

# Financial Centers And Portfolio Performance: Evidence From An Emerging Market

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## ABSTRACT

*How does location of a firm's headquarter effect its performance? This paper answers this question by using the data from India. This paper shows that portfolio of firms headquartered in Mumbai, the main financial center of the country, outperform portfolio of firms headquartered in other cities. Our results show that average returns, Sharp ratios, Farinelli and Tibiletti ratio, and CAPM alphas for portfolios comprising of firms headquartered in Mumbai are higher than their counterpart portfolios comprising of firms headquartered in other cities. We argue that firms headquartered in the financial center have better information environment than other firms. One of the channels via which improvement in information environment takes place is the clustering of firms in the financial center. We believe that, for any given level of resources, it is relatively cost effective for stock market participants to expend their resources on clustered firms to obtain value relevant information than on dispersed firms, thereby improving information environment of firms headquartered in the financial centers relative to other firms. Our arguments claim that better information environment of firms headquartered in the financial centers helps in maintaining investors' confidence.*

**Keywords:** Corporate Governance; Firm Performance; Emerging Markets; Financial Centers; Financial Crisis

## 1. INTRODUCTION

Why do certain firms outperform other firms? Does the extent of agency problems responsible for the performance of firms? Given that agency problems are important determinants of firm performance, answers to the above questions have formed the basis for plentiful of prior literature (Mitton, 2002; Johnson et al., 2000). Most of this literature revolves around understanding how firm-specific and country-specific proxies for agency problems, i.e. corporate governance mechanisms, effect firm performance. Gompers et al. (2003) document superior stock price performance of firms with lower agency problems relative to firms with higher agency problems. Consistent with Gompers et al. (2003), Johnson et al. (2000) argue that firms with high agency problems perform poorly because they are more likely to be expropriated by managers and insiders. This strand of literature argues that agency problems increase the information asymmetries between insiders and outsiders, thereby providing more opportunities to insiders to expropriate the resources. Higher expropriation, eventually, leads to lower performance.

An important factor pertaining to information environment that has been overlooked in the prior literature is how a location of firm's headquarter within a country affects its performance. This paper is an attempt to fill this gap by documenting the relationship between the two. This paper argues that firms headquartered in the financial center of a country have better information environment than firms headquartered elsewhere.<sup>1</sup> One of the channels via which improvement in information environment takes place is the clustering of firms in the financial center.

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<sup>1</sup> Financial centers may be defined as "meeting places provided for a large number of players who contribute to the smooth operation of financial markets within ecosystems, giving rise to significant synergies" (Capelle-Blancard and Tadjeddine, 2009).

Anecdotal evidence suggests that significant number of emerging market firms are clustered in and around the main financial center of a country.<sup>2</sup> Farooq and El Ouadrhiri (2013), for instance, report that around 30% of Indian firms are headquartered in Mumbai, the biggest financial center of India. We argue that clustering of firms in the financial center makes it easier for stock market participants, i.e. financial analysts and investors, to obtain information about these firms relative to firms headquartered elsewhere. Farooq and Kamri (2011) suggest that, for any given level of resources, it is relatively cost effective for stock market participants to expend their resources on clustered firms to obtain value relevant information than on dispersed firms. Therefore, it is more cost efficient for stock market participants to visit operations and talk to employees/managers of large number of clustered firms to obtain information relative to dispersed firms. Frequent visit also, eventually, translate into development of personal relationships with management of these firms, thereby improving access to private information. Greater density of firms in the financial center, therefore, allows for higher marginal utility of resources used to obtain information.

