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Evaluation of Mutual Funds

Evidence of Short-Term Contrarian

Highlights

Variability of Risk Factors

Financing of Agricultural Enterprises

Discovering Thoughts, Inventing Future

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Evaluation of Mutual Funds Performance in Bangladesh: Investors and Market Perspective

By S M Rakibul Anwar & Tanvir Mohammad Hayder Arif

University of Chittagong

Abstract- Net assets value is the widely used techniques to know the fund's overall performance. NAV calculation of mutual funds in Bangladesh is guided by Bangladesh securities exchange commission (BSEC). Sharpe ratio, Treynor ratio and Jensen's Alpha are the three popular indicators that are used by investor and researcher to know the performance of mutual fund. In this paper an attempt is made to evaluate the performance of 31 growth oriented mutual funds on the basis of weekly NAV and Weekly close price compared to benchmark returns. For this purpose, risk adjusted performance measures suggested by Jenson, Treynor and Sharpe are employed widely known as Treynor ratio, Sharpe ratio, and Jensen's alpha. This study found that over the research period selected mutual funds shows large negative return than and downward trend in comparison to market return.

Keywords: *mutual funds, performance evaluation and bangladesh.*

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S M Rakibul Anwar [α] & Tanvir Mohammad Hayder Arif [σ]

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Keywords: mutual funds, performance evaluation and bangladesh.

I. Introduction

A mutual fund is a trust consists of savings from the many distant investors and put them in securities like stocks, bonds, and short-term money market and commodities like gold. This trust is managed by professionals. The investors of mutual fund share the common objective and put their money in different asset classes according to the fund's investment objective. The mutual fund gives an opportunity to the retail investors gain the advantage of professional financial control. A mutual fund is a mechanism to pull out savings from the retail sector. Their money is directly handled by the professional fund manager or indirectly pursued by an index or industry. The funds are spread into various sectors to avoid potential loss. Slimming down the effort of individual investors, they offer a smart way to manage their savings without paying high fees or requiring constant attention. Mutual fund facilitates and takes traditional and complex investment decision on behalf of investors who lack the time and knowledge. Investors trust the portfolio manager to make those crucial investment choices by investing in a mutual fund.

Investment Corporation of Bangladesh (ICB) launched by government in 1980 was the first ever Mutual Funds for the sake of investors and of the capital market. ICB subsequently offered a series of closed-end mutual funds. The first private sector to take initiative of organizing a mutual fund was Asset & Investment Management Services of Bangladesh Limited (AIMS) in 1999.Though the mutual fund industry grew over time there has only been close ended fund since the beginning of the mutual funds. The country's first ever open-end mutual fund hit market in the first quarter of 2010, expanding the orbit of stock market and providing shareholders a very useful and convenient investing vehicle. Prime Finance Asset Management Company Limited (PFAMCL) float the mutual fund, with initial size of Tk500 million. Performance evaluation of mutual funds is important for the investors and portfolio managers as well. Historical performance evaluation provide an opportunity to the investors to assess the performance of portfolio managers as to how much return has been generated and what risk level has been assumed in generating such returns.

In this research paper an attempt is made to analyze the performance of the growth oriented equity diversified schemes on the basis of return and risk evaluation. The analysis was achieved by assessing various financial tests like Average Return, Sharpe Ratio, Treynor Ratio, Standard Deviation, Beta and Coefficient of Determination (R2).

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II. Overall Scenario of Capital Market in Bangladesh & Mutual Fund Market

The total number of listed securities stands at 559 at Dhaka stock exchange Ltd. at the end of 2015-16 fiscal. of the securities, 285 are equity Companies, 35 Mutual Funds, 8 debentures, 221 Treasury Bonds and 2 Corporate Bonds. The total number of listed securities stands at 555 at Dhaka stock exchange Ltd. at the end of 2014- 15 fiscal. of the securities, 283 are equity Companies, 41 Mutual Funds, 8 debentures, 221 Treasury Bonds and 2 Corporate Bonds. Total issued capital of these securities stands at Tk. 1,091,953 million or US$ 14,035 million total number of shares/certificates stands at 53,590 million. The total number listed securities stood at 536 at Dhaka stock exchange Ltd. at the end of 2013-14 fiscal. of the securities, 263 were equity companies, 41 Mutual Funds, 8 debentures, 221 Treasury Bonds, 3 Corporate Bonds. Total issued capital of these securities stood at Tk. 1,032,076 million or Us$ 13,295 million and the total number of shares/certificate stood 47,139 million. In the financial year 2014-15, the volume of trade of listed securities increased sharply on the Dhaka stock exchange. In 2014-15 fiscal, a total of 26,574 million securities were traded, the value of which was Tk. 11,23,519 million. In the financial year 2014-2015, the total trading days was 238 days, average number of traded securities was 112 million and average transaction was Tk. 4,721 million. on the other hand, in 2013-14 fiscal, a total of 24,318 million securities were traded, the value of which was Tk. 11,25,398 million. In the financial year 2013-14, the total trading days was 239 days, average number of traded securities was 102 million and average transaction was Tk. 4,709 million.

At the end of FY 2013-14 total number of listed mutual funds stood 41 with unit value of Tk. 40,804.41 million and market value of Tk. 34.31 billion. At the beginning of the FY 2014-15, total 41Mutual Funds were listed with unit value of Tk. 40,804.41mn. During the FY 2014-15 new 1mutual fund got listed through IPO with unit value of Tk. 605.91 million. and 1 mutual fund delisted during the FY 2014-15. at the end of FY 2014-15 total number of listed mutual funds stood 41 with unit value of Tk. 43,650.12 million and market value of Tk. 28.85 billion. Mutual fund represents 1.07% of total tradable market capitalization in FY 2014-15 where as it was 1.44 in the FY 2013-14. At the end of FY 2015-16, total number of listed mutual funds stood 36 with market value 26707.79 million and it was only 1.09 % of total market capitalization.

III. Literature Review

Ferreira, M., Miguel, A., & Ramos, S. (2006) conducted a cross-country study to investigate the relationship between mutual fund performance, fund attributes, and country characteristics worldwide. The study was based on a sample of 10,568 open end actively managed equity funds from 19 Asian countries covering the periods of 1999 to 2005. The researchers measured performance of the mutual fund on the basis of four alternative benchmark models including a domestic and international version of the Carhart four-factor model. The results of this study indicate that large funds in generally perform better due to economics of scale in fund management and newer funds also are able to gain better performance. Their findings concluded that individual manager with more experience can achieve high performance in funds that are associated with higher fees. Strong legal frameworks in countries lead better performance in mutual fund than weak legal framework based countries. Due to quick liquid stock markets domestic funds located in developed countries perform better. Further they found that In case of investing abroad two important factors-familiarity & proximity enhances the performance of mutual fund.

Goel, Mani & Sharma (2012) had made a study titled “A review of performance indicators of mutual fund”. This study wanted to identify the performance indicators and their impact on mutual fund performance. The impact of performance persistence, turnover, expense ratio, asset size, load fee, investment style, mutual fund managers and the ownership style on mutual fund performance was also elaborated in this study. And the discussion about the contradictions and the gap present in the literature regarding these performance indicators were also made. This paper revealed that the mutual fund companies having high turnover have performed well than companies with lower turnover and Expense ratio affects the performance of mutual funds positively. Larger asset base, Stock picking ability and lengthy tenure of fund managers are favorable for mutual fund performance. Their research also found that ownership style also influences mutual fund performance that meant foreign mutual fund performs less than local mutual fund. In this review it also concluded that there is no clear relationship between load fee & performance.

Abdullah M. N., Parvez K. (2012), in their researcher paper entitled “Corporate Governance of Mutual Fund In Bangladesh” have attempted to present a critical review of the requirements of mutual fund regulations in Bangladesh and their implementation by the various Assets Management Company’s. The research basically theoretical in nature and based upon the secondary information extracted from various journals, articles and working papers, mostly the facts and views. The findings and observations are solely based on the first hand information extracted from the officials of the asset management companies. The researchers mentioned that Good governance entails real costs. Some of the costs include hiring dedicated

staff such as corporate secretaries, experienced and independent directors, or other governance specialists. It will likely require the payment of fees to external counsel, auditors, and consultants. This might seem like a load of cost but in absence of good corporate governance, board fails to ensure controls, poor disclosure and transparency becomes commonplace, and shareholder rights are mistreated.

Annaert J., Broeck J. V. D. & Vennet R. V., (2001), had made an working paper entitled "Determinants of Mutual Fund Performance: A Bayesian Stochastic Frontier Approach" . The purpose of this paper is to identify readily available ex-ante fund statistics that can be related to future performance of European equity funds over the period 1995-1998. By using Jensen's alpha on the basis of stochastic frontier methodology, using cross-sectional data, the paper revealed that size and historical performance are related to fund efficiency. Larger funds tend to exhibit a higher degree of efficiency than small funds. Their findings suggest the presence of economies of scale and related to relatively larger capital inflows into successful funds. Further they found that poor performers tend to be less efficient in a subsequent period. Nevertheless, relatively good performance does not necessarily imply higher levels of efficiency. Finally, they didn't find cross-sectional efficiency differences across age groups.

a) Objectives of the study

i. *Primary objectives*

- To evaluate the performance of mutual funds in Bangladesh.

ii. *Sub Objectives*

- To examine the trends in terms of growth, size and volume of mutual funds
- To evaluate the financial performance of selected mutual funds in Bangladesh
- To evaluate the performance of mutual funds in terms of models like sharpe, treynor, Jensen ratio
- To evaluate the performance as per investor view.

b) Sources of Data and Methodology

Annual reports of funds for the period from 2014 to 2015 and weekly NAV and close price of funds from June 2014- June 2016 have been used for data collection. For this purpose, different sources have been used; Asset Management Companies of the funds, Stock exchanges, DSE index. Data for Treasury bills rate was collected from publications of Bangladesh Bank.

Variables picked for the performance evaluation of close end mutual funds are weekly NAV and close price of funds, daily returns of DSE broad index, 9 months' treasury bill rates. Return of fund was calculated from weekly NAV and close price of fund. This study used three models which are accepted worldwide for the performance evaluation of mutual funds (1) Sharpe Measure (2) Treynor Measure (3) Jenson differential Measure.

IV. Operation System of Mutual Fund

A mutual fund company collects savings from many distant investors and put them in securities like stocks, bonds, and short-term money market and commodities like gold, etc. This trust is managed by professionals with a good understanding of the market and tries to achieve common objectives of unit holders by making different strategic investment decisions.

The investors of mutual fund share the return as their invested share. The AMC is accountable for dealing the investment procedures by the mutual fund. It also provides supporting service like counselling, financial consultation, client support, accounting information management, marketing procedures and sales jobs for the mutual fund.

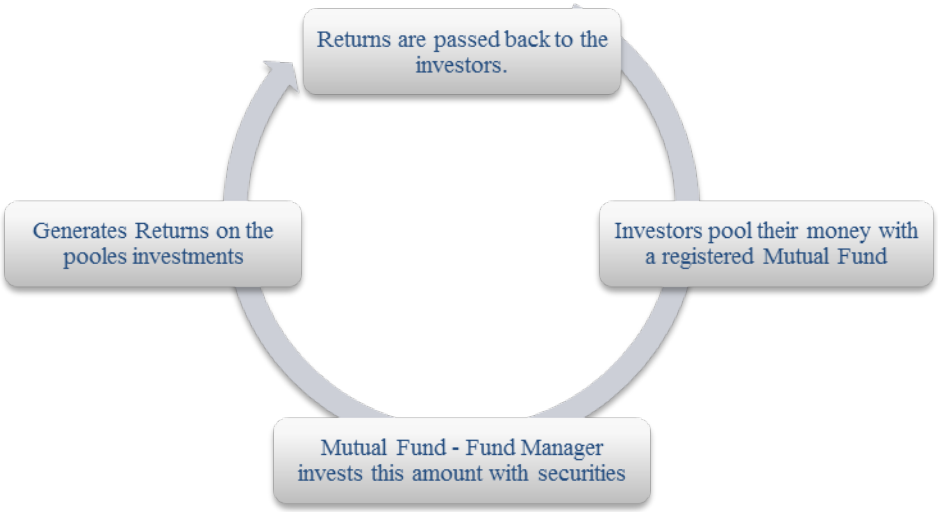

Fig.1: Operating system of mutual fund

a) Setting up of mutual fund in Bangladesh

The structure of a mutual fund is consisting of a sponsor, trustees, and an Asset Management Company, likewise known as AMC. The trust is formed by a sponsor(s), who act as a promoter of a company. As a mutual fund, the trust is listed within the BSEC (Bangladesh Security Exchange Commission). The properties of the mutual fund are treated by the trustee under the incentive of the benefit of unit holder. With the approval of BSEC, an Asset Management Company (AMC) takes care of the fund by investing in different types of sureties. The trustees are entrusted with the power of administering and directing the AMC. They supervise the operation of the mutual fund and obedience of BSEC regulations. The trustees are the core administration with general authority and dominance

b) Mutual fund Schemes

i. *Based on the maturity period*

a. *Open-ended Fund*

Open ended funds without any fixed maturity period. These are presented for subscription and can be exchanged continuously throughout the year. The transaction comes at the prices in response to NAV (Net Asset Value). Liquidity is the central feature of this type of funds, as there is no restrictions regarding the amount of the share can be issued.

b. *Close-ended Fund*

Close-ended funds are with a definite maturity period. These are presented for subscription and can be exchanged continuously for a definite period at the initial launching point. These funds are listed on an acknowledged stock exchange and transaction is occurring at that point.

c. *Interval Funds*

Interval funds are the combination of the characteristics of both open-ended & close-ended funds. These types of funds can be exchanged in stock exchanges as well as are open for sale or redemption at fixed intervals along the usual NAV.

ii. *Based on investment objectives*

a. *Equity/Growth Funds*

Equity/Growth funds invest a major percentage of its fund in stocks under the incentive of long-term capital growth. Buying shares of an equity mutual fund, allows investors to become a part owner the securities in the fund's portfolio. Equity funds invest at least 65% of its fund in equity and equity related securities. These funds may invest in different industries or one focused industry. From a long-term viewpoint and higher risk appetite, these types of funds are appropriate for investors.

b. *Debt/Income Funds*

Debt/Income funds usually invest minimum 65% of its fund in fixed income securities like bonds, corporate debenture, govt. securities and money market instruments. To lower risk of the investor and to provide a stable income, these funds invest in debt instruments with preservation of capital. The fluctuation tendency of these funds is comparatively lower than equity funds and generates a regular income flow. This type of funds is perfect for safe players.

c. *Balanced Funds*

With predetermined objectives, balanced funds provide opportunities for the investors to put their fund in both line of funds, equities and fixed income instruments. These funds secure return on investment as well as the preservation of capital. Most importantly, balanced funds are perfect for those investors who intend to have a moderate growth with income. They follow a pattern to invest their money around 60% in equity instruments and 40% in debt instruments.

d. *Money Market/ Liquid Funds*

Money market/ Liquid funds are for the safety seeker investors. These funds invest in short-term instruments that means generally invest in certificates of deposit, treasury bills and commercial papers for a full stop of less than 91 days. It is also safe to play. The objective of such funds is to ensure easy liquidity for the investors. These types of funds are perfect for using surplus funds in an optimum level by ensuring a moderate income within a little period.

e. *Gilt Funds*

Gilt funds are especially invested in govt. Securities. Though there is nothing to worry about the return, but there is risk of interest rate fluctuation. Govt. Securities are safer as the gift ensures the return for the investors.

c) Mutual funds in Bangladesh

In 1980, the country's first mutual fund was launched by the Investment Corporation of Bangladesh for providing new investment tools to investors. In 1999, Asset & Investment management services of Bangladesh (AIMS) as a first private AMC took initiative to introduce mutual fund.

Up to 2009, there was only close end mutual fund existed in the capital market. In the last quarter of 2010, Prime Finance Asset Management Company Limited (PFAMCL) launched country's first open end mutual fund. Total market capitalization of mutual fund is only 28 billion taka, which is less than 1% of total market capitalization of 3107 billion taka. Performance analysis of mutual fund:

Table 1: History of Mutual Fund

No.	Name of mutual fund	Listing year	No.	Name of mutual fund	Listing year
1	2NDICB (2nd ICB M.F.)	1984	17	ICB AMCL Third NRB Mutual Fund	2010
2	3RDICB (3rd ICB M.F.)	1985	18	IFIC Bank 1st Mutual Fund	2010
3	4THICB (4th ICB M.F.)	1986	19	IFIL Islamic Mutual Fund-1	2010
4	6THICB (6th ICB M.F.)	1987	20	Phoenix Finance 1st Mutual Fund	2010
5	5THICB (5th ICB M.F.)	1989	21	PHP First Mutual Fund	2010
6	7THICB (7th ICB M.F.)	1995	22	Popular Life First Mutual Fund	2010
7	8THICB (8th ICB M.F.)	1996	23	Prime Bank 1st ICB AMCL Mutual Fund	2010
8	Grameen One: Scheme Two	2008	24	Trust Bank 1st Mutual Fund	2010
9	ICB AMCL 2nd NRB Mutual Fund	2008	25	AIBL 1st Islamic Mutual Fund	2011
10	EBL First Mutual Fund	2009	26	EBL NRB Mutual Fund	2011
11	Prime Finance First Mutual Fund	2009	27	LR Global Bangladesh Mutual Fund One	2011
12	ICB AMCL Second Mutual Fund	2009	28	MBL 1st Mutual Fund	2011
13	ICB Employees Provident MF 1: Scheme 1	2009	29	LR Global Bangladesh Mutual Fund One	2011
14	First Janata Bank Mutual Fund	2010	30	MBL 1st Mutual Fund	2011
15	DBH First Mutual Fund	2010			
16	Green Delta Mutual Fund	2010			

V. Performance Analysis of Mutual Funds

a) Sharpe ratio

Sharpe ratio was developed in 1966 by William Forsyth Sharpe. This ratio is also called reward to volatility ratio. Sharpe ratio is a useful formula to know the performance of the portfolio. It is used to measure the return from an investment against per unit of risk. Here portfolio risk premium is divided by standard deviation of a portfolio; this measure reveals the risk premium is divided by standard deviation of a portfolio. Total risk is used in this ratio to measure the performance of a portfolio.

The higher the result of Sharpe ratio, the more the fund is fit for investment and vice versa. This ratio explains that how much return investor remunerated against the risk taken. It also indicates the efficiency of fund managers that how much return the generated and how well they can diversify their portfolio. That means Sharpe ratio evaluates the portfolio manager in terms of rate of return and diversification. The study calculates the Sharpe ratio on daily historical returns of 32 mutual funds for 2 years' period i.e. June 2014-2016. And the study uses one-year treasury bills rates are as the risk-free rate of return.

Here the results of the study indicate that only two funds out of thirty- seven funds having the positive return. This scenario provides evident that most of fund manager are not efficient to give reasonable returns on funds and their incapacity to diversify in winning manner.

The highest performing mutual fund is NLI1ST mutual fund having Sharpe ratio 1.35% based on weekly return from weekly NAV and the lowest performing mutual fund having Sharpe ratio -11.62%.

Table 2: Sharpe, Treynor & Jensen Alpha of weekly return based on weekly NAV

Mutual Fund Trading Code	SR	TR	Jensen alpha	CAPM
1JANATA	-6.01%	-0.36%	-0.08%	0.09%
ABB1ST	-9.82%	-0.52%	-0.12%	0.09%
AIBL1ST	-0.86%	-0.03%	0.03%	0.06%
DBH1ST	-2.36%	-0.07%	0.01%	0.06%
EBL1ST	0.09%	0.00%	0.06%	0.06%
EXIM1ST	-6.66%	-0.61%	-0.13%	0.09%
EBLNRB	-7.34%	-0.24%	-0.07%	0.07%
8THICB	-7.14%	-0.39%	-0.27%	0.03%
FBFIF	-5.23%	-0.72%	-0.09%	0.10%
GRMEENS2	-8.89%	-0.43%	-0.15%	0.07%
GREENDELMF	-2.29%	-0.07%	0.01%	0.07%
IFIC1STMF	-6.04%	-0.21%	-0.06%	0.07%
IFILISMF1	-1.88%	-0.16%	-0.03%	0.07%
LRGLOBALMF1	-5.21%	-0.25%	-0.08%	0.07%
MBL1STMF	-1.63%	-0.06%	0.02%	0.06%
NCCBLMF1	-6.10%	-0.21%	-0.06%	0.06%
NLI1STMF	1.35%	0.10%	0.05%	0.09%
PHPMFI	-6.16%	-0.22%	-0.05%	0.07%
PF1STMF	-1.61%	-0.04%	0.05%	0.02%
POPULAR1MF	-11.62%	-0.55%	-0.15%	0.08%
PRIME1ICBA	-2.67%	-0.07%	0.02%	0.03%
RELIANCE1	-7.23%	-0.30%	-0.10%	0.07%
SEBIST	-0.23%	-0.01%	0.03%	0.08%
TRUST	-3.92%	-0.15%	-0.03%	0.07%
6th ICB	-7.74%	-0.40%	-0.28%	0.03%
7THICB	-5.42%	-0.23%	-0.14%	0.02%
ICBEP	-2.74%	-0.08%	0.01%	0.02%
ICBAMCL2ND	-2.24%	-0.06%	0.03%	0.02%
ICB3RDNRB	-4.79%	-0.12%	-0.03%	0.03%
ICB2NDNRB	-4.02%	-0.11%	-0.02%	0.03%
ICBISTNRB	-7.94%	-0.23%	-0.14%	0.02%
ICBSONALI	-11.40%	-0.42%	-0.21%	0.05%

b) Treynor Ratio

Treynor ratio is the measurement of portfolio performance by taking relationships between annualized risk adjusted return and risk. Treynor ratio use systematic risk that means market risk (measured by beta) instead of total risk (measured by standard deviation). This ratio measures investment's sensitivity to market movements and tries to measure how successful an investment in providing investor's compensation. The high value of Treynor ratio shows an indication of that an investor gained high return on each of the market risks he has taken. In case of portfolio, Treynor ratio provides investor an idea how efficiently capital is being used. This ratio helps to measure returns from per unit of systematic risk. The mutual fund which provides highest return per unit of risk is generally being preferred as compared to the fund provides low return per unit of risk.

