrease in taxes is expansionary FP (G-T) > 0. The tariffs restrict M relative to X so (X-M) > 0. Both shift the IS and DD curves to the right. The (X-M) > 0 shifts BP to the right. With the CB with less independence, the gov't can lean on the CB chief to increase MS to complement the effect on output. Both AA and LM could be shifted to the right. The MP would work with the FP through greater coordination (and less autonomy of the CB).

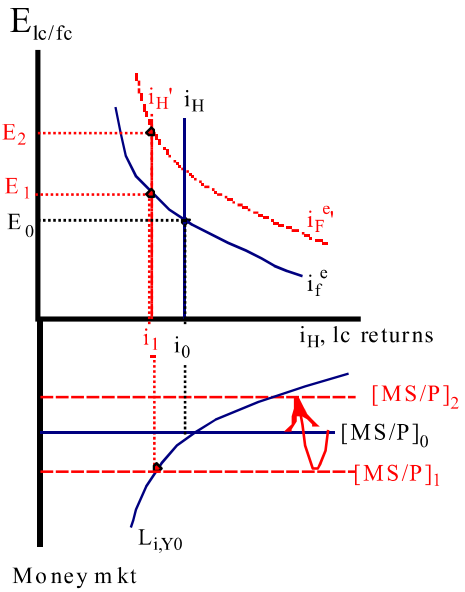
The AA-DD model shows a similar eqlbm to what is presented in the IS-LM-BP model.





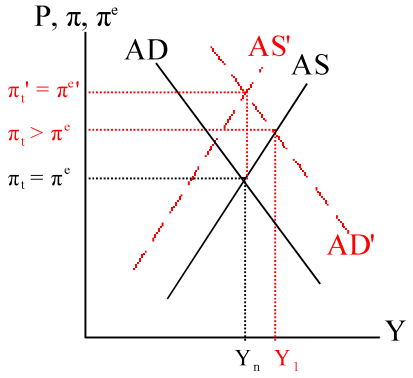
3.2 Now, suppose that in addition to weakening the central bank's independence (and the changes in the tax policies), the leader stated that another policy goal was to weaken the value of the local currency. Think about what the intention of weakening the currency might be. Use the asset-money market model to explain how you think those markets might be affected? Explain whether this helps or hurts what you said happened in 3.1. [You do not have to remodel 3.1 given this new information.] (10 pts)

Weakening the value of the lc seems to be a step in the same direction as the tariffs but to also increase X, further increasing (X-M). However, to do this requires further increases in MS to decrease i-rates. The issue for the money-asset market could be a change in expectations. Once the market gets a sense that E is supposed to decrease, the market can come to expect faster P increases. If E^e and P^e increase, then $[i^e]_F$ can shift out. Once P increase then the increase in MS/P starts to fall. The increase if P will shift IS and LM and BP back toward the initial eqlbm. So will the DD curve. AA might continue to shift up as E^e continues to increase. Only faster inflation will occur. This will undermine the gains that occurred in 3.1.



3.3 The final piece of the overall policy agenda involves restricting immigration, despite the country having a tight labor market. How might the overall policy agenda (including the tax policies, weakening of central bank independence, and weakening of the local currency) affect the domestic macroeconomy? Use the AD-AS model to show and discuss the macroeconomic effect of the policy program. (10 pts)

Both tax policies shift AD to the right as does the CB's willingness to increase MS (given the weaker position politically). The crackdown on immigration making a tight L mkt tighter only increases the pressure on wages and W/P. If the country is "lucky" it only increases inflation to where $Y = Y_n$. If inflation is higher it can actually reduce Y below the natural rate. It depends on what expectations are drawn from this mix of policy actions.



Summary solutions ECN320 2023 retake

Part 1. Explain whether the statements are true, false, or whether it depends. Defend your answer. If depends is your answer, be sure to explain upon what it depends. (25 points)

1.6 Quantitative easing is essentially open market operations by a central bank to conduct monetary policy.

D/F. QE can involve open mkt operations but it is aimed at conducting non-traditional MP. QE was necessary because the CBs needed to provide liquidity to financial mkts at a time when there was too much risk and uncertainty among investors, lenders and financial institutions. In some cases, CBs had to buy (public and private) debt and financial assets held by investors that no other actors were willing to buy. Increasing MS to lower i-rates was not a policy option. Interest rates were already low (or zero) and AD was decreasing. The CB had to restore confidence in the mkt. CB purchasing of risky assets increased liquidity because investors could use the proceeds to invest in less risky assets (rather than hoard cash).

1.7 A sudden increase in money supply can lead to overshooting of the exchange rate, but a sudden decrease in money supply cannot lead to undershooting of the exchange rate.

F. A $\Delta MS \rightarrow \Delta E^e$ which can result in over or undershooting. A sudden ↑MS can cause ↑E above PPP because of a $\uparrow E^e$ because of an upward shift in $[i_F]^e$. A sudden ↓MS can cause a $\downarrow E^e$ causing a shifting the $[i_F]^e$ downward, with E falling below PPP.

1.8 Fighting inflation in a small, open emerging market economy, dependent on trade, poses a challenge for policymakers because the macroeconomic policy to fight domestic inflation can have negative implications for the external sector.

T. A small, open economy dependent on trade needs stability in exchange rate to growth through exports. If the CB must use MP to control inflation, i.e., raising interest rates, then the tightening of MP can cause the value of local currency to increase making its exports non-competitive. The appreciation of lc can have negative implications for its external sector (↓X, ↑M).

1.9 The purchasing power parity model and the asset-money market model are not identical approaches to exchange rate determination.

T. PPP is about the relationship of E and P, $E = [P_H/P_F]$, whereas the asset-money market model is about the relationship of E and i, $i_H = [i_F]^e + \Delta E$. The two are related and PPP can matter for expectations on ΔE, but they are not identical approaches to E determination. The money market and asset market can have implications for expectations and investor behavior and can affect the asset – liability position of the economy.

1.10 In the short run, an increase in consumer confidence raises the real interest rate, consumption, investment, and real GDP of a country.

T. An increase in consumer confidence should/could result in an ↑AD (increasing C and I). This would result in a rightward shift in IS curve, pushing up i-rates. If the confidence reflects a well-being of the economy (productivity gains), then output could be increasing faster than inflation, resulting in an increase in real i and Q.

Part 2. Answer each of the following questions or respond to the specific statements. Relate your answers to concepts discussed in class and avoid unnecessary information! (45 points)

2.1 Consider the macroeconomic policy responses by the US and in Europe to the global financial crisis of 2007-09. Both the US central bank, the Federal Reserve, and the European Central Bank used quantitative easing (QE). In addition, the US provided support to financial institutions and large non-financial firms whereas the eurozone area pursued austerity in troubled economies (i.e., tightening of fiscal policy). Think about the implications of these macroeconomic policy responses when answering the following:

2.1.1 Explain the role that QE is intended to play in macroeconomic recovery. In your answer discuss how the different fiscal policy approaches of the US and eurozone might have affected the respective macroeconomies. (10 pts)

QE was intended to provide liquidity, facilitate credit, lower i-rates into the future and restore confidence in the financial mkt. If mkts were contracting through ↓AD, then ↑MS to ↓i could not increase I and C through normal MP. FP stimulus to further encourage I and C would have been helpful. The eurozone misreading the problem in Europe opted instead for tight FP to discourage public borrowing and reducing debt. But in so doing, weak gov't made it impossible for the state to support banks and for banks to lend to the weakened gov't.

2.1.2 The covid-19 pandemic resulted in new macroeconomic challenges through supply-chain disruptions and lockdowns. What might have been the macroeconomic lesson learnt from the policy response during the global financial crisis and what might have been the longer-term consequences? Be specific. (5 pts)

During the covid lockdowns, CBs were quick to facilitate credit and provide liquidity and governments were quick to provide FP stimulus to avoid the mistake of the ECB during the GFC. The combo of expansionary MP and FP and increasing debt levels should have been expected to result in inflation. The lesson learnt was that MP and FP should move in the same direction to address of slowdown and prevent a decrease in AD. The problem is that inflation has been tame for the last 30 yrs, but the levels of MP and FP stimulus should have been expected to result in faster rates of inflation.

2.2 The state of the balance of payments can be a concern for macroeconomic policymakers. Imbalances in the current account, the balance of trade (BOT) for example, by a country over several years should put pressure on certain macroeconomic indicators to move the BOT back toward some equilibrium. Think about the implications of macroeconomic imbalances for a domestic economy when answering the following:

2.2.1 As an imbalance in the BOT reaches some level of GDP in percentage terms, what would be expected to occur for the macroeconomy to maintain equilibrium? What might the domestic macroeconomic situation look like when a country runs a BOT imbalance over several years? Explain. (10 pts)

According to the BOP accounting identity, an imbalance in BOT is offset by K-flows. However, as BOT imbalances become larger as a % of GDP, larger K-flows are needed to offset the BOT imbalance. As some point investors will need to be compensated with higher returns on assets which in turn affects the exchange rate. E serves as the mechanism by which a BOT imbalance is brought into balance or moved toward eqlbm. This should be happening both in terms of goods (through PPP) and assets (i-rate parity).

2.2.2 Could a country maintain a positive BOT over time if the country had a fixed exchange rate relative to its trading partners? Explain. (5 pts)

Yes, a country can maintain a BOT over time as part of export-led growth. However, it would require policy intervention to keep the local currency value low relative to its trading partners. An ↑(X-M) should → ↑ lc value to serve as a means to bring goods mkt back into eqlbm. Thus, CB would have to intervene in currency mkts to keep lc from increasing in value. One way to do this would be to ↑R, holding fc in CB reserves and issuing more lc.

2.3 The collapse in 1973 of the Bretton Woods System of fixed exchange among industrialized countries led to more flexible exchange regimes under which international capital flows have become more mobile. Think about the implications of greater capital mobility when answering the following:

2.3.1 Can it be argued that a greater degree of capital mobility reduces the effectiveness of monetary or fiscal policy in industrialized countries? Explain. (10 pts)

An explicit assumption here is that industrialized countries have relative flexible E regimes (except for the eurozone members states relative to each other). In situations where E is flexible, MP is more effective to achieve macroeconomic policy objectives of inflation and output. A flexible E does have the effect of making FP less effective. This generally holds regardless of the degree of capital mobility. However, if K is relatively mobile, then i-rates need not increase as much to attack K flows.

2.3.2 Given your answer to 2.3.1, if developing countries have capital scarce economies, then why would they tend to want to impose capital controls? (5 pts)

K-inflows can destabilize the macroeconomy thru the raising of asset prices and possibility of creating asset P bubbles / bank crashes, and /or though raising the lc value.

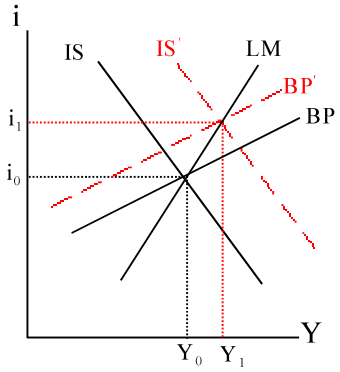
Part 3. Answer the questions related to the macroeconomic scenario described. Explain your answers to the best of your ability. Label and explain your graphs clearly. Define concepts you think will support your answer. Make your assumptions explicit. (30 points total)

Argentina has had 16 recessions between 1950 and 2023, defined as one or more consecutive years of negative growth. Recessions have occurred often, but they have also been deep, causing the economy to contract by 3.5%, on average. Real GDP per person in 2020 was about the same as it was in 1974. The country has defaulted on its sovereign debt several times, three times since 2000, and has been involved in 22 bail-out programs since it joined the IMF in 1956. Argentina owes the IMF $44bn and the central bank's net reserves are $10bn in the red (i.e., is negative once its liabilities are deducted). Thus, it has been shut out of international capital markets. In late 2023, annual inflation ran at above 140%. There are at least 15 different exchange rates and various controls on capital, prices, import and exports. Use this macroeconomic profile to help you answer the following questions (*Economist*, 25 Nov 2023, p. 44-5 and 21 Oct 2023, p. 40-1):

3.1 Use the Mundell-Fleming framework (the IS-LS-BP model) to show how expansionary fiscal policy can affect a macroeconomy in the short run. Make whatever assumptions you think are necessary to support your answer. (10 pts)

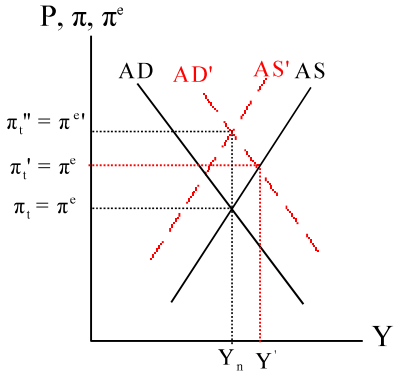
FP: ↑G → ↑ AD which shifts IS and DD curve to the right. This assumes that ΔP is slow to occur in the S-R which means Y increases without causing inflation. The graph is the case of a flexible E regime with relative K mobility. The ↑(G-T) → ↑ IS → ↑i. The ↑ i is

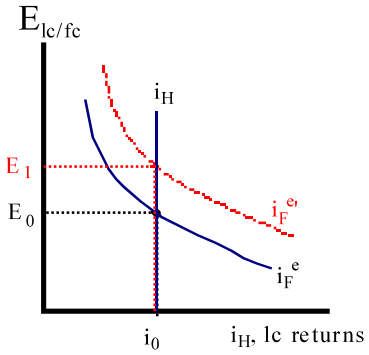
accompanied by ↓E and ↓(X-M) which ↓ BP curve. The new S-R eqlbm is a higher i-rate at higher output.



3.2 Think about what the longer run implications are of expansionary fiscal policy. Use any simple model to shows how continued use of expansionary fiscal policy might result in macroeconomic consequences that could resemble Argentina's situation. (5 pts)

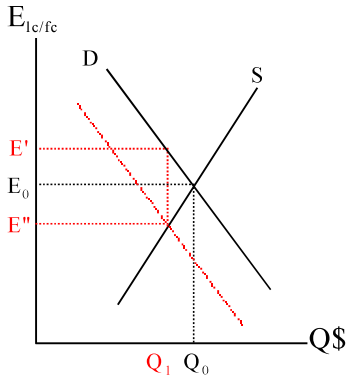
In the L-R prices and expectations have a chance to catch up with the effects of policy intervention. FP will cause ↑P if the policy does not result in increased prodvty. In the left-hand graph, AD shifts to the right increasing output without an increase in expectations, output increases faster than prices. As prices increase, expectations of higher inflation increase. Without a corresponding increase in prodvty, prices increase until the natural rate of output is restored, leaving Y at Yn. The use of FP would cause higher inflation, which in turn could cause overshooting of the E rate to E_1, as shown in the right-side graph. The expectations cause a shift in $[i_F]^e$. A continued use of FP would result in faster inflation, higher debt, and greater uncertainty and risk. FP would have to be financed from international borrowing but as access to K mkts decrease, the CB would more likely have to monetize the debt. In such a case the AS curve would shift even further than what is shown in the left graph.





3.3 Think about the market for foreign currency (i.e., local currency to the US dollar) and central bank intervention in the currency market. Provide a simple model of central bank intervention in the currency market. For simplicity, just suppose the central bank uses one exchange rate (for all dollar transactions) that differs from the market rate. Use the model to explain why Argentina's central bank might have used 15 different exchange rates. (10 pts)

In the graph, the mkt for US $ is shown in terms of lc. Intervention in the currency mkt limits the access to $, reducing the quantity of $ to Q_1. The intervention creates a difference between E' and E'' which is a value captured by the CB (which manages the exchange of lc to $). The CB sells lc expensive to the $ and sells $ on the domestic mkt high in terms of lc.



