Product Profile

FTSE TWSE Taiwan Dividend+ Index analysis

FTSE TWSE Taiwan Dividend+ Index enhancement – increasing the number of constituents

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AUTHORS

Casper Huang
Research Analyst, Index
Research & Design, Taiwan
+886 (2) 8979 4911
casper.huang@lseg.com

Chuck Chang, CFA
Manager of Index Research
& Design, Taiwan
+886 (2) 8729 5131
chuck.chang@lseg.com

Emerald Yau
Head of Equity Index Product
Management, Asia
+852 21643210
emerald.yau@lseg.com

Introduction

In recent years, the market capitalisation of the top companies in Taiwan has grown significantly and these high performing listed companies have typically paid out high dividend ratios. However, despite this growth, the total number of constituents in Taiwan's high dividend indices has not changed. As Taiwan's market continues to grow, we investigated the potential outcomes of increasing the number of constituents in the dividend indices from 30 to 50, and the pros and cons of doing so.

In summary:

- Our analysis showed that increasing the number of constituents from 30 to 50 in a high dividend index would not affect long-term performance

- By contrast, having 50 constituents in a high dividend index actually led to lower volatility and stock turnover

- Increasing the number of constituents can achieve levels of capacity and diversification with only a small reduction in yield caused by the trade-off between yield levels and a greater number of constituents

Contents

Executive summary

This paper presents the findings of our study, examining the construction of a FTSE Taiwan Top 30 High Dividend Portfolio and a FTSE Taiwan Top 50 High Dividend portfolio. The portfolios are constructed with 30(50) constituents based on the rankings of forecasted dividend yields from the FTSE TWSE Taiwan 50 Index and the FTSE TWSE Taiwan 100 Index. The recent market cap growth of Taiwan's biggest companies has prompted one popular tradable index, the 'Yuanta Taiwan High Dividend Securities Investment Trust' (0056 TT EQUITY) to increase its constituent number to accommodate more assets under management.

1. Background

While Taiwan's equity market has benefited from an increase in both the number of listed companies in Taiwan and their corresponding market capitalisations, at a top-level, the market capitalisation of the top 30 dividend-yielding constituents in the FTSE TWSE Taiwan 150 Reference Index[1] has dropped from 26% at the inception of the index in 2007, to 13.7% in August 2021. (see Exhibit 1-1). However, the total dividend pay-out of the FTSE TWSE Taiwan 150 Index has increased from TWD662 billion in 2007 to TWD1,184 billion in 2021. The number of stocks in the FTSE TWSE Taiwan 150 Reference Index that have a dividend pay-out ratio of more than 40% has grown steadily over the past 15 years while the index weights of those stocks have also grown (from 69% in 2007 to 89% in 2021).

Exhibit 1-1, Percentage of full market cap

**Exhibit 1-2, Total dividend pay-out**
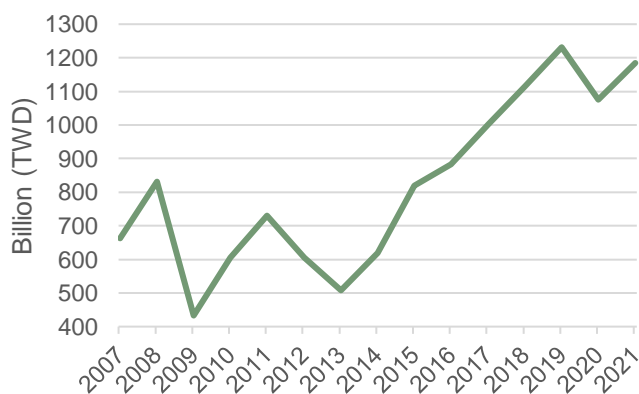
Notes: Full market capitalisation as of year-end is used for Exhibit 1-1, which represents the percentage of full market cap of the top 30 dividend-yielding constituents of the index of the Taiwan 150 reference index. Total dividend pay-out shown in Exhibit 1-2 is calculated by the sum of individual stocks' shares, multiplying dividend per share.
Source: FTSE Russell. Please see the end of this document for important legal disclosures.