Furthermore, we believe that financial centers possess certain other characteristics as well that can make information environment of firms headquartered in the financial center better than information environment of firms headquartered in other cities. Most important of these characteristics is the presence of stock exchanges and other ancillary services. Capelle-Blancard and Tadjeddine (2009) argue that floor of stock exchange is the node around which all financial activities of the country are organized.<sup>3</sup> They note that all players in finance – banks, insurance companies, brokerage houses, and other financial intermediaries – are situated around this node.<sup>4</sup> We believe that localization of financial activity in the financial centers can improve information environment of firms headquartered in the financial centers for a number of reasons. For instance, firms with headquarters in the financial centers have more visibility than other firms. More visibility results in making stock market participants more familiar with the working of a firm and thus increasing their competencies in interpreting relevant firm-specific information. In addition, by locating themselves in the financial centers, firms can develop long-term relationships with financial intermediaries, which eventually lead to more information being disseminated via intermediaries (Jarvis, 2010).<sup>5</sup> Our arguments are similar in spirit with prior literature that suggests a strong link between distance and information flow (Coval and Moskowitz, 2001; Malloy, 2005). This strand of literature maintains that distance is inversely related to the cost of information acquisition. Therefore, more information is revealed and disseminated for firms located near stock market participants. Malloy (2005), for example, document that analysts tend to be more accurate regarding firms located near them. All of these arguments lead us to believe that firms headquartered in the financial center have better information environment than firms headquartered elsewhere.

Consistent with above arguments, this paper documents significantly better performance for portfolios comprising of firms headquartered in Mumbai, the main financial center, relative to portfolios comprising of firms headquartered in other cities. Our results are robust to different estimation procedures. For instance, our results show that average returns, Sharp ratios, Farinelli and Tibiletti ratio, and CAPM alphas for portfolios comprising of firms headquartered in Mumbai are higher than their counterpart portfolios comprising of firms headquartered in other cities. Our results indicate that better information environment for firms headquartered in Mumbai makes expropriation a difficult task. Consequently, investors tend to value these firms more than other firms, thereby improving their performance.

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<sup>2</sup> It is important to mention here that we are not interested in why firms cluster in the financial centers. We are more interested in understanding the impact of “already established clustering” on information environment. Since information environment affects agency problems, it should also affect firm performance.

<sup>3</sup> Tschoegl (2000) considers financial center as a central place where financial capital and currency can be collected, switched, disbursed, and exchanged.

<sup>4</sup> Clustering of financial activities in a certain geographic location is also true for developed markets. For example, the Square Mile centralizes all the financial establishments in London and the few streets around Wall Street is a home to most of financial activities in New York.

<sup>5</sup> We understand that development of information and communication technologies may lessen the incentives for locating oneself in the financial center. Rapid and secure data transfer (for the flow of orders as well as information) no longer requires financial activities to be concentrated in the financial center. However, we believe that even in economies with the most developed information and communication infrastructure, for example the U.S., stock market participants have shown their preference towards geographically proximate firms (Coval and Moskowitz, 2001; Malloy, 2005).

The result of this paper is important in a way that identifies an important determinant of firm performance, i.e. location of firm’s headquarter. This factor has not been explored in previous literature. We argue that location can proxy for those aspects of governance and information environment that cannot be captured via traditional proxies such as extent of analyst following, ownership concentration, choice of firm’s auditors, and dividend payout ratios. We believe that location can help quantify the “genuine unknowns” encountered by stock market participants while making investment decision.

The remainder of this paper is organized as follows: Section 2 provides descriptive statistics for the data. Section 3, briefly, describes the methodology used to access our hypothesis. Section 4 provides an analysis of our results, while Section 5 documents the conclusion.

## **2. DATA**

### **2.1 Choice of Firms**

This paper documents the performance of a portfolio of firms headquartered in Mumbai, the biggest financial center of India, and portfolio of firms headquartered in other cities. The data for the location of firm’s headquarters is obtained from the *Worldscope*. One of the reasons behind classifying firms in these two portfolios is our understanding that Mumbai, being the main financial center, has better information environment than other cities of the country. Differences in information environment between the two portfolios should result in differences in performance. For the purpose of this paper, we only include the 50 largest firms in each portfolio. The reason for including the 50 largest firms is based on our understanding that most of the smaller firms are illiquid and are not traded every day. Illiquidity may result in a bias in our sample.

