Investment Performance and Disclosure Quality of Australian Superannuation Funds

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Abstrak - Sebagaimana cadangan pensiun publik hanya setara dengan sekitar lima persen dari Produk Domestik Bruto (PDB), sementara aset dana pensiun sekitar total PDB, dana pensiun memainkan peran penting dalam memastikan keberlanjutan sistem pendapatan pensiun. Sebagaimana aset dana pensiun telah berkembang cepat selama 20 tahun terakhir, tingkat pengembalian investasi yang stabil dan pengungkapan kegiatan wali menjadi sangat penting. Dalam konteks ini, penelitian ini menguji apakah ada hubungan antara tingkat pengembalian investasi (ROR) dan pengungkapan sukarela yang dilakukan oleh dana pensiun Australia.

Penelitian ini menemukan sejumlah temuan. Pertama, dana keseluruhan sampel menerima nilai rendah untuk praktik pengungkapan di bidang kegiatan pemerintah dan operasi, seperti struktur dewan, informasi direksi, dana cadangan, biaya operasional, biaya investasi, dan kegiatan investasi yang diwakili oleh BSI, DDI, FRDI, OFDI, IFDI, dan IDI masing-masing. Kedua, BSI dan DDI tidak memiliki hubungan dengan ROR. Ketiga, FRDI dan OFDI memiliki hubungan negatif dengan ROR, sementara IFDI dan IDI memiliki hubungan positif dengan ROR. Akhirnya, penelitian ini memberikan kontribusi pada literatur, regulasi, dan praktek dalam pelaporan dan pengungkapan dana pensiun.
Kata kunci: Pensiun, Tingkat pengembalian investasi, Praktek pengungkapan

Abstract - As Australian public pension reserves are only equivalent to about five per cent of Gross Domestic Product (GDP) while superannuation assets are approximately the GDP amount, superannuation funds play a significant role in ensuring the sustainability of the retirement income system. As superannuation assets have been growing fast over the last 20 years, stable rates of investment return and disclosure of trustees' activities have become extremely important. High quality disclosure therefore serves to discharge trustees' accountability. In this context, this research examined whether there is a relationship between rate of return (ROR) and voluntary disclosure done by Australian superannuation funds.

This research uncovered a number of findings. First, the sample funds overall receive low scores for disclosure practices in governance and operation activities such as board structure, directors' information, fund reserve, operational fees, investment fees and investment activities represented by BSI, DDI, FRDI, OFDI, IFDI and IDI respectively. Second, BSI and DDI have no relationships with ROR. Third, FRDI and OFDI have negative relationships with ROR, while IFDI and IDI have positive relationships with ROR. Finally, this research contributes to the literature, regulation and practices in superannuation fund reporting and disclosures.
Key words: Superannuation, Rate of return, Disclosure practices

1. Introduction

In the 1970s, before compulsory contribution was introduced, superannuation only covered less than a third of the Australian workforce. In 1986, the assets in superannuation industry reached $262 billion (Patten, 2013). Currently, as of 30 June 2013, it reached $1.62 trillion covering almost all Australian workers (APRA, 2014b). However, despite the noteworthy amount of superannuation assets, during the years 2007 to 2013 the rates of return were fluctuating, resulting in the erosion of superannuation members' confidence in trustees (Kehoe, 2013). Poor performance emphasises the need for high quality disclosure practices (Hartge-Hazelman, 2011). Workers and relevant stakeholders need to be informed about how effectively fund trustees safeguard the assets under their control and manage them to maximise investment returns. Superannuation benefits that workers ultimately receive in retirement depends almost entirely on trustees' ability to generate adequate investment returns (Gallery and Gallery, 2006). Lack of disclosure by trustees to members creates the possibility of potential losses through mismanagement (Drew and Stanford, 2003, Gallery and Gallery, 2006).

Since the 1980s, regulation of superannuation disclosure has developed largely on an *ad hoc* basis. In 1987, the Occupational Superannuation Standards Act (OSSA) established legislative requirements for superannuation funds to prepare financial reports and have them audited, but did not prescribe the form or content of those reports. In 1992, Australian Accounting Standard (AAS) 25 Financial Reporting by Superannuation Plans came into effect. AAS 25 prescribes the format and content of superannuation fund financial reports, however it was not legally enforceable (Gallery and Gallery, 2003). In 1993, Superannuation Industry (Supervision) (SIS) legislation superseded OSSA. This legislation required superannuation funds to use the format prescribed in AAS 25. In March 2002, due to Financial Services Reform Act, provisions relating to superannuation funds reporting were removed from SIS legislation and included in the Corporations Act 2001 and its Regulations. The new provisions also requires the financial reports to be audited (Gallery and Gallery, 2003). Currently, the disclosure and product information regulations via product disclosure statements,

financial statements and other promotional materials are supervised by Australian Securities and Investments Commission (ASIC) and Australian Prudential Regulation Authority (APRA) (Tan and Cam, 2013). Nevertheless, the accounting and financial reporting standards applying to superannuation are still inadequate (Cooper *et al.*, 2010, Drew and Stanford, 2003, Gallery and Gallery, 2006). Additionally, other than inadequate standards regarding disclosure practices, previous studies also found that there were inconsistencies in superannuation disclosure practices, which is of concern because comparability is an important factor in the decision making process (Gallery and Gallery, 2003, Gordon and Gallery, 2012). Therefore, this study is concerned with the extent of voluntary disclosure produced by Australian superannuation funds and compares the quality of voluntary disclosure with the rate of investment return to examine the possible relationship between performance and the level of voluntary reporting disclosure.

