PROFITABILITY OF TECHNICAL ANALYSIS

EVIDENCE FROM CENTRAL EUROPEAN STOCK MARKETS

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Technical Analysis

Predicting future asset prices

Based on the past performance x widely used

Self-fulfilling expectations

Can it generate positive returns?

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Stock Markets

Indices PX, WIG 20, BUX, ATX, DAX 30

Time period 1994-2010

Returns: daily changes in logarithms

Technical Trading Rules – MACD

Difference between two moving averages

Faster MA reflects shorter term market trends

MACD indicates expectations of investors

Exponential MA, given parameters of 12, 26, 9

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Methodology

genetic algorithm

parameter optimization, out-of-sample tests

danger of detecting spurious patterns

no ex-post "successful" technical trading rules

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Statistical significance tests

Are the returns significantly larger than zero?

Do the returns on „buy/sell days“ differ appreciably?

Do they exceed returns on a buy and hold strategy?

- testing equality with the unconditional mean

Note: bootstrap techniques

Index ATX

mean return	0,030%		
standard deviation	0,013		
	Buy signal	**Sell signal**	
mean return	0,065%	-0,007%	
standard deviation	0,012	0,015	
T statistic for equality to 0	2,39	-0,25	
difference between buy and sell returns		1,09	
comparison to a buy and hold strategy	1,28	-1,09	

Only returns on „buy days“ are significant

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Index WIG 20

mean return	0,022%		
standard deviation	0,020		
	Buy signal	**Sell signal**	
mean return	0,090%	-0,049%	
standard deviation	0,019	0,021	
T statistic for equality to 0	2,00	-1,05	
difference between buy and sell returns		1,45	
comparison to a buy and hold strategy	1,51	-1,46	

Most results significant on a 10 % level

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Index BUX

mean return	0,076%		
standard deviation	0,022		
	Buy signal	**Sell signal**	
mean return	0,125%	0,028%	
standard deviation	0,021	0,023	
T statistic for equality to 0	2,64	0,59	
difference between buy and sell returns		0,97	
comparison to a buy and hold strategy	1,05	-0,94	

Buy signals do yield returns

No significant excess over buy and hold strategy

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Index PX

mean return	0,004%		
standard deviation	0,015		
	Buy signal	**Sell signal**	
mean return	0,092%	-0,094%	
standard deviation	0,013	0,016	
T statistic for equality to 0	2,85	-2,81	
difference between buy and sell returns		2,54	
comparison to a buy and hold strategy	2,73	-2,63	

All test statistics are significant on a 1 % level

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Index DAX 30

mean return	0,028%	
standard deviation	0,015	
	Buy signal	**Sell signal**
mean return	0,016%	0,041%
standard deviation	0,014	0,017
T statistic for equality to 0	0,48	1,20
difference between buy and sell returns	-0,34	
comparison to a buy and hold strategy	-0,34	0,36

MACD rendered irrelevant

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MACD could make money especially on Prague Stock Exchange

Less evidence on profitability on more developed markets

Implications for efficiency

Transaction costs not included!

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Thank you

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