Formula of Treynor ratio = (RI – Rf) / beta

Where:

- RI = average rate of return for an investment
- Rf = risk-free rate

From the 32 mutual funds, only 1 mutual funds have the positive treynor ratio. That means maximum fund could not run well in relation to market risk. EBL1ST mutual fund got the positive treynor ratio that means this fund get the highest return in relation to systematic risk. 31 fund got the negative treynor ratio. It indicates that these funds could not cope with the market risk. Fund performance of ICBISTNRB indicates that return of this fund is very low in relation to per unit of systematic risk.

c) Jensen Alpha

Jensen alpha measures the risk of adjusted performance of portfolio in relation to expected rate of return (measured by CAPM). Jensen Alpha is also known as Jensen performance index and Jensen measure. Jenson alpha is important to investor, because investors require not only focusing at the total return of portfolio, but also the amount of risk involved in achieving return. This measurement how is the way to measure whether portfolio is earning proper return in relation to level of risk.

Only 11 fund could achieve positive Jensen alpha. EBL1ST fund got the highest Jensen Alpha. Over all Jensen alpha indicates that 21 mutual fund perform less than expected rate of return measured by CAPM. But this does not mean that these 11 fund perform well. It is true that they perform better than overall market whereas market provide only 0.02% weekly return, which is less than one-year treasury bill weekly return 0.11%.

Performance as per investor view:

Table 3: Sharpe, Treynor & Jensen Alpha of weekly return based on market prices

Mutual Fund Trading Code	SR	TR	Jensen alpha	CAPM
1JANATA	-7.26%	-0.41%	-0.20%	0.06%
ABB1ST	-8.84%	-0.44%	-0.26%	0.05%
AIBL1ST	3.88%	0.48%	0.32%	0.06%
DBH1ST	-0.39%	-0.03%	0.03%	0.07%
EBL1ST	-5.68%	-0.39%	-0.21%	0.05%
EXIM1ST	-3.80%	-0.79%	-0.22%	0.08%
EBLNRB	-7.07%	-0.36%	-0.28%	0.02%
8THICB	-0.53%	-0.04%	0.02%	0.07%
FBFIF	8.91%	-1.56%	7.91%	0.59%
GRMEENS2	-10.79%	-0.62%	-0.34%	0.05%
GREENDELMF	1.36%	0.09%	0.12%	0.06%
IFIC1STMF	-8.98%	-0.50%	-0.27%	0.05%
IFILISMF1	-0.12%	-0.01%	0.07%	0.03%
LRGLOBALMF1	-1.20%	-0.10%	-0.01%	0.05%
MBL1STMF	0.42%	0.03%	0.09%	0.04%
NCCBLMF1	-5.47%	-0.53%	-0.22%	0.07%
NLI1STMF	5.07%	0.73%	0.18%	0.09%
PHPMFI	-5.50%	-0.61%	-0.21%	0.08%
PF1STMF	-3.51%	-0.22%	-0.08%	0.06%
POPULAR1MF	-9.22%	-0.56%	-0.28%	0.06%
PRIME1ICBA	-2.34%	-0.17%	-0.04%	0.06%
RELIANCE1	-3.34%	-0.16%	-0.06%	0.04%
SEBIST	6.12%	0.89%	0.22%	0.09%
TRUST	-9.04%	-0.53%	-0.29%	0.05%
6th ICB	-5.40%	-0.58%	-0.16%	0.08%
7THICB	2.77%	0.51%	0.17%	0.09%
ICBEP	3.58%	0.36%	0.23%	0.07%
ICBAMCL2ND	8.89%	-1.70%	7.82%	0.54%
ICB3RDNRB	-5.60%	-0.39%	-0.12%	0.08%
ICB2NDNRB	-5.70%	-0.36%	-0.18%	0.05%
ICBISTNRB	-9.66%	-0.76%	-0.40%	0.06%
ICBSONALI	-7.95%	-0.47%	-0.29%	0.04%

Performance of mutual fund is measured based net assets value of fund. An investor takes decision to invest in mutual fund by observing NAV of respective fund. But after 2010 share scam, most of fund is traded now in market less than NAV even less than their face value. For this reasons return from mutual fund is also calculated in this paper based on weekly close price of mutual fund to know the gain of investor or trader from mutual fund. After analysis, this paper identifies that 9 fund have positive Sharpe ratio, from which ICBAMCL2ND fund got the highest Sharpe ratio and TRUST mutual fund got the lowest Sharpe ratio. Out of 32 mutual funds only 7 funds have positive Treynor ratio. That indicates that most of the fund could not do well in relation to market risk. 12 funds have the positive Jensen alpha. That means these 12 fund manager do well than the expected return from fund.

Table 4: Descriptive Summary Statistics of Mutual Funds and DSE30 Index

Performance of Mutual Fund (Weekly NAV)		Performance of Mutual Fund (Weekly Close price)		Performance of DSE30	
Average return	-0.0043%	Average return	0.49947%	Average return	0.08456%
Standard Deviation	0.00092	Standard Deviation	0.02056	Standard Deviation	0.02113
Maxima	0.136%	Maxima	8.498%	Maxima	6.310%
Minima	-0.253%	Minima	-0.345%	Minima	-4.531%
Median	0.0074%	Median	-0.0361%	Median	-0.2237%

Table 4, show that in the last two years from June 2014 to June 2016 mutual funds, on average earned return of – 0.0043 percent weekly with the standard deviation of 0.00092 weekly based on weekly NAV, whereas average market return of DSE30 index in this period was 0.08546 percent weekly with the standard deviation of 0.02113 weekly which indicates the DSE30 index performance was better than mutual funds. But the overall performance of DSE was not good because several market scam leads to less confident in investor in this market. Mutual fund must hold 60% of fund in stock market mandatorily according to law. For this reasons, mutual fund could not take their decisions in accordance with fundamental analysis.

VI. Conclusion

This paper provides an overview of the Bangladeshi mutual fund industry and investigates the mutual funds risk adjusted performance using mutual fund performance evaluation models. Mutual fund industry in Bangladeshi is still in growing phase. Result shows that on overall basis, funds industry underperform than the market. They are investing in the market very defensively as evident from their beta. Mutual Fund industry's Sharpe ratio is -4.87% as compared to market that is -0.09 risk premium per one percent of standard deviation. Results of Jensen differential measure also show negative after cost alpha. Hence overall results suggest that mutual funds in Bangladesh are going on a trouble system. Whereas results also show some of the funds outperform, these funds are not facing the diversification problem. Worldwide there had been a tremendous growth in this industry; this growth in mutual funds worldwide is because of the overall growth in both the size and maturity of many foreign capital markets, but the conditions of mutual fund industry in Bangladesh are far behind. The funds should disclose the level of risk associated with return in their annual reports for the information of investors and prospective investors. This will enable the investors to compare the level of return with the level of risk. The success of this sector depends on the performance of funds industry and the role of regulatory bodies. Excellent performance and stringent regulations will increase the popularity of mutual funds in Bangladesh.

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Comparison of Banking System of Commercial Bank of Ethiopia and Dashen Bank using Queuing Modelling Approach: The Case of Wolaita Zone, SNNPR, Ethiopia

By Bereket Tessema Zewude

Wolaita Sodo University

Abstract- In order to deliver service in quality specially in banking system the queuing model was appropriate in order to suggest waiting time, service rate and etc for efficient service delivery of better implementation of banking system. Comparative study of two selected banks (Commercial Bank of Ethiopia & Dashen Bank) in Wolaita zone of Ethiopia was investigated. The queuing model was employed for both banking system in order to measure the behavioral queuing characteristics of customers in terms of their arrival and service rate respectively. The data for the arrival and service rate of the two banks were collected by observation methods for two days of a week simultaneously. The result revealed that on average 10.2 and 8.6 customers arrive and served per hours, respectively in Commercial Bank of Ethiopia Tona branch.

Keywords: *arrival rate, banking system, customer, commercial bank of ethiopia, dashen bank, ethiopia, queuing model, waiting service time, wolaita zone.*

GJMBR-C Classification: *JEL Code: E50*

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Keywords: arrival rate, banking system, customer, commercial bank of ethiopia, dashen bank, ethiopia, queuing model, waiting service time, wolaita zone.

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I. Introduction

Queues (or waiting lines) are general phenomenon in everyday life of human endeavor. Queues are usually seen at post offices, bus stops, hospitals, bank counters, gas stations etc. Queues are formed when customers (human or object) demanding service have to wait because their number exceeds the number of servers available; or the facility does not work efficiently or takes more than the time prescribed to service a customer done by Kasum et al (2006) . Some customers wait when the total number of customers requiring service exceeds the number of service facilities, some service facilities stand idle when the total number of service facilities exceeds the number of customers requiring service.

Pei-Chun *et al*., (2006) defines queue as simply a waiting line, while Tian *et al*., (2011) put it in similar way as a waiting line by two important elements: the population source of customer from which they can draw and the service system. The population of customer could be finite or infinite. The banking sector which is the largest and most competitive unit of Ethiopian's financial sector, acting as a financial intermediary between the surplus and deficit agents of the economy has always been the center of attraction to many customers that want to carry out one transaction or the other through the services provided by these banks. However, the major problem is the inability of the banks to match their service facilities to the needs of customers without much delay. The common experience in Ethiopian bank is that most banks do not have fulfilled facilities and capacities to service the number of customers without much delay on the part of the customers. The problem in this regard had been that though bank customers for instance, have always been desirous of spending the least possible time in banking transactions, this age-long desire is yet to be met by the banks. Banks on the other hand, want to attract, retain customers and at the same time optimize profit.

Challenges encountered by most public as well as private business organization are the problem of waiting lines. It is so serious that most customers complained of lack of special treatment and care by the management of the organization. There is need to give customers a special care during service delivery because when a particular customer is satisfied to a certain level, all available customers are attracted to the organization, this brings about the expected high profit. Kasum *et al.,* (2006) conducted research in Nigeria banks in queue efficiency of comparative analysis of old and new generation banks. Their findings indicated that time spent on queue for services in old generation bank are in aggregate longer than in the new generation bank. Similarly, their findings showed that new generation banks are more efficient in timely service delivery than the old generation banks.

Pei-Chun *et al.,* (2006) finding suggested that some bank should add more ATMs to reduce customer waiting time. Tian *et al.,* (2011) examined the queuing system of bank based on business process re engineering. They evaluated the bottleneck problems of bank queuing as well as the concept, classification and methodologies of business process re engineering. They used simulation method to analyze the number of open servers of the bank system. Their findings showed that if the bank use simulating method to determine the number of open servers by referring to dynamic statistics; it will improve much in flexibility and make full use of the current resources.

Toshiba *et al.,* (2013) finding showed that the efficiency of commercial banks is improved by the queuing number, the service stations number, and the optimal service rate. Therefore, conducting such research in banking system of Ethiopia context may suggest effective and practical, and increasing customer satisfaction with relation to profit maximization in line with realizing the objective of measuring the behavioral queuing characteristics of customers in terms of their arrival and service rate, respectively in banking system.

II. Methodology

a) Description of study area

The study was carried out in some selected branches of Commercial Bank of Ethiopia and Dashen Bank of Wolaita Sodo branch of Ethiopia. Commercial Bank of Ethiopia comprises more than five branches in Wolaita Sodo area and Dashen Bank consist one branch in the town. Wolaita Sodo town found in temperate region of South Nation Nationalities and Peoples (SNNP) regional state in Wolaita zone capital town of Sodo. Sodo town is located (54^0N latitude and 380^0 S longitude) and 396km south of Addis Ababa and 130km from regional town Hawassa. Wolaita Sodo town was center for economic activities as well as financial sector by junctioning more than five road corders in the regional state.

b) Study Design

The research design was qualitative as well as quantitative research design can be employed.

c) Source of population

All customers admitted in banks of two days follow up simultaneously were considered as population.

III. Method of Data Analysis

For study purpose the analysis employed here is Multi Server Queuing Model that is (M/M/X): (∞/FCFS). This is the extensional form of single server model where customer in a waiting line can be served by more than one server simultaneously. There are n numbers of customers in the queuing system at any point in time. If $n < X$, (number of customers in the system is less than the number of servers), then there will be no queue. However, $X-n$ number of servers will not be busy. If $n \geq X$ (number of customers in the system is more than or equal to the number of servers) then all servers will be busy and the maximum number of customers in the queue will be $n - X$. The combined service rate will be $n\mu = X\mu\,;\; if\; n \geq X$. The following assumptions were made for the queuing system at the selected banks, In accordance with the queuing theory:

- Poisson arrival rate of λ customers per unit of time.
- Exponential service times of μ customer per unit of time.
- Queue discipline is first come first served basis by any of the server.
- The waiting line has two or more identical servers.
- There is no limit to the number of the queue (infinite).
- The average arrival rate is greater than average service rate.

Following are the properties of the Multi-Server Queuing Model: Utilization factors i.e. the fraction of time servers are given by:

$$\rho_X = \frac{\lambda}{X\mu} \qquad \ldots\ldots\ldots\ldots\ldots (1)$$

The probability of having n customers in the system is given by:

$$P_0 = \left[\sum_{n=0}^{X-1} \frac{1}{n!}\left(\frac{\lambda}{\mu}\right)^n + \frac{1}{X!}\left(\frac{\lambda}{\mu}\right)^X \frac{X\mu}{X\mu-\lambda}\right]^{-1} \ldots\ldots\ldots\ldots (2)$$

$$P_n = \begin{cases} \left(\frac{\rho^n}{n!}\right) P_0\,, & if\; n \leq X \\ \frac{\rho^n}{(X!X^{n-X})P_0}\,, & if\; n > X \end{cases} \ldots\ldots\ldots\ldots\ldots (3)$$

When $n \geq X$, it is that the number of customers in the system is not smaller than the number of servers, the next customers must wait, that is,

$$C(X,\rho) = \sum_{n=X}^{\infty} P_n = \frac{\rho^X}{X!(1-\rho_X)} P_0 \ldots\ldots\ldots\ldots\ldots (4)$$

Expected number of customers waiting on the queue is given by:

$$L_q = \left[\frac{1}{(X-1)!}\left(\frac{\lambda}{\mu}\right)^X \frac{\mu\lambda}{(X\mu-\lambda)^2}\right] P_0 \ldots\ldots\ldots\ldots\ldots (5)$$

Expected number of customers in the system is given by:

$$L_s = L_q + \frac{\lambda}{\mu} \ldots\ldots\ldots\ldots\ldots (6)$$

Expecting waiting time of customers in the queue is given by:

$$W_q = \frac{L_q}{\lambda} \ldots\ldots\ldots\ldots\ldots (7)$$

Expecting waiting time of customers in the system is given by:

$$W_s = \frac{L_s}{\lambda} \ldots\ldots\ldots\ldots\ldots (8)$$

IV. Data Analysis

Presented in table 1 shows the arrival and service rate for the two banks collected simultaneously for two days as the same time range.

Table 1: Commercial Bank of Ethiopia (Tona Branch) arrival and service rate

Arrival rate	Service rate
85	70
78	67

Source: Own computation

Overall arrival rate of the Commercial Bank of Ethiopia (Tona Branch) bank system is:

$$\lambda_t = \lambda = \lambda_1 + \lambda_2$$
$$\lambda = 85 + 78$$
$$\lambda = 163$$

Overall service rate of the Commercial Bank of Ethiopia (Tona Branch) bank system is:

$$\mu_t = \mu = \mu_1 + \mu_2$$
$$\mu = 70 + 67 = 137$$

Table 2: Dashen Bank arrival and service rate

Arrival rate	Service rate
63	56
51	42

Source: Own computation

Overall arrival rate of Dashen bank system is:

$$\lambda_t = \lambda = \lambda_1 + \lambda_2$$
$$\lambda = 63 + 51$$
$$\lambda = 114$$

Overall service rate of Dashen bank system is:

$$\mu_t = \mu = \mu_1 + \mu_2$$
$$\mu = 56 + 42$$
$$\mu = 98$$

The numbers of server (X) for the two banks are not the same. For Commercial Bank of Ethiopia (Tona Branch), the number of servers is 6, while for Dashen bank; the number of servers is 4. Estimating Queuing Parameters for Commercial Bank of Ethiopia (Tona Branch) assuming that 6 waiting lines for the customer in the bank.

When there is a line let be: $X = 6, \lambda = 163, \mu = 137, \rho = \frac{\lambda}{\mu} = \frac{163}{137} = 1.19, \quad X = 0,1,2,3,4,5$

$$P_0 = \left[\sum_{n=0}^{X-1} \frac{1}{n!}\left(\frac{\lambda}{\mu}\right)^n + \frac{1}{X!}\left(\frac{\lambda}{\mu}\right)^X \frac{X\mu}{X\mu-\lambda}\right]^{-1}$$

where: $\sum_{n=0}^{5} \frac{1}{n!}\left(\frac{\lambda}{\mu}\right)^n = \frac{1}{0!}\left(\frac{163}{137}\right)^0 + \frac{1}{1!}\left(\frac{163}{137}\right)^1 + \cdots + \frac{1}{5!}\left(\frac{163}{137}\right)^5 = 3.28$

$$P_0 = \left[\sum_{n=0}^{X-1} \frac{1}{n!}\left(\frac{\lambda}{\mu}\right)^n + \frac{1}{X!}\left(\frac{\lambda}{\mu}\right)^X \frac{X\mu}{X\mu-\lambda}\right]^{-1}$$

$$P_0 = \left[3.28 + \frac{1}{6!}\left(\frac{163}{137}\right)^6 \frac{6\times 137}{6\times 137 - 163}\right]^{-1}$$

$$P_0 = [3.28]^{-1}$$

$$P_0 = 0.30$$

$$L_q = \left[\frac{1}{(X-1)!}\left(\frac{\lambda}{\mu}\right)^X \frac{\mu\lambda}{(X\mu-\lambda)^2}\right] P_0$$

$$L_q = \left[\frac{1}{5!}\left(\frac{163}{137}\right)^6 \frac{137\times 163}{(6\times 137 - 163)^2}\right] \times 0.30$$

$$L_q = 0.00037$$

$$L_s = L_q + \frac{\lambda}{\mu}$$

$$L_s = 0.0037 + \frac{163}{137}$$

$$L_s = 1.190$$

$$W_q = \frac{L_q}{\lambda}$$

$$W_q = \frac{0.00037}{163}$$

$$W_q = 0.0000023$$

$$W_s = \frac{L_s}{\lambda}$$

$$W_s = \frac{1.190}{163}$$

$$W_s = 0.0073$$

When there are two lines, $X = 2$, $\frac{\lambda}{2} = \frac{163}{2} = 81.5$, $\mu = 137$, $\rho = \frac{\frac{\lambda}{2}}{137} = \frac{81.5}{137} = 0.5949$.

L_s , L_q , W_s and W_q are given respectively.

For : $X = 2$, $L_s = 1.47$, $L_q = 0.87$, $W_s = 0.018$, $W_q = 0.0107$

$X = 3$, $L_s = 1.519$, $L_q = 0.63$, $W_s = 0.0121$, $W_q = 0.0048$

$X = 4$, $L_s = 0.4232$, $L_q = 0.603$, $W_s = 0.0104$, $W_q = 0.0031$

$X = 5$, $L_s = 0.3123$, $L_q = 0.743$, $W_s = 0.0096$, $W_q = 0.0023$

$X = 6$, $L_s = 0.2473$, $L_q = 0.0490$, $W_s = 0.0091$, $W_q = 0.0018$

Table 3: The queuing system characteristics of Commercial Bank of Ethiopia (Tona Branch)

Waiting line (X)	λ	μ	ρ	L_s	L_q	W_s	W_q
1	163	137	1.1898	1.1900	0.00037	0.0073	0.0000023
2	81.5	137	0.5949	1.4700	0.8700	0.0180	0.0107
3	54.3	137	0.3964	1.5190	0.6300	0.0121	0.0048
4	40.8	137	0.2978	0.4232	0.6030	0.0104	0.0031
5	32.6	137	0.2379	0.3123	0.7430	0.0096	0.0023
6	27.2	137	0.1985	0.2473	0.0490	0.0091	0.0018

Table 3 gives the summary of the queuing parameters of the assumed number of lines to the bank if the number of servers remains unaltered. Probability that an arriving customer or customers will have to wait for service at the bank is given by the formula:

$$P_w = \left(\frac{\lambda}{\mu}\right)^X \frac{P_0}{X!\left(1-\frac{\lambda}{X\mu}\right)} \quad \text{..... (13)}$$

$$L_s = \frac{\rho}{1-\rho} \quad \text{.....(9)}$$

$$L_q = \frac{\rho^2}{1-\rho} \quad \text{.....(10)}$$

$$W_s = \frac{1}{\mu-\lambda} \quad \text{..... (11)}$$

$$W_q = \frac{\rho}{\mu-\lambda} \quad \text{..... (12)}$$

Employing the above formula of equation (8) to equation (11), we can compute for lines $2,3,4,5\ and\ 6$, respectively. i.e $X = 2,3,4,5,6$. Then the computation as follows:

$$P_w = \left(\frac{163}{137}\right)^6 \frac{(0.30)}{6!\left(1-\frac{163}{6\times 137}\right)}$$

$P_w = 0.00095$ or 0.095%

On the same fashion we can compute queuing parameters of the Dashen bank when the number of servers is 4.

