

ROYAL BANK OF CANADA
Form 424B2
January 29, 2018

January 2018
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Registration Statement No. 333-208507
PRICING SUPPLEMENT
Dated January 25, 2018
Filed Pursuant to Rule 424(b)(2)

STRUCTURED INVESTMENTS

Opportunities in U.S. Equities

\$3,224,210 Contingent Income Auto-Callable Securities due July 30, 2018
With the Coupon and Payment at Maturity Subject to the Performance of the Common Stock of Twilio Inc.
Principal at Risk Securities

Contingent Income Auto-Callable Securities do not guarantee the payment of interest or the repayment of principal. Instead, the securities offer the opportunity for investors to earn a contingent monthly coupon equal to 1.16667% of the stated principal amount (14.00% per annum), but only with respect to each determination date on which the determination closing price of the underlying stock, or the final share price, as applicable, is greater than or equal to 65% of the initial share price, which we refer to as the downside threshold level. In addition, if the determination closing price of the underlying stock is greater than or equal to the redemption threshold level (which will be equal to 100% of the initial share price) on any determination date, the securities will be automatically redeemed for an amount per security equal to the stated principal amount and the contingent monthly coupon. At maturity, if the securities have not previously been redeemed and the final share price is greater than or equal to the downside threshold level, the payment at maturity will be the stated principal amount and the contingent monthly coupon with respect to the final determination date. However, if the final share price of the underlying stock is below the downside threshold level on the final determination date, investors will be fully exposed to the decrease in the underlying stock on a 1 to 1 basis and will receive a payment at maturity that is less than 65% of the stated principal amount and could be zero. Moreover, if on any determination date the determination closing price of the underlying stock, or the final share price, as applicable, is less than the downside threshold level, you will not receive any contingent monthly coupon for that monthly period. Accordingly, investors in the securities must be willing to accept the risk of losing their entire principal and also the risk of not receiving any contingent monthly coupon. The securities are for investors who are willing to risk their principal and seek an opportunity to earn interest at a potentially above-market rate in exchange for the risk of receiving few or no contingent monthly coupons over the term of the securities. Investors will not participate in any appreciation of the underlying stock. The securities are senior unsecured obligations of Royal Bank of Canada, issued as part of Royal Bank of Canada's Series G Senior Global Medium-Term Notes program. All payments on the securities are subject to the credit risk of Royal Bank of Canada.

SUMMARY

TERMS

| | |
|-----------------------------|--|
| Issuer: | Royal Bank of Canada |
| Underlying stock: | Common stock of Twilio Inc. (Bloomberg symbol: "TWLO") |
| Aggregate principal amount: | \$3,224,210 |
| Stated principal amount: | \$10 per security |
| Issue price: | \$10 per security |

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| | |
|------------------------------|---|
| Pricing date: | January 25, 2018 |
| Original issue date: | January 30, 2018 |
| Maturity date: | July 30, 2018, subject to adjustment as described in “Additional Information About the Securities” below. |
| Early redemption: | If, on any of the first five determination dates, the determination closing price of the underlying stock is greater than or equal to the redemption threshold level, the securities will be automatically redeemed for an early redemption payment on the third business day following the related determination date. No further payments will be made on the securities once they have been redeemed. |
| Redemption threshold level: | 100% of the initial share price |
| Early redemption payment: | The early redemption payment will be an amount equal to (i) the stated principal amount plus (ii) the contingent monthly coupon with respect to the related determination date. |
| Determination closing price: | The closing price of the underlying stock on any determination date other than the final determination date times the adjustment factor on that determination date |
| Contingent monthly coupon: | <ul style="list-style-type: none"> • If, on any determination date, the determination closing price or the final share price, as applicable, is greater than or equal to the downside threshold level, we will pay a contingent monthly coupon of \$0.11667 (1.16667% of the stated principal amount, or 14.00% per annum) per security on the related contingent payment date. • If, on any determination date, the determination closing price or the final share price, as applicable, is less than the downside threshold level, no contingent monthly coupon will be made with respect to that determination date. |
| Determination dates: | February 26, 2018, March 26, 2018, April 25, 2018, May 25, 2018, June 25, 2018 and July 25, 2018, subject to postponement for non-trading days and certain market disruption events as described in “Additional Information About the Securities” below. We also refer to July 25, 2018 as the final determination date. |
| Contingent payment dates: | With respect to each determination date other than the final determination date, the third business day after the related determination date. The payment of the contingent monthly coupon, if any, with respect to the final determination date will be made on the maturity date. |
| Payment at maturity: | <ul style="list-style-type: none"> • If the final share price is greater than or equal to the downside threshold level: (i) the stated principal amount plus (ii) the contingent monthly coupon with respect to the final determination date • If the final share price is less than the downside threshold level: (i) the stated principal amount multiplied by (ii) the share performance factor |
| Share performance factor: | Final share price divided by the initial share price |
| Adjustment factor: | 1.0, subject to adjustment in the event of certain corporate events affecting the underlying stock |
| Downside threshold level: | \$17.24, which is equal to 65.00% of the initial share price (rounded to two decimal places) |
| Initial share price: | \$26.52, which is equal to the closing price of the underlying stock on the pricing date |
| Final share price: | The closing price of the underlying stock on the final determination date times the adjustment factor on that date |
| CUSIP/ISIN: | 78013Q335 / US78013Q3359 |
| Listing: | The securities will not be listed on any securities exchange. |

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Agent: RBC Capital Markets, LLC (“RBCCM”). See “Supplemental information regarding plan of distribution; conflicts of interest.”

| Commissions and issue price: | Price to public | Agent’s commissions | Proceeds to issuer |
|------------------------------|-----------------|------------------------|--------------------|
| Per security | \$10.000 | \$0.075 ⁽¹⁾ | |
| | | \$0.050 ⁽²⁾ | \$9.875 |
| Total | \$3,224,210.00 | \$24,181.575 | |
| | | \$16,121.05 | \$3,183,907.375 |

(1) RBCCM, acting as agent for Royal Bank of Canada, will receive a fee of \$0.125 per \$10 stated principal amount and will pay to Morgan Stanley Wealth Management (“MSWM”) a fixed sales commission of \$0.075 for each security that MSWM sells. See “Supplemental information regarding plan of distribution; conflicts of interest.”

(2) Of the amount per \$10 stated principal amount received by RBCCM, acting as agent for Royal Bank of Canada, RBCCM will pay MSWM a structuring fee of \$0.05 for each security.

The initial estimated value of the securities as of the date of this document is \$9.8511 per \$10 in principal amount, which is less than the price to public. The actual value of the securities at any time will reflect many factors, cannot be predicted with accuracy, and may be less than this amount.

The securities involve risks not associated with an investment in ordinary debt securities. See “Risk Factors” beginning on page 6.

The Securities and Exchange Commission and state securities regulators have not approved or disapproved these securities, or determined if this document or the accompanying prospectus supplement and prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The securities will not constitute deposits insured by the Canada Deposit Insurance Corporation, the U.S. Federal Deposit Insurance Corporation (the “FDIC”) or any other Canadian or U.S. government agency or instrumentality.

You should read this document together with the related prospectus supplement and prospectus, each of which can be accessed via the hyperlinks below. Please also see “Additional Information About the Securities” at the end of this document.

[Prospectus Supplement dated January 8, 2016](#)

[Prospectus dated January 8, 2016](#)

Contingent Income Auto-Callable Securities due July 30, 2018

With the Coupon and Payment at Maturity Subject to the Performance of the Common Stock of Twilio Inc.

Principal at Risk Securities

Investment Summary

The Contingent Income Auto-Callable Securities due July 30, 2018 with the Coupon and Payment at Maturity Subject to the Performance of the Common Stock of Twilio Inc., which we refer to as the “securities,” provide an opportunity for investors to earn a contingent monthly coupon, which is an amount equal to \$0.11667 (1.16667% of the stated principal amount, or 14.00% per annum) per security, with respect to each monthly determination date on which the determination closing price or the final share price, as applicable, is greater than or equal to 65.00% of the initial share price, which we refer to as the downside threshold level. The contingent monthly coupon, if any, will be payable monthly on the contingent payment date, which is the third business day after the related determination date. It is possible that the closing price of the underlying stock could remain below the downside threshold level for extended periods of time or even throughout the term of the securities so that you may receive few or no contingent monthly coupons.

If the determination closing price is greater than or equal to the redemption threshold level on any of the first five determination dates, the securities will be automatically redeemed for an early redemption payment equal to the stated principal amount plus the contingent monthly coupon with respect to the related determination date. If the securities have not previously been redeemed and the final share price is greater than or equal to the downside threshold level, the payment at maturity will also be the sum of the stated principal amount and the contingent monthly coupon with respect to the related determination date. However, if the securities have not previously been redeemed and the final share price is less than the downside threshold level, investors will be exposed to the decline in the closing price of the underlying stock, as compared to the initial share price, on a 1 to 1 basis and will receive a payment at maturity that is less than 65% of the stated principal amount of the securities and could be zero. Investors in the securities must be willing to accept the risk of losing their entire principal and also the risk of not receiving any contingent monthly coupon. In addition, investors will not participate in any appreciation of the underlying stock.

Contingent Income Auto-Callable Securities due July 30, 2018

With the Coupon and Payment at Maturity Subject to the Performance of the Common Stock of Twilio Inc.

Principal at Risk Securities

Key Investment Rationale

The securities offer investors an opportunity to earn a contingent monthly coupon equal to 1.16667% of the stated principal amount (14.00% per annum) with respect to each determination date on which the determination closing price or the final share price, as applicable, is greater than or equal to 65% of the initial share price, which we refer to as the downside threshold level. The securities may be redeemed prior to maturity for the stated principal amount per security plus the applicable contingent monthly coupon, and the payment at maturity will vary depending on the final share price, as follows:

On any of the first five determination dates, the determination closing price is greater than or equal to the redemption threshold level.

Scenario
1

§ The securities will be automatically redeemed for (i) the stated principal amount plus (ii) the contingent monthly coupon with respect to the related determination date.

§ Investors will not participate in any appreciation of the underlying stock from the initial share price. The securities are not automatically redeemed prior to maturity and the final share price is greater than or equal to the downside threshold level.

Scenario
2

§ The payment due at maturity will be (i) the stated principal amount plus (ii) the contingent monthly coupon with respect to the final determination date.

§ Investors will not participate in any appreciation of the underlying stock from the initial share price. The securities are not automatically redeemed prior to maturity and the final share price is less than the downside threshold level.

Scenario
3

§ The payment due at maturity will be (i) the stated principal amount multiplied by (ii) the share performance factor.

