ROYAL BANK OF CANADA
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Registration Statement No. 333-227001
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To the Prospectus dated September 7, 2018 and the
Prospectus Supplement dated September 7, 2018
Senior Global Medium-Term Notes, Series H
Royal Bank of Canada

Trigger Autocallable Contingent Yield Notes Linked to Common Stock or Exchange Traded Fund Shares

- Royal Bank of Canada may offer and sell from time to time Trigger Autocallable Contingent Yield Notes linked to the common equity securities of an issuer, including American depositary shares (“ADSs,” and when reference is made to an ADS, the term “issuer” refers to the issuer of the shares underlying the ADSs) or shares of an exchange traded fund (an “ETF,” and each such common equity security or ETF is referred to as an “Underlying”). We refer to these securities as the “Notes.”
- The prospectus dated September 7, 2018, the prospectus supplement dated September 7, 2018 and this product prospectus supplement describe the terms that will apply generally to the Notes. A separate free writing prospectus or pricing supplement, as the case may be, will describe the terms that apply specifically to the Notes, including any changes to the terms specified below. We refer to such free writing prospectuses and pricing supplements generally as terms supplements. If the terms described in the relevant terms supplement are inconsistent with those described in this product prospectus supplement, the accompanying prospectus supplement or prospectus, the terms described in the relevant terms supplement will control.
- The Notes are senior unsecured debt obligations of Royal Bank of Canada.
- We will pay a contingent coupon during the term of the Notes, periodically in arrears on each Coupon Payment Date, if the closing price of the Underlying is equal to or greater than the applicable coupon barrier on the applicable Observation Date (including the Valuation Date). However, if the closing price of the Underlying is less than the coupon barrier on the applicable Observation Date, we will not pay you the contingent coupon applicable to that Observation Date.
- The Notes will be automatically called if the closing price of one share of the Underlying on any Observation Date is equal to or greater than the Initial Price. In this case, you will receive a cash payment per Note equal to your principal amount plus the contingent coupon otherwise due on the applicable Call Settlement Date under the contingent coupon feature.
- The Notes do not guarantee any return of principal at maturity. If the Notes have not been called, and the Underlying closes below the applicable Downside Threshold on the Valuation Date, you will lose 1% (or a fraction thereof) of the principal amount for every 1% (or a fraction thereof) decrease in the price per share of the Underlying below the Initial Price. In this case, the payment you will receive at maturity will be less than the principal amount of your Notes and may be zero.
- Subject to our creditworthiness, if you hold the Notes to maturity, and the price of the Underlying is above or equal to the Downside Threshold on the Valuation Date, we will pay you an amount in cash equal to the principal amount of your Notes.
- For important information about the tax consequences of an investment in the Notes, see “Supplemental Discussion of U.S. Federal Income Tax Consequences” and “Supplemental Discussion of Canadian Federal Income Tax Consequences” below.
- The Notes will be offered in minimum denominations that will be set forth in the relevant terms supplement.
- Investing in the Notes is not equivalent to investing in the Underlying, or any of the equity securities included in any

ETF.

- The Notes will not be listed on any securities exchange.

Your investment in the Notes involves certain risks. The Notes differ from ordinary debt securities in that the repayment of principal is not guaranteed. If the Notes are not called on any Observation Date, you may lose some or all of your investment. Specifically, if the Notes are not called and the Final Price is less than the Downside Threshold, you will lose 1% (or a fraction thereof) of your principal amount for each 1% (or a fraction thereof) that the underlying return is less than zero. Any payment on the Notes, including any repayment of principal, is subject to our creditworthiness. See "Risk Factors" beginning on page PS-5 to read about investment risks relating to the Notes.

None of the Notes and Exchange Commission (the "SEC"), any state securities commission or any other regulatory body has approved or disapproved of the Notes or passed upon the accuracy of this product prospectus supplement or the accompanying prospectus and prospectus supplement. Any representation to the contrary is a criminal offense.

We may use this product prospectus supplement in the initial sale of a Note. In addition, RBC Capital Markets LLC or RBCCM, or one of our other affiliates may use this product prospectus supplement in a market-making transaction in a Note after its initial sale. Unless we or our agent informs the purchaser otherwise in the confirmation of sale, this product prospectus supplement is being used in a market-making transaction.

The Notes will not constitute deposits insured by the Canada Deposit Insurance Corporation, the U.S. Federal Deposit Insurance Corporation or any other Canadian or U.S. governmental agency or instrumentality.

UBS Financial Services Inc. RBC Capital Markets, LLC

Product Prospectus Supplement dated October 3, 2018

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In making your investment decision, you should rely only on the information contained or incorporated by reference in the terms supplement relevant to your investment, this product prospectus supplement and the accompanying prospectus supplement and prospectus with respect to the Notes offered and with respect to Royal Bank of Canada. This product prospectus supplement, together with the relevant terms supplement, and the accompanying prospectus and prospectus supplement, contain the terms of the Notes and supersede all other prior or contemporaneous oral statements as well as any other written materials including preliminary or indicative pricing terms, correspondence, trade ideas, structures for implementation, sample structures, fact sheets, brochures or other educational materials of ours, or any written materials prepared by UBS Financial Services, Inc. or RBC Capital Markets, LLC. The information in the relevant terms supplement, this product prospectus supplement and the accompanying prospectus supplement and prospectus may only be accurate as of the dates of each of these documents, respectively.

The Notes described in the relevant terms supplement and this product prospectus supplement are not appropriate for all investors, and involve important legal and tax consequences and investment risks, which should be discussed with your professional advisers. You should be aware that the regulations of the Financial Industry Regulatory Authority, or FINRA, and the laws of certain jurisdictions (including regulations and laws that require brokers to ensure that investments are suitable for their customers) may limit the availability of the Notes. The relevant terms supplement, this product prospectus supplement and the accompanying prospectus supplement and prospectus do not constitute an offer to sell or a solicitation of an offer to buy the Notes in any circumstances in which such offer or solicitation is unlawful.