Exhibit 1-3, Number of stocks with pay-out ratio > 0.4
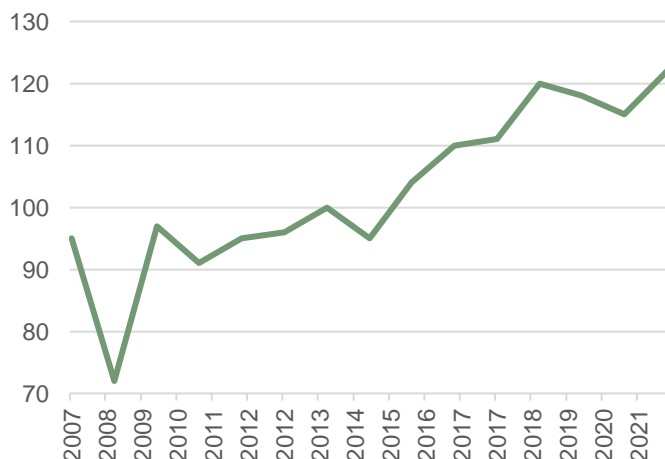
Exhibit 1-4, Index Weight of Pay-out ratio > 0.4 vs <= 0.4
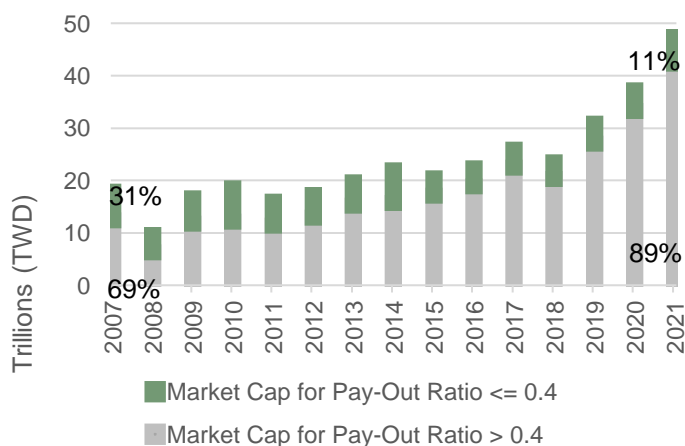
Notes: Full market capitalisation as of year-end is used for Exhibit 1-3, which presents the total market cap weight change between the pay-out ratio bigger than 40% and smaller than 40% over time. Pay-out ratios in Exhibits 1-3 and 1-4 are defined as the dividend pay-out per share over year-end close price.
Source: FTSE Russell. Please see the end of this document for important legal disclosures.

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[1] The FTSE TWSE Taiwan 150 Reference Index is a combination of the FTSE TWSE Taiwan 50 Index and the FTSE TWSE Taiwan Mid-100 Index

Given these market developments, we believe it would be beneficial to increase the number of constituents in the high dividend index. The table below shows that increasing the number of constituents to 50 will bring market-capitalisations back up to similar levels seen in 2007. We used the methodology of the FTSE Taiwan High Dividend+ Index to create top 30 and top 50 high-dividend model portfolios and compared their respective performance returns.

Given these market developments, we believe it would be beneficial to increase the number of constituents in the high dividend index. The table below shows that increasing the number of constituents to 50 will bring market-capitalisations back up to similar levels seen in 2007. We used the methodology of the FTSE Taiwan High Dividend+ Index to create top 30 and top 50 high-dividend model portfolios and compared their respective performance returns.

Table 1-5

		15 January 2007		31 August 2022	
	Number of constituents	Full market cap (TWD million)		Full market cap (TWD million)	
FTSE TWSE Taiwan Dividend+ Index	30	4,206,288		5,385,561	
FTSE TWSE Taiwan 50 Index	50	12,821,952		31,729,880	
FTSE TWSE Taiwan Mid-Cap 100 Index	100	3,380,378		7,647,332	
FTSE TWSE Taiwan Dividend+ Index	30	4,206,288	26.00%	5,385,561	13.70%
FTSE TWSE Taiwan 50 + Mid-cap 100	150	16,202,330		39,377,213	
FTSE Taiwan Top 40 High Dividend Portfolio	40			7,590,239	19.28%
FTSE Taiwan Top 50 High Dividend Portfolio	50			9,759,247	24.78%
FTSE Taiwan Top 60 High Dividend Portfolio	60			12,365,693	31.40%
FTSE TWSE Taiwan 50 + Mid-cap 100	150			39,377,213	

Source: FTSE Russell.

Exhibit 1-5 further supports Table 1-5, by showing that an increase in the constituents from 30 to 50 would lead to capitalisation levels unseen since 2007.

