

INSTITUTIONAL OWNERSHIP AND ABNORMAL RETURNS

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Abstract

We have two hypotheses in our paper: higher institutional ownership is associated with lower abnormal returns because of less information asymmetry, or is associated with higher abnormal returns because of institutional investors' ability to pick better stocks. We test which of these two hypotheses concerning the effect of institutions dominates. We categorize all companies listed on the 13F schedule of Thompson-Reuters over the period 1980-2014 into five portfolios and rebalance the portfolios annually based on their level of institutional ownership percentage. We determine portfolio's abnormal return by conducting regression on portfolio returns based on CAPM and Fama French and Carhart four-factor model. Our finding is, in general, portfolios with higher institutional ownership tend to have higher abnormal returns. We also find that the higher the institutional ownership percentage of one portfolio, the more five-year periods during which the portfolio has abnormal returns. In addition, the abnormal returns of portfolio formed by going long on highest-institutional-ownership and short on lowest-institutional ownership portfolio are significantly positive based on CAPM Model from 1980 to 2014 but are not significantly different from zero in most five-year time periods.

Keywords: Institutional Ownership; Abnormal Return; Alpha

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1: Introduction

The main concern of institutional investors is achieving abnormal return. Our paper analyses the relationship between institutional ownership percentage and abnormal returns, on which we have two hypotheses.

One of the hypotheses is that higher institutional ownership is associated with lower abnormal returns. Much of the literature on institutional ownership provides evidence that firms with higher institutional ownership have weaker information asymmetry for different reasons, such as voluntary disclosure (Diamond and Verrecchia, 1991), process of acquiring information (Szewczyk, Tsetsekos and Varma, 1992) and media coverage (Tetlock, 2010). Reduced asymmetric information could reduce the cost of raising capitals in an imperfectly competitive market (Armstrong, Core, Taylor and Verrecchia, 2011). This suggests that there is less risk involved in trading shares with high institutional ownership. Thus we would expect that firms with higher institutional ownership have lower abnormal returns.

Another hypothesis is that higher institutional ownership is associated with higher abnormal returns because institutional investors are able to pick stocks with better performance. As Puckett and Yan (2011) find, institutions earn significant abnormal returns within the trading quarter. Some studies find that firms with higher institutional ownership perform better in bidder returns (Duggal and Millar, 1999), abnormal returns at the time of the subsequent announcement of quarter earnings (Ali, Durtschi, Lev and Trombely, 2004), and operating cash flow returns (Cornett, Marcus, Saunders and Tehranian, 2007).

We do not have ex-ante prediction but rather test to see which of our two hypotheses concerning the effect of institutions dominates: reduction in information asymmetry or capacity to pick better stocks. We categorize all companies listed on the 13F schedule of Thompson-Reuters into five portfolios and rebalance the portfolios annually based on their level of institutional ownership percentage. The cut-off for

inclusion in a particular portfolio is determined by the empirical distribution of institutional holding across firms at the end of a calendar year prior to the holding period of the portfolio. Following the Approach of Fama and French (1992), we determine portfolios' abnormal returns by applying the Fama and French (1993) and a momentum factor (Carhart, 1997) model. We repeat the analysis for five- year intervals during the period 1980 to 2014.

Our main finding is that, in general, portfolios with higher institutional ownership tend to have higher abnormal returns. We also find that the higher the institutional ownership percentage of the portfolio, the more five-year periods during which the portfolio has abnormal returns.

The content of the paper is organized as follows. Section 2 describes the relevant studies on the institutional ownership's influence on information asymmetry, the impact of information asymmetry and firms' performance and institutional ownership. Section 3 introduces the data analysis and methodology we applied in paper. Section 4 discusses the results. Section 5 concludes our analysis.

2: Literature Review

Much of the literature on institutional ownership provides evidence that higher institutional ownership is associated with weaker information asymmetry. As Chakravarty (2001) showed, institutional investors are better informed. Voluntary disclosure is one reason why institutional investors seem to be better informed. Diamond and Verrecchia (1991) find that firms with high level of disclosure, which is associated with increased institutional ownership, have less asymmetric information. In essence this result means that it is not really institutions that are better informed, but rather the firms that they tend to hold, have a better information environment. Nevertheless, institutional ownership serves as a reasonable proxy for the degree of level of disclosure. In addition, the process of acquiring information could also reduce information asymmetries. Szewczyk, Tsetsekos and Varma (1992) claim that institutional investors could lessen preannouncement information asymmetries between managers and the capital market through the activities of information acquisition. Exogenous coverage could also reduce asymmetric information, according to Tetlock (2010), media coverage is positively correlated with institutional ownership. More specifically, Baik, Kang and Kim (2010) find that the level of and change in local institutional ownership predict future stock returns. O'Neill and Judith Swisher (2003) claim that higher institutional ownership is associated with a low degree of informed trading. Thus, one can conclude that the literature is relatively consistent in agreeing that higher levels of institutional ownership are associated with reduced information asymmetry.