Research done by Lang and Lundholm (1993), Lundholm and Myers (2002), Luo *et al.* (2006) and Font *et al.* (2012) showed that there is a significant positive relationship between high quality disclosure and company's performance, whereas Wiseman (1982), Clarkson *et al.* (2011), and Murray *et al.* (2006) argued that there is no significant relationship between high quality disclosure and firm's performance. However, these research did not explore the superannuation industry, they explored corporate sector. There are other researchers who explore Australian superannuation industry, however they did not explore the relationship between performance and the level of voluntary reporting disclosure. For example, research conducted by Bryan *et al.* (2009), Nisbet (2013), Benson *et al.* (2011), Sy and Liu (2009), and Liu (2013) studied the relationship between performance, in terms of rate of return (ROR), and governance, while Tan and Cam (2013) studied the relationship between governance and the level of voluntary reporting disclosure. Hence, to the best knowledge of the author, no research on the relationship between performance and reporting disclosure in the Australian superannuation industry has been done to date.

The importance of superannuation funds cannot be overstated due to increased compulsory contributions and massive superannuation assets. Consequently, reporting and disclosure of superannuation information gain more

attention. It is believed that greater disclosure will help investors to manage their investment risk and therefore generate higher return (Hartge-Hazelman, 2011). Furthermore, providing a high quality of disclosure, superannuation funds can discharge trustees' accountability and help ensure long-term growth and sustainability of Australia's retirement schemes, and have a positive impact on Australia's economic development (Tan and Cam, 2013). Hence, this study will provide an insight into the current disclosure practices used by superannuation funds and thereby raise readers' awareness of the gap between disclosure practices in superannuation funds and in companies. The results of this study may provide a better picture of disclosure practices and provide support for investors and stakeholders who are currently lobbying for tighter reporting disclosure controls on superannuation funds. The study therefore may have implications for regulatory processes. Moreover, examining the effect of voluntary disclosure practices on superannuation funds performance may contribute to the literature as there has been no research done on the relationship between investment return and voluntary disclosures quality in the superannuation industry.

Finally, as superannuation assets grow larger, volatility of return has become a more critical issue (APRA, 2014b) as well as disclosure practices. Nevertheless, in practice there are inadequacies in disclosure policies (AASB, 2009, Cooper *et al.*, 2010, Kahler, 2011, Drew and Stanford, 2003, Nisbet, 2013), while quality disclosure is identified as one way to prove the accountability of trustees. Therefore, if the results from this study show positive relationships between investment return and disclosure qualities, it may be possible to develop the best practices benchmark to discharge trustees' accountability. Furthermore, when members have more comprehensive information regarding their superannuation funds, members can possibly make better choices regarding their superannuation scheme and trustees can possibly prove their accountability using the best practices benchmark. Overall, this research contributes to an increasingly important debate in the currently developing reporting and disclosure framework in the Australian superannuation industry.

2. Research Methodology

The study is cross-sectional, covering the period 2012 to 2013 for 115 superannuation funds. These funds have the largest total assets as of 30 June 2013. They represent 94 per cent of the total institutional superannuation assets, which is 916.22 out of 968.1 billion dollars assets held. However, in terms of the number of entities, the sample only covers up to 25 per cent of the total superannuation funds, which is 115 out of 429 entities. The population includes public offer funds, non-public offer funds, approved deposit funds, eligible rollover funds and pooled superannuation trusts.

The list of superannuation funds used as the sample for this study is provided in Appendix A. The data to be collected are secondary data. The data will be retrieved from APRA's database and from the superannuation funds' annual reports for the financial year 2012-2013. The reason for using annual reports instead of product disclosure statements or financial service guides is because product disclosure statements and financial service guides are required by ASIC Regulatory Guide (RG) 168, which therefore does not reflect a voluntary condition. Moreover, annual reports are regarded as an important source of information (Tan and Cam, 2013). To address the relationship between ROR and the level of disclosure practices, using research done by Tan and Cam (2013) and Sanchez *et al.* (2011), six hypotheses reflecting six key disclosure areas in governance and operation activities were developed. These disclosure areas, which are also the independent variables, can be seen in Appendix B.

Appendix B outlines the transformation of qualitative variables (the disclosure quality) into quantitative variables (the disclosure indices). The disclosure quality of board structure is reflected by Board Structure Index (BSI), the disclosure quality of directors information is reflected by Directors Disclosure Index (DDI), the disclosure quality of fund reserve is reflected by Fund Reserve Disclosure Index (FRDI), the disclosure quality of operational fees is reflected by Operational Fees Disclosure Index (OFDI), the disclosure quality of investment fees is reflected by Investment Fees Disclosure Index (IFDI), and finally the disclosure quality of investment activities is reflected by Investment Disclosure Index (IDI).

The disclosure indices are the result of scoring the annual reports retrieved from each superannuation fund's website or from other publicly available resources. In contrast with the independent variables, the dependent variable, which is reflected by ROR, is a quantitative variable. Hence no transformation is required and the data can be gathered directly from the APRA's database. Different superannuation funds use different ways to calculate ROR (Bateman, 2001). Therefore, to enhance comparability, the ROR data is derived from a single source, the APRA database. The ROR data provided by APRA has been assumed to be calculated in the same manner for all APRA-regulated funds.

