

## Equity Research

October 8, 2018

### Mark Palmer

(212) 588-6582  
mpalmer@btig.com

### Giuliano Bologna

(212) 588-6583  
gbologna@btig.com

## Financials

### Square Inc.

#### Launch of Square Installments, with Loans Held on Balance Sheet, Adds to SQ's Overlooked Credit Risk

Our bearish thesis on Square (SQ) is predicated in part on our view that the company's increasing dependence on the extension of credit to its customers to spur its growth has made its business model increasingly vulnerable to volatility in the credit markets. SQ's announcement on Thursday about the launch of Square Installments – a new, point-of-sale lending service provided by Square Capital that allows borrowers to repay loans over a period of three, six or 12 months – is likely to increase this vulnerability, in our view.

- ▶ Square Installments enables the customers of the company's sellers in 22 states to pay for purchases ranging between \$250 and \$10,000 in fixed monthly payments. Sellers will receive payments for purchases upfront, and SQ will hold the loans on its balance sheet. Management said that as it lends more through the program that it may sell loans to outside funds.
- ▶ The loans extended by Square Installments will carry annual percentage rates (APRs) of between 0% and 24%. This is in contrast to the APRs of loans offered by alternative lender Affirm (Private) which range between 10% and 30%. We believe this should raise questions about whether SQ will be sufficiently paid for the risk it will take on the program.
- ▶ **We are reiterating our Sell rating on SQ and price target of \$30 based on 20x our FY20E adjusted EBITDA of \$686mm.** With SQ now trading at 55x 2020E adjusted EBITDA, the market appears to be overlooking any risks to the company's business model, and credit risk in particular. We believe SQ's expanding dependence on credit as a driver of growth ultimately will weigh on its multiple, which we view as very difficult to justify.
- ▶ **Valuation:** Our \$30 price target for SQ is based on 20x our FY20E adjusted EBITDA of \$686mm. The multiple we use reflects our anticipation of the company's continued growth, albeit at a slower rate than its valuation currently implies.

**SQ** **\$94.11**

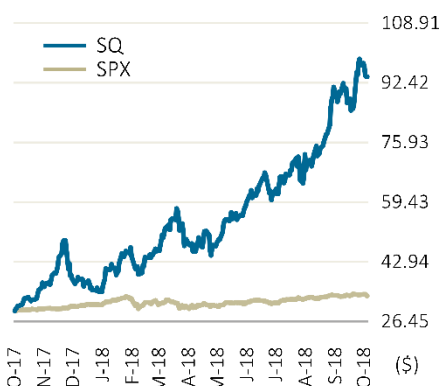
12 month target \$30.00

### SELL

52 week range \$30.76 - \$99.01

Market Cap (m) \$44,234

#### Price Performance



Source: IDC

## Estimates

	1Q17 A	2Q17 A	3Q17 A	4Q17 A	FY17 A	1Q18 A	2Q18 A	3Q18 E	4Q18 E	FY18 E	FY19 E
Sales	462	552	585	616	2,214	669	815	859	882	3,225	4,074
EBITDA (Adj.)	27	36	34	41	139	36	65	65	76	242	445

Source: BTIG Estimates and Company Documents (\$ in millions, except per share amount)

- ▶ SQ retains only a small portion of the loans to merchants that it originates through Square Capital on its balance sheet and sells most of them to investors. However, one of the painful lessons learned in early 2016 by investors in the stocks of online marketplace lenders such as LendingClub (LC, Buy, \$7 PT) is that firms that sell the loans they originate are nevertheless vulnerable to volatility in the credit markets as concerns about funding could negatively impact perceptions of their growth trajectories.
- ▶ SQ in early July withdrew its application to the Federal Deposit Insurance Corp. (FDIC) for an industrial loan company (ILC) charter, although the company stated through a spokesperson that it intends to refile “after it bolsters its application.” Management during an appearance at an investor conference last month reiterated their intention to refile its application.
- ▶ If granted an ILC charter, SQ would launch Square Financial Services, a bank regulated by the FDIC and the State of Utah Department of Financial Services, that would fund loans offered by Square Capital. We believe the execution of this plan would further add to SQ’s dependence on the extension of credit to drive its growth, and if the company’s newfound willingness to retain the loans it originates on its balance sheet extends to this initiative it would expose it to the potential for more direct credit losses.

