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High Grade
North America

US High Grade Strategy Flash

Dawn of the Formosa ETF

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- **Same engine, new chassis.** The Asian foreign bond buying machine is revving up to start the year with strength, in line with our expectations, re-energizing investor interest in corporate paper, particularly in the long end, at a time of rising anxiety about weakened credit metrics among high-grade issuers. Inflows have been driven by Taipei-listed passive funds that purchase U.S. dollar developed-market corporate bonds, a novel bond-buying vehicle we first discussed in August. *Watch for spillover of this demand base across spread product* and USD government bond markets. The last time Taiwan life insurers drove the development of a new market category, it grew over four years into the $125 billion Formosa bond behemoth.

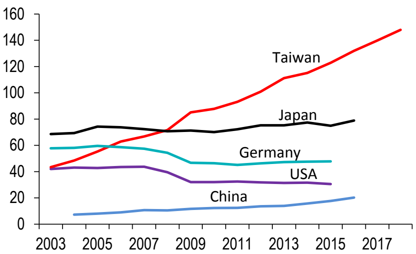
- **Buy local, invest global.** Taiwan-listed ETFs buying foreign corporate bonds are growing in excess of 30% per *month* with aggregate inflows of $6 billion in their first year, and could generate $40 billion in cumulative inflows before the end of 2020, if we extrapolate linearly from the current rate of growth. The lightning-fast growth of these funds – let's call them Formosa ETFs – has already led to reports in local media that insurance regulators have verbally warned insurers to monitor the embedded FX risk of these funds, which are listed as Taiwan dollar products. Beyond driving corporate bond demand, an additional $4 billion of Formosa ETFs have made their way into US Treasuries and USD emerging market bonds, although the growth rate of non-corporate funds is currently far lower.

- **A credible trend.** Taiwan's life insurers hold $500 billion in foreign fixed income out of $750 billion in total invested capital, but their primary engine of asset growth – the Formosa **bond** market – has seen its growth rate slow substantially under new regulatory restrictions introduced in November. Moreover, the funds are regulated as domestic investments, despite holding exclusively foreign currency debt, leaving them exempt, for now, from foreign bond caps. Media reports indicate that the government has stopped short of drawing a red line on the size of the ETF market, allowing growth to continue for now, up to a maximum potential size of roughly $80 bn.

- **Under the hood.** We review the segments of the market targeted by Formosa ETFs, showing current holdings by industry and rating, and consider the potential scope for growth and other challenges on the horizon.

Dawn of the Formosa ETF

Figure 1. Insurance assets, % of GDP

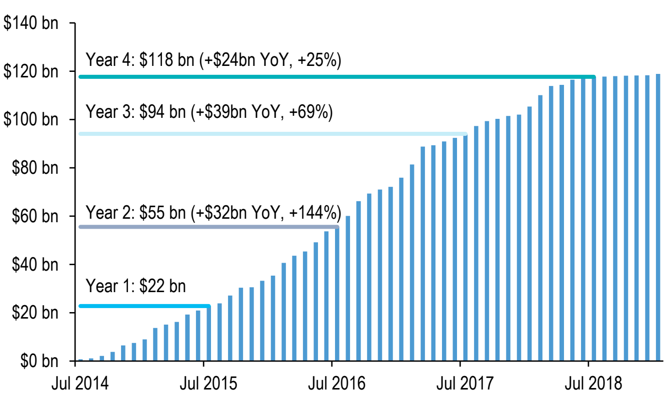


Source: Citi Research; World Bank; Taiwan Financial Supervisory Commission

The U.S. corporate bond market is witnessing the development of a new investment vehicle situated 8,000 miles away that could grow to well above $40 billion in assets, and potentially as large as $80 billion. Roughly three dozen exchange-traded funds listed in Taiwan have drawn in the local currency equivalent of $10 billion in inflows over the past 12 months, acquiring an exclusively USD-denominated base of assets centered around US IG corporate bonds with average yields of 4.75% and maturities 15 years and beyond. The pace of inflows is accelerating, mirroring the rapid development of the Formosa bond market in 2014, which life insurers in Taiwan grew over the course of four years into a $120 billion behemoth (Figure 2). These new flows, which we call *Formosa ETFs*, are growing exponentially, particularly in the segment dedicated to developed-market USD IG paper (Figure 3). Cumulative flows into the Formosa ETFs that buy corporate bonds doubled between May and September, doubled again by December, and are up 35% YTD.