§ Investors will lose a significant portion, and may lose all, of their principal amount in this scenario.

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Principal at Risk Securities

How the Securities Work

The following diagrams illustrate the potential outcomes for the securities depending on (1) the determination closing price and (2) the final share price.

Diagram #1: First Five Determination Dates

Diagram #2: Payment at Maturity if No Automatic Early Redemption Occurs

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With the Coupon and Payment at Maturity Subject to the Performance of the Common Stock of Twilio Inc.

Principal at Risk Securities

Hypothetical Examples

The examples below are based on the following terms:

| | |
|--|--|
| Hypothetical Initial Share Price: | \$100.00 |
| Hypothetical Downside Threshold Level: | \$65.00, which is 65% of the hypothetical initial share price |
| Hypothetical Adjustment Factor: | 1.0 |
| Contingent Monthly Coupon: | \$0.11667 (1.16667% of the stated principal amount, or 14.00% per annum) |
| Stated Principal Amount: | \$10 per security |
| Redemption Threshold Level: | \$100.00, which is equal to 100% of the hypothetical initial share price |

In Examples 1 and 2, the closing price of the underlying stock fluctuates over the term of the securities and the determination closing price of the underlying stock is greater than or equal to the redemption threshold level on one of the first five determination dates. Because the determination closing price is greater than or equal to the redemption threshold level on one of the first five determination dates, the securities are automatically redeemed following the relevant determination date. In Examples 3 and 4, the determination closing price on the first five determination dates is less than the redemption threshold level, and, consequently, the securities are not automatically redeemed prior to, and remain outstanding until, maturity.

| Determination Dates | Example 1 | | | Example 2 | | |
|--------------------------|---|---------------------------|---------------------------|---|---------------------------|--------------------------|
| | Hypothetical Determination Closing Price (or Final Share Price) | Contingent Monthly Coupon | Early Redemption Payment* | Hypothetical Determination Closing Price (or Final Share Price) | Contingent Monthly Coupon | Early Redemption Payment |
| #1 | \$105.00 | -* | \$10.11667 | \$90.00 | \$0.11667 | N/A |
| #2 | N/A | N/A | N/A | \$91.00 | \$0.11667 | N/A |
| #3 | N/A | N/A | N/A | \$92.00 | \$0.11667 | N/A |
| #4 | N/A | N/A | N/A | \$93.00 | \$0.11667 | N/A |
| #5 | N/A | N/A | N/A | \$110.00 | -* | \$10.11667 |
| Final Determination Date | N/A | N/A | N/A | N/A | N/A | N/A |

* The Early Redemption Payment includes the unpaid contingent monthly coupon with respect to the determination date on which the determination closing price is greater than or equal to the redemption threshold level and the securities are redeemed as a result.

In Example 1, the securities are automatically redeemed following the first determination date, as the determination closing price on the first determination date is greater than the redemption threshold level. You receive the early redemption payment, calculated as follows:

$$\text{stated principal amount} + \text{contingent monthly coupon} = \$10 + \$0.11667 = \$10.11667$$

In this example, the early redemption feature limits the term of your investment to approximately 1 month and you may not be able to reinvest at comparable terms or returns. If the securities are redeemed early, you will stop receiving contingent payments.

In Example 2, the securities are automatically redeemed following the fifth determination date as the determination closing price on the fifth determination date is greater than the redemption threshold level. As the determination closing prices on the first four determination dates are greater than the downside threshold level, you will receive the contingent payment of \$0.11667 with respect to each such determination date. Following the fifth determination date, you receive an early redemption payment of \$10.11667, which includes the contingent monthly coupon with respect to the fifth determination date.

In this example, the early redemption feature limits the term of your investment to approximately 5 months and you may not be able to reinvest at comparable terms or returns. If the securities are redeemed early, you will stop receiving contingent payments. Further, although the underlying stock has appreciated by 10.00% from its initial

share price on the fifth determination date, you receive only an early redemption payment of \$10.11667 per security and do not benefit from such appreciation.

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Principal at Risk Securities

| Determination Dates | Example 3 | | Early Redemption Payment | Example 4 | | Early Redemption Payment |
|--------------------------|---|---------------------------|--------------------------|---|---------------------------|--------------------------|
| | Hypothetical Determination Closing Price (or Final Share Price) | Contingent Monthly Coupon | | Hypothetical Determination Closing Price (or Final Share Price) | Contingent Monthly Coupon | |
| #1 | \$50.00 | \$0 | N/A | \$50.00 | \$0 | N/A |
| #2 | \$48.00 | \$0 | N/A | \$48.00 | \$0 | N/A |
| #3 | \$46.00 | \$0 | N/A | \$46.00 | \$0 | N/A |
| #4 | \$44.00 | \$0 | N/A | \$44.00 | \$0 | N/A |
| #5 | \$42.00 | \$0 | N/A | \$42.00 | \$0 | N/A |
| Final Determination Date | \$40.00 | \$0 | N/A | \$71.00 | -* | N/A |
| Payment at Maturity | \$4.00 | | | \$10.11667 | | |

* The final contingent monthly coupon, if any, will be paid at maturity.

Examples 3 and 4 illustrate the payment at maturity per security based on the final share price.

In Example 3, the closing price of the underlying stock remains below the downside threshold level on every determination date. As a result, you do not receive any contingent payments during the term of the securities and, at maturity, you are fully exposed to the decline in the closing price of the underlying stock. As the final share price is less than the downside threshold level, your payment at maturity is calculated as follows:

stated principal amount x share performance factor = $\$10 \times (\$40.00/\$100.00) = \4.00

In this example, the amount you receive at maturity is significantly less than the stated principal amount.

In Example 4, the closing price of the underlying stock decreases to a final share price of \$71.00. Although the final share price is less than the redemption threshold level, because the final share price is still not less than the downside threshold level, you receive the stated principal amount plus a contingent monthly coupon with respect to the final determination date. Your payment at maturity is calculated as follows:

$\$10 + \$0.11667 = \$10.11667$

In this example, although the final share price represents a 29.00% decline from the initial share price, you receive the stated principal amount per security plus the final contingent monthly coupon, equal to a total payment of \$10.11667 per security at maturity, because the final share price is not less than the downside threshold level.

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Principal at Risk Securities

Risk Factors

The following is a non-exhaustive list of certain key risk factors for investors in the securities. For further discussion of these and other risks, you should read the section entitled "Risk Factors" in the accompanying prospectus supplement and prospectus. You should also consult your investment, legal, tax, accounting and other advisers in connection with your investment in the securities.

The securities do not guarantee the return of any principal. The terms of the securities differ from those of ordinary debt securities in that the securities do not guarantee the payment of regular interest or the return of any of the principal amount at maturity. Instead, if the securities have not been automatically redeemed prior to maturity and if § the final share price is less than the downside threshold level, you will be exposed to the decline in the closing price of the underlying stock, as compared to the initial share price, on a 1 to 1 basis and you will receive for each security that you hold at maturity an amount equal to the stated principal amount times the share performance factor. In this case, the payment at maturity will be less than 65% of the stated principal amount and could be zero.

The potential contingent repayment of principal represented by the downside threshold level applies only at maturity. You should be willing to hold the securities until maturity. Additionally, if the securities are not redeemed, § at maturity, you will receive the stated principal amount (plus the contingent monthly coupon with respect to the final determination date) only if the final share price is greater than or equal to the downside threshold level. If you are able to sell the securities prior to maturity, you may have to sell them for a loss relative to the principal amount, even if the price of the underlying stock is at or above the downside threshold level.

The contingent monthly coupon, if any, is based solely on the determination closing price or the final share price, as applicable. Whether the contingent monthly coupon will be made with respect to a determination date will be based on the determination closing price or the final share price, as applicable. As a result, you will not know whether you § will receive the contingent monthly coupon until the related determination date. Moreover, because the contingent monthly coupon is based solely on the determination closing price on a specific determination date or the final share price, as applicable, if that determination closing price or final share price is less than the downside threshold level, you will not receive any contingent monthly coupon with respect to that determination date, even if the closing price of the underlying stock was higher on other days during the term of the securities.

You will not receive any contingent monthly coupon for any monthly period where the determination closing price or the final share price, as applicable, is less than the downside threshold level. A contingent monthly coupon will § be made with respect to a monthly period only if the determination closing price or final share price is greater than or equal to the downside threshold level. If the determination closing price or final share price remains below the downside threshold level on each determination date over the term of the securities, you will not receive any contingent monthly coupons.

Your return on the securities may be lower than the return on a conventional debt security of comparable maturity. § The return that you will receive on the securities, 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.

Investors will not participate in any appreciation in the price of the underlying stock. Investors will not participate in any appreciation in the price of the underlying stock from the initial share price, and the return on the securities will be limited to the contingent monthly coupon that is paid with respect to each determination date on which the determination closing price or the final share price, as applicable, is greater than or equal to the downside threshold § level. The payment at maturity will not exceed the principal amount plus the final contingent monthly coupon, if it is payable. It is possible that the closing price of the underlying stock could be below the downside threshold level on most or all of the determination dates so that you will receive few or no contingent monthly coupons. If you do not earn sufficient contingent monthly coupons over the term of the securities, the overall return on the securities may be less than the amount that would be paid on a conventional debt security of the issuer of comparable maturity.

§ The automatic early redemption feature may limit the term of your investment to approximately one month. If the securities are redeemed early, you may not be able to reinvest at comparable terms or returns. The term of your investment in the securities may be limited to as short as approximately one month by the automatic early

redemption feature of the securities. If the securities are redeemed prior to maturity, you will receive no more contingent monthly coupons and may be forced to invest in a lower interest rate environment and may not be able to reinvest at comparable terms or returns.

The market price will be influenced by many unpredictable factors. Several factors will influence the value of the securities in the secondary market and the price at which RBCCM may be willing to purchase or sell the securities in the secondary market. Although we expect that generally the closing price of the underlying stock on any day may affect the value of the securities more than any other single factor, other factors that may influence the value of the securities include:

- § the trading price and volatility (frequency and magnitude of changes in value) of the underlying stock,
- § whether the determination closing price has been below the downside threshold level on any determination date,
- § dividend rates on the underlying stock,
- § interest and yield rates in the market,
- § the time remaining until the securities mature,

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§ geopolitical conditions and economic, financial, political, regulatory or judicial events that affect the underlying stock and which may affect the final share price of the underlying stock,

§ the occurrence of certain events affecting the underlying stock that may or may not require an adjustment to the adjustment factor, and

§ any actual or anticipated changes in our credit ratings or credit spreads.