After collection, the data would be analysed using SPSS. First of all, descriptive statistics were used to give an overview of the data. Then, the correlation and the significance between independent variables and dependent variable are conducted. After that, the data is analysed using ordinary least square regression model. The significance level used in both correlation and regression analysis is at 10% significance level or p-values of less than 0.1.

3. Results and Discussion

Table 1 shows the descriptive statistics for the dependent variable, or ROR. There are 115 superannuation funds as this research's sample, with ROR ranging from 2.17% to 19.09%, a mean of 13.56% and standard deviation of 2.12%. The mean result shows that on average, the sample funds achieve an average ROR of 13.56%, which exceeds the annual minimum goal of six per cent of ROR (Kehoe, 2013). This is possibly due to the good share market return generated in 2012-2013. To determine the level of volatility of ROR in the sample, standard deviation is considered to be a useful method. The higher the standard deviation, the higher the level of dispersion (Nisbet, 2013). The result shows that the sample has a standard deviation of 2.12. This value is considered low by Nisbet (2013). This result indicates that there is a small difference in ROR between superannuation funds.

Table 1: Descriptive Statistics of Dependent Variable

	N	Minimum	Maximum	Mean	Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Statistic
ROR	115	2.17	19.09	13.5653	2.12966
Valid N (listwise)	115				

Three implications can be derived from the small ROR differences. First, this might indicate that there may be a lack of competition in the superannuation industry, as the superannuation funds generate relatively similar investment performance, or ROR. This is consistent with the literature (Clements *et al.*, 2006, Drew and Stanford, 2003). Second, it might serve as proof of a high degree of superannuation funds consolidation and highly inter-related outsourcing (Arnold *et al.*, 2013, Bird and Gray, 2011, Cummings, 2012). Due to consolidation among funds, several superannuation funds are under the management of one trustee, where the trustee hires the same service providers to manage the funds. Third, the ROR may result from a good performance in the Australian share market where the majority of the fund assets were invested (The Trust Company (Superannuation) Limited, 2013, AustralianSuper Pty Ltd, 2013, AFMA, 2013).

Table 2 presents the descriptive statistics of the independent variables. As indicated by the mean results, the funds in the sample did not perform well on average across five disclosure areas: 1.7/3.0 for the disclosure of board structure (BSI); 1.7/5.0 for the disclosure of directors information (DDI); 1.8/5.0 for the disclosure of fund reserve (FRDI); 0.7/3.0 for the disclosure of operational fees (OFDI); and 0.4/2.0 for the disclosure of investment fees (IFDI). The sample funds however perform quite well for the disclosure of investment activities (IDI): 2.8/4.0.

The result of the descriptive statistics for the independent variables above shows that the minimum value for board structure disclosure (BSI) is 1, which indicates that the trustees disclose at least one of the elements that comprise BSI, such as trustee name and ABN, board committee or board nominator. This might give an indication that superannuation funds have a high disclosure quality of board structure. For disclosure of directors' information (DDI), disclosure of fund reserve information (FRDI), disclosure of operational fees (OFDI), disclosure of investment fees (IFDI) and disclosure of investment activities (IDI), several zero values were recorded, which indicates that there are superannuation funds who did not voluntarily disclose any information regarding each of those disclosure indices. The maximum value for each independent variable matches with the maximum total score of each disclosure index, which suggests that there were

superannuation funds voluntarily disclosing the full extent of BSI or DDI or FRDI or OFDI or IFDI or IDI.

Table 2: Descriptive Statistics of Independent Variables

		BSI	DDI	FRDI	OFDI	IFDI	IDI
N	Valid	115	115	115	115	115	115
	Missing	0	0	0	0	0	0
Mean		1.76	1.73	1.870	.722	.452	2.887
Median		2.00	1.00	2.000	.000	.000	3.000
Std. Deviation		.833	1.541	1.6624	1.0805	.6913	.9712
Variance		.695	2.374	2.764	1.168	.478	.943
Minimum		1	0	.0	.0	.0	.0
Maximum		3	5	5.0	3.0	2.0	4.0

Correlation analysis

Table 3 presents the results of the correlation analysis. Correlation analysis measures the extent of the relationship of any pair of variables (Reimann *et al.*, 2008). The results reveal several relationships. Firstly, ROR does not have a significant correlation with BSI, DDI, FRDI, OFDI, and IFDI. However, ROR has a significant and positive relationship with IDI at 0.240 ($\rho<1\%$). This means that the higher the ROR, or the dependent variable, the more extensive the disclosure of investment activities or the higher the IDI. Although the correlation coefficient is significant, the correlation strength is weak, as it is below 0.3 (Pallant, 2005). Secondly, BSI has a significant and positive correlation with DDI (0.536, $\rho<1\%$), FRDI (0.464, $\rho<1\%$), OFDI (0.216, $\rho<5\%$) and IDI (0.410, $\rho<1\%$). The correlation coefficients reveal that the correlation between BSI and DDI is the strongest compared to the correlation between BSI and FRDI, the correlation between BSI and OFDI, and the correlation between BSI and IDI. Furthermore, although weaker than DDI, FRDI and IDI still have a significant positive correlation with BSI as the correlation coefficients are above 0.3.

