An Alternative Perspective on UK Interest Rate Forecasting

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ABSTRACT

The advent of the European single currency and the UK's decision not to participate in the first round of the convergence has placed the UK interest rate policy in a pivotal position.

However, the competing fundamental positions are unclear with irreconcilable targets, a regime change or new paradigm, and a poor forecasting record.

In this paper an alternative approach is considered, dispensing with fundamental ideology, and based on pattern recognition and congestion. This approach assumes that the data series can be interpreted as a memory pattern based on past performance and is able to identify structural breaks, thus only relevant time periods need be considered.

Finally, the results become a leading indicator for competing fundamental models.

Key Words: Forward looking interest rate forecasting, technical analysis.

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1.Introduction

Forecasting plays a crucial role in economic policy decision making, especially two years ahead inflation targets. Previous empirical evidence suggests that current interest rate changes will follow a two-year time-path before having a full impact on inflation. If this is the case then the pattern of interest rate changes can provide a planned convergence on currencies and economic cycles, especially within the European Union. The Bank of England Inflation Report (1998) published in February stated that "….. it is more likely than not that a further rise in interest rates will be necessary at some point". No time horizon or level was mentioned. Since May 1997, the Bank's monetary policy committee (MPC) has been granted rate-setting powers consistent with a UK inflation target set by the UK Treasury, currently 2.5 per cent. As long as financial markets believe that the MPC is sticking to its task, or that rising inflation is due to temporary factors, then long term inflation expectations are likely to remain fairly stable, and UK gilt yields rises will be constrained. Any changes in UK income taxation policy to control inflation were put on hold in order to fulfil election promises, hence the importance of the interest rate /inflation axis.

A hawkish (MPC) raised rates five times between May and November 1997. The then eight committee members had to cope with an in house inflation forecast breaching the government guidelines and an economy highly erratic, and sectors such as information technology insensitive to interest rate changes.

Once again by February 2000 the headline inflation had begun rising, suggesting that underlying inflation will rise above the target by the year-end. Speculation as to fundamentals that may affect future changes has already split a cohesive committee. Hence, the monthly meeting and the resultant interest rate set is seen as a contest of differing financial economic philosophies. The purpose of committee members is not only to vote in a certain direction, but also to convince sufficient members to support their stance. Hence, a psychological element is part of the member's judgement. The MPC's recorded transparency of views and votes is at the extreme spectrum of central bank interest rate setting. These views are translated into a qualitative voting analysis of each member. (see appendix 1). Given the range of beliefs on the usefulness of standard econometric forecasting models as an aid to MPC policy making, it is worth considering the effectiveness of alternative forecasting methods used in financial markets base on a theory of contest. One MPC member (Julius 1998) emphasised the bias in the fan charts of the Bank of England towards an upside risk of inflation and called for a broader range, focusing on other targets. This has started to happen as revealed in The Bank's inflation report minutes (April 1998), revealing a detailed discussion on more than one central rate forecast. In theory base rate changes should be unpredictable and set according to the Bank of England forecast on where underlying inflation will be in two years time. However, by employing a strategy of raising rates gradually, the MPC can insure against a rise in inflation caused by above trend growth. This would not choke off growth or rule out the" new paradigm view" (that the trend growth had risen). Most technical analysts' tools exploit the range of financial data that is discarded by fundamentalists. This forms part of the deeper debate about the relative importance of supply versus demand fluctuations. The MPC tends to err on the orthodox view. Belief in the supply side view that attributes the current upturn to improved supply. New technology has boosted capital spending, increasing competition, forcing down prices and attracting more customers. Hence, rapid economic growth is a sign that increased potential output will reduce the inflationary threat. Research published by the Bank of England (1997) found that UK economic fluctuations were supply side driven. If economic fluctuations are unpredictable, because the technical change that drives them is unpredictable, then this lends weight to the technical analysis approach. The gap between UK base rates and the earnings yield on non-financial stocks is at is long term average. Hence base rates can rise without unsettling the financial markets, if expectations are such that moves will eventually be reversed.