The price of the underlying stock may be, and has recently been, volatile, and we can give you no assurance that the volatility will lessen. See “Twilio Inc. Overview” below. You may receive less, and possibly significantly less, than the stated principal amount per security if you try to sell your securities prior to maturity.

The securities are subject to the credit risk of Royal Bank of Canada, and any actual or anticipated changes to its credit ratings or credit spreads may adversely affect the market value of the securities. You are dependent on Royal Bank of Canada’s ability to pay all amounts due on the securities on each contingent payment date, upon automatic redemption or at maturity, and therefore you are subject to the credit risk of Royal Bank of Canada. If Royal Bank of Canada defaults on its obligations under the securities, your investment would be at risk and you could lose some or all of your investment. As a result, the market value of the securities prior to maturity will be affected by changes in the market’s view of Royal Bank of Canada’s creditworthiness. Any actual or anticipated decline in Royal Bank of Canada’s credit ratings or increase in the credit spreads charged by the market for taking Royal Bank of Canada credit risk is likely to adversely affect the market value of the securities.

If the price of the shares of the underlying stock changes, the market value of the securities may not change in the same manner. Owning the securities is not the same as owning shares of the underlying stock. Accordingly, changes in the price of the underlying stock may not result in a comparable change of the market value of the securities. If the closing price of one share of the underlying stock on any trading day increases above the initial share price or the downside threshold level, the value of the securities may not increase in a comparable manner, if at all. It is possible for the price of the shares of the underlying stock to increase while the value of the securities declines.

§ The Common Stock of Twilio Inc. Has Limited Historical Information – Twilio Inc. commenced trading on June 23, 2016. Because the underlying stock has limited trading history, your investment in the securities may involve a greater risk than investing in securities linked to one or more equity securities with a more established record of performance.

§ Investing in the securities is not equivalent to investing in the underlying stock. Investors in the securities will not have voting rights or rights to receive dividends or other distributions or any other rights with respect to the underlying stock.

§ No affiliation with Twilio Inc. Twilio Inc. (the “underlying company”) is not an affiliate of ours, is not involved with this offering in any way, and has no obligation to consider your interests in taking any corporate actions that might affect the value of the securities. We have not made any due diligence inquiry with respect to the underlying company in connection with this offering.

§ We or our affiliates may have adverse economic interests to the holders of the securities. RBCCM and other affiliates of ours may trade the shares of the underlying stock and other financial instruments related to the underlying stock 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 stock. To the extent that we or one of our affiliates serves as issuer, agent or underwriter for those securities or financial instruments, our or their interests with respect to those products may be adverse to those of the holders of the securities. Any of these trading activities could potentially affect the performance of the underlying stock and, accordingly, could affect the value of the securities and the amounts, if any, payable on the underlying stock.

We may hedge our obligations under the securities through certain affiliates, who would expect to make a profit on that 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 determination date, which could have an impact on the return of your securities. Because hedging our obligations entails risk and may be influenced by market forces beyond our or our affiliates' control, such hedging may result in a profit that is more or less than expected, or it may result in a loss.

We may engage in business with or involving the underlying company without regard to your interests. We or our affiliates may presently or from time to time engage in business with the underlying company without regard to your interests and thus may acquire non-public information about the underlying company. Neither we nor any of our § affiliates undertakes to disclose any of that information to you. In addition, we or our affiliates from time to time have published and in the future may publish research reports with respect to the underlying company, which may or may not recommend that investors buy or hold the underlying stock.

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

The antidilution adjustments the calculation agent is required to make do not cover every corporate event that could § affect the underlying stock. RBCCM, as calculation agent, will adjust the amount adjustment factor for certain corporate events affecting the underlying stock, such as stock splits and stock dividends, and certain other corporate actions involving the underlying

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Principal at Risk Securities

company, such as mergers. However, the calculation agent will not make an adjustment for every corporate event that can affect the underlying stock. For example, the calculation agent is not required to make any adjustments if the underlying company or anyone else makes a partial tender or partial exchange offer for the underlying stock, nor will adjustments be made following the final determination date. If an event occurs that does not require the calculation agent to adjust the adjustment factor, the market price of the securities may be materially and adversely affected.

The securities will not be listed on any securities exchange and secondary trading may be limited. The securities will not be listed on any securities exchange. Therefore, there may be little or no secondary market for the securities. RBCCM may, but is not obligated to, make a market in the securities, and, if it chooses to do so at any time, it may cease doing so. When it does make a market, it will generally do so for transactions of routine secondary market size at prices based on its estimate of the current value of the securities, taking into account its bid/offer spread, our credit spreads, market volatility, the notional size of the proposed sale, the cost of unwinding any relating hedging positions, the time remaining to maturity and the likelihood that it will be able to resell the securities. Even if there is a secondary market, it may not provide enough liquidity to allow you to trade or sell the securities easily. Since other broker-dealers may not participate significantly in the secondary market for the securities, the price at which you may be able to trade your securities is likely to depend on the price, if any, at which RBCCM is willing to transact. If, at any time, RBCCM were to cease making a market in the securities, it is likely that there would be no secondary market for the securities. Accordingly, you should be willing to hold your securities to maturity.

The initial estimated value of the securities is less than the price to the public. The initial estimated value that is set forth on the cover page of this document does not represent a minimum price at which we, RBCCM or any of our affiliates would be willing to purchase the securities in any secondary market (if any exists) at any time. If you attempt to sell the securities prior to maturity, their market value may be lower than the price you paid for them and the initial estimated value. This is due to, among other things, changes in the price of the underlying stock, the borrowing rate we pay to issue securities of this kind, and the inclusion in the price to the public of the agent's commissions and the estimated costs relating to our hedging of the securities. These factors, together with various credit, market and economic factors over the term of the securities, are expected to reduce the price at which you may be able to sell the securities in any secondary market and will affect the value of the securities in complex and unpredictable ways. Assuming no change in market conditions or any other relevant factors, the price, if any, at which you may be able to sell your securities prior to maturity may be less than your original purchase price, as any such sale price would not be expected to include the agent's commissions and the hedging costs relating to the securities. In addition to bid-ask spreads, the value of the securities determined for any secondary market price is expected to be based on the secondary rate rather than the internal funding rate used to price the securities and determine the initial estimated value. As a result, the secondary price will be less than if the internal funding rate was used. The securities are not designed to be short-term trading instruments. Accordingly, you should be able and willing to hold your securities to maturity.

Our initial estimated value of the securities is an estimate only, calculated as of the pricing date. The initial estimated value of the securities is based on the value of our obligation to make the payments on the securities, together with the mid-market value of the derivative embedded in the terms of the securities. See "Additional § Information About the Securities—Structuring the securities" below. Our estimate is based on a variety of assumptions, including our credit spreads, expectations as to dividends, interest rates and volatility, and the expected term of the securities. These assumptions are based on certain forecasts about future events, which may prove to be incorrect.

Other entities may value the securities or similar securities at a price that is significantly different than we do. The value of the securities at any time after the pricing date will vary based on many factors, including changes in market conditions, and cannot be predicted with accuracy. As a result, the actual value you would receive if you sold the securities in any secondary market, if any, should be expected to differ materially from the initial estimated value of your securities.

§ The securities are not designed to be short-term trading instruments. The price at which you will be able to sell the securities to us or our affiliates prior to maturity, if at all, may be at a substantial discount from the principal amount of the securities, even in cases where the closing price of one share of the underlying stock has appreciated since the

pricing date. In addition, you may receive less, and possibly significantly less, than the stated principal amount of your securities if you try to sell your securities prior to the maturity date, and you will not receive the benefit of any contingent repayment of principal represented by the downside threshold level.

Hedging and trading activity by our subsidiaries could potentially adversely affect the value of the securities. One or more of our subsidiaries and/or third-party dealers expect to carry out hedging activities related to the securities (and to other instruments linked to the underlying stock), including trading in the underlying stock. Some of our subsidiaries also trade the underlying stock and other financial instruments related to the underlying stock on a regular basis as part of their general broker-dealer and other businesses. Any of these hedging or trading activities on or prior to the pricing date could potentially have increased the initial share price, and, as a result, the redemption § threshold level and the downside threshold level, which is the price at or above which the underlying stock must close on each determination date in order for you to earn a contingent monthly coupon or, if the securities are not called prior to maturity, in order for you to avoid being exposed to the negative price performance of the underlying stock at maturity. Additionally, such hedging or trading activities during the term of the securities could potentially affect the price of the underlying stock on the determination dates, and, accordingly, whether the securities are automatically called prior to maturity, and, if the securities are not called prior to maturity, the payout to you at maturity, if any.

You must rely on your own evaluation of the merits of an investment linked to the underlying stock. In the ordinary course of their business, our affiliates may have expressed views on expected movement in the underlying stock, 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

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change from time to time. Moreover, other professionals who transact business in markets relating to the underlying stock may at any time have significantly different views from those of our affiliates. For these reasons, you are encouraged to derive information concerning the underlying stock from multiple sources, and you should not rely solely on views expressed by our affiliates.

The calculation agent, which is a subsidiary of the issuer, will make determinations with respect to the securities.

Our wholly owned subsidiary, RBCCM, will serve as the calculation agent. As calculation agent, RBCCM determined the initial share price, the redemption threshold level, and the downside threshold level, and will determine the final share price, whether the contingent monthly coupon will be paid on each contingent payment § date, whether the securities will be redeemed following any determination date, whether a market disruption event has occurred, whether to make any adjustments to the adjustment factor and the payment that you will receive upon an automatic early redemption or at maturity, if any. Any of these determinations made by RBCCM, in its capacity as calculation agent, including with respect to the occurrence or nonoccurrence of market disruption events, may affect the payout to you upon an automatic early redemption or at maturity.

We will not hold any shares of the underlying stock for your benefit. The indenture and the terms governing the securities do not contain any restriction on our ability or the ability of any of our affiliates to sell, pledge or § otherwise convey all or any shares of the underlying stock that we or they may acquire. Neither we nor our affiliates will pledge or otherwise hold any such shares for your benefit. Consequently, in the event of our bankruptcy, insolvency or liquidation, any of those assets that we own will be subject to the claims of our creditors generally and will not be available for your benefit specifically.

Significant aspects of the income tax treatment of an investment in the securities are uncertain. The tax treatment of an investment in the securities is uncertain. We do not plan to request a ruling from the Internal Revenue Service or the Canada Revenue Agency regarding the tax treatment of an investment in the securities, and the Internal Revenue § Service, the Canada Revenue Agency or a court may not agree with the tax treatment described in this document.