Exhibit 1-5, Market cap representation regarding number of constituents
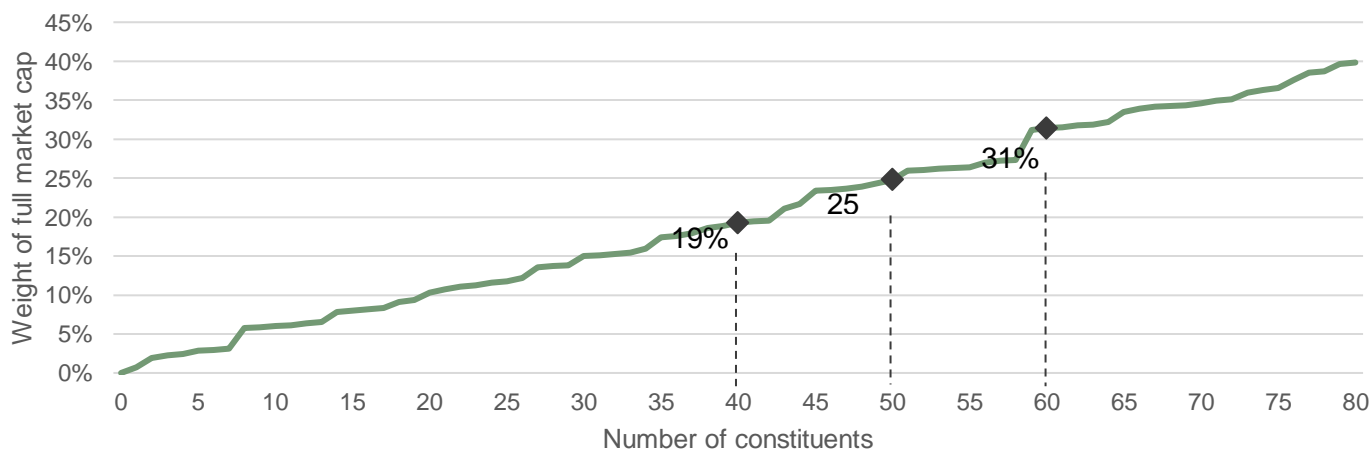
Notes: Full market capitalisation is used and based on the close price of 31 August 2022 and the constituents of the June 2022 review. Aggregation of market capitalisation is calculated with constituents in descending order of forecast dividend yield.
Source: FTSE Russell.

2. Data and methodology

FTSE Taiwan Top 30 High Dividend Portfolio:

This portfolio is constructed with 30 constituents and is based on the forecast dividend yield rankings of the FTSE TWSE Taiwan 50 Index and the FTSE TWSE Taiwan Mid-Cap 100 Index.

FTSE Taiwan Top 50 High Dividend Portfolio (denoted in brackets as (50) below):

This portfolio is constructed with 50 constituents and is based on the forecast dividend yield rankings from the FTSE TWSE Taiwan 50 Index and the FTSE TWSE Taiwan Mid-Cap 100 Index.

We use the following data and methods for this analysis:

Coverage and period

From the FTSE TWSE Taiwan 50 Index and the FTSE TWSE Taiwan Mid-Cap 100 Index, we analysed data across a seven-year period, from 22 June 22, 2015 to 31 August 2022.

Definition of dividend yield

Dividend yield data is based on the mean dividends per share forecast / estimates from the 12-month Institutional Brokers Estimate System (I/B/E/S)®. For those FTSE TWSE Taiwan 50 and FTSE TWSE Taiwan Mid-Cap 100 constituents where the information was not available we used FTSE Russell's historical dividend yield data. To be able to rank the review universe, the 12-month I/B/E/S mean dividends per share estimates were divided by the underlying stock price at the review data cut-off date. I/B/E/S data was taken from the close of business on the Thursday before the third Friday of May and November.

Ranking method

The review universe was ranked in descending order by forecast 12-month forward dividend yields (see below). The current index constituents were marked and to reduce index turnover, buffers were used. Securities that ranked 15th(35th) place or above were added to the index, while constituents that ranked 45th(65th) or below were removed from the index.

To maintain a consistent number of stocks, if the process left us with less than 30(50) constituents, we used the next highest-ranking non-constituents to reach the required levels of 30(50) index constituents. If there were more constituents added than were removed and this led an index of more than 30(50) constituents, the lowest-ranking constituents were removed to ensure we met the optimum levels of 30 and 50 constituents respectively.

Constraints

Where a company declared zero dividends for the previous financial year prior to the review, it was not eligible for inclusion in the index. Existing constituents that declared zero dividends for the previous financial year prior to the review were removed from the index.

To limit index turnover, a maximum of five additions and five removals are permitted at each semi-annual review. Where the total number of proposed constituents was less than 50, the maximum limits were disregarded in order to maintain the optimum constituent levels.

Additions that prevented the index from trading TWD1.5 billion (the notional value) in one trading day were not eligible for inclusion in the index. To ascertain liquidity, the number of days available to trade for each security in the pro forma index was calculated as:

 notional value x weight, divided by the six-month average daily traded value.

The weight was estimated as the ratio of the portfolios' 12-month forward dividend yields and the aggregate 12-month forward dividend yields of the current index.