3.4 In addition to the background information provided, Argentina has had five different currencies in as many decades. In the recent election, the winning candidate promised dollarization. Given this macroeconomic profile, explain whether dollarization could be answer to the country's problems. Be specific. (5 pts)

Dollarization is when a country takes a foreign currency, mostly the USD, as the domestic currency or at least legally allows the use of the USD for all domestic transactions (goods, services and assets). Dollarization is a strict fixed currency relative to the USD. This makes it impossible for the CB or monetary authority to issue currency by printing. Only the US gov't can legally increase the printing of money. The Argentine gov't would limit FP, debt and prevent further monetization of the debt. While this is tough medicine, it would mean that Argentina would import US inflation rates, interest rates, and have less control over macroeconomic policy, both MP and FP.

2023 Exam – Solutions & summary results: N=25; X=73, 2A, 9B, 5C, 5D, 2E, 2F

Part 1. True, false, or depends. Defend your answer. (25 points)

1.1 If quantitative easing (QE) in the eurozone was a means of decreasing the spread between interest rates on German and Italian bonds, for example, then quantitative tightening would threaten to widen spreads on long-term debt making it harder for the European Central Bank to end QE.

T/D. QE was a means for ECB to reassert a common MP (one i-rate, across eurozone). If bond rates differ in Germany and Italy, it means MP is not the same across the union. QE, the purchasing of bad assets, was a means of "increasing" demand for bad assets, ↑P of those assets, but also adding liquidity to financial mkts and $\uparrow P_{assets}$ in geneal. It hid the differences in riskiness of assets. Thus, QT could be a means of having i-rates diverge, but this is related to expectations and risk perceptions. If Italian assets are still perceived as being riskier, then slowing asset purchases or deducing CB holdings of assets could cause the spreads to increase again. Had to say something about why spreads increased.

1.2 Where exchange rate pass through is incomplete, currency movements have less than proportional effects on relative prices. This is more likely the case of a country without a history of high inflation.

T. If E pass thru is incomplete, then ΔP is slower to adjust to ΔE can affect the real sector. Where there is a history of inflation, a ΔE, e.g., devaluation, will cause AD to increase and prices to increase faster, and more likely to match the ΔE because of $\uparrow P^e$. $\uparrow P^e$ causes AS to shift left and ΔP adjusts more quickly to ΔE, leaving no real effect from the ΔE, $\Delta E = \Delta P_H$. Could have shown a graph of AD, AS model.

1.3 The J-curve effect and the overshooting hypothesis are not related phenomena because any overshooting of the exchange rate (say from the depreciation of the local currency) is the result of changes in expectations whereas the J-curve is the result of the lagged response of price changes.

D. The J-curve effect is the relation between ΔBOT (where it is initially worsened because prices are slow to change, import P increase faster than export P, and inelastic trade vol elasticities) from a ΔE. E overshooting is the further depreciation of E based on changes in expectations based on faster price rises. The J-curve effect is related to the E, P relation while overshooting more involves the E,i relation. You would need to link how and why the J-curve phenomena (i.e., the Δ E) is linked to changes in expectations (ΔE^e, P^e and $[i_F]^e$.

1.4 Exchange rate overshooting is more likely to happen in situations where a country has a flexible exchange regime because under a fixed exchange regime the central bank is more committed to keeping the exchange rate fixed.

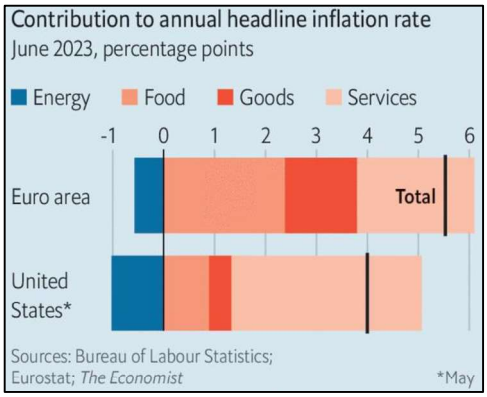
F. Exchange rate overshooting can happen under either E-regime, but it is more likely to occur under a fixed E regime because of potential changes in expectations if/when E deviates from the fix. If E is flexible the economic shock will simply cause E to change without any expectations to have to change. Under the fix, a policy or economic shock can cause differences in P, i-rate in Home relative to Foreign which will cause deviations in PPP and/or i-parity. ΔE^e, or P^e will shift the $[i_F]^e$ causing E to overshoot, implying that lc assets are less desirable to hold than fc assets.

1.5 An increase in real money demand, for whatever reason, is more likely to cause instability (or changes) in the domestic macroeconomy when the exchange rate is flexible than when the exchange rate is fixed.

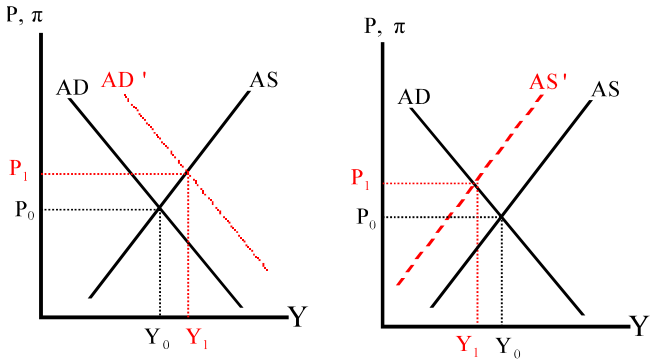
T. This sounds like a one-time increase in real MD. An ↑ $L_{i,Y}$ → ↑ i. If E is fixed then CB response will have to be to ↑MS/P to keep i-rate at i_0. If E is flexible, there will be a change in i-rate and a ΔE which can cause more changes in terms of borrowing, saving, investing, and K-flows.

Part 2. Answer each of the following questions or respond to the specific statements. Relate your answers to concepts discussed in class and avoid unnecessary information! (45 points)

2.1 The headline inflation rates (inclusive of energy and food) and the components of the inflation in both the Euro area and US are compared in the chart provided (*Economist,* "World economy: Inflation wars", 8 Jul 2023, pp. 57-8). Think about the relation between prices and output, and how inflation might be linked to the labor market when answering the following:



2.1.1 While the inflation problem and the contributions to inflation are similar, one of the biggest differences is in services inflation. What could be some drivers of inflation in services sectors? [Hint: recall the price-output relationship and how labor markets are related – focus on services markets, labor markets and inflation.] Explain. (10 pts)



Think about AD-AS and inflation. Could be useful to show the P,Y relation (figure above) to explain the causes of inflation. An ↑AD → ↑π. In the US, the biggest component is services, so AD for services, i.e., increased spending on services (eating out at restaurants, travel, etc) is contributing most to ↑π. If services are L-intensive, then ↑D for services can affect Wages more directly, partly driving a so-called "P-W" spiral, the inflation in services could be driving up wages and costs. In the US economy tight L mkts could make the problem worse. As P, wages, and costs ↑ it could → faster ↑ P^e. The AS shifts to the left.

2.1.2 In both regions, the inflation rates exceed the 2% inflation targets of the central banks. However, if one considers the differences in the contributing factors to inflation, how might the respective central banks' concerns be different? Explain (5 pts)

Services is the main contributor to inflation in the US, but food and goods are the main components in the Euro area. If inflation was due to S-chain disruptions the AS shifting to the left could be a more important factor. As in 2.1.1 the US preoccupation could be services and its links to L mkts. In Europe, the goods and foods mkts are more linked to S-chains. Russia's invasion of Ukraine, and the geopolitical situation, is more destabilizing to S-chains in Europe and to energy mkts. It is summer now, which means energy price could again increase in Europe (more so than in US). Continued increases in i-rates to bring down inflation will slow down the economy and increase unemployment. This will be especially so if services are L-intensive. Higher interest to control inflation will result in higher unemployment and result in a bigger recession. This could support the Phillips curve relationship. Depended on what was written about the relation between P,Y and how the contributing factors related to the P,Y relation.

2.2 The introduction of the euro as a common currency for the eurozone members of the European Union might be considered both a revolutionary achievement and a real-world experiment at the same time. Consider the theory of an optimal currency area when answering the following:

2.2.1 In what way would/could the euro (i.e., monetary union) be considered a revolutionary achievement? Provide a list and explain. (10 pts)

Theory of OCA: benefits are mostly microeconomic – (1) support the economic integration and facilitate trade; (2) improves P efficiency and lowers TC related to currency exchange; supports the integration (mobility and flexibility) of K and L markets resulting in convergence in P_K (interest rates and returns on assets) and convergence in P_L (wage rates).

The big deal is that the euro contributes to the creation of a single market. The EU's intention is to integrate economies thru free trade in goods and services, allowing full movement of L and K. The loss of E as a means to depreciate vis-à-vis each other means that there needs to be more L,K integration and flexibility because internal devaluation is what helps ensure stability.

To ensure stability throughout there needs to be supranational political institutions (ECB, competition authority, customs authority, oversight of banking and fiscal policy). The willingness to give up nat'al sovereignty to put political institutions above the nation state is a big deal.

2.2.2 If the eurozone is a real-world experiment, then how could the experiment "go wrong" for counties in other regions of the world that consider monetary union? Discuss in the context of Brazil, Russia, India, China, and South Africa (i.e., the BRICS) who are proposing the use of a common currency. (5 pts)

The criteria for monetary union are that: (1) trade is liberalized over the currency area; (2) L,K mkts are integrated; (3) fiscal transfers stabilize over the area; and (4) no asymmetric shocks. Of course, shocks occur that have asymmetric effect across regions. The experiment is whether (1)-(3) are able to stabilize in the case of such an asymmetric shock. The eurozone does not have fiscal stabilizers, no bailout, no lender of last resort.

While intra-bloc trade is high, L and K mkt integration is still not fully complete. In the absence of these conditions, the temptation will be to use national FP in response to a negative shock. This has led to suspension of FP rules as countries provide subsidies and state aid.

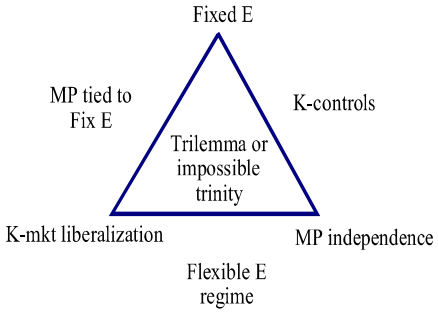
For the BRICS, they do not meet any of the criteria for monetary union. They are a long way from any single market initiative. It would be a strict fixed E without any of the other

criteria in place. Geography could be an important factor in economic integration – this is not met. Moreover, India and China are military rivals which makes it strange that they would even be included in such a grouping. Even if the Chinese currency were to be used, it would imply giving China financial power relative to India, its regional rival. Where would the "supranational central bank" be located? Given they are not even located in the same region, they are more likely to face asymmetric economic shocks, but they will not have the mechanisms to ensure macro stability.

2.3 Every year central bankers meet at a conference to discuss macroeconomic policy. In 2023, a common theme voiced was that well-established economic relationships that guide governments' policy decisions are being challenged. They issued an urgent call for a "revised playbook" (i.e., new theoretical grounds) to better understand and respond to a rapidly changing landscape that threatens markets and macroeconomic stability (*Financial Times*, "Central banker braced for a new economic era", 28 Aug 2023, p. 4). Think about how macroeconomic theory and the policy responses have evolved over the past 70 years to accommodate changes in relationships and/or trends in variables when answering the following:

2.3.1 Explain the policy choices that confront any country's policymakers regarding exchange rates, capital markets, and monetary policy options for a central bank, i.e., the so-called trilemma. (5 pts)

The trilemma refers to corner solutions to three macroeconomic targets: fixed E, liberalization of K mkts, and independence of CBs. Targeting any two implies giving up the third. For example, fully liberalized K-mkts and CB independence (discretion over MP) must imply giving up on a fixed E; a fixed E with CB independence must imply K-controls; and a fixed E and liberalized K-mkt must imply CB must use MP to maintain the fixed E.



2.3.2 *List* of some important changes in macroeconomic relationships that have occurred over time. Briefly explain how the major changes may have affected macroeconomic theory and policymaking. Have the changes made the choices of the trilemma more of a binding constraint (i.e., more important over time)? (10 pts)

Could have been good to structure your answer according to the trilemma:

- E-rate regimes shift from fixed E (gold, £ or $) to flexible, macro implications:
  - Macro policy shifts from FP to ΔAD in response to bus cycle to MP
  - Flexible E makes MP more useful and more directly address inflation
  - MS and P relation, MD and P relation (greater K-mobility, asset options)
- CB and MP independence
  - Shift from monetary targets to inflation targets
  - CB discretion over use of MP; FP has less importance
  - Deflation, QE and neg i-rates: importance of FP, blurring of FP-MP distinction and loss of independence of CB
- K-mkts
  - Periods of K-mkt liberalization, deregulation
  - K-controls and manipulation of E-rates for X-led strategies
  - Value of K-flow > value of trade flows
  - L-T imbalances of BOT, saving and I, public + private debt, asset P bubbles
- Macro relationships: periods of low, stable π, L-T trend toward low i-rates

- Interest rate and P
- Budget deficit i, and lc value (esp, USD)

- Structural change in L mkts, tight L mkts, structural change in goods mkts
  - Relation of inflation and unemployment, PC relation over time
  - Expectations and inflation
  - Rise of services sector r.t. manufacturing
  - Role of IT in real sector and investment

Depends on the list, but items on the list could/should reflect what it stated in 2.3.1.

The trilemma has changed over time as E has become more flexible in mature economies. Other countries have found using mixed E regimes (E bands) to be beneficial giving the CB more control over macro policy. The thinking on K-controls has also changed over time. While K-mkt liberalization was consistent with the Washington consensus, it has largely fallen out of favor in some situations. Thus, use of K-controls however limited is more common. As a result, the trilemma has become less of a binding constraint over time, especially with the return of inflation in mature economies. Since the GFC, the CB has had less autonomy over MP and has had to accommodate FP.
One could make the case that the trilemma is less of a binding constraint. E intervention allowing E to move in a band is common (loose fixes or controlled flexibility), K-controls that limit inflow or outflow are common, and increasingly FP and MP have become blurred as CB have purchased gov't bonds.

Part 3. Answer the questions related to the macroeconomic scenario described. Explain your answers to the best of your ability. Label and explain your graphs clearly. Define concepts you think will support your answer. Make your assumptions explicit. (30 points total)

International macroeconomic imbalances, in part, have been related to policies of some large exporting countries (e.g., China) to pursue an export-led development strategy to industrialize more rapidly. However, events such as the global financial crisis required China to rebalance the economy for its own macroeconomic purposes. Think about how the rebalancing of China's macroeconomy from trade toward domestic activity might have affected the economy.