Although the U.S. federal income tax treatment of the contingent monthly coupons is uncertain, we intend to take the position that the contingent monthly coupons constitute taxable ordinary income to a U.S. holder at the time received or accrued in accordance with the holder's regular method of tax accounting.

The Internal Revenue Service has issued a notice indicating that it and the U.S. Treasury Department are actively considering whether, among other issues, the holder of an instrument such as the securities should be required to accrue ordinary income on a current basis. The outcome of this process is uncertain and could apply on a retroactive basis.

Please read carefully the section entitled "U.S. tax considerations" in this document, the section "Tax Consequences — United States Taxation" in the accompanying prospectus and the section entitled "Certain Income Tax Consequences" in the accompanying prospectus supplement. You should consult your tax advisor about your own tax situation.

For a discussion of the material Canadian federal income tax consequences of investing in the securities, please see the section entitled "Tax Consequences — Canadian Taxation" in the accompanying prospectus. If you are a not a Non-resident Holder (as that term is defined in "Tax Consequences — Canadian Taxation" in the accompanying prospectus) or if you acquire the securities in the secondary market, you should consult your tax advisors as to the consequences of acquiring, holding and disposing of the securities and receiving the payments that may be due under the securities.

A 30% U.S. federal withholding tax will be withheld on contingent monthly coupons paid to non-U.S. holders.

While the U.S. federal income tax treatment of the securities (including proper characterization of the contingent monthly coupons for U.S. federal income tax purposes) is uncertain, U.S. federal income tax at a 30% rate (or at a § lower rate under an applicable income tax treaty) will be withheld in respect of the contingent monthly coupons paid to a non-U.S. holder unless such payments are effectively connected with the conduct by the non-U.S. holder of a trade or business in the U.S. (in which case, to avoid withholding, the non-U.S. holder will be required to provide a Form W-8ECI). We will not pay any additional amounts in respect of such withholding.

Please read carefully the section entitled "U.S. tax considerations" in this document, the section "Tax Consequences — United States Taxation" in the accompanying prospectus and the section entitled "Certain Income Tax Consequences" in

the accompanying prospectus supplement. You should consult your tax advisor about your own tax situation.

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Twilio Inc. Overview

Twilio Inc. develops and publishes internet infrastructure solutions. The company offers a cloud computing platform to allow web developers to integrate phone calls, internet protocol voice communications, and text messages into web, mobile, and phone applications.

The underlying stock is registered under the Securities Exchange Act of 1934, as amended (the "Exchange Act").

Information provided to or filed with the Securities and Exchange Commission (the "SEC") by the underlying company under the Securities Exchange Act can be located by reference to the SEC CIK number 0001447669 through the website at www.sec.gov. In addition, information regarding the underlying company may be obtained from other sources including, but not limited to, press releases, newspaper articles and other publicly disseminated documents.

Neither the issuer nor the agent makes any representation that those publicly available documents or any other publicly available information regarding the underlying company is accurate or complete.

Information as of market close on January 25, 2018:

| | | | |
|--------------------------|---------|------------------------------|---------|
| Bloomberg Ticker Symbol: | TWLO | 52 Weeks Ago: | \$29.05 |
| Exchange: | NYSE | 52 Week High (on 2/13/2017): | \$34.90 |
| Current Stock Price: | \$26.52 | 52 Week Low (on 5/9/2017): | \$23.17 |

The table below sets forth the published high and low closing prices of the underlying stock for each quarter from June 23, 2016 through January 25, 2018. The graph below sets forth the daily closing prices of the underlying stock from June 23, 2016 through January 25, 2018. We obtained the information below from Bloomberg Financial Markets, without independent verification. You should not take the historical performance of the underlying stock as an indication of its future performance, and no assurance can be given as to the price of the underlying stock at any time, including the determination dates.

| | | |
|--|-----------|---------|
| Common Stock of Twilio Inc. (CUSIP 90138F102) | High (\$) | Low(\$) |
|--|-----------|---------|

2016

| | | |
|-----------------|-------|-------|
| Second Quarter* | 37.08 | 26.30 |
| Third Quarter | 68.97 | 34.03 |
| Fourth Quarter | 65.02 | 28.85 |

2017

| | | |
|----------------|-------|-------|
| First Quarter | 34.90 | 26.50 |
| Second Quarter | 34.39 | 23.17 |
| Third Quarter | 33.58 | 27.52 |
| Fourth Quarter | 32.67 | 23.60 |

2018

| | | |
|--|-------|-------|
| First Quarter (through January 25, 2018) | 26.91 | 25.10 |
|--|-------|-------|

* Twilio Inc. commenced trading on June 23, 2016 and therefore has a limited historical performance.

Common Stock of Twilio Inc. – Historical Closing Prices

June 23, 2016 to January 25, 2018

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* The red solid line indicates the downside threshold level, based on the initial share price of \$26.52, which was the closing price of the underlying stock on January 25, 2018.

This document relates only to the securities offered hereby and does not relate to the underlying stock or other securities of the underlying company. We have derived all disclosures contained in this document regarding the underlying company's stock from the publicly available documents described in the preceding paragraph. In connection with the offering of the securities, neither we nor the agent has participated in the preparation of those documents or made any due diligence inquiry with respect to the underlying company. Neither we nor the agent makes any representation that those publicly available documents or any other publicly available information regarding the underlying company is accurate or complete. Furthermore, we cannot give any assurance that all events occurring prior to the date hereof (including events that would affect the accuracy or completeness of the publicly available documents described in the preceding paragraph) that would affect the trading price of the underlying stock (and therefore the price of the underlying stock at the time we price the securities) have been publicly disclosed. Subsequent disclosure of any such events or the disclosure of or failure to disclose material future events concerning the underlying company could affect the value received at maturity with respect to the securities and therefore the value of the securities.

Neither the issuer nor any of its affiliates makes any representation to you as to the performance of the underlying stock.

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Additional Information About the Securities

Please read this information in conjunction with the summary terms on the front cover of this document.

Additional
Provisions:

The “closing price” for the underlying stock (or one unit of any other security for which a closing price must be determined) on any trading day means:

- (i) if the underlying stock (or any such other security) is listed on a national securities exchange (other than the Nasdaq), the last reported sale price, regular way, of the principal trading session on such day on the principal national securities exchange registered under the Exchange Act, on which the underlying stock (or any such other security) is listed,
- (ii) if the underlying stock (or any such other security) is a security of the Nasdaq, the official closing price published by the Nasdaq on such day, or
- (iii) if the underlying stock (or any such other security) is not listed on any national securities exchange but is included in the OTC Bulletin Board Service (the “OTC Bulletin Board”) operated by the Financial Industry Regulatory Authority, Inc. (“FINRA”), the last reported sale price of the principal trading session on the OTC Bulletin Board on that day.

Closing Price:

If the underlying stock (or any such other security) is listed on any national securities exchange but the last reported sale price or the official closing price published by the Nasdaq, as applicable, is not available under the preceding sentence, then the closing price for one share of the underlying stock (or one unit of any such other security) on any trading day will mean the last reported sale price of the principal trading session on the over-the-counter market as reported on the Nasdaq or the OTC Bulletin Board on that day. If a market disruption event (as defined below) occurs with respect to the underlying stock (or any such other security) or the last reported sale price or the official closing price published by the Nasdaq, as applicable, for the underlying stock (or any such other security) is not available under either of the two preceding sentences, then the closing price for any trading day will be the mean, as determined by the calculation agent, of the bid prices for the underlying stock (or any such other security) for that trading day obtained from as many recognized dealers in that security, but not exceeding three, as will make such bid prices available to the calculation agent. Bids of RBCCM and its successors or any of its affiliates may be included in the calculation of that mean, but only to the extent that any such bid is the highest of the bids obtained. If no bid prices are provided from any third party dealers, the closing price will be determined by the calculation agent in its sole and absolute discretion (acting in good faith) taking into account any information that it deems relevant. The term “OTC Bulletin Board Service” will include any successor service.

Record date:

The record date for each contingent payment date shall be the date one business day prior to such scheduled contingent payment date; provided, however, that any contingent monthly coupon payable at maturity or upon redemption shall be payable to the person to whom the payment at maturity or early redemption payment, as the case may be, shall be payable.

Postponement
of
determination
dates:

In the calculation of the determination closing prices and the final share price, the calculation agent will take into account market disruption events and non-trading days as follows:
If any scheduled determination date is not a trading day or if there is a market disruption event on that date, the determination date shall be the next succeeding trading day on which there is no market disruption event; provided that if a market disruption event has occurred on each of the five consecutive trading days immediately succeeding the scheduled determination date, then (i) that fifth succeeding trading day will be deemed to be the relevant determination date notwithstanding the occurrence of a market disruption event on that date and (ii) with respect to any that fifth

trading day on which a market disruption event occurs, the calculation agent will determine the determination closing price or the final share price, as applicable, of the underlying stock on that fifth trading day based on the mean of the bid prices for the underlying stock for that date obtained from as many recognized dealers in that security, but not exceeding three, as will make such bid prices available to the calculation agent. Bids of RBCCM or any of its affiliates may be included in the calculation of the mean, but only to the extent that any such bid is the highest of the bids obtained. If no bid prices are provided from any third party dealers, the closing price or the final share price, as applicable, will be determined by the calculation agent in its sole and absolute discretion (acting in good faith) taking into account any information that it deems relevant.

Postponement of maturity If the scheduled final determination date is not a trading day or if a market disruption event occurs on

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date: that day so that the final determination date is postponed and falls less than two business days prior to the scheduled maturity date, the maturity date will be postponed to the second business day following that final determination date as postponed.

Trading day: "Trading day" means a day, as determined by the calculation agent, on which trading is generally conducted on the New York Stock Exchange, Nasdaq, the Chicago Mercantile Exchange and the Chicago Board of Options Exchange and in the over-the-counter market for equity securities in the United States.

"Market disruption event" means:

(a) a suspension, absence or material limitation of trading of the underlying stock on its primary market for more than two hours of trading or during the one-half hour period preceding the close of the principal trading session in that market; or a breakdown or failure in the price and trade reporting systems of the primary market for the underlying stock as a result of which the reported trading prices for the underlying stock during the last one-half hour preceding the close of the principal trading session in that market are materially inaccurate; or the suspension, absence or material limitation of trading on the primary market for trading in options contracts related to the underlying stock, if available, during the one-half hour period preceding the close of the principal trading session in the applicable market, in each case as determined by the calculation agent in its sole discretion; and

Market disruption events: (b) a determination by the calculation agent in its sole discretion that any event described in clauses (a) above materially interfered with our ability or the ability of any of our affiliates to unwind or adjust all or a material portion of the hedge position with respect to the securities.