Table 3: Correlation Analysis

		ROR	BSI	DDI	FRDI	OFDI	IFDI	IDI
ROR	Pearson Correlation	1						
	Sig. (1-tailed)							
	N	115						
BSI	Pearson Correlation	-.007	1					
	Sig. (1-tailed)	.471						
	N	115	115					
DDI	Pearson Correlation	-.012	.536**	1				
	Sig. (1-tailed)	.451	.000					
	N	115	115	115				
FRDI	Pearson Correlation	-.100	.464**	.442**	1			
	Sig. (1-tailed)	.145	.000	.000				
	N	115	115	115	115			
OFDI	Pearson Correlation	-.113	.216*	.102	.229**	1		
	Sig. (1-tailed)	.115	.010	.139	.007			
	N	115	115	115	115	115		
IFDI	Pearson Correlation	.101	.147	.115	.204*	.510**	1	
	Sig. (1-tailed)	.142	.058	.110	.014	.000		
	N	115	115	115	115	115	115	
IDI	Pearson Correlation	.240**	.410**	.185*	.398**	.229**	.247**	1
	Sig. (1-tailed)	.005	.000	.024	.000	.007	.004	
	N	115	115	115	115	115	115	115

**. Correlation is significant at the 0.01 level (1-tailed).

*. Correlation is significant at the 0.05 level (1-tailed).

Notes:
ROR : Rate of Return, which measures investment performance.
BSI : Board Structure Index, which measures the voluntary disclosure level of board structure information.
DDI : Directors Disclosure Index, which measures the voluntary disclosure level of directors' information.
FRDI : Fund Reserve Disclosure Index, which measures the voluntary disclosure level of fund reserve information.
AFDI : Account Fee Disclosure Index, which measures the voluntary disclosure level of account fee information.
IFDI : Investment Fee Disclosure Index, which measures the voluntary disclosure level of investment fee information.
IDI : Investment Disclosure Index, which measures the voluntary disclosure level of investment information.

Thirdly, DDI has a significant and positive correlation with FRDI and IDI: 0.442 (ρ<1%) with FRDI and 0.185 (ρ<5%) with IDI. Although the correlation between DDI and IDI is significant, in terms of strength the correlations are weak (correlation coefficients less than 0.3). Only with FRDI a strong and significant positive correlation is established. Fourthly, FRDI has a significant and positive correlation with OFDI (0.229, ρ<1%), with IFDI (0.204, ρ<5%), and with IDI (0.398, ρ<1%). The results show that FRDI only has a strong and significant correlation with IDI. Fifth, OFDI has a strong and significant positive correlation with IFDI (0.510, ρ<1%) and weak but significant positive correlation with IDI (0.229, ρ<1%). Finally, IFDI has a weak but significant positive correlation with IDI (0.247, ρ<1%). These correlation results are consistent with a similar study conducted by Tan and Cam (2013). In their study, it was found that there are strong and significant positive relationships between the disclosure indices.

Robustness tests

Robustness tests were conducted in order to know whether regression results are sensitive to slight modifications or violations of assumptions. In other words robustness tests are useful to prove that the regression model used is stable and reliable, and the results can therefore be meaningful and ready for interpretation. There is not a commonly agreed set of tests for robustness which analysts should apply (Gujarati and Porter, 2008). In this study, six assumptions were based to test whether the regression model is robust.

The first assumption is whether the number of sample is adequate or not. Coakes *et al.* (2010) mentioned that the number of samples must be at least five times of the number of independent variables. In this study, there are six independent variables, therefore the minimum number of samples is 30 (six multiplies with five). As the study uses 115 samples, this first assumption is satisfied. The second assumption is normality, which means that the residuals should be normally distributed (Coakes *et al.*, 2010). As can be seen in Figure 1, the p-p plot of the residuals also demonstrates that the residual distribution is normal. Therefore the second assumption is satisfied.

The third assumption requires an analysis to check whether outliers have a significant impact on the regression result or not, as outliers may distort the results of both correlation and regression analyses (Liu *et al.*, 2010, Reimann *et al.*, 2008). First of all, casewise diagnostics is conducted to check the presence of outliers. Only 1 per cent of the sample is expected to have a standardised value below -3 or above 3 (Pallant, 2005). According to Figure 1, there is only one out of 115 cases (0.87 per cent) that has a standardised residual value below -3 or above 3. Further analysis needs to be done in order to examine the impact of the outliers. If the critical value used for Mahalanobis distance for six independent variables does not exceed 22.46, then the outliers do not significantly affect the correlation and regression result (Pallant, 2005). As shown in Figure 1, the Mahalanobis distance value does not exceed the threshold. Hence, the third assumption is satisfied. The fourth assumption is the homoscedasticity should be present. As Figure 1 suggests that there is no systematic pattern between the two variables, therefore the fourth assumption is satisfied.

