Methodological Note

Definition

1. **The Residential Property Price Index (RPPI) is designed to measure changes in the average prices paid for residential properties sold in the Cayman Islands.** The index is mix-adjusted to account for the fact that different types of properties are sold at different times.

Scope

2. **The RPPI includes all market purchases of condominiums, whether cash or mortgage funded.** Non-market transactions, such as family transfers and group transactions, are specifically excluded from the index. Currently, the index does not cover house purchases. Also excluded are self-builds, where the land is purchased separately, and undeveloped land.

Stratification

3. **Analytical districts were derived from the administrative districts representing the geographical breakdown of the published indexes:**

   + Seven Mile Beach: Parcels to the west of West Bay Road from Cemetery Beach to the intersection at Eastern Avenue are singled out from the administrative districts of West Bay and George Town. These areas are considered unique as they primarily consist of holiday homes.
   + George Town: The administrative district of George Town, excluding the analytical district of Seven Mile Beach. This includes properties to the east of West Bay Road within the Seven Mile Corridor.
   + West Bay: The administrative district of West Bay, excluding the analytical district of Seven Mile Beach. This includes properties to the east of West Bay Road within the Seven Mile Corridor.
   + Other Cayman Islands: The administrative districts of Bodden Town, East End, and North Side, as well as Cayman Brac and Little Cayman. Grouping these districts into one analytical district increases the number of observations, enhancing the reliability of estimates.

4. **Seven Mile Beach has been singled out as a good proxy for (foreign) investments**. A study of charges that occur when a mortgage is filed in the domestic banking system indicated that Seven Mile Beach has disproportionately few charges filed, both in terms of the number of transactions and the sum of the consideration value. This shows that most transactions in Seven Mile Beach are either cash transactions or foreign financed, making it a good proxy for (foreign) investments.

5. **George Town, on the other hand, has a consistently high share of charges filed with the transfer of land, making it a very relevant indicator for the local market.**

Periodicity

6. **The RPPI for George Town is compiled and published quarterly.**
7. **The national RPPI and regional sub-indexes are compiled and published annually**. The annual price index for George Town is derived from an average of the four quarterly indexes in a given calendar year.

Reference Period

8. **The reference period for the RPPI is the year 2015.** Therefore, the RPPI answers the question: how much would it cost on average to purchase the same set of dwellings sold in 2015 in any given quarter or year? The annual (average) index for 2015 is set to 100, and all preceding and subsequent price movements are expressed relative to this reference.

9. **The year 2015 was chosen as the reference year because it marks the end of a longer period where the Cayman Islands market moved sideways, and particularly** Seven Mile Beach experienced higher-than-average price increases since.

Data Sources

10. The data source for the RPPI is stamp duty data collected by the Lands and Survey Department (LSD) of the Cayman Islands Government. Stamp duty relates to immovable property (real estate) in accordance with the Stamp Duty Law (2019 Revision).

11. The stamp duty data provides rich information, including the location of the property, the sales price and date, the floor area, the parcel view, and the floor number, as well as the number of floors.

Data Processing

12. The first step in using stamp duty returns as a basis for a house price index is to separate transactions of residential dwellings from other real estate transactions. A wide variety of real estate transactions are liable for stamp duty, including commercial property and land sales. A stamp duty return is considered a relevant residential dwelling transaction if the property meets the following criteria:

   ✦ Refers to the transfer of (developed) land.
   ✦ Is not a group transaction, i.e., is a single-property transfer.
   ✦ Is measured in square feet (see below for property types).
   　✦ Has not been re-assessed, i.e., the consideration is reflective of market value.

- ✦ Refers to condominiums on strata (no houses or land at this moment).
- ✦ Has a value for the parcel view (used for the mix adjustment).
- ✦ Is at least on the first floor (American system, ground floor in the British system).

13. Excluded were considerations that were not reflective of market values of the entire property where use was made of the recently closed tax loophole, i.e., where stamp duty was payable only on the land but not the building.