For the purpose of determining whether a market disruption event has occurred: (1) a limitation on the hours or number of days of trading will not constitute a market disruption event if it results from an announced change in the regular business hours of the primary market, (2) a decision to permanently discontinue trading in the relevant options contract will not constitute a market disruption event, (3) a suspension of trading in options contracts on the underlying stock by the primary securities market trading in such contracts by reason of (i) a price change exceeding limits set by that securities exchange or market, (ii) an imbalance of orders relating to such contracts or (iii) a disparity in bid and ask quotes relating to those contracts will constitute a suspension, absence or material limitation of trading in options contracts related to the underlying stock and (4) a suspension, absence or material limitation of trading on the primary securities market on which options contracts related to the underlying stock are traded will not include any time when that securities market is itself closed for trading under ordinary circumstances.

Antidilution adjustments: 1. If the underlying stock is subject to a stock split or reverse stock split, then once the split has become effective, the adjustment factor will be adjusted to equal the product of the prior adjustment factor and the number of shares issued in the stock split or reverse stock split with respect to one share of the underlying stock.

2. If the underlying stock is subject (i) to a stock dividend (issuance of additional shares of underlying stock) that is given ratably to all holders of the underlying stock or (ii) to a distribution of shares of the underlying stock as a result of the triggering of any provision of the corporate charter of the underlying company, then once the dividend has become effective and the underlying stock is trading ex-dividend, the adjustment factor will be adjusted so that the new adjustment factor shall equal the prior adjustment factor plus the product of (i) the number of shares issued with respect to one share of the underlying stock and (ii) the prior adjustment factor.

3. If the underlying company issues rights or warrants to all holders of the underlying stock to subscribe for or purchase the underlying stock at an exercise price per share less than the closing

price of the underlying stock on both (i) the date the exercise price of the rights or warrants is determined and (ii) the expiration date of the rights or warrants, and if the expiration date of the rights or warrants precedes the maturity date of the securities, then the adjustment factor will be adjusted to equal the product of the prior adjustment factor and a fraction, the numerator of which shall be the number of shares of the underlying stock outstanding immediately prior to the issuance of the rights or warrants plus the number of additional shares of the underlying stock offered for subscription or purchase under the rights or warrants and the denominator of which shall be the number of shares of the underlying stock outstanding immediately prior to the issuance of the rights or warrants plus the number of additional shares of the underlying stock which the aggregate offering price of the total number of shares of the underlying stock so offered for subscription or purchase under the rights or warrants would purchase at the closing price on the expiration date of the rights or warrants, which will be determined by multiplying the total number of shares offered by the exercise price of the rights or warrants and dividing the

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product so obtained by the closing price.

4. There will be no adjustments to the adjustment factor to reflect cash dividends or other distributions paid with respect to the underlying stock other than distributions described in paragraph 2, paragraph 3 and clauses (i), (iv) and (v) of paragraph 5 below and “Extraordinary Dividends” as described below. A cash dividend or other distribution with respect to the underlying stock will be deemed to be an “Extraordinary Dividend” if that cash dividend or distribution exceeds the immediately preceding non-Extraordinary Dividend for the underlying stock by an amount equal to at least 10% of the closing price of the underlying stock (as adjusted for any subsequent corporate event requiring an adjustment hereunder, such as a stock split or reverse stock split) on the trading day preceding the ex-dividend date (that is, the day on and after which transactions in the underlying stock on the primary U.S. organized securities exchange or trading system on which the underlying stock is traded no longer carry the right to receive that cash dividend or that cash distribution) for the payment of the Extraordinary Dividend. If an Extraordinary Dividend occurs with respect to the underlying stock, the adjustment factor with respect to the underlying stock will be adjusted on the ex-dividend date with respect to such Extraordinary Dividend so that the new adjustment factor will equal the product of (i) the then current adjustment factor and (ii) a fraction, the numerator of which is the closing price on the trading day preceding the ex-dividend date, and the denominator of which is the amount by which the closing price on the trading day preceding the ex-dividend date exceeds the Extraordinary Dividend Amount. The “Extraordinary Dividend Amount” with respect to an Extraordinary Dividend for the underlying stock will equal (i) in the case of cash dividends or other distributions that constitute regular dividends, the amount per share of such Extraordinary Dividend minus the amount per share of the immediately preceding non-Extraordinary Dividend for the underlying stock or (ii) in the case of cash dividends or other distributions that do not constitute regular dividends, the amount per share of the Extraordinary Dividend. To the extent an Extraordinary Dividend is not paid in cash, the value of the non-cash component will be determined by the calculation agent, whose determination will be conclusive. A distribution on the underlying stock described in clause (i), (iv) or (v) of paragraph 5 below that also constitutes an Extraordinary Dividend will cause an adjustment to the adjustment factor only under clause (i), (iv) or (v) of paragraph 5, as applicable.

5. If (i) there occurs any reclassification or change of the underlying stock, including, without limitation, as a result of the issuance of any tracking stock or similar security by the underlying stock issuer, (ii) the underlying stock issuer or any surviving entity or subsequent surviving entity of the underlying stock issuer (the “successor corporation”) has been subject to a merger, combination or consolidation and is not the surviving entity, (iii) any statutory exchange of securities of the underlying stock issuer or any successor corporation with another corporation occurs (other than under clause (ii) above), (iv) the underlying stock issuer is liquidated, (v) the underlying stock issuer issues to all of its shareholders equity securities of an issuer other than the underlying stock issuer (other than in a transaction described in clause (ii), (iii) or (iv) above) (a “spin-off event”) or (vi) a tender or exchange offer or going-private transaction is consummated for all the outstanding shares of the underlying stock (any event in clauses (i) through (vi), a “reorganization event”), the method of determining whether an early redemption has occurred and the amount payable upon an early redemption date or at maturity for each security will be as follows:

- Upon any determination date following the effective date of a reorganization event and prior to the final determination date: if the exchange property value (as defined below) is greater than or equal to the redemption threshold level, the securities will be automatically redeemed for the early redemption payment.

- Upon the final determination date, if the securities have not previously been automatically redeemed: You will receive for each security that you hold a payment at maturity equal to:

- Ø If the exchange property value on the final determination date is greater than or equal to the downside threshold level: (i) the stated principal amount plus (ii) the contingent monthly coupon with respect to the final determination date.

- Ø If the exchange property value on the final determination date is less than the downside threshold level: (i)

the stated principal amount multiplied by (ii) the share performance factor. For purposes of calculating the share performance factor, the “final share price” will be deemed to equal the exchange property value on the final determination date.

Following the effective date of a reorganization event, the contingent monthly coupon will be payable for each determination date on which the exchange property value is greater than or equal to the downside threshold level. In the event exchange property consists of securities, those securities will, in turn, be subject to the antidilution adjustments set forth in paragraphs 1 through 5.

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For purposes of determining whether or not the exchange property value is less than the redemption threshold level or less than the downside threshold level, “exchange property value” means (x) for any cash received in any reorganization event, the value, as determined by the calculation agent, as of the date of receipt, of the cash received for one share of the underlying stock, as adjusted by the adjustment factor at the time of such reorganization event, (y) for any property other than cash or securities received in any such reorganization event, the market value, as determined by the calculation agent in its sole discretion, as of the date of receipt, of the exchange property received for one share of the underlying stock, as adjusted by the adjustment factor at the time of the reorganization event and (z) for any security received in any such reorganization event, an amount equal to the closing price, as of the day on which the exchange property value is determined, per share of the security multiplied by the quantity of the security received for each share of the underlying stock, as adjusted by the adjustment factor at the time of such reorganization event.

For purposes of paragraph 5 above, in the case of a consummated tender or exchange offer or going-private transaction involving consideration of particular types, exchange property shall be deemed to include the amount of cash or other property delivered by the offeror in the tender or exchange offer (in an amount determined on the basis of the rate of exchange in the tender or exchange offer or going-private transaction). In the event of a tender or exchange offer or a going-private transaction with respect to exchange property in which an offeree may elect to receive cash or other property, exchange property will be deemed to include the kind and amount of cash and other property received by offerees who elect to receive cash.

Following the occurrence of any reorganization event referred to in paragraph 5 above, all references in this document with respect to the securities to “the underlying stock” shall be deemed to refer to the exchange property and references to a “share” or “shares” of the underlying stock shall be deemed to refer to the applicable unit or units of the exchange property, unless the context otherwise requires.

No adjustment to the adjustment factor will be required unless such adjustment would require a change of at least 0.1% in the adjustment factor then in effect. The adjustment factor resulting from any of the adjustments specified above will be rounded to the nearest one hundred-thousandth, with five one-millionths rounded upward. Adjustments to the adjustment factor will be made up to the close of business on the final determination date.

No adjustments to the adjustment factor or method of calculating the adjustment factor will be required other than those specified above. The adjustments specified above do not cover all events that could affect the determination closing price or the final share price of the underlying stock, including, without limitation, a partial tender or exchange offer for the underlying stock.

The calculation agent will be solely responsible for the determination and calculation of any adjustments to the adjustment factor or method of calculating the adjustment factor and of any related determinations and calculations with respect to any distributions of stock, other securities or other property or assets (including cash) in connection with any corporate event described in this section, and its determinations and calculations will be conclusive in the absence of manifest error.

The calculation agent will provide information as to any adjustments to the adjustment factor or to the method of calculating the amount payable at maturity of the securities made under paragraph 5 above upon written request by any investor in the securities.

Alternate
exchange
calculation
in the case
of

In case an event of default with respect to the securities shall have occurred and be continuing, the amount of cash declared due and payable per security upon any acceleration of the securities (the “Acceleration Amount”) shall be determined by the calculation agent and will be an amount of cash equal to the payment at maturity calculated as if the date of acceleration were the final determination date; provided that the unpaid portion of the contingent monthly coupon, if any, will be calculated on a 30/360 basis.

an event of default: If the maturity of the securities is accelerated because of an event of default as described above, we will, or will cause the calculation agent to, provide written notice to the trustee at its New York office, on which notice the trustee may conclusively rely, and to DTC of the Acceleration Amount and the aggregate cash amount due with respect to the securities as promptly as possible and in no event later than two business days after the date of acceleration.

Listing: The securities will not be listed on any securities exchange.

