

**A COMPARATIVE STUDY OF RELATIVE STRENGTH INDEX  
(RSI) VARIANTS: EXPLORING MARKET CAPITALISATION  
AS AN ALTERNATIVE SIGNAL**

WAN MUHAMMAD SHAFIQ BIN WAN ABDUL RAHIM

UNIVERSITI SAINS ISLAM MALAYSIA

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WAN MUHAMMAD SHAFIQ BIN WAN ABDUL RAHIM  
(Matric No : 3232382)

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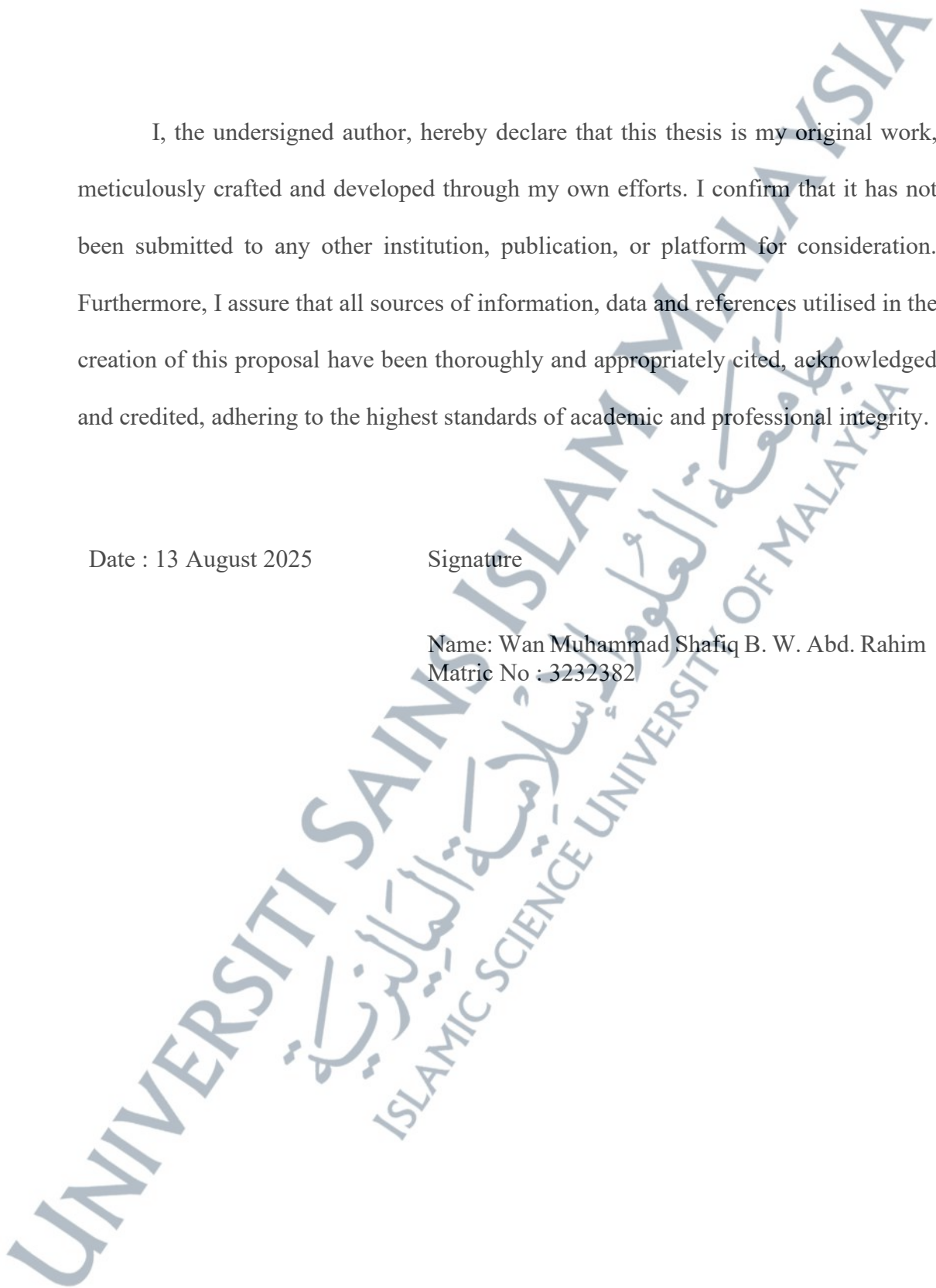
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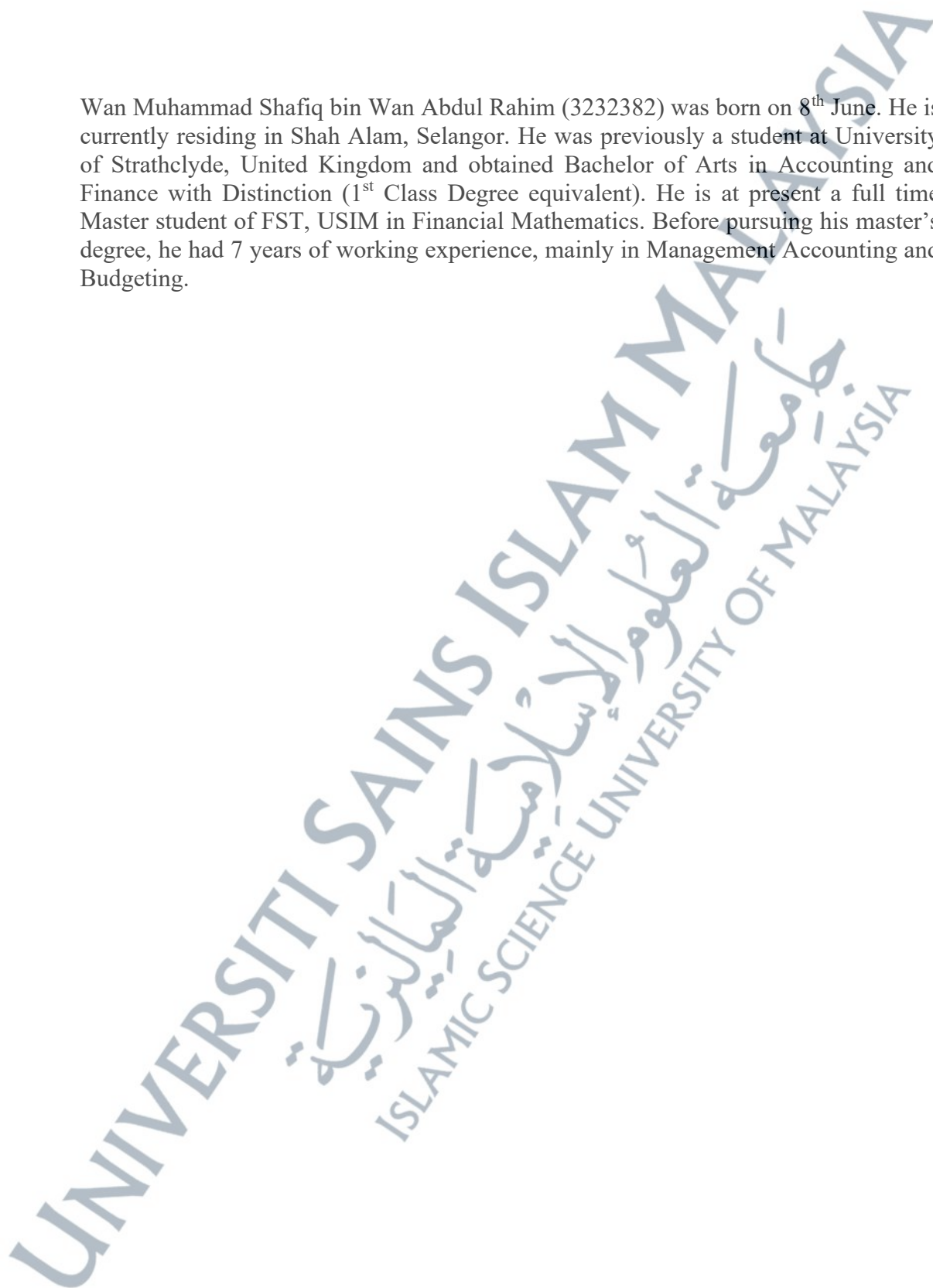
Signature