In this product prospectus supplement, the relevant terms supplement and the accompanying prospectus supplement and prospectus, “we,” “us” and “our” refer to Royal Bank of Canada, unless the context requires otherwise.

SUMMARY

The information in this "Summary" section is qualified by the more detailed information set forth in this product prospectus supplement, the prospectus supplement and the prospectus, as well as the relevant terms supplement.

Key Terms

Underlying:	The Underlying specified in the relevant terms supplement. Each Underlying will be either an equity security or a share of an ETF.
Contingent Coupon:	We will pay you a contingent coupon during the term of the Notes, periodically in arrears on each Coupon Payment Date, under the conditions described below: · If the closing price of the Underlying is equal to or greater than the coupon barrier on the applicable Observation Date, we will pay the contingent coupon applicable to such Observation Date. · If the closing price of the Underlying is less than the coupon barrier on the applicable Observation Date, we will not pay you the contingent coupon applicable to such Observation Date. Contingent coupon payments on the Notes are not guaranteed. Royal Bank of Canada will not pay you the contingent coupon for any Observation Date on which the closing price of the Underlying is less than the coupon barrier. The "contingent coupon" applicable to each Observation Date will be a fixed amount specified in the applicable terms supplement and will be calculated based upon a rate per annum (the "contingent coupon rate") specified in the applicable terms supplement.
Coupon Barrier:	A specified price of the Underlying that is below the Initial Price, as set forth in the applicable terms supplement (as may be adjusted in the case of certain adjustment events as described under "General Terms of the Notes—Anti-dilution Adjustments").
Coupon Payment Dates:	Each Coupon Payment Date will generally be two to five business days following the applicable Observation Date. The last possible Coupon Payment Date will be the maturity date. As described under "General Terms of the Notes—Observation Dates" below, the calculation agent may postpone any Observation Date, and therefore a Coupon Payment Date, if a market disruption event occurs or is continuing on a day that would otherwise be an Observation Date. We describe market disruption events under "General Terms of the Notes—Market Disruption Event" below.
Call Feature:	The Notes will be called automatically if the closing price of one share of the Underlying on any Observation Date (other than the Valuation Date) is at or above the Initial Price. If the Notes are called on any Observation Date, we will pay on the applicable Call Settlement Date a cash payment per security equal to your principal amount plus the contingent coupon otherwise due on that Call Settlement Date under the contingent coupon feature. Following an automatic call, no further amounts will be owed to you under the Notes.
Call Settlement Dates:	If the Notes are called on any Observation Date, the Call Settlement Date will be the Coupon Payment Date corresponding to such Observation Date. As described under "General Terms of the Notes—Observation Dates" below, the calculation agent may postpone any Observation Date, and therefore a Call Settlement Date, if a market disruption event occurs or is continuing on a day that would otherwise be an Observation Date. We describe market disruption events under "General Terms of the Notes—Market Disruption Events" below.

Payment at Maturity:	Unless otherwise specified in the relevant terms supplement, if the Notes are not called, we will pay you at maturity a cash payment based on the Final Price, calculated as described below: · If the Final Price is above or equal to the Downside Threshold (which, unless otherwise specified in the relevant terms supplement, will equal the coupon barrier) on the Valuation Date, we will pay you a cash payment per Note equal to the principal amount plus the contingent coupon otherwise due on the maturity date under the contingent coupon feature. · If the Final Price is below the Downside Threshold on the Valuation Date, we will pay you a cash payment that is less than your principal amount, if anything, resulting in a loss that is proportionate to the decline of the Underlying from the Trade Date to the Valuation Date, for a return equal to: principal amount x (1 + underlying return). The repayment of your principal amount is not guaranteed. If the value of the Underlying decreases, you may lose some or all of your investment. Specifically, if the Notes are not called and the Final Price is below the Downside Threshold on the Valuation Date, you will lose 1% (or a fraction thereof) of your principal amount for each 1% (or a fraction thereof) decrease in the price per share of the Underlying below the Initial Price. Accordingly, if the Final Price is below the Downside Threshold on the Valuation Date, you may lose up to 100% of your principal amount.
Underlying Return:	Unless otherwise specified in the relevant terms supplement:
	$\frac{\text{Final Price – Initial Price}}{\text{Initial Price}}$
Initial Price:	Unless otherwise specified in the relevant terms supplement, the closing price of one share of the Underlying on the Trade Date, or such other date as specified in the relevant terms supplement. The Initial Price may be subject to adjustment. See “General Terms of the Notes—Anti-dilution Adjustments.”
Final Price:	Unless otherwise specified in the relevant terms supplement, the closing price of one share of the Underlying on the Valuation Date. The Final Price is subject to adjustment upon the occurrence of certain corporate events affecting the Underlying. See “General Terms of the Notes—Payment at Maturity—Anti-dilution Adjustments.”
Downside Threshold:	A specified price of the Underlying that is below the Initial Price, as set forth in the applicable terms supplement. The Downside Threshold may be subject to adjustment. See “General Terms of the Notes—Anti-dilution Adjustments.” Unless otherwise specified in the relevant terms supplement, the Downside Threshold will equal the coupon barrier.
Observation Date(s):	One or more dates as specified in the relevant terms supplement, subject to postponement in the event of certain market disruption events.
Issue Price:	Unless otherwise specified in the relevant terms supplement, $10 per $10 in principal amount of the Notes.
Trade Date:	As specified in the relevant terms supplement.
Settlement Date:	As specified in the relevant terms supplement.