Minimum
ticketing size: \$1,000 / 100 securities

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Trustee: The Bank of New York Mellon

Calculation agent: RBCCM. The calculation agent will make all determinations regarding the securities. Absent manifest error, all determinations of the calculation agent will be final and binding on you and us, without any liability on the part of the calculation agent. You will not be entitled to any compensation from us for any loss suffered as a result of any of the above determinations or confirmations by the calculation agent.

Additional amounts: We will pay any amounts to be paid by us on the securities without deduction or withholding for, or on account of, any and all present or future income, stamp and other taxes, levies, imposts, duties, charges, fees, deductions or withholdings (taxes) now or hereafter imposed, levied, collected, withheld or assessed by or on behalf of Canada or any Canadian political subdivision or authority that has the power to tax, unless the deduction or withholding is required by law or by the interpretation or administration thereof by the relevant governmental authority. At any time a Canadian taxing jurisdiction requires us to deduct or withhold for or on account of taxes from any payment made under or in respect of the securities, we will pay such additional amounts ("Additional Amounts") as may be necessary so that the net amounts received by each holder (including Additional Amounts), after such deduction or withholding, shall not be less than the amount the holder would have received had no such deduction or withholding been required.

However, no Additional Amounts will be payable with respect to a payment made to a holder of a security or of a right to receive payments in respect thereto (a "Payment Recipient"), which we refer to as an "Excluded Holder," in respect of a beneficial owner or Payment Recipient:

- (i) with whom we do not deal at arm's length (within the meaning of the Income Tax Act (Canada)) at the time of making such payment;
- (ii) who is subject to such taxes by reason of the holder being connected presently or formerly with Canada or any province or territory thereof otherwise than by reason of the holder's activity in connection with purchasing the securities, the holding of securities or the receipt of payments thereunder;
- (iii) who is, or who does not deal at arm's length with a person who is, a "specified shareholder" (within the meaning of subsection 18(5) of the Income Tax Act (Canada)) of Royal Bank of Canada (generally a person will be a "specified shareholder" for this purpose if that person, either alone or together with persons with whom the person does not deal at arm's length, owns 25% or more of (a) our voting shares, or (b) the fair market value of all of our issued and outstanding shares);
- (iv) who presents such security for payment (where presentation is required, such as if a security is issued in definitive form) more than 30 days after the relevant date; for this purpose, the "relevant date" in relation to any payments on any security means:
 - a. the due date for payment thereof (whether at maturity or upon an earlier acceleration), or
 - b. if the full amount of the monies payable on such date has not been received by the Trustee on or prior to such due date, the date on which the full amount of such monies has been received and notice to that effect is given to holders of the securities in accordance with the Indenture;
- (v) who could lawfully avoid (but has not so avoided) such withholding or deduction by complying or requiring that any agent comply with, any statutory requirements necessary to establish qualification for an exemption from withholding or by making, or requiring that any agent make, a declaration of non-residence or other similar claim for exemption to any relevant tax authority; or
- (vi) who is subject to deduction or withholding on account of any tax, assessment, or other governmental charge that is imposed or withheld by reason of the application of Section 1471 through 1474 of the United States Internal Revenue Code of 1986, as amended (the "Code") (or any successor provisions), any regulation, pronouncement, or agreement thereunder, official interpretations thereof, or any law implementing an intergovernmental approach thereto, whether currently in effect or as

published and amended from time to time.

For the purposes of clause (iv) above, if a security is presented for payment more than 30 days after the relevant date, we shall only be required to pay such Additional Amounts as shall have accrued as of such 30th day, and no further Additional Amounts shall accrue or become payable after such date. For the avoidance of doubt, we will not have any obligation to pay any holders Additional Amounts on any tax which is payable otherwise than by deduction or withholding from payments made under or in respect of the securities.

We will also make such withholding or deduction and remit the full amount deducted or withheld to the

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relevant authority in accordance with applicable law. We will furnish to the Trustee, within 30 days after the date the payment of any taxes is due pursuant to applicable law, certified copies of tax receipts evidencing that such payment has been made or other evidence of such payment satisfactory to the Trustee. We will indemnify and hold harmless each holder of securities (other than an Excluded Holder) and upon written request reimburse each such holder for the amount of (x) any taxes so levied or imposed and paid by such holder as a result of payments made under or with respect to the securities, and (y) any taxes levied or imposed and paid by such holder with respect to any reimbursement under (x) above, but excluding any such taxes on such holder's net income or capital.

Canadian tax consequences: An investor should read carefully the description of material Canadian federal income tax considerations relevant to a Non-resident Holder owning debt securities under "Tax Consequences—Canadian Taxation" in the accompanying prospectus.

U.S. tax considerations: The following is a general description of the material U.S. tax considerations relating to the securities. It does not purport to be a complete analysis of all tax considerations relating to the securities. Prospective purchasers of the securities should consult their tax advisors as to the consequences under the tax laws of the country of which they are resident for tax purposes and the tax laws of the U.S. of acquiring, holding and disposing of the securities and receiving payments under the securities. This summary is based upon the law as in effect on the date of this document and is subject to any change in law that may take effect after such date. The following section supplements the discussion of U.S. federal income taxation in the accompanying prospectus and prospectus supplement. It applies only to those holders who are not excluded from the discussion of U.S. federal income taxation in the accompanying prospectus. This discussion applies only to U.S. holders and non-U.S. holders that will purchase the securities upon original issuance and will hold the securities as capital assets for U.S. federal income tax purposes. In addition, the discussion below assumes that an investor in the securities will be subject to a significant risk that it will lose a significant amount of its investment in the securities. You should consult your tax advisor concerning the U.S. federal income tax and other tax consequences of your investment in the securities in your particular circumstances, including the application of state, local or other tax laws and the possible effects of changes in federal or other tax laws.

NO STATUTORY, JUDICIAL OR ADMINISTRATIVE AUTHORITY DIRECTLY DISCUSSES HOW THE SECURITIES SHOULD BE TREATED FOR U.S. FEDERAL INCOME TAX PURPOSES. AS A RESULT, THE U.S. FEDERAL INCOME TAX CONSEQUENCES OF AN INVESTMENT IN THE SECURITIES ARE UNCERTAIN. BECAUSE OF THE UNCERTAINTY, YOU SHOULD CONSULT YOUR TAX ADVISOR IN DETERMINING THE U.S. FEDERAL INCOME TAX AND OTHER TAX CONSEQUENCES OF YOUR INVESTMENT IN THE SECURITIES, INCLUDING THE APPLICATION OF STATE, LOCAL OR OTHER TAX LAWS AND THE POSSIBLE EFFECTS OF CHANGES IN FEDERAL OR OTHER TAX LAWS.

We will not attempt to ascertain whether the underlying company would be treated as a "U.S. real property holding corporation," within the meaning of Section 897 of the Code. If the underlying company were so treated, certain adverse U.S. federal income tax consequences could possibly apply to a non-U.S. holder. You should refer to any available information filed with the SEC and other authorities by the underlying company and consult your tax advisor regarding the possible consequences to you in this regard.

In the opinion of our counsel, Morrison & Foerster LLP, it would generally be reasonable to treat a security with terms described in this document as a callable pre-paid cash-settled contingent

income-bearing derivative contract linked to the underlying stock for U.S. federal income tax purposes, and the terms of the securities require a holder and us (in the absence of a change in law or an administrative or judicial ruling to the contrary) to treat the securities for all tax purposes in accordance with such characterization. Although the U.S. federal income tax treatment of the contingent monthly coupon is uncertain, we intend to take the position, and the following discussion assumes, that such contingent monthly coupon (including any contingent monthly coupon paid on or with respect to the call or maturity date) constitutes taxable ordinary income to a U.S. holder at the time received or accrued in accordance with the holder's regular method of tax accounting. If the securities are so treated, a U.S. holder should generally recognize capital gain or loss upon the call, sale or maturity of the securities in an amount equal to the difference between the cash amount a holder receives at such time (other than amounts properly attributable to any contingent monthly coupon, which would be taxed, as described above, as ordinary income) and the holder's tax basis in the securities. In general, a U.S. holder's tax basis in the securities will be equal to the price the holder paid for the securities. Capital gain

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recognized by an individual U.S. holder is generally taxed at ordinary income rates where the property is held for one year or less. The ordinary income treatment of the contingent monthly coupons, in conjunction with the capital loss treatment of any loss recognized upon the sale, exchange or maturity of the securities, could result in adverse tax consequences to a holder because the deductibility of capital losses is subject to limitations.

Alternative Treatments. Alternative tax treatments of the securities are also possible and the Internal Revenue Service might assert that a treatment other than that described above is more appropriate. For example, it is possible to treat the securities, and the Internal Revenue Service might assert that the securities should be treated, as a single debt instrument. Pursuant to such characterization, the securities would generally be subject to the rules concerning short-term debt instruments as described under the heading "Tax Consequences --- United States Taxation --- Original Issue Discount --- Short-Term Debt Securities" in the accompanying prospectus.

Because of the absence of authority regarding the appropriate tax characterization of the securities, it is also possible that the Internal Revenue Service could seek to characterize the securities in a manner that results in other tax consequences that are different from those described above. For example, the Internal Revenue Service could possibly assert that any gain or loss that a holder may recognize upon the call, sale or maturity of the securities should be treated as ordinary gain or loss.

The Internal Revenue Service has released a notice that may affect the taxation of holders of the securities. According to the notice, the Internal Revenue Service and the U.S. Treasury Department are actively considering whether the holder of an instrument such as the securities should be required to accrue ordinary income on a current basis irrespective of any contingent monthly coupons. It is not possible to determine what guidance they will ultimately issue, if any. It is possible, however, that under such guidance, holders of the securities will ultimately be required to accrue income currently irrespective of any contingent monthly coupons and this could be applied on a retroactive basis. The Internal Revenue Service and the U.S. Treasury Department are also considering other relevant issues, including whether additional gain or loss from such instruments should be treated as ordinary or capital and whether the special "constructive ownership rules" of Section 1260 of the Code, which very generally can operate to recharacterize certain long-term capital gains as ordinary income and impose an interest charge, might be applied to such instruments. Holders are urged to consult their tax advisors concerning the significance, and the potential impact, of the above considerations. We intend to treat the securities for U.S. federal income tax purposes in accordance with the treatment described in this document unless and until such time as the U.S. Treasury Department and Internal Revenue Service determine that some other treatment is more appropriate.

Backup Withholding and Information Reporting. Payments made with respect to the securities and proceeds from the sale or exchange of the securities may be subject to a backup withholding tax unless, in general, the holder complies with certain procedures or is an exempt recipient. Any amounts so withheld generally will be refunded by the Internal Revenue Service or allowed as a credit against the holder's U.S. federal income tax liability, provided the holder makes a timely filing of an appropriate tax return or refund claim to the Internal Revenue Service.

