

**Corporate Governance in Mutual Funds:
The Impact of Holdings Disclosure**

Russell Gregory-Allen

Massey University

r.gregory-allen@massey.ac.nz

Kathleen Thompson

Bancorp Treasury

k.thompson@bancorptreasury.com

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Abstract

Portfolio holdings disclosure has been a controversial issue for many years; SEC disclosure requirements in the US were relaxed from quarterly to semi-annual in 1985, then in 2004 returned to a quarterly mandate. Even today, some countries do not require holdings to be disclosed, and some are considering changing their laws to make it compulsory. Further, in the US, there are current discussions about whether hedge funds should come under increased scrutiny, and be subject to more disclosure.

Just in the last two years there have been at least a half-dozen papers examining various aspects of the impact of disclosure – front-running, copycat trading, and reporting lag, in addition to the simple return performance differential. Most of these studies have either examined the before and after 2004 SEC rule change, or compare SEC disclosure vs. another disclosure mechanism.

Our study examines two markets where disclosure is not required but some funds choose to disclose. This affords us a natural experiment to compare funds that disclose with those that do not.

We find, contrary to arguments against disclosure, that returns are not harmed by disclosure, and flow to disclosing funds is higher.

Keywords: disclosure, voluntary disclosure, mandatory disclosure, portfolio disclosure, portfolio holdings, fund performance, fund flows, front-running, agency cost, Australia, New Zealand

Corporate Governance in Mutual Funds: The Impact of Holdings Disclosure

Disclosure of portfolio holdings for mutual funds has long been compulsory in most developed countries, in order to allow investors to better monitor their funds' performance and adherence to specified mandates. However, there have always been arguments against disclosure, citing loss of competitive informational advantage as well as the simple logistical cost of disclosure.

This controversy has resulted in something of a rough road for disclosure over the years. SEC disclosure requirements in the US were relaxed from quarterly to semi-annual in 1985, then in 2004 returned to a quarterly mandate. Even today, some countries do not require holdings to be disclosed, and some are considering changing their laws to make it compulsory. Further, in the US, there are current discussions about whether hedge funds should come under increased scrutiny, and be subject to more disclosure.

Several recent studies have examined the impact of holdings disclosure in various guises. Ge and Zheng (2006) and Parida and Teo (2011) study the return impact of disclosure. Examining whether disclosure results in profitable front-running are Schwarz and Potter (2012) and Brown and Schwarz (2011). Copycat results are studied by Frank, et. al. (2004) and Verbeek and Wang (2010). Relationship between disclosure and chance of redemption, reporting lag, and liquidity are studied by Hwang and George (2011), Choi and Chhabria (2012), and Agarwal, et. al. (2012), respectively.

Some studies have compared before and after a 2004 SEC change to quarterly reporting, one compares SEC disclosure vs. Thompson disclosure. Our study examines two markets where disclosure is not required, but some funds choose to disclose.

This unique situation give us the opportunity to create a natural experiment comparing funds that disclose with those that do not. Australia and New Zealand are the only two countries in the MSCI World Index that do not mandate portfolio holdings disclosure; however, approximately 50% of those Australian and New Zealand funds voluntarily disclose at some point. This gives us the opportunity to directly compare, over the same time period and in the same markets, funds that disclose to those that do not, examining differences in returns and flows. We find there is a small return hit on performance for some funds that disclose, a small increase for other funds, and no return impact for most disclosing funds. We find a similar variety of impact on fund flow across various funds. The bottom line is, contrary to arguments against disclosure, the benefits of disclosure easily outweigh the costs.

1. Introduction

The costs and benefits of the disclosure of portfolio holdings have been the focus of longstanding debate among practitioners, regulators, researchers and academics.

Arguments supporting mandatory disclosure include the following: First, it provides information allowing investors, advisors and trustees to better monitor their investments delegated to professional fund managers. This would help with identification of overlaps in holdings which in turn can improve investors' asset allocation and diversification of their overall portfolios. Second, the transparency enables shareholders to monitor the compliance of a fund with its stated investment objectives, and to detect style drift. Third, disclosure enhances the ability to track whether funds are engaging in portfolio manipulation such as

window-dressing or portfolio pumping.¹ Fourth, disclosure has the side effect of providing more extensive information in support of academic enquiry.

Arguments against portfolio disclosure would include: it might enable increased front-running² by professional investors and speculators. Secondly, it could increase copycat investing (free-riding),³ thus restricting a fund's ability to fully benefit from its research. Thirdly, there are direct costs associated with producing and distributing timely and accurate information.

Empirical research regarding the costs of disclosure regimes has investigated the free-riding of investors in the U.S. market by constructing copycat strategies. Frank, Poterba, Shackelford and Shoven (2004) find that disclosure is costly for funds, as copycat funds dilute the ability of the underlying fund to fully exploit their proprietary information. Verbeek and Wang (2010) find that the cost of disclosure is higher for increased disclosure frequency because copycat funds have more information on which to free-ride. Other research based on the U.S. market looks at the effect of disclosure on fund returns and finds that high-performing funds can have their performance impaired by disclosure (Ge and Zheng, 2006; Parida and Teo, 2010).

This study builds on the literature surrounding portfolio disclosure by considering the unique environment in Australia and New Zealand⁴. These two countries do not require holdings disclosure, but some funds provided voluntary disclosure of portfolio holdings during the sample period 2005 to 2010⁵; this provides an opportunity to explore the choice of funds to voluntarily disclose and thereby the potential effects of mandatory disclosure⁶. While this study focuses on the potential effects of mandatory disclosure, it does not examine other important facets of mandatory disclosure regulation such as the lag period allowed following the reporting period and the frequency of disclosure.⁷

The paper is organised as follows: section 2 identifies and discusses previous studies and their findings. Section 3 outlines the data and methodology used in this study. Section 4 identifies, explains and discusses the results and their comparison to previous studies. The conclusion is found in section 5, while section 6 identifies research limitations and section 7 lists references used. The results of our research have implications for policy makers, investors and fund managers.