Maturity Date:	As specified in the relevant terms supplement. If not previously called, the Notes will mature on the maturity date. The maturity date is subject to postponement in the event of certain market disruption events and as described under "General Terms of the Notes—Payment at Maturity."

RISK FACTORS

An investment in the Notes is subject to the risks described below, as well as the risks described under "Risk Factors" in the prospectus and the prospectus supplement. The return on the Notes is linked to the performance of the applicable Underlying. The Notes do not guarantee any return of principal at, or prior to, maturity. Investing in the Notes is not equivalent to investing directly in the applicable Underlying. In addition, your investment in the Notes entails other risks not associated with an investment in conventional debt securities. You should consider carefully the following discussion of risks before you decide that an investment in the Notes is suitable for you.

Risks Relating to the Notes Generally

Your investment in the Notes may result in a loss.

The Notes do not guarantee any return of principal. The amount payable to you at maturity, if any, will be determined as described in this product prospectus supplement and the relevant terms supplement. The return on the Notes at maturity will depend on whether the Notes are called on any Observation Date, or if the Notes are not called, the extent to which the Final Price is less than the applicable Downside Threshold. If the Notes are not called and the Final Price is below the Downside Threshold on the Valuation Date, you will lose 1% (or a fraction thereof) of the principal amount for every 1% (or a fraction thereof) decrease in the price per share of the Underlying below the Initial Price. Accordingly, you may lose the entire principal amount of your Notes.

The Notes are subject to the credit risk of Royal Bank of Canada.

The Notes are subject to the credit risk of Royal Bank of Canada and our credit ratings and credit spreads may adversely affect the market value of the Notes. Investors are dependent on Royal Bank of Canada's ability to pay all amounts due on the Notes, and therefore investors are subject to our credit risk and to changes in the market's view of our creditworthiness. Any decline in our credit ratings or increase in the credit spreads charged by the market for taking our credit risk is likely to adversely affect the value of the Notes. Payment on the Notes, including any repayment of principal, is subject to the creditworthiness of Royal Bank of Canada. If we were to default on our payment obligations, you may not receive any amounts owed to you under the Notes and you could lose your entire investment.

You may not receive any contingent coupons with respect to your Notes.

Royal Bank of Canada will not necessarily make periodic coupon payments on the Notes. If the closing price of the Underlying on an Observation Date is less than the coupon barrier, we will not pay you the contingent coupon applicable to that Observation Date. If the closing price of the Underlying is less than the coupon barrier on each of the Observation Dates, we will not pay you any contingent coupons during the term of, and you will not receive a positive return on, your Notes. Generally, this non-payment of the contingent coupon on the Valuation Date will coincide with a greater risk of principal loss on your Notes. Accordingly, if we do not pay the contingent coupon on the maturity date, you will incur a loss of principal, because the Final Price will be less than the applicable Downside Threshold.

Your potential return on the Notes is limited.

The return on the Notes is limited to the pre-specified contingent coupon rate, regardless of the appreciation of the Underlying. As a result, the return on an investment in the Notes could be less than the return on a direct investment in the Underlying. In addition, the total return on the Notes will vary based on the number of Observation Dates on which the contingent coupon becomes payable prior to maturity or an automatic call. Further, if the Notes are called due to the automatic call feature, you will not receive any contingent coupons or any other payment in respect of any Observation Dates after the applicable Call Settlement Date. Since the Notes could be called as early as the first Observation Date, the total return on the Notes could be minimal. If the Notes are not called, you will be subject to the Underlying's risk of decline.

If you sell your Notes prior to maturity, you may receive less than the principal amount.

If your Notes are not automatically called, you should be willing to hold your Notes until maturity. If you are able to sell your Notes in the secondary market prior to maturity, you may have to sell them for a loss relative to your principal amount, even if price of the Underlying is at or above the Downside Threshold. In addition, you will not receive the benefit of any contingent repayment of principal represented by the Downside Threshold if you sell your Notes before the maturity date. The potential returns described in the relevant terms supplement assume that your Notes, which are not designed to be short-term trading instruments, are held to maturity.

The Notes may be called early and are subject to reinvestment risk.

If your Notes are called early, the term of the Notes will be reduced and you will not receive any payment on the Notes after the applicable Call Settlement Date. There is no guarantee that you would be able to reinvest the proceeds from an automatic call of the Notes at a comparable rate of return for a similar level of risk. To the extent you are able to reinvest such proceeds in an investment comparable to the Notes, you may incur transaction costs such as dealer discounts and hedging costs built into the price of the new Notes. Because the Notes may be called as early as the first Observation Date after issuance, you should be prepared in the event the Notes are called early.

The contingent coupon rate will reflect in part the volatility of the Underlying and may not be sufficient to compensate you for the risk of loss at maturity.

"Volatility" refers to the frequency and magnitude of changes in the price of the Underlying. The greater the volatility of the applicable Underlying, the more likely it is that the Underlying price could close below the Downside Threshold on the Valuation Date of the Notes. This risk will generally be reflected in a higher contingent coupon rate for the Notes than the interest rate payable on our conventional debt securities with a comparable term. However, while the contingent coupon rate is set on the Trade Date, the Underlying's volatility can change significantly over the term of the Notes, and may increase. The price of the Underlying could fall sharply as of the Valuation Date, which could result in a significant loss of your principal.

Holders of the Notes should not expect to participate in any appreciation of the Underlying, and your return on the Notes is expected to be limited to any contingent coupons paid on the Notes.

