Volume 35, Issue 3

Ownership structure and portfolio performance: Pre- and post-crisis evidence from the Casablanca Stock Exchange

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Abstract

This paper uses the data from Casablanca Stock Exchange to document whether the value relevance of ownership structure changed as the market conditions changed. We show that the performance (average returns, Sharpe ratios, Sortino ratios, information ratios and CAPM alpha) of portfolios comprising of firms with concentrated ownership structure deteriorate significantly during the post-crisis period – the period characterized by lack luster market conditions. We show relatively poor performance of these portfolios relative to portfolios comprising of firms with dispersed ownership structure during the post-crisis period. We argue that lack luster performance of the Casablanca Stock Exchange during the post-crisis period, increased the incentives for controlling shareholders to expropriate. Investors recognized these incentives and discounted firms that were more likely to expropriate.

1. Introduction

Modern corporation has given rise to the principal-agent relationship – also known as agency problems in traditional finance. This relationship can be thought of as the interaction between shareholders and managers and is characterized by the potential misalignment of goals, where managers may adopt a behaviour that serves their interests at the expense of shareholders. Traditional finance states that agency problems arise when shareholders cannot perfectly monitor the managers (Jensen and Meckling, 1976). Lack of monitoring allows managers to consume more perquisites than previously agreed. One way to reduce agency problems between shareholders and managers is to have concentration of ownership. Concentrated ownership reduces agency problems by tying bulk of shareholder's wealth in a firm. Excessive stake in a firm leads to more stringent monitoring by shareholders, which eventually, translates into better performance. Gedajlovic and Shapiro (2002) document that increased concentration of ownership in the hands of shareholders enhances firm performance. In another related study, Shleifer and Vishny (1986) argue that concentrated ownership structures reduce agency problems by tying bulk of owner's wealth in a firm. Excessive stake in a firm, eventually, leads to better firm performance by inducing shareholders to monitor managers. Chami (2001) also comes to the same conclusion by arguing that significant stake of a controlling shareholder in a firm translates into his altruistic commitment and increased effort. As a result, firms with concentrated ownership structures perform better than other firms. This strand of literature notes that ownership structure enhances the ability of controlling shareholders to limit the extent to which managers can act in their own interest at the expense of shareholders. As a result, ownership structure is an important determinant of firm performance (Gedajlovic and Shapiro, 2002). The importance of concentrated ownership increases manifold in emerging markets. These markets are characterized by weak investor protection mechanisms. Prior literature argues that concentration of ownership insinuate an implicit assurance to minority shareholders that their interests in the firm are protected (La Porta et al., 1999; Burkart et al., 2003).

However, contrary to above arguments, there is ample evidence that suggests the opposite. These opposing arguments document that ownership concentration gives rise to the conflicts of interests between controlling shareholders and minority shareholders. Prior literature suggests that controlling shareholders can prioritize their own benefits at the expense of minority shareholders (Shleifer and Vishny 1986). For instance, they can expropriate resources of firms by paying themselves excessive salaries, avoiding risks, and offering their unqualified relatives executive positions and board seats (Wiwattanakantang, 2001). A real life example that can be cited to highlight the conflicts of interest between controlling shareholders and minority shareholders is that of United Engineers Malaysia UEM) who bought shares in its parent firm, Renong Berhad, for an artificially high price. The shares purchased were those held by family members of the management of UEM and Renong Berhad (Business Week, June 8, 1998). Such an action was equivalent to theft and resulted in destroying firm value. Ownership concentration is, therefore, linked with lower firm performance (Mitton, 2002).

Given contradicting relationship between ownership concentration and firm performance, it is worthwhile to explore this relationship in more detail. For the purpose of this paper, we document the relationship between ownership concentration and portfolio performance in Morocco – one of the fastest growing markets in the Middle East and North Africa (MENA) region. Morocco is an ideal laboratory to study the relationship between ownership concentration and firm performance for a number of reasons. First, due to weak country-level governance

environment, it provides opportunities to controlling shareholders to expropriate. However, at the same time, it provides incentives to controlling shareholders for reputation building. Second, it is at a level of economic development which is lower than that of major emerging markets. Therefore, it is not entirely clear whether the results of other emerging markets will hold in Morocco or not. Third, large numbers of Moroccan firms (most of which have concentrated ownership) have connections with the Palace. Therefore, they enjoy unfair advantage relative to other firms (most of which have dispersed ownership).