### **2.2 Construction of Portfolios**

For the purpose of this paper, we identify the 50 largest firms with headquarters in Mumbai and the 50 largest firms with headquarters in other cities at the start of each year. For both groups, we construct daily equally-weighted and value-weighted portfolios as follows during the period between January 1, 2005 and December 31, 2011. The data for daily prices is obtained from the *Datastream*.

$$RET_{EQUAL,t} = \frac{\sum_{N=1}^{50} RET_{N,t}}{N} \tag{1}$$

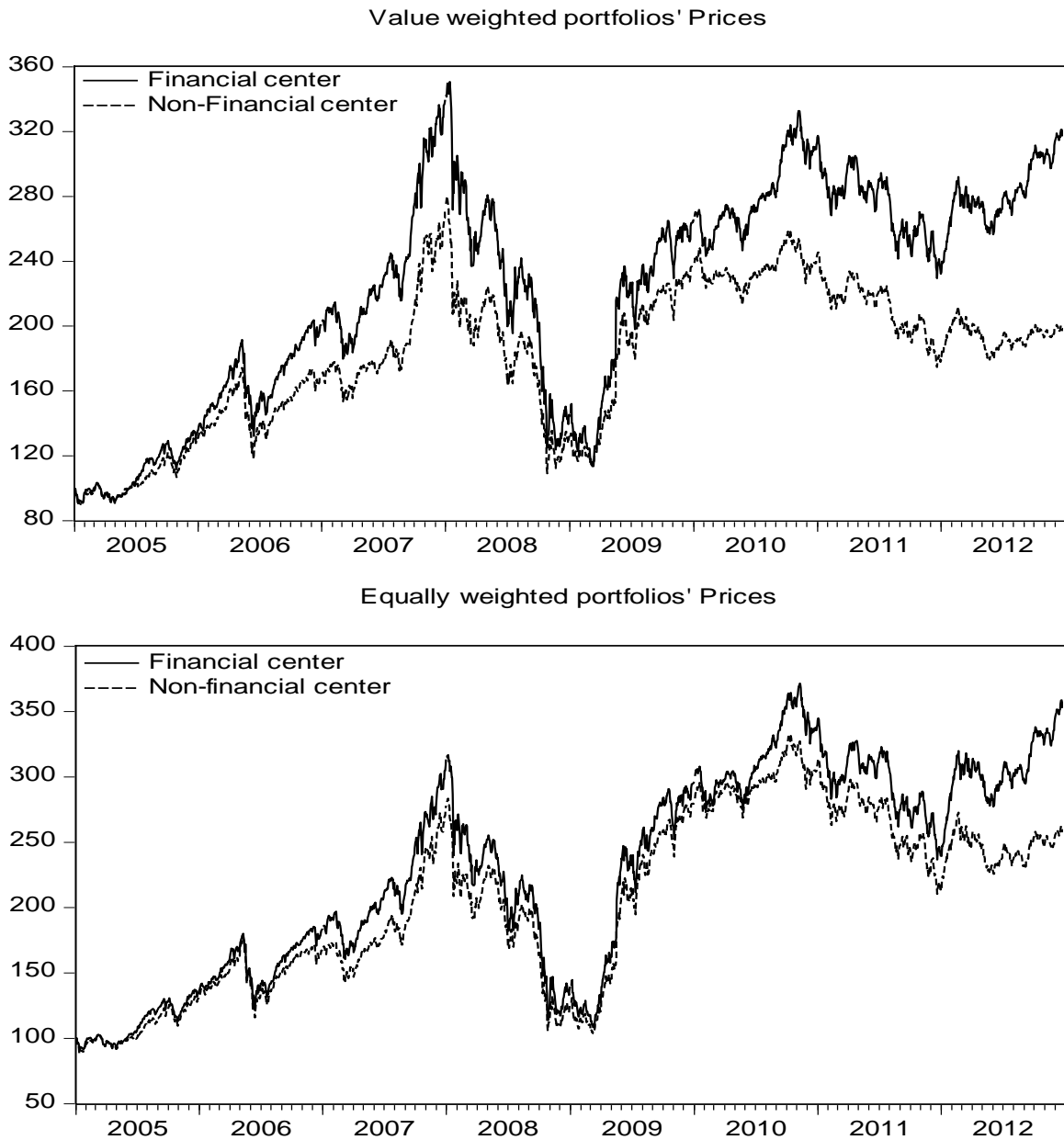
and

$$RET_{VALUE,t} = \frac{\sum_{N=1}^{50} MV_{N,t-1} * RET_{N,t}}{\sum_{N=1}^{50} MV_{N,t-1}} \tag{2}$$

Figure 1 shows that evolution of both portfolios during our sample period.<sup>6</sup> The figure shows that portfolio of firms headquartered in financial centers performed better during our sample period. For equally-weighted as well as value-weighted portfolios, Figure 2 shows that investing in portfolio of firms headquartered in financial centers generate more value than investing in portfolio of firms headquartered in non-financial centers at the end of our sample period.