2. Literature Review

The mutual fund industry provides a useful platform to examine the effects of disclosure, because the disclosure level and proprietary costs can be readily quantified. Academic interest in the area of disclosure of fund holdings has been prompted by an announcement by the U.S. Securities and Exchange Commission that they would review disclosure requirements for the semi-annual and annual reports provided by mutual funds

¹ Portfolio pumping is the act of bidding up the value of a fund's holdings before the end of a reporting period in order to raise the fund's performance results.

² Front-running refers to the practice of outside investors buying (selling) securities in anticipation of buying (selling) trades by the fund.

³ Free-riding occurs when outsiders are able to observe a fund's investment strategies, allowing them to either copy a fund's holdings or to adopt the investment strategies of the fund.

⁴ Australia and New Zealand are the only two nations among the 22 countries surveyed in the Morningstar Global Investor Experience (2009 and 2011 reports) that do not require mandatory portfolio holdings disclosure. In the Morningstar study, Australia and New Zealand both received the grade of D-, largely due to lack of disclosure.

⁵ For the purposes of this study disclosure is defined as funds that disclose their portfolio holdings to the fund tracking firm, Morningstar Inc.

⁶ In 2010, the Ministry of Economic Development in New Zealand announced⁶ that they would make changes to the governance of KiwiSaver schemes (government-sponsored voluntary retirement savings scheme), possibly including the introduction of a mandatory portfolio holdings disclosure regulation. A followup draft went for consultation in October 2012, with a final proposal posted in November. The final proposal includes a requirement for some holdings disclosure in the KiwiSaver funds.

⁷ For example, U.S. regulations call for quarterly disclosure within 60 days of the end of the period.

to their shareholders.⁸ In a move toward increased transparency, holdings disclosure regulations were reformed in 2004 after significant consultation. They required that funds report on a more frequent basis -- quarterly (within 60 days after the end of the reporting period) rather than the previous requirement of semi-annual reporting. Despite the heated debate around the disclosure requirements, little empirical evidence has been documented on this issue.

Frequency of Reporting Research

Wermers (2001) provides a well-documented exploration of the potential effects of more frequent portfolio disclosure on mutual fund performance, concluding that the costs of more frequent disclosure would outweigh the benefits. This study cites the largest potential cost as increased opportunities to exploit information on holdings data coupled with fund flow data to “front-run” a fund’s trades, as well as an increased ability for the practice of free-riding by copying a fund’s holdings.

The theory behind front-running is: investors examine changes in fund holdings to infer which securities the fund will purchase and then purchase those stocks before the fund does, thus driving up the price, and vice-versa for sales (Wermers, 2001). Furthermore, investors can couple a fund’s holdings information with fund flow data in order to speculate which holdings will be bought or sold in the event of flows of money into or out of the fund. Such practices would decrease fund returns and harm investors. Wermers claims that more frequent reporting will enable increased front-running. The length of time over which fund managers typically build or liquidate their positions is essential to evaluate this argument; however, Wermers (2001) fails to draw any conclusions about the timing of transactions.

Frank et al. (2004) argue that most positions can be accumulated or sold in 10 days. This would suggest that front-running would not be a serious issue for either semi-annual reporting or quarterly reporting, as managers would have ample opportunity to perform their trading before or after reporting periods. Wermers, Yao and Zhao (2010) argue that, due to a 60 day delay in reporting in the U.S., front-running is not likely to be an issue, except in cases in which funds take months to purchase or sell a position.

Wermers (2001) also discusses free-riding as a potentially significant cost of more frequent reporting requirements. Outsiders are able to either duplicate a fund’s portfolio holdings or perform “reverse engineering” to identify and adopt the proprietary investment techniques and strategies of the fund. Reverse engineering is useful because funds often hold stocks for reasons other than stock selection. More recently, Wermers et al. (2010) developed a model using reported portfolio holdings to predict individual stock returns. They show that this strategy produced a better result than just copying a fund’s holdings and is useful to investors when making stock selection decisions. With more frequent disclosure, the accuracy of both mimicking fund holdings and reverse engineering would be improved. This could harm funds by causing prices to move before a fund could fully implement its investment strategy and by encouraging less investment into the fund itself. On the other hand, Ge and Zheng (2006); Frank et al. (2004); and Verbeek and Wang (2010) suggest that funds can benefit from price movements caused by the front-running of their trades. A body of literature examines the so-called copycat funds, as discussed in the next section.

Elton, Gruber, Blake, Krasny and Ozelge (2010) takes a different perspective on the effect of an increased frequency of holdings reporting, examining the changes from an academic perspective rather than

⁸ See Paul F Royce, Director, Division of Investment Management, U.S. securities and Exchange Commission, “Remarks Before the Securities Law Procedures Conference [of the] Investment Company Institute,” December 7, 1998, p. 3 (www.sec.gov/news/speech/speecharchive/1998/spch238.htm).

Wermers' (2001) examination from an investor's prospective. Elton et al. (2010) revisits four well-known hypotheses in finance to determine whether the results of previous tests remain valid when repeated with monthly rather than semi-annual holdings data. Using a sample of 215 U.S. mutual funds from 1994 to 2005, they examine momentum trading, tax-motivated trading, window dressing and tournament behaviour. The study finds that many of the results of the previous studies are changed and in some cases even reversed, with the use of more frequent holdings data. The study's results show that quarterly holdings data miss, on average, 18.5% of trades that are captured with monthly data. The main shortcoming of Elton et al.'s (2010) work is that the cross section of funds which voluntarily provide monthly disclosure is a non-random sample of the entire group of mutual funds.