Note that existing constituents were not subject to this liquidity requirement.

Weighting methodology

Each index constituent was weighted in the index at review by its 12-month forward dividend yield.

Capping constituent weights

The index constituent weights were capped semi-annually in June and December, with assumed assets under management (AUM) of TWD150 billion.

Using the assumed AUMs, individual company holdings were capped so they did not exceed 6% of either their full market capitalisation, or 15% of their investable market capitalisation, whichever was less. The assumed AUM used in the capping process was calculated based on data available on the Monday four weeks prior to the effective review date.

The calculation of the constituent capping factors (c) was based on the prices at close of business (EST) on the Monday four weeks prior to the review effective date, using the number of shares in issue and the investability weights as designated, these took effect after the close of business on the third Friday of the review month (i.e. and were effective from the opening of business on following Monday).

3. Performance and risk analysis

Performance and risk

The top 30 and 50 portfolios generated similar medium and long-term performance returns. Both portfolios displayed similar levels of maximum drawdown when compared to their benchmarks. That said, our analysis showed that the top 50 portfolio showed a lower volatility profile as it achieved a more diversified portfolio. It also showed resilience in certain periods of market downturns (2018 and year-to-date). Table 3-3 illustrates that the less constrained top 50 portfolio also achieved slightly higher levels of capacity and diversification over the top 30 portfolio.

Exhibit 3-1, Performance – total return (TWD)

FTSE Taiwan Top 30 High Dividend Portfolio — FTSE Taiwan Top 50 High Dividend Portfolio
FTSE Taiwan 150 Reference Index
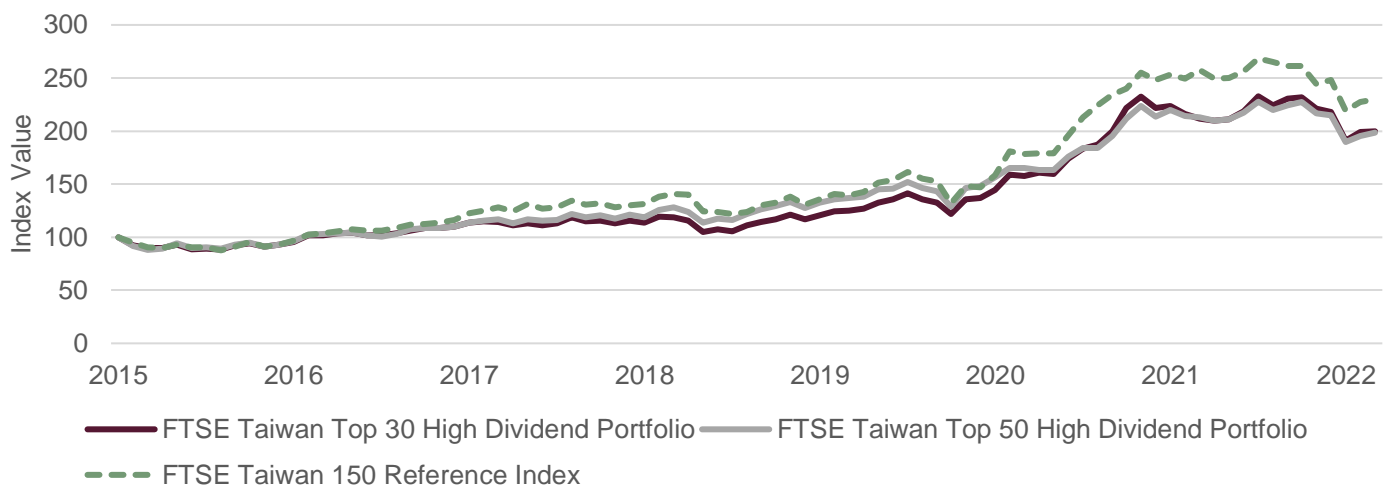
Notes: Exhibit 3-1 and Table 3-1 show returns in TWD from 19 June 2015 to 31 August 2022.
Source: FTSE Russell. Past performance is no guarantee of future results. Please see the end of this document for important legal disclosures.

Table 3-1

Index	Annualised return (%)				
	Year-to-date	One-year	Five-year	Seven-year	Since 19 June 2015
FTSE Taiwan Top 30 High Dividend Portfolio	-14.1	-5.6	11.8	12.1	10.0
FTSE Taiwan Top 50 High Dividend Portfolio	-12.7	-6.7	11.2	12.3	9.8
FTSE Taiwan 150 Reference Index	-14.4	-10.8	12.4	14.2	12.1

Index	Volatility (%pa)			
	One-year	**Five-year	**Seven-year	Since 19 June 2015
FTSE Taiwan Top 30 High Dividend Portfolio	15.0	15.8	14.1	14.5
FTSE Taiwan Top 50 High Dividend Portfolio	14.4	15.2	13.7	14.2
FTSE Taiwan 150 Reference Index	18.1	17.5	15.6	16.7

Notes: All calculations are based on daily data except volatility, for five years and seven years, which is based on monthly data.
Source: FTSE Russell. Past performance is no guarantee of future results. Please see the end of this document for important legal disclosures.