$P_0 = 9.2937$, $L_q = 0.4100$, $L_s = 1.5733$, $W_s = 0.0138$, $W_q = 0.0036$

When there are two lines, $X = 2$, $\frac{\lambda}{2} = \frac{114}{2} = 57$, $\mu = 98$, $\rho = \frac{\frac{\lambda}{2}}{98} = \frac{57}{98} = 0.5816$.

L_s , L_q , W_s and W_q are computed respectively.

For $X = 2$, $L_s = 1.3900$, $L_q = 0.8084$, $W_s = 0.0244$, $W_q = 0.0142$

$X = 3$, $L_s = 0.6334$, $L_q = 0.2457$, $W_s = 0.0167$, $W_q = 0.0065$

$X = 4$, $L_s = 0.4100$, $L_q = 0.1192$, $W_s = 0.0144$, $W_q = 0.0042$

Table 4: The queuing system characteristics (parameters) of Dashen Bank

Waiting line (X)	λ	μ	ρ	L_s	L_q	W_s	W_q
1	114	98	1.1633	0.4100	1.5733	0.0138	0.0036
2	57	98	0.5816	1.4700	0.8700	0.0180	0.0107
3	38	98	0.3878	0.6334	0.2457	0.0167	0.0065
4	28.5	98	0.2908	0.4100	0.1192	0.0144	0.0042

Source: Own computation

Table 4 gives the summary of the queuing parameters of the assumed number of lines to the bank if the number of servers remains unaltered. Probability that an arriving customer or customers will have to wait for service at the bank is given by the formula and substituting the results in the given formula, we obtained the result as follows.

$$P_w = \left(\frac{\lambda}{\mu}\right)^X \frac{P_0}{X!\left(1-\frac{\lambda}{X\mu}\right)} = 0.0999 \text{ or } 9.98\%$$

V. Results and Discussion

The result revealed that on average 10.2 and 8.6 customers arrive and served per hours, respectively in Commercial Bank of Ethiopia Tona branch. The average waiting time in queue and in system was 0.0001 minutes and 0.43 minutes, respectively in Commercial Bank of Ethiopia. When comparing to Dashen Bank, on average 7.125 and 6.125 customers per hour arrive and served, respectively. The average waiting time in queue and in system was 0.216 minutes and 0.828 minutes, respectively in Dashen Bank.

The comparative analysis of the two banks under review differs significantly with respect to the queuing theory. The result of the respective banks shows that waiting lines is highly reduced if the number of servers is drastically increased so as to satisfy customers at an optimum advantage. Based on the number of servers of the two banks, when an arriving customer will have to wait until he or she is attended to, Dashen bank has the highest waiting probability service value (9.98%) when compared with Commercial Bank of Ethiopia Tona branch value (0.095%). This value indicates that for optimum efficiency in the bank, there is need to increase the service station. This gave Commercial Bank of Ethiopia Tona branch has a practical advantage over Dashen bank that no queue exists in their banking system. That is, the probability that a customer will have to wait is very infinitesimal when compared with Dashen bank. This can also be seen in the parameters of the queuing theory under consideration that the expected number or waiting time of customers on the queue or in the banking system reduces irrespective of the waiting lines. The higher the number of servers, the lesser the waiting lines, the lower the number of servers, the more the waiting lines. This is the practical cause of the two banks in this research study for comparison purpose.

VI. Conclusion

The queuing number or waiting line, the number of servers, and the optimal probability service as investigated by means of queuing theory are the three measures that improve the efficiency of selected banks for study purpose. The analysis in this study as carried out by the two banks is effective and practical. It was also investigated that the optimal queuing model is feasible in general.

VII. Recommendations

- To satisfy customers, increasing number of servers must since it reduces the waiting time which has a significant effect on profit.
- To increase customer satisfaction other alternatives should be needed like ATM, mobile banking, etc in order to reduce the waiting time.

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Evidence of Short-Term Contrarian Effect in Abu Dhabi Firms

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Evidence of Short-Term Contrarian Effect in Abu Dhabi Firms

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Abstract - This paper examines the existence of short-term contrarian profits in the Abu Dhabi securities exchanges (ADX) for the period of January 2005 through May 2015. This paper provides strong evidence of short-term contrarian profits. The results of this paper present statistically and economically significant profits in the Abu Dhabi stock market over all formation periods. The short-term contrarian strategy used in this paper produces significant average returns of 2.34%, per month over past six-month formation period. Therefore, to utilize from this strategy in ADX, an investor has to sell and buy a pastshort-term winner portfolio and short-term loser portfolio, respectively. The short-term contrarian profits in the ADX can be explained by three-factor model.

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I. Introduction

The short-term contrarian studies at the level of Arabic market returns have not been as extensively studied as have developed market returns. Particularly, yet short-term contrarian Abu Dhabi firm-level studies are not addressed. Moreover, Abu Dhabi firm-level research may provide information about the operations of equity markets that cannot be easily observed in developed market returns. This paper employs Abu Dhabi firms' returns to examine aspect of return predictability. Motivated by the work of Ghar aibeh (2015) which find strong evidence of a short-term contrarian profits at the level of Kuwait firms. By employing the same approach followed by the Chang, McLeavey and Rhee's (1995) methodology, the current study aims to examine whether there is existence of the short-term contrarian at the level of the Abu Dhabi securities exchange (ADX).

The results proposed in the current paper have important policy implications. They provide clear evidence of short-term contrarian effect in the ADX. Investors can, therefore, earn abnormal return by utilizing from this anomaly effect. Second, the identification of an inter-firm short-term contrarian effect in this paper presents that the three-factor model can explain the short-term contrarian profits in the ADX. Finally, this study suggests that further research into this area at the level of the Arabic markets may increase our understanding of the behavior of equity markets.

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The rest of the paper is organized as follows. Section 2 offers the relevant literature. The data and methodology used in this paper is explained in Section 3. Section 4 analyzes the findings for both raw and risk adjusted returns then conducts sub-period analyses of the short-term contrarian strategy to examine the robustness of the results. Section 5 concludes the paper.

II. Literature Review

Short-term contrarian is an investment pattern in opposition to general market trends by purchasing weakly performing assets and then selling when they perform satisfactorily. A contrarian investor believes the traders who think the market is climbing when they are entirely invested and have no further financial ability to invest in the financial market. At this point, the market reaches its peak; when investors expect a decline, they have already sold out, at which point the market can only climb.

This research is part of a growing literature that investigates short-term contrarian. For instance, in addition to Hameed and Mian (2013), there are a number of enormous research efforts on refining the strategy of short-term contrarian by subtracting out profits that are likely made by fundamental data of market behavior rather than liquidity trades.

Hameed and Mian (2013) re-examine the short-term reversal phenomenon using stocks grouped by same industries. They illustrate that contrarian strategies within the industries give a significantly greater return about 1.5 percent a month. The study concludes that there is no relationship between adjustments of standard risk and the return reversals. Additionally, the results reveal that there is no relationship between January effect and the intra-industry reversal. This is due to the industry sorting increases the contrarian monthly returns for the months of February. Other studies, like Pastor and Stambaugh (2003), Subrahmanyam (2005), Avramov, Chordia and Goyal (2006)and Da, Liu, and Schaumburg (2013) refine the strategy by through December by a significant 0.43 percent.

In the short term and intermediate term, the conclusions are mixed. For example, Kang, Liu and Ni (2002) suggest that there is existence of a short-term (1, 2, 4, 8, and 12 weeks) contrarian effect and a statistically significant momentum effect in the intermediate term (12, 16, 20, and 26 weeks). Liu and

Qin(2007) state that there is presence of a momentum effect with the horizons less than 12 months. In addition, the weekly data stated by Gutierrez and Kelley (2008) suggests different forms of medium-term momentum in the U.S. There are also studies concluding no contrarian influence in the short term or in the intermediate term Yang and Chen (2004) and Liu and Qin (2007).

Identifying stocks (and times) where liquidity shocks are expected to be especially strong. Pastor and Stambaugh (2003) use a monthly liquidity measure based on order flow to study if market wide liquidity has influence on pricing common stocks. The researchers suggest that volatility in aggregate liquidity positively affect the expected stock returns. The study finds that liquidity negatively affects the return reversals from 1966 to 1999. The result of the study concludes that firm size has positive relationship with liquidity and negative relationship with aggregate liquidity.

Subrahmanyam (2005) employs a model including both behavioral effects and risk-aversion-related inventory phenomena to examine the short-horizon reversals. The researcher uses the mid-point quote minimizes concerns about bid-ask bounce to measure returns. The study finds that financial market agents play important role in monthly reversals. Avramov, Chordia and Goyal (2006) find a significant relationship between short-term contrarian and decrease in stock liquidity. They confirm that reversal in weekly and monthly stock returns. These have high turnover and low liquidity, which generate high negative serial correlation to the loser stocks. Avramov et al. (2006) find that the highest abnormal returns before accounting for transaction cost resulted in lack of liquidity.

Da and Gao (2010) suggest that price pressure when institutional investors sell these stocks create negative returns. In contrast, our empirical analysis assumes that institutions are informed liquidity providers, and examines shocks to liquidity provision that occur as a result of unanticipated exits by these informed institutions. Hameed and Kusnadi (2002), and Chui, Titman and Wei (2010)state that Taiwanese stocks have a poor momentum. However, Pan and Xu (2011) find the existence of a momentum effect in weekly returns and a contrarian effect in monthly returns. In addition, Wang, Wang and Liu(2016) find that Taiwan stocks have significant short-term momentum.

III. Data and Methodology

The firms data used in the current study are the monthly returns, firm size (ME), and the firm book-to-market ratio (BM) for 65 Abu Dhabi firms. This study employs the monthly returns of the all listed firms in ADX. All data is downloaded from Data stream. The sample period is from January 2005 to May 2015. The study begins from January 2005 because the database has a less comprehensive coverage of Abu Dhabi stocks prior to January 2005. For the market index, the monthly returns of the market are the monthly returns of the United Arab Emirate (UAE) market of Morgan Stanley Capital International (MSCI) Abu Dhabi Index downloaded from Data stream.

Table 1 details firm summary statistics over the period January2005 to May 2015 for the 65 Abu Dhabi firms, showing the monthly average return, standard deviation, Kurtosis, and Skewness for each firm. Table 1 reports large differences in the average and standard deviation of returns. Eshraq Properties, Intl. Fish Frmg. Holding, Emirates Driving, Waha Capital, Nat. Corp. For TSM & Healths and First Gulf holding have the largest monthly averages (over 2% per month), while Dana has the lowest average at -1.09. The 65 Abu Dhabi firms have an average monthly return of 0.68% and an average standard deviation of 13.80%.

In the short-term contrarian strategy, the investor buys a portfolio of short-term losers and sells a portfolio of short-term winners. The success of such a strategy is based on the stocks in the portfolios being ready to reverse their short-term past performances. The short- term contrarian strategy is described as follows. The 63 Dubai firms are ranked at the beginning of each month based on their most recent past *J*-month returns. For a given *J*, the short-term loser portfolio (SL) contains the 10% of firms with the lowest past *J*-month returns, while the short-term winner portfolio (SW) contains the 10% of firms with the highest past *J*-month returns...

This procedure means that out of the total of 65Abu Dhabi firms, the short-term loser (SL) and short-term winner (SW) portfolios of the short-term contrarian strategy each contain 6 firms. The short-term contrarian strategy (SL-SW) buys short-term and sells short-term winners. The current study expects that this strategy will provide larger profits and stronger evidence of short-term return contrarian effect among firms.

All portfolios in the short-term contrarian strategy are held for a *K*-month holding period, where $K = 3, 6, 9$ or 12 months. The current study applies Lo and Mackinlay's (1990)overlapping portfolio approach for the holding period returns of all strategies to avoid overlapping returns, and to increase test power. For expositional convenience, the six-month holding period case ($K = 6$) will be the main focus of this study comments about the empirical results in the next section.

Table 1 reports the descriptive statistics for 65 Abu Dhabi firms. The first column is the abbreviated firm names. This is followed by the average monthly percent returns, the standard deviation of monthly percent returns, the Kurtosis and Skewtize of each firm over the period January 2005 to May 2015.

Table 1: Descriptive Statistics

Firm Names	Av.%	S.D.%	Kurt	Skew
ESHRAQ PROPERTIES	7.10	39	17.80	3.75
INTL.FISH FRMG.HLDG.	3.01	33	39.44	5.45
EMIRATES DRIVING	2.22	16	7.45	1.97
WAHA CAPITAL	2.13	16	3.45	0.42
NAT.CORP.FOR TSM.& HTLS.	2.11	16	6.28	1.95
FIRST GULF BANK	2.04	11	1.96	0.38
ARKAN BUILDING MATERIALS	1.91	22	12.92	2.80
AL WATHBA INSURANCE CO.	1.85	17	30.74	4.35
GULF MEDICAL PROJECTS	1.69	16	16.75	2.98
ABU DHABI ISLAMIC BANK	1.57	14	11.24	2.18
ABU DHABI NAT.TAKAFUL	1.52	22	62.59	7.05
NAT.BK.OF RAS AL-KHAIMAH	1.43	14	18.19	2.25
RAS AL-KHAIMAH NAT.IN.	1.43	13	81.87	8.59
AGTHIA GROUP	1.42	12	9.08	1.53
NATIONAL BK.OF ABU DHABI	1.37	11	1.79	0.40
COMMERCIAL BANK INTL.	1.31	17	7.16	1.72
ABU DHABI COML.BANK	1.19	12	1.88	0.76
UNION NATIONAL BANK	0.94	12	1.30	0.11
FUJAIRAH BUILDING INDS.	0.92	19	16.01	2.93
ABU DHABI SHIP BLDG.	0.88	18	7.02	1.94
NAT.BANK OF FUJAIRAH	0.87	12	2.38	0.49
NAT.MARINE DREDGING CO.	0.82	13	7.79	1.72
UNITED ARAB BANK	0.80	9	2.45	1.03
NB.OF UMM AL-QAIWAIN	0.78	11	4.36	1.21
GULF PHARM.INDUSTRIES	0.75	8	1.19	0.05
FOODCO HOLDING	0.72	16	2.13	0.53
EMIRATES TELECOM.	0.68	11	32.54	4.14
RAS AL KHAIMAH CERAMICS	0.56	11	1.29	0.21
INVEST BANK	0.55	12	4.12	-0.30
NATIONAL TAKAFUL COMPANY	0.53	15	-0.15	0.65
ABU DHABI AVIATION	0.51	13	7.21	1.64
ABU DHABI NATIONAL HTLS.	0.42	14	4.03	1.32
ALDAR PROPERTIES	0.37	15	0.70	0.32
SOROUH REAL ESTATE	0.34	15	2.25	1.01
AL DHAFRA INSURANCE	0.28	8	5.54	0.81
UNITED INSURANCE	0.28	5	45.80	-4.61
RAS AL KHAIMAH WHITE CMT.& CON.MATS.	0.24	9	1.54	0.03
METHAQ TAKAFUL IN.CO.	0.24	23	12.33	2.92
UNION INSURANCE	0.24	11	1.40	0.06
GULF CEMENT	0.19	15	3.73	1.24
BANK OF SHARJAH	0.17	9	2.38	0.24
ABU DHABI NATIONAL IN.	0.15	9	2.05	0.16
SHARJAH ISLAMIC BANK	0.14	11	3.19	0.22

AL KHALEEJ INVT	0.12	11	16.09	2.79
EMIRATES INSURANCE	0.09	9	4.37	0.75
AL AIN AL AHLIA IN.CO.	0.07	8	3.16	0.95
AL BUHAIRA NATIONAL IN.	0.06	11	13.29	2.44
UNION CEMENT	0.06	13	4.26	1.40
RAS AL KHAIMAH CMT.	0.03	15	5.27	1.47
SHARJAH INSURANCE	-0.05	6	15.55	2.18
INSURANCE HOUSE	-0.11	10	7.99	2.29
ABU DHABI NAT.CO.FOR BLDG.& MRA.	-0.15	13	3.00	1.23
GREEN CRESCENT IN.CO.	-0.20	23	22.67	4.14
UMM AL-QAIWAIN CMT.INDS.	-0.36	13	3.15	0.62
AABAR INVESTMENTS DEAD - 14/09/10	-0.39	12	2.04	0.58
RAS AL KHAIMAH P&F.	-0.41	10	3.23	0.60
FUJAIRAH CMT.INDS.	-0.43	11	16.60	-0.04
AL KHAZNA IN.	-0.46	12	3.33	1.22
SHARJAH CMT.& INDL.DEV.	-0.47	13	10.80	1.97
RAK PROPERTIES	-0.51	13	0.61	0.36
FINANCE HOUSE	-0.65	13	2.19	0.78
ABU DHABI NAT.ENERGY CO.	-1.07	13	12.93	2.28
DANA GAS	-1.09	13	2.31	0.82
Average	**0.68**	**13.80**		

IV. Results

This section analyses the results for the short-term contrarian strategy in terms of raw and risk-adjusted results. The current study then conducts sub-period analyses of the short-term contrarian strategy to examine the robustness of the results.

a) Short-term contrarian results

Table 2 reports results for the short (SW), long (SL), and long-short (SL-SW) short-term contrarian portfolios for several (*J*, *K*) groupings. Table 2 contains the results for formation period lengths of $J = 3, 6, 9,$ and 12 months. Table 2, in columns 3 through 6, provides the equal-weighted average monthly portfolio returns for *K*-month holding periods ($K = 3, 6, 9$ and 12 months).

This table reports the average monthly holding period returns in percentages of the short, long and long minus short portfolios of the short-term contrarian strategy. Portfolios are formed as follows: portfolios at the beginning of each month *t* are ranked based on their past *J*-month formation period returns for $J = 3, 6, 9$ and 12 months. The short-term loser equal-weighted portfolio (SL) contains the 10% of portfolios with the lowest returns, and the short-term winner equal-weighted portfolio (SW) contains the 10% of portfolios with the largest returns. The strategy SL-SW buys the short-term loser portfolio and sells the short-term winner portfolio to be held for $K = 3, 6, 9$ or 12 months. The *t*-statistics are based on the Newey-West (1987) correction for autocorrelation up to lag 11.

Table 2: Profitability of the Short-Term Contrarian Strategy

		K = 1	K = 3	K = 6	K = 9	K = 12
3	SW	-0.57%	-0.56%	-0.17%	-0.06%	0.09%
		(-0.7)	(-0.85)	(-0.27)	(-0.09)	(0.14)
	SL	2.04%	1.32%	1.41%	1.30%	1.23%
		(2.26)	(1.65)	(1.84)	(1.59)	(1.53)
	SL-SW	2.61%	1.89%	1.58%	1.35%	1.15%
		(2.29)	(2.26)	(2.24)	(2.09)	(2.05)

6	SW	-0.66%	-0.52%	-0.34%	-0.11%	0.25%
		(-0.82)	(-0.77)	(-0.54)	(-0.16)	(0.39)
	SL	2.10%	1.82%	1.45%	1.44%	1.35%
		(2.05)	(1.8)	(1.41)	(1.4)	(1.4)
	SL-SW	2.76%	2.34%	1.79%	1.54%	1.10%
		(2.24)	(2.19)	(1.84)	(1.67)	(1.4)
9	SW	-0.92%	-0.60%	-0.41%	0.12%	0.06%
		(-1.27)	(-0.94)	(-0.66)	(0.2)	(0.1)
	SL	3.57%	1.95%	1.60%	1.59%	1.59%
		(2.86)	(1.7)	(1.38)	(1.48)	(1.56)
	SL-SW	4.49%	2.55%	2.02%	1.47%	1.53%
		(3.44)	(2.28)	(1.87)	(1.53)	(1.73)
12	SW	-0.41%	-0.56%	-0.13%	0.15%	-0.02%
		(-0.61)	(-0.87)	(-0.23)	(0.22)	(-0.03)
	SL	2.52%	1.86%	2.08%	1.80%	1.84%
		(2.08)	(1.55)	(1.74)	(1.56)	(1.65)
	SL-SW	2.62%	2.40%	2.06%	1.59%	1.86%
		(2.14)	(2.12)	(1.89)	(1.49)	(1.9)

The short-term contrarian results in Table 2 indicate that the strategy profits (SL-SW) are statistically significant over all *K*-month holding periods if $J = 3$ month, as well as over one and three months holding periods if $J = 6$, 9 and 12 months formation period. For example, for the 3-months formation period (K=6) case, the difference between the average monthly returns of the SL portfolio and the SW portfolio is 1.58% per month (*t*-stat 2.24), which is statistically significant.