Reports will be made to the Internal Revenue Service and to holders that are not exempted from the reporting requirements.

Non-U.S. holders. The following discussion applies to non-U.S. holders of the securities. A non-U.S. holder is a beneficial owner of a security that, for U.S. federal income tax purposes, is a non-resident alien individual, a foreign corporation, or a foreign estate or trust.

While the U.S. federal income tax treatment of the securities (including proper characterization of the contingent monthly coupons for U.S. federal income tax purposes) is uncertain, U.S. federal income tax at a 30% rate (or at a lower rate under an applicable income tax treaty) will be withheld in respect of the contingent monthly coupons paid to a non-U.S. holder unless such payments are effectively connected with the conduct by the non-U.S. holder of a trade or business in the U.S. (in which case, to avoid withholding, the non-U.S. holder will be required to provide a Form W-8ECI). We will not pay any additional amounts in respect of such withholding. To

claim benefits under an income tax treaty, a non-U.S. holder must obtain a taxpayer identification number and certify as to its eligibility under the appropriate treaty's limitations on benefits article, if applicable (which certification may generally be made on a Form W-8BEN or W-8BEN-E, or a substitute or successor form). In addition, special rules may apply to claims for treaty benefits made by corporate non-U.S. holders. A non-U.S. holder that is eligible for a reduced rate of U.S. federal withholding tax pursuant to an income tax treaty may obtain a refund of any excess amounts withheld by filing an appropriate claim for refund with the Internal Revenue Service. The availability of a lower rate of withholding or an exemption from withholding under an applicable income tax treaty will depend on the proper characterization of the contingent monthly coupons under U.S. federal income tax laws and whether such treaty rate or exemption applies

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to such contingent monthly coupon payments. No assurance can be provided on the proper characterization of the contingent monthly coupons for U.S. federal income tax purposes and, accordingly, no assurance can be provided on the availability of benefits under any income tax treaty. Non-U.S. holders should consult their tax advisors in this regard.

Except as discussed below, a non-U.S. holder will generally not be subject to U.S. federal income or withholding tax on any gain (not including, for the avoidance of doubt, any amounts properly attributable to any contingent monthly coupon which would be subject to the rules discussed in the previous paragraph) upon the call, sale or maturity of the securities, provided that (i) the holder complies with any applicable certification requirements (which certification may generally be made on a Form W-8BEN or W-8BEN-E, or a substitute or successor form), (ii) the payment is not effectively connected with the conduct by the holder of a U.S. trade or business, and (iii) if the holder is a non-resident alien individual, such holder is not present in the U.S. for 183 days or more during the taxable year of the call, sale or maturity of the securities. In the case of (ii) above, the holder generally would be subject to U.S. federal income tax with respect to any income or gain in the same manner as if the holder were a U.S. holder and, in the case of a holder that is a corporation, the holder may also be subject to a branch profits tax equal to 30% (or such lower rate provided by an applicable U.S. income tax treaty) of a portion of its earnings and profits for the taxable year that are effectively connected with its conduct of a trade or business in the U.S., subject to certain adjustments. Payments made to a non-U.S. holder may be subject to information reporting and to backup withholding unless the holder complies with applicable certification and identification requirements as to its foreign status.

Under Section 871(m) of the Code, a “dividend equivalent” payment is treated as a dividend from sources within the United States. Such payments generally would be subject to a 30% U.S. withholding tax if paid to a non-U.S. holder. Under U.S. Treasury Department regulations, payments (including deemed payments) with respect to equity-linked instruments (“ELIs”) that are “specified ELIs” may be treated as dividend equivalents if such specified ELIs reference an interest in an “underlying security,” which is generally any interest in an entity taxable as a corporation for U.S. federal income tax purposes if a payment with respect to such interest could give rise to a U.S. source dividend. However, the IRS has issued guidance that states that the U.S. Treasury Department and the IRS intend to amend the effective dates of the U.S. Treasury Department regulations to provide that withholding on dividend equivalent payments will not apply to specified ELIs that are not delta-one instruments and that are issued before January 1, 2019. Based on our determination that the securities are not delta-one instruments, non-U.S. holders should not be subject to withholding on dividend equivalent payments, if any, under the securities. However, it is possible that the securities could be treated as deemed reissued for U.S. federal income tax purposes upon the occurrence of certain events affecting the underlying stock or the securities, and following such occurrence the securities could be treated as subject to withholding on dividend equivalent payments. Non-U.S. holders that enter, or have entered, into other transactions in respect of the underlying stock or the securities should consult their tax advisors as to the application of the dividend equivalent withholding tax in the context of the securities and their other transactions. If any payments are treated as dividend equivalents subject to withholding, we (or the applicable withholding agent) would be entitled to withhold taxes without being required to pay any additional amounts with respect to amounts so withheld.

As discussed above, alternative characterizations of the securities for U.S. federal income tax purposes are possible. Should an alternative characterization, by reason of change or clarification of the law, by regulation or otherwise, cause payments as to the securities to become subject to withholding tax in addition to the withholding tax described above, we will withhold tax at the applicable statutory rate. The Internal Revenue Service has also indicated that it is considering whether income in respect of instruments such as the securities should be subject to withholding tax. Prospective investors should consult their own tax advisors in this regard.

Foreign Account Tax Compliance Act. The Foreign Account Tax Compliance Act (“FATCA”), enacted on March 18, 2010, imposes a 30% U.S. withholding tax on certain U.S. source payments of interest (and OID), dividends, or other fixed or determinable annual or periodical gain, profits, and income, and on the gross proceeds from a

disposition of property (including payments at maturity, or upon a redemption or sale) of a type which can produce U.S. source interest or dividends (“withholdable payments”), if paid to a foreign financial institution (including amounts paid to a foreign financial institution on your behalf) unless such institution enters into an agreement with the U.S. Treasury Department to collect and provide to the U.S. Treasury Department certain information regarding U.S. account holders, including certain account holders that are foreign entities with U.S. owners, with such institution or otherwise complies with FATCA. In addition, the securities may constitute a “financial account” for these purposes and thus, be subject to information reporting requirements pursuant to FATCA. The legislation also generally imposes a withholding tax of 30% on withholdable payments made to a non-financial foreign entity, unless that entity provides the withholding agent with a certification that it does not have any substantial U.S. owners or a certification identifying the direct and

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indirect substantial U.S. owners of the entity.

The U.S. Treasury Department and the Internal Revenue Service have announced that withholding on payments of gross proceeds from a sale, exchange or redemption of the securities will only apply to payments made after December 31, 2018. We will not pay additional amounts with respect to any FATCA withholding. Therefore, if such withholding applies, any payments on the securities will be significantly less than what you would have otherwise received. Depending on your circumstances, these amounts withheld may be creditable or refundable to you. Foreign financial institutions and non-financial foreign entities located in jurisdictions that have an intergovernmental agreement with the United States governing FATCA may be subject to different rules. You are urged to consult with your own tax advisor regarding the possible implications of FATCA on your investment in the securities.

Use of proceeds and hedging:

The net proceeds from the sale of the securities will be used as described under “Use of Proceeds” in the accompanying prospectus supplement and prospectus and to hedge market risks of Royal Bank of Canada associated with its obligation to make a payment at maturity of the securities. The initial public offering price of the securities includes the underwriting discount and commission and the estimated cost of hedging our obligations under the securities.

Employee Retirement Income Security Act:

This section is only relevant to you if you are an insurance company or the fiduciary of a pension plan or an employee benefit plan (including a governmental plan, an IRA or a Keogh Plan) proposing to invest in the securities.

The Employee Retirement Income Security Act of 1974, as amended (“ERISA”), imposes certain requirements on “employee benefit plans” (as defined in Section 3(3) of ERISA) subject to ERISA, including entities such as collective investment funds and separate accounts whose underlying assets include the assets of such plans (collectively, “ERISA Plans”) and on those persons who are fiduciaries with respect to ERISA Plans. Each fiduciary of an ERISA Plan should consider the fiduciary standards of ERISA in the context of the ERISA Plan’s particular circumstances before authorizing an investment in the securities. Accordingly, among other factors, the fiduciary should consider whether the investment would satisfy the prudence and diversification requirements of ERISA and would be consistent with the documents and instruments governing the ERISA Plan.

In addition, Section 406 of ERISA and Section 4975 of the Code prohibit certain transactions involving the assets of an ERISA Plan, as well as those plans that are not subject to ERISA but which are subject to Section 4975 of the Code, such as individual retirement accounts, including entities whose underlying assets include the assets of such plans (together with ERISA Plans, “Plans”) and certain persons (referred to as “parties in interest” or “disqualified persons”) having certain relationships to such Plans, unless a statutory or administrative exemption is applicable to the transaction. Governmental plans may be subject to similar prohibitions. Therefore, a plan fiduciary considering purchasing securities should consider whether the purchase or holding of such instruments might constitute a “prohibited transaction.”

Royal Bank of Canada and certain of its affiliates each may be considered a “party in interest” or a “disqualified person” with respect to many employee benefit plans by reason of, for example, Royal Bank of Canada (or its affiliate) providing services to such plans. Prohibited transactions within the meaning of ERISA or the Code may arise, for example, if securities are acquired by or with the assets of a Plan, and with respect to which Royal Bank of Canada or any of its affiliates is a “party in interest” or a “disqualified person,” unless those securities are acquired under an exemption for transactions effected on behalf of that Plan by a “qualified professional asset manager” or an “in-house asset manager”, for transactions involving insurance company general accounts, for transactions involving insurance company pooled separate accounts, for transactions involving bank collective investment funds, or under another available exemption. Section 408(b) (17) provides an additional exemption for the

purchase and sale of securities and related lending transactions where neither the issuer of the securities nor any of its affiliates have or exercise any discretionary authority or control or render any investment advice with respect to the assets of any Plan involved in the transaction and the Plan pays no more than “adequate consideration” in connection with the transaction. The person making the decision on behalf of a Plan or a governmental plan shall be deemed, on behalf of itself and any such plan, by purchasing and holding the securities, or exercising any rights related thereto, to represent that (a) such purchase, holding and exercise of the securities will not result in a non-exempt prohibited transaction under ERISA or the Code (or, with respect to a governmental plan, under any similar applicable law or regulation) and (b) neither Royal Bank of Canada nor any of its affiliates is a “fiduciary” (within the meaning of Section 3(21) of ERISA) with respect to the purchaser or holder in connection with such person’s acquisition, disposition or holding of the securities, or any exercise related thereto or as a result of any exercise by Royal Bank of Canada or any of its

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affiliates of any rights in connection with the securities, and no advice provided by Royal Bank of Canada or any of its affiliates has formed a primary basis for any investment decision by or on behalf of such purchaser or holder in connection with the securities and the transactions contemplated with respect to the securities.