Exhibt 3-2, Year-on-year performance – total return (TWD)
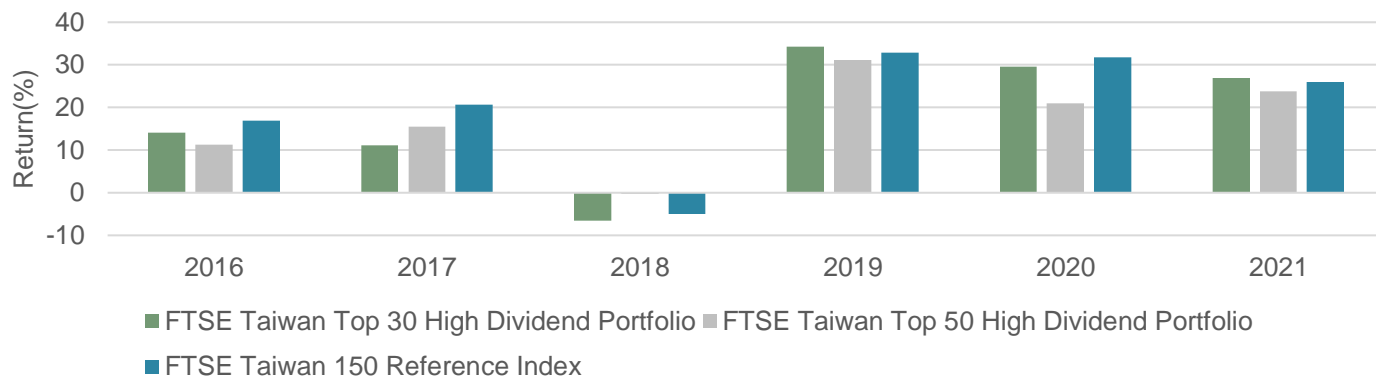
Table 3-2

Index	Year-on-year return (%)					
	2021	**2020**	**2019**	**2018**	**2017**	**2016**
FTSE Taiwan Top 30 High Dividend Portfolio	26.9	29.6	34.2	-6.5	11.1	14.1
FTSE Taiwan Top 50 High Dividend Portfolio	23.8	20.9	31.1	-0.3	15.4	11.2
FTSE Taiwan 150 Reference Index	26.0	31.8	32.8	-4.9	20.6	17.0

Note: Exhibit 3-2 and Table 3-2 show annual return calculated from beginning to end of each year in TWD.
Source: FTSE Russell. Past performance is no guarantee of future results. Please see the end of this document for important legal disclosures.

Table 3-3

Index	Other statistics		
	FTSE Taiwan Top 30 High Dividend Portfolio	**FTSE Taiwan Top 50 High Dividend Portfolio**	**FTSE Taiwan 150 Reference Index**
Annualised return (%)	10.0	9.8	12.1
Drawdown (%)	-27.0	-27.1	-28.4
Volatility (%pa)	14.5	14.2	16.7
Return/risk ratio	0.7	0.7	0.7
Tracking error (%pa)	9.0	8.3	-
Information ratio	-0.2	-0.2	-
Beta	0.73	0.73	-
Correlation	0.84	0.87	-
Weighted capacity ratio	10.16	7.87	1.00
Effective N	20.90	43.84	10.40
Top 10 holdings (%)	59.88	30.37	52.63
Dividend yield (%)	5.99	5.67	3.63

Note: Table 3-3 uses daily data from 119 June 2015 to 31 August 2022. Calculations of weighted capacity ratio, effective n and top 10 holdings are based on review constituents as of effective dates. Dividend yield is the average of end of each month from 30 June 2015 to 31 August 2022.
Source: FTSE Russell. Past performance is no guarantee of future results. Please see the end of this document for important legal disclosures.

Dividend yield

There is a trade-off between yield levels and numbers of constituents. Typically, yield levels fall as the number of constituents increases. The seven-year average yield for the top 50 portfolio was 5.67%, which was lower than 5.99% for the top 30 portfolio. The top 50 portfolio yielded an average of 32bps but achieved a more diversified portfolio. The below chart shows that the yield for the top 50 portfolio closely tracked the top 30 portfolio during the course of the simulated performance period.