Despite being exposed to the risk of a decline in the price of the applicable Underlying, you should not expect to participate in any appreciation in the price of the applicable Underlying. Any positive return on the Notes is expected to be limited to any contingent coupons payable on the Notes. Accordingly, if the Final Price is greater than the Initial Price, you should expect that your return on the Notes at maturity may be less than your return on a direct investment in the applicable Underlying or on a similar security that allows you to participate in the appreciation of the price of the Underlying. In contrast, if the Final Price is less than the Downside Threshold, we will deliver to you at maturity for each Note you own an amount less than the principal amount as of the Valuation Date and the maturity date, and in each case you may lose your entire investment. As a result, the return on the Notes, if any, is expected to be limited to any contingent coupons paid on the Notes.

Your return on the Notes may be lower than the return on a conventional debt security of comparable maturity.

The return that you will receive on your Notes, which could be negative, may be less than the return you could earn on other investments. Your investment may not reflect the full opportunity cost to you when you take into account factors that affect the time value of money, such as inflation.

Your return on the Notes will not reflect dividends on the Underlying or the equity securities included in any ETF.

The return on the Notes will not reflect the return you would realize if you actually owned the Underlying or the equity securities included in any applicable ETF and received the dividends paid on

those equity securities. The Final Price of the Underlying and the determination of the amount to be paid at maturity will not take into consideration the value of those dividends.
Owning the Notes is not the same as owning the Underlying.
The return on your Notes may not reflect the return you would realize if you actually owned the Underlying. For instance, the Underlying may appreciate substantially during the term of the Notes, and you will not fully participate in that appreciation, because your positive return on the Notes, if any, is limited to the contingent coupon. The following factors, among others, may cause the financial return on your Notes to differ from the financial return you would receive by investing directly in the Underlying:

- the return on a direct investment in the Underlying would depend primarily upon the relative appreciation or depreciation of the Underlying during the term of the Notes, and not on whether the closing price of the Underlying is equal to or greater than the Initial Price or the coupon barrier on any Observation Date or is less than the Downside Threshold on the Valuation Date;
- in the case of a direct investment in the Underlying, the return could include substantial dividend payments or other distributions, which you will not receive as an investor in the Notes;
- in the case of a direct investment in the Underlying, the return could include rights, such as voting rights, that you will not have as an investor in the Notes; and
- a direct investment in the Underlying is likely to have tax consequences that are different from an investment in the Notes.

If the price of the shares of the Underlying changes, the market value of your Notes may not change in the same manner.
Owning the Notes is not the same as owning shares of the Underlying. Accordingly, changes in the price of the Underlying may not result in a comparable change of the market value of the Notes. If the closing price of one share of the Underlying on any trading day increases above the Initial Price or the coupon barrier, the value of the Notes may not increase in a comparable manner, if at all. It is possible for the price of the shares of the Underlying to increase while the value of the Notes declines.
The determination of the payments on the Notes, and whether they are subject to an automatic call, does not take into account all developments in the price of the Underlying.
Changes in the price of the Underlying during the periods between each Observation Date may not be reflected in the determination as to whether the contingent coupon is payable to you on any Coupon Payment Date or whether the Notes are subject to an automatic call, or the calculation of the amount payable, if any, at maturity of the Notes. The calculation agent will determine whether (i) the contingent coupon is payable to you on any Coupon Payment Date or (ii) the Notes are subject to an automatic call by observing only the closing price of the Underlying on each applicable Observation Date. The calculation agent will calculate the payment at maturity by comparing only the closing price of the Underlying on the Valuation Date relative to the closing price of the Underlying on the Trade Date (as the same may be adjusted upon the occurrence of certain adjustment events described in "General Terms of the Notes—Anti-dilution Adjustments"). No other prices or values will be taken into account. As a result, you may lose some or all of your principal amount even if the price of the Underlying has risen at certain times during the term of the Notes before falling to a closing price below the Downside Threshold on the Valuation Date.

No assurance that the investment view implicit in the Notes will be successful.

It is impossible to predict whether and the extent to which the price of the Underlying will rise or fall. There can be no assurance that the price of the Underlying will close above the coupon barrier or the Initial Price on any Observation Date, or, if not called, that the Final Price will not fall below the Downside Threshold on the Valuation Date. The closing price of the Underlying on each Observation Date will be influenced by complex and interrelated political, economic, financial and other factors that affect the issuer of the Underlying or, if the Underlying is an ETF, the equity securities included in that ETF. You should be willing to accept the risk of losing some or all of your investment.

In some circumstances, the payment you receive on the Notes may be based on the Notes issued by another issuer and not on the Underlying.

Following certain corporate events relating to the respective issuer of the Underlying where that issuer is not the surviving entity, the determination as to whether the contingent coupon is payable to you on any Coupon Payment Date or whether the Notes are subject to an automatic call, or the amount you receive at maturity, may be based on the common stock of a successor to the respective issuer of the Underlying in combination with any cash or any other assets distributed to holders of the applicable Underlying in such corporate event, which may include securities issued by a non-U.S. company and quoted and traded in a foreign currency. If the issuer of any Underlying becomes subject to a Reorganization Event (as defined below) and the relevant Distribution Property (as defined below) consists solely of cash, these determinations may be based on a security issued by another issuer or a share of another ETF (as applicable). The occurrence of these events and the consequent adjustments, may materially and adversely affect the value of the Notes. We describe the specific corporate events that may lead to these adjustments and the procedures for selecting Distribution Property in the section of this product prospectus supplement called "General Terms of the Notes—Anti-dilution Adjustments—Reorganization Events." The calculation agent will make any such adjustments in order to achieve an equitable result.

If the Underlying is an ADS and the ADS is no longer listed or admitted to trading on a U.S. securities exchange registered under the Exchange Act nor included in the OTC Bulletin Board Service operated by FINRA, or if the ADS facility between the issuer of the underlying ADS stock and the ADS depositary is terminated for any reason, the determination as to the payments on the Notes, will be based on the common stock represented by the ADS. Such delisting of the ADS or termination of the ADS facility and the consequent adjustments may materially and adversely affect the value of the Notes. We describe such delisting of the ADS or termination of the ADS facility and the consequent adjustments in the section of this product prospectus supplement called "General Terms of Notes—Delisting of ADSs or Termination of ADS Facility."