With this in mind, this article considers whether the technical method of point and figure charts can be used to aid policy decision making of interest rates. Point and figure charts have the advantage of dispensing with a time frame and concentrating on level targets. This shows some coherence with the pattern of interest rate setting, which may not change its level for several periods and then follow with a period rapid interest rate movements. Given that UK inflation is measured by the (Retail price index)RPI. It is well known that the inclusion of mortgage interest payments in the index can cause movements in this measure to be distorted by interest rate charges. The measure of RPIX (RPI excluding mortgage interest costs) gets round this problem and gives rise to a measure of underlying inflation. The RPI is then reported as headline inflation. The relevance of this research to European monetary union is that four EU members will remain outside the Euro zone. Denmark is planning to shadow the Euro and the Swedish Krona may be edged out of the market place by Euro-minded Swedish companies. Thus the UK is left as the dominant economy within the EU but not a member of the EMU, requiring convergence of EU economies before entering a Euro II (Greece is aiming to enter Euro II). Furthermore, the British Pound has not been tracking the Euro but has been relatively stable against the US dollar. Therefore this paper addresses the short-term problem of the MPC targets and longer-term targets by establishing classic support and resistance levels, used in financial markets but differing from standard statistical significance.

2.Evaluating Macroeconomic Forecasting

This section discusses the limitations of the economic forecasting approach, in particular inflation and interest rate forecasting. The conclusion appears to be that the alternative system offered is differing from deterministic models and is worthy of consideration.

Macroeconomic forecasting has been used as part of the policy making process for over 30 years. A substantial track record has been established as a result. According to Omeroid (1998) by any normal scientific standards , the accuracy of macroeconomic forecasts , even in the short term is very poor. The first and second moments of the errors in the forecasts over time are often similar in magnitude to the actual data and there is little evidence to suggest that the forecasting accuracy is improving. Because the forecast and the eventual outcome may be influenced by the economic agent's reaction to

it, even forecasting events such as the weather becomes easier than economic forecasting. Clements and Hendry (1998) argue that the constant time invariant data generating process, perfectly replicated by a forecasting model, is not consonant with an empirical track record of large predictive failures. They argue that a theory of forecasting allowing for structural breaks may provide a useful basis for interpreting and circumventing predictive failure in economics. Following a shock, the system is taken some distance from its theoretical equilibrium and estimating such equations using time series techniques without the adjustment for the structural break will generally be unstable. Omeroid suggests that containment of shocks is a deeper matter than allowed for by the Clements' approach. Box–Jenkins type models, however, which contain a unit root, will adapt quite well to shocks, Granger (1998), and soon return to their previous performance level. Thus emphasising the benefits of non deterministic modelling. Smith's (1998) responds to the Clements paper by suggesting that it is a further development of Hendry (1986) concept. Smith concludes that Hendry's approach is to give good reasons for adopting the practitioners' stance on forecasting. Thus strengthening the case for considering point and figure charts. Theorists find that the methods that work empirically are not those that would be predicted by statistical theory. However, Smith retorts that "practitioners are often vague about the purpose of their activity" Calling upon further evidence, Smith concludes that there is no simple relationship between a model's truth, usefulness in policy formulation and forecast performance. The fact that forecasters are unable to predict the turning points using macroeconomic models of various ideologies, combined the track record of the US Federal Reserve Bank which according to McNees (1995), is no better than chance for the economy and complete failure on inflation, merits another look at the approach of practitioners. Updating the inflation forecasts, Sherden (1996) finds that turning point forecasts for the US Council of Economic Advisors(CEA) and the Congressional Budget Office(CBO) were missed on every occasion. The naïve (no change) forecast is a better predictor for highly volatile statistics such as interest rates and the average percentage forecast errors for inflation were 30 per cent at the year start and 40 per cent 2 quarters prior to the start of the year. Forecasters using subjective models as described by Clements do no worse than other models(McNees (1992). The consensus forecasts are theoretically more accurate than individual forecasts, but give no improvement on forecasting the turning points. The gain in forecasting accuracy is not found in the macro forecasters' errors when the economy is less volatile. In fact the error rates of the naïve models improve at a greater rate in less volatile periods. The deterministic stance is questioned by Stacey (1992)