If you are an insurance company or the fiduciary of a pension plan or an employee benefit plan, and propose to invest in the securities, you should consult your legal counsel.

Supplemental information regarding plan of distribution; conflicts of interest:

Under the terms of a distribution agreement, RBCCM, an affiliate of Royal Bank of Canada, will purchase the securities from Royal Bank of Canada for distribution to MSWM. RBCCM will act as agent for the securities and will receive a fee of \$0.125 per \$10 stated principal amount and will pay to MSWM a fixed sales commission of \$0.075 for each of the securities they sell. Of the amount per \$10 stated principal amount received by RBCCM, RBCCM will pay MSWM a structuring fee of \$0.05 for each security.

MSWM may reclaim selling concessions allowed to individual brokers within MSWM in connection with the offering if, within 30 days of the offering, Royal Bank of Canada repurchases the securities distributed by those brokers.

Delivery of the securities will be made against payment for the securities on January 30, 2018, which is the third business day following the pricing date (this settlement cycle being referred to as "T+3"). Under Rule 15c6-1 of the Exchange Act, trades in the secondary market generally are required to settle in two business days, unless the securities parties to any such trade expressly agree otherwise. Accordingly, purchasers who wish to trade the securities more than two business days prior to the original issue date will be required to specify alternative settlement arrangements to prevent a failed settlement.

In addition, RBCCM or another of its affiliates or agents may use this document in market-making transactions after the initial sale of the securities, but is under no obligation to do so and may discontinue any market-making activities at any time without notice.

The value of the securities shown on your account statement may be based on RBCCM's estimate of the value of the securities if RBCCM or another of our affiliates were to make a market in the securities (which it is not obligated to do). That estimate will be based on the price that RBCCM may pay for the securities in light of then prevailing market conditions, our creditworthiness and transaction costs. For an initial period of approximately three months, the value of the securities that may be shown on your account statement is expected to be higher than RBCCM's estimated value of the securities at that time. This is because the estimated value of the securities will not include the agent's commission and our hedging costs and profits; however, the value of the securities shown on your account statement during that period is initially expected to be a higher amount, reflecting the addition of the agent's commission and our estimated costs and profits from hedging the securities. This excess is expected to decrease over time until the end of this period, and we reserve the right to shorten this period. After this period, if RBCCM repurchases your securities, it expects to do so at prices that reflect its estimated value.

No Prospectus (as defined in Directive 2003/71/EC (as amended, the "Prospectus Directive")) will be prepared in connection with the securities. Accordingly, the securities may not be offered to the public in any member state of the European Economic Area (the "EEA"), and any purchaser of the securities who subsequently sells any of the securities in any EEA member state must do so only in accordance with the requirements of the Prospectus Directive, as implemented in that member state. The securities are not intended to be offered, sold or otherwise made available to, and should not be offered, sold or otherwise made available to, any retail investor in the EEA. For these purposes, the expression "offer" includes the communication in any form and by any means of sufficient information on the terms of the offer and the securities to be offered so as to enable an investor to

decide to purchase or subscribe the securities, and a “retail investor” means a person who is one (or more) of: (a) a retail client, as defined in point (11) of Article 4(1) of Directive 2014/65/EU (as amended, “MiFID II”); or (b) a customer, within the meaning of Insurance Distribution Directive 2016/97/EU, as amended, where that customer would not qualify as a professional client as defined in point (10) of Article 4(1) of MiFID II; or (c) not a qualified investor as defined in the Prospectus Directive. Consequently, no key information document required by Regulation (EU) No 1286/2014 (as amended, the “PRIIPs Regulation”) for offering or selling the securities or otherwise making them available to retail investors in the EEA has been prepared, and therefore, offering or selling the securities or otherwise making them available to any retail investor in the EEA may be unlawful under the PRIIPs Regulation.

For additional information as to the relationship between us and RBCCM, please see the section “Plan of Distribution—Conflicts of Interest” in the accompanying prospectus.

Structuring the securities: The securities are our debt securities, the return on which is linked to the performance of the underlying

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stock. As is the case for all of our debt securities, including our structured notes, the economic terms of the securities reflect our actual or perceived creditworthiness at the time of pricing. In addition, because structured notes result in increased operational, funding and liability management costs to us, we typically borrow the funds under these securities at a rate that is more favorable to us than the rate that we might pay for a conventional fixed or floating rate debt security of comparable maturity. Using this relatively lower implied borrowing rate, rather than the secondary market rate, along with the fees and expenses associated with structured notes, reduced the initial estimated value of the securities at the time their terms were set. Unlike the estimated value included in this document, any value of the securities determined for purposes of a secondary market transaction may be based on a different funding rate, which may result in a lower value for the securities than if our initial internal funding rate were used.

In order to satisfy our payment obligations under the securities, we may choose to enter into certain hedging arrangements (which may include call options, put options or other derivatives) on the original issue date with RBCCM or one of our other subsidiaries. The terms of these hedging arrangements take into account a number of factors, including our creditworthiness, interest rate movements, the volatility of the underlying stock, and the tenor of the securities. The economic terms of the securities and their initial estimated value depend in part on the terms of these hedging arrangements.

The lower implied borrowing rate, the underwriting commission and the hedging-related costs relating to the securities reduced the economic terms of the securities to you and resulted in the initial estimated value for the securities on the pricing date being less than their public offering price. See “Risk Factors—The initial estimated value of the securities is less than the price to the public” above.

Contact: Morgan Stanley Wealth Management clients may contact their local Morgan Stanley branch office or our principal executive offices at 1585 Broadway, New York, New York 10036 (telephone number 1-(866)-477-4776). All other clients may contact their local brokerage representative. Third-party distributors may contact Morgan Stanley Structured Investment Sales at 1-(800)-233-1087.

Where you can find more information: Royal Bank of Canada has filed a registration statement (including a prospectus) with the SEC for the offering to which this communication relates. Before you invest, you should read the prospectus in that registration statement and other documents the issuer has filed with the SEC for more complete information about the issuer and this offering. You may get these documents for free by visiting EDGAR on the SEC website at www.sec.gov. Alternatively, the issuer, any underwriter or any dealer participating in this offering will arrange to send you the prospectus if you request it by calling toll-free 1-800-584-6837.

You should read this document together with the prospectus dated January 8, 2016, as supplemented by the prospectus supplement dated January 8, 2016 relating to our Senior Global Medium-Term Notes, Series G, of which these securities are a part. Capitalized terms used but not defined in this document will have the meanings given to them in the prospectus supplement. In the event of any conflict, this document will control. The securities vary from the terms described in the prospectus supplement in several important ways. You should read this document carefully.

This document, together with the documents listed below, contains the terms of the securities and supersedes all 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, brochures or other educational materials of ours. You should carefully consider, among other things, the matters set forth in “Risk Factors” in the prospectus supplement dated January 8, 2016 and in this document, as the securities involve risks not associated

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with conventional debt securities. We urge you to consult your investment, legal, tax, accounting and other advisors before you invest in the securities.

You may access these documents on the SEC website at www.sec.gov as follows (or if such address has changed, by reviewing our filings for the relevant date on the SEC website):

Prospectus dated January 8, 2016:

<https://www.sec.gov/Archives/edgar/data/1000275/000121465916008810/j18160424b3.htm>

Prospectus Supplement dated January 8, 2016:

<https://www.sec.gov/Archives/edgar/data/1000275/000121465916008811/p14150424b3.htm>

Our Central Index Key, or CIK, on the SEC website is 1000275.

Please see the section “Documents Incorporated by Reference” on page i of the above prospectus for a description of our filings with the SEC that are incorporated by reference therein.

Validity of
the
securities:

In the opinion of Norton Rose Fulbright Canada LLP, the issue and sale of the securities has been duly authorized by all necessary corporate action of the Bank in conformity with the Indenture, and when the securities have been duly executed, authenticated and issued in accordance with the Indenture and

Contingent Income Auto-Callable Securities due July 30, 2018

With the Coupon and Payment at Maturity Subject to the Performance of the Common Stock of Twilio Inc.

Principal at Risk Securities

delivered against payment therefor, the securities will be validly issued and, to the extent validity of the securities is a matter governed by the laws of the Province of Ontario or Québec, or the laws of Canada applicable therein, and will be valid obligations of the Bank, subject to equitable remedies which may only be granted at the discretion of a court of competent authority, subject to applicable bankruptcy, to rights to indemnity and contribution under the securities or the Indenture which may be limited by applicable law; to insolvency and other laws of general application affecting creditors' rights, to limitations under applicable limitations statutes, and limitations as to the currency in which judgments in Canada may be rendered, as prescribed by the Currency Act (Canada). This opinion is given as of the date hereof and is limited to the laws of the Provinces of Ontario and Québec and the federal laws of Canada applicable thereto. In addition, this opinion is subject to customary assumptions about the Trustee's authorization, execution and delivery of the Indenture and the genuineness of signatures and certain factual matters, all as stated in the letter of such counsel dated January 8, 2016, which has been filed as Exhibit 5.1 to Royal Bank's Form 6-K filed with the SEC on January 8, 2016.

In the opinion of Morrison & Foerster LLP, when the securities have been duly completed in accordance with the Indenture and issued and sold as contemplated by the prospectus supplement and the prospectus, the securities will be valid, binding and enforceable obligations of Royal Bank, entitled to the benefits of the Indenture, subject to applicable bankruptcy, insolvency and similar laws affecting creditors' rights generally, concepts of reasonableness and equitable principles of general applicability (including, without limitation, concepts of good faith, fair dealing and the lack of bad faith). This opinion is given as of the date hereof and is limited to the laws of the State of New York. This opinion is subject to customary assumptions about the Trustee's authorization, execution and delivery of the Indenture and the genuineness of signatures and to such counsel's reliance on the Bank and other sources as to certain factual matters, all as stated in the legal opinion dated January 8, 2016, which has been filed as Exhibit 5.2 to the Bank's Form 6-K dated January 8, 2016.

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| Terms incorporated in the master note: | All of the terms in "Summary Terms" (except the item captioned "Commissions and issue price") and the terms above the item captioned "Use of proceeds and hedging" in "Additional Information About the Securities" of this pricing supplement, and the definition of "business day" on page S-24 of the prospectus supplement. |
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