Following the implementation in 2004 of the requirement in the U.S. to disclose portfolio holdings on a quarterly basis, Ge and Zheng (2006) and Parida and Teo (2010) extend Wermer's (2001) study by performing qualitative examinations of the effects of the change in reporting frequency. Ge and Zheng (2006) examine: first, which firms choose to report quarterly; second, the effect of the frequency of portfolio holdings reporting on returns; and third, the frequency of portfolio holdings disclosure on flows of money into and out of the funds. They take a sample of U.S. equity funds from 1985-1999 and compare the funds that choose to disclose quarterly with the funds that provide only the mandatory semi-annual reporting of holdings. They find that funds with higher turnover, higher expense ratios and a higher likelihood of committing fraud tend to disclose their holdings less frequently. They find that the skilled funds (measured as the top 20% of past performers) have lower returns when they report more frequently, supporting Wermers' (2001) hypotheses of increased front-running and free-riding. However, for the bottom 20% of funds, return is higher for funds that report quarterly, possibly because of opportunities for increased monitoring of management decisions. They also find more money flowing into poor-performance funds that choose to disclose more frequently, demonstrating investors' preference to monitor those low-performing funds. Like Elton et al. (2010), this study has the shortcoming that the funds which voluntarily disclose quarterly is a non-random sample, conceivably dominated by funds that potentially benefit the most (or suffer the least) from more frequent disclosure. However, it is likely that this bias only makes the results more conservative.

Parida and Teo (2010) addresses the key bias of Ge and Zheng (2006), by using U.S. data before and after the 2004 change in regulation. They also investigate the impact of more frequent mandated portfolio disclosure. Parida and Teo (2010) takes the performance of the funds which disclose semi-annually before 2004 and compare it to their performance after 2004 when they were required to disclose quarterly. They find that, for high performing funds, quarterly disclosure harms fund returns by 17 to 20 basis points a month. Looking further into the results, the reduction in performance is higher for funds with illiquid assets that increased their disclosure frequency after they were compelled to do so with the 2004 regulations. A new type of bias is introduced in this study. The funds that did not disclose quarterly before 2004 are likely to be the funds that would suffer the most from disclosure. By examining only the differences in returns of these funds, the cost of more frequent disclosure is conceivably higher than from a sample of the entire industry. Although the inherent bias of Parida and Teo (2010) and the bias of Ge and Zheng (2006) are in opposite directions, they still find similar results, namely that more frequent disclosure (quarterly) is costly.

Closely related to the frequency of reporting is the lag between the portfolio 'snapshot', and when that is reported. Choi and Chhabria (2012) examine several potential lags, 30, 60, 90 and 120 days. They find that with a lag of 30 days, a copycat portfolio can significantly outperform the underlying portfolio, but with 60 or longer they can not.

Copycat Studies

The theory underlying copycat funds suggests that if the research on an actively-managed fund is valuable in uncovering excess return opportunities, and the copycat fund is able to mimic the holdings of the underlying fund, then the copycat fund should earn equal returns before expenses. The copycat's potential disadvantage in timely access to research findings may be offset, however, by its lower research expenses. Frank et al. (2004) use semi-annually reported holdings of 20 high-expense actively-managed U.S. mutual funds between 1992 and 1999 to construct hypothetical copycat portfolios, mimicking holdings of the underlying funds. Their study took into account fees by estimating the fees of expenses incurred for actively-managed funds and estimating fees for the passive copycat funds. Their work reveals that the returns of the copycat funds were not statistically different, and possibly higher, than those of the underlying disclosing funds. In examining the effects of less frequent disclosure, they find that copycat funds outperform actively-managed funds by more at the 12-month horizon than at the 6-month horizon, probably due to larger cumulative expense charges for the underlying funds. In other words, there appears to be some evidence that investors can profit by free-riding on active funds operating in the market; however, the relatively small sample size of this study should be noted.

Verbeek and Wang (2010) use a larger sample, and examining how the frequency of reporting has affected free-riding. They investigate the performance of free-riding strategies before and after the 2004 regulations for quarterly reporting. They analyse disclosed holdings of 3,046 active U.S. equity funds from 1985-2008, and construct hypothetical copycat funds by duplicating the active funds' disclosed portfolio holdings. They find that the average relative performance of copycat funds increases significantly by 5 basis points per month, after the new regulations. This implies that since 2004 it is easier for outside investors to free-ride on disclosed fund holdings, which might contradict the commission's interest in protecting fund shareholders' welfare.

There are several limitations to copycat studies. The returns of underlying funds could be understated because security purchases by actual copycat funds may drive up the prices of securities held by the underlying fund. Moreover, if active managers know that their funds are being tracked by copycats, they might act to reduce the information content of the disclosure filings. Such actions could raise the standard deviation of the differential between the return on the underlying fund and the return on the copycat. If active managers could earn positive returns as a result of their analysis and could conceal some holdings with window dressing, such trading could increase the return differential between the copycat fund and the underlying fund, although it could also increase the expenses of the underlying fund.

Front-running studies

If an investor can accurately anticipate a fund's trades, and trades ahead of the fund – expecting some price impact when the fund trades – then the 'front-running' trader can earn abnormal profits. If a fund is required to disclose their holdings very close to their actual trades, investors who analyse those holdings might be able to infer the underlying strategy, and then anticipate future trades.

Schwarz and Potter (2012) study fund holdings disclose to the SEC disclosed vs those disclosed thru Thomson. They find front-running unprofitable, and that window-dressing has little impact on returns.