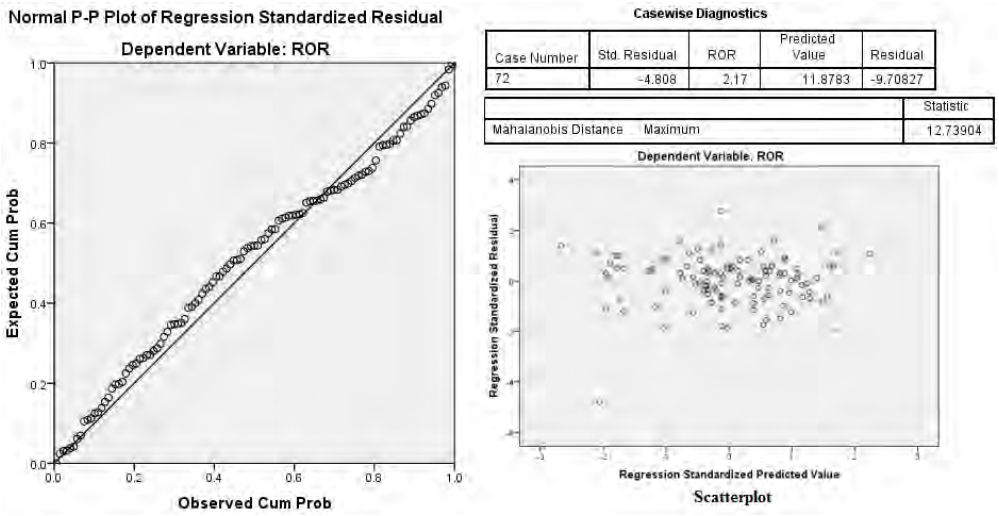

Figure 1: Normal p-p plot of the Regression Residuals, Casewise Diagnostics, and Mahalanobis Distance, Scatterplot

The fifth assumption is multicollinearity. One common way to analyse multicollinearity is by looking at Variance Inflation Factor (VIF) and tolerance value. If tolerance level is below 0.1 (Dormann *et al.*, 2012, Lin, 2008, Pallant, 2005) and VIF is above 5.000 (Arslan and Karan, 2009), then multicollinearity exists in the regression model. The results shown in Table 4 show no violation of the determined thresholds. The results indicate that multicollinearity is not a concern. The sixth assumption is that there must be no auto-correlated residuals. This can be done by using Durbin-Watson statistics. A Durbin-Watson value close to 0 indicates strong positive correlation, whereas a value of 4 indicates strong negative correlation. If the Durbin-Watson value is approximately 2, then the residuals are uncorrelated, or in other words the residuals are independent (Chan, 2004). The calculated Durbin-Watson value is 1.644. This value is closer to 2 rather than to 0 or 4. Therefore it indicates that the residuals are unlikely to be auto-correlated and the sixth assumption is satisfied. All assumptions are satisfied, thus the regression model can be concluded as reasonably robust and the results can be interpreted.

Table 4: Collinearity Statistics

	Tolerance	VIF
BSI	.582	1.717
DDI	.653	1.532
FRDI	.664	1.506
OFDI	.710	1.409
IFDI	.717	1.395
IDI	.741	1.350

Discussion of regression results

The r square in the model summary box indicates how much the variance in the dependent variable (ROR) is explained by a set of independent variables (BSI, DDI, FRDI, OFDI, IFDI and IDI) (Pallant, 2005). According to Table 5, 14.8 per cent of ROR is explained by the disclosure indices. This percentage is considered small as it also indicates that 85.2 per cent of ROR is affected by factors other than the disclosure indices. This result is not surprising or inconsistent with other studies examining the factors affecting ROR in superannuation funds. Obviously, the ROR can be affected by many other operating and governance factors such as asset size, asset allocations, investment strategy, investment managers, board size, or frequency of conflict review. For example, studies conducted by Benson *et al.* (2011) and Liu (2013) found that there are significant positive relationships between the number of regular conflict review, board size, directors' age and ROR. Furthermore, studies conducted by Hirtle (2007), Orens *et al.* (2009), White *et al.* (2010), Kopp and Zimmer-Gembeck (2011), and Ball *et al.* (2012) indicate that a small r square is a common result in a cross-sectional study with a score or ranking system.

Table 5: Regression Analysis

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.385[a]	.148	.101	2.01906

a. Predictors: (Constant), IDI, DDI, AFDI, IFDI, FRDI, BSI
b. Dependent Variable: ROR

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	76.768	6	12.795	3.139	.007[b]
	Residual	440.275	108	4.077		
	Total	517.043	114			

a. Dependent Variable: ROR
b. Predictors: (Constant), IDI, DDI, AFDI, IFDI, FRDI, BSI

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	12.077	.628		19.222	.000			
	BSI	-.132	.297	-.052	-.445	.657	-.007	-.043	-.040
	DDI	.073	.152	.052	.477	.634	-.012	.046	.042
	FRDI	-.284	.140	-.222	-2.035	.044	-.100	-.192	-.181
	OFDI	-.446	.208	-.226	-2.145	.034	-.113	-.202	-.190
	IFDI	.546	.323	.177	1.689	.094	.101	.160	.150
	IDI	.762	.226	.348	3.370	.001	.240	.308	.299

a. Dependent Variable: ROR

The statistical significance of the results is shown in the ANOVA table in Table 5. The result exhibits that the model is statistically significant at 1% (F= 3.139, $\rho<1\%$). Thus the model is robust. As per Table 5, four out of six

independent variables are significant. The significant independent variables are IDI (3.370, ρ<1%), OFDI (-2.145, ρ<5%), FRDI (-2.035, ρ<5%), and IFDI (1.689, ρ<10%). The regression result for BSI (-.445, ρ>10%) and DDI (0.477, ρ>10%) show no significant relationships with ROR.

Unstandardised coefficients are used to show the adjustment happens on the dependent variable when the independent variable changes by one unit, whereas standardised coefficients are the unstandardised coefficients that have been converted into the same scale so that they become comparable (Pallant, 2005). Therefore to show the direction of the relationships between the dependent variable and each of the independent variable, the standardised coefficients are explored. Table 5 shows that three independent variables (BSI with beta value of -0.052, FRDI with beta value of -0.222 and OFDI with beta value of -0.226) have negative relationships with the dependent variable (ROR). The other three independent variables, which are DDI (beta value of 0.052), IFDI (beta value of 0.177) and IDI (beta value of 0.348), have positive relationships with ROR.