Using the data from 2004 to 2014, our results show that portfolios comprising of firms with concentrated ownership outperform their counterpart portfolios comprising of firms with dispersed ownership during the period preceding the recent global financial crisis of 2008. We show that the performance measures (average returns, Sharpe ratios, Sortino ratios, information ratios and CAPM alpha) of concentrated ownership portfolios are higher than the performance measures of dispersed ownership portfolios during the pre-crisis period. However, we also show that this relationship reverses in the post-crisis period. Our results show that portfolios comprising of firms with concentrated ownership underperform their counterpart portfolios comprising of firms with dispersed ownership during the post-crisis period. We show that the performance measures (average returns, Sharpe ratios, and excess returns) of concentrated ownership portfolios are lower than the performance measures of dispersed ownership portfolios during the post-crisis period. We argue that Moroccan stock market has still not recovered fully the crisis. In fact, the market index at the end of 2014 was less than what it was at the start of 2009 – start of the post-crisis period. We argue that incentives to expropriate increase manifold during the periods of lack luster performance. Johnson et al. (2000) argue that incentives to expropriate minority shareholders increase during the period when stock prices experience sustain decline. They argue that such periods can lead to greater expropriation because managers are led to expropriate more as the expected return on investment falls. We argue that investors recognize that controlling shareholders have increased incentives for expropriation during economic downturns. As a result, they discount firms that are more likely to experience expropriation. Consequently, we observe negative performance of firms with concentrated ownership. Incentives to expropriate were minimal in the pre-crisis period – the period in which the market index almost quadrupled. Investors, therefore, ignored any weakness in governance environment. Rajan and Zingales (1998) argue that investors usually ignore governance weaknesses during the tranquil periods. Therefore, we argue that investors did not discount firms that are more likely to experience expropriation during the pre-crisis period.

Interestingly, we also show that the results obtained above are not transported to the risk profile of firms. We show that dispersed ownership firms are more risky than concentrated ownership firms in both periods. Using value at risk and expected shortfall as a measure of risk, we show that portfolios comprising of firms with dispersed ownership are riskier than portfolios comprising of firms with concentrated ownership during the pre-crisis and the post-crisis periods. Consistent with above arguments, we note that it is the change in the attitude of investors that caused reversal in fortunes for dispersed ownership firms in the post-crisis period. We argue that the risk profile of firms did not change across the two periods, but the attitude towards risk did.

The remainder of this paper is organized as follows: Section 2 provides descriptive statistics for the data. Section 3 documents methodology and results. The paper concludes with Section 4.

2. Data

This paper attempts to document whether ownership structure affects performance of Moroccan firms during the period between 2004 and 2014. For the purpose of this paper, we classify our sample into the pre-crisis (January 2004 – December 2007) and the post-crisis periods (January 2009 – December 2014). Our timeline is motivated by the Federal Reserve Board of St. Louis (2009) and the Bank for International Settlements (BIS, 2009) who characterize the initial part of 2008 as a period of "initial financial turmoil" in international markets and the later part of 2008 as a period of "sharp financial market deterioration". Figure 1 also shows that the Moroccan stock exchange index experienced sharp decline only in 2008.