Brown and Schwarz (2011) find abnormal trading volume around, and abnormal positive returns after disclosure dates. They also find suggestive evidence of short-term profits to front-running, but find no evidence of return benefit to long-term investors.

Hedge Fund Industry

Hedge funds offer another platform to determine the value of disclosing portfolio holdings. Brown and Schwartz (2011) and Shi (2010) examine free-riding by focusing on hedge funds. When the assets of a hedge fund exceed \$100 million, the fund is required by the SEC to file 13F forms reporting some of their quarterly holdings within 45 days after the end of each quarter (Shi, 2010). The study uses a sample of 4,024 U.S. hedge managers reporting over the period 1977 to 2010, during which 414 managers have filed form 13F at least once. The performance of the funds in the periods they disclose is compared with their performance in the periods in which they did not disclose. Shi (2010) provides evidence that disclosure harms hedge fund performance by about 4% per annum. These findings are supported by Argon, Hertz and Shi (2011) and by Agarwal, Jiang, Tang and Yang (2011) who demonstrate that hedge funds request confidential treatment to delay 13F disclosure of their profitable ideas.

In contrast, Brown and Schwartz (2011) finds that 13F filings are, if anything, positive for hedge funds. Using the filing events of U.S. hedge funds from 1999 to 2006, they are one of the only studies to investigate whether market participants use mandatory portfolio holdings to make investment decisions. They find evidence of unusual trading behaviour around the filing day, in particular that the excess returns of the disclosed securities spike on the day of filing and immediately after the filing date, indicating that investors do in fact implement a copycat strategy. However, they find that investors cannot profit from copying strategies in the long term.

Australasia Research

Research from Australia and New Zealand in the field of portfolio holdings disclosure is limited. Folwer, Grieves and Singleton (2010) take a different approach and look at the accuracy of information currently provided to investors in New Zealand. They find some evidence that mandatory disclosure may benefit investors. They study the styles of active New Zealand fund managers using fund returns from 1999 to 2006. They examine characteristics of the funds' returns to determine whether managers are investing in securities that accurately represent their stated investment objectives. Fowler, Grieves and Singleton (2010) find evidence that New Zealand fund managers deviate from their stated investment objectives, with equity-orientated funds providing returns that are significantly different from equity returns. This in turn suggests that opportunities for investors to appropriately diversify are impaired, because of a lack of information about the asset allocation of the fund. The study's findings offer support for a mandatory requirement for New Zealand funds to disclose their holdings and thus better serve the needs of investors.

Gallagher (2007) examines the case for requiring mandatory portfolio holdings disclosure in Australia in a qualitative study. In line with Fowler et al. (2010), he also offers support for the case of mandatory disclosure of portfolio holdings, and determines that holdings data would enable suitable performance measurement by researchers and industry analysts by allowing them to analyse trading activity. Gallagher (2007) outlines the potential benefits and costs of portfolio disclosure, and focuses on encouraging a more transparent system in Australia. Although Gallagher acknowledges the costs of more frequent disclosure, as noted by Wermers (2001), he nevertheless argues that more rigorous standards are required to better serve the needs of investors.

Literature Review Conclusion

On the whole, disclosure has received much attention and encompasses a wide-ranging spectrum of various industries. Mandatory disclosure has important socially beneficial outcomes, particularly in the areas of health and safety. However, if not well-designed and implemented, the rules can be gamed, resulting in

negative outcomes. Voluntary disclosure models centre mainly on the field of accounting; they identify key factors that drive management's disclosure decisions, in particular that costs are an important variable in such decisions.

Disclosure in a mutual fund setting is especially related to our research. Studies generally show that mandated requirements for more frequent disclosure (quarterly instead of semi-annually) can decrease high-performing funds' returns, but increase low-performing funds. The few studies in New Zealand and Australia offer support for some type of disclosure regime. Researchers argue that investors would be better informed and that academic enquiry would be improved.

Despite the debate in Australasia over what disclosure regulations are needed, little empirical research has been documented around the issue. While Ge and Zheng (2006) and Parida and Teo (2010) look at the U.S. case of voluntary disclosure decisions regarding funds, it appears that no similar research has been performed in New Zealand or Australia. The market in Australasia, particularly in New Zealand, is smaller and less liquid than the U.S. market, meaning costs of front-running could potentially be higher.

The fact that during the sample period some funds provide portfolio holdings on a voluntary basis and others do not, provides a unique setting to examine the effects of disclosure. To the best of our knowledge, this is the first paper to examine the potential effects of mandatory disclosure in the New Zealand and Australia markets. This research is designed to give policy makers additional information when considering regulatory decisions about the disclosure of portfolio holdings. It also addresses a gap in front-running research. The front-running literature has focused on the agents who front-run or on profits accruing from hypothetical front-running strategies. Our study complements these models by providing some empirical evidence on the impact of front-running on mutual funds.

3. Potential Effects of Mandatory Disclosure

This study investigates the potential effects of mandatory disclosure. We conjecture that if a fund is required to disclose its portfolio holdings, it will be more exposed to activities such as front-running. This cost will lead to inferior performance compared to a fund that does not disclose. On the other hand, agency costs might decrease in funds that disclose their holdings because fund shareholders will be better able to monitor fund activities.

Ge and Zheng (2006) and Parida and Teo (2010) identify one of the potential costs of disclosure as the "information effect". Disclosure of the securities which a fund holds exposes a fund's proprietary information to the public, as it exposes the identity of securities held by a fund. Disclosure limits the time frame over which fund managers are able to reap the benefits of their research, because other investors may use the disclosed holdings to anticipate future trades by the fund and trade on this information. Such front-running on the research of funds can potentially lower fund returns by moving security prices before a fund can fully implement its strategy. On the other hand, free-riding activities may drive up the prices of securities the fund holds due to investors copying their holdings, thus increasing demand for the securities. This could have a positive effect on fund returns. On balance, we expect the information effect will have a negative impact on fund returns.