3.1 How could an export-led development strategy have affected the domestic macroeconomy of China? What might have been the purpose of the rebalancing of China's macroeconomy? [You do not need to know precisely what happened. Focus on the imbalances.] (5 pts)

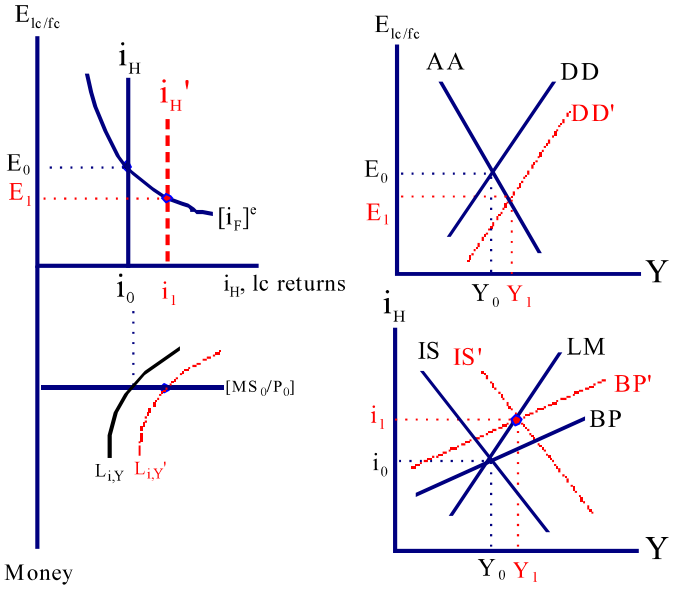
The export-led growth strategy implies that China ran a +BOT surplus, probably with the help of low lc value (and accumulation of R). The +BOT is related to excess savings relative to I, and perhaps G>T. In so doing, China was able to grow via the increase in foreign demand. The strategy distorts the macro economy toward the trade sector at the expense of the non-trade sector (services and non-traded goods). Resources are shifted toward the trade sector, the share of GDP in trade (X+M)/GDP likely increases as do prices. Whether general inflation increases depends on trade's share of GDP. Finally, in consumption, the price of tradables increases relative to non-tradables, resulting in more X, less M and expenditure switching. Rebalancing away from X dependence (and foreign demand) would in part be aimed at increasing the domestic component of AD. Y = C+ I + G + (X-M). Thus, rebalancing means ↓ (X-M) while ↑ C+I+G where FP and other policy was used to encourage C+I.

3.2 Use your explanation from 3.1 to explain what macroeconomic policy measures could have been taken to rebalance the economy. Focus on the purpose of the rebalancing and

not what actually happened. [You are not expected to know the details.] Make whatever assumptions you need to make to support your answer, but make them explicit. Use the Mundell-Fleming framework (AA-DD and IS-LM-BP models) and the asset-money market model to show the effect of the rebalancing given the macroeconomic policy you argued. Be sure that all your graphs are consistent with one another and explain the logical chain of causality in any shifts in the curves. (15 pts)

The rebalancing is a shift from (X-M) to (C+I+G) in the AD. China wanted to reduce the macro distortions related to +BOT. [While a rebalancing was long overdue, the GFC made it necessary because foreign D ↓ → ↓X and growth.]
Assume that the BP reflects relative K mobility.
I assume that expansionary FP (↑G) is used to ↑ AD. Other policies could ↑ C,I (↓T) and/or subsidies targeted to specific "domestic" sectors aimed at production for local consumption or services provision. Could subsidize credit for selected (state-owned) firms. Y-transfers to household to ↑ C. If China had been fixing E to keep its currency cheap, then part of the macro policy could be to let E be flexible.

↑(G-T) → shift to the right of DD and IS → ↑ i, ↓ E. The G as income transfers can affect C and I. This would dampen the effect of the interest rate, especially to sectors that are provided subsidized credit. CB not taking action will not offset the effect of ↓ E which reduces (X-M). The net result, ↑ Y, ↑i and ↓E. The more inelastic is BP, the more the interest rate increases, hurting sectors that do not have access to credit.



3.3 Are there any consequences of the rebalancing that do not appear in your model? What other factors could limit the effectiveness of the rebalancing. Explain. (10 points)

Debt could be a consequence of encouraging I. If the policy encouraged investment in housing and construction or mal-Investment in the targeted sectors (without the result of increasing productivity), then the debt could have simply resulted in higher asset prices and encouraged K-inflows further strengthening the currency, but making the country vulnerable to outflows. A stronger focus of the rebalancing could have been toward encouraging private consumption. Lowering the price of non-tradables relative to tradables would help a larger share of the population. Other policies that target HH consumption and I by firms might not be directly captured.

ECN320 2022 Exam retake (Jan 2023) – Summary solutions

Part 1. Explain whether the statements are true, false, or whether it depends. 25 points)

1.1 If a country's trade flows and capital flows mirror each other over time, i.e., a current account deficit of $10bn is matched by capital inflows of $10bn from abroad by borrowing or selling assets, then the exchange rate would be expected to be stable.

D. If a county runs a persistent CA deficit that is matched by K-inflows from borrowing or selling assets, then it could be that the exchange rate is stable. If the -BOT is persistent, then more borrowing or sales of assets can affect a country's asset-liability position, which can affect the exchange rate through changes in expectations.

1.2 In a policy context, a tit-for-tat game is when a country (Home) responds to the policy of another country (Foreign) with a similar policy measure. A tit-for-tat devaluation between Home and Foreign would have identical effects as a tit-for-tat tariff war.

D/F. A 10% devaluation by Foreign affects both the value of its X and M by 10%, while a 10% tariff only affects its M by 10%. Foreign's exports are cheaper in Home's currency and Home's goods would be priced higher in Foreign's currency, reducing Home's ability to export to Foreign. If Home devalued in response (say by the same % as Foreign devalued), then Home's currency would return to the level that existed before Foreign's devaluation. A tit-for-tat tariff war would reduce each country's ability to trade with the other.

1.3 Because monetary union is a type of fixed exchange regime among member states, fiscal policy by one member state can be an effective macroeconomic policy measure to expand output in the union.

F. MU is a form of strict fixed exchange regime vis-à-vis member states of the MU, but expansionary fiscal policy by one member state can help its economy at the expense of the others in the union. That is why the eurozone area countries have a fiscal compact that limits fiscal deficits and has debt limits. Use of FP by one member state will negatively affect the single market as a subsidy by one country would give its firms an advantage over a firm of another country.

1.4 It is generally agreed that excessive debt poses potential economic danger. So, it does not matter whether the debtor is a private or public actor (households, firms, or government).

F. It is true that excessive debt poses potential economic danger, but it does matter whether the debtor is a private or public actor. Public debt can more easily be rolled over. The gov't can even allow inflation to run a little bit higher to decrease the cost of its debt. The gov't can even default on the debt but that is a very serious option. Private debt is trickier because private actors can more easily default on the debt and go bankrupt. If private debt is defaulted on, it is the banks and the financial system that will be affected. If the debt is by banks, then the financial system can come crashing down even faster. If the debt is by HHs, then decreasing C is the logical outcome contracting the economy.

1.5 The central bank acting as a lender of last resort for domestic banks would be more difficult under a fixed exchange regime than under a flexible exchange regime.

T. Under a strictly fixed regime, the central bank cannot use its reserves to bail out banks. The reserves are used to keep the local currency on par with the foreign currency at the

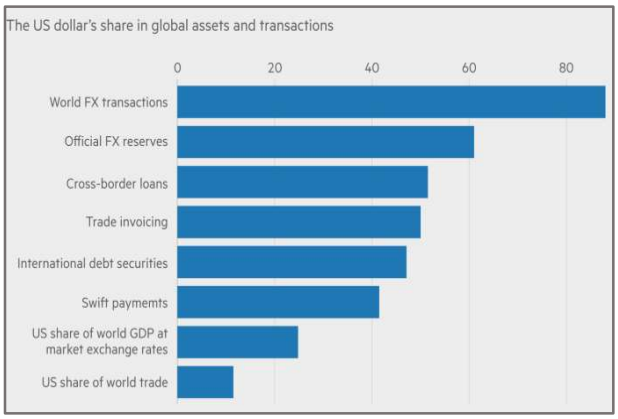
fixed rate. Monetary policy is aimed at maintaining the fix rather than use the instruments to independently achieve other goals, including acting as lender of last resort.

Part 2. Answer the following questions or respond to the specific statements. (45 pts)

2.1 In economically troubling times, the US dollar is where investors and money managers look for safe keeping, even in situations when the US is the source of economic or political troubles. The chart below (*Financial Times*, 28 Sep. 2022, p. 17) shows the dollar's share of global foreign exchange (FX) transactions. Think about the US dollar's role as an international reserve currency when answering the following:

2.1.1 *List* some advantages/disadvantages for the US economy from the US dollar serving as a reserve currency. (5 pts)

2.1.2 Consider a period of global instability in which the dollar gains strength relative to other currencies. Does it matter that the role of US capital markets and the dollar are bigger than the relative size of the US economy compared with the global economy? Explain. (10 pts)



Advantages of $ as R for US	Disadvantages of $ as R
• Reduces transactions costs for US firms, consumers and gov't • Lower borrowing costs • US economic actors are less affected by exchange rate risks as they can borrow and lend in their own currency	• Lower borrowing costs can lead to excessive borrowing in the US • K-inflow are more likely and increase the value of the $ making imports cheap and exports more expensive in fc terms. • In troubled times, K-inflows makes the $ more expensive making it more difficult for US policymakers • US macroeconomic policy can negatively affect developing economies which borrow in $ or whose lc is fixed to the dollar
A reserve currency is based on credibility and sound fundamentals, requiring a mature economy that is large relative to the world market, has a relatively liquid and free capital market with a large share of capital/money market transactions, has a financial sector that manages a large share of banking transactions, maintains an international creditor status, and accounts for a large share of trade (esp. X). The chart shows the $ continues dominance across most indicators of int'al transactions (esp. FX and R held by foreign central banks). In terms of share of GDP and trade, the US share is relatively small. The US is an int'al net debtor, so in bad times, it seems odd that K flows into the US. Stranger still is it happens when the US is a source of global difficulties, i.e., the GFC. The last 2 points listed under disadvantages could be expanded here.	

2.2 The global financial crisis (GFC) of 2007-09 and the Covid-19 pandemic were events that required macroeconomic policy responses that were very big departures from any policy responses since the 1980s in terms of what was done, but also in terms of the speed and size of what was done. The GFC started in the financial system before it affected the real

economy; the pandemic started as a health issue that affected the real sector through lockdowns and closures. Keep this in mind when answering the following:

2.2.1 What was the common macroeconomic policy response to both events? Explain why this was necessary. (5 pts)

2.2.2 Some policymakers admit that the lessons from the macroeconomic policy response to the GFC were helpful for the response to the pandemic because if the pandemic had occurred before the GFC policymakers would not have done enough in time. How did the macroeconomic policy response differ under the pandemic and how might this reflect lessons learnt from the GFC? Explain. (10 pts)

2.2.1 QE was a common feature of the macroeconomic policy response to the GFC and the pandemic. In both cases the real sector contracted. The GFC was a financial crisis that created a liquidity problem where neither borrower nor lender wanted to transact. Since it was a mortgage crisis it hit household hard and affected their ability to repay loans. Low demand created deflation and traditional MP did not work. Under the pandemic, lockdowns and closures affected the real sector. Layoffs, lockdowns, and stay-at-home requirements also decreased demand and put downward pressure on prices. In mature economies where QE had been used under the GFC it was used again during the pandemic and was used more broadly by countries that did not use QE during the GFC. In Europe, prior to recognizing the problem as a financial crisis (but rather as a gov't spending problem) fiscal austerity was seen as a fix making the recession worse and recovery take longer.

2.2.2 During the pandemic, however, in addition to QE, there was also fiscal stimulus at the same time as the monetary expansion to increase households' consumer demand, help producers who were struggled to operate, and to ensure workers remained employed or received salaries. Even in the eurozone there was a relaxation of the fiscal constraints (debt levels and budget deficit limits) on countries and fiscal redistribution (jointly backed funds) to help poorer member states. During the pandemic, the massive stimulus effect prevented deflation to the same extent as what happened during the GFC.

2.3 Central bankers had earned a reputation for being able to tame inflation, but the return of high inflation seemed to catch central bankers off guard and the continued high rates only add to doubts of their commitment to fighting inflation (see charts, *Economist*, 8 Oct 2022, p. 69 and 19 Nov 2022, p. 67-9). Think about factors that might relate to the inflationary pressures when answering the following:

* Core inflation excludes energy and food.

2.3.1 Consider the unemployment and job openings data. If inflation is related to the labor market, do the US data since 2020 provide any insight? (10 pts)

2.3.2 Are the data since 2010 consistent with the theoretical relationship between labor markets and inflation? Be specific. (5 pts)

2.3.1 In 2020, the unemployment rate increases to 15%, worse than during the GFC. This happens before the increase in inflation. This seems at odds from a PC relationship. As job openings recover, unemployment rates decrease which makes sense. However, the inflation rate begins to increase. As unemployment rates hit their lowest level inflation does increase. Low unemployment coincides with unfilled job openings. This could result in improved labor bargaining position and higher wages. The higher wages could translate into higher costs of production and inflation. The fiscal stimulus during the pandemic could also have added to inflation as could constraints in the international supply chain as could the energy/commodity market situation stemming from Russia' war in Ukraine.

2.3.2 The point was to make an association with the PC. The data since 2010 show an unstable relation between inflation and the labor market. Inflation is relatively stable over the period, particularly core inflation. Inflation is low and stable despite the falling unemployment rate. The increase in job openings could have explained the moderation in inflation, but after 2016 job openings continued to increase while unemployment was unaffected and inflation was low and stable. It seems as if inflationary expectations did not change until the spike in inflation occurred. This suggests it was something other than the machinations of the labor market that led to inflation. Once inflation does rise and job vacancies go unfilled, people's (workers) expectations on inflation may have changed and their bargaining power increases which can result in a wage-price spiral.

Part 3. Answer the questions related to the macroeconomic scenario described. Explain your answers to the best of your ability. Label and explain your graphs clearly. (30 points total)

An open macroeconomy includes international transactions in the valuation of a country's GDP. Think about how the trade sector can affect Home's macroeconomy under different exchange rate regimes and capital mobility scenarios when answering the following:

3.1 Use the Mundell-Fleming model (the AA-DD and IS-LM-BP frameworks) and the asset-money market framework to show the macroeconomic effects of a decrease in demand for Home's exports. Illustrate the changes for Home when its exchange rate is flexible, and capital flows are relatively immobile. Ensure that all your graphs are properly aligned. Explain the cause-effect relationships and the final equilibrium clearly. (15 pts)

3.2 How would the macroeconomic situation described in 3.1 differ if there was a fixed exchange rate regime instead? Explain the differences in the final equilibrium. (10 pts)

3.3 How would you explain purchasing power parity and interest-rate parity given the equilibrium situation presented and discussed in 3.2? Be specific. (5 pts)

3.1 Decrease in demand for Home's exports (change showed in red)

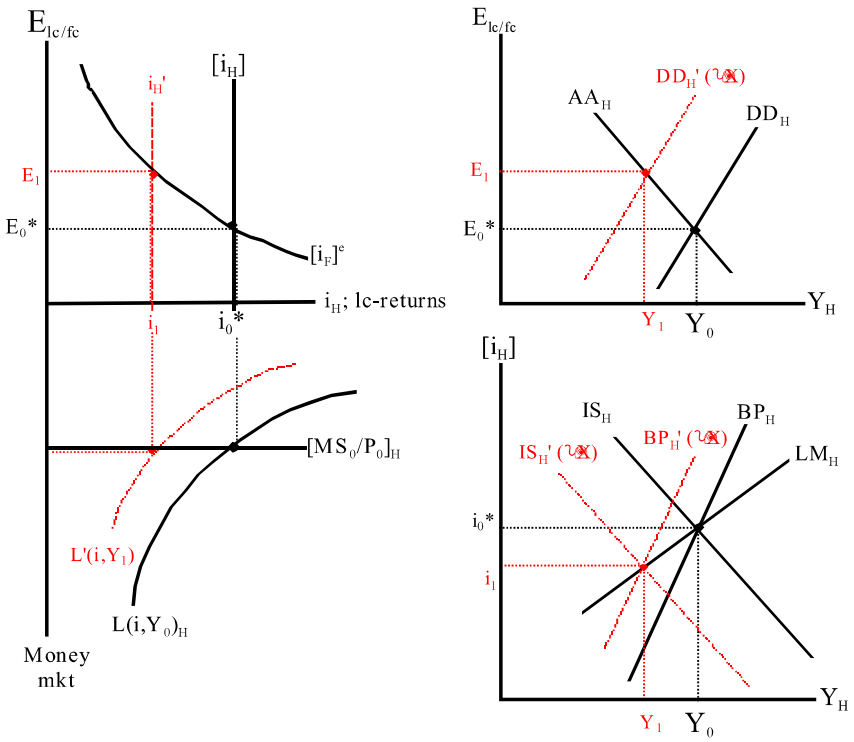
AA-DD framework:
↓X → ↓ AD → ↓ DD → ↓ Y, ↑E (↓ value lc)
(DD shifts left)