Figure 1: Evolution of market index
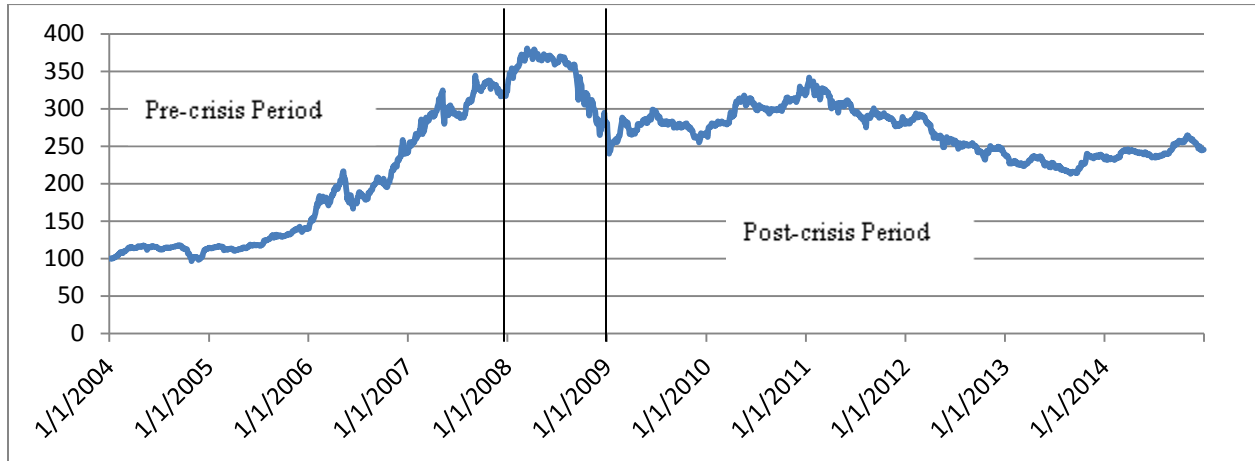
This paper classifies firms into two groups:[1] (1) Firms where the largest shareholder owns more than 50% of the shares, and (2) Firms where none of the shareholder owns more than 50% of shares. The data for ownership structure is obtained from the Casablanca Stock Exchange. The stock exchange provides historic year-end data on the ownership of the five largest shareholders in every firm. Based on this data, we compute daily returns of equally-weighted ($RET_{EQUAL,t}$) and value-weighted ($RET_{VALUE,t}$) portfolios on day 't' as follows for both groups. In the following equations, MV is the market value of a firm and N is the number of firms in the portfolio. Portfolios are rebalanced at the end of each year.

$$RET_{EQUAL,t} = \frac{\sum_{N=1}^{n} RET_{N,t}}{N} \qquad (1)$$

And

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[1] We would like to mention that an average Moroccan firm is owned and controlled by a single entity. During our sample period, there was not a single year when the average holding of the largest shareholder dropped below 50%. More specifically, average holding of the largest shareholder in Moroccan firms was as follows during our sample period: 54.48% in 2004, 51.80% in 2005, 53.60 in 2006, 53.47% in 2007, 54.86% in 2008, 54.72% in 2009, 55.63% in 2010, 56.28 in 2011, 55.87% in 2012, 55.26% in 2013, and 55.86% in 2014.

$$RET_{VALUE,t} = \frac{\sum\limits_{N=1}^{n} MV_{N,t-1} * RET_{N,t}}{\sum\limits_{N=1}^{n} MV_{N,t-1}} \tag{2}$$

Figure 2 shows the evolution of both portfolios during our sample period. Both portfolios are assigned an initial value of 100. Dispersed ownership portfolio is represented by the dashed line, while concentrated ownership portfolio is represented by the solid line.