Another potential effect of disclosure is the "agency effect" (Ge & Zheng, 2006; Parida & Teo, 2010). More transparency could lessen agency costs by allowing regulators and investors to have more insight into fund activities; this would thus deter funds from engaging in activities that are not in the best interest of investors. In sum, the higher the costs are to the agency, the more potential benefits that will be derived from disclosure.

The effect of free-riding on fund returns, identified as the “price-effect” (Ge & Zeng, 2006), is not obvious. Free-riding will be costly if it causes the price to move before the fund can fully benefit from its research. On the other hand, disclosure may increase demand for the securities the fund holds, driving up prices and thereby raising fund returns.

4. Hypothesis Development

The purpose of this research is to assess the potential impact of a mandatory disclosure regulation by addressing three key questions:

What factors determine whether a fund discloses their holdings?

How does disclosure affect mutual fund performance?

How does disclosure affect net new money into mutual funds?

In this section, hypotheses are outlined for each of the key research questions.

Characteristics of Funds that Disclose

Given that the funds which choose to disclose are likely to be the funds which suffer least from disclosure, we can make some predictions about the characteristics of funds that voluntarily disclose. With regard to a fund’s net assets having an effect on its disclosure choice, there are two theories. Funds with higher net assets could cause larger price movements when they buy and sell shares due to the larger scale of their trades. Investors engaged in front-running will therefore be more interested in funds with larger net assets, leaving large funds more exposed to front-running. This would create a disincentive for funds with higher net assets to disclose. On the other hand, the economies of scale experienced by large funds may mean that on a percentage basis the direct costs of disclosure, such as the systems as dissemination costs, may be less of a burden for larger funds. This in turn suggests that larger funds would be more likely to disclose.

For the characteristic of standard deviation, if a fund’s return patterns show a high standard deviation, the fund could be investing in assets outside of their stated objective and therefore would not choose to disclose holdings. The findings of Fowler et al. (2010) offer evidence that New Zealand equity funds make investments outside of their investment objectives. They show funds which advertise that they invest in equities perform as if 16 to 33 percent of their funds were instead invested in fixed interest instruments. We expect a negative relationship between expense ratio and voluntary disclosure. Prior research indicates that expense ratio is a measure of agency costs. Del Guercio, Dann and Partch (2002) and Tufano and Sevick (1997) provide evidence that effective boards are associated with lower fund expenses. Consistent with the agency effect, funds that have higher expenses would be less likely to disclose. These proposed effects lead to the following hypotheses:

Hypothesis 1: Funds with higher net assets are less likely to voluntarily disclose.

Hypothesis 2: Funds that are older are less likely to choose to disclose.

Hypothesis 3: Funds that have returns with higher standard deviation are less likely to disclose.

Hypothesis 4: Funds with higher expense ratios are less likely to disclose.

Effect of Disclosure on Fund Returns

The information effect suggests that disclosure is negatively related to fund performance, while the agency hypothesis is just the opposite, having the effect of increasing returns. To investigate which effect is the most powerful, the funds are categorised into high-rank, mid-rank and low-rank funds. High-rank funds

are the 20 percent of funds with the highest adjusted performance over the previous six months, while low-rank funds are the 20 percent of funds with the lowest performance over the same period. Mid-rank funds are the 60 percent of the funds with middle performance over the previous six months. In line with Ge and Zheng (2006), we propose that high-rank funds have more proprietary information than the low-rank funds, therefore they will be harmed more by disclosure. The same may not be true for low-rank funds. Less monitoring by the investors owing to the lack of disclosure might lead the managers in poorly managed funds to indulge in value-destroying activities. The agency cost might outweigh some or all of the benefits accrued from less exposure to activities such as front-running. For mid-rank funds, we suggest that both the information effect and the agency effect take place, with neither dominating. In light of these considerations, we make the following hypotheses:

Hypothesis 5: Disclosure will have a detrimental effect on the performance of successful funds.

Hypothesis 6: Disclosure will have a neutral effect on the performance of mid-rank funds.

Hypothesis 7: Disclosure will have a positive effect on the performance of unsuccessful funds.

Effect of Disclosure on Fund Flows

Timely disclosure of portfolio information may help investors to make better investment decisions and to monitor funds more closely. As a result, some investors might attach substantial value to frequent disclosure. Since investors vote with their money, we believe that funds which voluntarily disclose will experience more inflows of money as outlined in hypothesis 8:

Hypothesis 8: Funds which disclose will attract higher flows than funds that do not disclose.

5. Data and Methodology

Data

The data were obtained from the Morningstar database. To the best of our knowledge, this is the only database that records disclosed holdings of Australian and New Zealand funds. The Morningstar database records holdings that have been voluntarily disclosed proactively by the fund. Additionally, on an ad-hoc basis, Morningstar makes holdings requests directly to selected funds. This introduces a potential bias, because we do not have information regarding for which funds holdings data was requested by Morningstar, and therefore, we do not know for which funds holdings were requested but declined. Despite this bias, the disclosed holdings reported by Morningstar is the most comprehensive record that is available in New Zealand and Australia to measure holdings disclosed to the public.

The final sample spans the period January 2003 to December 2013. Prior to 2005, Morningstar did not record portfolio holdings, but we include 2 years prior in order to have more “disclose/did not disclose” comparisons. We exclude funds with less than 12 months returns, and exclude fund data in their first year of operation⁹. In our final samples, we have 5,639 Australian funds and 292 New Zealand funds. Survivorship bias is eliminated, using data from both alive and dead funds.