IS-LM-BP framework:

Goods mkt:
↓X → ↓AD → ↓IS → ↓Y
BOP mkt:
↓X→ ↓BOT→ ↓BP→↓Y
(IS and BP shift left)

Result:
↓i, ↑E and a ↓ Y

The asset-money mkt (left panel was not required but shown for completeness here)



3.2 Decrease in demand for Home's exports under fixed E regime

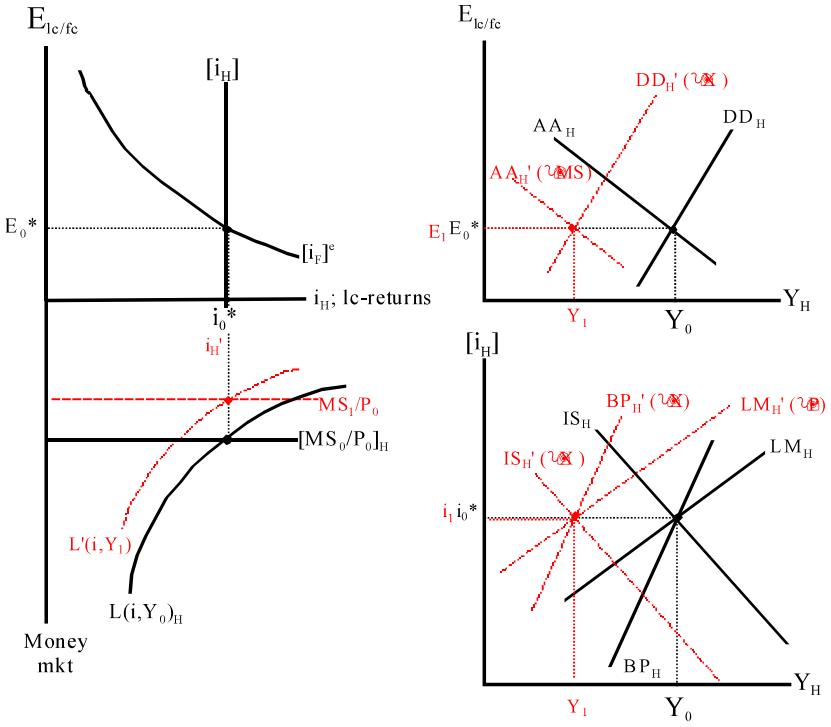
From 3.1, the ΔE cannot be allowed to stand. CB must increase i-rate to ↓E. Policy makers could coordinate activity by ↓G or ↑T.

AA-DD framework:
↓X → ↓DD → ↓Y, ↑E
CB action:
↓MS → ↓AA → ↓E,Y

IS-LM-BP framework:

Goods mkt:
↓X → ↓IS → ↓Y,i
BOP mkt:
↓X→ ↓BP→↓Y
CB action:
↓MS → ↓LM → ↓Y,↑i

Result:
Initial E,i is restored but at a lower Y.



3.3 Relate the outcomes to when changes in P do occur. In 3.1 and 3.2 the framework assumes no ΔP. The ↓ foreign demand → ↓P_H. This should ↑ C at Home, lessening the ↓Y, but overall lc value is weaker. $E_0 = [P_0]_H/[P_F] \neq E_1$. In 3.2 the fix keeps E the same, but currency is overvalued at E_1. $[i_H]_0 = [i_F]^e + [E^e - E]/E$ is restored assuming that there is no change in E^e. However, if PPP does not hold, it is hard to see how ΔE^e will not be affected.

End 2022 retake

ECN320 Exam Aug 2022 - Solutions

Summary stats: 23 exams; 1 A; 7 B; 6 C; 3 D; 6 F; mean = 71,4

Part 1. Explain whether the statements are true, false, or whether it depends. (25 points)

1.1 An increase in productivity in a country should affect the real exchange rate.

T. Tip: define prodvty and/or real E. An ↑ prodvty → ↓ P_H which in turn → ↓ $E_{lc/fc.}$ An ↑ prodvty → ↑ Y,Q which strengthens the economy and ↑ value of lc (both worsen BOT, ↓ (X-M). The ↑ prodvty affects real E because the ↓ P_H is permanent. Could also mention that ↑ prodvty → ↑AS → ↓ P_H. If the trade and non-trade sectors both grow at the same rate, then it lessens the effect on BOT and E because ↑ Q → ↑C too. If prodvty would lead to ↑ X, M but ↑ net M, then the effect on the real E is smaller.

1.2 The increasing external imbalances that are occurring globally can be explained either by a savings glut (excess savings) or an investment deficit (lack of investment opportunities).

T. Tip: define external imbalance (+/-BOT). Focus on how +/-BOT relates to (S^P – I) both at Home and Foreign (one country's +BOT is another's -BOT). A savings glut refers to the size of the BOT surplus generated in exporting countries, i.e., ↑R and or accumulating fc. The high savings means that K-outflow is lent to foreigners (importing countries) to finance the imports. When BOT > 0, and $S^P > I_{dom}$ K-outflows are financing importing countries' -BOT. The investment deficit is that while in -BOT countries $I > S^P$ investment rates are on the decline. An ↑I in surplus countries would lower the gap in savings, increase C and M while less K-outflow.

1.3 Highly mobile capital can improve the effectiveness of expansionary fiscal policy under a fixed exchange rate regime or expansionary monetary policy under a flexible rate. The common aspect in both situations is that the capital flows lessen the crowding out effect.

F/D. Tip: you were told in the review the first sentence is ok and that you should focus on the second sentence. Define crowding out (when ↑ G → ↓ private activity C, I). This can happen, for example, when (G-T) > 0 → ↑ i. So, K mobility does improve the effectiveness of FP under a fixed E and improves the effectiveness of MP under flexile E because it lessens the effect of policy on Δ i. However, the common aspect is not that capital inflows lessen crowding out. With FP crowding out takes place through changes in interest rates. With MP there is no crowding out because ↑MS → ↓i.

1.4 Whenever there are differences (spreads) in the ten-year government-bond yields in eurozone member states, the European Central Bank would have to resort to non-traditional monetary policy.

T/D. Tip: define non-traditional MP and relate MP under monetary union. Recall that a bond is an asset and a yield is the return. When 10-year bonds have different rates return on assets differ. Eurozone members have the same currency, so i-rate parity implies that $i_H = i_F$ because ΔE=0. If i_F is higher, for example, then Foreign's borrowing costs are higher. The spread means that risk in Foreign requires a risk premium for an investor to hold its assets. Under MU the supra-national central bank must pursue one i-rate for all member states. If a spread in the 10-yr bond yields develop, this already implies that there is not one i-rate across the union, and that MP actions are necessary to ensure one i-rate. If it means the ECB must take extraordinary measures such as buying Foreign's bonds to bring down i_F then this could mean QE is necessary. This can reassure capital markets that the ECB intends to bring interest rates closer in line with i-rate parity.

1.5 Countries with less independent central banks tend to have higher rates of inflation.

T/D. Tip: explain CB independence – independence to do what (exercise MP) or from whom (gov't)? When CBs are less independent it is more likely that they will be pressured into monetizing the gov't debt (printing money) or to use MP for purposes other than controlling inflation. The rise of inflation targeting was a nod to central bankers' ability to control inflation and the independence given to them to use MP tools at their discretion for that purpose. Countries with reoccurring inflation problems often try and remove MP from the CB (e.g., set up a currency board, or dollarize) precisely because the monetary authorities have no independence.

Part 2. (45 points)

2.1 Economic thinking on trade has supposed that traders would accept the price of a good or service in the exporters' currency. Consider the chart showing the share of trade that a country has with the US and the percentage of the total trade (export and imports) that is invoiced in US dollars. Think about how the US dollar serving as the vehicle for trade (i.e., trade denominated in dollars) matters for the following:

Economist, "Greenback dominance: Buck up", 20 Aug 2020, p. 52-3.

2.1.1 Suppose Costa Rica, in the chart, is pursuing export-led growth. A decrease in the value of the local currency should have an expenditure-switching effect in its economy. Explain. If traded goods are priced in dollars, how does a change in the value of the local currency affect its trade balance? Would the expected expenditure-switching effect occur in Costa Rica? Explain. (10 points)

Explain expenditure switching. Expenditure switching should involve reducing C of tradables relative to non-tradables (facilitating the ↑X, ↓M) thru the effect on relative P of tradables and non-tradables. In CR, 100% of exports and imports are invoiced in $ but only 40% of its X, M is with the US. A depreciation in the value of CR's currency should in time improve BOT by making X more competitive and M more expensive. For CR, ↓ lc value → ↓ M because all M is invoiced in $; X is invoiced in $ (not colones) but only 40% of trade is to the US. The effect of the depreciation by CR on its X is lessened because its currency has no relation to the currency of its importers (other than the US) given that all its X are denominated in dollars. So, while the expenditure-switching effect should happen it would be lessened.

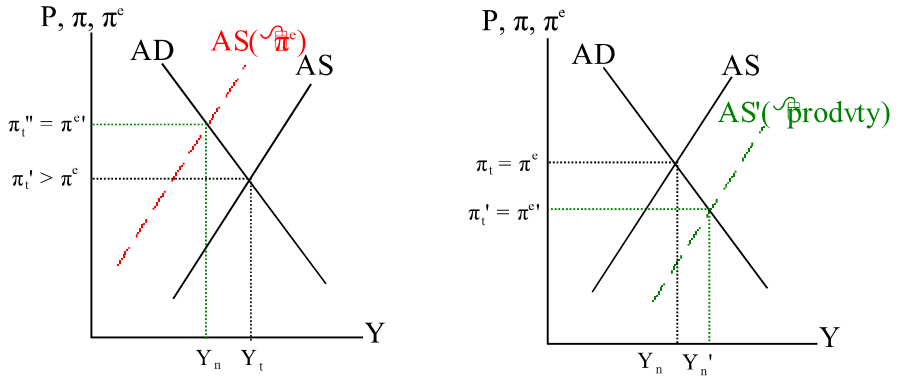
2.1.2 What does the arrangement in the chart mean for the US balance of trade if the dollar depreciated? Would it imply support for the J-curve effect of a change in the exchange rate? Explain. (5 pts)

Define J-curve - the issue is how ΔE affects Δ X and Δ M and BOT and how fast. If the $ depreciated, it ↓ value relative to all currencies, making US exports competitive (↑X). Given that trade is denominated in $, it means that its imports will not be affected much at all (little ΔM). BOT would improve and there would not likely by a J-curve effect on the BOT because exports increase faster than imports decrease.

2.2 Suppose that a country's macroeconomic situation is in equilibrium where its output level (Y_t) is above the economy's natural rate of output (Y_n). Think about the relationship between prices and output and how equilibrium is determined by aggregate supply and demand when answering the following:

2.2.1 Explain how this might happen and what would happen in the macroecomomy of this country. (10 pts)

The starting eqlbm could be from ↑AD for some reason such that $Y_t > Y_n$.. If $Y_t > Y_n$, then $u_t < u_n$ and there should be upward pressure on wages and prices → π. The ↑ π → ↑ costs → ↓AS, until eqlbm is restored at $Y_n = Y_t$ and $u_n = u_t$. This will also ensure that $\pi = \pi^e$.



2.2.2 How might an increase in productivity matter for the equilibrium situation described above? Explain. (5 pts)

If there was an increase in productivity, then Y_n would increase because the existing factors used in production would now be able to produce more output. ↑ prodvty → ↑AS resulting in ↑Y, ↓π. There would be new natural rate of output and unemployment.

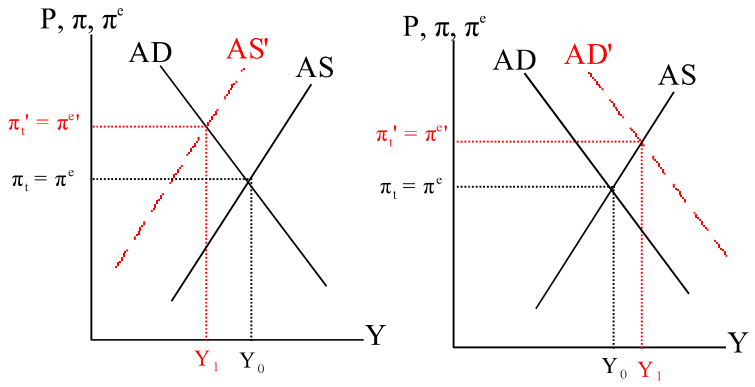
2.3 In 2021 and 2022 inflation became an actual macroeconomic concern in mature economies for the first time in some 40 years. However, there was no consensus for the reason for the increase, e.g., increased demand after the lifting of covid-related lockdowns and the effect of fiscal stimulus, disruptions in international supply chains (covid; tensions between China and US, EU and Japan), tight labor markets, and shocks to commodity markets (extreme climate-related changes, Russia's invasion of Ukraine). Think about the reasons and the macroeconomic responses to them when answering the following:

2.3.1 How does it matter for a central banker the way in which the monetary authorities and policymakers respond to the different causes for inflation? Explain. (10 pts)

Focus on the possible causes of inflation (see chart below): (1) ↑ AD → ↑ P, Y; (2) ↓ AS → ↑ P, ↓Y; and then relate to how MP and FP responses matter to address those causes.

The fiscal stimulus → ↑ AD. The ↑AD affects P,Y in the same way. A ↓MS should be able to handle both the P, Y effect effectively.

The supply chain disruptions, tensions with China, tight L mkt and shocks to commodity markets are mostly AS-side issues. The ↓ AS → ↑ P, ↓ Y. MP cannot resolve this without coordination from FP. Tight MP only will help fight inflation but will add to recessionary pressure (more ↓Y).



2.3.2 Which of the causes for inflation listed above might relate most to the Phillips curve? If that were the primary cause of inflation, would you argue that it provides support for the underlying relationship? Explain. (5 pts)

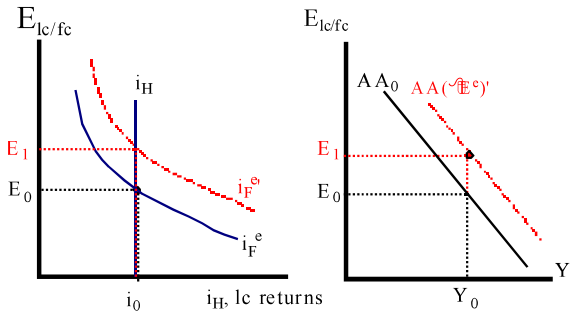
The PC is the relationship between P and U with links to the L mkt. If inflation were linked to the tight L mkt, wage pressure would increase because negotiations over pay involve W/P. The massive fiscal stimulus during the pandemic could have led to ↑AD that → ↑ Y and P after the lockdowns. The ↑ Y could have → ↑ D_L (tight L mkt) which → ↑ W and ↑ π, π^e. This would provide support for the PC.