Exhibit 3-4, Dividend yield

FTSE Taiwan Top 30 High Dividend Portfolio
FTSE Taiwan Top 50 High Dividend Portfolio
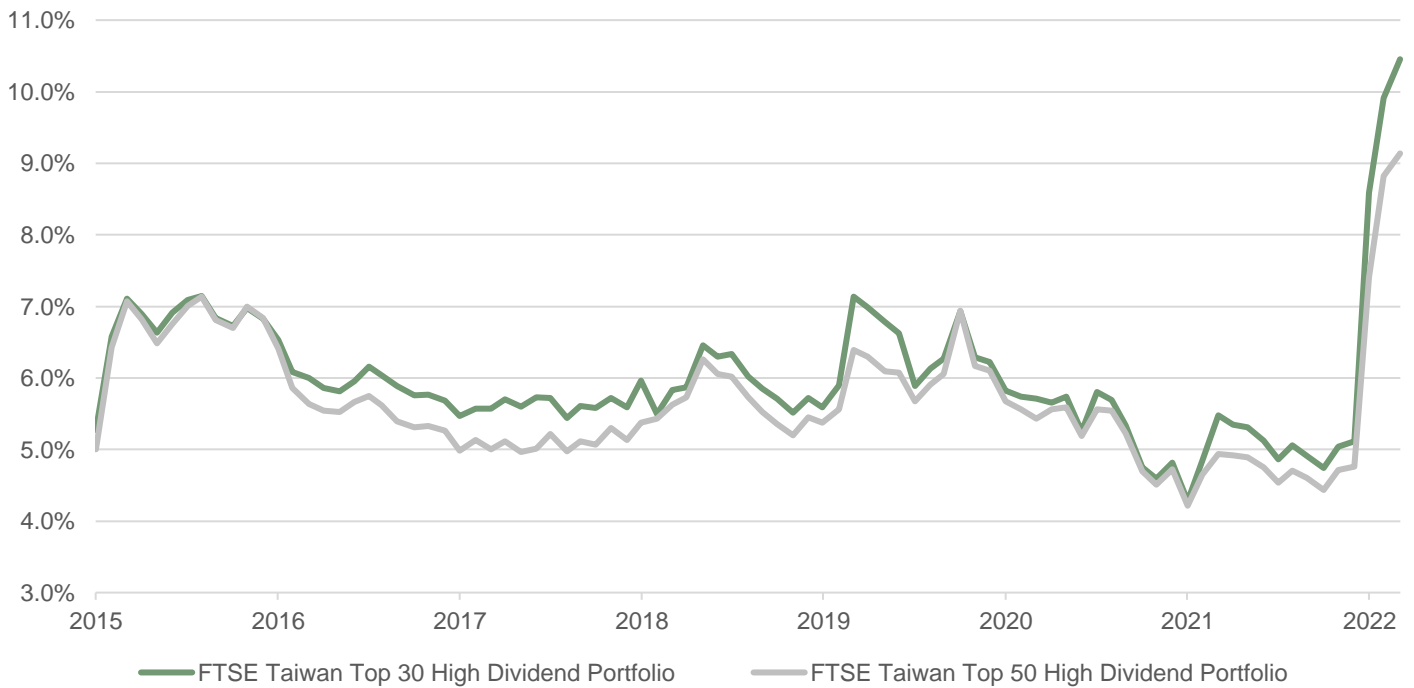
Note: Exhibit 3-4 shows the trend line of dividend yield as of end of each month from 30 June 2015 to 31 August 2022.
Source: FTSE Russell. Past performance is no guarantee of future results. Please see the end of this document for important legal disclosures.

Liquidity analysis

The chart below suggests that the top 50 portfolio took a slightly shorter time to fully liquidate than the top 30 portfolio. Increasing the number of index constituents from 30 to 50 it would therefore seem that trading capacity (% of portfolio traded) improved.