because complex systems are adaptive rather than deterministic and rules change as a result of the behaviour they produce. Most UK economic forecasters have abandoned point forecasts preferring a probability range Nevertheless, we are still able to asses the impact of the cycle on UK interest rates and inflation across a range of forecasters. At the last trough, the UK fourth quarter inflation figure for 1993 had an outturn of 1.4 per cent. This presented a problem for the major forecasters who regularly forecast 8 quarters ahead. The timing of the forecast starting point was unfortunate in that the UK had left the ERM(European exchange rate mechanism) in September 1992 , expecting inflation to rise. In fact, it fell sharply, against all the established theory of floating exchange rates being associated with higher inflation in the past. Of the 52 forecasters, only 1 was within an error of +/- ½per cent error. The average error was 1.73 per cent, an average 123.6 per cent overshoot. In particular, Henley Forecasting Centre had an upward bias of over 3 ½per cent. By 1996 trends were well established, and forecasts improved dramatically. Of the 40 forecasters predicting 4th quarter values for 1997 inflation, over 82 per cent were within +/- ½per cent error. The average error was +0.15 per cent representing a 5.5 per cent overshoot. Henley Forecasting Centre was the most accurate. Figures for base rate forecasts showed interesting results. On an out-turn of 7.25 per cent for UK base rates in the fourth quarter of 1997, the forecasting panel (abandoned in May 1996) advising the Bank of England had forecast a 5.8 per cent interest rate. Other forecasters fared better. The average error was –0.2 per cent and almost 30 per cent of the forecasters were within +/- ¼per cent of the outcome, thus anticipating most of the interest rate rises by the MPC. In 1999, 2 out of 44 forecasters accurately forecasted a UK base rate of 5.5per cent at the end of the year, another ten were within an error of +/- ½per cent. A perceived serious error in the UK average earnings figures (discovered in1998) had sent base rates rising to 7.5 per cent in 1998, only to be followed by an incremental fall to 5 per cent during 1999 before another turn round that has lead to a UK base rate of 6 per cent by February 2000. This 'fine tuning' of interest rates has been questioned on several fronts. NIESR(1999) has evaluated the overall impact of these interest rate changes since the MPC's inception and concluded that the overall impact was no different to a no base-rate change for the period. This analysis is supported by a review in the London Guardian (1999) "the snag is the end product…….It is becoming hard to avoid the view that the MPC ….is a body which has difficulty seeing the wood from the trees." . Changes in monetary policy take some time to make themselves felt. In a low inflation environment the time lag between policy changes and outcome may become shorter, however, it is questionable that the outlook for inflation between April and November 1999 changed so

much that it required four base rate adjustments, two down and two up. What is clear is at or near the turning points on base rates, the views of the committee become more diverse, similar to the way investors respond in financial markets. What is not captured in the economic forecasts is the sentiment by decision makers. Hence the outcome of the MPC vote will at these times deviate from the forecasts.

3.Technical Analysis

A reliance on economic relationships or other financial variables is described by technical analysts as the fundamental approach. The methodology employed by technicians is to focus on the price movements in financial markets based upon sentiment. Market action, as described in Murphy(1998), is important because it acts as a leading indicator of known fundamentals. The freedom from relating one variable with another over time provides an added bonus to the technical analysis approach, primarily because economic relationships are not well defined for forecasting purposes. Some technical methods are able to use all the available price information over a given time period or alternatively ignore the time element altogether. It is the latter approach that concerns us. The fundamentalist tries to forecast a change in a given level in the endogenous variable at a given point in time. As previously mentioned, it is often unsuccessful on both accounts. Failing in both timing and magnitude. The study of technical analysis is confined to, at most, a single chapter in investment textbooks. Existing finance faculty is either unfamiliar with, and/or sceptical of technical analysis. Thus, finance faculty staff's ability to technical analysis beyond what is a basic definition is limited. One resultant outcome is that the academic literature is limited in the use made of technical methods. The point and figure method is not widely used in generally in financial forecasting or specifically in technical analysis, partly because of the current emphasis on time series forecasting. It is rarely as a primary indicator partly because other methods are more specific for certain tasks. Results of polls taken at various technical conferences find that the user rate is about 10 per cent. Reviewing the literature, it appears never to have been used in economic policy forecasting.