⁹ In the early months of a fund’s existence, we find the flow to be extremely volatile, making any inferences using fund flow useless.

Methodology

This section explains the methodology adopted in this research report and how it was implemented. The methodology is based on Ge and Zheng's (2006) approach. The study addresses three important questions:

What factors determine whether a fund discloses their holdings?

How does disclosure affect mutual fund performance?

How does disclosure affect net new money into mutual funds?

Our analysis method follows that of Ge and Zheng (2006), but we add a few other considerations. In particular, as a robustness check we address endogeneity.

Choice of Benchmark

A fund that has a Primary Prospectus Benchmark, even if not an index fund, may have less to reveal by disclosing, so we include a Primary dummy to control for that. For funds that do not have a Primary Benchmark, we use Morningstar's MPT benchmark¹⁰. Some investors, especially institutional investors, are likely to have an internal benchmark they use in assessing mutual funds. We expect that the MPT benchmark is likely a good proxy for that "internal" benchmark for funds with no benchmark.

Active return is the difference between the fund return and benchmark return. In general, this is the fund's "outperformance", and obviously is sensitive to the choice of benchmark.

Tracking Error (TE) is the standard deviation of the active return, and measures "how far away" the fund manager is away from the benchmark.

The specifications for the regressions for each key research question will be discussed in the following sections.

Characteristics of Funds that Voluntarily Disclose

Ge and Zheng (2006) identified size (measured as total net assets), age, risk (measured as standard deviation of returns) and expenses, as explanatory variables for probability of a fund disclosing. We add a few others.

Past performance may impact a manager's decision to disclose, either due to a poor performer not wanting to reveal bad choices, or a top performer wanting to show off (or encourage people to buy those stocks and prop the price even more). We measure this with dummies for being in the Top Quintile or the Bottom Quintile.

Finally, for funds with a Primary, while SE of return is an appropriate measure of risk, it does not correctly measure how far a fund is from their benchmark. The standard deviation of the active returns (the difference between the fund return and the benchmark return), which is called the Tracking Error (TE), does

¹⁰ Morningstar assigns a benchmark to a fund when it is added to the database by reviewing the fund's holdings (if available) along with its investment objective. The benchmarks are reviewed on an intermittent basis by Morningstar and are updated if the benchmark has changed due to a modification in approach by the fund manager.

just that. If a fund is very close to the benchmark (and is supposed to be), manager may feel he/she has little to lose by disclosing. On the other hand, a manager with a high TE may want to disclose to show the holdings are not inappropriate. If so, that would probably be even more apparent after the GFC, when investors were more aware of fund abuses.

Like Ge and Zheng (2006), we use a logit regression to analyse the characteristics of funds that voluntarily disclose, to deal with the binary nature of the dependant variable. Our regression equation employed is:

$$\begin{aligned} Prob(\text{Voluntary Disclosure}_{it}) &= \beta_0 + \beta_1 \text{Logt}na_{i,t-1} + \beta_2 \text{Logage}_{i,t-1} + \beta_3 \text{SE(orTE)}_{i,t-1} + \beta_4 \text{Expense}_{i,t-1} \\ &+ \beta_5 \text{Top}Q_{i,t-1} + \beta_6 \text{Bot}Q_{i,t-1} + \beta_7 \text{Primary}_{i,t-1} \end{aligned}$$

The dependant dummy variable, voluntary disclosure, is one if the fund provides at least one voluntary disclosure during each and zero otherwise. Logt na is the natural logarithm of the total net assets at the end of each quarter. LogAge is the natural logarithm of the number of months since inception. SE or TE is as described above, where we use SE when examining raw returns, and TE when examining *active* returns.

Expense is defined as the management expense ratio, including all operating expenses such as recordkeeping; custodial services; taxes; legal expenses; and accounting fees. This specifically does not include trading expenses. For New Zealand, this is the ‘Management expense ratio’. For Australia, prior to 2006, fund also used the MER, but now must report the ‘Indirect Cost Ratio.’ So, to cover our period for Australia we report whichever was appropriate for a given quarter. In both cases, we call this the “Expense”¹¹.

Ge and Zheng (2006) considered two additional independent variables that we could not include: turnover ratios and whether the fund was being investigated for fraud. Turnover ratios indicate how often a fund trades, and can be used as a proxy for the amount of private information possessed by a fund, assuming that trades are based on information. It would be interesting to use turnover ratios as a proxy to measure whether funds with more private information are less likely to voluntarily disclose their holdings. For Australia and New Zealand, those data are not available¹².

Ge and Zheng (2006) also looked at the likelihood of committing fraud, measured as whether a fund is currently under investigation for fraud by the SEC. Unfortunately, the securities commissions in both Australia and New Zealand were unwilling to provide information about which funds are under investigation, so fraud could not be examined in this study.

Rather than using time dummies to control for changes over time, we explicitly compare before and after the “Great Financial Crisis” (GFC). We exclude the especially “problems active” period from March-September 2008 (Bear Stearns collapse, Fannie Mae/Freddie Mac rescue, Lehman collapse, TARP signed), calling prior to that “Pre-GFC” and afterwards “Post-GFC”. This allows us the ability to examine if managers and investors were more attuned to the benefits of disclosure after that wake-up call.

¹¹ Sincere gratitude and thanks go to the New Zealand Morningstar team (especially Stuart Auld and Greg Bunkall) for providing these data historically. On the MS Direct platform, only the “latest” MER or ICR is available.

¹² With holdings we could calculate an estimate for turnover, but obviously could not do so as a comparison to those funds not disclosing. Further, for the Australia funds that do disclose, MS only reports their top 10 holdings, meaning a turnover estimation would be quite unreliable.