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<sup>6</sup> All portfolios are assigned an initial value of 100.



**Figure 1: Evolution of Portfolios**

**3. METHODOLOGY**

**3.1 Basic Descriptive Statistics**

Table 1 documents the descriptive statistics for portfolios used in this study. The results suggest that value-weighted as well as equally-weighted portfolios of firms headquartered in Mumbai outperform portfolios of firms headquartered in other cities. Table 1 reports higher average returns for value-weighted and equally-weighted portfolios of firms headquartered in Mumbai than average returns of their counterpart portfolios. Table 1 also shows that returns of value-weighted portfolio of firms headquartered in Mumbai are more positively skewed and returns of equally-weighted portfolio of firms headquartered in Mumbai are less negatively skewed than their counterpart portfolios. It also indicates superior performance of portfolios of firms headquartered in Mumbai relative to portfolios of firms headquartered in other cities.

Table 1: Basic Descriptive Statistics

	Value-Weighted Portfolio		Equally-Weighted Portfolio	
	Financial Center	Non-Financial Center	Financial Center	Non-Financial Center
Mean	0.0011	0.0009	0.0008	0.0006
Standard Deviation	0.0175	0.0151	0.0167	0.0157
Skewness	0.3537	0.2645	-0.0546	-0.1781
Kurtosis	13.2078	13.0963	10.4248	11.3601

### 3.2 Sharp Ratio

Another measure of performance is Sharpe ratio (SR). SR, as proposed by Sharp (1966), is given as follows:

$$SR_p = \frac{\mu_p}{\sigma_p} \tag{3}$$

where,  $\mu_p$  and  $\sigma_p$  are sample mean and sample standard deviation of portfolio returns, respectively. Higher value of SR indicates good performance. Table 2 confirms our previous findings of superior performance of portfolios of firms headquartered in Mumbai relative to portfolios of firms headquartered in other cities. Table 2 reports that SR of value-weighted as well as equally-weighted portfolios of firms headquartered in Mumbai are greater than SR of their counterpart portfolios.

Table 2: Sharp Ratio

	Value-Weighted Portfolio		Equally-Weighted Portfolio	
	Financial Center	Non-Financial Center	Financial Center	Non-Financial Center
Mean	0.0606	0.0574	0.0455	0.0379

### 3.3 Farinelli and Tibiletti Ratio

A performance ratio should get better as the performance scenario gets better. However, if portfolio return distributions are skewed, which is the case in general, a favorable shift in probability may result in a lower Sharpe ratio. The main drawback of SR is that positive and negative deviations from the benchmark are given the same weights. To capture the asymmetry in the distribution of the returns, Farinelli and Tibiletti (2008) propose one sided measures of performance. It is known as Farinelli and Tibiletti ratio (FT). As stated by Farinelli and Tibiletti (2008), their ratio captures two types of asymmetry: (1) Preferred volatility when returns are above the benchmark and dislike volatility when returns are below the benchmark, and (2) Asymmetric preference for betting on the outcome with enormous potential and aversion to high losses. The FT ratio is given by:

$$FT_b = \frac{\left( \frac{\sum_{t=1}^T (r_t - b)^p * j_t}{T} \right)^{\frac{1}{p}}}{\left( \frac{\sum_{t=1}^T (r_t - b)^q * (1 - j_t)}{T} \right)^{\frac{1}{q}}} \tag{4}$$

where,  $b$  is a benchmark threshold,  $p$  and  $q$  are positive constants, and  $j_t$  is a dummy variable that takes the value of 1 if  $r_t > b$  and 0 otherwise. The FT ratio can be viewed as general risk-reward indices suitable to compare skewed

returns with respect to a benchmark. For some values of p and q, the FT ratio nests some known indices: for example, for p = q = 1; we have the Omega index of Cascon et al. (2002) and for p = 1 and q = 2 we get the Upside Potential index suggested by Sortino et al. (1999).