On the other hand, the results in Table 2 show weakly significant over six and twelve months holding period if $J = 6$, 9 and 12 months formation period. For the 6-month formation period case with a six-month holding period (K= 6), for example, short-term losers generate an average of 1.45% per month whereas short-term winners produce an average of -0.34 % per month over the same period. The resulting SL-SW difference of 1.79% per month is weakly significant (*t*-stat 1.84). Although the short-term contrarian profits are weakly significant and sometimes insignificant, they are still economically large. Therefore, the holding period returns in Table 2 provide evidence of a short-term return reversal effect at the firm level.

b) Risk adjustments

To determine whether the short-term contrarian strategy could be considered a reward for bearing risk, the profits of this strategy is risk-adjusted using the Fama-French three-factor model. The three-factor regression model comprises of the market factor, a small minus big factor, and a value minus growth factor:

$$R_{pt} = \alpha_p + \beta_p R_{mt} + s_p SMB_t + h_p HML_t + \varepsilon_{pt}\ , \qquad (1)$$

Where the dependent variable $R_{pt} - R_{\mathrm{ft}}$ is the monthly excess return of the strategy portfolio p, R_{pt} is the monthly return of portfolio p at time t. The independent variables or factors are as follows: R_{mt} is the index's monthly market return for month t, while SMB_t and HML_t are the monthly size and book-to-market factors at time t, respectively.

The monthly return values for the Fama-French factors covering the full sample period from January2005 to May 2015 are calculated by sorting these factors into four portfolios. The coefficients β_p, s_p and h_p are the regression loadings corresponding to the factors of the models, while the intercept α_p (or simply alpha) refers to the risk-adjusted abnormal returns of the portfolios over the assessment period. If alpha is statistically significantly different from zero, then this is clear evidence of abnormal profits.

Table 3 reports the estimated regression coefficients of the three-factor model and the corresponding White-corrected *t*-values for the long, short and long-short portfolios for the pure contrarian (J = 6) with six-month holding periods (K = 6). Column 2 of Table 3 reports the monthly alphas of the three-factor model, while the last column lists the adjusted R^2.

The alpha of the short-term contrarian long-short SL – SW portfolio in Table 3 is small (0.007% per month) and insignificant (*t*-stat 0.71). Interestingly, both the long and the short portfolios have significant alphas at the 5% level. In summary, the short-term contrarian results in Table reveal that there is short-term contrarian in firm returns that can be explained by the Fama-French three-factor model.

This table reports the three-factor regression results for the monthly returns of the short-term contrarian portfolios for $J = 6$ and $K = 6$. These portfolios are described in Table 2. The three-factor regression model is as follows:

$$R_{pt} = \alpha_p + \beta_p R_{mt} + s_p \mathrm{SMB}_t + h_p \mathrm{HML}_t + \varepsilon_{pt},$$

Where R_{pt} is the portfolio's return, R_{mt} is the return on the market, SMB_t is the Fama-French size factor, and HMLt is the Fama-French book-to-market factor. The *t*-statistics presented in parentheses are corrected for heteroskedasticity using White's (1980) test.

Table 3: Risk-Adjusted Long-tem Contrarian Profits

	Three-factor model				
	α	b_{Rm-Rf}	b_{smb}	b_{hml}	Adj R^2
SW	0.995	0.323	-0.027	-0.026	24.2%
	(17.50)	(5.43)	(-0.43)	(-0.41)	
SL	1.002	0.470	-0.296	-0.278	36.8%
	(16.92)	(5.35)	(-3.24)	(-2.93)	
SW-SL	0.007	0.147	-0.270	-0.252	12.9%
	(0.71)	(1.50)	(-2.65)	(-2.38)	

The post-formation behavior of the short-term contrarian strategy's' profits is also illustrated in Figure 1. Figure 1 depicts the post-formation cumulative returns of the short-term contrarian SL-SW using non-overlapping portfolios ($K = 1$) for the 5 years(60 months) following the end of the formation period. For short-term contrarian strategy depicted, it is evident that the reversals of short-term performance show no signs of slowing down by the end of the first 60 post-formation months.

This graph presents the cumulative returns of the short-term contrarian strategy (SL-SW for the 60 months following the end of the formation period.

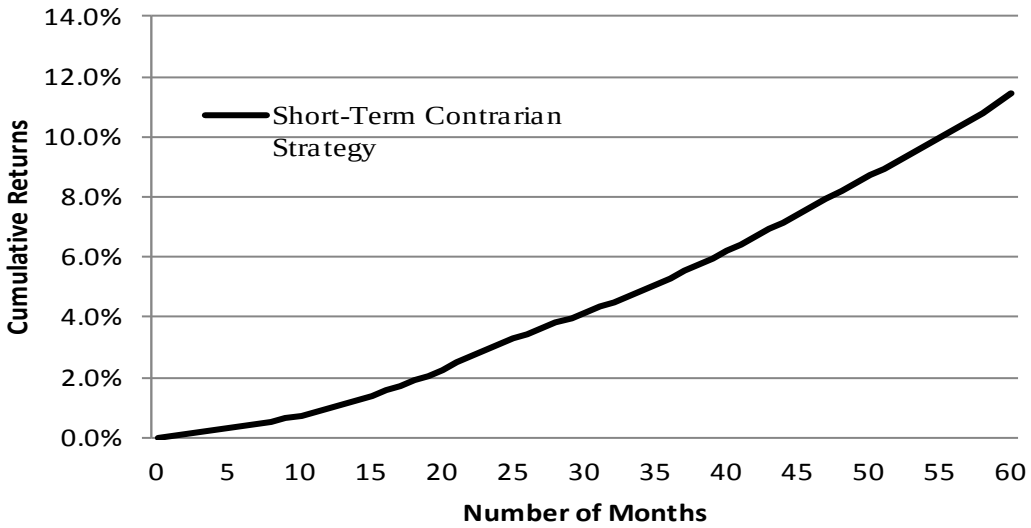

Figure 1: Cummulative Returns of Short-Term Contrarian Strategy

c) Sub period analysis

As a robustness check, the performance of the short-term contrarian strategy was divided in two sub-periods. This division will be examined as follows. The first sub-period extends from August 2005 to June 2010 and the second sub-period covers the period from July

2010 to May 2015. These sub-periods divide the sample into approximately equal halves (after accounting for the 60 months used for the initial 6-month formation periods).

Table 4 details the first sub-period profitability of the short-term contrarian strategy in Panel A and the second sub-period profitability of the short-term contrarian strategy in Panel B. Panel A of Table 4 shows that the short-term contrarian strategy in the first sub-period provides large profits in all holding periods. For example, with a six-month holding period (K = 6) the short-term contrarian strategy earns a first sub-period profit of 1.45% per month (t-stat 0.96). In the second sub-period, the short-term contrarian strategy produces also large profits for any K holding periods. For example, with a six-month holding period (K = 6) the short-term contrarian strategy generates a second sub-period profit of 1.83% per month (t-stat 1.42).). Although the first and second sub-period short-term contrarian results are statistically insignificant for all K –months holding periods except of K= 1 and 3 in the second sub-period, the magnitudes of these unadjusted results are still economically large, ranging from 2.46% per month to 0.46% per month.

This table presents in Panel A the average monthly holding period returns in percentages for the first sub period of short-term contrarian portfolios (J = 6, K = 6) for the period August 2005 to June 2010, while Panel B reports the second sub period of the average monthly holding period returns in percentages for short-term contrarian portfolios (J = 6, K = 6) for the period July 2010 to May 2015. The way these portfolios are formed is described in Table 2 (for the short-term contrarian strategy). Holding period t-statistics are simple t-statistics.

Table 4: Sub period Analysis

		Holding Period Returns				
		K = 1	K = 3	K = 6	K = 9	K = 12
Panel A: First Sub Period From 1/8/2005 to 1/6/2010 (60 observations)						
6	SW	-1.39%	-0.73%	-0.49%	-0.57%	-0.17%
		(-0.99)	(-0.66)	(-0.5)	(-0.64)	(-0.21)
	SL	1.07%	0.79%	0.96%	0.98%	0.29%
		(0.81)	(0.7)	(0.64)	(0.64)	(0.2)
	SL-SW	2.46%	1.52%	1.45%	1.55%	0.46%
		(1.31)	(1.16)	(0.96)	(1.12)	(0.39)
Panel B: Second Sub Period From 1/7/2010 to 1/5/2015 (60 observations)						
6	SW	-0.41%	-0.56%	-0.13%	0.15%	-0.02%
		(-0.61)	(-0.87)	(-0.23)	(0.22)	(-0.03)
	SL	2.52%	1.86%	2.08%	1.80%	1.84%
		(2.08)	(1.55)	(1.74)	(1.56)	(1.65)
	SL-SW	3.80%	3.31%	1.83%	1.56%	1.50%
		(2.01)	(1.81)	(1.42)	(1.12)	(1.21)

V. Concludes

The existing literature has extensively examined the short-term contrarian effect at the level of the developed markets, but only few studies have addressed the short-term contrarian effect at the level of emerging markets, especially in ADX. In this paper, we examine whether there is a short-term contrarian effect in ADX. Using monthly returns data of all listed firms in the ADX over the period January 2005 to May 2015, we finds evidence of short-term contrarian profits in the ADX. The current study suggests that investors can earn abnormal return by selling short-term winner stocks and buying short-term loser stocks. The short-term contrarian profits can be explained by three-factor model.

In general, the findings of this paper provide clear evidence of stock market imperfection, Therefore, Investors can earn abnormal return by utilizing the short-term contrarian anomaly. Typically, since the short selling strategy is not widely used in the Abu Dhabi stock market, investors may employ a trading strategy consisting of buying and selling the short-term loser and short-term winner stocks, respectively.

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The Variability of Risk Factors of Slowing the Financing of Agricultural Enterprises in Ukraine

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Abstract- The article deals with the theoretical aspects of the distribution the formation sources of property assets component of farm property, including real possibilities, time limits, forms and methods of financial resources. The variability of factors that covers all possible risks of financing the economic activity was determined. A systematic approach to the evaluation of the dynamic trend that slows financing risk, taking into account indicators of sustainable financial condition of agricultural enterprises was proposed.

Keywords: the variability of risk factors, financial resources, formation sources of property assets, agricultural enterprises.

GJMBR-C Classification: JEL Code: Q00, Q14

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The Variability of Risk Factors of Slowing the Financing of Agricultural Enterprises in Ukraine

Natalia Trusova [α], Ivan Demchenko [σ], Volodymyr Ternovsky [ρ], Natalia Golub [ω] & Irina Agieieva [¥]

Abstract- The article deals with the theoretical aspects of the distribution the formation sources of property assets component of farm property, including real possibilities, time limits, forms and methods of financial resources. The variability of factors that covers all possible risks of financing the economic activity was determined. A systematic approach to the evaluation of the dynamic trend that slows financing risk, taking into account indicators of sustainable financial condition of agricultural enterprises was proposed.

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У статті розглянуто теоретичні аспекти розподілу джерел формування вартісної складової майнових активів сільськогосподарських підприємств, враховуючи реальні можливості, часові обмеження, форми і методи використання фінансових ресурсів. Визначено варіацію чинників, які охоплюють всі можливі ризики фінансування господарської діяльності. Запропоновано системний підхід до оцінювання динамічного тренду, що уповільнює ризик фінансування з урахуванням індикаторів стійкого фінансового стану сільськогосподарських підприємств.

Ключові слова: варіабельність факторів ризику, фінансові ресурси, джерела формування майнових активів, сільськогосподарські підприємства.

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В статье рассмотрены теоретические аспекты распределения источников формирования стоимостной составляющей имущественных активов сельскохозяй ственных предприятий, учитывая реальные возможности, временные ограничения, формы и методы использования финансовых ресурсов. Определена вариация факторов, которые охватывают все возможные риски финан сирования хозяйственной деятельности. Предложен системный подход к оценке динамического тренда, что замедляет риск финансирования с учетом индикаторов устойчивого финансового состояния сельскохозяйс твенных предприятий.

Ключевые слова: вариабельность факторов риска, финансовые ресурсы, источники формирования имущественных активов, сельскохозяйственные предприятия.

I. Introduction

High dynamic of market economy, constant generating new information in this process makes diversity and random nature of the risk. It is natural that in the formation of a new model of financing most of the farms revealed the inability of their financial capacity to systematic changes of future events regarding its activities.

Financing as a purposeful movement of financial resources, is focused on ensuring the economic activity and development of the entity with a time and resource constraints in the directions, forms, methods that harmonize their use.

Thus one of the basic laws of financing risk and features of its origin in agricultural enterprises is developing the funding sources for getting financial results in the process of activity, which covers the involvement of equity and debt capital of formation of dividend and depreciation policy, communicative structure management of financial flows, financial reserves, receivables and payables, income distribution and so on.

a) *Our findings contribute to extant literature in several ways*

The problem of risk of financing the company took the opinion of many researchers of various fields and scientific disciplines. At different times foreign authors devoted works to problem risk management in the agricultural sector (Bangake, 2012) [3], risk in decision-making (Harrison, 1999) [9], financial risk management (Bancel et al, 2011) [2], risk strategic decisions (Digman, 1999) [5], risk management

(Drucker, 1997) [6], risk measurement methods (Robinson et al, 1984) [13]. As to the domestic scientists, we works to problem of risk management (Balabanov, 1996) [1], stability problems and risks in agriculture (Zagaytov, 2008) [17], business risk (Rayzberg,1992) [12], the study of risks, economic and mathematical methods and models of risk predicting (Vitlinskyi, 2004) [15], financial risk modeling (Verbytska, 2004; Granaturov, 2002; Yastremskyi, 1992)[14; 8; 16]. However, in our view, efforts to expand the problem and fill the essence of the concept of «risk of financing the agricultural enterprises» with universal characteristics within alternative, legitimacy and at the same time its justification in the particular scientific problem has to be combined with the need for financial resources.

The objective of the analysis is evaluating the dynamic trend, which slows the financing risk, taking into account indicators of sustainable financial condition of agricultural enterprises.

II. Key Research Findings

The need for financial resources of agricultural enterprises is carried out according to objective economic laws that cannot be balanced in agriculture without adjust methodological support. This variation of risk in financial transactions covers all the possible changes in the structure of financing. Firstly, each financial operation causes a risk of financial flow cycle, during which there is a change in the composition of financial resources and sources of funding. Secondly, the total amount of financing changes when transactions provide regrouping the structure of property assets (Orekhov, 2010) [10]. That is, the variability of operations is specified as financing risk of variable and fixed costs of economic activities related to the replacement of inventories, machinery and equipment (Lagerkvist, 2005) [11]. Thirdly, the balance between financial resources and their sources should be retained after any transaction. This equality occurs during residues redistribution of financial resources, that is, increase or decrease in the volume of financial flows (Chesbrough, 2010) [4].

You should understand and consider these features; it is necessary for management decisions that will synchronize incoming and outgoing cash flows, accelerating the process of financial resources and temporarily capitalize free residues, making real investments, taking into account the possible terms of return and risk. This term of investment opportunities during which a certain amount of residual funds may not be in cash, should be aimed at the implementation of short-term financial investments. Return on investment should cover inflationary costs of depreciation and secure investment income, according to the target or actual profitability of property assets (Gaspar et al, 2014) [7].

As part of the risks inherent in short-term financial investment, the liquidity risk has the biggest impact, i.e. the probability of absenteeism from financial operations planning period (not the return of property assets in cash). The tools are the short-term financial investment of deposit operations and the acquisition of liquid securities. You should understand and consider these features; it is necessary for management decisions that will synchronize incoming and outgoing cash flows, accelerating the process of financial resources and temporarily capitalize free residues, making real investments, taking into account the possible terms of return and risk. This term of investment opportunities during which a certain amount of residual funds may not be in cash, should be aimed at the implementation of short-term financial investments. Return on investment should cover inflationary costs of depreciation and secure investment income, according to the target or actual profitability of property assets.

Grouping of farms in terms of net income and a cost component of property assets is a classic example of determining the surplus or deficit of financial resources, which ultimately determines the conditions of proportionality and balance of financing entities. In this case, we proposed a systematic approach to the evaluation of the dynamic trend, slowing financing risk, taking into account indicators of sustainable financial condition of agricultural enterprises. Distribution of total sources of funding should be carried out based on the real possibilities of development in financial component of property assets, and reasonable criteria of slowdown of financing risk to meet the needs for financial resources to identify indicators of liquidity, financial stability and profitability. Accordingly, we have selected 20 holdings, 229 large, 5350 medium agricultural enterprises in Ukraine to study their stable financial condition for the period of 2008-2015. Enterprises are grouped by the following parameters: agricultural holdings, net income≥ 100 bln. UAH, property assets ≥ 200 bln. UAH; large enterprises, net income ≥ 10 bln. UAH, property assets≥ 20 bln. UAH; medium -sized enterprises, net income≥ 1 bln. UAH, property assets ≥ 2 bln. UAH.

Note that the companies have studied the average ability of financial resources to fulfill their obligations, providing the normative values of liquidity and solvency of more than 1.0 and critical liquidity - more than 0.7-0.9. For example, large enterprises covered the total financial commitments till of 2012 within 1.8-2.0 (Table 2). Since 2013 medium enterprises had the best performance in terms of liquidity where the volume of current assets cover of the debt was more than 2 times (Table 3). Thus, during of 2008-2015 values of critical liquidity in the medium-sized enterprises were higher (83%) (Table 3), than in large enterprises and

agro holdings (only 24.0% (Table 2) and -1.6 % of growth (Table. 1)).

Calculations of partial indicators of financial stability of agricultural enterprises in Ukraine suggest that because of the rise in external borrowing during 2008-2015 years and increase of their funding sources in the structure of property assets, the increase of financial dependence factor in all study groups was noticed. Limited access to cheaper sources of financing during the period of 2008-2012 led to a decline in the financial independence of medium enterprises by 18%, and of agricultural holdings and large agricultural enterprises - by 12-15%. These trends indicate that the stagnation in the financial and credit system of medium-sized companies are more sensitive to the duration of the financial cycle, causing them to capitalize on their own financial resources and move towards self-financing. Therefore, the equity of the group companies for the last of 2013-2015 increased by 50%. However, extremely negative phenomenon is that it is only used to finance fixed assets, while providing financial resources needs in the current economic turnover of enterprises. According to research, companies have had deficient management of net working capital in the amount of 748 bln. UAH by the end of 2015. These changes led to the need to attract short-term loans and payables of trade character.

Table 1: Indicators of sustainable financial condition of agricultural holdings of Ukraine

Indicator	Group of companies by net income ≥ 100 bln. UAH and property assets ≥ 200 bln. UAH in period							
	2008	2009	2010	2011	2012	2013	2014	2015
Liquid solvency ratio	2.01	1.62	1.88	1.52	1.68	1.81	1.78	1.70
Critical liquidity ratio	1.26	0.98	1.22	1.08	1.15	1.25	1.21	1.24
Financial independence ratio	0.596	0.503	0.483	0.438	0.423	0.448	0.447	0.440
Concentration ratio of debt funding sources	0.404	0.497	0.517	0.562	0.577	0.552	0.553	0,560
Financial dependence ratio	1.99	1.99	2.07	2.28	2.36	2.23	2.24	2.27
The effect of financial leverage,%	17.44	9.94	4.60	2.55	4.38	6.37	7.42	7.84
The duration of the financial cycle, days	157	324	186	127	134	127	185	164
Return on equity,%	16.36	8.52	4.24	4.72	7.81	9.98	10.31	10.27
Return on property assets,%	21.06	14.48	7.49	6.20	9.14	12.04	14.19	14.98

Source: author's own calculations

The nature of the dynamic trend of the effect of financial leverage, which shows the limit of financing risk based on attracting the long-term financial resources, along with their own sources, is adjusted according to functional relationship between return on equity and its structure, which to some extent allows you to find guideline for the optimal funding structure (the use of borrowed funds). Accordingly, the best structure will be the financing structure of the enterprise in which a rational relationship between the risk of financing and return on equity is reached, resulting in increase in corporate rights of the enterprise and its market value (i.e., the optimal financing structure should be at a point where the value of weighted average of the cost of attracted funds will be minimal).

Table 2: Indicators of sustainable financial condition of major agricultural enterprises in Ukraine

Indicator	Group of companies by net income ≥ 10 bln. UAH and property assets ≥ 20 bln. UAH in period							
	2008	2009	2010	2011	2012	2013	2014	2015
Liquid solvency ratio	1.98	1.84	1.98	1.79	1.75	1.84	1.87	1.69
Critical liquidity ratio	0.86	0.89	1.01	1.01	1.08	1.15	1.14	1.07
Financial independence ratio	0.635	0.582	0.584	0.496	0.494	0.527	0.508	0.485
Concentration ratio of debt funding sources	0.365	0.418	0.416	0.504	0.506	0.473	0.492	0.515

Financial dependence ratio	1.57	1.72	1.72	2.02	2.02	1.90	1.97	1.94
The effect of financial leverage,%	21.31	16.19	17.83	8.13	9.01	12.67	11.73	8.65
The duration of the financial cycle, days	172	168	169	159	149	156	168	160
Return on equity,%	11.38	9.33	11.42	7.34	7.96	9.84	10.04	7.79
Return on property assets,%	18.01	15.83	18.46	11.97	12.55	15.13	15.44	12.30

Source: author's own calculations

As the research shows, in the group of average agricultural enterprises the growth in financial leverage effect was observed only of 2013-2015 (Table 3), in the group of large farms and agricultural holdings the trend is similar, but with a lower amplitude (Table 1,2) wherein the said indicator declined for eight (of 2008-2015) by 2.2 and 2.5 respectively. This demonstrates the ability of the latter to manage financial resources with minimal risk of financing by attracting long-term borrowings in the financial market.