Effect of Disclosure on Fund Returns

An OLS regression is used to analyse the characteristics of funds that voluntarily disclose. The regression equation is specified as follows:

$$\begin{aligned} \text{Return}_{i,t} = & \beta_0 + \beta_1 \text{Lowrank}_{i,t-1} + \beta_2 \text{Highrank}_{i,t-1} + \beta_3 \text{Disc}_{i,t-1} + \beta_4 \text{Expense}_{i,t-1} \\ & + \beta_5 \text{Stddev}_{i,t-1} + \beta_6 \text{Logtna}_{i,t-1} + \beta_7 \text{Logage}_{i,t-1} \end{aligned}$$

The dependant variable is either the Raw return, or the active return, defined as the return less the benchmark return during each quarter. The benchmark is the Primary or Morningstar Benchmark (discussed in the previous section).

This regression is estimated for the entire period, and for each of the Pre- and Post-GFC periods.

Disc = one if a fund provides quarterly disclosure during the quarter and zero otherwise. Lowrank, Midrank and Highrank are dummy variables, each equal to one if a fund's adjusted performance for the quarter belongs to the bottom quintile, the 2nd to the 4th quintiles, and the top quintile respectively. It otherwise takes a value of zero. Past performance is calculated for each quarter based on the monthly return (as defined above) over the past 12 months. Ge and Zheng (2006) and Parida and Teo (2010) use alternative measures of adjusted performance, such as Fama and French's (1993) three-factor abnormal returns and the Carhart (1997) four-factor abnormal returns. These market-adjusted returns are not applicable to our sample because we include funds that invest in both domestic and international securities. For example, it would not make sense to compare a benchmark return of all Australian funds with the returns of a fund that invests in international, e.g., U.S., securities. The Fama and French (1993) and Carhart (1997) models cannot be used in our study, as factors are not available for New Zealand and Australia.

The control variables are Expense, Std dev, Logtna and Logage and have the same definition as in the previously-described logit model. The coefficient of interest is Discl. (we address endogeneity in a later step).

If disclosure frequency is determined by regulatory requirements exogenous to the fund, then a causal link between regulation and disclosure of could be expected. However, in this study the absence of regulation means that disclosure decisions are determined internally by the fund. Despite this, a statistical association between the two can still be expected (Ge & Zheng, 2006; Parida & Teo, 2006). In either case, the performance difference between the funds of different investment skills would provide empirical support for the potential effects of frequent disclosure.

Effect of Disclosure on Fund Flows

An OLS regression is used to analyse the fund flows of funds that voluntarily disclose, similar to Ge and Zheng (2006), specified as follows:

$$\begin{aligned} \text{Fund Flow}_{i,t} = & \beta_0 + \beta_1 \text{Lowrank} + \beta_2 \text{Highrank}_{i,t-1} + \beta_3 \text{Disc} * \text{lowrank}_{i,t-1} \\ & + \beta_4 \text{Disc} * \text{midrank}_{i,t-1} + \beta_5 \text{Disc} * \text{highrank}_{i,t-1} + \beta_6 \text{Stddev}_{i,t-1} \\ & + \beta_7 \text{Logtna}_{i,t-1} + \beta_8 \text{Logage}_{i,t-1} \end{aligned}$$

Fund flow measures the amount of money being put into a fund over a six-month horizon. Following Gruber (1996) and Zheng (1999), we calculate fund flows as a percentage of the beginning-of-period total net assets (TNA).

$$Fund\ flow = \frac{TNA_{i,t} - TNA_{i,t-1} (R + 1)}{TNA_{i,t-1}}$$

Each of the independent variables is explained in section 3.1.1 and 3.1.2, including Lowrank and Highrank in the regression acts as a control for the well-documented non-linear relationship between performance and fund flows (Chavalier & Ellison, 1997; Surri & Tufano, 1998). We include the control variables: short term volatility of a fund; fund size; age; and total expenses as independent variables, as in Barber, Odean and Zheng (2005). . The coefficients of interest are the interaction terms Disc*lowrank, Disc*midrank and Disc*highrank. If investors value disclosure, we should find a positive coefficient on Disc.

Endogeneity

One obvious potential problem is that of endogeneity, for both the impact of disclosure on returns, and impact on fund flow. We address this with the Heckman two-step procedure.

The equation for the probit analysis for characteristics of funds that disclose, is what we use for the Heckman treatment equation.

6. Results

Determinants of Disclosure Decisions

In this section, we examine the relationship between fund characteristics and disclosure patterns to determine which fund characteristics are associated with voluntary disclosure. The determinants of a fund's disclosure choice provide insight into the potential effects of a mandated portfolio disclosure regime.

Descriptive Statistics

In Australia (see Table 1), 38% of funds have a Primary benchmark; of those, 43% disclose. For funds without a benchmark, only 18% disclose.

Although there are very few funds in NZ with a Primary benchmark - only 7% - of those 32% disclose, compared with 15% for those that do not have a benchmark.

This suggests consistency with the speculation that a fund manager who has little to reveal is more likely to disclose. In both Australia and New Zealand, this is further suggested in that for those funds with a benchmark, if it's the same as Morningstar's MPT benchmark, a higher proportion discloses (47% vs 40 for Australia, 34% vs 30 for NZ).

Characteristics of Funds which choose to Disclose

Our results from the Probit equation (Table 2) show mixed results for the effect of size. Parida and Teo (2010) and Ge and Zheng (2006) find evidence from the U.S. that larger funds voluntarily disclose less frequently. The difference in our results may stem from the differences in the regulatory environments, while as the U.S. requires mandatory quarterly disclosure New Zealand and Australia lack any portfolio disclosure regulations. Gallagher (2007) points out that fund managers complain about the implementation and compliance costs associated with portfolio disclosure. This suggests that funds in New Zealand and Australia may be faced with higher costs, for example system set-up costs, if they choose to disclose. The economies of scale enjoyed by larger funds could mean that it makes more economic sense for larger funds to disclose.