Part 3. Answer the questions related to the macroeconomic scenario described. Be specific and explain your answers to the best of your ability. Label and explain your graphs clearly. Define concepts you think will support your answer and make any assumptions you have explicit. (30 points total)

Suppose that among investors for some reason there is a change in the expectations of the exchange rate such that they are convinced the value of the exchange rate will increase. When answering the following, consider the implications of this change from the perspective of the country called Home, whose currency is the local currency (lc) and the exchange rate is $E_{lc/fc}$.

3.1 *List* reasons why expectations of a *modest* increase in the exchange rate might occur. Use a simple model to show how the changes in exchange rate expectations could affect the asset market and the equilibrium exchange rate through interest rate parity. (10 pts)

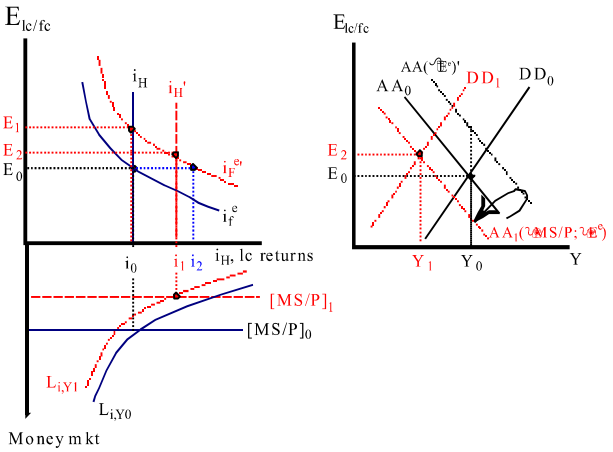
Expectations: (a) a political/economic shock that should affects Home's inflation more; -BOT, ↑net K-inflow; ↓R; change in asset-to-liability position of Home.
An ↑E^e → ↑ P^e → ↑i_F^e and this causes a shift in the asset market and the AA curve in the AA-DD model.



3.2 Why might Home's central bank and its policymakers have concerns about the change in expectations? Suppose the central bank decides the change in expectations are not justified given the macroeconomic situation of the domestic market. How might the

central bank use monetary policy to challenge investors' expectations? Illustrate the effect using the asset-money market equilibrium and the AA-DD part of the Mundell-Fleming model used in class (you do not need to show the IS-LM-BP model). (15 pts)

The change in expectations could affect inflation, which is undesirable, and a decrease in K-inflows and/or an increase in K-outflows (i.e., a net K-outflow). This makes the investment climate in the country less predictable. To ↓ K-outflow and π^e the CB should ↓[MS/P] to ↑i_H. This improves returns on lc assets. ↓[MS/P] → ↓AA and ↓DD with $Y_1 < Y_0$. The higher i_H at i_1 → ↓E back toward E_0. If the higher i_H changes expectations back toward what they were before, then [i_F^e] falls back down. E_0 can be restored at i_i, in which case investors are still not fully convinced because they require a higher $i_H > i_0$. If expectations do not change back then it could take even tighter MP (i_2) to restore E at E_0.



3.3 Suppose that Home's central bank's actions were unable to fully convince investors. How would you explain that equilibrium situation that might result? (5 pts)

This issue here is exchange rate overshooting… If E stays at E_2, then even higher i-rates are associated with higher E. Until the expectations return to what they were initially E will overshoot the long-run eqlbm E, E_0. If expectations change back fully, then ↓E^e → ↓ [i_F^e] → ↓ E to E_0.

ECN320 Exam retake Dec 2021 - Exam solutions

Summary stats: 18 exams; 3A; 5B; 4C; 3E; 3F; mean = 71

Part 1. Explain whether the statements are true, false, or whether it depends. (25 points)

1.6 Suppose a country that is a member of a monetary union has built up too much government debt. The country would be unable to address the debt situation through devaluation of its currency, but it could reduce the value of the debt through inflation.

F. A country that is member of a monetary union will not have control over its currency value or its monetary policy, preventing the country from devaluing or increasing inflation. Government debt will have to be addressed by reducing G and increasing T, both implying austerity through tightening fiscal policy.

1.7 If exchange rate overshooting is a possibility, it would imply that interest parity and purchasing power parity are theoretical concepts that cannot have any validity in practice.

F. Exchange rate overshooting is related to expectations and the market's ability to move the exchange rate above or both the long-term eqlbm rate. The possibility of exchange rate overshooting does not limit the relationship between E and i-rate or E and P. Once expectations return to "normal" conditions, E will tend towards long-term PPP and the i-rate parity.

1.3 Fiscal policy is said to have potential crowding out effects (the fiscal effect is offset by some other effect in the economy), but when capital is mobile the crowding out occurs through the trade balance as opposed to private investment.

T. FP has the potential to crowd out investment. An ↑ G → ↑i-rate → ↓ I. If K-flows across borders is relatively immobile, then this crowding out effect should be stronger. If K-flows are relatively mobile, then the ↑G → ↓E → ↓X, ↑M. The crowding out from the FP will be more through the exchange rate and the trade balance rather than through investment.

1.4 Suppose an investor can predict that a country's currency will appreciate in the future because of slower inflation in that country relative to others. This means the investor would earn a higher return by holding that currency.

T/D. This is i-rate parity, where $i_H = [i_F]^e + [E^e - E_0]/E_0$. Suppose two countries Home and Foreign such that $E_{lc/fc} = P_H/P_F$. If P_H is relatively higher than P_F, then E^F increases relative to E_0 (↓lc value) and i_H will give a return lower than i_F. However, if the investor would want to convert earnings back into lc in the future, then the investor should lock in on E^e.

1.5 The International Monetary Fund would most likely be involved with rescheduling international corporate debt.

F. The IMF is the international lender of last resort to national bank. It would not in general deal with corporate debt, unless it gets mixed in with sovereign debt.

Part 2. Answer the following questions or respond to the specific statements. (45 pts)

2.1 Houck's three-country trade model maps changes in exchange rates to trade in goods, giving some insight into the effect on the balance of trade. Suppose that trade in a particular good is denominated in a reserve currency, and that the local currency of an

exporting country (Home) depreciates relative to the reserve currency. Keep this in mind when answering the following:

2.1.1 Is it possible that the depreciation of the local currency could leave Home's export of the good unaffected? Explain. The use of graphs is optional but only discuss the effect on Home's exports. (10 points)

Yes. Let $E_{lc/fc} = P_H/P_F = 1$. If P_{lc} doubles and causes E to increase such that E = 2, then it would leave Home's exports unaffected. The domestic mkt would be unaffected in Home, but the export earnings would decrease in reserve currency terms.

2.1.2 What might the result in 2.1.1 say about how Home's overall balance of trade might change because of the change in the exchange rate? Be specific. (5 pts)

If Home's traded goods are denominated in reserve currency, then the reduced export earnings would help to worsen the country's BOT. If imports are price inelastic, then overall BOT will worsen. Import demand would have to be very elastic with respect to the change in E for the BOT to improve.

2.2 For the first time in three decades, inflation is a political macroeconomic issue in mature economies. Central bankers face criticism that they have lost control; policy makers are blamed for the cost-of-living increases. Among economists the disagreement is not that inflation is rising but the reasons for it, its duration, and the source of it, whether inflation a global or homegrown phenomenon. Keep in mind how inflation can be the result of demand or supply shocks when answering the following:

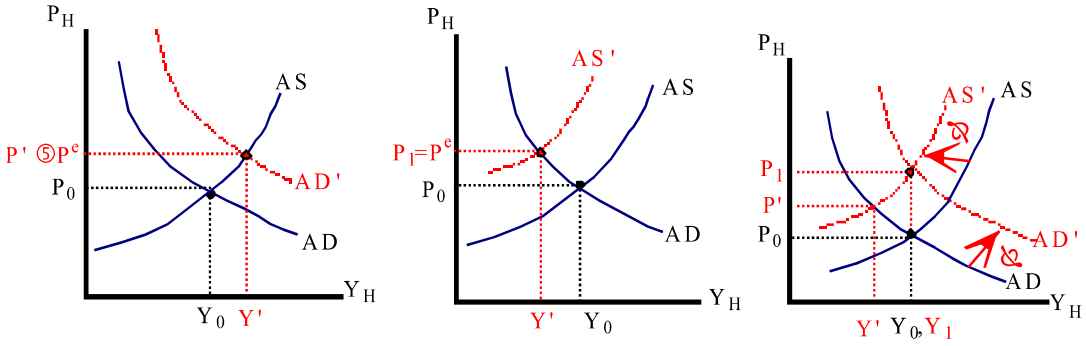
2.2.1 On the demand side, the pandemic shifted consumption from services towards goods, but even factoring in this distortion US data in the chart show spending on durable goods to be much higher than at the end of 2019. Real consumer spending, particularly in the US, is back to the pre-Covid trend. What role might fiscal policy as a response to Covid have played in rising inflation? (7 pts)

The response to covid on the fiscal side was to stimulate AD through various programs (job protection schemes, furlough programs, labor subsidies, unemploy benefits, cash support, etc.). The stimulus programs were in some cases massive ↑G that → ↑ AD (left side graph below). Services activities took a disproportionate hit in the real economy because of covid lockdowns, closures and distancing rules. The lockdowns and stimulus shifted D toward goods which could still be delivered with minimal contact.

2.2.2 One common factor in most rich countries facing price pressures is the pandemic-induced supply chain disruptions. How was monetary policy used as a response to the global financial crisis and the pandemic, and how might it have affected the current rates of inflation? Could central bankers lose control over the problem if inflation must be addressed now but they consider the supply chain disruptions to be a short-term matter (i.e., lasting up to another year)? Explain. (8 pts)

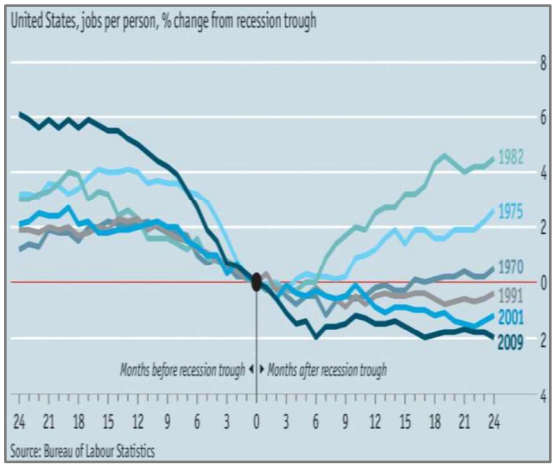
Covid arguably also affected the S-side of the economy, shifting AS to the left. The disruptions to the supply chain eventually began causing inflation. To reduce the disruption to business, declining output and deflation, MP eventually shifted toward the

unconventional, i.e., quantitative easing. Central banks purchased bonds, causing investors to shift their portfolios away from long-term risky assets to more desired assets to bring confidence back to stockmarkets and financial market. In buying bad debt, however, particularly sovereign debt, MP began increasingly to look like FP. Asset prices were inflated which creates a wealth effect and stimulates AD. If inflation is increasing now and central bankers need to slow down its rate of growth, then interest rates need to increase, slowing the economy. QE needs to be tapered faster than central bankers have signaled. The slowing of the economy to tame inflation is a problem for central bankers, potentially meaning central bankers are losing control.



2.3 The term *secular stagnation* refers to a situation when there is no or slow economic growth in a macroeconomy. Secular in this context means that there is a long-term pattern as contrasted by a cyclical or short-term phenomenon. Some economists refer to this as the tendency for private sector actors to save and there being limited willingness or opportunity to invest.

2.3.1 The chart shows trends in employment patterns in the US 24 months before and after a recession. Think about how employment is expected to relate to the business cycle. Do the patterns provide support for secular stagnation? Explain. (5 pts)



In normal business cycles, prior to a recession there is relative high employment (jobs per person is relatively high); during recession workers are released and unemployment increases (jobs per person is relatively low). What the data suggest is that since the recessions in the 1990s there have been "jobless recoveries" (fewer jobs per person). Longer-term employment patterns do suggest secular stagnation.

2.3.2 Think about how the labor market might be affected by: (1) slower productivity growth; (2) the largest share of investment is undertaken by information technology firms; and (3) higher levels of corporate debt. Could any of these trends relate to secular stagnation? Explain. (10 pts)

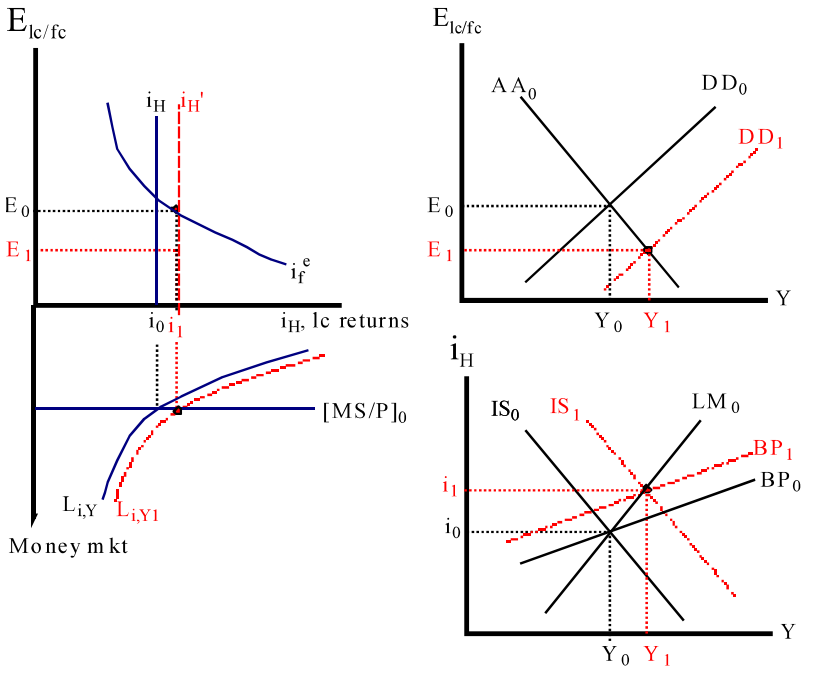
All three of the factors listed could help to explain secular stagnation. Slower productivity could imply that there is a decreased demand for L and more K is used in production. The largest share of investment is undertaken by IT firms which do not use so much physical K (think of cloud computing, economies of scale from network effects in data use) and are the growing the fastest in the economy. Then low L demand in the

IT sector means the economy can recover without hiring much more L. Finally, higher levels of corporate debt could also slow employment as firms seek to reduce their wage bill and hire a little more K.

Part 3. Answer the questions related to the macroeconomic scenario described. Be specific and explain your answers to the best of your ability. Label and explain your graphs clearly. Define concepts you think will support your answer and make any assumptions you have explicit. (30 points total)

In a country called Home, the government has undertaken a fiscal expansion that pushed its interest rate above the rate of a large trading partner. The trading partner has capital controls in place, which prevents equalization of international interest rates. The authorities in Home complain about the capital controls and the effect they have on interest rates and the exchange rate. Keep this in mind when answer the following:

3.1 Provide a simple model from Home's perspective of the scenario described above. Use the framework developed in class to present your answer. (15 pts)
3.2 Provide a *list* of reasons why a country might have capital controls. (5 pts)
3.3 Why might Home's authorities want the removal of the capital controls? Would it make sense for the other country to remove the controls? Explain. (5 pts)



3.2 Capital controls:
* Macro stability * Stable E * Financial stability (prevent inflow of portfolio I)

3.3 Home's gov't intended to stimulate the economy. The economy achieves this, but part of the effect is negatively affected by the worsening of the BOT. If Foreign did not have K controls, i-rates could equalize and there would be less K-inflow to Home and the lc value would not increase as much, resulting in a smaller worsening of the BOT.