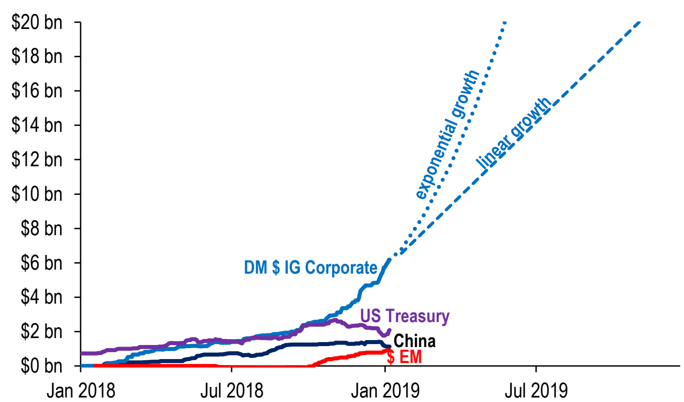
This rapid growth has led regulators to issue verbal warnings to lifers about embedded foreign exchange risks, according to one local media report. For now we have not seen rulemaking that could forestall this market's rapid development. The flows are undeniably positive for risk sentiment in the near term, coinciding with a decline is FX hedging costs that could drive renewed interest in the asset class from private investors in Japan and Korea. That said, the passive and rule-based investment strategies of these vehicle means that bonds downgraded below single-A thresholds will by necessity be sold from some of these vehicles, including four of the larger ETFs that are floored at single-A rated paper or better. Beyond near-term technical pressures on downgrades, we view the nexus of currency risk and credit risk within the foreign bond portfolios of investors in Taipei, Tokyo and Seoul as an area of systemic fragility. The maturity mismatch between (short) hedging vehicles and (long) bond investments remains a source of substantial concern for US corporate bond market stability and exposes US credit markets to the risk of outflows triggered by exogenous shocks to Asian financial institutions.

Figure 2. Value of Taiwan-listed USD corporate bonds ('Old Formosa')



Source: Citi Research; Bloomberg Financial LP
Note: >20yr USD corporate bonds ex-Taiwan issuer

Figure 3. Inflows into Taiwan-listed foreign bond ETFs ('New Formosa')



Source: Citi Research; Bloomberg Financial LP

A new format for Asian investment in US credit

Later in this note, we discuss the details of these funds and their investment holdings. But we begin by considering why a new foreign bond market is developing in Taiwan – rather than in, say, a much larger financial center such as Tokyo or London. It may seem almost random, but it's no coincidence. Taipei has earned a reputation as one of the world's great innovators for foreign bond investment. Its life insurance companies, the largest in the world as a share of GDP (Figure 1), have $800 billion in invested capital, enough to buy every one of its local currency bonds in existence – three times over[1]. Lifers have by necessity turned abroad, amassing $500 billion in foreign fixed income securities[2]. Our analysis suggests lifers' foreign investments are held predominantly in U.S. dollars, and are split roughly evenly between bonds issued by U.S. and European banks, bonds issued by companies and governments from emerging market countries, and bonds issued by non-financial companies and agencies in developed economies. Regulatory filings suggest that Taiwan lifers at one point owned roughly one-third of the 30-year debt of the major U.S. telecommunications companies.

To understand the growth of the Formosa ETFs, it helps to review the history of the regulatory environment for local lifers. Technically, Taiwan lifers can't hold more than 45% of their assets in foreign bonds. But over the years, regulators have relaxed those constraints, such that today, a lifer could qualify for an additional 40 percentage points of additional foreign bond buying capacity through partial or total exemptions on certain categories of foreign currency bonds.