If an Underlying or an ETF that is serving as the Underlying is discontinued, delisted or trading of such Underlying on its primary exchange is suspended, the determination as to the payments on the Notes may be based on a security issued by another issuer or a share of another ETF (as applicable) and not the Underlying. Such discontinuance, delisting or suspension of trading of the Underlying and the consequent adjustments may materially and adversely affect the value of the Notes. We describe such discontinuance, delisting or suspension of trading of the Underlying and the consequent adjustments in the sections of this product prospectus supplement called "General Terms of the Notes—Anti-dilution Adjustments—Reorganization Events."

In any of these situations, any payment on the Notes will be subject to our ability to pay our obligations when due.

The Notes are not designed to be short-term trading instruments.

The price at which you will be able to sell your Notes to us or our affiliates prior to maturity, if at all, may be at a substantial discount from the principal amount of the Notes, even in cases where the closing price of one share of the Underlying has appreciated since the Trade Date. In addition, you will not receive the benefit of any contingent repayment of principal represented by the Downside Threshold if you sell your Notes before the maturity date. The potential returns described in the relevant terms supplement assume that your Notes, which are not designed to be short-term trading instruments, are held to maturity.

You must rely on your own evaluation of the merits of an investment linked to the Underlying.

In the ordinary course of their business, our affiliates may have expressed views on expected movement in any Underlying, or the equity securities included in any ETF, and may do so in the future. These views or reports may be communicated to our clients and clients of our affiliates. However, these views are subject to change from time to time. Moreover, other professionals who transact business in markets relating to any Underlying may at any time have significantly different views from those of our affiliates. For these reasons, you are encouraged to derive information concerning the applicable Underlying from multiple sources, and you should not rely solely on views expressed by our affiliates.

Your anti-dilution protection is limited.

The calculation agent will make adjustments to the Initial Price, the coupon barrier and the Downside Threshold for certain events affecting the shares of the Underlying. See "General Terms of the Notes—Anti-dilution Adjustments." The calculation agent is not required, however, to make such adjustments in response to all events that could affect the shares of the Underlying. If an event occurs that does not require the calculation agent to make an adjustment, such as an offering of common shares for cash, the value of the Notes may be materially and adversely affected. In addition, all determinations and calculations concerning any such adjustment will be made by the calculation agent, which will be binding on you absent manifest error. You should be aware that the calculation agent may make any such adjustment, determination or calculation in a manner that differs from, or that is in addition to, that described in this product prospectus supplement or the applicable terms supplement as necessary to achieve an equitable result. You should refer to "General Terms of the Notes—Anti-dilution Adjustments" for a description of the items that the calculation agent is responsible for determining.

Risks Relating to Liquidity and Secondary Market Issues

Secondary trading in the Notes may be limited.

Unless otherwise specified in the relevant terms supplement, the Notes will not be listed on a securities exchange. There may be little or no secondary market for the Notes. Even if there is a secondary market, it may not provide enough liquidity to allow you to trade or sell the Notes easily.

RBC Capital Markets, LLC, or RBCCM, may act as a market maker for the Notes, but is not required to do so. Because we do not expect that other market makers will participate significantly in the secondary market for the Notes, the price at which you may be able to trade the Notes is likely to depend on the price, if any, at which RBCCM is willing to buy the Notes. If at any time RBCCM or another Agent does not act as a market maker, it is likely that there would be little or no secondary market for the Notes. We expect that transaction costs in any secondary market would be high. As a result, the difference between the bid and asked prices for the Notes in any secondary market could be substantial. If you sell the Notes before maturity, you may have to do so at a substantial discount from the issue price, and as a result, you may suffer substantial losses.

The inclusion in the original issue price of each agent's commission and the estimated cost of hedging our obligations under the Notes through one or more of our affiliates is likely to adversely affect the value of the Notes prior to maturity.

While the payment at maturity, if any, will be based on the principal amount of your Notes, the original issue price of the Notes includes each agent's commission and the estimated cost of hedging our obligations under the Notes through one or more of our affiliates. Such estimated cost includes our affiliates' expected cost of providing such hedge, as well as the profit our affiliates expect to realize in consideration for assuming the risks inherent in providing such hedge. As a result, assuming no change in market conditions or any other relevant factors, the price, if any, at which RBCCM may be willing to purchase Notes from you in secondary market transactions, if at all, will likely be lower than the original issue price. In addition, any such prices may differ from values determined by pricing models used by RBCCM, as a result of such compensation or other transaction costs.

Prior to maturity, the value of the Notes will be influenced by many unpredictable factors.

Many economic and market factors will influence the value of the Notes. We expect that, generally, the closing price of one share of the Underlying on any day will affect the value of the Notes more than any other single factor. However, you should not expect the value of the Notes in the secondary market to vary in proportion to changes in the closing price of one share of the Underlying. The value of the Notes will be affected by a number of other factors that may either offset or magnify each other, including:

- the market price of the shares of the Underlying;
- whether the market price of the Underlying is below the coupon barrier or the Downside Threshold;
- the expected volatility of the Underlying;
- the time to maturity of the Notes;
- the dividend rate on the Underlying or on the equity securities held by the Underlying (if the Underlying is an ETF);
- interest and yield rates in the market generally, as well as in the markets of the equity securities held by the Underlying (if the Underlying is an ETF);
- the occurrence of certain events relating to the Underlying that may or may not require an adjustment to the Initial Price, the coupon barrier and the Downside Threshold;
- economic, financial, political, regulatory or judicial events that affect the Underlying or the equity securities held by the Underlying (if the Underlying is an ETF) or stock markets generally, and which may affect the closing price of shares of the Underlying on any Observation Date;
- if the applicable Underlying is an ETF that invests in securities that are traded in non-U.S. markets, the exchange rate and the volatility of the exchange rate between the U.S. dollar and the currencies in which the equity securities held by the Underlying are traded, and, if the net asset value of the Underlying is calculated in one currency and the equity securities held by the Underlying are traded in another currency or currencies, the correlation between those rates and the market price of the Underlying; and
- our creditworthiness, including actual or anticipated downgrades in our credit ratings.