As many previous studies suggest, one of the impacts of reduced asymmetric information is reduced cost of raising capital, and hence we would expect that higher institutional ownership will be associated with lower abnormal returns. Armstrong, Core, Taylor and Verrecchia (2011) find that when markets are imperfect, information asymmetry is positively associated with firms' cost of capital in excess of standard risk factors. Similarly, Lambert, Leuz and Verrecchia (2012) find in an imperfectly

competitive market, a higher degree of market illiquidity raises the cost of capital. Another impact is larger trading volume, Chae (2005) suggest that prior to scheduled announcements, reduced information asymmetry could improve cumulative trading volume.

In terms of firms' performance and institutional ownership, there are studies that find that firms with more institution holdings perform better in stock returns, bidder returns, operating performance, etc. Duggal and Millar (1999) provide the evidence of a positive relation between bidder returns and institutional ownership. Ali, Durtschi, Lev and Trombely (2004) focus on the abnormal return at the time of the subsequent announcement of the firm's quarterly earnings, which is found positively associated with the change in institutional ownership. Using a firm's operating cash flow returns as measurement, Cornett, Marcus, Saunders and Tehranian (2007) find a positive relation between a firm's operating performance and institutional ownership. The reason why firms with higher institutional ownership performs better may be that institutional investors' have better stock-picking skills. Andy Puckett and Xuemin (Sterling) Yan (2011) find strong evidence that institutional investors earn significant abnormal returns on their trades within the trading quarter. But many other researchers claim that few institutional investors are able to produce statistically significant positive abnormal returns net of costs (Fama and French, 2010 and Barras, Scaillet and Wermers, 2010).

Given the above, we have not ex-ante prediction but rather test to see which of the two hypotheses concerning the effect of institutions dominates: reduction in information asymmetry or ability to pick better stocks. We applied the Fama and French (1993) and a momentum factor (Carhart, 1997) model, to calculate alpha (abnormal return) in order to find out the relationship between institutional ownership and abnormal returns.