For in-depth study of return on equity and effective use of financial resources in property assets, results of economic activity of agricultural enterprises are adjusted for the duration of the financial cycle. The duration of the financial cycle depends on the growth rate of net profit, which according to the «rules of financing» exceeds the growth rate of net income, which in turn, have accelerated the growth rate of property assets. However, it should be noted that a faster growth of the results of performance in comparison with property assets may not be permanent, according to the law of marginal utility.

If you draw the line regarding the study of the dynamics of effective use of financial resources during of 2008-2015, they are the most stable and uniformly distributed in the group of large farms. Agricultural holdings demonstrated high efficiency of the distribution of total financing in property assets. However, the duration of the financial cycle formed with regard to equity and long-term borrowed funds is much lower, compared with other groups of companies. In 2011-2012, the value was almost 1.5 times less than in the period of 2013-2015 (Table 1). Funding stocks in agricultural holdings had a steady upward trend and equal to the level in 2008 – 3.78, for the period of 2010-2013. Efficient use of financial resources accelerated by 1.7 times. In the group of large farms the growth during the research period was 22% (Table 2), average - 28% (Table 3).

Covering of the financial costs, taking into account income investments of attracted financial resources shows the limit of coverage of the rate of interest. Value at 5.0 is considered sufficient, while in the most efficient agricultural companies this level is equal to more than 10.

Table 3: Indicators of sustainable financial condition of medium agricultural enterprises in Ukraine

Indicator	Group of companies by net income≥ 1 bln. UAH and property assets ≥ 2 bln. UAH in period							
	2008	2009	2010	2011	2012	2013	2014	2015
Liquid solvency ratio	1.98	1.84	1.98	1.79	1.75	1.84	1.87	1.69
Critical liquidity ratio	0.86	0.89	1.01	1.01	1.08	1.15	1.14	1.07
Financial independence ratio	0.611	0.593	0.586	0.477	0.484	0.547	0.535	0.544
Concentration ratio of debt funding sources	0.365	0.418	0.416	0.504	0.506	0.473	0.492	0.515
Financial dependence ratio	1.64	1.69	1.71	2.10	2.07	1.83	1.87	1.84
The effect of financial leverage,%	21.31	16.19	17.83	8.13	9.01	12.67	11.73	8.65
The duration of the financial cycle, days	170	170	159	163	152	150	165	159
Return on equity,%	6.94	6.23	10.67	5.75	5.81	12.60	11.52	11.88
Return on property assets,%	11.56	9.99	15.99	8.81	8.63	17.05	16.15	15.91

Source: author's own calculations

For example, the coverage ratio of financial costs of agricultural holdings for the period of 2008-2012 tended to decline - by 46%, due to more intensive use of borrowed funding sources (Table 1). However,

during of 2013-2015 the dynamic trend of acceleration of this indicator by 58% or to a level of 5.0 was observed. At the same time, agricultural holdings within of 2011-2015 managed payable accounts better than the other group of companies. This is due to more attractive terms for financing activities and high financial capacity to cover commercial credit.

In assessing the profitability of equity and property assets from the perspective of efficient use of financial resources, it should be borne in mind that signs of financial risks can appear even when the company is not loss making and evaluation indicators are quite positive in value. In fact, at the inefficient use of financial resources in agriculture relative to other sectors of the economy, incentives for financing activities of agricultural enterprises is reducing, which makes the outflows of funding sources. Accordingly, the effects of acceleration of financial risks is the loss of financial stability and decrease in solvency.

Thus, during of 2008-2015 most stable indicators of profitability of equity and property assets were observed in the group of large farms (Table 2). The variability of their values is equal to 15-20% efficient cost management. The highest value of fluctuations of return on equity was observed in the group of agricultural holdings and medium-sized farms from 4% to 16% (Table 1) and from 5% to 13% (Table 2), respectively. The largest increase in profit per unit of property assets during of 2009-2010 was observed in the group of large farms - 12-18%, in 2013-2014 in the group of average farms - 17% (Table 3).

Dynamic trend, which slows down the risk of financing the agricultural enterprises in the conditions of high values of individual indicators of efficient use of financial resources, has a certain degree of variability with respect to the return of property assets of nominal level, which actually is outdated. It displays only inflationary distortion, the essence of which is that in inflationary conditions the indicator of the effective use of property assets with a long operating period is highly profitable. In fact, «the effect of inflation» causes impairment of its own working capital and long-term financial cycle leading to accelerated rates of formation costs of debt financing sources, compared with the actual need for financial resources to ensure the real cost of material circulating assets. The higher inflation and longer financial cycle, the tangible is the manifested «effect of inflation», which prevents the use of financial resources in the long-term financing, allowing only short-term financial transactions.

Taking into account the lack of static equilibrium of economy and dynamic cycle of inflation, the agricultural farms that accumulate financial resources in perspective, use them immediately in order to avoid inflationary losses. In our view, this approach is justified for tactical reasons, but cannot be justified in the future, since the implementation of long-term financial cycle is impossible without the accumulation of financial resources, taking into account the development strategy of agricultural enterprises. The way out can be discounted investments that eliminate the influence of inflationary factors, but in terms of excess of deposit rate over inflation index. However, the instability of the financial situation limits the use of these mechanisms to counteract inflation.

The impact of inflation factor also causes impairment of receivable or payable accounts, as the «price» of financial liabilities of farms which they have in the current time period (loans, payable accounts) and financial commitments of partners in their favor (receivables) depends on the pace of future inflation. This causes the separation of real financial resources from nominal values of “net debtor” and “net creditor” in the opposite direction vector. Under these conditions, covering of receivables has negative impact on the operating cycle, since the real purchasing power of the funds received does not match the price of «net debtor» on the date of occurrence. Regarding «net creditor» from the standpoint of the company, it looks like a positive factor but only when sanctions for failure to repay debt are not applied.

III. Conclusion

The evaluation of sustainable financial condition of large and medium agricultural enterprises showed uptrend’s for their improvement, but they are worse compared with corporate enterprises (holdings). Therefore, agricultural micro system has determined signs of financing the agricultural enterprises, which provide modification factors slowing growth risk. Modified risk factors slowing financing of agricultural enterprises must consider internal and external macro- and microenvironment to determine the action of subsystems of financial budgeting and investment of production, planning the sources and market of finance, forecasting management of credit support and funding, as well as their relationship with factors of action of subsystem of the level of stable financial position and break-even production of entities of agricultural sector. Performance indicators of stable financial status in this case provides an effective range of measures for the effective use of financial resources of agricultural enterprises, that is, balances internal factors of microenvironment for management decisions and generates income subject to change parameters of the microenvironment.

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Size and Performance: Evidence on Brazilian Multimarket Funds

By Rodrigo Fernandes Malaquias, Lucas Alves Duarte de Sarvas & Lynnea Naves Souza Oliveira

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Abstract- This study aims to evaluate the effect of size on performance of Brazilian multimarket funds. The final sample is comprised by 231 funds covering 7,997 monthly observations in the period from January, 2009 to March, 2014. We employed multivariate regression analysis, with pooled data. Our research model also includes the following control variables: management fee, performance fee, and age. The main results show that size represents an important variable to address performance of investment funds in Brazil, and there are arguments about an optimal size for funds that operate in this market.

Keywords: *hedge funds; latin america; emerging economies; finance; developing countries.*

GJMBR-C Classification: *JEL Code: D53*

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Keywords: hedge funds; latin america; emerging economies; finance; developing countries.

I. Introduction

From the early 1990s, with the opening of the Brazilian economy, there was a gradual increase in the number of investment funds. Among the advantages of investment funds we can highlight their role as a financial intermediary, the diversification and the professional management provided to retail investors. Investment funds have a direct influence on economic policy, comprising savings and even country infrastructure investments (Babalos et al., 2015;Eid Junior & Rochman, 2015).In Brazil, there were among 13,500 investment funds (January, 2016) registered at *Comissão de Valores Mobiliários* (the Brazilian Security and Exchange Commission).

The relationship between fund's size and their performance has gained notoriety in recent research, but there are divergent results found in previous studies. For example, the following relationships were found: an U-shaped relationship (Ding et al., 2015); an inverted U-shaped relationship (Tang et al., 2012); a negative relationship (Chen et al., 2014); and a positive relationship (Milani & Ceretta, 2012; Malaquias & Eid Jr., 2014).

Given the importance of investment funds, the increase in the number of funds and the small number of studies on the subject in Brazil, *this study aims to evaluate the effect of size on performance of Brazilian multimarket funds.* We intend to explore this effect using quartiles intervals. Therefore, we classified the funds as big or small in comparison with the size of the fund itself, along its period of existence. This procedure permits an indicative about an optimal size of investment funds. Our quantitative model also considers four variables of control: age of the funds, management fee, performance fee, and year.

We also consider the importance of our results for the Smart Money literature (Gruber, 1996; Wermers, 2003; Gharghori et al., 2007; Varga, 2012). In Brazil, Costa and Eid Jr. (2006) developed a precursor study in this field, showing evidences about the effect. With data of multimarket funds, Fonseca and Malaquias (2012) and Malaquias et al. (2016) also indicated that some investors can choose the investment funds that will present a good (or the great) performance in the future.

II. Previous Findings

As we commented in the introduction of this paper, there are divergent evidences about the relationship between fund's size and performance. In Figure 1, we present a summary of findings about the relationship between these variables.

The arguments pointed out by literature about a negative relationship between size and performance rely on the flexibility that small funds can obtain in buying and selling assets in financial markets. Small funds "can more easily purchase and sell securities without altering securities prices" (Grinblatt & Titman, 1989, p. 407). On the other hand, small funds "may experience higher transaction costs than larger funds because they cannot take advantage of certain economies of scale" (Grinblatt & Titman, 1989, p. 407).

There is also evidence about an optimal size for investment funds. In this case, the argument is that funds need to reach a minimum size that supports the operational costs of the fund (Indro et al., 1999). Tang et al. (2012) observed, in Chinese mutual funds, that for small funds, economies of scale play an important role; "however, for large funds, the role of liquidity is substantial" (Tang et al., 2012, p.246). Liquidity issues were pointed out by other authors as an explanation for the absence of positive relationship between size and performance (Pillay et al., 2015).

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Author	Result	Market	Period
Grinblatt e Titman (1989)	Negative	U.S.A.	1974-1984
Indro et al. (1999)	Inverted U-Shape	U.S.A.	1993-1995
Castro &Minardi (2009)	Positive	Brazil	1996-2006
Pillay et al. (2010)	Negative; Positive	South Africa	1991-2008
Milani&Ceretta (2012)	Positive	Brazil	2001-2009
Tang et al. (2012)	Inverted U-Shape	China	2004-2010
Malaquias&Eid Jr. (2013)	Positive	Brazil	2007-2011
Blake et al. (2014)	Negative	U.K.	1998-2008
Chen et al. (2014)	Negative	U.S.A.	1962-1999
Malaquias&Eid Jr. (2014)	Positive	Brazil	2005-2011
Milan &Eid Jr. (2014)	Positive	Brazil	2007-2011
Babalos et al. (2015)	Negative	U.S.A.	2002-2010
Chen & Lai (2015)	Non-Significant	Taiwan	2001-2012
Ding et al. (2015)	Inverted U-Shape; U-Shape	Asia	2003-2009
Malaquias & Mamede (2015)	Positive	Brazil	2005-2013

Source: compiled from previous studies.

Figure 1: Summary of results from some previous studies

III. Data and Method

In order to develop the empirical analysis, we selected 355 Brazilian multimarket funds, in the category of *estratégiaespecífica* (specific strategy), during the period from January, 2009 to March, 2014. We obtained 9,013 observations for monthly returns. After excluding missing values in dependent variable or in variables of control, we obtained a final sample of 231 funds (7,997 observations). The profitability was estimated with the following reasoning: $[(share_t - share_{t-1})/(share_{t-1}) - 1] * 100$. We used the winsorize procedure (5%) in the dependent variable to avoid any problem with extreme outliers.

In this study, we used the variable size, which represents the natural logarithm of the monthly equity of each fund. We also created three dummy variables:

Size q1: it receives 1 for all observations with monthly equities in the first quartile, by fund, and it receives 0 in the other cases.

Size q2: it receives 1 for all observations with monthly equities in the second quartile, by fund, and it receives 0 in the other cases.

Size q3: it receives 1 for all observations with monthly equities in the third quartile, by fund, and it receives 0 in the other cases.

Size q4: it receives 1 for all observations with monthly equities in the fourth quartile, by fund, and it receives 0 in the other cases.

The creation of quartiles permits the observation of the size behavior along the fund life time. As control variables, we used:

Management fee: we expect to observe a negative relationship between management fee and performance of investment funds (Malaquias & Mamede, 2015; Dalmácio et al., 2007). Measurement: dummy variable; it receives 1 if the fund has management fee; and 0 for the other cases.

Performance fee: the payment of performance fees may incentive the manager in obtaining a better performance for the fund investors (Agarwal & Naik, 2000; Malaquias & Eid Jr., 2014). Therefore, we expect a positive relationship between performance fee and profitability. Measurement: dummy variable; it receives 1 if the fund has performance fee; and 0 for the other cases.

Age: based on previous literature (Milani & Ceretta, 2012), we included this variable to represent the experience of the fund, and because youngest funds can present higher transaction costs and lower performance (in comparison with funds that are already established in the market).Measurement: fund age in March 31, 2014 (in years).

In order to control for time effects, we included the variable "year" in the model. It represents each one of the years (2009; 2010; 2011; 2012; 2013; 2014) in the database.

We employed panel data (pooled) to test the relationship between the variables. To identify problems of multicollinearity, we used VIF (variance inflation factor) test.

IV. Results

Table 1 shows descriptive statistics of data in the sample. We can observe that, on average, 84% of funds in the sample charge management fees and 35% charge performance fees when the fund outperforms its benchmark. The estimate for age of these funds is 5.5 years, in the range between 1 and 20.9 years.

Table 1: Descriptive statistics of variables

Variables	N	Minimum	Maximum	Mean	Std. Deviation
profitab.	7,977	-6.396	6.989	0.638	2.144
size_ln	7,977	5.521	22.569	17.186	1.715
mg_fee	7,977	0.000	1.000	0.841	0.366
pf_fee	7,977	0.000	1.000	0.355	0.479
Age	7,977	1.000	20.917	5.513	3.178

We first run the regression analysis only with the dummy variables of size, which was segregated in quartiles. Table 2 contains the results. We can observe that the effect of size is positive in the performance of the funds, but it is not necessarily increasing among different quartiles. In this way, when investment funds are in periods with high equity they not necessarily reach their better performance indexes. It is evidence about an inverted U-Shaped relationship.

Table 2: Relationship between size (dummies by quartiles) and performance

Variables	B	Std. Error	T	Sig.	VIF
constant	0.421	0.050	8.459	0.000	-
size_q2	0.199	0.069	2.875	0.004	1.555
size_q3	0.338	0.069	4.906	0.000	1.562
size_q4	0.310	0.068	4.551	0.000	1.576

In Table 3 we report the results including all control variables in the quantitative research model. The results show that only age and year were significant to explain the profitability of the funds in the sample. The negative signal of age indicates that younger funds tend to present higher levels of performance in comparison with the older ones. The profitability of the funds presented a decrease (on average) along the years. Maybe this result is related with the economic scenario of the Brazilian financial market. In the sample, large funds tend to guarantee greater performance than small funds, suggesting a positive relationship between these variables (size_ln and profitability). Nevertheless, the analysis of quartiles indicates that when the fund is with its large equity status, its performance not necessarily is the higher.

Table 3: Relationship between size (dummies by quartiles) and performance, with the variables of control

Variables	B	Std. Error	T	Sig.	VIF
constant	276.612	36.420	7.595	0.000	-
Age	-0.025	0.008	-2.928	0.003	1.248
mg_fee	-0.012	0.069	-0.175	0.861	1.122
pf_fee	0.068	0.053	1.287	0.198	1.126
Year	-0.138	0.018	-7.628	0.000	1.133
size_ln	0.109	0.015	7.171	0.000	1.208
size_q2	0.161	0.070	2.320	0.020	1.587
size_q3	0.287	0.070	4.100	0.000	1.637
size_q4	0.260	0.070	3.692	0.000	1.711

In all tables, VIF statistics indicate that multicollinearity was not a problem in the quantitative models. In general, our results are in line with some previous studies (Indro et al., 1999; Tang et al., 2012), because we also observed that marginal returns become negative when the fund exceeds its optimal size. The reasoning about large size may negatively affects performance may apply to these funds, probably when they receive large volumes of investment.

V. Final Remarks

In this paper we explored the effect of size on investment funds performance. Previous studies show different results, such as an inverted U-Shaped, a U-Shaped, a positive and a negative relationship between the variables (size and performance).It is important to note that we used quartiles for the quantitative analysis. To create the quartiles, we classified the size of the funds and compared it with the historical size of the same fund. Therefore, we have four quartiles for each fund in the sample.

Using a sample of Brazilian multimarket funds, during the period from January, 2009 to March, 2014, we observed evidences about a U-Shaped relationship. Therefore, size is an important variable to address performance in investment funds that operate in Brazil.

Results show that not necessarily being a large fund during the life of the fund is a characteristic that improve performance. Maybe it is difficult to negotiate a large amount of resources when the fund receives new investments and choose the assets that probably will present good profitability. This reasoning leads to the idea of an optimal size of investment funds, and further studies can explore this issue in other emerging economies.

Our results are interesting for the Smart Money literature, since papers in this field explore the relationship of new inflows and the performance of investment funds. If there is an optimal size for investment funds, does size moderate the smart money effect in Brazil?

Finally, it is important to comment a limitation of this paper: the sample. We selected only one subcategory of multimarket funds: specific strategy. Further studies can analyze the presence (or absence) of a U-Shaped relationship between size and performance on the other subcategories of multimarket funds. The second limitation is the period of analysis.

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Momentum and Price Momentum Components: Evidence from 23 Jordanian Indices

By Omar K. Gharaibeh

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Abstract- The aim of this paper is to investigate whether there is the momentum effect across 23 indices-level anomaly in Amman Stock Exchange (ASE). This study also compares and contrasts the momentum strategy with both early-stage and late-stage momentum strategies. By using a sample of 23 Jordanian indices for the period from 2005 to 2015, this paper provide economically large momentum profits over the past 6, 9 and 12 months tend to outperform in the future. In addition, this study provides convincing evidence that late-stage momentum strategy consistently generates stronger profits than does the traditional momentum strategy. Although the CAPM model can explain the momentum profits, late-stage momentum strategy cannot completely explained by the CAPM model.

Keywords: momentum strategy, early-stage strategy, late-stage strategy, amman stock exchange (ADX), CAPM model.

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I. Introduction

Momentum effect is still a debatable topic for the researchers and challenges the efficient market hypothesis (EMH). Following the landmark paper by Jegadeesh and Titman (1993), momentum strategies buy portfolios that have securities with high short-term past returns (winners) and sell portfolios that have securities with low short-term past returns (losers). Jegadeesh and Titman (1993) reveal that for portfolios of US stocks constructed on the returns of the past six to twelve months, winners continues to have high future returns whereas losers continues to have low future returns.

This paper investigates the Kot and Chan (2006) and Bornholt and Malin (2013) rationale with Jordanian indices. The current study divide momentum portfolios into two elements (early-stage and late-stage) in a approach parallel to Chan and Kot (2006) Bornholt and Malin (2013). The early-stage strategy is based on buying short-term winner securities that are relatively long-term losers and selling short-term loser securities that are relatively long-term winners. For the late-stage strategy, it is derived from buying short-term winner securities that are relatively long-term winners and selling short-term loser securities that are relatively long-term losers. Applying these previous momentum, early-stage and late-stage momentum strategies, this paper provide evidence of existence of momentum strategy at the level of Jordanian indices. In addition, the current study shows that the late-stage momentum strategy is superior the momentum and the early-stage strategies even after risk adjustment.

The remainder of the paper is organized as follows: next section reviews the literature in regard to the momentum effect, while Section 3 describes the data and the methodology used to create the various single and double sorted momentum strategies. Section 4 presents the main empirical results, as well as post-formation and risk-adjustment results. Section 5 provides conclusion.

II. Literature Review

In Istanbul Stock Exchange, Bildik and Gulay (2002) investigate the momentum and contrarian effects on expected returns from 1991 to 2000. Jegadeesh and Titman (1993) methodology has been used to measure these effects. They support the overreaction hypothesis that stocks that have past losers outperform the stocks that have past winners and partly with the behavioral hypothesis. They reveal that Istanbul Stock Exchange is considered weak-form efficiency because future returns and reversals in prices can be predicted by past return data.