Some or all of these factors will influence the price you will receive if you choose to sell your Notes prior to maturity. The impact of any of the factors set forth above may enhance or offset some or all of any change resulting from another factor or factors. You may have to sell your Notes at a substantial discount from the principal amount if the market price of the Underlying is at, below or not sufficiently above the Initial Price, the coupon barrier or the Downside Threshold.

Risks Relating to the Underlying

The issuer of the Underlying will not have any role or responsibilities with respect to the Notes.

The issuer of the Underlying will not have authorized or approved the Notes, and will not be involved in any offering. The issuer of the Underlying will not have any financial or legal obligation with respect to the Notes or the amounts to be paid to you, including any obligation to take our needs or your needs into consideration for any reason, including taking any corporate actions that might affect the value of the Underlying or the Notes. The issuer of the Underlying will not receive any of the proceeds from any offering of the Notes. No issuer of an Underlying will be responsible for, or participate in, the determination or calculation of the amounts receivable by holders of the Notes.

We and our affiliates have no affiliation with the issuer of any Underlying and are not responsible for its public disclosure of information or that of any other company.

Unless otherwise specified in the applicable terms supplement, we and our affiliates are not affiliated with any respective issuer of the Underlying in any way and have no ability to control or predict its actions, including any corporate actions of the type that would require the calculation agent to adjust the determinations of the payments on the Notes, and have no ability to control the public disclosure of these corporate actions or any events or circumstances affecting the applicable issuer, unless (and only to the extent that) our securities or the securities of our affiliates are represented by that Underlying. The issuer of the Underlying will not be involved in the offering of the Notes in any way and has no obligation to consider your interests as owner of the Notes in taking any corporate actions that might affect the market value of your Notes or the payment at maturity. An issuer may take actions that could adversely affect the market value of the Notes.

The Notes are unsecured debt obligations of Royal Bank of Canada only and are not obligations of the issuer of the Underlying or any other third party. No portion of the issue price you pay for the Notes will be paid to the issuer of the Underlying or any other third party.

Unless otherwise specified in the applicable terms supplement, we will have derived the information about the respective issuer of the Underlying and the Underlying from publicly available information, without independent verification. Neither we nor any of our affiliates assume any responsibility for the adequacy or accuracy of the information about the respective issuer of the Underlying or the Underlying. You, as an investor in the Notes, should make your own investigation into the respective issuer of the Underlying and the Underlying for your Notes. We urge you to review financial and other information filed periodically by the applicable issuer with the SEC.

This product prospectus supplement and each terms supplement relates only to the Notes and does not relate to the Underlying or an issuer of the Underlying.

The issuer of the Underlying—and thus the Underlying—is subject to various market risks.

The issuer of the Underlying, is subject to various market risks or, if the Underlying is an ETF, each company whose securities constitute the ETF or each futures contract or commodity that constitutes the securities of the ETF, are subject to various market risks. Consequently, the prices of the Underlying may fluctuate depending on the respective markets in which the respective issuer of the Underlying operates or, if the Underlying is an ETF, the respective markets in which the assets held by such ETF trade. Market forces outside of our control could cause the contingent coupon not to be paid or could cause the price of the Underlying to be below the Downside Threshold on the Valuation Date. The price of the Underlying can rise or fall sharply due to factors specific to that Underlying and the issuer of the Underlying, such as equity or commodity price volatility, earnings, financial conditions, corporate, industry and regulatory developments, management changes and decisions, and other events, and by general market factors, such as general securities and commodity market volatility and levels, interest rates and economic and political conditions. The applicable terms supplement will provide a brief description of the issuer of the Underlying and the Underlying to which the Notes we offer are linked. We urge you to review financial and other information filed periodically by the issuer of the Underlying with the SEC.

The historical performance of the Underlying should not be taken as an indication of its future performance.

The price of the Underlying will determine the amount to be paid on the Notes at maturity. The historical performance of the Underlying does not give an indication of its future performance. As a result, it is impossible to predict whether the price of the Underlying will rise or fall during the term of the Notes. The price of the Underlying will be influenced by complex and interrelated political, economic, financial and other factors. The value of the Underlying may decrease such that you may not receive any return of your investment or any contingent coupon payments. There can be no assurance that the price of the Underlying will not decrease so that at maturity you will not lose some or all of your investment.

For Notes linked to a foreign Underlying, an investment in the Notes is subject to risks associated with non-U.S. securities markets.

The Underlying, or shares held by an ETF to which the Notes are linked, may have been issued by one or more non-U.S. companies. An investment in Notes linked to the value of non-U.S. equity securities involves particular risks. Non-U.S. securities markets may be more volatile than U.S. securities markets, and market developments may affect non-U.S. securities markets differently from the U.S. securities markets. Direct or indirect government intervention to stabilize these non-U.S. securities markets, as well as cross shareholdings among non-U.S. companies, may affect trading prices and volumes in those markets. Also, there is generally less publicly available information in the United States about non-U.S. companies than about those U.S. companies that are subject to the reporting requirements of the SEC, and non-U.S. companies are subject to accounting, disclosure, auditing and financial reporting standards and requirements that differ from those applicable to U.S. reporting companies.

