Tables

Data Signal	Dates	Number of data points
Oil Price	01/01/1985 to 01/11/2008	389
IBM	17/05/1961 to 02/11/1962	360
US/Euro rate	03/01/2000 to 04/11/2005	1525

Table 1: Time series data used in the experiments

Metrics	Calculations
Annualized Return (AR)	$AR = 252 * \frac{1}{n} \sum_{i=1}^{n} R_i$ $R_i = \begin{cases} \lvert y_i \rvert & (y_i)(\hat{y}_i) \geq 0 \\ -\lvert y_i \rvert & otherwise \end{cases}$
Maximum Drawdown (MD)	$MD = Min\left(\sum_{i=1}^{n} CP_{i-1} - Max(CP_1, ...CP_i) \right)$ where $CP = \sum_{i=1}^{n} \hat{y}_i(t)$
Signal to Noise Ratio (SNR)	$SNR = 10 * \log_{10}(sigma)$ $sigma = \frac{m^2 * n}{SSE}$ $SSE = \sum_{i=1}^{n} (y_i - \hat{y}_i)$ $m = max(y)$
Normalized Mean Square Error (NMSE)	$NMSE = \frac{1}{\sigma^2 n} \sum_{i=1}^{n} (y_i - \hat{y}_i)^2$ $\sigma^2 = \frac{1}{n-1} \sum_{i=1}^{n} (y_i - \bar{y})^2$ $\bar{y} = \sum_{i=1}^{n} y_i$
Annualized Volatility (AV)	$AV = \frac{\sigma}{\sqrt{252}}$ where $\sigma = \sqrt{\frac{\sum_{i=1}^{n} y_i^2}{n} - \left(\frac{\sum_{i=1}^{n} y_i}{n} \right)^2}$

n is the total number of data patterns

y and $\hat{y}$ represent the actual and predicted output value

Table 2: Signal processing and trading simulation performance measures.

Step Ahead Prediction	Oil Price	IBM Stock Value	US/Euro Exchange Rate
1	0.2075	0.4471	1.2342
2	0.2411	0.4335	1.3486
10	0.2591	0.4802	1.425
15	0.2658	0.5169	1.5107
Mean MSE	0.243375	0.469425	1.379625

Table 3: 1,5,10 and 15 step ahead prediction Mean Squared Error for the Linear Predictor Classifier.

Step Ahead Prediction	Oil Price	IBM Stock Value	US/Euro Exchange Rate
1	28.6086	26.4725	25.9932
2	28.1832	26.5651	25.7979
10	28.0913	26.0978	25.7307
15	28.3049	25.8201	25.6745
Mean SNR	28.297	26.23888	25.79908

Table 4: 1,5,10 and 15 step ahead prediction Signal to Noise Ratio for the Linear Predictor Classifier.

Measure	Network	Oil Price	IBM	US/Euro rate
AR	LPC MLP DRPNN PSN	-19.4035 2.6385 14.6108 94.5051	-5.5758 1.6523 -0.2958 96.2261	15.1846 2.9824 8.63152 27.162
SNR	LPC MLP RPNN PSN	28.1832 15.06 22.98 30.1939	26.5651 7.87 18.43 92.3077	25.7979 16.21 20.52 81.6514
NMSE	LPC MLP DRPNN PSN	0.2411 3.3703 0.6098 0.0883	0.4335 10.7787 0.9437 0.0662	1.3486 1.1719 0.4337 14.5187
AV	LPC MLP DRPNN PSN	180.2314 17.7153 17.6485 55.8574	94.4259 20.1867 20.1777 65.0968	1.0142 10.8801 10.8731 20.9892

Table 5: 5-step time-series prediction results.