Exhibit 3-6, Index liquidity – days to trade
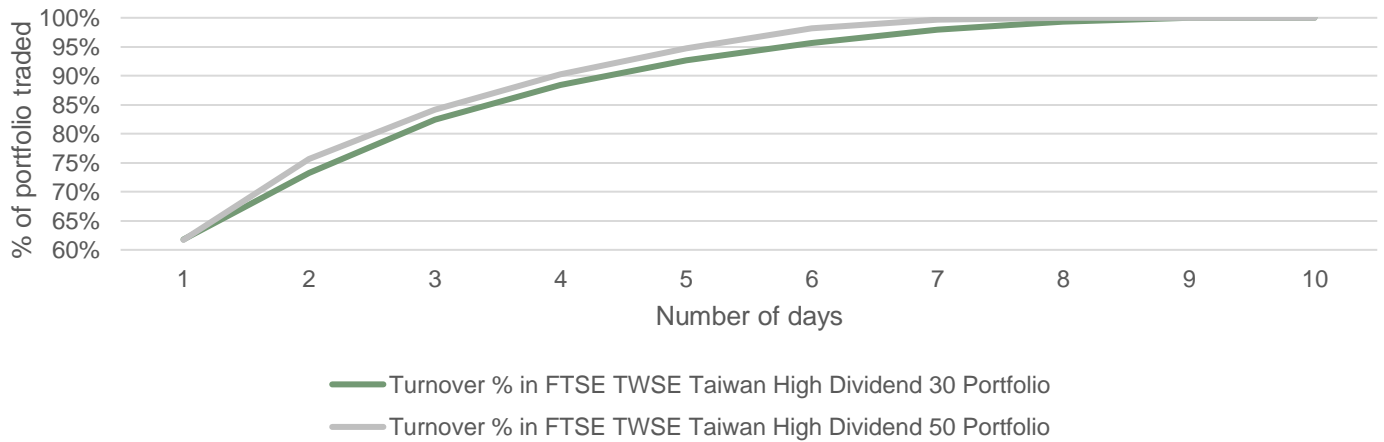
Note: Exhibit 3-6 is based on the June 2022 review result and calculated with a passive AUM of TWD123 billion. The ADTV used in the calculation is 100% for individual stocks.
Source: FTSE Russell. Past performance is no guarantee of future results. Please see the end of this document for important legal disclosures.

Turnover

Over the past six years, the top 50 portfolio also had a moderately lower turnover when compared to the top 30 portfolio which averaged 72.18%, compared to 57.62% for the top 50 portfolio.

Exhibit 3-8, Turnover
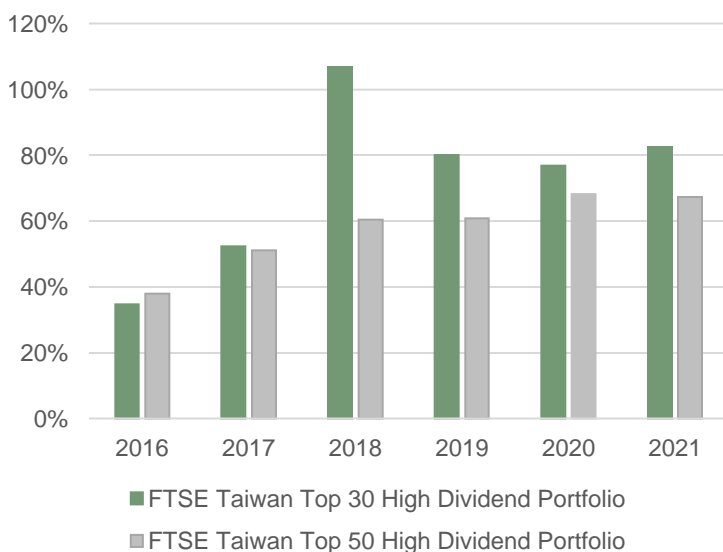
Table 3-8

Date	FTSE Taiwan Top 30 High Dividend Portfolio	FTSE Taiwan Top 50 High Dividend Portfolio
2016	34.59%	37.86%
2017	52.32%	51.15%
2018	106.77%	60.47%
2019	80.12%	60.80%
2020	76.75%	68.16%
2021	82.52%	67.25%
Average	**72.18%**	**57.62%**

Exhibit 3-8 and Table 3-8 summarise the combined two-way turnover of two review quarters by year. Two-way turnover (t) is the sum of the absolute difference in closing (t1) and opening weights (t). Total two-way turnover is summed from the start to the end of a period and annualised.
Source: FTSE Russell. Past performance is no guarantee of future results. Please see the end of this document for important legal disclosures.

Industry weights

Both the top 30 and the top 50 portfolios had similar historical industry exposures, with the exception of telecommunications. In the latest data, the top 50 portfolio had lower technology industry exposure and higher telecommunication industry exposure when compared to the top 30 portfolio. The increase of constituents also improved the diversity of the industries covered, as shown below. The top 30 comprised four industries, whereas the top 50 was made up of six industries.