3: Data and Methodology

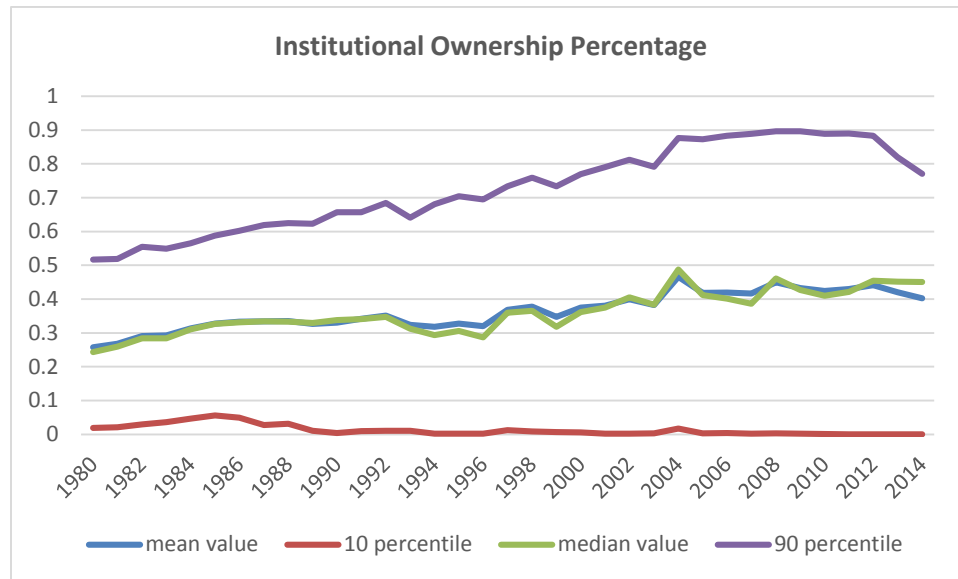


Figure 1

We explore the relationship between institutional ownership percentage and abnormal return using CAPM model (Jack Treynor, 1961; William F. Sharpe, 1964; John Lintner, 1965a,b and Jan Mossin, 1966, independently) and Fama - French and Carhart four factor model. (Fama and French, 1993; Carhart, 1997). The data of this analysis comes mainly from Wharton Research Data Services (WRDS). The monthly returns, from April 1980 to December 2014 (418 months), of all the 13F schedule of Thompson-Reuters companies source from Security files of CRSP database. The Fama – French Portfolios and Factors database provides the factors on a monthly basis of using CAPM model (Jack Treynor, 1961; William F. Sharpe, 1964; John Lintner, 1965a,b and Jan Mossin, 1966, independently) and Fama - French and Carhart four factor model. (Fama and French, 1993; Carhart, 1997). The institutional ownership percentage, percent of shares outstanding, derived from Stock ownership summary of Thomson Reuters database. We dropped those companies with market value lower than \$100 million. As

shown in Figure 1, institutional ownership percentage showed an overall upward trend on all levels except for 10 percentile level, which is relatively stable at around 0%.

We classified all the company data every year into five different portfolios based on the average level of institutional ownership percentage. The cut-off for inclusion in a particular portfolio is determined by the empirical distribution of institutional holding across firms. Portfolio 1 has lowest institutional ownership of 2% with 1.31% mean raw return. Whereas portfolio 5 has highest institutional ownership of 78% with 1.76% mean raw return (See Table 1). Results shows that portfolios with higher average institutional ownership have higher mean market value and higher mean raw return.

To further exploring the relationship between institutional ownership and raw return. We test the significance of difference in mean raw return across two adjacent portfolios. Interestingly, the difference between mean raw return of portfolio 1 and 2 is significant at 0.01 level, much greater than those of other two adjacent portfolios.

We used the approach introduced by Fama and French (1992). The core idea of this method is to build a portfolio of companies, which are followed by institutions, and the abnormal return of this portfolio is defined as abnormal return that cannot be explained by risk-factor models (CAPM model (Jack Treynor, 1961; William F. Sharpe, 1964; John Lintner, 1965a,b and Jan Mossin, 1966, independently) and Fama - French and Carhart four factor model. (Fama and French, 1993; Carhart, 1997) used to predict expected returns. Below are models we use:

CAPM model (Jack Treynor, 1961; William F. Sharpe, 1964; John Lintner, 1965a,b and Jan Mossin, 1966, independently) :

$$R(t) - RF(t) = a + b[RM(t) - RF(t)] + e(t) \quad (1)$$

where:

R: the valued-weighted or equal-weighted monthly rate of return of each portfolio

RM - RF: the market over risk-free return

Fama - French and Carhart four factor model. (Fama and French, 1993; Carhart, 1997):

$$R(t) - RF(t) = a + b[RM(t) - RF(t)] + sSMB(t) + hHML(t) + uUMD(t) + e(t) \quad (2)$$

where:

R: the valued-weighted or equal-weighted monthly rate of return of each portfolio

RM - RF: the market over risk-free return

SMB: the monthly premium of the size factor

HML: the monthly premium of the book-to-market factor

UMD: the monthly premium on winners minus losers

Following the approach of Fama and French (1992), we calculate the monthly portfolio returns (either equal-weighted or value-weighted) of each portfolio within these 418 months. The portfolios are rebalanced annually, depending on the level of total institutional holding as of December of that year, and are held for the following year. We determine portfolios' abnormal returns (a) by regressing the monthly equal-weighted or value-weighted returns using the CAPM model (Jack Treynor, 1961; William F. Sharpe, 1964; John Lintner, 1965a,b and Jan Mossin, 1966, independently) and Fama - French and Carhart four factor model. (Fama and French, 1993; Carhart, 1997). The market over risk-free return (RM-RF) is the only risk factor in CAPM model. The Fama-French and Cahart four-factor model has following factors: the monthly return of the market less the risk free rate (RM-RF), the monthly premium of the size factor (SMB), monthly premium of the book-to-market factor (HML) and the monthly premium on winners minus losers (UMD) from Fama-French and Cahart four-factor (1993) and Carhart (1997). Within the regression, the abnormal return is the dependent variable and the risk factors are the independent variables.