The first hypothesis states that there is a relationship between the disclosure of board structure (BSI) and ROR. Table 5 shows no statistically significant result for the relationship between BSI and ROR (p-value is 0.657), therefore no conclusion can be made regarding the first hypothesis. As no deduction on the relationship between BSI and ROR can be derived, this might indicate that when superannuation funds disclose more information regarding the board structure (BSI score increase), the ROR could increase, decrease or stay the same. The finding might suggest that there is no relationship between the disclosure of board structure and ROR. Using the interpretation as a pointer, two contradicting conclusions about superannuation trustees' disclosure activities are deduced. First, trustees are not aware of the importance of disclosing board structure information, therefore no significant relationship is found between ROR and BSI score. Second, only a small portion of superannuation trustees are concerned with the importance of the disclosure of board structure, hence regardless of the rate of return, that small portion of superannuation funds disclose high quality directors' information whereas most funds vary between low, moderate and high disclosure. The finding is consistent with the findings in the

corporate sector's studies done by Wiseman (1982), Murray *et al.* (2006) and Clarkson *et al.* (2011). These studies suggested that there is no relationship between return and environmental disclosure quality. The findings in this study contribute to the literature on superannuation funds' reporting and disclosure. Furthermore, the regulators (ASIC and APRA) could take into account regulating comprehensive disclosure of board structure as it is an important disclosure area and a way to prove trustees' accountability.

The second hypothesis states that there is a relationship between directors' information (DDI) and ROR. Table 5 shows no statistically significant result on the relationship between DDI and ROR as the p-value is 0.634. Consequently, no conclusion on the second hypothesis can be made and H(2) is not supported. Similar to the situation on the board structure disclosure index (BSI), this might denote that the ROR could increase, decrease, or stay the same even though funds score higher on DDI. Hence, it may be concluded that there is no relationship between the disclosure of directors' information and ROR. Two conflicting deductions regarding trustees' disclosure activities can be made. First, the importance of the disclosure of directors' information may have low priority, which then results in an unpredictable relationship between ROR and BSI score. Second, trustees' disclosure activities and its quality may be *ad hoc* where there is no system in place that guides these types of trustees' disclosure among the sample funds. This result confirms the findings in the corporate sector's studies conducted by Wiseman (1982), Murray *et al.* (2006), and Clarkson *et al.* (2011), which found that return and environmental disclosure quality do not have any relationships. Thus the finding contributes to the literature on superannuation funds reporting and disclosure.

The third hypothesis states that there is a relationship between the disclosure of fund reserve (FRDI) and ROR. As per Table 5, there is a statistically significant relationship between FRDI and ROR with p-value of 0.044 and t-value of -2.035, hence H(3) is supported. As the direction of the relationship is negative (-0.222), it indicates that when superannuation funds disclose more information regarding fund reserves, the investment performance, reflected by ROR, will slightly decrease (an inverse pattern is discovered). Fund reserve reflects the way

superannuation funds control their risk, nevertheless, better disclosure quality in regards to fund reserves relates to lower return. Furthermore, APRA emphasised the importance of establishing risk reserves and required superannuation funds to establish operation reserves from July 2013 for the financial year 2013-2014 (Alcoa of Australia Retirement Plan Pty Ltd, 2013). The data collected for the sample funds are based on fund annual reports for the financial year 2012-2013. This result supports findings in the corporate sector's literature published by Lang and Lundholm (1993), Lundholm and Myers (2002), Luo *et al.* (2006) and Font *et al.* (2012), and hence enriches the literature in superannuation funds' reporting and disclosure.

The fourth hypothesis states that there is a relationship between operational fees and ROR. A statistically significant relationship between OFDI and ROR was found with p-value of 0.034 and t-value of -2.145. The hypothesis is therefore supported. The direction of the relationship is negative with a beta coefficient of -0.226. The result indicates that as superannuation funds score higher on OFDI, the ROR will decrease. Fees and costs are critical issues in superannuation fund management (Parrish and Delpachitra, 2012). Consequently disclosure of fees and costs is considered important to ensure transparency and trustees' accountability. Surprisingly, funds which score highly on the disclosure of administration fees and costs have lower returns. This result supports findings in the corporate sector's literature published by Lang and Lundholm (1993), Lundholm and Myers (2002), Luo *et al.* (2006) and Font *et al.* (2012), and thus enriches the literature in superannuation funds' reporting and disclosure.

The fifth hypothesis states that there is a relationship between the disclosure of investment fees (IFDI) and ROR. As per Table 5, a statistically significant relationship between IFDI and ROR was found with a p-value of 0.094 and t-value of 1.689, thus H(5) is supported. The direction of the relationship shows a strong positive correlation with a beta coefficient of 0.177. The result denotes that when superannuation funds disclosed more quality information regarding investment fees, the investment performance (ROR) also increased. Using research into the corporate sector as guidance, the result on IFDI supports the findings of Lang and Lundholm (1993), Lundholm and Myers (2002), Luo *et*

al. (2006) and Font *et al.* (2012), who suggest that there is a relationship between return and voluntary disclosures of news or information that affect investors' investment decisions.