Point and figure charts are ideal for long term observations without being handicapped by defining long

term relationships, using up less space because there is no horizontal time axis. The conventional cardinal system is replaced by an ordinal one of rises and falls causing movement along the horizontal axis. The result of this alternative approach to forecasting is that turning points are clearly defined. Breakout positions both up and down are established, defining stop loss or trigger levels. These can be of immense use to policy makers for support and resistance levels. Furthermore, as a result of its construction, the point and figure approach identifies congestion levels from which future turning point targets are derived. Therefore as extraneous information they provide more specific information than the Bank of England forecasts. If we consider determination of current UK base rates, we find that the nine members of the MPC vote on altering the base rate. The monthly rate declaration is viewed by the media as a contest between the activists and gradualists as well as hawks and doves. The choice of odd number of members resulted from drawn vote in a previous meeting. The chairman used his vote twice. Although the interest rate policy approach has only been in operation for 32 months , its results are clearly defined in technical analysis terms as a contest for directional change. MPC members are often defined as being activists or gradualists as well as hawks and doves in their approach to monetarist policy. `Point and figure charts are often said to be one dimensional because of the absence of a time scale. However, they are two dimensional because movement along the chart takes place on direction reversals. For interest rates this could be defined as a policy reversal. These reversals have a filtering method assigned to them that is unique to technical analysis. Therefore if the price/ interest rate movement is less than the assigned movement it is ignored. Point and figure charts also filter movement differently depending whether they are with or against the trend. No other method has the ability to do this. A rising column of X's is plotted when the movement is up. A series of O's is plotted in the next column corresponding to a fall in price or level. A significant upward movement is seen as follows:

Upward Movement

```
        X   < significant
  X     X
  X O   X
  X O   X
    O
```

A significant movement down is seen as follows:

Downward Movement

```
      X
  O   X   O
  O   X   O
  O       O
          O   < significant
```

Patterns are rarely this perfect and the technician has to look for combinations and variations in the standard patterns. The breakout signal is given when the last column exceeds the previous and not when the trend line is broken.

Example 1. Bearish symmetrical triangle

```
O
O X
O X O
O X O X
O X O X O
O X O X O
O X O X O
O X O   O
O X     O   <       Breakout point
O       O
```

Example 2 Breakout & pullback (Catapult)

```
                          X
                          X
                          X    <    2nd Breakout
Initial Breakout        >   X   X
                  X   X   X O X
                  X O X O X O X
                  X O X O X O       <   Pullback
                    O   O
```

Hence pullback into the pattern and the subsequent breakout gives additional strength.

Whilst the concept of breakout levels which can be interpreted as a “significant “ movement and be seen to have a conceptual relationship to statistical moveme nts, the horizontal congestion level is not found elsewhere. The horizontal congestion theory proposes that continuous upward and down movements is a precursor to bigger movement in the future. i.e a congestion of indecision. Once this big movement has been completed a new structure starts to form. Example 3 Horizontal Congestion Levels. The horizontal congestion levels at the maximum activity level (MAL) provide a future target level on the target on the vertical scale.

```
 O   X O X O   X O X O
O X X O X O X X O X O < Maximum level of activity (MAL)
O O X O X O O X O   O
  O X O X   O X      O
```