Then, we analyse the abnormal returns of each portfolio at a five-year interval from 1980 to 2014 based on based on regression of monthly equal - weighted and value – weighted return using Fama-French and Cahart four-factor model.

Finally, we regress the monthly return of a new portfolio constructed by going long on portfolio 5 and short on portfolio 1, either equal – weighted or value – weighted,

using both CAPM model (Jack Treynor, 1961; William F. Sharpe, 1964; John Lintner, 1965a,b and Jan Mossin, 1966, independently) and Fama - French and Carhart four factor model. (Fama and French, 1993; Carhart, 1997) to get the abnormal return. We also did this again in five – year interval. This long – short portfolio approach is more appropriate because it is a self-financing portfolio in which you go long and short. In this way, if we fail to have a “correct” asset pricing model or to estimate the factor loadings correctly, then they can cancel each other (on average) because of the simultaneous long and short positions.

4: Results

Table 1 presents descriptive statistics of the five portfolios formed based on the average level of institutional ownership percentage. On average, higher institutional holdings is correlated with higher market value of firms. Interestingly, the table indicates that a higher level of institutional ownership is associated with a higher mean raw return.

Table 1

Descriptive statistics of the five portfolios formed based on the average level of institutional ownership percentage over the 1980-2014 period

Equal-weighted portfolios are formed at the end of each calendar year depending on the level of total institutional holding as of December of that year, and are held for the following year. The cut-off for inclusion in a particular portfolio is determined by the empirical distribution of institutional holding across firms. Portfolio 1 is associated with lowest level of institutional ownership, while portfolio 5 is associated with the highest level of institutional ownership.

Portfolio	Mean Raw Return(%)	Median Market Value (\$m)	Mean Institutional Ownership (%)
1	1.31%	387.52	2%
2	1.65%	298.14	15%
3	1.68%	395.91	38%
4	1.70%	762.90	59%
5	1.76%	1205.00	78%

In Table 2 we test the significance of difference in mean raw return between portfolio 1 and each of other portfolios respectively. The mean raw return of portfolio 1 is significantly different from all the other portfolios at 0.01 confidence level. There is a clear ordering in raw return – portfolios with larger institutional ownership are associate

with a higher return. It is clear from the findings the higher institutional ownership percentage the portfolio has, the greater difference it has when compared with portfolio 1.

Table 2

Difference in mean raw return between lowest institutional ownership portfolio (portfolio 1) and other portfolios formed on average level of institutional ownership percentage equity during 1980-2014, 35 years

Equal-weighted portfolios are formed at the end of each calendar year depending on the level of total institutional holding as of December of that year, and are held for the following year. The cut-off for inclusion in a particular portfolio is determined by the empirical distribution of institutional holding across firms. Portfolio 1 is associated with lowest level of institutional ownership, while portfolio 5 is associated with the highest level of institutional ownership.

Portfolio	Difference of Mean Raw Return (in percent)	Standard Error of Difference	t - statistics
mean(1) - mean(2)	-0.3463	0.0546	-6.34
mean(1) - mean(3)	-0.3778	0.0529	-7.14
mean(1) - mean(4)	-0.3968	0.0501	-7.92
mean(1) - mean(5)	-0.4571	0.0477	-9.57

Table 3 contains abnormal returns of five portfolios during April 1980 to December 2014, 418 months. Following the approach of Fama and French (1992), we calculated the monthly portfolio returns (either equal-weighted or value-weighted) of each portfolio within these 418 months. The portfolios are rebalanced annually, depending on the level of total institutional holding as of December of that year, and are held for the following year. We determine portfolios' abnormal returns by regressing the monthly equal-weighted or value-weighted returns using the CAPM model or Fama-French and Cahart four-factor model. Results of these four regression show that all five portfolios have significant positive abnormal returns at 0.01 confidence level, but there is less of a clear ordering when moving from portfolio 1 to portfolio 5. This is a somewhat surprising result, and we do not have clear intuition to why this is the case. In general, we

would expect to see both positive and negative alphas. Generally, the portfolio has higher institutional ownership tends to have higher abnormal return, which is inconsistent with one of our hypotheses that higher-institutional ownership portfolio is supposed to have lower abnormal return because of lower level of information asymmetry.