These exemptions have been the catalyst for the development of new bond investing vehicles. When life insurance companies came close to hitting their foreign investment limits around 2014, regulators modified the rules to permit foreign companies to issue so-called "international" bonds exempt from the foreign bond limit – as long as they were listed on a local exchange. That market, known as the Formosa market, ballooned into $120 billion within four years[3], so large that last year regulators moved to cap its size, imposing restrictions on its future growth. That marketplace now hosts $120 billion of 20-year and longer maturity bonds issued by banks and other companies from the United States, the United Kingdom, France, and around the world.

In another instance, to qualify for another 19 percentage points of headroom on foreign securities, insurers can underwrite life insurance policies in U.S. dollars, passing the risk of a sharp appreciation of the TWD onto households (and alleviating their own burden of hedging costs that eat up most of the yield of their USD investments). Early evidence[4] suggests that life insurance companies are eagerly taking up the mantle of foreign currency policies.

Foreign bond ETFs are only the latest new investment vehicle to emerge from the Taiwan bond innovation incubator. Formosa ETFs, which target subsets of major corporate bond indexes, offer potentially greater liquidity and diversification than Formosa bonds, and are regulated as domestic fund securities (as they are, after all, local currency funds, despite the embedded FX risk). Formosa ETFs, despite being a fraction of the size, already hold nearly 800 different USD corporate bonds, double the number of bonds issued into the Formosa bond market.

An underdeveloped local bond market leaves few other options for the insurers than to look abroad to match the duration needs of their liabilities, and life insurance outflows have grown to 10% of GDP (Figure 4), in line with periods of peak accumulation of central foreign reserves. By accumulating $500 billion in foreign bonds, Taiwan lifer and their policyholders bear substantial long-term credit risk

[1] Bloomberg data show approximately $190 bn of TWD-denominated government debt and $95 bn of TWD-denominated corporate debt outstanding.

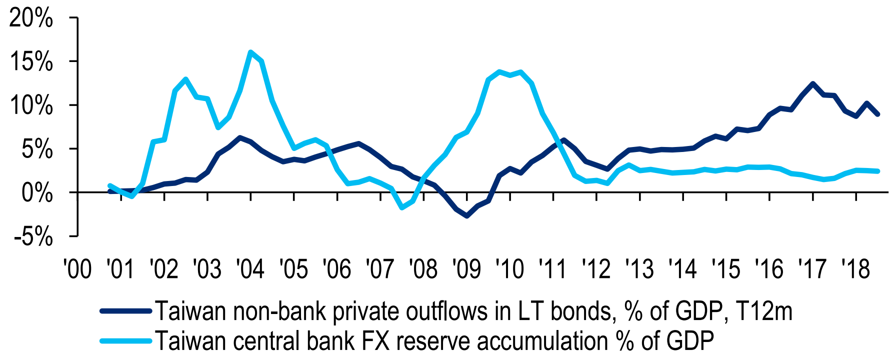
[2] We estimate that of this amount, DM USD corporate bonds represent about $110 billion of DM USD Formosa bonds and $170 bn of DM USD non-Formosa bonds.

[3] We count 20-year and longer USD bonds listed in Taipei, excluding local issuers

[4] "Taiwan lifers' USD plans for 2019," D. Sorid, https://www.citivelocity.com/t/r/eppublic/1Y8uN

from portfolios focused heavily on bank, telecommunication and commodity-related issuers. They also share the risk of any unhedged currency exposure (should the U.S. dollar depreciate). Life insurers have aimed to manage the inherent currency mismatch of this strategy through a combination of selling FX forwards (at a substantial upfront cost), under-hedging, or more recently through aggressive marketing of life insurance products that pay out to policyholders in USD. The TWD "wrapping" of USD paper held by Formosa ETFs adds a new dimension to the approach to managing FX risk. FX reserve provisions[5] and modifications to FX reserve valuation regulations suggest this space is one to watch, as the complexities of intertwined FX and credit risk remain a source of significant vulnerability for an IG market 40% owned by non-US investors.