4.Results

For the one box reversal system with an eleven box horizontal congestion, the target level on the downside is eleven zero counts down on the vertical scale. This works quite well for the one box reversal system for the UK base rates as shown in Table 1. As with all systems, there is an element of modelling required to obtain the best predictor. The half point box size in this series gave the best results over the period 1985 –February 2000. The method requires that the lowest maximum activity level is used. Normally a wall of upward movements (X's) is required on the extreme left side and a wall of (0's) is located on the right side of the congestion. We have also used walls of X's where applicable. Hence the number of horizontal boxes is a predictor of the upward or downward movement to give a target level. If the prediction is incorrect, this often indicates that the congestion period has not finished. Four maximum activity levels are identified and the target levels for MAL 2,3 & 4 are readily achieved. MAL target level 1 eventually reaches the required level but only after 3 attempts at breaking through a resistance level. The use of a three box reversal system (table 2) eliminates further noises at turning points. There is an element of modelling required to obtain the best predictor. In the three box system an upward/downward movement of 3 x ½base points is required before the three crosses/zero's are inserted. This is in addition to the two basis points lost at the turn. Hence a 5 point movement is required. The benefit of this filter is that points of support/ resistance can be more clearly defined. Hence the decision by the MPC whether to raise interest rates a further 0.25 per cent in February 2000 was not seen as crucial in that under a three box regime but did trigger a change of direction and sentiment to a rising interest regime under a one box regime(Table1). No resistance is found at this new level until over 7.0 per cent, then over 7.5 per cent. Such vital information is not available to the policy maker from fundamental models. Target 4 having been achieved, suggests that a new structure started at the beginning of the Labour Administration in 1997. However, a similar pattern may emerging to that achieved after target 3 but at a 3 per cent lower base rate level.

A rationale for this may be a future ageing population requiring higher returns on their investments.

5. Conclusion

This article started with a quote from the Bank of England Inflation report concerned with raising interest rates. The report did not mention a time or level target. We consider time and level targets separately. We have been able to demonstrate when using the point and figure charts one box system (table 1), that any further rise in interest rate levels would trigger even further rises. Indeed in table 2, uses the three box reversal system, where the recent rises are not enough to register, leaving the downward movement intact until a 7 per cent base rate is achieved.. If this remains the case, then the question of the fall in interest rates and the downward threshold level can be read from the chart as 4 per cent, a possible target for EMU entry. It is now six months since the last interest rate rise. Past performance on the frequency of raising rates may be a guide to the probability of a future rise and can be used as a forecasting tool. Since 1985 Base rates have been raised on 33 occasions, but have been lowered on 50 occasions. I.e. A ratio of 5:3 for lowering rates. Rates were raised on 15 occasions within a month of a previous raise. The incidence of a rate rise falls drastically after an interval of a month. On the lowering of rates most are followed by a further fall within a month (22out of 50 reductions) . The remaining rise and fall intervals are as follows:

Time Interval in months for further rate changes (number of occasions)

	Rises	Falls
0ver 1 month but less than 2 months	5	16
" 2 months but less than 3 months	5	6
" 3 " < 4 "	0	1
" 4 < 5 "	3	1
" 5 < 6 "	3	1
" 6 < 7 "	1	0
" 7 < 8 "	1	0
" 8 < 9 "	1	0
" 9 < 10 "	0	2
" 10 < 11 "	0	0
" 11 < 12 "	0	1

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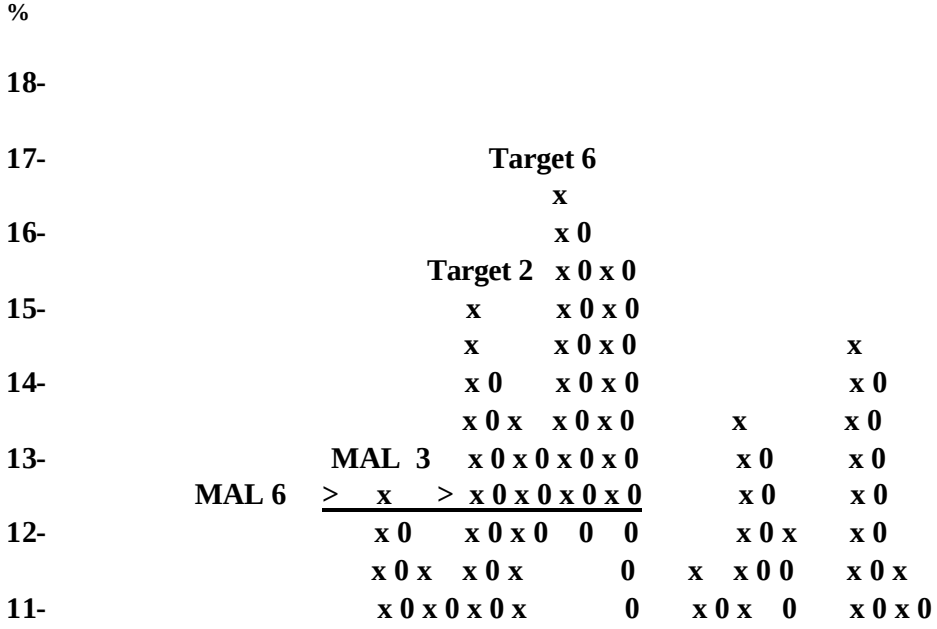
Table 1.
Point and figure chart of UK bank rate, minimum lending rate and bank's base rate 1950- February 2000. One box reversal at 0.5 per cent intervals.