14. Further, outliers have been removed via a statistical approach, also capturing data errors. One major advantage of this approach is that it depends on the distribution of the actual data, i.e., if there is a widespread, observations further away from the "middle" are not deleted automatically, while if the spread is narrower, this approach will identify observations more easily as outliers.

Quality Adjustment

15. **Residential properties are heterogeneous, meaning that no two houses or condos are exactly identical.** This poses a challenge when constructing a price index, as there is a need to separate pure price change from differences in the quality and mix of the properties being bought over time. Typically, this is done by comparing the prices of exactly the same products over time. For example, this method is used in the Consumer Price Index, where a fixed basket of consumer goods is re-priced every month. However, in the case of residential properties, price is determined by many characteristics (location, size, dwelling type, etc.), making direct price comparisons difficult. Furthermore, only a small portion of the total housing stock is sold in any given quarter or year. The combination of these factors means that the price comparison process typically used to calculate a price index cannot be used for houses and condos.

16. **The hedonic method is the prevalent statistical process for measuring changes in residential property prices**. In this method, transactions over two or more successive periods are pooled, and the characteristics that influence price (dwelling size, geographical location, parcel view, and floor number/number of floors) are analyzed, and their relative contributions to the overall price are estimated. By excluding the price change determined by these characteristics independently, we are left with a pure price change for a consistent set of characteristics from one time period to another, which is then used to construct the price index**.**

17. **Neither average nor median prices are appropriate for measuring the evolution of property prices, as the mix of dwellings sold in different periods can change over time.** The Residential Property Price Index is the definitive measure of property price trends.

Data Smoothing

18. **As the number of transactions used in the price model decreases, the volatility or statistical "noise" of the resulting price index increases.** This noise can make it very difficult to identify turning points in the residential market in a timely manner and represents a dilemma in price index

modeling. On the one hand, it is desirable to restrict price indexes to sufficiently large volumes of transactions to minimize the noise. On the other hand, there is a competing demand from users for price indexes at ever-increasing levels of disaggregation. A balance needs to be struck between these conflicting objectives. Data smoothing helps optimize this balance.

19. **George Town is the only analytical district estimated at a quarterly frequency.** The simple reason behind this choice is that George Town has enough observations to reliably construct a quarterly index, while the other analytical districts do not. Still, the quarterly results exhibit some noise, which is why further smoothing is applied to the estimated index series. In particular, (non-seasonal) double exponential smoothing, also known as Holt-Winters filtering, is applied.

Aggregate Indexes

20. **The (annual) national RPPI is calculated using the chain-linked Laspeyres method.** Firstly, price relatives with respect to the previous year are calculated for each district index. The price relatives for the aggregate index are computed by weighting the price relatives of their constituent district indexes, i.e., the price relative for the national RPPI is a weighted average of the four district indexes. The value of the aggregate index is then computed as a product of its price relative above and its value in the previous year.

21. **The RPPI uses relative weights, calculated as the ratio of the value of the purchases of residential properties in the corresponding district to the total value in the country during the previous three years (to account for some volatility in the annual value of purchases).** The weights are updated every year to reflect changes in the market structure. The weights remain broadly consistent over time; however, variations are not insignificant.

Publication & Revisions

22. **The legal deadline for submitting a stamp duty return is within 45 days from the date of execution.** The progressive nature of stamp duty returns poses challenges for the compilation of the RPPI. In principle, the optimum price index is produced by waiting until effectively all returns have been made for a particular quarter or year. In practice, users require timely information on house price developments, and delaying publication for several months is not acceptable.

23. **To resolve this dilemma, the RPPI is published with a three-month lag, e.g., for the fourth quarter of 2024 and the year 2024, in early April 2025. Quarterly releases will occur each year in July, October, and the following January, with the annual releases in April of the following year.** The RPPI is not recompiled or revised and is typically considered final.