One possibility is that institutional investors are professional, and tend to be good price pickers. Hence, causality runs the other way, in which case institutional investors flock to the better stocks. However, this is contrary to much of the literature on institutional investors performance. Fama and French (2010) indicates that few mutual funds produce benchmark-adjusted expected returns greater than their costs. Similarly, Barras, Scaillet and Wermers (2010) find that 75% mutual funds exhibit zero abnormal returns net of expenses. In addition, Jonathan Lewellen (2011) claims that from 1980 to 2007, little evidence of institutional investors ability to predict stock returns could be provided by the returns of institutional investors. Differently than the previous studies, Andy Puckett and Xuemin (Sterling) Yan (2011) find strong evidence that institutional investors earn significant abnormal returns on their trades within the trading quarter; they claim that the trading skills documented by previous studies that use quarterly data are biased downwards because of their inability to account for interim trades.

For stocks that few institutions hold, the severe information asymmetry may lead to high unsystematically riskiness and thus higher abnormal returns.

In conclusion, it is possible that the causes of abnormal returns of low-institutional-ownership and high-institutional-ownership portfolios are different. Unlike portfolios with lower institutional ownership that have abnormal returns because of more serious asymmetric information, portfolios with higher institutional ownership have abnormal returns owing to institutional investors' behaviour and annually rebalance of portfolios.

Table 3**Abnormal returns of five portfolios formed on average level of institutional ownership percentage equity during April 1980 to December 2014, 418 months.**

Equal-weighted portfolios are formed at the end of each calendar year depending on the level of total institutional holding as of December of that year, and are held for the following year. The cut-off for inclusion in a particular portfolio is determined by the empirical distribution of institutional holding across firms. Portfolio 1 is associated with lowest level of institutional ownership, while portfolio 5 is associated with the highest level of institutional ownership.

There are four regressions for each portfolio:

- (1). Regression of monthly equal weighted return based on the CAPM Model.
- (2). Regression of monthly value weighted return based on the Fama – French Model.
- (3). Regression of monthly equal weighted return based on the CAPM Model.
- (4). Regression of monthly value weighted return based on the Fama – French Model.

Portfolio	Regression of Equal–Weighted Return		Regression of Value–Weighted Return	
	CAPM Model	Fama–French Model	CAPM Model	Fama–French Model
1	0.0032***	0.0011***	0.0073***	0.0077***
2	0.0062***	0.0064***	0.0051***	0.0046***
3	0.0055***	0.0055***	0.0057***	0.0062***
4	0.0056***	0.0054***	0.0054***	0.0054***
5	0.0063***	0.0060***	0.0080***	0.0075***

* Significantly different from zero at 10% level;