ECN320 Exam Aug block 2021- Exam questions followed by exam solutions

Summary stats: 18 exams (2 oral); A 3, B 5, C 4, D 0, E 3, F 3; mean = 70; high = 92,5

Written exam format: Three parts, 100 pts total. **Oral exam**: three questions, 30 minutes.

Part 1. Explain whether the statements are true, false, or whether it depends. Defend your answer. If depends is your answer, be sure to explain upon what it depends. (25 points)

1.1 An investment in a foreign currency-denominated asset generates a return from the asset itself and the foreign currency transaction.
1.2 The shift of central banks' monetary policy toward an inflation target in the 1990s (and away from a money supply growth target) means that the concept of purchasing power parity has become less relevant in international macroeconomics.
1.3 Suppose a central bank has committed to monetary policy goals that result in "maximum employment and price stability". A policy shift from hitting an inflation rate target at 2% to an *average* inflation target of 2% (inflation is above or below 2% in the short run) over a longer period would suggest that the economy has low employment and low inflation.
1.4 Under a fixed exchange regime, fiscal policy has an effective expansionary effect on the economy regardless of the degree to which capital is mobile.
1.5 Traditional monetary policy is considered more macroeconomically useful because it can either complement fiscal policy or be complemented by what happens in the external sector.

Part 2. Answer each of the following questions or respond to the specific statements. Relate your answers to concepts discussed in class and avoid unnecessary information! (45 points)

2.1 The central banks of most advanced economies have pursued at least some quantitative easing (QE) since the global financial crisis or the covid-induced economic slowdown. Think about the conditions that led to such intervention and the macroeconomic implications it might have when answering the following.

2.1.1 What is QE and why was it considered necessary? Be specific. (5 pts)
2.1.2 Why might emerging market economies have been concerned about negative effects when the advanced economies began using QE? Why might emerging market economies be concerned about negative effects when advanced economies end the use of QE? (10 pts)

2.2 Consider a country whose macroeconomy is in equilibrium, where its output is at its natural rate (with full employment and stable inflation). Think about the reasons that might explain why the exchange rate might overshoot its long-run equilibrium rate when answering the following:

2.2.1 Explain what it means for the exchange rate to overshoot its long-run equilibrium and list reasons why it could happen. (5 pts)
2.2.2 Think about how the macroeconomy might look initially in terms of aggregate demand and supply. How could you relate the overshooting phenomena discussed in 2.2.1 to changes in aggregate demand and supply? Be specific. (10 pts)

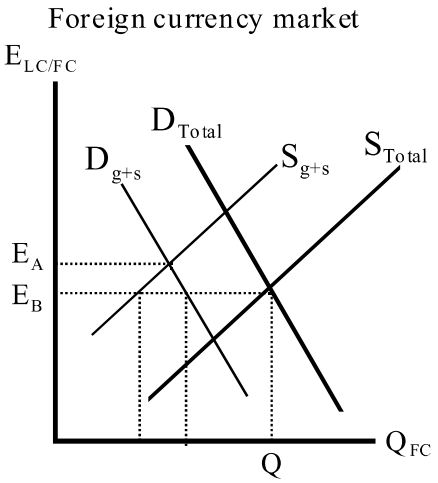
2.3 Monetary union, like economic union, is largely a political experiment because it requires a long-term commitment, the political will of sovereign governments, and the support of the citizens in each member state. Keep in mind the relevant theory and the macroeconomic policy implications of monetary union when answering the following.

2.3.1 List the theoretical criteria for monetary union to work, and explain how this affects a member state's macroeconomic policy? (10 pts)

2.3.2 Why might monetary union under the eurozone have required greater fiscal and banking/financial integration, particularly during the global financial crisis and covid-induced recession? (5 pts)

Part 3. Answer the questions related to the macroeconomic scenario described. Be specific and explain your answers to the best of your ability. Label and explain your graphs clearly. Define concepts you think will support your answer and make any assumptions you have explicit. (30 points total)

Recall the market for foreign exchange (i.e., the supply and demand for foreign currency). In the graph, the total demand (D_{Total}) and total supply (S_{Total}) of foreign currency includes the value of traded goods and services and financial transactions. The demand for and the supply of goods and services are shown as D_{g+s} and S_{g+s}, respectively. Keep this framework in mind when addressing the following questions.

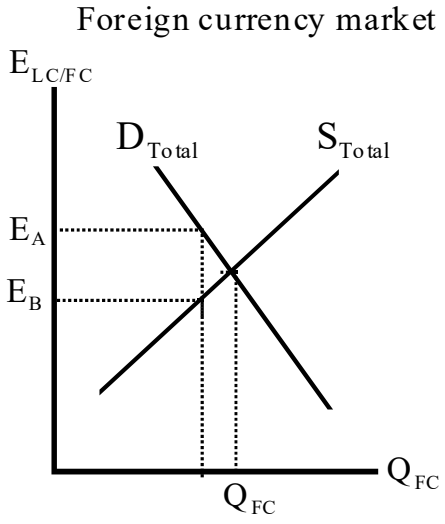


3.1 Think about how the market for foreign currency relates to the balance of payments. What role does the exchange rate play for the balance of payments? (5 points)

3.2 Keep in mind your answer in 3.1 to explain what the meaning of the exchange rate values E_A and E_B mean. Why are they different? Be specific and explain in terms of the balance of payments. (10 points)

3.3 Suppose the government of a developing country maintained a fixed exchange rate relative to the foreign currency. However, recently the government granted the central bank greater independence, but still required a fixed exchange rate that moves over a specified band. Keep in mind the Mundell-Fleming trilemma (the ability to choose only two of three options) that limits the country's international monetary policy choices. Which monetary policy option would you expect to be constrained under this scenario? Explain and make whatever assumptions you want clear. (5 points)

3.4 Given the scenario under 3.3, explain how the market for foreign exchange could be affected? How do you interpret the meaning of exchange rates, E_A and E_B? (10 points)



Summary solutions: 2021

1.1 An investment in a foreign currency-denominated asset generates a return from the asset itself and the foreign currency transaction.

T/D. The investment in foreign currency assets will generate a return (positive or negative) from the asset regardless of the type of investment (FDI, portfolio, financial/banking). Some assets might provide a return in the foreign currency which will have to be converted into local currency in the future and might generate a return from the transaction. However, a bond that covered (covered interest parity) will not result in a return from the currency transaction into local currency as the future exchange rate shall have been locked in.

1.2 The shift of central banks' monetary policy toward an inflation target in the 1990s (and away from a money supply growth target) means that the concept of purchasing power parity has become less relevant in international macroeconomics.

F. PPP is the relationship of E and prices, for goods and services. If PPP is not met, it signals a misalignment of E. So, while an inflation target, when met, should be a means of keeping the E, P relationship stable, but other things affect E. E is the means to keep all transactions under the BOP in balance of which financial transactions are the dominant share. PPP still has relevance and is expected to hold, but the asset market, and the asset-liability position of the country can mean that E deviates from PPP in the longer run.

1.3 Suppose a central bank has committed to monetary policy goals that result in "maximum employment and price stability". A policy shift from hitting an inflation rate target at 2% to an average inflation target of 2% (inflation is above or below 2% in the short run) over a longer period would suggest that the economy has low employment and low inflation.

T/D. The policy shift from a specific target to an average, allowing inflation to go above or below, gives a CB more flexibility particularly with regards to inflation. With the goal of max employment and price stability, it could mean that employment is low (or lower than the CB would like) and that the CB is able to run a little higher inflation.

1.4 Under a fixed exchange regime, fiscal policy has an effective expansionary effect on the economy regardless of the degree to which capital is mobile.

F. It is true that under a fixed E regime fiscal policy has an expansionary effect on the economy. However, the more mobile is capital the easier it is for the gov't to finance a budget deficit (or the increased spending). The less mobile is the capital the bigger the effect on interest rates which can crowd out private sector activity (investment and consumption). This crowding out will offset the fiscal expansion to some degree making the policy less effective.

1.5 Traditional monetary policy is considered more macroeconomically useful because it can either complement fiscal policy or be complemented by what happens in the external sector.

T/D. Traditional MP uses tools that affect MS growth and i-rates. In a flexible E regime the use of MP can be complemented by developments in the goods market and the external sector, but it does not have to be complemented by gov't actions. An ↑MS→ an ↑E and ↓i both of which can complement the effect on income in the goods market, but it does not require ΔG.

Part 2. Three problems, 15 pts each. Each problem has two parts. (45 pts total)

2.1 The central banks of most advanced economies have pursued at least some quantitative easing (QE) since the global financial crisis or the covid-induced economic slowdown. Think about the conditions that led to such intervention and the macroeconomic implications it might have when answering the following.

2.1.1 What is QE and why was it considered necessary? Be specific. (5 pts)

Asset purchases by CB to increase liquidity; large-scale asset purchases by CB that lower i-rates and signal for interest rates to stay low in the long-run. The purchases of bad assets (risky or poorly performing assets) from investors (or governments) gave investors more confidence to buy safer assets. This supported asset prices and reinforced confidence. Interest rates were low and traditional MP was not possible. Under the GFC, the ↓AD → ↓P and MP was not able to stop the deflation, i.e., [MS/↓P] is an ↑MS and yet AD ↓. At the same time, the financial crisis meant investors lost confidence in the market. Covid affected AD and AS (through layoffs, supply chain disruptions). QE supported gov't stimulus measures to support the macroeconomy and discourage saving or hoarding cash.

2.1.2 Why might emerging market economies have been concerned about negative effects when the advanced economies began using QE? Why might emerging market economies be concerned about negative effects when advanced economies end the use of QE? (10 pts)

QE amounted to purchases of assets with printed money, increasing MS and lowering the currency value of advanced economies (increasing the value of EME currencies). In QE countries i-rates were low and there was nothing to stop investors from buying EME-currency denominated assets where i-rates were higher. K-inflows to EMEs would also cause their currencies to increase. The K-inflow could have been in the form of borrowing in fc.
EMEs might worry about the end of QE because it could result in K-outflows from their economy. If they have accumulated debt, especially in fc terms, then their debt burden will increase. Dependence on cheap borrowing to support economic activity would create macroeconomic problems.

2.2 Consider a country whose macroeconomy is in equilibrium, where its output is at its natural rate (with full employment and stable inflation). Think about the reasons that might explain why the exchange rate might overshoot its long-run equilibrium rate when answering the following:

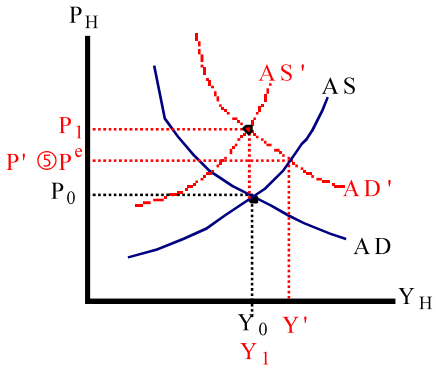
2.2.1 Explain what it means for the exchange rate to overshoot its long-run equilibrium and list reasons why it could happen. (5 pts)

Overshooting happens when E is higher than its long-run eqlbm rate (i.e., the lc is worth less than its long-run value). This can happen because of changes in:

- expectations about i-rate earnings (lc-denominated assets relative to fc assets)
- inflation (Home's inflation is now expected to be higher r.t. Foreign) or
- other factors that directly affect E (e.g., political risk or some other external shock). That is, for some reason there is a $\Delta[i_F]^e$, P^e or E^e, such that $E' > E_0$.

2.2.2 Think about how the macroeconomy might look initially in terms of aggregate demand and supply. How could you relate the overshooting phenomena discussed in 2.2.1 to changes in aggregate demand and supply? Be specific. (10 pts)

↑ AD → ↑P at level of Y' > Y_0, the natural rate. At higher Y level, there is increased demand for labor and other factors of prodn to increase prodn (movement along AS curve). The movement along AS curve means that P ↑ before P^e ↑, P' > P^e. As demand for labor and other inputs increase, there is upward pressure on wages and prices. Both firms and the macroeconomy notice the effect. The pressure on P → ↑P^e which causes AS to shift left, taking the economy back toward Y_0, ($Y_1 = Y_0$). If the ↑ AD continues (not a temporary effect), then inflation increases and E^e can remain above E_0 such that $[P^e]^1 = P_1$. Thus, $E_1 > E_0$ and $E_1 = P_1/P_{F0}$.



2.3 Monetary union, like economic union, is largely a political experiment because it requires a long-term commitment, the political will of sovereign governments, and the support of the citizens in each member state. Keep in mind the relevant theory and the macroeconomic policy implications of monetary union when answering the following.

2.3.1 List the theoretical criteria for monetary union to work, and explain how this affects a member state's macroeconomic policy? (10 pts)

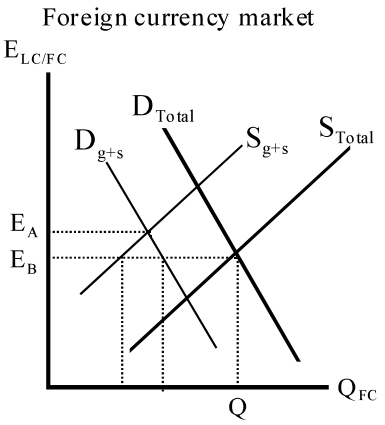
Criteria: free trade; mobility of L, K and flexibility in P_L, P_K; fiscal transfers and symmetric shocks for stability. If there are asymmetric external shocks, then one of the three mechanisms should help restore macroeconomic balance within the union.
The macroeconomic policy forgone is: use of ΔE, loss of control over MP, some loss of control over FP.

2.3.2 Why might monetary union under the eurozone have required greater fiscal and banking/financial integration, particularly during the global financial crisis and covid-induced recession? (5 pts)

Focus on the loss of FP (G, T, deficits, debt levels) and the oversight that must be required to ensure that the i-rate is the same everywhere. Recall in each member state (G-T) → ↑i. MU requires fiscal transfers – this would require some fiscal integration.
Focus on the loss of CB and MP functions. A nat'al CB provides banking and financial stability and acts as lender of last resort. Loss of MP to a supranat'al institution now means that the ECB or some other institutional mechanism would have to take on the functions or role which should lead to banking/financial integration, i.e., mutualization of some debt, supranat'al bank supervision and resolution (because K-mkts are integration and not nat'al), joint deposit insurance, etc.

Part 3. (30 points total)

Recall the market for foreign exchange (i.e., the supply and demand for foreign currency). In the graph, the total demand (D_{Total}) and total supply (S_{Total}) of foreign currency includes the value of traded goods and services and financial transactions. The demand for and the supply of goods and services are shown as D_{g+s} and S_{g+s}, respectively. Keep this framework in mind when addressing the following questions.



3.1 Think about how the market for foreign currency relates to the balance of payments. What role does the exchange rate play for the balance of payments? (5 points)

E is the mechanism by which the BOP is brought into balance. It works through the BOT via its role in the tendency toward PPP, and the K-account via i-rate parity.

3.2 Keep in mind your answer in 3.1 to explain what the meaning of the exchange rate values E_A and E_B mean. Why are they different? Be specific and explain in terms of the balance of payments. (10 points)

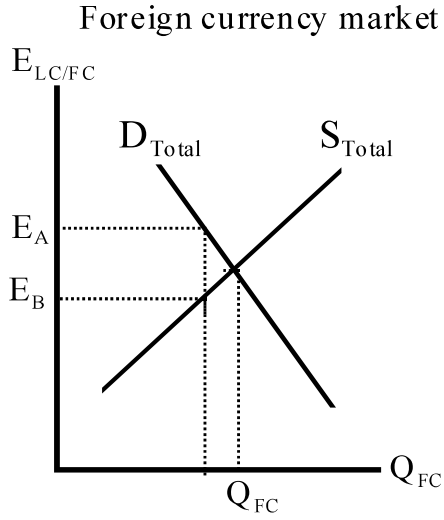
E_A is the rate where demand for fc goods and services (denominated in foreign currency) matches the supply of fc (imports for Home's goods and services). E_B is the eqlbm rate of exchange lc for fc, inclusive of good, services and financial transactions for assets. Because K-account transactions dominate trade in goods and services E_B would not be the same as that for E_A. At E_B the demand for goods and services exceeds the supply but the K-acct dominates trade in g+s and K-inflows exceed outflows, strengthening the lc value.