Exhibit 3-9, Industry distribution

■ FTSE Taiwan Top 30 High Dividend Portfolio   ■ FTSE Taiwan Top 50 High Dividend Portfolio
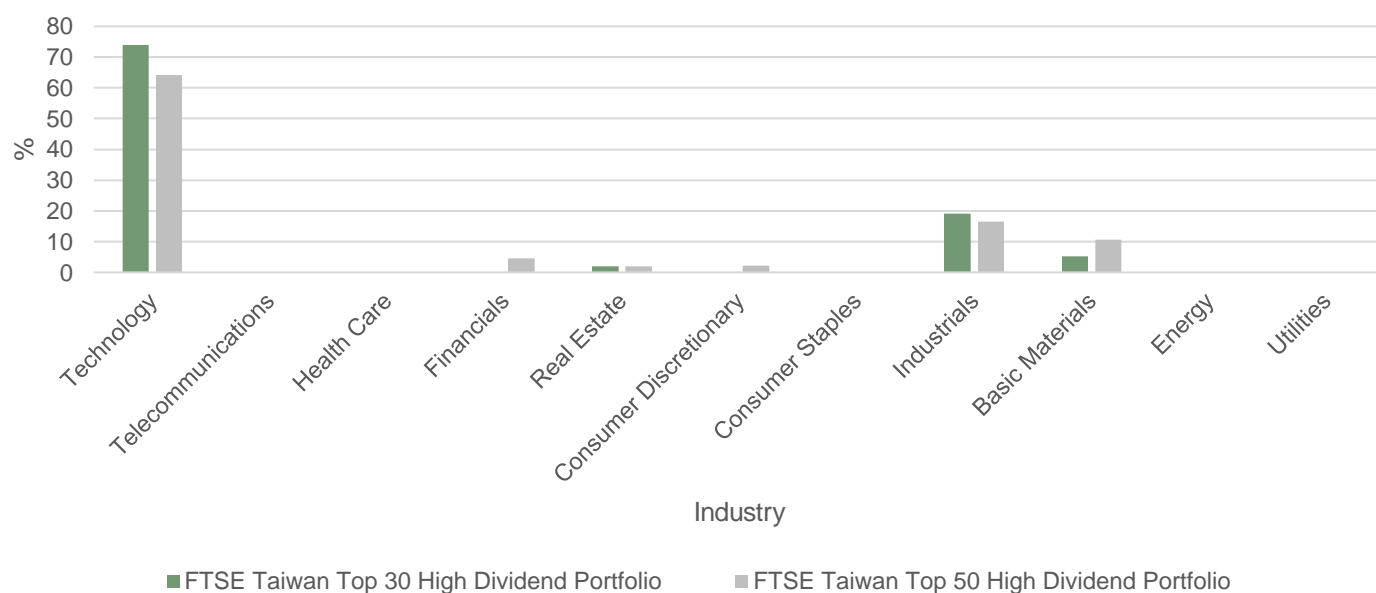
Table 3-9

Industry name	FTSE Taiwan Top 30 High Dividend Portfolio	FTSE Taiwan Top 50 High Dividend Portfolio
Technology	73.83	64.27
Telecommunications	0.00	0.00
Healthcare	0.00	0.00
Financials	0.00	4.59
Real estate	1.86	1.86
Consumer discretionary	0.00	2.07
Consumer staples	0.00	0.00
Industrials	19.15	16.54
Basic materials	5.17	10.66
Energy	0.00	0.00
Utilities	0.00	0.00

Table 3-10

Industry name	FTSE Taiwan Top 30 High Dividend Portfolio	FTSE Taiwan Top 50 High Dividend Portfolio
Technology	23	31
Telecommunications	0	0
Healthcare	0	0
Financials	0	3
Real estate	1	1
Consumer discretionary	0	2
Consumer staples	0	0
Industrials	4	7
Basic materials	2	6
Energy	0	0
Utilities	0	0

Note: Exhibit 3-9 and Tables 3-9 and 3-10 show a snapshot of industry distribution for the June 2022 review.
Source: FTSE Russell. Past performance is no guarantee of future results. Please see the end for important legal disclosures.

4. Conclusion

In this study, we analysed the impact of increasing the number of stocks in the Taiwan High Dividend Plus Index from 30 to 50. Both model portfolios had comparable drawdown profiles and saw similar levels of return over the simulation period which ran from June 2015 to August 2022. The top 50 portfolio resulted in lower levels of volatility, lower tracking error and lower turnover. Increasing the number of constituents also resulted in a more diversified representation of the market and better liquidity. Although the top 50 portfolio returned a lower level of yield when compared to the top 30 portfolio (due to the trade-off between yield levels and the number of constituents), we believe it remains the more compelling portfolio and this was evidenced over the course of the simulation period.

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+44 (0) 20 7866 1810	+1 877 503 6437	Hong Kong +852 2164 3333
		Tokyo +81 3 6441 1430
		Sydney +61 (0) 2 8823 3521