** Significantly different from zero at 5% level;

*** Significantly different from zero at 1% level.

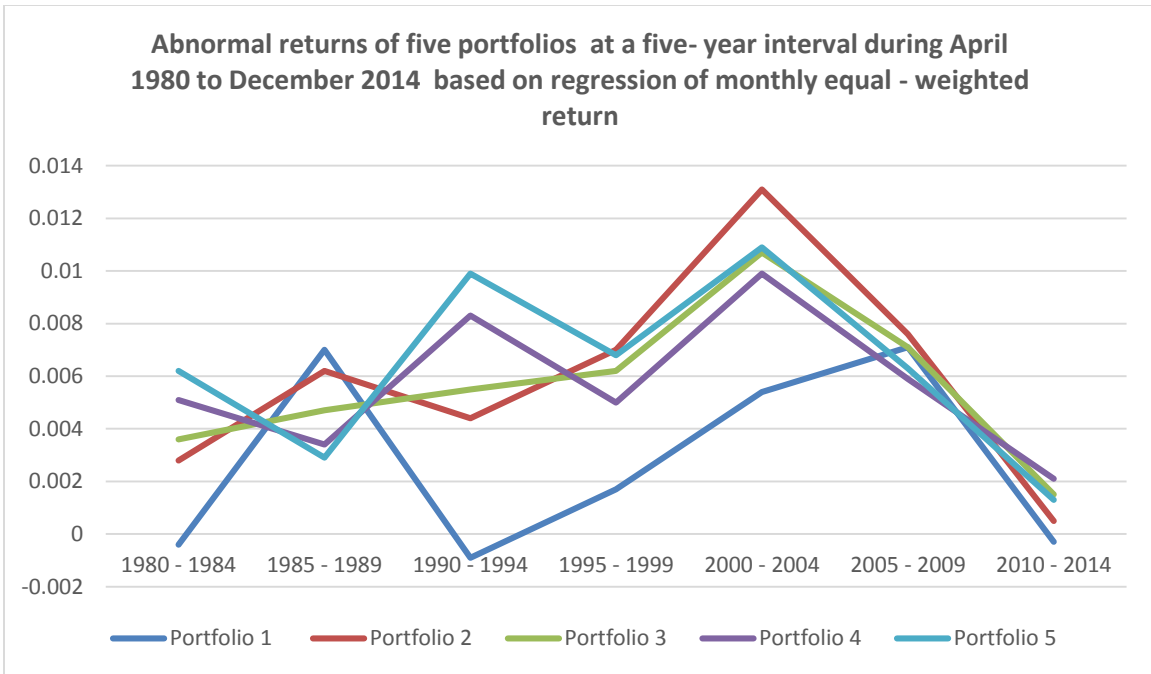


Figure 2

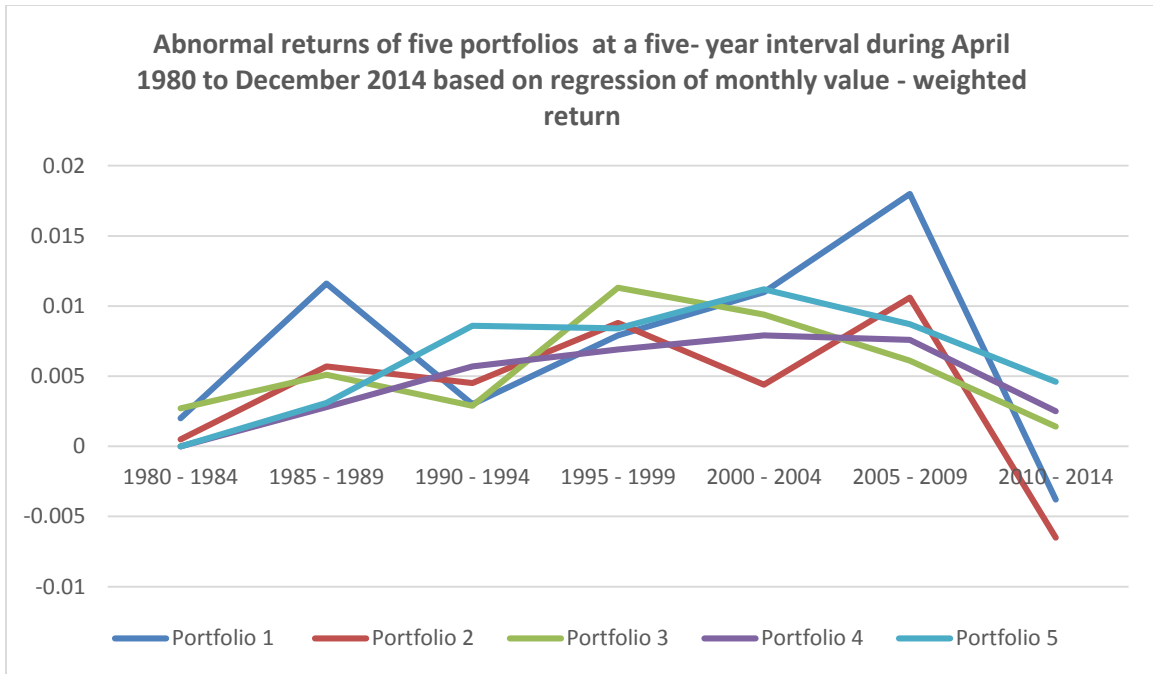


Figure 3

We next derive the abnormal returns of five portfolios at a five-year interval based on Fama-French Model. As Table 4 shows, portfolios with stocks having lower institutional investor holdings (i.e. portfolio 1 and portfolio 2) have fewer statistically significant abnormal returns and some negative alphas. This finding implies that although portfolios with lower institutional ownership sometimes have relatively high abnormal returns, it does not always happen. On the contrary, the higher the institutional ownership percentage of the portfolio, the more time periods during which the portfolio has statistically abnormal returns. This finding confirms our prediction that the causes of abnormal returns of low-institutional-ownership and high-institutional-ownership portfolios are different. Additionally, as shown in figure 2 and figure 3, surprisingly we almost always get positive abnormal returns in different time periods, which deserves further research.

Table 4

Abnormal returns of five portfolios formed on average level of institutional ownership percentage equity at a five – year interval during April 1980 to December 2014

Equal-weighted portfolios are formed at the end of each calendar year depending on the level of total institutional holding as of December of that year, and are held for the following year. The cut-off for inclusion in a particular portfolio is determined by the empirical distribution of institutional holding across firms. Portfolio 1 is associated with lowest level of institutional ownership, while portfolio 5 is associated with the highest level of institutional ownership.