Cooper and Hameed (2004) measure overreaction theories to explain the short-run momentum in stock returns documented by Jagadeesh and Titman (1993) and the long-run reversal in stock returns documented by De Bondt and Thaler (1985). To mitigate microstructure impacts related with low-price stocks, they exclude stocks with a price of less than one dollar each month. Three holding period were computed to test-period profits. Market state has been defined by depending on the market's three-year return. The market's three-year return was ranked by descending order from the highest to the lowest, then these returns were sorted into two groups correspondingly. The first group, which represents the highest returns, defined as "UP" and the second group which represents the lowest returns defined as "DOWN". They reconfirm the finding of Daniel, Hirshleifer and Subrahmanyam (1998) and Hong and Stein (1999) that short run momentum portfolio is profitable just in subsequent periods of UP market states. In addition, they re-assert that the profits to momentum are reversed in the long-run and this result is consistent with the overreaction theories of Swaminathan and Lee (2000) and Jegadeesh and Titman (2001).

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In Jordan market, Al-Mwalla (2012) finds strong evidence of the size and value effects in Amman stock Exchange (ASE) over the period from 1999 to 2010. Al-Mwalla (2012) demonstrates that these factors, size and value effects provide better explanation to the variation in the stocks rate of return. However, Al-Mwalla (2012) shows that momentum effect does not produce clear relationship between portfolios ranked according to the size and value, as well as it does not add much explanatory power to the variation in the stocks rate of return. Using Amman Stock Exchange monthly data from 2002 to 2010, Al-Mwalla, Al-Qudah, and Karasneh (2012) confirm the evidence of size and value effect documented by Al-Mwalla (2012). Furthermore, Al-Mwalla, Al-Qudah, and Karasneh (2012) show evidence of momentum, distress and leverage effects in Amman stock market. However, they find that the Momentum, distress and leverage risk factors did not enhance the explanatory power for the three-factor model.

Bornholt and Malin (2013) investigate the presence of momentum at the level of international market indices. They provide a strong evidence of momentum profits and this result is consistent with Kot and Chan's (2006) result. Bornholt and Malin (2013) show that past long-term returns can be used to enhance the performance of momentum strategy. They split the momentum strategy into two parts based on past long-term performance. Bornholt and Malin (2013) show that Early-stage momentum strategy provide larger profits than the momentum strategy and this strategy do not reverse in the first five years post-formation. On the other hand, late-stage momentum strategy generates weaker profits and tends to reverse quickly.

Using monthly data from National Stock Exchange (NSE) during the period from April 1995 to March 2015, Park and Kim (2014) investigates source of momentum profits in regard to macroeconomic and firm specific variables. They show that idiosyncratic volatility in the shorter run horizon and dividend yield in the longer run are play an important role as a firm specific factors in determine momentum returns in the Indian market. They find that when the market upturns period, macroeconomic factors considered demonstrate a persistent influence on momentum profits in Indian stock market. On the other hand, they show that momentum when the market downturn period is not affected by macroeconomic effect.

More recently, Gharaibeh (2015) examine whether there is presence of size and momentum effects across Jordan firms during the period from 2005 to 2014. Gharaibeh (2015) show that there is a strong evidence of size effect while there is no momentum effect at the level of Jordanian firms. This result is inconsistent with Al-Mwalla, Al-Qudah, and Karasneh's (2012) who find evidence on momentum effect in Amman stock market. On the other hand, Gharaibeh (2015) reveal strong evidence of momentum effect in large-sized portfolio. That is, there is a momentum effect only across large size firms in Jordan and this result supports the finding of O'Brien, et al.(2010).

In a study of emerging market indices, Gharaibeh (2016) examines the existences of momentum profits in the Arabic market indices for the period of January 1989 through August 2013. Splitting momentum portfolios into two components depending on past long-term performance produces early and late-stage momentum strategies; Gharaibeh (2016) confirms that the momentum profits are statistically or economically significant in 10 Arabic market indices over all formation periods. The late-stage momentum strategy consistently generates more profits than momentum strategy.

Chowdhury (2016) examines the existence of time-series and cross-sectional momentum profits in the Saudi Arabia stock market. Chowdhury (2016) confirm the existence of time-series momentum and cross-sectional contrarian profits in this market. Wang, Wang and Liu (2016) find that Taiwan stocks have significant short-term momentum.

III. Data and Methodology

Monthly returns are derived from 23 Jordanian indices downloaded from Amman Stock Exchange website. The timeframe for the study extends from February 2005 to September 2015. Table 1 lists all of the indices in the sample, the average monthly return and standard deviation of each index. The both early-stage and late-stage momentum strategies proposed in this paper double-sorts index using a measure of momentum as the first sort variable and a measure of contrarian as the second sort variable. Since momentum studies generally employ past six-month returns to classify securities into portfolios, the current study adopt this procedure for the first sort variable. For simplicity, the current study uses compounding of monthly returns over the past 36, 48 and 60 months as the second sort variable.

Table 1 details descriptive statistics of the23 Jordanian indices over the period February 2015 through September 2014, demonstrating average monthly returns, standard deviation, Skewness and Kurtosis for each index. Table 1 shows big difference in the mean and standard deviation of average returns. Food and Beverage as well as Tobacco and Cigarettes have the biggest monthly average (over 2% per month). On the other hand, the Paper and Cardboard Industries has the lowest average at -2.11. The Jordanian indices generate an average monthly return of 15% and an average standard deviation of 13%.

The study compares and contrasts the momentum strategy with both early-stage and late-stage momentum strategies applied to 23 Jordanian indices.

Section 3.1 and 3.2 details momentum strategy as well as the early-stage and late-stage momentum strategies used in the current study.

a) Momentum strategy

The momentum portfolios are constructed as follows. At the beginning of each month t, the 23 Jordanian indices in Table 1 have been ranked based on their past J-month returns (J = 3, 6, 9 and 12 months). For a given J, the short-term winner (SW) portfolio consists of the 25% of indices that contain the highest past J-month returns while the short-term loser (SL) portfolio consists of the 25% of indices that contain the lowest past J month returns. The momentum strategy (SW-SL) buys the short-term winner portfolio and sells the short-term loser portfolio. Portfolios are held for K-month holding periods, where K = 1, 3, 6, 9 and 12 months.

Following Balvers and Wu (2006), the current study make a 1-month gap between the end of the J-month formation period and the beginning of the K-month holding period. A gap of one month is consistent with previous studies such as Jegadeesh and Titman (1993). Jegadeesh and Titman (1993) showed that skipping the first one month after the end of the formation period improves the performance of the momentum strategy and produces stronger results because this procedure eliminate any short-term reversals being compensated by the short-term continuation of returns.

b) Late-Stage and Early-Stage Momentum Strategies

The early-stage and late-stage strategies are a double dependent sort approach, and are explained as follows. The first sort is identical the momentum strategy sort. The 23 Jordanian indices are ranked at the beginning of each month based on their most recent past J-month returns. For a specified J, the short-term winner portfolio (SW) comprise of the 25% of indices with the highest past J-month returns, while the short-term loser portfolio (SL) consist of the 25% of indices with the lowest past J-month returns. The 23 Jordanian indices in the SW and SL portfolios are further ranked in the second stage depend on their element indices long-term past J2-month returns (J2 = 36, 48, or 60 months). This represents that these J2- month returns are from the last J2 months of the J-month formation period. For a given J and J2, the SWLW portfolio includes the 50% of SW indices with the largest long-term past J2-month returns. Similarly, the SLLL portfolio comprises of the 50% of SL indices with the lowest long-term past J2-month month returns. For the early stage, the same process is used. The SWLL portfolio comprises of the 50% of SW indices with the lowest long-term past J2-month returns. Likewise, the SLLW portfolio comprises of the 50% of SL indices with the largest long-term past J2-month month returns.

This method means that out of the total of 23 Jordanian indices, the short-term winner and short-term loser portfolios of the momentum strategy each include 5 indices, whilst the late-stage momentum strategy SWLW and SLLL portfolios each include 2 indices. The late-stage momentum strategy (SWLW-SLLL) that is buying short-term winners with relatively good long-term past returns (SWLW) and selling short-term losers with relatively poor long-term returns (SLLL). The early-stage momentum strategy (SWLL-SLLW) is based on buying the short-term winners with relatively worst past long-term returns (SWLL) and selling the past short-term losers with relatively excellent long-term returns (SLLW). By construction, early-stage indices appear to have experienced a recent price contrarian, while late-stage indices appear to have experienced price momentum over a long period. Early-stage indices are 'early' in a price contrarian, while late-stage indices are 'late' in a price momentum. Figure 1 shows a graphical representation of the two strategies.

An improvement of dividing the short-term winner and loser portfolios into only two sub-portfolios is that our late stage and early stage portfolios together include all the elements of the corresponding traditional momentum portfolios. In particular, the traditional momentum winner (loser) portfolio is just the combination of our late stage winner (loser) and the early stage winner (loser) portfolios.

All portfolios the momentum strategy, the late-stage and early-stage momentum strategies are held for a K-month holding period, where K = 1, 3, 6, 9 or 12-month. A 1-month gap is used at the beginning of the holding period for the momentum strategy, as well as both the late-stage and early-stage momentum strategies in this study follows the method of previous studies to boost the power of our tests. This paper follows Jegadeesh and Titman's (1993) overlapping portfolio approach for the holding period returns of all strategies to avoid overlapping returns, and to enhance test power. For expositional convenience, the 6-month holding period case (K = 6) will be the main focus of this paper comments about the empirical results in the next section.

Table 1: Descriptive Statistics of 23 Jordanian indices.

Table 1 reports the descriptive statistics for 23 Jordanian indices. The first column is the index names. This is followed by the average monthly percent returns, the standard deviation of monthly percent returns, the Skewtize and Kurtosis of each index over the period February 2005 to September 2015.

Index Names	Av. %	S.D. %	Skew	Kurt
Food and Beverages	10.07	83.09	6.60	45.98
Tobacco and Cigarettes	3.82	34.17	7.58	71.63
Printing and Packaging	1.46	15.89	3.06	19.00
Mining and Extraction Industries	0.66	15.09	2.13	13.87
Utilities and Energy	0.45	7.73	0.34	4.97
Textiles, Leathers and Clothing	0.35	12.98	3.08	24.59
Educational Services	0.31	4.26	0.60	3.50
Chemical Industries	-0.06	5.03	0.59	4.21
Engineering and Construction	-0.25	7.57	0.90	11.44
Commercial Services	-0.32	6.98	0.72	2.08
Banks	-0.34	4.10	-0.43	3.32
Pharmaceutical and Medical Industries	-0.37	5.37	0.99	3.99
Health Care Services	-0.37	5.29	-0.04	1.12
Hotels and Tourism	-0.52	3.37	-0.29	1.44
Insurance	-0.84	3.08	-0.01	2.55
Real Estate	-0.87	8.14	0.27	2.47
Technology and Communication	-0.92	6.33	-0.03	2.56
Glass and Ceramic Industries	-1.02	24.04	-0.77	8.89
Transportation	-1.21	6.09	-0.31	0.86
Electrical Industries	-1.21	8.84	0.40	1.92
Diversified Financial Services	-1.45	9.25	0.55	3.45
Media	-1.82	8.25	0.09	0.89
Paper and Cardboard Industries	-2.11	9.79	1.05	5.22
AVERAGE	**15%**	**13%**		

IV. Results

Section 4 analyses the results for momentum strategy as well as both early-stage and late-stage momentum strategies in regards to raw and risk-adjusted results.

Table 2: Profitability of Momentum Strategies.

Table 2 reports the average monthly holding period returns in percentages based on short, long and long minus short portfolios of the momentum strategy. Portfolios have been ranked as follows: portfolios at the beginning of each month t have been ranked based on their past J-month formation period returns for J = 3, 6, 9 and 12 months. The short-term winner equal-weighted portfolio (SW) contains the 25% of portfolios with the largest returns, and the short-term loser equal-weighted portfolio (SL) includes the 25% of portfolios with the lowest returns. The strategy SW-SL buys the short-term winner portfolio and sells the short-term loser portfolio to be held for K = 3, 6, 9 or 12 months. The t-statistics are based on the Newey-West (1987) correction for autocorrelation up to lag 11.

		Holding Period Returns				
J	Portfolio	K=1	K=3	K=6	K=9	K=12
3	SW	-0.14	-0.06	0.33	0.93	0.83
		(-0.22)	(-0.09)	(0.52)	(1.22)	(1.14)
	SL	1.21	0.60	0.30	-0.12	0.09
		(0.89)	(0.68)	(0.47)	(-0.22)	(0.15)
	SW-SL	-1.35	-0.66	0.03	1.05	0.74
		(-0.82)	(-0.55)	(0.03)	(1.58)	(1.16)
6	SW	0.27	0.20	1.22	1.38	1.14
		(0.27)	(0.21)	(1.19)	(1.38)	(1.17)
	SL	-0.78	0.16	-0.38	-0.56	-0.23
		(-1.13)	(0.23)	(-0.55)	(-0.95)	(-0.39)
	SW-SL	1.05	0.04	1.60	1.94	1.37
		(0.99)	(0.03)	(1.36)	(1.9)	(1.41)
9	SW	0.63	0.87	1.10	1.23	1.00
		(0.6)	(0.89)	(1.1)	(1.17)	(1)
	SL	-0.05	-0.44	-0.88	-0.77	-0.54
		(-0.05)	(-0.65)	(-1.39)	(-1.39)	(-0.97)
	SW-SL	0.68	1.31	1.98	2.00	1.54
		(0.44)	(1.08)	(1.87)	(1.91)	(1.5)
12	SW	0.65	0.46	0.78	0.91	0.82
		(0.68)	(0.45)	(0.71)	(0.85)	(0.8)
	SL	0.05	-0.69	-0.80	-0.91	-0.88
		(0.05)	(-1.02)	(-1.44)	(-1.63)	(-1.59)
	SW-SL	0.60	1.15	1.58	1.82	1.70
		(0.43)	(1.04)	(1.46)	(1.78)	(1.83)

a) Momentum results

Table 2 provides the results of the momentum strategies for the 23 Jordanian indices demonstrating the average monthly returns of the long (SW), short (SL), and the arbitrage long-short (SW-SL) momentum portfolios for several (J, K) combinations. Table 2 comprises of the results for formation period lengths of J = 3, 6, 9, and 12-month. The results in Table 2 provides the equal-weighted average monthly portfolio returns in percentages for K-month holding periods (K = 1, 3, 6, 9 and 12 months) in columns 3 through 6.

Except for the J = 3 case of holding period K =1 and 3, the momentum findings for the Jordanian indices in Table 2 indicate that the long portfolio outperforms the short portfolio for each holding period, with the highest return of 2.00 per cent per month (t-value 1.91) for the nine-month holding period. In general, there are large but statistically insignificant momentum profits, Given that this initial evidence may be strengthened by employing the early-stage and late-stage approach, the next section shows the results of the early-stage and late-stage momentum strategy with 36, 48 and 60-month formation periods. This length for the formation periods is selected because J = 36, 48 and 60 months are expected to be successful for the traditional momentum strategy.

b) Early and Late-stage momentum results

Table 3 reports the results for the early-stage momentum strategy with 6-month formation periods (J = 6). The early-stage momentum results in Table 3 indicate that the strategy profits (SWLL-SLLW) are statistically insignificant over all (J/J2, K) combinations. For example, the J/J2 = 6/60 case with a six-month holding period (K = 6), the long portfolio of recent short-term winners that are past long-term losers earns an average return of 1.52 % per month. In contrast, the short portfolio of recent short-term losers that are past long -term winners generates an average return of only 0.43% per month. Accordingly, the early-stage strategy (SWLL-SLLW) provides insignificant profit of 1.09% per month (t-stat 0.49). In general, a comparison of Table 3 with Table 2 demonstrates that the early-stage momentum strategy is inferior to the corresponding J = 6 traditional momentum strategy for all holding periods

Table 3: Profitability of Early-Stage Momentum Strategy

This table provides the average monthly holding returns of the long, short and arbitrage portfolios of the early stage momentum strategy for the Arabic markets. early-stage portfolios are taken from the 6-month formation period pure momentum strategy (J = 6) short-term winner (SW) and short-term loser (SL) portfolios. The formation of the SW and SL portfolio is clarified in Table 2. At the beginning of each month t, Jordanian indices within the current SW and SL portfolios are further classified based on their J2-month return from the last J2-months of the 6-month formation period for J2 = 36, 48 or 60. The 50% of SW Jordanian indices with the worst long-term performance J2-month returns define the SWLL equal-weighted portfolio (short-term winner that are long-term losers) for that month. Similarly, the 50% of SL Jordanian indices with the best long-term performance J2-month returns define the SLLW portfolio (short-term losers that are long-term winners). The late-stage momentum strategy SWLL-SLLW is held for K =1, 3, 6, 9 and 12 months. Annual event-time returns (Year 1, 2, 3, 4 and 5) are the average annual returns for a portfolio for the first five years following the portfolio formation date. The t-statistics are presented in parentheses. Holding period t-statistics are simple t statistics, while the annual event-time t-statistics are based on the Newey and West (1987) correction for autocorrelation up to lag 11.

			Holding Period Returns				
J1	J2	Portfolio	K=1	K=3	K=6	K=9	K=12
6	36	SWLL	0.46	-0.84	1.91	1.18	0.82
			(0.41)	(-0.9)	(0.79)	(0.68)	(0.59)
		SLLW	-0.56	1.35	0.61	0.21	0.98
			(-0.71)	(1.11)	(0.61)	(0.28)	(0.93)
		SWLL-SLLW	1.01	-2.19	1.30	0.97	-0.16
			(0.71)	(-1.22)	(0.53)	(0.52)	(-0.09)
6	48	SWLL	-0.05	-0.92	1.52	1.25	0.60
			(-0.04)	(-0.78)	(0.74)	(0.83)	(0.46)
		SLLW	-0.72	1.56	0.43	0.18	1.28
			(-0.82)	(1.09)	(0.38)	(0.23)	(1.03)
		SWLL-SLLW	0.67	-2.48	1.09	1.07	-0.69
			(0.39)	(-1.13)	(0.49)	(0.61)	(-0.35)
6	60	SWLL	0.07	-0.88	2.03	1.78	1.01
			(0.08)	(-0.82)	(0.83)	(1.02)	(0.7)
		SLLW	-1.23	1.60	0.93	0.71	1.92
			(-1.44)	(0.98)	(0.7)	(0.76)	(1.25)
		SWLL-SLLW	1.31	-2.48	1.10	1.06	-0.90
			(0.88)	(-1.07)	(0.42)	(0.53)	(-0.4)

Table 4 contains the results for the late-stage momentum strategy. The results in Table 4 show substantial differences from the result in Table 3. The late-stage strategy (SWLW-SLLL) earns positive and mostly statistically significant profits for all holding periods, and each of these profits is larger than the corresponding J = 6 pure momentum profits in Table 2. For example, consider the J/J2 = 6/60 case with a six-month holding period (K = 6), the difference between the average monthly returns of the SWLW portfolio and

the SLLL portfolio is large 6.33% per month (t-stat 2.36), which is statistically significant. Briefly, the holding period returns in Table 4 provide strong evidence of late-stage momentum effect at the Jordanian index level.

Table 4: Profitability of Late-Stage Momentum Strategy

This table provides the average monthly holding returns of the long, short and arbitrage portfolios of the late stage momentum strategy for the Jordanian indices. Late-stage portfolios are taken from the 6-month formation period pure momentum strategy (J = 6) short-term winner (SW) and short-term loser (SL) portfolios. The formation of the SW and SL portfolio is clarified in Table 2. At the beginning of each month t, Jordanian indices within the current SW and SL portfolios are further classified based on their J2-month return from the last J2-months of the 6-month formation period for J2 = 36, 48 or 60. The 50% of SW Jordanian indices with the best long-term performance J2-month returns define the SWLW equal-weighted portfolio (short-term winner that are long-term winners) for that month. Similarly, the 50% of SL Jordanian indices with the worst long-term performance J2-month returns define the SLLL portfolio (short-term losers that are long-term losers). The late-stage momentum strategy SWLW-SLLL is held for K =1, 3, 6, 9 and 12 months. Annual event-time returns (Year 1, 2, 3, 4 and 5) are the average annual returns for a portfolio for the first five years following the portfolio formation date. The t-statistics are presented in parentheses. Holding period t-statistics are simple t statistics, while the annual event-time t-statistics are based on the Newey-West (1987) correction for autocorrelation up to lag 11. All the returns shown in Table 2 and in the next tables are in percentages.