The last (sixth) hypothesis, states that there is a relationship between the disclosure of investment activities and ROR. The result in Table 5 shows a statistically significant relationship between IDI and ROR with a p-value of 0.001 and t-value of 3.370. Therefore H(6) is supported. The result shows a strong positive relationship with a beta coefficient of 0.348. As superannuation funds scored higher on IDI, the ROR also increased. The IDI result promotes the corporate sector's research by Lang and Lundholm (1993), Lundholm and Myers (2002), Luo *et al.* (2006) and Font *et al.* (2012), who suggested that return has a significant relationship with voluntary disclosures in areas that can influence investment decisions. Hence, it adds to the reporting and disclosure literature on the superannuation industry. Furthermore, due to the positive relationship between IDI and ROR, a better decision in choosing funds could be made by members and employers. For the implication on regulators, the SIS Act 1993 and Superannuation's RG (the regulation for superannuation sector) could be widened by taking into account the disclosure of investment activities.

4. Conclusion and Suggestion

The results suggest that low disclosure indices' scores indicate that there is a low level of disclosure practices in areas such as board structure, directors' information, fund reserves, operational fees, investment fees and investment activities. This finding therefore contributes to the literature on superannuation fund reporting and disclosure practices. It is important to increase the disclosure quality in superannuation funds as high disclosure quality might increase investment performance (ROR). Raising disclosure quality can help trustees improve organisational transparency and gain members' trust, which then might result in the existing members' loyalty being enhanced and new members joining the superannuation fund (Schnackenberg and Tomlinson, 2014, Walumbwa *et al.*, 2011, Wu *et al.*, 2009). Consequently, as the assets size increases, economies of scale are achieved, then costs decrease, return increases, and hopefully retirement

income also increases (Bird and Gray, 2011, Cummings, 2012). Therefore, it is important for the regulators to enforce consistent disclosure policy on the disclosure areas analysed in this research, in particular the operational fees and investment fees disclosure areas. Furthermore, a low level of disclosure implies that it may be necessary to encourage funds to provide better information to members and stakeholders. Overall, this study contributes to the superannuation fund reporting and disclosure literature, practices, and policy setting.

The set of disclosure indices only explains 14.8 per cent of the variation in the ROR, hence, there is only a weak relationship between investment return (ROR) and the governance and operation activities. Furthermore, two out of six indices were not significant, two out of four significant indices showed negative relationship, and the other two showed positive relationship (the tested indices showed different results despite the fact that all of them are governance and operation activities). Hence, the findings only contribute to the literature on superannuation fund reporting and disclosure practices.

Disclosure quality and return have both been identified as important issues in society in various studies of the corporate sector (Wiseman (1982), Lang and Lundholm (1993), Healy and Palepu (2001), Lundholm and Myers (2002), Murray *et al.* (2006), Luo *et al.* (2006), Clarkson *et al.* (2011) and Font *et al.* (2012)), yet no research in the superannuation sector investigates the relationship between return and the extensiveness of key disclosure areas. Hence, as the literature on superannuation fund reporting and disclosure is not as rich as the literature in the corporate sector, by providing initial evidence of the link between ROR and voluntary disclosure quality, this study contributes to expand the literature on superannuation fund reporting and disclosure as well as to an increasingly important debate.

Furthermore, the Australian corporate sector has an established disclosure regulation and recommendations, such as Australian Accounting Standards Board (AASB), ASX CGC (2007), and ASIC's RG. On the other hand, although the reporting and disclosure framework of the Australian superannuation industry have continuously developed and received many recommendations from various professional bodies and regulatory agencies, the regulation and recommendations

concerning superannuation funds disclosure quality is still inadequate. Therefore as the reporting framework and disclosure practices in the Australian superannuation industry is not as extensive as in the corporate sector, this study contributes to the currently developing superannuation fund reporting framework and disclosure practices. In addition, this study raises the readers' awareness on the gap between disclosure practices in the superannuation industry and the corporate sector, and also highlights the need for regulators to ensure that the regulation concerning superannuation funds' reporting and disclosure enhances trustees' accountability. Transparency and accountability are among the key factors that contribute to maximise retirement incomes for superannuation funds' members.

Future research on the relationship between ROR and voluntary disclosure could include other disclosure areas, such as social and environmental disclosure. Furthermore, a longer time period could also be covered. By extending the time period, it could examine the effect of extensive voluntary disclosure on ROR. The data collection processes could also be enhanced by using interviews and electronic mails. The improved data collection processes could allow for more in depth analyses into the relationship between voluntary disclosure and ROR.

APPENDICES

Appendix A: List of Superannuation Funds as Sample (APRA, 2014a)