For a given benchmark b, the investor would prefer the portfolio with the highest FT ratio. Table 3 presents results regarding performance of each portfolio using FT ratio. It is important to mention here that three different arbitrary values of b are used in Table 3. These values are: 0% annual return (0% daily return), 5% annual return (0.0002% daily return), and 20% annual return (0.0007% daily return). Our results in Table 3 show that value-weighted as well as equally-weighted portfolios of firms headquartered in Mumbai outperform counterpart portfolios of firms headquartered in the other cities for all specifications.

**Table 3: Farinelli and Tibiletti Ratio**

	Value-Weighted Portfolio		Equally-Weighted Portfolio	
	Financial Center	Non-Financial Center	Financial Center	Non-Financial Center
<b>FT(p = q = 1; b = 0)</b>	1.1967	1.1843	1.1431	1.1172
<b>FT (p = 1; q = 2; b = 0)</b>	0.5415	0.5384	0.5135	0.5047
<b>FT(p = q = 1; b = 0.0002)</b>	1.1965	1.1841	1.1428	1.1169
<b>FT (p = 1; q = 2; b = 0.0002)</b>	0.5415	0.5384	0.5135	0.5047
<b>FT(p = q = 1; b = 0.0007)</b>	1.1941	1.1800	1.1398	1.1135
<b>FT (p = 1; q = 2; b = 0.0007)</b>	0.5410	0.5375	0.5128	0.5039

**3.4 Excess Return**

The CAPM alpha is computed as follows to see which of the two groups of portfolios outperform the market.

$$RET_{P,t} = \alpha + \beta(RET_{Mkt,t}) + \epsilon_t \tag{5}$$

Table 4 documents  $\alpha$  for the estimation of Equation (5). As was shown earlier, our results in Table 4 confirm the superiority of portfolios comprising of firms headquartered in Mumbai. For all cases, our results show that  $\alpha$  for portfolios comprising of firms headquartered in Mumbai is greater than  $\alpha$  for portfolios comprising of firms headquartered in other cities.

**Table 4: Excess Returns**

	Value-Weighted Portfolio		Equally-Weighted Portfolio	
	Financial Center	Non-Financial Center	Financial Center	Non-Financial Center
<b>Daily</b>	0.000544***	0.000577***	0.000226**	0.000206*
<b>Weekly</b>	0.000434***	0.000341*	-9.52E-05	-0.00016
<b>Monthly</b>	0.015197***	0.013235***	0.007029**	0.005699*

Note: The results significant at 10% significance level are followed by \*, at 5% significance level by \*\*, and at 1% a significance level by \*\*\*.

**3.5 Expected Shortfall**

Expected shortfall (ES) is a risk measure that evaluates the market risk or credit risk of a portfolio. It is an alternative to value at risk that is more sensitive to the shape of the loss distribution in the tail of the distribution. The “expected shortfall at q% level (coverage rate)” is the expected return on the portfolio in the worst q% of the cases.<sup>7</sup>

ES for both sets of portfolios – equally-weighted and value-weighted – are shown in Figure 2. The figure shows that ES of portfolios comprising of firms headquartered in the financial centers are always preferable than ES of portfolios comprising of firms headquartered in the non-financial centers. For example, Figure 2 shows that at a certain coverage rate returns of value weighted and equally-weighted portfolios of firms headquartered in the

<sup>7</sup> Expected shortfall is also called conditional value at risk, average value at risk, and expected tail loss (ETL).

financial centers are always more than returns of their counterpart portfolios. It suggests that in the worst possible scenario, portfolios comprising of firms headquartered in the financial centers are perform superior than their counterpart portfolios.

