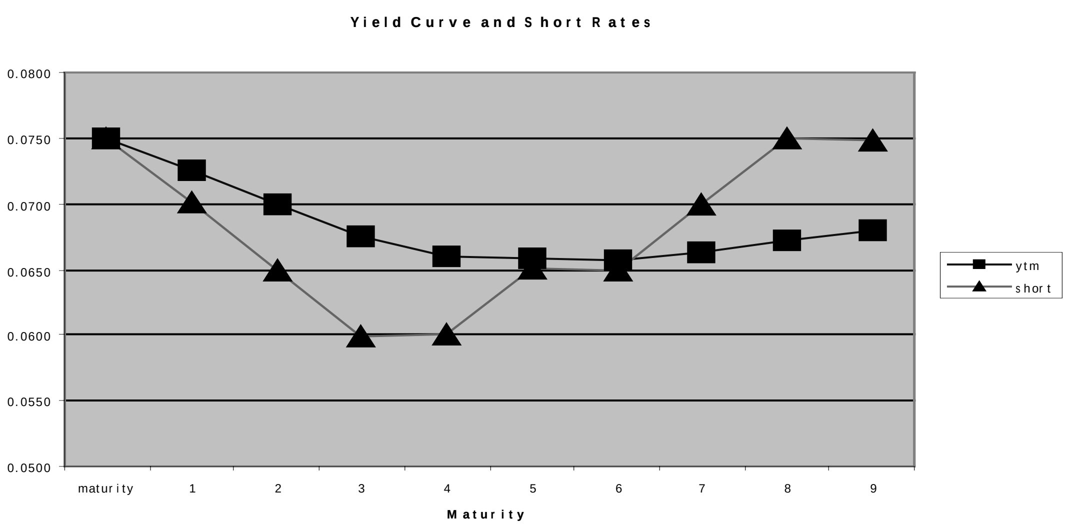
PROBLEM SET 4 SOLUTIONS

Problem #1:

Part a.

M	$P_{t,m}$	$YTM_{t,m}$	$i_{1,t}+\ldots+i_{1,t+m-2}$	$i_{1,t+m-1}$
1	93.02	0.0750	0.0000	0.0750
2	86.93	0.0725	0.0750	0.0701
3	81.63	0.0700	0.1451	0.0649
4	77.01	0.0675	0.2100	0.0600
5	72.65	0.0660	0.2700	0.0600
6	68.21	0.0658	0.3299	0.0651
7	64.05	0.0657	0.3950	0.0649
8	59.86	0.0662	0.4600	0.0700
9	55.68	0.0672	0.5300	0.0750
10	51.8	0.0680	0.6050	0.0749

Recall $YTM_{t,m} = (\$100/P_{t,m})^{(1/m)}-1$
Also recall $YTM_{t,m} = (i_{1,t} +\ldots+ i_{1,t+m-1})/m$
Thus $i_{1,t+m-1} = m*YTM_{t,m} – (i_{1,t} + \ldots + i_{1,t+m-2})$
The question does not ask for the sequence of future short rates, but these are calculated because a sequence of IS-LM economies will determine the short rate and the YTM is only an approximation (which will lag trends in the short rate).



Part b.

The shape of the yield curve is consistent with lower short (one-year) interest rates over the next three years. Lower interest rates are consistent with a leftward shift in the IS curve, and thus a recession. The are also consistent with the expectation that the Federal Reserve will respond to the reduction in consumer spending with expansionary open market operations. The curves are also consistent with a story of a revival in consumer spending in 4 years and perhaps central bank tightening of monetary policy shortly thereafter.

There is no way to tell if financial markets expect the FED to act in time to starve off a reduction in output, however, as both shifts reduce interest rates. It is possible that markets expect the IS and LM to shift simultaneously, with no effect on output and just a drop in interest rates. In any case, one can safely rule out a long depression lasting a decade given the upward slope of both curves in the later maturity range. These higher short rates and low output are only consistent with a shift left in the LM curve. As it is unlikely that the FED would undertake a monetary contraction in the face of such a downturn, we can safely say financial markets do not expect a decade-long depression.

Problem #2

A likely story two weeks ago is that financial markets expected a 50 basis point cut in the benchmark federal funds rate. This could have affected stock prices not only through lower future interest rates but through higher dividends given better economic prospects. When the FED only announced a 25 basis point cut, markets were surprised with bad news, meaning higher than expected interest rates and bleaker economic prospects, as such a small cut in interest rates would probably do little given the world economic situation. Needless to say, U.S. equity indicies dropped significatly in response to the news.

Alan Greenspan surprised markets again on October 12th by cutting the benchmark federal funds rate another 25 basis points between Federal Reserve Board meetings. This time the news was good, with unexpectedly higher interest rates and better economic prospects, so U.S. market indicies gained over 300 points.