Figure 2: Evolution of portfolios

Graph 1: Equally-weighted portfolios
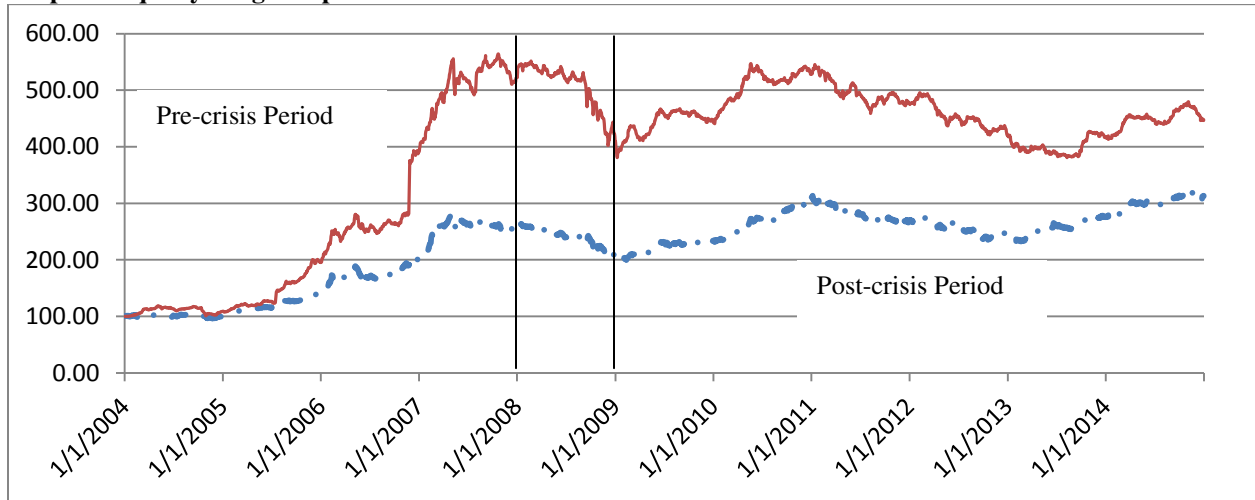
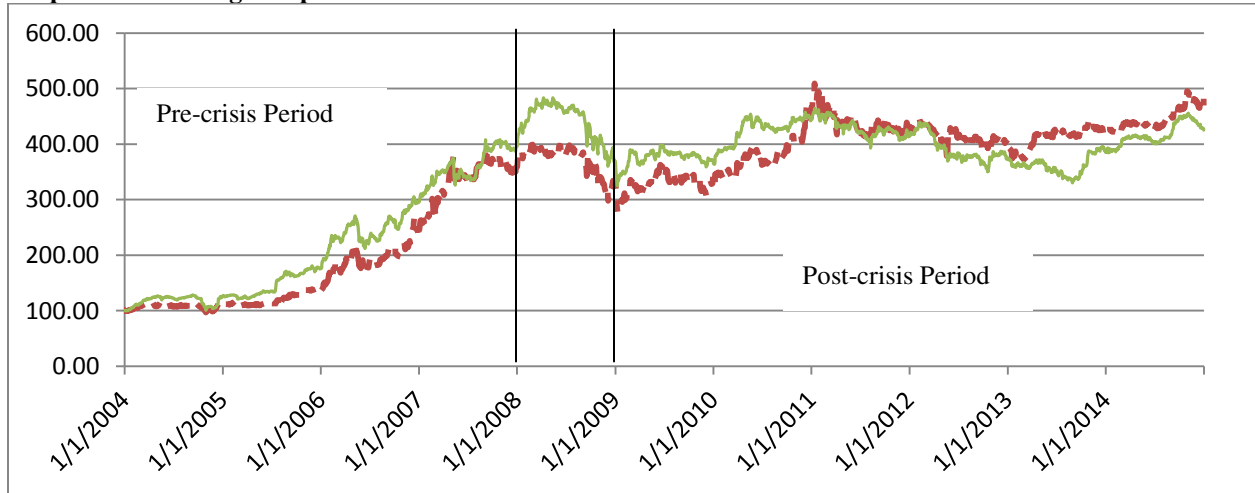**Graph 2: Value-weighted portfolios**

Figure 2 shows that the line representing concentrated ownership portfolio (solid line) is always above the line representing dispersed ownership portfolio (dashed line) during the pre-crisis period. It may indicate better performance of concentrated ownership portfolio (equally-weighted as well as value-weighted) relative to dispersed ownership portfolio during this period. However, Figure 2 also indicates that in the later part of the post-crisis period, value-weighted dispersed ownership portfolio performs better than its counterpart portfolio.

3. Methodology and results
3.1 Descriptive statistics

Table 1 documents the descriptive statistics for portfolios used in this study. The results in Panel A suggest that concentrated ownership portfolios not have higher average returns but also are more positively skewed than their counterpart portfolios. Furthermore, higher average returns and more positively skewed returns come with low standard deviation. It indicates better performance of concentrated ownership firms relative to dispersed ownership firms during the pre-crisis period. However, the results in Panel B indicate the reversal of fortunes for dispersed ownership firms in the post-crisis period. We show that, during the post-crisis period, dispersed ownership portfolios not have higher average returns but also are relatively more positively skewed than their counterpart portfolios.