Prices of securities in non-U.S. countries are subject to political, economic, financial and social factors that may be unique to the particular country. These factors, which could negatively affect the non-U.S. securities markets, include the possibility of recent or future changes in the economic and fiscal policies of non-U.S. governments, the possible imposition of, or changes in, currency exchange laws or other non-U.S. laws or restrictions applicable to non-U.S. companies or investments in non-U.S. equity securities, the possibility of fluctuations in the rate of exchange between currencies, the possibility of outbreaks of hostility and political instability and the possibility of natural disaster or adverse public health developments in the region. Moreover, the economies of certain foreign countries may differ favorably or unfavorably from the U.S. economy in important respects, such as growth of gross national product, rate of inflation, trade surpluses or deficits, capital reinvestment, resources and self-sufficiency.

Fluctuations relating to exchange rates may affect the value of your investment.

Fluctuations in exchange rates may affect the value of your investment where: (1) the Underlying is an ADS, which is quoted and traded in U.S. dollars, but represents the underlying common shares that are quoted and traded in a foreign currency and that may trade differently from the ADS, (2) the Underlying is substituted or replaced by a security that is quoted and traded in a foreign currency, or (3) the Underlying is an ETF that invests in securities, futures contracts or commodities that are quoted and traded in a foreign currency. Such substitution or replacement of the Underlying by a security issued by a non-U.S. company may occur following certain corporate events affecting the Underlying (as described under “General Terms of the Notes—Anti-dilution Adjustments—Reorganization Events”) or in the event of delisting or termination of the Underlying that is an ADS (as described under “General Terms of the Notes—Delisting of ADSs or Termination of ADS Facility”).

If the Underlying is an ETF that invests in securities, futures contracts or commodities that are traded on non-U.S. markets, the market price of such underlying assets generally will reflect the U.S. dollar value of those assets. Therefore, holders of Notes based upon one or more ETFs that invests in non-U.S. markets will be exposed to currency exchange rate risk with respect to the currency in which such assets trade. An investor’s net exposure will depend on the extent to which the relevant non-U.S. currency strengthens or weakens against the U.S. dollar and the relative weight of each non-U.S. asset in the relevant ETF’s portfolio. If, taking into account such weighting, the dollar strengthens against the non-U.S. currency, the value of the non-U.S. securities, futures contracts or commodities in which an ETF invests will be adversely affected and the value of the Notes may decrease.

In recent years, the exchange rates between the U.S. dollar and some other currencies have been highly volatile, and this volatility may continue in the future. Risks relating to exchange rate fluctuations generally depend on economic and political events over which we have no control. However, fluctuations in any particular exchange rate that have occurred in the past are not necessarily indicative of fluctuations that may occur during the term of the Notes. Changes in the exchange rate between the U.S. dollar and a foreign currency may affect the U.S. dollar equivalent of the price of any relevant security, futures contract or commodity on non-U.S. markets and, as a result, may affect the value of the Notes. In addition, foreign exchange rates can either be floating or fixed by sovereign governments. Exchange rates of the currencies used by most economically developed nations are permitted to fluctuate in value relative to the U.S. dollar and to each other. However, from time to time governments and, in the case of countries using the euro, the European Central Bank, may use a variety of techniques, such as intervention by a central bank in foreign exchange, money markets, sovereign debt or other financial markets, the imposition of regulatory controls or taxes or changes in interest rates to influence the exchange rates of their currencies. Governments may also issue a new currency to replace an existing currency or alter the exchange rate or relative exchange characteristics by a devaluation or revaluation of a currency. These governmental actions could change or interfere with currency valuations and currency fluctuations that would otherwise occur in response to economic forces, as well as in response to the movement of currencies across borders. As a consequence, these government actions could adversely affect the value of the Notes.

We will not make any adjustment or change in the terms of the Notes in the event that applicable exchange rates should become fixed, or in the event of any devaluation or revaluation or imposition of exchange or other regulatory controls or taxes, or in the event of other developments affecting the U.S. dollar or any relevant foreign currency.

Risks Relating to Underlying Equities that Are ADSs

The value of the Underlying may not accurately track the value of the underlying ADS stock represented by such ADS.

If the Underlying is an ADS, each share of the Underlying will represent shares of the relevant company (an “underlying company”). The trading patterns of the ADSs will generally reflect the characteristics and valuations of the underlying common shares; however, the value of the ADSs may not completely track the value of those shares. Trading volume and pricing on the applicable non-U.S. exchange may, but will not necessarily, have similar characteristics as the ADSs. For example, certain factors may increase or decrease the public float of the ADSs and, as a result, the ADSs may have less liquidity or lower market value than the underlying common shares.

Adverse trading conditions in the applicable non-U.S. market may negatively affect the value of the Underlying.

Holders of the underlying company’s ADSs may usually surrender the ADSs in order to receive and trade the underlying common shares. This provision permits investors in the ADSs to take advantage of price differentials between markets. However, this provision may also cause the market prices of the Underlying to more closely correspond with the values of the common shares in the applicable non-U.S. markets. As a result, a market outside of the United States for the underlying common shares that is not liquid may also result in an illiquid market for the ADSs.

Additional Risks Relating to Exchange Traded Fund Underlying Equities

Changes that affect an underlying index will affect the market value of the Notes and the payments on the Notes.

The policies of the applicable index sponsor concerning the calculation of the applicable index, additions, deletions or substitutions of the components of that index and the manner in which changes affecting those components, such as stock dividends, reorganizations or mergers, may be reflected in the index and, therefore, could affect the amounts payable on the Notes at maturity, and the market value of the Notes prior to maturity. The amounts payable on the Notes and their market value could also be affected if the index sponsor changes these policies, for example, by changing the manner in which it calculates the index, or if the index sponsor discontinues or suspends calculation or publication of the index, in which case it may become difficult to determine the market value of the Notes.