There are two regressions for each portfolio every five years:

- (1). Regression of monthly equal weighted return based on Fama – French Model.
- (2). Regression of monthly value weighted return based on Fama – French Model.

Portfolio	Regression of Equal – Weighted Return					Regression of Value – Weighted Return				
	1	2	3	4	5	1	2	3	4	5
1980-1984	-0.0004	0.0028**	0.0036***	0.0051**	0.0062***	0.0020	0.0005	0.0027	0.0038**	0.0071***
1985-1989	0.0070***	0.0062***	0.0047***	0.0034***	0.0029*	0.0116**	0.0057***	0.0051***	0.0028***	0.0031***
1990-1994	-0.0009	0.0044***	0.0055***	0.0083***	0.0099***	0.0030	0.0045**	0.0029**	0.0057***	0.0086***
1995-1999	0.0017	0.0070**	0.0062***	0.0050***	0.0068***	0.0079	0.0088**	0.0113***	0.0069***	0.0084***
2000-2004	0.0054*	0.0131***	0.0107***	0.0099***	0.0109***	0.0110**	0.0044	0.0094***	0.0079***	0.0112***
2005-2009	0.0071**	0.0076***	0.0071***	0.0059***	0.0063***	0.0180***	0.0106***	0.0061***	0.0076***	0.0087***
2010-2014	-0.0003	0.0005	0.0015	0.0021***	0.0013*	-0.0038	-0.0065**	0.0014	0.0025***	0.0046***

* Significantly different from zero at 10% level;

** Significantly different from zero at 5% level;

*** Significantly different from zero at 1% level.

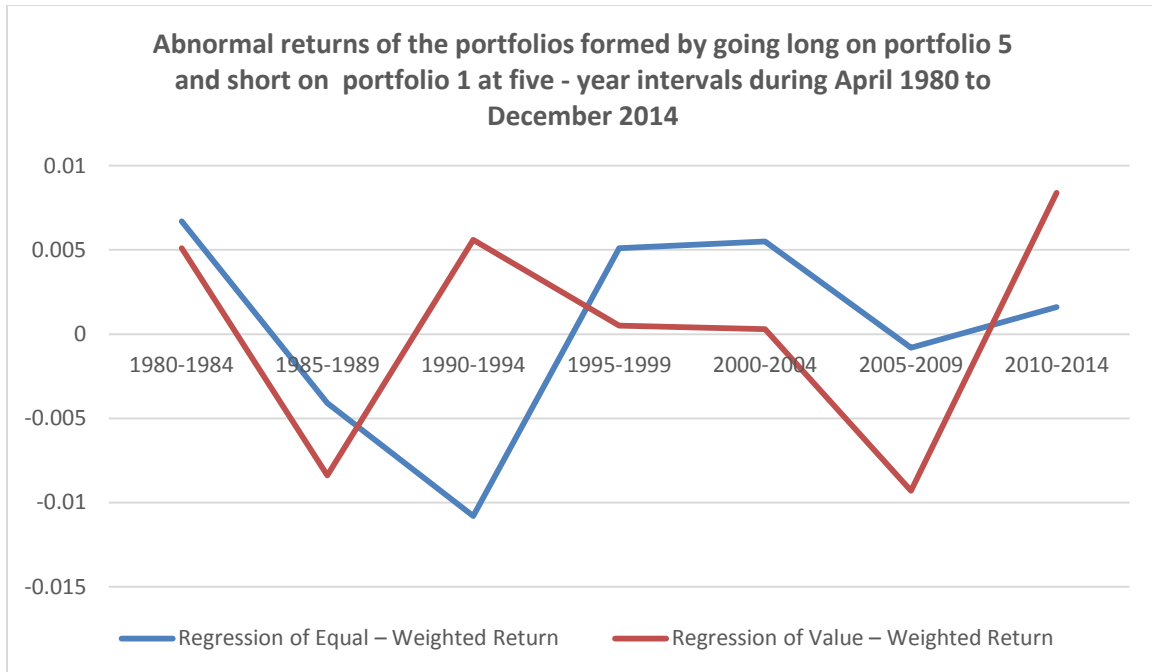


Figure 4

Table 5 presents the abnormal returns of the new portfolio formed by simultaneously long portfolio 5 and short portfolio 1 at the same month. Table 6 presents the results of same portfolio but at a five-year interval. This approach is more appropriate because it is a self-financing portfolio in which you go long and short. In this way, if we fail to have a “correct” asset pricing model or to estimate the factor loadings correctly, then they can cancel each other (on average) because of the simultaneous long and short positions.