Table 1: Descriptive statistics

Panel A: Pre-crisis period (January 2004 – December 2007)

	Equally-weighted Portfolios		Value-weighted Portfolios	
	Dispersed Ownership	Concentrated Ownership	Dispersed Ownership	Concentrated Ownership
Mean	0.00093	0.00166	0.00128	0.00137
Median	0.00066	0.00110	0.00068	0.00093
Standard Deviation	0.00741	0.01331	0.01053	0.01009
Skewness	1.27997	15.91922	-0.05275	1.53083
Kurtosis	21.30477	382.66180	6.60641	26.16996

Panel B: Post-crisis period (January 2009 – December 2014)

	Equally-weighted Portfolios		Value-weighted Portfolios	
	Dispersed Ownership	Concentrated Ownership	Dispersed Ownership	Concentrated Ownership
Mean	0.00026	0.00006	0.00026	0.00011
Median	0.00001	0.00000	0.00000	0.00000
Standard Deviation	0.00489	0.00452	0.00857	0.00669
Skewness	0.25374	-0.24238	-0.11736	-0.15329
Kurtosis	9.59852	5.33165	7.42526	7.28617

3.2 Performance analysis

This paper measures performance of each portfolio via following variables: (1) Sharpe Ratio, (2) Sortino Ratio, (3) Information Ratio, and (4) CAPM Alpha. All of the performance measures have monthly frequency.

The Sharpe Ratio (SHARPE) is the measure for calculating risk-adjusted return. It describes how much excess return an investor receives for the extra volatility that he endures for holding a risky portfolio. The Sharpe ratio is computed as follows. In the following equation, R_P is the return of portfolio, σ_P is the standard deviation of portfolio, and R_f is the risk-free rate of return. Higher value of SHARPE indicates good performance.

$$\text{SHARPE}_P = \frac{R_P - R_f}{\sigma_P} \qquad (1)$$

The Sortino ratio (SORTINO) is a variation of the Sharpe ratio. It differentiates harmful volatility from general volatility by taking into account the standard deviation of negative asset returns, called downside deviation. The Sortino ratio is computed as follows. All variables are as defined above. A large Sortino ratio indicates there is a low probability of a large loss.

$$\text{SORTINO}_P = \frac{R_P - R_f}{\sigma_P \text{ when } R_P < R_f} \tag{2}$$

Another variation of Sharpe ratio is called the information ratio (INFORMATION). It is the ratio of portfolio returns above the returns of a benchmark (usually an index) to the volatility of those returns. It measures investor's consistency to generate returns relative to benchmark. It is computed as follows. In the following equation, R_M is the return of market and $\sigma_{(P-M)}$ is the tracking error − standard deviation of the difference between returns of portfolio and returns of market.

$$\text{INFORMATION}_P = \frac{R_P - R_M}{\sigma_{(P-M)}} \tag{3}$$

The CAPM alpha (α) – proxy for excess returns – is the return earned in excess of market return. It is computed as follows for all portfolios to see which of them outperform the market.

$$\text{RET}_{P,t} = \alpha + \beta\left(\text{RET}_{M,t}\right) + \varepsilon_{P,t} \tag{4}$$

The results of our analysis are reported in Table 2.

Table 2: Performance analysis

Panel A: Pre-crisis period (January 2004 – December 2007)

Performance Measures	Equally-weighted Portfolios		Value-weighted Portfolios	
	Dispersed Ownership	Concentrated Ownership	Dispersed Ownership	Concentrated Ownership
Sharpe Ratio	0.14726***	0.19478***	0.14632***	0.18356***
Sortino Ratio	0.32932***	0.62941***	0.33196***	0.58520***
Information Ratio	-0.05147	0.02907	0.01050	0.01825
CAPM Alpha	0.00713*	0.01564**	0.00555*	0.00273

Panel B: Post-crisis period (January 2009 – December 2014)

Performance Measures	Equally-weighted Portfolios		Value-weighted Portfolios	
	Dispersed Ownership	Concentrated Ownership	Dispersed Ownership	Concentrated Ownership
Sharpe Ratio	0.06744**	0.02300	0.03390	0.01763
Sortino Ratio	0.24212***	0.14469***	0.08992**	0.14063
Information Ratio	0.06493***	0.02750	0.06271***	0.06637***
CAPM Alpha	0.00644***	0.00203	0.00703***	0.00371***

NOTE: 1% significance is indicated by ***, 5% significance is indicated by **, and 10% significance is indicated by *.