We have no affiliation with any index sponsor and will not be responsible for any actions taken by an index sponsor.

Unless otherwise specified in the relevant terms supplement, no index sponsor is an affiliate of ours or will be involved in any offerings of the Notes in any way. Consequently, we have no control of the actions of any index sponsor, including any actions of the type that might impact the value of the Notes. No index sponsor has any obligation of any sort with respect to the Notes. Thus, no index sponsor has any obligation to take your interests into consideration for any reason, including in taking any actions that might affect the value of the Notes. None of our proceeds from any issuance of the Notes will be delivered to any index sponsor.

There are liquidity and management risks associated with an ETF.

Although shares of an ETF that is an Underlying will be listed for trading on a securities exchange and a number of similar products have been traded on various exchanges for varying periods of time, there is no assurance that an active trading market will continue for the shares of the Underlying or that there will be liquidity in that trading market.

An ETF is subject to management risk, which is the risk that the investment adviser's investment strategy, the implementation of which is subject to a number of constraints, may not produce the intended results.

We cannot control actions by the investment adviser which may adjust the ETF in a way that could adversely affect the payments on the Notes and their market value, and the investment adviser has no obligation to consider your interests.

The policies of the applicable investment adviser concerning the calculation of the ETF's net asset value, additions, deletions or substitutions of securities or other investments held by the ETF and the manner in which changes affecting the underlying index are reflected in the ETF could affect the market price per share of the Underlying and, therefore, the amounts payable on the Notes and their market value. The amounts payable on the Notes and their market value could also be affected if the investment adviser changes these policies, for example, by changing the manner in which it calculates the ETF's net asset value, or if the investment adviser discontinues or suspends calculation or publication of the ETF's net asset value, in which case it may become difficult to determine the value of your Notes. If events such as these occur or if the closing price of the Underlying is not available on any Observation Date, the calculation agent may determine the closing price per share of the Underlying on such Observation Date in a manner the calculation agent considers appropriate, in its sole discretion.

The performance of the Underlying and the performance of the underlying index may vary.

The performance of the Underlying and that of its underlying index (or other underlying asset) generally will vary due to transaction costs, certain corporate actions and timing variances. If the Underlying maintains a "representative sampling" strategy as to an underlying index, the performance of the Underlying will differ to some degree from that of the underlying index.

In addition, because the shares of the Underlying are traded on a securities exchange and are subject to market supply and investor demand, the market value of one share of the Underlying may differ from its net asset value per share; shares of the Underlying may trade at, above, or below their net asset value per share.

For the foregoing reasons, the performance of the Underlying may not match the performance of the underlying index (or other underlying asset) over the same period. Because of this variance, the return on the Notes, to the extent dependent on the return of the underlying asset may not be the same as an investment directly in the securities or other investments included in the underlying asset or the same as a debt security with a payment at maturity linked to the performance of the underlying asset.

Time zone differences between the cities where the underlying asset and the Underlying trade may create discrepancies in trading levels.

As a result of the time zone difference, if applicable, between the cities where the securities or commodities comprising the underlying asset trade and where the shares of the Underlying trade, there may be discrepancies between the values of the underlying asset and the market value of the Notes. In addition, there may be periods when the foreign securities or commodities markets are closed for trading (for example, during holidays in a country other than the United States) that may result in the values of the underlying asset remaining unchanged for multiple trading days in the city where the shares of the Underlying trade. Conversely, there may be periods in which the applicable foreign securities or commodities markets are open, but the securities market on which the Underlying trades is closed.

Risks Relating to Hedging Activities and Conflicts of Interest

We or our affiliates may have adverse economic interests to the holders of the Notes.

RBCCM and other affiliates of ours may trade the shares of the Underlying and the equity securities that may be held by an issuer of the Underlying that is an ETF, and other financial instruments related to the Underlying on a regular basis, for their accounts and for other accounts under their management. RBCCM and these affiliates may also issue or underwrite or assist unaffiliated entities in the issuance or underwriting of other securities or financial instruments linked to the Underlying or any equity securities held by an issuer of the Underlying that is an ETF. To the extent that we or one of our affiliates serves as issuer, agent or underwriter for such securities or financial instruments, our or their interests with respect to such products may be adverse to those of the holders of the Notes. Any of these trading activities could potentially affect the performance of the Underlying and, accordingly, could affect the value of the Notes, and the amounts, if any, payable on the Notes.

We or our affiliates may currently or from time to time engage in business with the issuer of the Underlying or issuers of securities held by an issuer of the Underlying that is an ETF, including extending loans to, or making equity investments in, or providing advisory services to them, including merger and acquisition advisory services. In the course of this business, we or our affiliates may acquire non-public information about these companies, and we will not disclose any such information to you. We do not make any representation or warranty to any purchaser of a Note with respect to any matters whatsoever relating to our business with the issuer of any Underlying or future price movements of any Underlying or any equity securities that may be held by an ETF.

Additionally, we or one of our affiliates may serve as issuer, agent or underwriter for additional issuances of securities with returns linked or related to changes in the price of the shares of the Underlying or the price of the equity securities or other assets held by an issuer of the Underlying that is an ETF. By introducing competing products into the marketplace in this manner, we or one or more of our affiliates could adversely affect the value of the Notes.

We may hedge our obligations under the Notes through certain affiliates, who would expect to make a profit on such hedge. We or our affiliates may adjust these hedges by, among other things, purchasing or selling those assets at any time, including around the time of each Observation Date, which could have an impact on the return of y