

TABLE OF CONTENTS

TITLE PAGE	<i>i</i>
HALAMAN PENGESAHAN	<i>ii</i>
PERNYATAAN BEBAS PLAGIASI	<i>iii</i>
FOREWORD	<i>iv</i>
ABSRTRACT	<i>vi</i>
ABSTRAK	<i>vii</i>
TABLE OF CONTENTS	<i>viii</i>
LIST OF TABLES	<i>x</i>
LIST OF FIGURES	<i>x</i>
LIST OF APPENDICES	<i>x</i>
CHAPTER I	<i>1</i>
1.1 Background	1
1.2 Problem Statement	4
1.3 Research Questions	6
1.4 Research Objective	6
1.5 Research Motivation	6
1.6 Research Benefits	7
1.7 Research Contribution	7
1.8 Research Assumption and Limitation	8
1.9 Writing Framework	9
CHAPTER II	<i>11</i>
2.1 Supply Chain Management	11
2.2 Demand Forecasting	11
2.3 Types of Time-Series Forecasting	13
2.3.1 Naïve	13
2.3.2 Moving Averages methods	14
2.3.4 Smoothing Methods	15
2.4 Forecast Error	17
2.5 Safety Stock	17
CHAPTER III	<i>21</i>
3.1 Research Location	21

3.2 Research Subject and Object	21
3.2.1 Research Subject	21
3.2.2 Research Object	21
3.3 Data Collection Method	22
3.4 Data Analysis Method	23
3.5 Case Background	25
3.5.1 Company Profile and Objectives	25
3.5.2 Company Organizational Structure	26
3.5.3 Case Product Background	30
3.5.3.1 Case Product Lead Time	31
3.5.3.2 Case Product Actual Demand	32
CHAPTER IV	35
4.1 Company's Past Practices	35
4.1.1 Company's Current Forecasting Method	35
4.1.2 Company's Current Safety Stock Approach	36
4.2 Result and Discussion	38
4.2.1 Researcher Forecasting Methods Calculations	39
4.2.1.1 Naïve Method	40
4.2.1.2 Fixed Average	42
4.2.1.3 Simple Moving Average	44
4.2.1.4 Double Moving Average	47
4.2.1.5 Single Exponential Smoothing	50
4.2.1.6 Holt's Double Exponential Smoothing	53
4.2.2 Forecasting Methods Evaluation	56
4.2.3 Safety Stock Calculation	57
4.2.3.1 King's Method – Variability in Demand	57
4.2.3.2 SMA 12 Forecast Error as Demand Variability	58
4.2.3.3 Holt's DES with FA 24 Forecast Error as Demand Variability	59
4.2.4 Simulation With Current Strategy	59
4.2.4.1 Current Safety Stock Method with SMA 12	61
4.2.4.2 Current Safety Stock Method with Holt's DES	61
4.2.4.3 King's Method with Standard Deviation	62
4.2.4.4 King's Method with SMA 12 Forecast Error	63
4.2.4.5 King's Method with Holt's DES Forecast Error	63
CHAPTER V	65
5.1 Conclusion	65
5.2 Limitations	66
5.3 Recommendations	66
5.3.1 Recommendation for PT Altama Surya Anugrah	66
5.3.2 Recommendation for Future Research	67
Bibliography	68
APPENDIX	70

LIST OF TABLES

Table 2. 1 Service Level to Z Score Equivalent.....	18
Table 3. 1 Case Product Actual Demand 2018 - 2022	32
Table 4. 1 Company's Current Demand Forecasting Method	36
Table 4. 2 Company's Current Safety Stock Approach	36
Table 4. 3 Company's Current Stock Replenishment Strategy	37
Table 4. 4 Naive Method Calculations	40
Table 4. 6 Simple Moving Average 24 Periods Calculations	44
Table 4. 7 MAD Comparison on Different Simple Moving Average Periods	45
Table 4. 8 Double Moving Average 12 Periods Calculations.....	47
Table 4. 9 Single Exponential Smoothing With 24 Periods Fixed Average as Initial Forecast Calculations.....	50
Table 4. 10 Holt's Double Exponential Smoothing with 24 Periods Fixed Average as Initial Forecast Calculations	53
Table 4. 11 MAD Comparison on Every Method.....	56
Table 4. 12 King's Original Safety Stock Approach with Variability in Demand Calculations	57
Table 4. 13 King's Safety Stock Approach with SMA 12 Forecast Error as Demand Variability Calculations	58
Table 4. 14 King's Safety Stock Approach with Holt's DES as Demand Variability Calculations	59
Table 4. 15 Current Safety Stock Approach Simulation.....	61
Table 4. 16 Current Safety Stock Approach with Holt's DES Simulation.....	61
Table 4. 17 King's Original Safety Stock Simulation	62
Table 4. 18 King's Safety Stock Modified with SMA 12 Forecast Error Simulation	63
Table 4. 19 King's Safety Stock Modified with Holt's DES Forecast Error Simulation	64

LIST OF FIGURES

Figure 3. 1 Forecasting Process	24
Figure 3. 2 Case Company Organization Structure	27
Figure 3. 3 Case Product Actual Demand Trend	33
Figure 4. 1 Naive Method Graph	41
Figure 4. 2 Fixed Average 12 Periods Graph.....	43
Figure 4. 3 Simple Moving Average 24 Periods Graph.....	45
Figure 4. 4 Double Moving Average 12 Periods Graph	48
Figure 4. 5 Single Exponential Smooth Graph	51
Figure 4. 6 Holt's Double Exponential Smoothing Graph	55

LIST OF APPENDICES

Appendix I. Microsot Excel Calculation Process	70
Appendix II Microsoft Excel Solver Application Process.....	75
Appendix III. MAD Calculation on All Methods	79