Figure 4. Insurers' accumulation of foreign bonds rivals peaks in central bank reserve growth



Source: Citi Research; Taiwan CBC

The dynamic of the Formosa ETF isn't merely focused on US corporates. Flows have also materialized into foreign bond ETFs focused on US Treasuries, Chinese bonds and $ EM paper, although those categories have stalled out for now (**Figure 3**). Conceptually, the foreign bond ETF phenomenon could develop for any asset class that can meet the basic duration and yield requirements of Taiwan's life insurance companies. At some stage, local regulators could stamp out the market by imposing caps. For now, these not-quite-local-equities and not-quite-foreign-bonds could conceivably grow to $80 billion, or 10% of assets, if regulators permit them to, based on rules governing domestic fund investments.

Key characteristics of Taiwan foreign corporate bonds ETFs

There are currently 14 distinct corporate bond ETFs listed in Taipei, with total assets of $7 bn. Another 22 funds exist that hold US Treasuries, $ EM and Chinese debt, with assets of roughly $5.39 bn, although these categories are not currently growing at anywhere near the pace of the 14 US corporate focused funds. The funds are held as TWD instruments, meaning that investors would need to purchase currency hedge overlays to protect against a depreciation of the USD. The rolling cost of a 3m currency hedge sits at 270 bps, or roughly 55% of the gross yield of the average bond yield held by ETFs.

Fund growth can be measured in net asset value or by cumulative fund flows, which ignore the effect of asset appreciation. Through the fund flow lens, US corporate-focused ETFs have drawn in $6.1 billion in funds through January 17, 2019. These ETF flows are currently far smaller cousins to the two pillars of Taiwan lifer investments – traditional bond holdings, and Formosa bond holdings.

[5] See, "Taiwan Financials: Life Losses Drive Double-Digit Consensus EPS Cuts," by Yafei Tai, https://www.citivelocity.com/t/r/eppublic/1Y8sC

The funds are listed on the Taipei exchange, and passively track segments of broad and widely followed US corporate bond indexes, carved out by rating, maturity, sector and/or minimum coupon rate. As of early January, the funds hold 716 distinct ISINs across 200 unique tickers, although 40% of the funds' assets are held in the 10 largest tickers. The average market value held per ISIN is $8.8 million (716 bonds across $6.3 bn in market value), compared to average per-ISIN holdings of $300 mm in the Formosa bond market.

Roughly 60% of the combined portfolio is held in the technology, bank and communications sectors, with another 30% held in bonds from the energy, pharma, consumer, healthcare, media and retail sectors. Sectors are likely to continue to diversify based on the availability of yields; YTM >4.5% appears to be the focus of these portfolios (Figure 6). The composite bond portfolio of these ETFs carries a duration of 14.2 years, with bonds maturing in greater than 15 years representing 95% of the portfolio (and bonds maturing in 25 years or greater representing 55% of the portfolio.) The average yield of the portfolio 4.75%. More than 80% of the debt carries a rating of BBB+ or higher, and A+ rated bonds account for 13.8% of the holdings. The skew toward higher ratings is consistent with the findings of our earlier portfolio study of Taiwan exposures as of December 2017 (US High Grade Strategy Focus: Taiwan's foreign bond hot-pot), which indicated substantial market underweight in bonds rated mid-BBB or below. The design of these ETFs, which typically reference baskets of bonds with 15 or 20 years remaining to maturity, creates a significant overweight to older-vintage bonds, such as 20-year bonds issued 10 years ago. Demand for off-the-run 20-year bonds would could continue to grow if the ETF market grows. In addition, Taiwan ETFs skew significantly toward larger issue sizes (Figure 8).