			Holding Period Returns				
J1	J2	Portfolio	K=1	K=3	K=6	K=9	K=12
6	36	SWLW	0.78	1.41	2.29	2.86	2.68
			(0.43)	(0.76)	(1.15)	(1.42)	(1.35)
		SLLL	-1.73	-1.65	-1.97	-1.91	-1.64
			(-1.14)	(-1.11)	(-1.32)	(-1.36)	(-1.23)
		SWLW-SLLL	2.51	3.06	4.26	4.77	4.32
			(1.47)	(1.87)	(2.4)	(2.77)	(2.66)
6	48	SWLW	1.80	2.18	3.56	3.68	3.47
			(0.86)	(1)	(1.56)	(1.57)	(1.5)
		SLLL	-1.58	-1.97	-2.06	-1.70	-1.52
			(-0.87)	(-1.13)	(-1.17)	(-1.01)	(-0.95)
		SWLW-SLLL	3.39	4.16	5.62	5.38	4.99
			(1.68)	(2.19)	(2.52)	(2.5)	(2.53)
6	60	SWLW	2.57	3.14	4.63	4.84	4.36
			(0.95)	(1.17)	(1.65)	(1.64)	(1.46)
		SLLL	-1.53	-1.40	-1.69	-1.43	-1.15
			(-0.73)	(-0.67)	(-0.81)	(-0.72)	(-0.6)
		SWLW-SLLL	4.10	4.54	6.33	6.27	5.52
			(1.61)	(1.95)	(2.36)	(2.39)	(2.23)

The post-formation behaviors of the momentum and both early-stage and late-stage strategies' profits are also demonstrated in Figure 1. Figure 1 illustrates the post-formation cumulative returns of the traditional momentum strategy (SW-SL) with J = 6, the early-stage strategy (SWLL-SLLW) with J/J2 = 6/60, and the late-stage strategy (SWLW-SLLL) with J/J2 = 6/60 for the 60 months following the end of the formation period. Given the three previous strategies, we note that the late-stage momentum strategy graph offers the highest cumulative profits towards the end of the 60 months. Traditional momentum strategy provides a profit, but it is considered few compared with the late-stage momentum strategy. In contrast, the early-stage momentum strategy provides negative cumulative returns.

This graph illustrates the cumulative returns of the momentum (SW-SL), Late-stage momentum 6/60 (SWLW-SLLL) and Early-stage momentum (SWLL-SLLW) strategies for the 60 months following the end of the formation period.

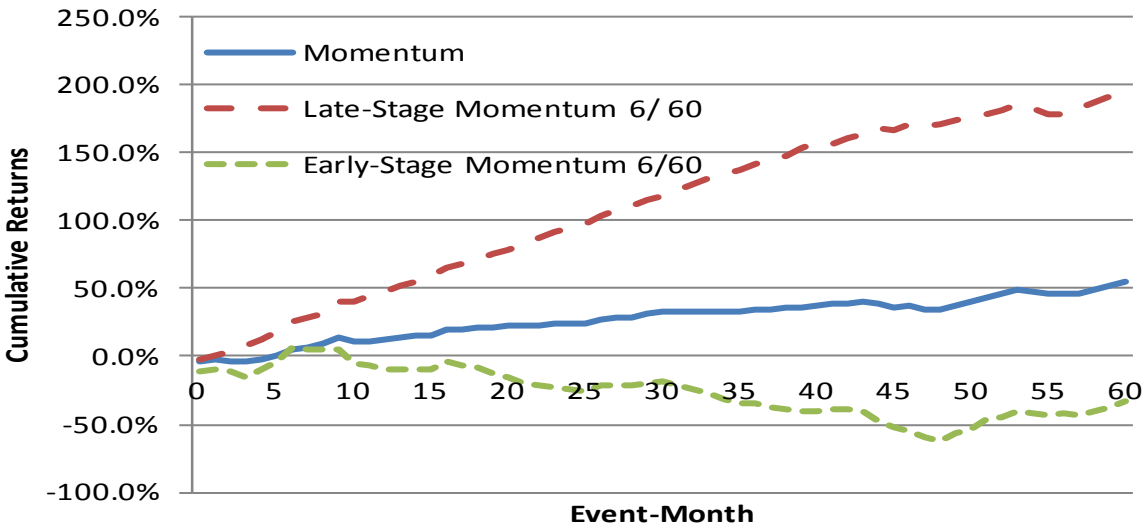

Figure 1: Cumulative Returns of Strategies

c) Risk adjustments

To decide whether the profits of these strategies could be explained by a reward for bearing risk, the profits of the traditional and both early and late-stage momentum strategies are risk-adjusted using the CAPM model. The CAPM model regression model comprises of the market factor:

$$R_{pt} - R_{\text{ft}} = \alpha_p + \beta_p (R_{mt} - R_{\text{ft}}) + \varepsilon_{pt} , \qquad (1)$$

Where the dependent factor $R_{pt} - R_{\text{ft}}$ is the monthly excess return of the strategy portfolio p, R_{pt} is the monthly return of portfolio *p* at time *t*, and R_{ft} refers to the monthly risk-free rate at time *t*, represented by the one-month Jordanian T-Bill return. The independent variable or factor is: $R_{mt} - R_{\text{ft}}$ is the value-weighted index's monthly excess market return for month *t*.

The monthly return values for the one-month T-Bill risk-free rate extending the full sample period from February 2005 to September 2015 are downloaded from Amman Stock Exchange website. The coefficient β_p is the regression loading in line with the factor of the model, while the intercept (or simply alpha) point to the risk-adjusted abnormal returns of the portfolios over the evaluation period. If alpha is statistically significantly different from zero, then this is considered evidence of abnormal profits. The t-values in line with the regression coefficients are corrected for heteroskedasticity using White's (1980) test.

Table 5 shows the estimated regression coefficient of the CAPM model and the matching White-corrected t-values for the long, short and long-short portfolios for the momentum strategy (J = 6), the early-stage momentum (J/J2 = 6/60) and the late-stage momentum (J/J2 = 6/60) strategies with six-month holding periods (K = 6) in Panels A, B and C, respectively. Column 2 of Table 5 details the monthly alphas of the CAPM model, while the last column lists the adjusted R^2.

The alpha of both the traditional momentum and early-stage momentum strategies either of long-short SW–SL or SWLL-SLLW portfolios in Panel A and B are small (0.011% and 0.012% per month) and statistically insignificant (t-stat 1.03 and 0.81), respectively. In contrast, the late-stage alpha in Panel C is weakly significant. The late-stage momentum SWLW-SLLL alpha in the 6/60 case is a weekly significant 0.046% per month (t stat 1.65).

In general, the late-stage result in Panels C of Table 5 reveals that there is late-stage momentum in index returns that cannot be explained by the CAPM model. It is not surprising that the traditional momentum and early-stage momentum risk-adjusted results are weak since the traditional momentum and early-stage momentum strategies raw profits are considerably smaller than the corresponding late-stage raw profits. Interestingly, the late-stage momentum approach has yet to be applied to individual stocks. The results in this paper raise the possibility that the CAPM model may have difficulty explaining the results of such a study.

Table 5: Risk adjusted Momentum, Early-stage and Late-stage profits

This table reports the CAPM model regression results for the monthly returns of the momentum (SW-SL) in Panel A, Early-stage momentum (SWLL-SLLW) in Panel B and Late-stage momentum 6/60 (SWLW-SLLL) portfolios in Panel C for J = 6 and K = 6. These portfolios are described in Table 2. The CAPM regression model is as follows:

$$R_{pt} = \alpha_p + \beta_p R_{mt} + \varepsilon_{pt} ,$$

Where Rpt is the portfolio's return and Rmt is the return on the market. The t-statistics given in parentheses are corrected for heteroskedasticity using White's (1980) test.

Portfolio	CAPM Model		
	α	β_{rm}	$Adj\ R^2$
Panel A: Momentum (July 2006- September 2015)			
SW-SL	0.011	-0.064	-0.60
	(1.03)	(-0.64)	
Panel B: Early-stage momentum (January 2011-September 2015)			
SWLL-SLLW	0.012	-0.168	-1.66
	(0.81)	(-0.5)	
Panel C: Late-stage momentum (January 2011-September 2015)			
SWLW-SLLL	0.046	1.066	1.19
	(1.65)	(1.17)	

V. Conclusion

This paper examines the momentum profit across 23 Jordanian indices during the recent period from 2006-2015. The current study divides momentum portfolios into two elements early-stage and late-stage. The results of the study show that the momentum profit is existence at the level of Jordanian indices. In addition, the most important finding is that late-stage momentum strategy consistently provides larger profits than does the traditional momentum strategy. In momentum and early-stage momentum strategies, the CAPM model can explain their returns, while the CAPM cannot explain completely late-stage momentum profits.

There are significant implications for the practitioners, investors and academic researchers. Both practitioners and investors can follow momentum and late-stage momentum strategies to achieve abnormal profits at the level of Jordanian indices. Examination of momentum persistence and late-stage momentum strategies across Jordanian indices may be a good idea for the researchers who are interested in studying emerging markets. The presence of momentum profit and late-stage momentum strategies examination may be carried out in other emerging market context especially, Arabic markets.

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Liquidity Value at Risk Modeling: Volume and Implied Volatility Adjustment

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Abstract- In this paper, the market risk measurement models and liquidity adjusted value at risk models (L_VaR) are merged. Monte Carlo Value at Risk and Monte Carlo Simulation Expected Shortfall (ES) Model are used to calculate conventional market risk value. The results are combined with L_VaR to see the effectiveness of liquidity risk modeling. The L_VaR is calculated by 5 different methods: Constant Spread Approach, Exogenous Spread Approach, Endogenous-Price Approach, Volume Adjusted L_VaR and Implied Volatility Adjusted L_VaR. The first three models are stated in the literature whereas the volume adjusted and the implied volatility adjusted models are the proposed ones. Arcelik, Bimas, Eregli Demir Celik, Halk Bankasi, Kardemir, Sise Cam Fabrikalari, Tofas Oto Fabrikalari and Ulker are the securities and USD/TRL, EUR/TL and EUR/USD are the currency pairs used in modeling. Daily prices for the period 2011 and 2014 are used for the calculations.

Keywords: risk, liquidity, var, expected shortfall, l_var, constant spread aproach, exogenous spread aproach, endogenous price aproach, cost of liquidty.

GJMBR-C Classification: JEL Code: F65

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I. Introduction

The main motivation to study liquidity risk is the attention it drew as a result of the financial crisis that began in the summer of 2007. In the beginning of the year 2007 the world's financial markets had sufficient amounts of liquidity and had and liquidity. In May 2007 it wasn't easy to predict the oncoming subprime mortgage crisis based on the parameters existing on the market. However, beginning from the summer of 2007, the world's financial market faced a severe liquidity crisis. The aftermath of the last financial crisis stated the importance of liquidity. Thus, for an effective risk management liquidity must be considered (Qi and Lon Ng (2009)). Black (1971) defined liquid market as the market where bid ask prices are quoted continuously and the spreads are very low. After the 2008 crisis the liquidity risk has been discussed from different angles and numerous new concepts have emerged. As an outcome of the liquidity crisis the Basel Board issued new regulations on the description of the liquidity risk and it's estimation. (Liquidity Risk: Management and Supervisory Challenges (2008), Principles for Sound Liquidity Risk Management and Supervision (2008), Basel III: International Framework For Liquidity Risk Measurement, Standards and Monitoring (2010)). The central banks started to look for new ways to bring liquidity back to the market.

This study focuses on the structure of the liquidity risk and attempts to model it to quantify it in a setup with related parameters (i.e. volume and volatility).

II. Liquidity Risk Measurement and Importance of Risk Calculations

Liquidity has 3 main definitions; (1) is to change a financial instrument's value to money without it losing liquidity value; (2) to sell an asset which has a certain market liquidity (Bervas, 2006) or transport value without changing its price; (3) is the monetary liquidity that is the circulation of the liquid assets in the market.

The scale of the market liquidity can be listed as: tightness (the deviation in trade prices), depth (maximum trade capacity without effecting price) and resiliency (time period between deviation caused from the topmost reasons and the market's recovering its normal conditions back.)

The volume of the assets that could be liquidated has The operations to calculate the liquidity risk in a day are based much more on the market's endogenous and exogenous factors and also the different values of liquidity costs (COL) derived from the weighted bid ask spreads.

By revealing their liquidity risk methodology Bangia et al (1999), planned to converge the liquidity risk into VaR models. According to their works especially in the growing markets, leaving the liquidity risk effect apart from the models caused the market's risk to be measured %20-30 less than its actual value.

Quantitative methods for modeling endogenous liquidity risk have been proposed recently by Jarrow and Subramanian (1997), Chriss and Almgren (1997) and Bertsimas and Lo (1998). However, the key parameters for the models are difficult to find. Dowd (2005) worked with liquidity risk models and grouped them as Transaction Cost Approach, Exogeneous Spread Approach and Endogenous Spread Approach. Yamai and Hisate (2000) in their studies stated a general framework to calculate Liquidity VaR and compared the results of VaR and L_VaR calculations. In the classical liquidity risk measurement models cost of liquidity (COL) is added on market risk values to calculated liquidity adjusted market risk values. Thus, the loss can be higher than measured.

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a) Value at Risk Calculation Models

Jorion (2000) described value at risk as an approach that defines the maximum loss amount under normal market conditions with a certain confidence level in a given time period. VaR is an approach used to consolidate financial risks arising from different positions and risk factors. In VaR models, the correlation among the risk factors are taken into consideration. Parametric Value at Risk Model, Historical Simulation Model, Monte Carlo Simulation Model are accepted and used not only by financial and nonfinancial institutions but also by regulators to measure market risk. Yet, in this study market risk calculations are done by Monte Carlo Simulation Expected Shortfall Model.

b) Expected Shortfall Value at Risk Model

As the volatility in the financial markets increase, the modeling of tail losses gains importance. The VaR models have problems for measuring extreme price movements given the assumption that the asset returns follow a normal distribution. Due to drawbacks of standard VaR calculations, Artzner et al (1997,1999) propose the use of expected shortfall. Expected shortfall can be defined as the weighted average of loss values in the tails or the average tail value at risk.

c) Backtesting

The risk models need to be validated regularly. Before using a risk model in practice, it is needed to run a performance test on portfolio in a chosen period. Backtesting, by comparing VaR model and P/L results, is used to evaluate assumption quality of a risk model (Dowd, 2005). Daily VaR assumptions are compared to theoretical profit/loss values calculated by using the end of day positions values. As a result of this test the statistical methods and overflow values are tested.

d) L_VaR Calculation Models

There are many methods to calculate Liquidity VaR. The models used in literature, which are endogenous and exogenous models, relied mostly on bid ask spreads. In this study two new models are suggested which are Volatility Adjusted L_VaR and Volume Adjusted L_VaR.

i. *Transaction Cost Approach*

The easiest way adopting the liquidity risk to VaR calculations is to take the spread as fixed. That is, liquidity cost (LC) is added to the "standard" VaR.

$$LC = 1/2 \text{ spread}*P \quad (1)$$

$$VaR = P[1-\exp(\mu\_R-\sigma\_Rz\_\alpha)] \quad (2)$$

$$L\_VaR = VaR + LC = P[1-\exp(\mu\_R-\sigma\_Rz\_\alpha) + 1/2\text{spread}] \quad (3)$$

ii. *Exogenous Spread Approach*

If the position is small enough in proportion to the market, the spread risk can be considered exogenously (independently of the trade carried out) during the retaining period given. Bangia et al. (1999) proposed to find the liquidity cost (LC) as follows:

$$LC = \frac{P}{2}\left(\mu_{spread} + k\sigma_{spread}\right) \quad (4)$$

k: a parameter whose value is required to be determined (A specific value (k=3) can be taken as a realistic datum)

$$LVaR = VaR + LC = P\left[1 - \exp(\mu_R - \sigma_R z_\alpha) + \frac{P}{2}\left(\mu_{spread} + 3\sigma_{spread}\right)\right] \quad (5)$$

iii. *Endogenous Spread Approach*

Liquidity adjustment is also based on the market's ability to react to the transactions carried out; the higher this ability is, the higher the loss will be.

$$LVaR = VaR\left(1 - \frac{\Delta P}{P}\right) = VaR\left(1 - \eta\frac{\Delta N}{N}\right) \quad (6)$$

N: the market size; ΔN: the trade size; ΔN/N: the size of the trade in proportion to the market; ΔP/P: the trade's effect on the price

e) Volume Adjusted L_VaR

The daily volume is one of the most important criteria in terms of liquidity risk. When the market depth is low, the spread between the bid and ask prices are negatively affected. When the daily volume of an underlying asset decrease, the bid and ask spread expands which causes the realization of abnormal price movements. As volume contraction causes risk and daily return to increase, cost of liquidity is calculated by

$$COL = \frac{b_i}{a} = \frac{\text{Volume Contraction Below Average Volume}}{\text{Average Volume Contraction}} \quad (7)$$

$$\text{Volume Adjusted L\_VaR} = \text{VaR} * (1+\text{COL}) \quad (8)$$

$$Volume_{\ average} = a = \frac{(\sum_{i=1}^{N} V_i)}{N} \quad (9)$$

$$b_i = \begin{cases} a, & V_i < Volume_{average} \\ 0, & V_i \geq Voleme_{average} \end{cases} \quad (10)$$

f) Implied Volatility Adjusted L_VaR

Implied volatility is an important parameter in liquidity risk measurement. An increase in implied volatility values shows an increase in the risk perception of the market. When risk increases the spreads widen, thus the cost of liquidity is expected to be higher for the days that have higher volatility than the annual average. As risk increases so the spreads. Therefore, higher COL is expected during periods when volatility is above the periodical average.

$$Imp.Vol_{avr} = \frac{\sum_{i=1}^{N} \text{İmp.}Vol_i}{N} \quad (11)$$

$$Imp.Vol_{\ average} = a \tag{12}$$

$$(b_i = \begin{cases} Imp.Vol_i \leq ImpVol._{average} & 0 \\ Imp.Vol_i > ImpVol._{average} & \frac{Imp.Vol_i}{a} \end{cases} \tag{13}$$

$$COL = b_i \tag{14}$$

Implied Volatility Adjusted L_VaR = VaR * (1+COL) (15)

III. Methodology

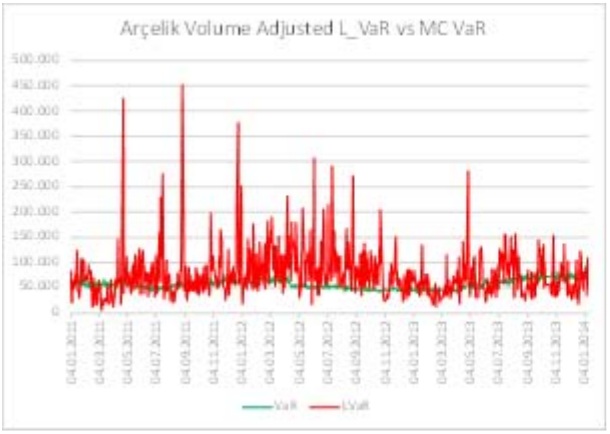
a) Data and Limitations

04.01.2011 and 15.04.2014 is the period used in the study since it is the period in which the financial turbulences of the subprime mortgage crisis slowed down and certain regulatory decisions are made. Both securities and foreign currencies are used as risk as they have different trading motivations and market structures. Arçelik, Bimaş, Ereğli Demir Çelik, Halk Bankası, Kardemir, Şişe Cam Fabrikaları, Tofaş Oto Fabrikaları and Ülker are the securities used in modeling. USD/TRY, EUR/TRY and EUR/USD are the currencies analyzed in the models. They are used in the models as they are the most traded currencies traded in the foreign exchange markets. Bid, ask, mid prices and volume data is taken for the stocks. For currency pairs bid, ask, mid prices and implied volatility data is used as it shows how volatile the market can be in the future. 1 month at the money implied volatility data for USD/TRY, EUR/TRY and EUR/USD is obtained from the volatility surface. For the stocks used in modeling only historical volatility is used. Liquidity adjusted value at risk is calculated for each of these risk factors with Transaction Cost Approach, Endogenous Spread Approach and Exogenous Spread Approach as well as the proposed models.

IV. Application of Market Risk and Liquidity Risk Models and the Illustration of Analysis

a) Liquidity Value at Risk Model Applications

We have calculated the liquidity value at risk for the underlying assets with the 3 liquidity risk models stated in the literature and Volume Adjusted L_VaR and Implied Volatility Adjusted L_VaR.



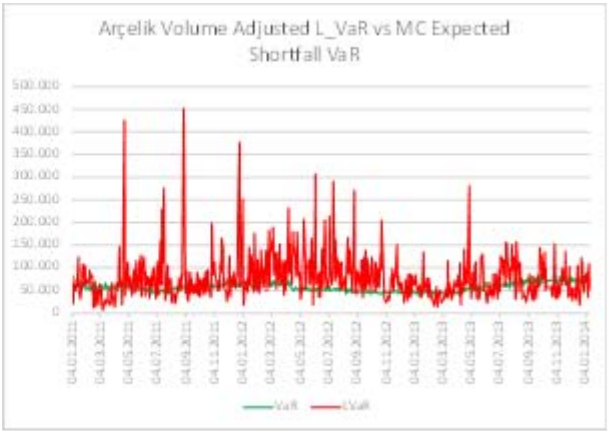


Fig. 4.1: VaR and L_VaR Results for Arçelik

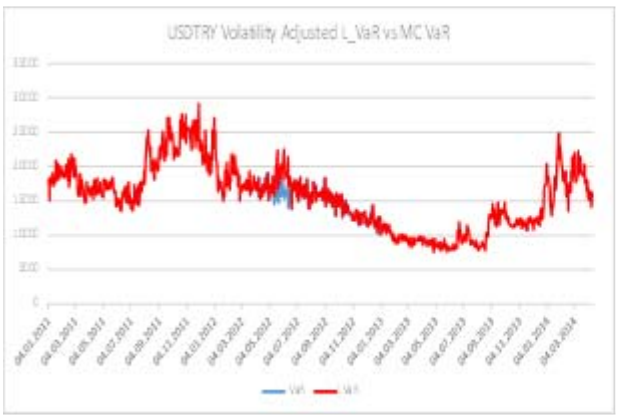


Fig. 4.2: VaR and L_VaR Results for USDTRY

The results of L_VaR Volatility Based Model reveal that when volatility increases the cost of liquidity increases which in return causes an increase in risk.

b) Backtesting of Models

Backtesting results show that volatility based adjustment on MC VaR results have better performance than VaR results. L_VaR results calculated by volatility adjustment at certain times worsens the VaR results that causes the number of overdraws being less than VaR. Thus, the effectiveness of risk measurement increases.