3.3 Suppose the government of a developing country maintained a fixed exchange rate relative to the foreign currency. However, recently the government granted the central bank greater independence, but still required a fixed exchange rate that moves over a specified band. Keep in mind the Mundell-Fleming trilemma (the ability to choose only two of three options) that limits the country's international monetary policy choices. Which monetary policy option would you expect to be constrained under this scenario? Explain and make whatever assumptions you want clear. (5 points)

The trilemma involves choosing from between 2 of 3 of a fixed E regime, CB independence and/or K-mkt liberalization. Depends on what you argue – whether the band is narrow (a tighter fix) or wide (more flexible fix). The currency remains fixed but under a specified band. So, while E has the flexibility to move a bit, MP is still required to be linked to keeping E within the band but there can be greater independence in how MP is employed. That is, the CB will intervene in currency markets to keep E within the band. On the other hand, if MP is less flexible, then it might be necessary to consider some control over K to ensure the band can be maintained. MP will still require intervention in currency mkts.

3.4 Given the scenario under 3.3, explain how the market for foreign exchange could be affected? How do you interpret the meaning of exchange rates, E_A and E_B? (10 points)

There is intervention in the fc market limiting the total fc transactions. The central bank has a specified band over which the lc can fluctuate relative to fc. The lc value can fluctuate between E_A and E_B before the CB has to intervene. At E_A – lc value is low and the central bank will sell fc (buy lc) to increase the lc value. At E_B the lc value is strong and the CB sell lc (buy fc) to decrease the lc value.



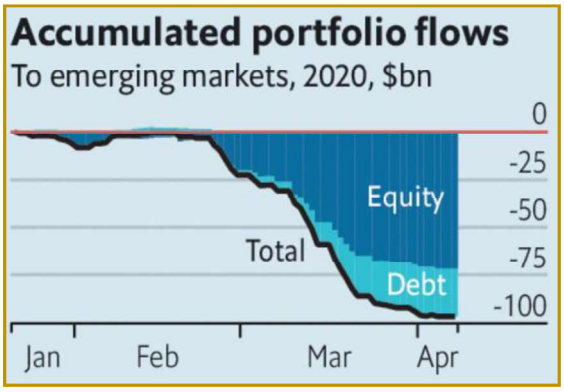
End of 2021 exam

2020 Exam [pass-fail take home exam: year of Covid-19]

Question 1. There are a total of 50 points - answer all parts as best you can.

Emerging market economies (EMEs) increasingly account for a greater share of world GDP and contribute to a larger share of global GDP growth. However, as the EMEs have been integrating into the global economy, one concern is that EMEs might face more episodes of destabilizing capital flows because of the abundance of international capital that is available and the increasing mobility of that capital.

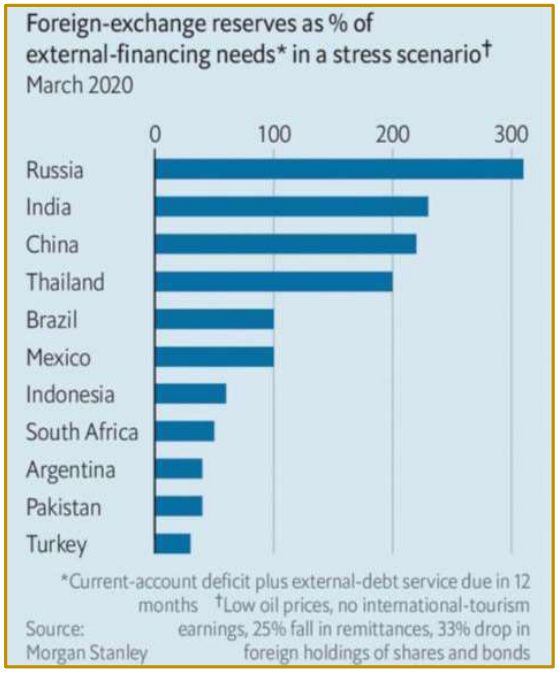
The chart shows capital outflows from EMEs in 2020 coinciding with the global economic shock of the corona virus.



1.1 Provide a simple model from the perspective of an EME that shows the economic implications of capital outflows. *List* some reasons for why capital outflows might occur? (20 pts)

1.2 Four policy tools give central banks in EMEs some flexibility to stabilize economies exposed to economic shocks that affect capital markets: (1) monetary policy; (2) macroprudential policy (measures aimed at strengthening the financial system and that actively limit the build-up of systemic financial risks); (3) exchange rate intervention; and (4) and capital flow measures. Discuss the four policy responses in terms of their relevance to address one reason for the capital outflows on your list in 1.1. (20 pts)

1.3 In the chart provided, foreign-exchange reserves as a percent of external-financing needs are reported under a stress scenario (e.g., a situation in which a country has a current-account deficit and debt to service in the next year, and where there are low oil prices, no earnings from tourism services, a reduction in remittance earnings, and foreign holdings of foreign shares and bonds) for selected countries. What might this measure suggest about a country's vulnerability to capital outflows? Explain. (10 pts)



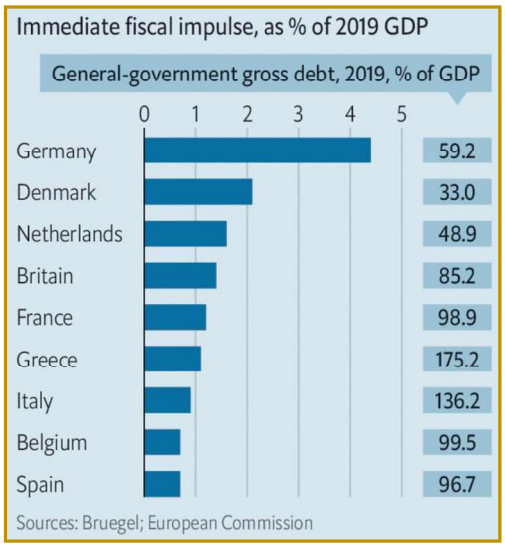
Question 2. There are a total of 50 points - answer all parts as best you can.

2.1 Let the macroeconomic situation existing in December 2019 reflect the pre-Covid-19 domestic equilibrium of a country, and let March 2020 reflect the equilibrium as the virus went pandemic (but before any macroeconomic policy response was enacted). From whichever country's perspective you might be comfortable discussing, use the aggregate demand and supply modeling framework to show the change in the macroeconomic equilibrium from December 2019 to March 2020. Justify your result by outlining the logical chain of causality that explains the change in equilibrium (i.e., explain what changed first and what was affected by that change, etc.). (20 pts)

2.2 For some countries, Covid-19 is the second economic event for which quantitative easing (QE) has been employed as a part of the macroeconomic policy response. Think about how the macroeconomic situation during the GFC is similar/different from the Covid-19 event. If QE is an appropriate policy response in both cases, does it imply the macroeconomic situations of the two events are the same? Explain whether or why QE is an appropriate policy response to these events. Be specific. (10 pts)

2.3 Macroeconomists have long debated the relative importance of monetary and fiscal policy as a response to the business cycle. Do your think the GFC and/or Covid-19 shocks have affected this debate? Carefully explain and be specific. (10 pts)

2.4 Consider the euro area's macroeconomic responses to the sovereign debt crisis during the GFC. How has Covid-19 affected the euro area and what lessons might have been learnt from the policy response to the GFC? [Hint: think about how the monetary union works in theory and how the euro area's currency union works in practice. Refer to the chart if helpful.] (10 pts)



Part 3. There are a total of 100 points - answer all parts as best you can.

Prior to the global financial crisis in 2007-08, China's economy developed by achieving sustained and rapid economic growth following an export-led industrialization strategy (a model pioneered by Japan). China's economy graduated from producing textiles and clothing to higher value-added, sophisticated manufactured goods. China managed an annual average percentage change in GDP exceeding 10% for more than two decades. Some countries complained that this was achieved through currency manipulation. At first, China kept its currency's value fixed relative to the US dollar, but in 2005 it began to allow its currency to float (a managed float to a basket of currencies) while continuing to maintain controls over capital flows. Use this information to model and answer the following:

3.1 Consider the viewpoint of those arguing that China is a currency manipulator. What indicators might one use to determine whether a country has manipulated its currency? What alternative explanation might be offered for China's economic success? Be specific. (10 pts)

3.2 Provide a simple model of a currency market (i.e., supply and demand of a foreign currency) showing how China might have manipulated its currency. Briefly explain how this might have occurred and how it affected the market. (10 pts)

3.3 In 2016 the International Monetary Fund included China's currency (the renminbi) into the basket of international reserves. Suppose that from then trade in manufactured goods was denominated in renminbi. Develop a three-country model (China, Japan and the rest of the world) showing the effect of China's currency manipulation on trade involving the three countries. Consider China and Japan as net exporters and the rest of the world as a net importer. (30 pts)

3.4 Show the effects of the currency manipulation on the domestic equilibrium from China's perspective using the Mundell-Fleming model (IS-LM-BP), the AA-DD framework and the money market-asset market framework. Does the change in equilibrium support what you showed in 3.3? Explain. (30 pts)

3.5 Now, suppose that in 2020 (ignoring the corona virus situation) that China manipulates its currency value to pursue another round of export-led growth in manufactured goods. However, now prices are quick to change in response to a change in the exchange rate. Use an aggregate demand and supply model to show and explain the effects of the exchange rate manipulation and the price changes. (10 pts)

3.6 How would the three-county model in 3.3 be affected by the price adjustment in 3.5? Explain how the changes in prices might affect the equilibrium you got in 3.3. (10 pts)

_____

I confirm that I have not consulted or taken contact with my classmates during the period of the exam.

To confirm tick box or enter exam number: ☐ _____

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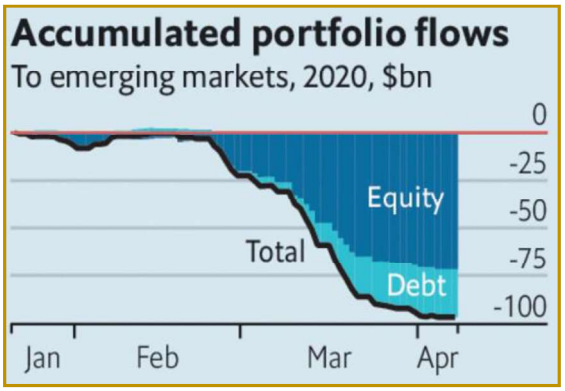
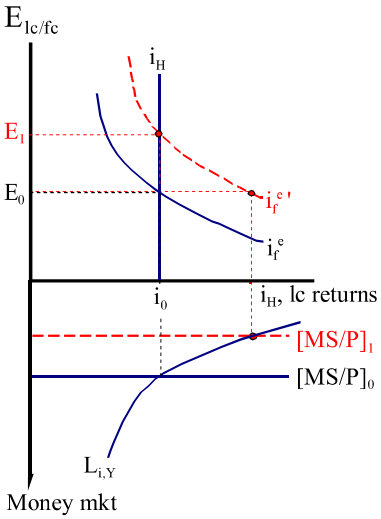
Summary solutions Stats: N = 15; 11 pass / 4 fail; approx grade 1A, 3B, 2C, 3D, 2E, 4F

Question 1. [50 points]

The chart shows capital outflows from EMEs in 2020 coinciding with the global economic shock of the corona virus.



1.1 Provide a simple model from the perspective of an EME that shows the economic implications of capital outflows. *List* some reasons for why capital outflows might occur? (20 pts)



In the figure, the i_f^e curve shifts to the right reflecting investors' preferences towards holding fc-denominated assets at any rate of i_H. The shift suggests a net capital outflow resulting in a weakening of the local currency (ΔE from E_0 to E_1).

Anything that causes a preference toward holding fc-denominated assets will cause the i_f^e curve to shift (upward) to the right, depreciating the value of the local currency. The K that can flow out in the short run is portfolio assets (FDI is the least mobile). Reasons for K-outflow can be economic, political, or legal based on cahanges in preferences, policy or risk in general:

- ↑ demand for fc assets (preferences by investors for whatever reason)
- Δ expectations of holding lc-denominated assets
- Policy-related Δ (taxes on earning)
- Perceptions of trust in financial system, political, legal institutions
- Domestic economic outlook is problematic
- Debt levels look risky, default likely, ↓% ΔGDP

1.2 Four policy tools give central banks in EMEs some flexibility to stabilize economies exposed to economic shocks that affect capital markets: (1) monetary policy; (2) macroprudential policy (measures aimed at strengthening the financial system and that actively limit the build-up of systemic financial risks); (3) exchange rate intervention; and (4) and capital flow measures. Discuss the four policy responses in terms of their relevance to address one reason for the capital outflows on your list in 1.1. (20 pts)

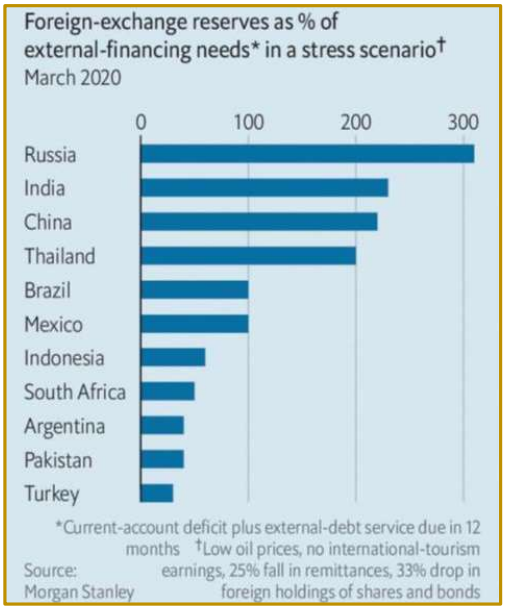
Depends on the reason given for the capital outflow. The idea was to think about whether these tools would work to stop the capital outflow.

1. Monetary policy: tighter MP can be used to raise i_H as a means of making lc-demoninated assets more interesting again. If higher interest rates are credible,

then investors (local and foreigners) can be convinced to keep their capital in Home's market, bringing the exchange rate back down toward the initial rate, E_0. If the increase in interest rate is not enough to cover the risk premium, the capital outflow will not be prevented. Depends on what role risk plays in this scenario.

2. Macroprudential policy: these measures (political, institutional, financial, legal) are useful to avoid a shock resulting in capital outflows from happening in the first place. For example, long-term measures intended to prevent a build up of debt. Having strict measures in place is designed to strengthen confidence in the economy, reassuring investors that political, economic or policy shocks are less likely to occur. Once a shock occurs, it is not likely that any new measures will stop capital flowing out in the short run. These measures would be necessary to signal that the economy will be more resilient in the future, after the situation becomes stabilized. Once there are perceptions of financial or institutional risk, repairing this is a long-term measure.
3. Exchange rate intervention: actions taken or even words by the central bank can influence the exchange rate. Actions other than words can involve the buying and selling of currency to affect transactions. The buying/selling of currency is not intended to meet a specific MP objective but rather to affect E for some external balance related objective. This can also involve taxes, subsidies, or quantitiative restrictions on transactions involving currency exchange. How well any action will work depends on ΔE^e. The more coordination there is among central bankers the more likely this can be effective. Working alone the central bank of an EME will be limited.
4. Measures to control K-flows: increasingly the IMF has approved the use of capital controls by EMEs. These involve limits on the flow of foreign capital in and out of the domestic economy, including taxes, tariffs, laws limiting foreign participation, or volume restrictions on foreigners. It is generally acknowledged that the effectiveness of K-controls are linked to macroprudential policies in place and the strength of financial institutions.