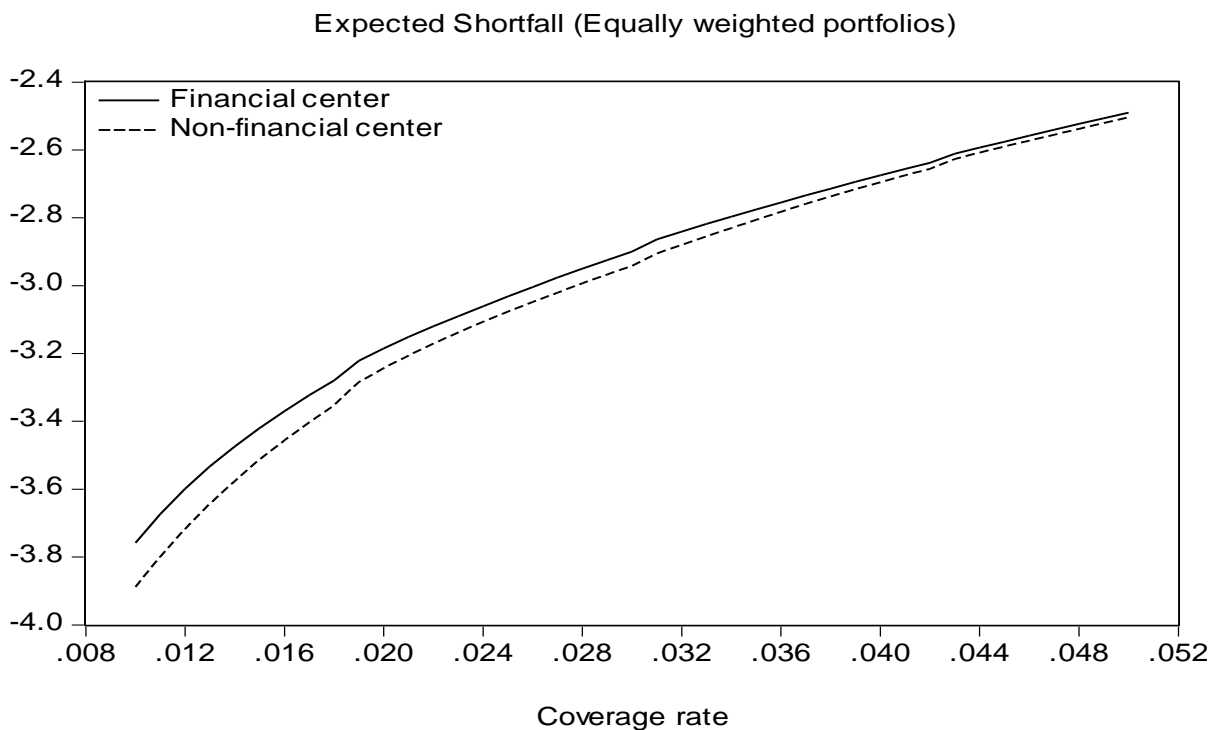
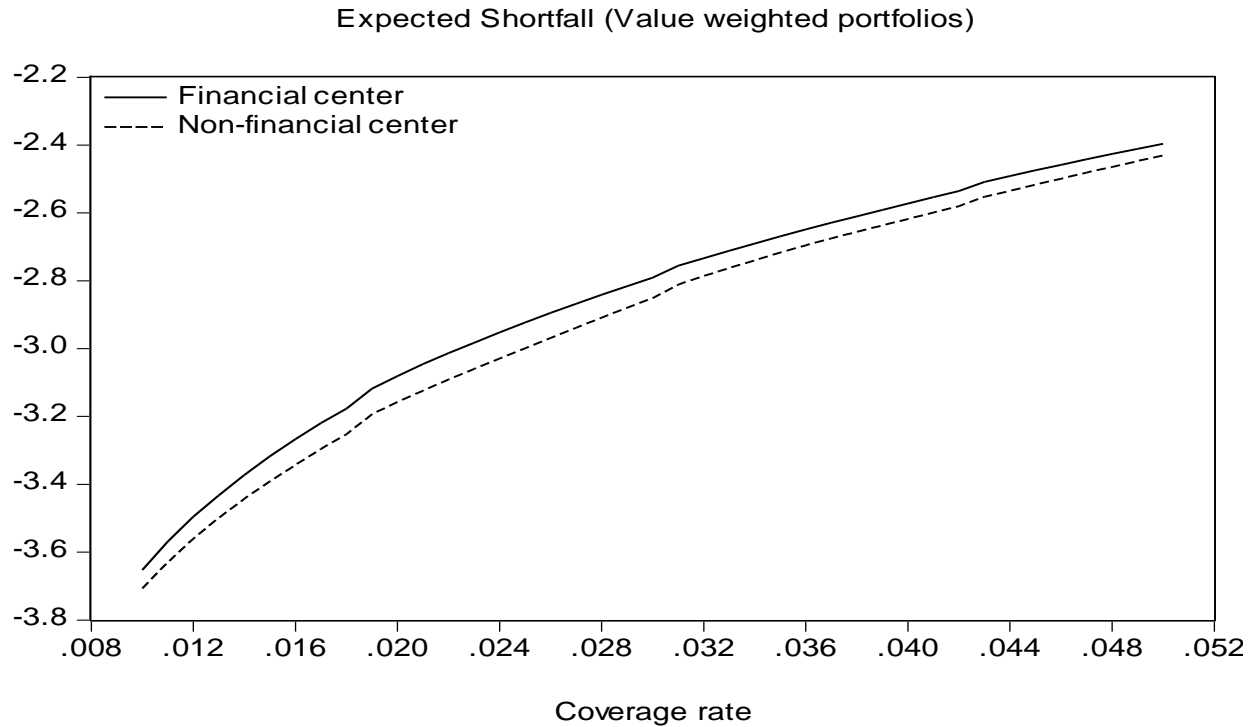