As depicted in Tables 4.1 the backtesting results of Arçelik for the period analyzed Volume Adjusted L_VaR has the smallest number of overdraws. However, the number of overdraws for all 4 of the L_VaR models is less than the Monte Carlo VaR Model results. That is, liquidity adjustment increases the effectiveness of the market risk calculations. The number of overdraws of MC Expected Shortfall is less than that of Monte Carlo VaR.

The backtesting results of USDTRY for the period analyzed Implied Volatility Adjusted L_VaR has the smallest number of overdraws. However, the number of overdraws for all 4 of the L_VaR models is less than the Monte Carlo Expected Shortfall Model results. That is, liquidity adjustment increases the effectiveness of the market risk calculations. The number of overdraws for market risk calculations improve when it is calculated with Monte Carlo Expected Shortfall instead of MC VaR. This is due to the fact that Expected Shortfall also takes into account the tails of the profit and loss distribution.

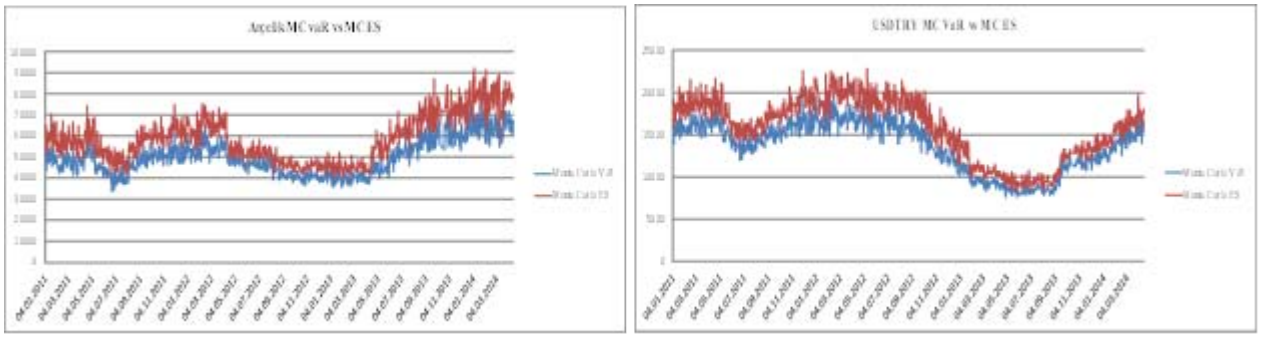


Fig. 4.3: Monte Carlo VaR and Monte Carlo Expected Shortfall for Arçelik and USDTRY

Tab. 4.1: Arçelik and USDTRY Backtesting Results with MC VaR and MC Expected Shortfall

Date	Arçelik					USDTRY					Arçelik					USDTRY				
	MC VaR	L_VaR Constant Spread	L_VaR Endo. Spread	L_VaR Exo. Spread	L_VaR Volume Adj.	MC VaR	L_VaR Constant Spread	L_VaR Endo. Spread	L_VaR Exo. Spread	L_VaR Imp. Vol. Adj.	MC_ES	L_VaR Constant Spread	L_VaR Endo. Spread	L_VaR Exo. Spread	L_VaR Volume Adj.	MC_ES	L_VaR Constant Spread	L_VaR Endo. Spread	L_VaR Exo. Spread	L_VaR Imp. Vol. Adj.
14.04.2014	5	5	5	5	4	11	10	8	8	5	5	5	5	5	4	8	10	8	8	5
31.03.2014	5	5	5	5	4	11	10	8	8	5	5	5	5	5	4	8	10	8	8	5
28.02.2014	5	5	5	5	4	10	9	7	7	4	5	5	5	5	4	7	9	7	7	4
31.01.2014	5	5	5	5	4	10	9	7	7	4	5	5	5	5	4	7	9	7	7	4
31.12.2013	4	4	4	4	3	9	8	6	6	4	4	4	4	4	3	6	8	6	6	4
29.11.2013	4	4	4	4	3	8	7	5	5	4	4	4	4	4	3	5	7	5	5	4
31.10.2013	5	5	5	5	4	8	7	5	5	4	5	5	5	5	4	5	7	5	5	4
30.09.2013	5	5	5	5	4	8	7	5	5	4	5	5	5	5	4	5	7	5	5	4
29.08.2013	5	5	5	5	4	4	4	2	2	2	5	5	5	5	4	2	4	2	2	2
31.07.2013	4	4	4	4	3	3	3	1	1	1	4	4	4	4	3	1	3	1	1	1
28.06.2013	4	4	4	4	3	2	2	1	1	1	4	4	4	4	3	1	2	1	1	1
31.05.2013	2	2	2	2	2	0	0	0	0	0	2	2	2	2	2	0	0	0	0	0
30.04.2013	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0
29.03.2013	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0
28.02.2013	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0
31.01.2013	1	2	2	2	1	0	0	0	0	0	1	2	2	2	1	0	0	0	0	0
31.12.2012	2	2	2	2	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1
30.11.2012	2	2	2	2	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1
31.10.2012	2	1	1	2	0	1	1	1	1	1	1	1	1	2	0	1	1	1	1	1
28.09.2012	2	1	1	2	0	3	3	2	3	1	1	1	1	2	0	2	3	2	3	1
31.08.2012	2	1	1	2	0	3	3	2	3	1	1	1	1	2	0	2	3	2	3	1
31.07.2012	4	3	3	4	2	3	3	2	3	1	3	3	3	4	2	2	3	2	3	1
29.06.2012	4	3	3	4	2	3	3	2	3	1	3	3	3	4	2	2	3	2	3	1
31.05.2012	4	3	3	4	2	3	3	2	3	1	3	3	3	4	2	2	3	2	3	1
30.04.2012	4	3	3	4	2	3	3	2	3	1	3	3	3	4	2	2	3	2	3	1
30.03.2012	4	3	3	4	2	3	3	2	3	1	3	3	3	4	2	2	3	2	3	1
29.02.2012	5	5	5	6	3	3	3	2	3	1	3	5	5	6	2	2	3	2	3	1
31.01.2012	6	5	5	6	4	3	3	2	3	1	4	5	5	6	3	2	3	2	3	1
30.12.2011	5	4	4	5	4	2	2	1	2	0	3	4	4	5	3	1	2	1	2	0

V. Conclusion

Liquidity value at risk is a major concern for the asset and portfolio management. In order to measure the liquidity risk spread based models has been used extensively. Among the spread based models, constant spread model, exogeneous spread model, endogeneous spread model are the most widely used. However, spread based model had not performed well during the 2008 crisis when the volatility and volume of underlying assets fell to very low levels. Since then, they have been criticized and alternative models have been proposed.

Decrease in market trading volume increase the risk perception in the market. In such periods, increase in VaR could increase the kurtosis and volatility which both are indicators of overall risk. Both the investigation of the figures and analyses f the regression results imply a relationship between the risk and volume. Yet, rather than calculating and L_VaR value for each observation, in our model we are specially interested in cases of where the volume falls below the average in times of contraction and calculate the COL values as a function of such situations. And this differentiates L_VaR from VaR in all cases and includes the degree of diversion from the average to the VaR adjustment process. Backtests results indicate that at times of higher risk, adjustment based on the degree of volume contraction reveal less diversion and provide a better forecasting of the risk.

Volatility and risk are inter-related concepts as volatility can be defined as a function of uncertainty and real risk measure. The regression analysis depicts the relation between risk and implied volatility. In implied volatility adjusted L_VaR modeling COL is calculated as a function of implied volatility for the days when daily implied volatility is below the annual average implied volatility. Thus, L_VaR differs from VaR only when an adjustment factor is calculated. That is, when implied volatility deviates from annual average volatility. The backtesting results show that implied volatility based adjustments improves the results of risk calculations when risk in the financial markets do increase.

In this study we propose volume and volatility adjusted liquidity risk modeling. 8 quities from Borsa Istanbul and 3 FX couples are used as sample set. VaR values are calculated using Monte Carlo Simulation Technique. COL values are calculated for cases where volume is below the average for equities and implied volatility is above the average for FX pairs. Backtest are conducted for the period of 04.01.2011 and 15.04.2014. Same procedure is repeated using constant spread, exogeneous spread and endogeneous spread. Comparative analyses revealed that volume and volatility based models had less margin of error. In this study, we propose volume and volatility adjusted liquidity risk modeling. 8 quities from Borsa Istanbul and 3 FX couples are used as sample set. VaR values are calculated using Monte Carlo Simulation Technique. COL values are calculated for cases where volume is below the average for equities and implied volatility is above the average for FX pairs. Backtest are conducted for the period of 04.01.2011 and 15.04.2014. Same procedure is repeated using constant spread, exogeneous spread and endogeneous spread. Comparative analyses revealed that volume and volatility based models had less margin of error.

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Appendix

Regression Results

Monte Carlo VaR Regression Results

PANEL A

Risk Factor	EUR/TRY	EUR/USD	USD/TRY	ARCLK	BIMAS	EREGL	HALKB	KRDMD	SİSE	TOASO	ULKER
MC VaR (implied volatility)	1.414	0.728	2.117								
Std. Err.	0.059	0.014	0.113								
MC VaR (volume)				-0.324	0.541	-0.644	0.963	-0.255	-1.626	0.203	-0.624
Std. Err.				0.089	0.094	0.893	0.111	0.054	0.075	0.078	0.071
Constant	-12.241	-4.877	-18.901	18.239	5.465	23.990	2.797	19.622	34.383	11.108	21.223
Std. Err.	0.604	0.136	1.130	1.148	1.319	1.023	1.506	0.576	0.874	1.042	0.895
F	577.71	2771.66	353.87	13.49	32.86	51.99	75.09	22.38	464.63	6.72	78.24
Adj R-squared	0.35	0.72	0.25	0.01	0.03	0.05	0.06	0.02	0.33	0.01	0.07
Num. of Obs.	1079	1079	1079	1079	1079	1079	1079	1079	1079	1079	1079

PANEL B

Risk Factor	EUR/TRY	EUR/USD	USD/TRY	ARCLK	BIMAS	EREGL	HALKB	KRDMD	SİSE	TOASO	ULKER
Implied volatility (spread)	0.09	0.158	0.120								
Std. Err.	0.01	0.02	0.01								
Volume (spread)				0.129	-0.12	0.52	-0.82	0.447	-0.44	0.14	-0.32
Std. Err.				0.03	0.04	0.07	0.07	0.24	0.07	0.03	0.06
Constant	2.82	3.71	3.21	14.44	12.80	19.08	13.49	19.06	13.50	14.27	12.19
Std. Err.	0.07	0.14	0.06	0.12	0.09	0.35	0.19	1.17	0.31	0.11	0.20
F	62.38	96.19	197.71	13.67	6.79	51.25	158.09	3.44	43.89	18.42	31.54
Adj R-squared	0.05	0.08	0.15	0.01	0.01	0.04	0.13	0.00	0.04	0.02	0.03
Num. of Obs.	1079	1079	1079	1079	1079	1079	1079	1079	1079	1079	1079

PANEL C

Risk Factor	EUR/TRY	EUR/USD	USD/TRY	ARCLK	BIMAS	EREGL	HALKB	KRDMD	SİSE	TOASO	ULKER
MC VaR (implied volatility)	1.382	0.772	1.849								
Std. Err.	0.062	0.015	0.108								
MC VaR (volume)				-0.526	0.570	-0.517	0.553	-0.321	-1.603	0.095	-0.725
Std. Err.				0.095	0.094	0.091	0.117	0.057	0.079	0.084	0.106
Implied volatility (spread)	0.015	-0.065	0.093								
Std. Err.	0.010	0.010	0.008								
Volume (spread)				0.207	-0.137	0.417	-0.702	0.903	-0.073	0.128	0.106
Std. Err.				0.037	0.044	0.074	0.069	0.251	0.059	0.036	0.083
Constant	-11.829	-5.890	-15.550	21.479	4.788	24.505	6.341	24.683	33.772	12.970	22.873
Std. Err.	0.664	0.204	1.098	1.273	1.326	1.013	1.481	1.520	1.038	1.159	1.570
F	290.29	1467.04	271.94	22.44	21.83	42.54	92.56	17.78	234.45	9.85	39.96
Adj R-squared	0.35	0.73	0.33	0.04	0.04	0.07	0.15	0.03	0.30	0.02	0.07
Num. of Obs.	1079	1079	1079	1079	1079	1079	1079	1079	1079	1079	1079

MONTE CARLO EXPECTED SHORTFALL REGRESSION RESULTS

PANEL A

Risk Factor	EUR/TRY	EUR/USD	USD/TRY	ARCLK	BIMAS	EREGL	HALKB	KRDMD	SİSE	TOASO	ULKER
MC ESF (implied volatility)	0**	0**	0**								
Std. Err.	0.066	0.016	0.116								
MC ESF (volume)				0**	0**	0**	0**	0**	0**	0**	0**
Std. Err.				0.081	0.081	0.103	0.120	0.053	0.815	0.066	0.068
Constant	-5.377	-5.863	-13.327	18.216	5.927	24.934	0.681	19.539	33.802	9.561	21.592
Std. Err.	0.695	0.163	1.189	1.064	1.151	1.204	1.653	0.581	0.955	0.912	0.878
F	121.47	2516.33	173.86	15.53	38.01	47.75	84.48	20.73	365.30	21.68	89.14
Adj R-squared	0.10	0.70	0.14	0.01	0.03	0.04	0.07	0.02	0.25	0.02	0.08
Num. of Obs.	1079	1079	1079	1079	1079	1079	1079	1079	1079	1079	1079

PANEL B

Risk Factor	EUR/TRY	EUR/USD	USD/TRY	ARCLK	BIMAS	EREGL	HALKB	KRDMD	SİSE	TOASO	ULKER
Implied volatility (spread)	0**	0**	0**								
Std. Err.	0.11	0.02	0.01								
Volume (spread)				0**	0**	0**	0**	0.447	0**	0**	0**
Std. Err.				0.03	0.04	0.07	0.07	0.24	0.07	0.03	0.06
Constant	2.82	3.71	3.21	14.44	12.80	19.08	13.49	19.06	13.50	14.27	12.19
Std. Err.	0.07	0.14	0.06	0.11	0.09	0.35	0.19	1.17	0.31	0.11	0.20
F	62.38	96.19	197.71	13.67	6.79	51.25	158.09	3.44	43.89	18.42	31.54
Adj R-squared	0.05	0.08	0.15	0.01	0.01	0.04	0.13	0.00	0.04	0.02	0.03
Num. of Obs.	1079	1079	1079	1079	1079	1079	1079	1079	1079	1079	1079

PANEL C

Risk Factor	EUR/TRY	EUR/USD	USD/TRY	ARCLK	BIMAS	EREGL	HALKB	KRDMD	SİSE	TOASO	ULKER
MC VaR (implied volatility)	0**	0**	0**								
Std. Err.	0.06	0.02	0.10								
MC VaR (volume)				0**	0**	0**	0**	0**	0**	0	0**
Std. Err.				0.09	0.08	0.10	0.12	0.06	0.09	0.08	0.10
Implied volatility (spread)	0**	0**	0**								
Std. Err.	0.01	0.01	0.01								
Volume (spread)				0**	0**	0**	0**	0**	-0.065	0.077	0.153
Std. Err.				0.04	0.04	0.07	0.07	0.25	0.06	0.04	0.08
Constant	-4.75	-6.97	-14.45	21.25	5.30	25.25	3.31	24.62	33.19	11.10	23.93
Std. Err.	0.68	0.23	1.05	1.18	1.16	1.19	1.59	1.53	1.15	1.24	1.53
F	97.45	1331.02	266.61	23.88	24.59	41.01	102.79	16.89	183.93	12.54	46.39
Adj R-squared	0.15	0.71	0.33	0.04	0.04	0.07	0.16	0.03	0.25	0.02	0.08
Num. of Obs.	1079	1079	1079	1079	1079	1079	1079	1079	1079	1079	1079

* *significant at %95*
** *significant at %99*

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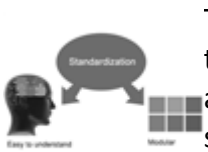

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(f) Results should be presented concisely, by well-designed tables and/or figures; the same data may not be used in both; suitable statistical data should be given. All data must be obtained with attention to numerical detail in the planning stage. As reproduced design has been recognized to be important to experiments for a considerable time, the Editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned un-refereed;

(g) Discussion should cover the implications and consequences, not just recapitulating the results; conclusions should be summarizing.

(h) Brief Acknowledgements.

(i) References in the proper form.

Authors should very cautiously consider the preparation of papers to ensure that they communicate efficiently. Papers are much more likely to be accepted, if they are cautiously designed and laid out, contain few or no errors, are summarizing, and be conventional to the approach and instructions. They will in addition, be published with much less delays than those that require much technical and editorial correction.

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It is vital, that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.

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Language: The language of publication is UK English. Authors, for whom English is a second language, must have their manuscript efficiently edited by an English-speaking person before submission to make sure that, the English is of high excellence. It is preferable, that manuscripts should be professionally edited.

Standard Usage, Abbreviations, and Units: Spelling and hyphenation should be conventional to The Concise Oxford English Dictionary. Statistics and measurements should at all times be given in figures, e.g. 16 min, except for when the number begins a sentence. When the number does not refer to a unit of measurement it should be spelt in full unless, it is 160 or greater.

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Key Words

A major linchpin in research work for the writing research paper is the keyword search, which one will employ to find both library and Internet resources.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy and planning a list of possible keywords and phrases to try.

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- One should start brainstorming lists of possible keywords before even begin searching. Think about the most important concepts related to research work. Ask, "What words would a source have to include to be truly valuable in research paper?" Then consider synonyms for the important words.
- It may take the discovery of only one relevant paper to let steer in the right keyword direction because in most databases, the keywords under which a research paper is abstracted are listed with the paper.
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Keywords are the key that opens a door to research work sources. Keyword searching is an art in which researcher's skills are bound to improve with experience and time.

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Acknowledgements: Please make these as concise as possible.

References

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References to information on the World Wide Web can be given, but only if the information is available without charge to readers on an official site. Wikipedia and Similar websites are not allowed where anyone can change the information. Authors will be asked to make available electronic copies of the cited information for inclusion on the Global Journals Inc. (US) homepage at the judgment of the Editorial Board.

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21. Arrangement of information: Each section of the main body should start with an opening sentence and there should be a changeover at the end of the section. Give only valid and powerful arguments to your topic. You may also maintain your arguments with records.

22. Never start in last minute: Always start at right time and give enough time to research work. Leaving everything to the last minute will degrade your paper and spoil your work.

23. Multitasking in research is not good: Doing several things at the same time proves bad habit in case of research activity. Research is an area, where everything has a particular time slot. Divide your research work in parts and do particular part in particular time slot.

24. Never copy others' work: Never copy others' work and give it your name because if evaluator has seen it anywhere you will be in trouble.

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26. Go for seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.

27. Refresh your mind after intervals: Try to give rest to your mind by listening to soft music or by sleeping in intervals. This will also improve your memory.

28. Make colleagues: Always try to make colleagues. No matter how sharper or intelligent you are, if you make colleagues you can have several ideas, which will be helpful for your research.

29. Think technically: Always think technically. If anything happens, then search its reasons, its benefits, and demerits.

30. Think and then print: When you will go to print your paper, notice that tables are not be split, headings are not detached from their descriptions, and page sequence is maintained.

31. Adding unnecessary information: Do not add unnecessary information, like, I have used MS Excel to draw graph. Do not add irrelevant and inappropriate material. These all will create superfluous. Foreign terminology and phrases are not apropos. One should NEVER take a broad view. Analogy in script is like feathers on a snake. Not at all use a large word when a very small one would be sufficient. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Amplification is a billion times of inferior quality than sarcasm.

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Key points to remember:

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Final Points:

A purpose of organizing a research paper is to let people to interpret your effort selectively. The journal requires the following sections, submitted in the order listed, each section to start on a new page.

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· Use present tense to report well accepted

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- Significant conclusions or questions that track from the research(es)

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- Give details all of your remarks as much as possible, focus on mechanisms.
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Topics	Grades		
	A-B	**C-D**	**E-F**
Abstract	Clear and concise with appropriate content, Correct format. 200 words or below	Unclear summary and no specific data, Incorrect form Above 200 words	No specific data with ambiguous information Above 250 words
Introduction	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
Methods and Procedures	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
Result	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
Discussion	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

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