Generally, the abnormal returns of this new portfolio are positive and statistically significant if based on CAPM Model. Thus it is possible to get abnormal return by going long on higher-institutional-ownership and short lower-institutional-ownership portfolio in the long run. However, in terms of investing in the short run, in most five-year time periods, the abnormal returns are not significantly different from zero and occasionally are significantly negative. As figure 4 shows, the abnormal return of portfolio formed by going long on portfolio 5 and short on portfolio 1 has no obvious pattern. But we can see that firms with high institutional ownership did better in the 90’s but underperformed in the financial crises.

Table 5

Abnormal returns of the portfolio formed by going long on highest (portfolio 5) and short on lowest (portfolio 1) institutional ownership percentage portfolio during April 1980 to December 2014, 418 months.

Equal-weighted portfolios are formed at the end of each calendar year depending on the level of total institutional holding as of December of that year, and are held for the following year. The cut-off for inclusion in a particular portfolio is determined by the empirical distribution of institutional holding across firms. Portfolio 1 is associated with lowest level of institutional ownership, while portfolio 5 is associated with the highest level of institutional ownership.

The monthly return of the new portfolio, formed by going long on portfolio 5 and short on portfolio 1, either value-weighted or equal-weighted, was regressed based on CAPM Model and Fama - French Model to get abnormal return.

	CAPM Model	Fama – French Model
Regression on Equal–Weighted Return	0.0030**	0.0028*
Regression on Value–Weighted Return	0.0007	-0.0002

* Significantly different from zero at 10% level;

** Significantly different from zero at 5% level;

***Significantly different from zero at 1% level.

Table 6

Abnormal returns of the portfolios formed by going long on highest (portfolio 5) and short on lowest (portfolio 1) institutional ownership percentage portfolio at five-year intervals during April 1980 to December 2014

Equal-weighted portfolios are formed at the end of each calendar year depending on the level of total institutional holding as of December of that year, and are held for the following year. The cut-off for inclusion in a particular portfolio is determined by the empirical distribution of institutional holding across firms. Portfolio 1 is associated with lowest level of institutional ownership, while portfolio 5 is associated with the highest level of institutional ownership.

The monthly return of the new portfolio, formed by going long on portfolio 5 and short on portfolio 1, either value-weighted or equal-weighted, was regressed based on Fama - French Model every five years in order to get abnormal returns.

	Regression of Equal – Weighted Return	Regression of Value – Weighted Return
1980-1984	0.0067	0.0051
1985-1989	-0.0041	-0.0084*
1990-1994	0.0108***	0.0056
1995-1999	0.0051	0.0005
2000-2004	0.0055	0.0003
2005-2009	- 0.0008	-0.0093*
2010-2014	0.0016	0.0084**

* Significantly different from zero at 10% level;

** Significantly different from zero at 5% level;

***Significantly different from zero at 1% level.

5: Conclusion

Our paper explores the relationship between institutional ownership and abnormal return. We conclude that, in general, portfolios with higher institutional ownership tend to have abnormal return than those with lower institutional ownership. The higher the institutional ownership percentage of the portfolio, the more five-year periods during which the portfolio has abnormal returns. But some low-institutional ownership portfolios also have relatively high abnormal returns over the period 1980-2014. The causes of abnormal returns of low and high institutional ownership portfolios are different. Unlike portfolios with lower institutional ownership that have abnormal returns because of higher level of asymmetry of information, portfolios with higher institutional ownership have abnormal returns owing to institutional investors' professional stock-picking skills.

It is possible to get abnormal return by going long on higher-institutional-ownership and short on lower-institutional-ownership portfolio in the long run because the abnormal returns of this portfolio are significantly positive based on CAPM Model from 1980 to 2014. However, in terms of investing in the short run, in most five-year time periods, the abnormal returns are not significantly different from zero and occasionally are significantly negative. Additionally, we almost always get positive abnormal returns in different time periods, which deserves further research.

The results of our paper have relevance for companies listed on Thomson Reuters, a possible reason for our findings is that higher companies not on Thomson-Reuters have a negative abnormal return.

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