Name: Wan Muhammad Shafiq B. W. Abd. Rahim  
Matric No : 3232382



## BIODATA OF AUTHOR

Wan Muhammad Shafiq bin Wan Abdul Rahim (3232382) was born on 8<sup>th</sup> June. He is currently residing in Shah Alam, Selangor. He was previously a student at University of Strathclyde, United Kingdom and obtained Bachelor of Arts in Accounting and Finance with Distinction (1<sup>st</sup> Class Degree equivalent). He is at present a full time Master student of FST, USIM in Financial Mathematics. Before pursuing his master's degree, he had 7 years of working experience, mainly in Management Accounting and Budgeting.



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## ABSTRACT

This study introduces a new variant of RSI formula (named as  $RSI_{MC}$ ) that incorporates market capitalisation as an alternative signal for capturing corporate actions in RSI calculation, instead of using closing price. It aims to address the limitations in traditional RSI, capturing both corporate actions impact and market sentiments. The research aims to provide a more comprehensive view of market dynamics by accounting for corporate actions and capturing the magnitude of price changes. By using historical data from the closing prices of 20 selected Malaysian stocks and corporate actions occurring between July 2014 to June 2024 (10 years span), the study compares the performance of the newly-developed RSI formula with traditional RSI,  $RSI_M$  and TN-RSI methods. The findings present comparative analyses of performance metrics, revealing that stop loss conditions improved significantly for complete trade frequency, while TN-RSI dominated most of the profitability metrics. Cross-sectional Net Profit revealed that  $RSI_{MC}$  achieved the highest overall profitability without stop loss (18.3%), while TN-RSI slightly outperformed  $RSI_{MC}$  under stop loss conditions (15.6% vs 14.9%), highlighting  $RSI_{MC}$ 's potential advantage in interpreting adjusted price signals arising from corporate actions. Paired t-tests against the respective RSI variants indicated no statistically significant differences, whereas per-stock t-tests produced mixed results.

**Keywords:** Relative Strength Index (RSI), Technical Analysis, Market Capitalisation, Stock Nominal Value, Corporate Actions, Performance Metrics

## ABSTRAK

Kajian ini memperkenalkan satu varian baharu formula RSI (dinamakan sebagai  $RSI_{MC}$ ) yang menggunakan permodalan pasaran sebagai isyarat alternatif untuk mengesan tindakan korporat dalam pengiraan RSI, menggantikan penggunaan harga penutupan saham. Ia bertujuan untuk mengatasi kekurangan RSI tradisional yang menggabungkan kedua-dua kesan tindakan korporat dan sentimen pasaran. Penyelidikan ini bertujuan untuk memberikan pandangan yang lebih komprehensif tentang dinamik pasaran dengan mengambil kira tindakan korporat dan magnitud perubahan harga. Dengan menggunakan data pasaran lepas daripada harga penutupan 20 saham terpilih dan peristiwa saham Malaysia terpilih yang berlaku antara Julai 2014 hingga Jun 2024 (dalam tempoh 10 tahun), kajian ini membandingkan prestasi formula  $RSI_{MC}$  yang dibangunkan dengan kaedah RSI tradisional,  $RSI_M$  dan TN-RSI. Dapatan daripada kajian ini melalui analisis perbandingan terhadap metrik prestasi menunjukkan bahawa dalam situasi *stop loss*, kekerapan dagangan yang lengkap dengan ketara meningkat, manakala TN-RSI mendominasi hampir kesemua metrik keuntungan. Analisis *Cross-Sectional Net Profit* menunjukkan bahawa  $RSI_{MC}$  mencatatkan keuntungan keseluruhan tertinggi tanpa *stop loss* (18.3%), manakala TN-RSI sedikit mengatasi  $RSI_{MC}$  dalam keadaan dagangan dengan *stop loss* (15.6% berbanding 14.9%), sekali gus menonjolkan potensi  $RSI_{MC}$  dalam mentafsir isyarat harga yang telah diselaraskan dengan tindakan korporat. *Paired t-test* terhadap varian RSI masing-masing menunjukkan tiada perbezaan statistik yang ketara, manakala *t-test* bagi setiap saham menghasilkan keputusan yang bercampur.

Kata kunci: *Relative Strength Index (RSI)*, Analisa Teknikal, Permodalan Pasaran, Nilai Nominal Saham, Tindakan Korporat, Matriks Prestasi

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## ABBREVIATION

Abbreviation	Definition
adjRSI	Adjusted RSI for currency pairing
AMH	Adaptive Market Hypothesis
CAST	Chartist Analysis System for Trading
CV	Coefficient of Variation
EMA	Exponential Moving Averages
EMH	Efficient Market Hypothesis
ESOS	Employee Stock Ownership Plans
ETF	Exchange-Traded Fund
FA	Fundamental Analysis
iRSI	Improved RSI
MA	Moving Average
REIT	Real Estate Investment Trusts
RSI	Relative Strength Index
RSI <sub>M</sub>	Volume-adjusted RSI
RSI <sub>MC</sub>	Market Capitalisation-based RSI
RWH	Random Walk Hypothesis
TA	Technical Analysis
TN-RSI	Trend-normalised RSI
UIH	Uncertain Information Hypothesis
W-MA	Wilder Moving Average