Figure 2: Expected Shortfall



#### 4. DISCUSSION OF RESULTS

Our results in this paper have shown that portfolios comprising of firms headquartered in the financial centers consistently outperform their counterpart portfolios. We argue that this superior performance can be attributed to lower agency problems that accompany firms headquartered in the financial centers. In our case, Mumbai – main financial center of the country – is home to two of the biggest stock exchanges of the country, i.e. Bombay Stock Exchange and National Stock Exchange.<sup>8</sup> As a result, the city enjoys significant investor activity, which helps in information revelation and dissemination for firms headquartered in Bombay. Furthermore, anecdotal evidence suggests that headquarters of most of Indian brokerage houses are located in Mumbai.<sup>9</sup> Therefore, most of the analysts are also located in Mumbai. In addition to this, headquarter of Securities and Exchange Board of India (SEBI) – the capital market regulator – is also in Mumbai. We argue that geographic proximity of analysts, investors, and regulators with firms headquartered in Mumbai can lead to better information environment of these firms relative to firms headquartered elsewhere. Better information environment lowers the agency problems and leads to better performance.

#### 5. CONCLUSION

This paper examines how location of a firm's headquarter affects its performance in India. Our results show that portfolio of firms headquartered in Mumbai, the main financial center of the country, significantly outperform portfolio of firms headquartered in other cities. We show that average returns, Sharp ratios, Farinelli and Tibiletti ratio, and CAPM alphas for portfolios comprising of firms headquartered in Mumbai are higher than their counterpart portfolios comprising of firms headquartered in other cities. We argue that firms headquartered in the financial center have better information environment than other firms due to geographic proximity with important stock market participants, such as brokerage houses, analysts, creditors, and banks. Better information environment lowers the agency conflicts and helps in maintaining investors' confidence.

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<sup>8</sup> With market capitalization of US\$ 1.39 trillion, Bombay Stock Exchange (BSE) is the fourth largest stock exchange in Asia and eleventh largest stock exchange in the world. National Stock Exchange (NSE), on the other hand, is the largest stock exchange in India in terms of daily turnover and number of trades. NSE is expected to become the largest stock exchange in India in near future.

<sup>9</sup> We, randomly, selected a number of Indian brokerage houses listed in I/B/E/S and searched for their location. All of the searched brokerage houses had their headquarters in Bombay.



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**NOTES**