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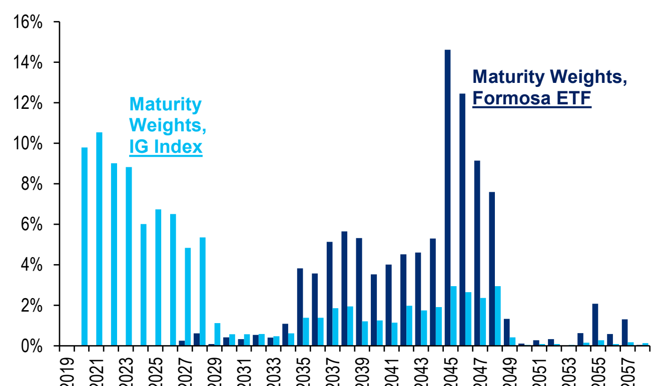
Figure 5. Sector and rating distribution of USD corporate-focused Formosa ETFs

Sector	Weight (%)
Technology	29.7
Bank	22.3
Communications	10.3
Energy	8.4
Pharmaceuticals	8.2
Consumer Cyclical	3.6
Healthcare	2.9

Rating	Weight (%)
AAA	10.7
AA+	6.3
AA	1.5
AA-	5.1
A+	13.8
A	9.5
A-	17.9
BBB+	16.4
BBB	12.0
BBB-	5.8
BB+	0.7

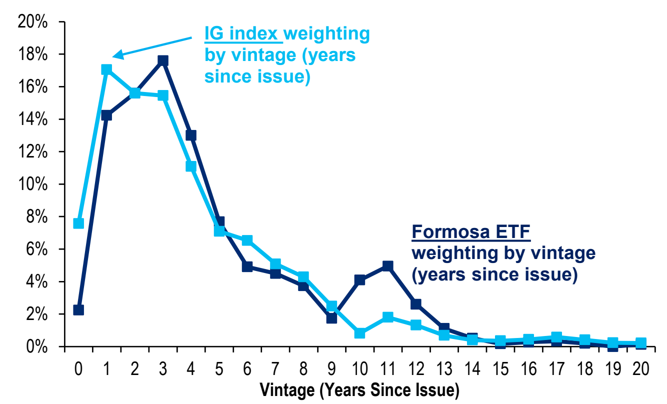
Source: Citi Research; Bloomberg Financial LP

Figure 6. Maturity distribution of Formosa ETFs vs broad IG market



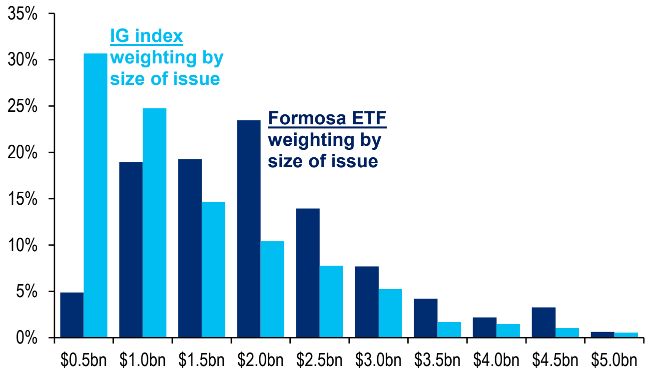
Source: Citi Research; Bloomberg Financial LP

Figure 7. Vintage (years from issue) of Formosa ETF DM IG holdings



Source: Citi Research; Bloomberg Financial LP

Figure 8. Weighting by bond issue size, Formosa ETFs vs IG index



Source: Citi Research; Bloomberg Financial LP

Figure 9. Estimated holdings of Taiwan lifer foreign bond portfolio

	Formosa	Non-Formosa	**Total**	Pct
US Bank	25.9	35.7	**61.6**	*12%*
Yankee Bank	52.6	60.4	**113.0**	*23%*
TMT	20.4	33.1	**53.5**	*11%*
Other DM Corp	12.0	38.2	**50.1**	*10%*
Asset Manager		30.8	**30.8**	*6%*
DM SSA		42.7	**42.7**	*9%*
EM	16.4	126.6	**143.0**	*29%*
Total Foreign Bond	127.2	367.5	**494.7**	

Source: Citi Research; Company filings; Taiwan FSC

Appendix A-1

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