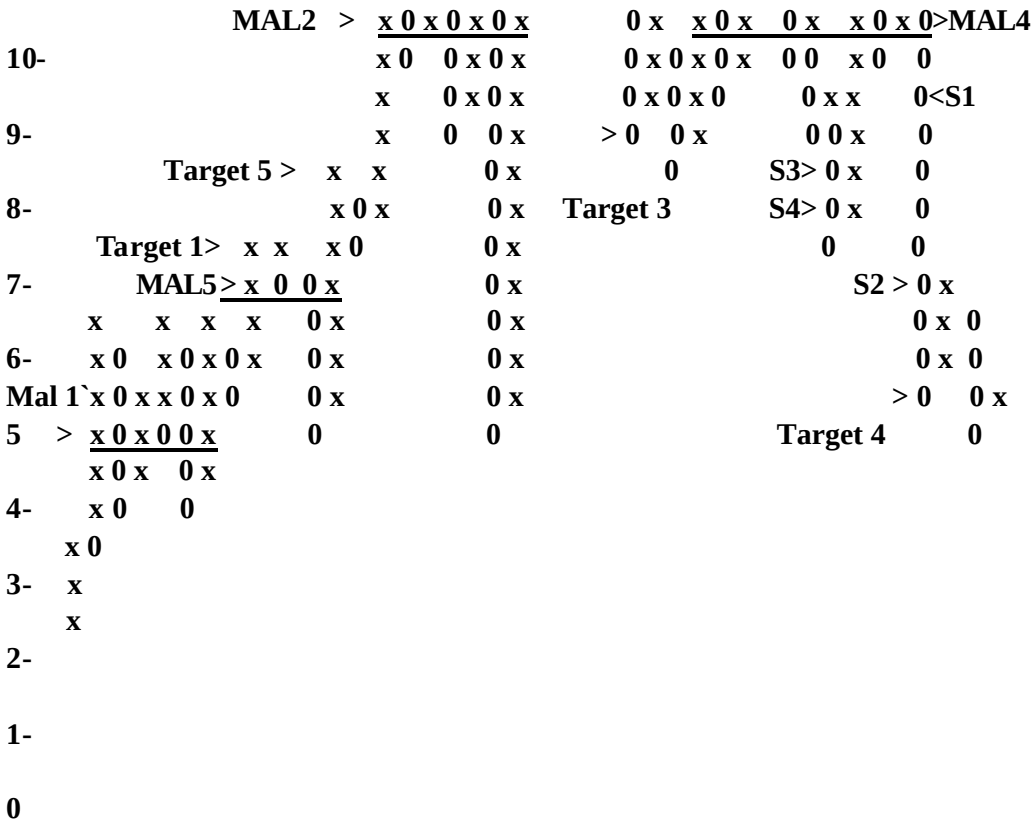
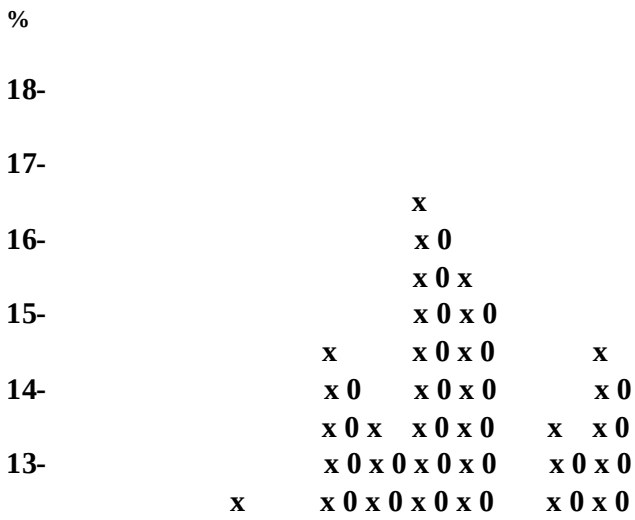
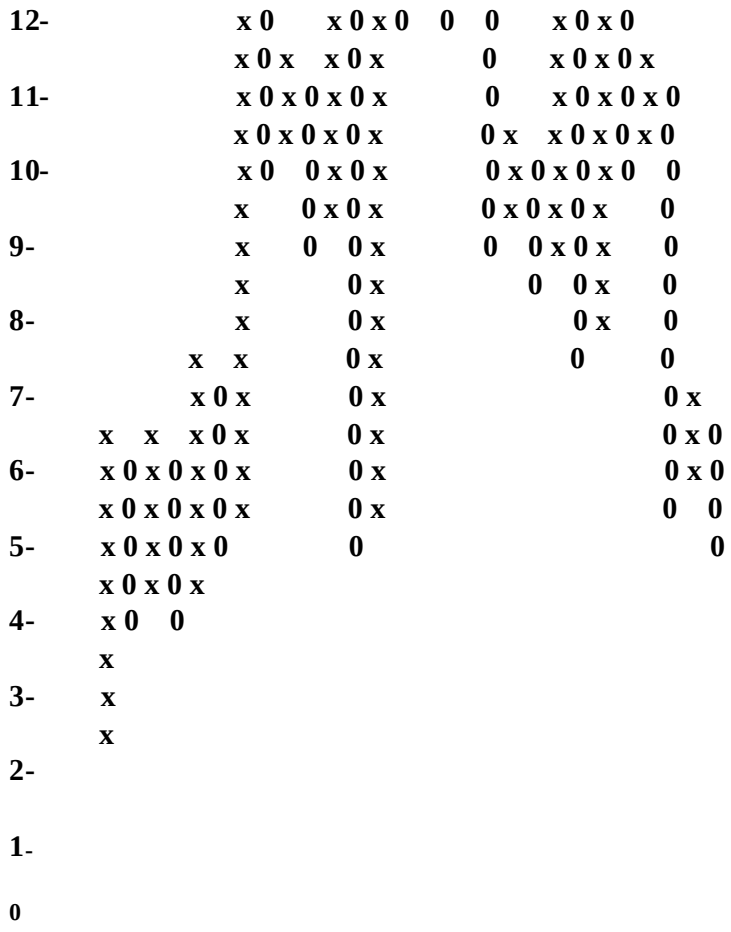


Table 2

Point and figure chart of UK bank rate, minimum lending rate and bank's base rate 1950 – February 2000. Three box reversal at 0.5 per cent intervals.



14


12-
x 0 x 0 x 0 0 0 x 0 x 0
x 0 x x 0 x 0 x 0 x 0 x
11-
x 0 x 0 x 0 x 0 x 0 x 0 x 0
x 0 x 0 x 0 x 0 x x 0 x 0 x 0
10-
x 0 0 x 0 x 0 x 0 x 0 x 0 x 0 0
x 0 x 0 x 0 x 0 x 0 x 0
9-
x 0 0 x 0 x 0 x 0 x 0
x 0 x 0 0 x 0
8-
x 0 x 0 x 0
x x 0 x 0 0
7-
x 0 x 0 x 0 x
x x x 0 x 0 x 0 x 0
6-
x 0 x 0 x 0 x 0 x 0 x 0
x 0 x 0 x 0 x 0 x 0 0
5-
x 0 x 0 x 0 0 0
x 0 x 0 x
4-
x 0 0
x
3-
x
x
2-
1-
0