1.3 In the chart provided, foreign-exchange reserves as a percent of external-financing needs are reported under a stress scenario (e.g., a situation in which a country has a current-account deficit and debt to service in the next year, and where there are low oil prices, no earnings from tourism services, a reduction in remittance earnings, and foreign holdings of foreign shares and bonds) for selected countries. What might this measure suggest about a country's vulnerability to capital outflows? Explain. (10 pts)

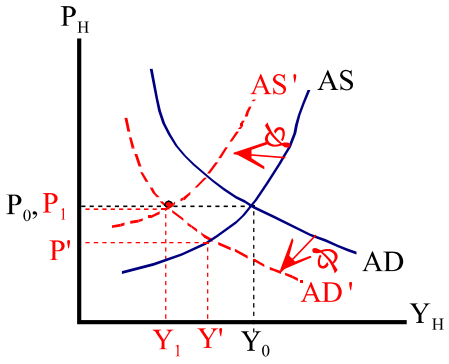


In this chart, Argentina, Pakistan and Turkey are most vulnerable to K-outflows given the low foreign exchange reserves to meet external-financing needs. This measure can be an indicator of foreigners' willingness to hold lc-denominated assets or willingness to lend in fc assets. It might also contribute to having to borow in fc, making them more unable to pay future debt. Below some threshold, foreigners' perception of risk is affected causing the shift in the shift in the i_f^e curve depicted in 1.1.

Question 2. There are a total of 50 points - answer all parts as best you can.

2.1 Let the macroeconomic situation existing in December 2019 reflect the pre-Covid-19 domestic equilibrium of a country, and let March 2020 reflect the equilibrium as the virus went pandemic (but before any macroeconomic policy response was enacted). From whichever country's perspective you might be comfortable discussing, use the aggregate demand and supply modeling framework to show the change in the macroeconomic equilibrium from December 2019 to March 2020. Justify your result by outlining the logical chain of causality that explains the change in equilibrium (i.e., explain what changed first and what was affected by that change, etc.). (20 pts)

The corona virus was a health-related shock that affected AD (not the result of a supply-side shock or a financial crisis). Lockdowns and restrictions on travel or movement within countries affected AD first. Some work could be done from home but not enough and not across all sectors of the economy. Productivity across sectors likely decreased. As unemployment increased (or employment reduced through reduced hours or programs to keep workers on payroll without working), the AS was affected and output continued to fall. AS shifts to the left. Prices can increase, decrease or stay the same depending on the relative magnitude of the changes. Mostly inflation rates have not been affected (though for some sectors prices have fallen, e.g., oil sector, but for reasons beyond the virus). The reduction in output from Y_0 to Y_1 coupled with the reduction in employment has resulted in small/medium enterprises and households struggling to meet their loan obligations which started to create financial concerns.



2.2 For some countries, Covid-19 is the second economic event for which quantitative easing (QE) has been employed as a part of the macroeconomic policy response. Think about how the macroeconomic situation during the GFC is similar/different from the Covid-19 event. If QE is an appropriate policy response in both cases, does it imply the macroeconomic situations of the two events are the same? Explain whether or why QE is an appropriate policy response to these events. Be specific. (10 pts)

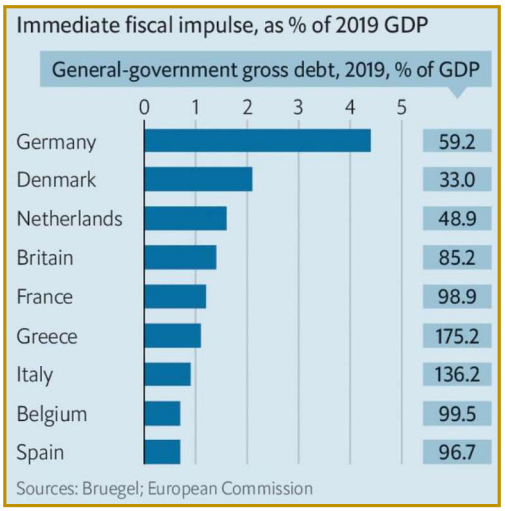
The use of QE is a function of the macroeconomic situation in the country: (1) ↓ AD, (2) near-zero or deflation and (3) near-zero or negative interest rates. Orthodox MP is unable to arrest the ↓ AD (low interest rates do not get economy out of recession). MP cannot work in situations where output is declining and interests are already low. QE is unorthodox MP intended to provide liquidity so that asset purchases increase and stimulate AD. In both cases, the conditions above existed despite the different starting points. The Covid-19 event was a health shock that turned into ↓ AD and began to cause financial constraints for households (HHs), small/medium enterprises (SMEs) and large-scale enterprises alike. The GFC was a financial crisis brought on by the financial sector. QE asset purchases under the GFC appeared as a bailout to the financial sector, to large-sclae enterprises and to governments that had overspent. Little fiscal support was given to HHs or SMEs. Under the Covid-19 event, QE was still a bailout of firms of all sizes but was accompanied by fiscal stimulous, which was considered a necessary rescue package. It may also have funded government spending, but not intended as financing previous

overspending. Under the GFC, fiscal stimulous was less general and used to a much lesser extent.

2.3 Macroeconomists have long debated the relative importance of monetary and fiscal policy as a response to the business cycle. Do your think the GFC and/or Covid-19 shocks have affected this debate? Carefully explain and be specific. (10 pts)

When QE is used to purchase gov't assets or facilitate government spending it is as if the central bank is monetizing gov't debt. As the CB does this, it brings the CB closer to the gov't, adversely affecting its independence and undermines MP. Given that it might be intended to support gov't spending it blurs the distinction between MP and FP. Depending on which assets it purchases, the CB could be seen as "choosing winners/losers" in society in a way that gov't does when deciding on whom to tax and what to spend/subsidize. QE was more controversial where the CB asset purchses appeared as helping bankers/financial investors or the gov't (CB monitizing debt or buying gov't debt obligations private investors were unwilling to hold). Under both cases of QE it can be argued to have done this, but the GFC was a more obvious case of the blurring of MP and FP, weakening of CB independence, and politicization of MP because QE was not accompanied by fiscal aid (HHs were not aided and people lost their homes in the US) or was accompanied with fiscal austerity (some parts of the EU/euro area saw a decrease in gov't spending or benefits and/or increased taxes).

2.4 Consider the euro area's macroeconomic responses to the sovereign debt crisis during the GFC. How has Covid-19 affected the euro area and what lessons might have been learnt from the policy response to the GFC? [Hint: think about how the monetary union works in theory and how the euro area's currency union works in practice. Refer to the chart if helpful.] (10 pts)



Recall the conditions necessary for a monetary union: (1) free trade in goods and services, (2) mobile, flexible and integrated L, K markets, (3) symmetric shocks, and fiscal transfers. These criteria are tough conditions to meet, even in the 50 states of the US with a central gov't. Shocks are asymmetrical and the EU/euroarea has treaty conditions that prevent national gov't bailouts. In Europe, QE during the GFC was seen as a bailout of sovereign gov'ts. Private investors were unwilling to hold gov't debt of Greece, Portugal, Italy, Spain and Ireland. Any CB purchases of debt from those countries was seen as monetizing the debt of those countries because it was likely to be defaulted. The euroarea also pursued tightening of FP which made the ↓AD worse in those countries. The ECB was the only institution able to act and there was no lender of last resort. The EFSF and ESM were mechanisms by which to provide liquidity. No debt mutualization was accepted (this remained the case at the time of the exam (just afterwards France and Germany were proposing a fund for fiscal rescue). The Covid-19 event brought back some of the problems with QE but FP was used as a rescue, especially by those countries which had the capacity

to ↑G and debt. Temporary lifting of budget deficit limits and debt levels also helped some countries.

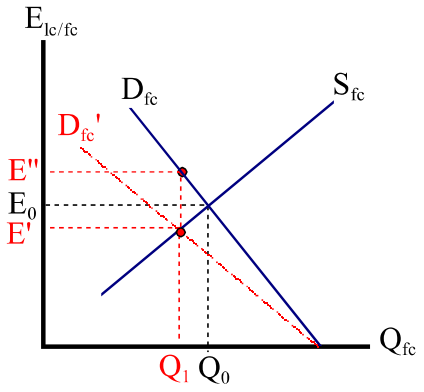
Part 3. There are a total of 100 points - answer all parts as best you can.

3.1 Consider the viewpoint of those arguing that China is a currency manipulator. What indicators might one use to determine whether a country has manipulated its currency? What alternative explanation might be offered for China's economic success? Be specific. (10 pts)

Currency manipulation: artificially lowering the value of the local currency to make their exports competitive on the world market. It acts as an export subsidy and import tax at the same time, potentially improving the balance of trade. Indicators that can serve as currency manipulation could be the level of official reserves accumulated, a change in the rate of reserve accumulation, and the positive balance of trade. An alternative explanation is that there was an abunadance of cheap labor and increased capital accumulation led to an increased labor productivity keeping China's prices low. It could also be argued that it was the national development strategy of a developing country (but this justification becomes weaker as China's economy has taken off).

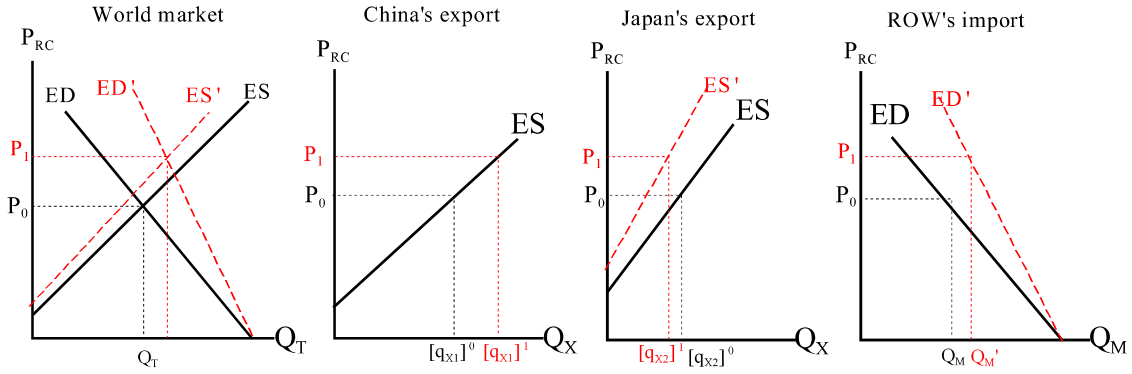
3.2 Provide a simple model of a currency market (i.e., supply and demand of a foreign currency) showing how China might have manipulated its currency. Briefly explain how this might have occurred and how it affected the market. (10 pts)

Any policy measure to decrease demand for foreign currency denominated goods, services or assets or foreign investments. Could be through a tax, quantitative restriction on foreign currency transactions involving trade or capital flows. A central bank could sell foreign currency at home at E'' (expensively) and buy foreign currency on international market at E' (inexpensively) and earn rents by exploiting the differential. Assumes others would not come along and create an "underground" market to trade currency to undercut the central bank's monopoly.



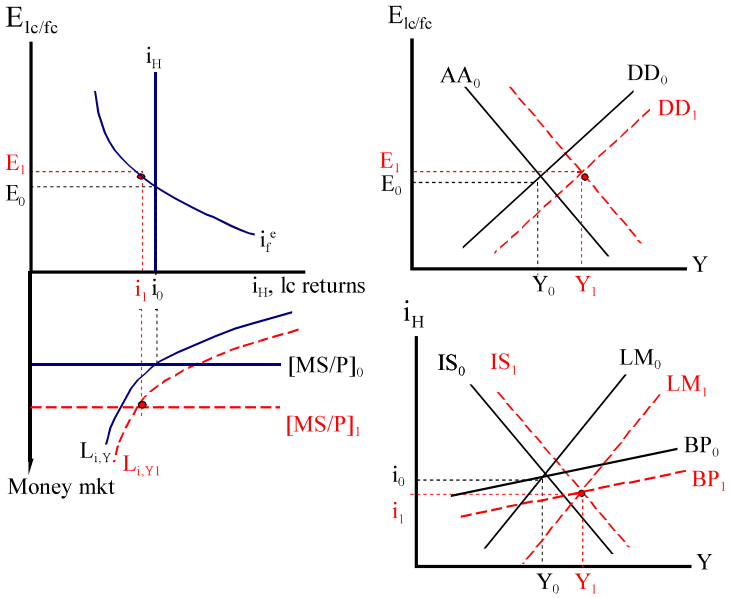
3.3 In 2016 the International Monetary Fund included China's currency (the renminbi) into the basket of international reserves. Suppose that from then trade in manufactured goods was denominated in renminbi. Develop a three-country model (China, Japan and the rest of the world) showing the effect of China's currency manipulation on trade involving the three countries. Consider China and Japan as net exporters and the rest of the world as a net importer. (30 pts)

Example of a competitive depreciation. China ↑X while Japan ↓ X. China ↑ its international share of the market, in part, at Japan's expense. The rest of the world (ROW) net importers can ↑M because the reserve currency is cheaper relative to their lc.



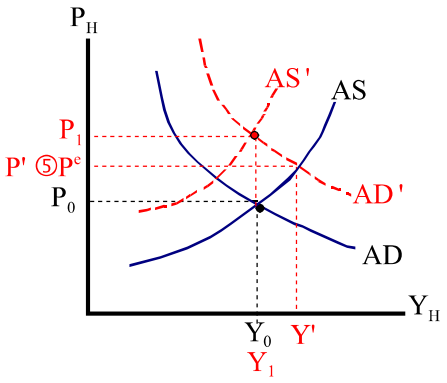
3.4 Show the effects of the currency manipulation on the domestic equilibrium from China's perspective using the Mundell-Fleming model (IS-LM-BP), the AA-DD framework and the money market-asset market framework. Does the change in equilibrium support what you showed in 3.3? Explain. (30 pts)

The new eqlbm shows an increase in output driven by policy (expansionary MP) supporting an increase in E (lowering the value of the local currency).



3.5 Now, suppose that in 2020 (ignoring the corona virus situation) that China manipulates its currency value to pursue another round of export-led growth in manufactured goods. However, now prices are quick to change in response to a change in the exchange rate. Use an aggregate demand and supply model to show and explain the effects of the exchange rate manipulation and the price changes. (10 pts)

The depreciation of the lc causes AD to increase. Output would increase, but since prices increase relative to expected prices, AS shifts to the right as expected prices catch up with the inflation at P_1, keeping output at the natural rate. Nothing real changes, leaving output and exportable surplus unaffected.



3.6 How would the three-county model in 3.3 be affected by the price adjustment in 3.5? Explain how the changes in prices might affect the equilibrium you got in 3.3. (10 pts)

Suppose China depreciates its currency by 10%. An ↑ E → ↑ P_H/P_F. For China this means that as prices (10% increase) catch up to ΔE nothing real changes. That is, while P_1 has increased in nominal terms, but the real price of the good is unchanged for China and no additional exports are possible because the exportable surplus is unchanged. P_0 implies $[P_H/CPI_H]_0$ which is equal to P_1 which is deflated by the new CPI, $[P_H/CPI_H]_1$, which is higher by the same percent. Prices in Japan and ROW are unaffected and their trade flows are unaffected.