For the impact of expense, we find significantly higher probability of disclosure for funds with higher expenses, both in Australia and New Zealand. This is in contrast to Ge and Zheng (2006) and Parida and Teo (2010), who find that funds which disclose more frequently than required have lower expense ratios. One reason this could be the case is the differences in regulatory environments between the U.S. and New Zealand and Australia. Because all funds in the U.S. must periodically provide holdings disclosures, every fund must have the systems in place to produce this disclosure. On the other hand, funds in Australia are not legally obliged to disclose; therefore, the funds that voluntarily disclose may be faced with higher expenses to cover the dissemination and systems costs of disclosure, which otherwise would not be imposed.

In Table 2 we see that the largest contributor to probability of disclosure in Australia is whether the fund had a Primary benchmark. It is also a contributor in NZ, but not as dramatic. These are both consistent with what was suggested from Table 1.

For both AU and NZ, Tracking Error or SE is a significant contributor to probability of disclosure, but in the opposite direction as expected. That is, a fund with a *higher* TE is more likely to disclose. This is true for both countries, and for both Pre- and Post-GFC.

There are at least two possible explanations for this :

- 1) a fund that is far away from its benchmark (in performance) may be more likely to be asked for holdings by Morningstar;
- 2) a fund that is far away from its benchmark may be more likely to want to demonstrate that they are not doing something untoward in the fund (that is, generating that high TE "properly").

We see some evidence for this in the Active returns for Australia.

Comparing Pre- and Post-GFC, the coefficient for the contribution from TE/SE increased by more than double. A manager who is concerned about how she is assessed relative to the benchmark, may well be more concerned after the GFC, to show that a high TE is appropriately obtained.

Perhaps consistent with this is the effect of past performance. Overall, in both NZ and Aus, Top quintile performers are more likely to disclose than bottom performers, especially for active returns.

Comparing Pre- and Post-GFC, this difference was less pronounced Post-GFC, particularly in NZ, where performance had little or no impact on probability of disclosure.

Impact of Disclosure on Returns

In Table 3, starting with the OLS regression, we find a somewhat mixed picture of impact of disclosure on returns. Whether NZ or Australia, or Pre- or Post-GFC, it is sometimes positive, sometimes negative, and sometimes insignificant.

However, once we address endogeneity, most of the significance vanishes, and what little remains is positive. So, we can conclude that disclosure does not negatively impact fund performance.

Aside from the implementation costs of disclosure, this has been the main complaint of managers about disclosure – that revealing holdings will allow competitors to copy or front-run. We find that this harm does not occur.

Impact of Disclosure on Fund Flow.

The big story with disclosure is the impact on Fund Flow. In Table 4, we can see that Flow is significantly and positively affected by Disclosure. Over the entire examination period, for both OZ and NZ, t-stats are significant whether Investors are paying attention to Active or Raw returns. After addressing endogeneity, it is even more significant for Australia.

Comparing Pre- and Post-GFC, the results become even more interesting in New Zealand; pre-GFC the flows were not significantly changed by Disclosure, but after the GFC they were. This would imply that investors did care more about Disclosure after the events of the GFC.

In Australia, the OLS estimates show that investor attention to Disclosure increased post-GFC, but after controlling for endogeneity, both Pre- and Post-GFC estimates are significant and positive.

So, bottom line is that Investors do care about Disclosure, and they respond to it with more flow.

7. Summary and Conclusion

Our research adds to the body of literature on the balance between portfolio disclosure to allow investors to monitor their hired professional fund manager, and that disclosure hindering the managers' ability to generate good performance without competitors taking advantage of that knowledge.

We examine a special case with Australia and New Zealand, where fund managers are not required to disclose holdings, but, at least in New Zealand, the government is considering a rule change which would require such disclosure. As such, this study can also be viewed as an examination of the potential effects of a mandatory disclosure regime in New Zealand and Australia. For those countries, and other considering either a change to such a rule, or an increase in requirements, such as hedge funds in the US, the results have implications for: regulators for determining the potential effects of mandatory disclosure; investors, when making investment decisions into funds; and fund managers when making transparency choices.

We analyse a sample of New Zealand and Australian equity funds from 2003 – 2013, during which there is no requirement for mandatory disclosure of portfolio holdings but some funds choose to voluntarily disclose. We examine the effect of voluntary disclosure to make predictions about the effect of a mandatory disclosure regime.

We find that the most important characteristics influencing whether a fund will disclose are if it has a Primary benchmark and has high Tracking Error. The high probability of disclosure when there is a Primary benchmark is consistent with the speculation that such managers have less to lose (in proprietary information) than those with no benchmark. The positive relationship between TE and disclosure suggests managers far away from their benchmark want to demonstrate their holdings are in line with expectations.

We also find that fund returns are not harmed by disclosure. For funds with no Primary benchmark, there is little or no impact on returns due to disclosure. Funds that do have a Primary benchmark and disclose actually have higher returns. This may suggest that funds who are willing to disclose are better managed. Further research will explore this issue.

Finally, we find that disclosing funds have higher flow. The apparent effect is higher before controlling for endogeneity, but even after that treatment, some positive effect remains.

On balance, we find that in this special case of New Zealand and Australia for portfolio holdings, disclosure - clearly beneficial to investors for the monitoring function - has no negative return impact, and investors prefer it, as evidenced with their higher flow to disclosing funds.

While we have not addressed other very important issues, such as the reporting lag, we believe this has implications for other funds, such as US hedge funds, regarding their disclosure.

8. References

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