Table 2 confirms findings of superior performance of concentrated ownership firms during the pre-crisis period and better performance of dispersed ownership firms during the post-crisis period. We report higher values of SHARPE, SORTINO, INFORMATION and α for dispersed ownership firms during the post-crisis period. The only exception is the information ratio for value-weighted portfolio during the post-crisis period. For value-weighted portfolio, we document higher value of information ratio for concentrated ownership firms. We also report higher values of SHARPE, SORTINO, INFORMATION and α for concentrated ownership firms

during the pre-crisis period. The only exception is CAPM alpha for value-weighted portfolio during the post-crisis period. For value-weighted portfolio, we document higher value of CAPM alpha for dispersed ownership firms.

4. Discussion of results

An important question that arises here is: Does the risk behavior of concentrated ownership portfolios and dispersed ownership portfolios varied across the pre-crisis and the post-crisis periods? In order to answer this question, we estimate value at risk and expected shortfall for both portfolios during the pre-crisis and the post-crisis periods. Value-at-risk (VaR) is a widely used measure for the risk of loss on a specific portfolio of financial assets. Expected shortfall (ES) is an alternative to value-at-risk and is more sensitive to the shape of the loss distribution in the tail of the distribution. Results of our analysis are reported in Table 3. Unlike the results for returns, our results indicate higher risk for dispersed ownership firms in both periods. For instance, the results of VaR indicate that, with 90% confidence, the maximum loss incurred by dispersed ownership firms will be more than loss incurred by concentrated ownership firms in both periods. Table 3 shows more negative values for dispersed ownership portfolios in both periods. Similarly, our results for ES show that, if the worst 10% comes true, dispersed ownership firms will lose more than concentrated ownership firms. We show more negative values of ES for dispersed ownership portfolio.

Table 3: Additional tests for performance analysis

Panel A: Pre-crisis period (January 2004 – December 2007)

Performance Measures	Equally-weighted Portfolios		Value-weighted Portfolios	
	Dispersed Ownership	Concentrated Ownership	Dispersed Ownership	Concentrated Ownership
Value-at-Risk	-0.00648	-0.00634	-0.00899	-0.00805
Expected Shortfall	-0.01202	-0.01229	-0.01794	-0.01639

Panel B: Post-crisis period (January 2009 – December 2014)

Performance Measures	Equally-weighted Portfolios		Value-weighted Portfolios	
	Dispersed Ownership	Concentrated Ownership	Dispersed Ownership	Concentrated Ownership
Value-at-Risk	-0.00532	-0.00506	-0.00838	-0.00732
Expected Shortfall	-0.00856	-0.00807	-0.01531	-0.01195

5. Conclusion

This paper documents the effect of ownership structure on portfolio performance across the recent financial crisis of 2008. Using the data from the Casablanca Stock Exchange, we show that portfolios comprising of firms with concentrated ownership outperform portfolios comprising of firms with dispersed ownership during the pre-crisis period. Interestingly, the performance reverses in the post-crisis period. Our results show that portfolios comprising of firms with dispersed ownership outperform their counterpart portfolios during the post-crisis period. We argue that the markets become more cautious about governance structures in periods of lack luster performance (Rajan and Zingales, 1998). Given that ownership concentration provides increased means and incentives to controlling shareholders for expropriation, investors discount these firms more than firms with dispersed ownership concentration. Our results

support earlier literature that documents negative impact of ownership concentration in emerging markets (Johnson et al., 2000; Mitton, 2002). We argue that country-specific governance environment should be enhanced to mitigate expropriation by the controlling shareholders. Strengthening of country-specific governance environment can induce foreign investors to invest in Morocco. As a further research, impact of the identity of the largest shareholder on performance may be studied.

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