1. Australian Super
2. AMP Superannuation Savings Trust
3. Colonial First State FirstChoice Superannuation Trust
4. State Public Sector Superannuation Scheme
5. Retirement Wrap
6. First State Superannuation Scheme
7. Unisuper
8. The Universal Super Scheme
9. OnePath Masterfund
10. Retail Employees Superannuation Trust
11. Sunsuper Superannuation Fund
12. Health Employees Superannuation Trust Australia
13. Construction & Building Unions Superannuation
14. Wealth Personal Superannuation and Pension Fund
15. ASGARD Independence Plan Division Two
16. Mercer Super Trust
17. Telstra Superannuation Scheme
18. Public Sector Superannuation Scheme
19. MLC Superannuation Fund
20. IOOF Portfolio Service Superannuation Fund
21. HOSTPLUS Superannuation Fund
22. Plum Superannuation Fund
23. State Super Retirement Fund
24. Macquarie Superannuation Plan
25. Victorian Superannuation Fund
26. Local Government Superannuation Scheme
27. Auscoal Superannuation Fund
28. CareSuper
29. Commonwealth Bank Group Super
30. MTAA Superannuation Fund
31. Qantas Superannuation Plan
32. Suncorp Master Trust
33. equipsuper
34. Westpac Mastertrust - Superannuation Division
35. Local Authorities Superannuation Fund
36. Russell Supersolution Master Trust
37. The Portfolio Service Retirement Fund
38. Australian Catholic Superannuation and Retirement Fund
39. NGS Super
40. Catholic Superannuation Fund
41. Statewide Superannuation Trust
42. Public Sector Superannuation Accumulation Plan
43. Military Superannuation & Benefits Fund No 1
44. Colonial Super Retirement Fund
45. Energy Super
46. Local Government Superannuation Scheme - Pool A
47. Avanteos Superannuation Trust
48. CSS Fund
49. Rio Tinto Staff Superannuation Fund
50. Maritime Super
51. Labour Union Co-Operative Retirement Fund
52. National Australia Bank Group Superannuation Fund A
53. The Retirement Plan
54. Media Super
55. TWU Superannuation Fund
56. BHP Billiton Superannuation Fund
57. Colonial First State Rollover & Superannuation Fund
58. Local Government Superannuation Scheme - Pool B
59. Building Unions Superannuation Scheme
60. BT Lifetime Super
61. AON Master Trust
62. Kinetic Superannuation Fund
63. Energy Industries Superannuation Scheme-Pool B
64. Netwealth Superannuation Master Fund
65. legalsuper
66. Tasplan Superannuation Fund
67. WA Local Government Superannuation Plan
68. First Super
69. Perpetual WealthFocus Superannuation Fund
70. Energy Industries Superannuation Scheme-Pool A
71. Club Plus Superannuation Scheme
72. AMP Eligible Rollover Fund
73. Symetry Personal Retirement Fund
74. Alcoa of Australia Retirement Plan
75. Bluescope Steel Superannuation Fund
76. Perpertual's Select Superannuation Fund
77. Mercer Portfolio Service Superannuation Plan
78. Prime Super
79. Australian Meat Industry Superannuation Trust
80. Austsafe Superannuation Fund
81. AvSuper Fund
82. Intrust Super Fund
83. Harwood Superannuation Fund
84. IAG & NRMA Superannuation Plan
85. ClearView Retirement Plan
86. Zurich Master Superannuation Fund
87. Rei Super
88. EquitySuper
89. Retirement Portfolio Service
90. Guild Retirement Fund
91. Queensland Independent Education & Care Superannuation Trust
92. Australian Eligible Rollover Fund
93. Challenger Retirement Fund
94. Synergy Superannuation Master Fund
95. Christian Super
96. Holden Employees Superannuation Fund
97. Mercy Super
98. Health Industry Plan
99. Fiducian Superannuation Fund
100. The Executive Superannuation Fund
101. Quadrant Superannuation Scheme
102. Meat Industry Employees Superannuation Fund
103. The Flexible Benefits Super Fund
104. Lifetime Superannuation Fund
105. IRIS Superannuation Fund
106. Boc Gases Superannuation Fund
107. The Victorian Independent Schools Superannuation Fund
108. Encircle Superannuation Fund
109. Australia's Unclaimed Super Fund
110. Nationwide Superannuation Fund
111. Westpac Personal Superannuation Fund
112. Australian Ethical Retail Superannuation Fund
113. NESS SUper
114. Fire and Emergency Services Superannuation Fund
115. Virgin Superannuation

Appendix B: Description of Variables

Variables	Definitions
Board Structure Index (BSI)	The sum of the following, where the highest score is 3 points: 1 = trustee name and ABN is disclosed; 0 otherwise 1 = board committee is disclosed; 0 otherwise 1 = board nominator is disclosed; 0 otherwise
Directors Disclosure Index (DDI)	The sum of the following, where the highest score is 5 points: 1 = directors' name is disclosed; 0 otherwise 1 = directors' experience is disclosed; 0 otherwise 1 = directors' educational qualification is disclosed; 0 otherwise 1 = directors' remunerations in total is disclosed; 2 if directors' remunerations per person is disclosed; 0 if otherwise
Fund Reserve Disclosure Index (FRDI)	One of the following, where the highest score is 5 points: 0 = no information 1 = has a reserve, amount and type undisclosed 2 = has an operational risk reserve or investment fluctuation reserve or administration reserve, amount undisclosed 3 = has an operational risk reserve, amount disclosed 4 = has an investment fluctuation reserve, amount disclosed 5 = has both an operational risk reserve and an investment fluctuation reserve, amount disclosed
Operational Fees Disclosure Index (OFDI)	The sum of the following, where the highest score is 3 points: 1 = administrative fee is disclosed; 0 otherwise 1 = withdrawal fee is disclosed; 0 otherwise 1 = investment switching fee is disclosed; 0 otherwise
Investment Fees Disclosure Index (IFDI)	The sum of the following, where the highest score is 2 points: 1 = investment management fee is disclosed; 0 otherwise 1 = performance fee is disclosed; 0 otherwise
Investment Disclosure Index (IDI)	The sum of the following, where the highest score is 4 points: 1 = fund or investment manager is disclosed; 0 otherwise 1 = asset or investment consultant is disclosed; 0 otherwise 1 = asset allocation is disclosed; 0 otherwise 1 = investment option is disclosed; 0 otherwise

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