## Income Statement

Square Inc. - Operating Model	Dec-14	Dec-15	Dec-16	Mar-17	Jun-17	Sep-17	Dec-17	Dec-17	Mar-18	Jun-18	Sep-18	Dec-18	Dec-18	Mar-19	Jun-19	Sep-19	Dec-19	Dec-19	Dec-20
\$ millions	2014A	2015A	2016A	1Q17A	2Q17A	3Q17A	4Q17A	2017A	1Q18A	2Q18A	3Q18E	4Q18E	2018E	1Q19E	2Q19E	3Q19E	4Q19E	2019E	2020E
Transaction-based revenue	707.80	1,050.45	1,456.16	403.48	482.07	510.02	524.61	1,920.17	523.04	625.23	658.86	670.60	2,477.72	661.87	793.60	833.43	840.56	3,129.46	3,866.92
Starbucks transaction-based revenue	123.02	142.28	78.90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subscription and services-based revenue	12.05	58.01	129.35	49.06	59.15	65.05	79.40	252.66	97.05	134.33	144.71	152.54	528.64	154.96	166.24	169.20	174.09	664.49	757.87
Hardware revenue	7.32	16.38	44.31	9.02	10.29	10.09	12.02	41.42	14.42	18.36	18.01	21.45	72.24	25.01	31.85	31.23	37.21	125.30	211.09
Bitcoin revenue	-	-	-	-	-	-	-	-	34.10	37.02	37.39	37.76	146.26	38.14	38.52	38.90	39.29	154.85	161.14
<b>Total net revenue</b>	<b>850.19</b>	<b>1,267.12</b>	<b>1,708.72</b>	<b>461.55</b>	<b>551.51</b>	<b>585.16</b>	<b>616.04</b>	<b>2,214.25</b>	<b>668.60</b>	<b>814.94</b>	<b>858.96</b>	<b>882.35</b>	<b>3,224.85</b>	<b>879.97</b>	<b>1,030.21</b>	<b>1,072.76</b>	<b>1,091.16</b>	<b>4,074.11</b>	<b>4,997.03</b>
Transaction costs	450.86	672.67	943.20	257.78	311.09	328.04	333.38	1,230.29	327.91	395.35	412.81	417.87	1,553.94	419.03	502.59	527.97	532.66	1,982.25	2,450.48
Starbucks transaction costs	150.96	165.44	69.76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Software and data products cost	2.97	22.47	43.13	15.88	17.12	18.17	24.56	75.72	30.37	39.78	42.21	44.50	156.86	42.88	46.00	46.82	48.17	183.88	202.14
Hardware cost	18.33	30.87	68.56	12.66	14.17	18.78	16.78	62.39	19.70	25.54	20.89	24.67	90.79	28.76	36.63	35.92	42.79	144.10	157.11
Bitcoin costs	-	-	-	-	-	-	-	-	33.87	36.60	37.01	37.38	144.86	37.18	37.56	37.93	38.31	150.98	157.11
Amortization of acquired technology	1.00	5.64	8.03	1.81	1.70	1.56	1.49	6.54	1.58	1.86	1.95	2.05	7.43	2.15	2.26	2.37	2.49	9.27	11.26
<b>Total cost of revenue</b>	<b>624.12</b>	<b>897.09</b>	<b>1,132.68</b>	<b>288.12</b>	<b>344.08</b>	<b>366.54</b>	<b>376.21</b>	<b>1,374.95</b>	<b>413.43</b>	<b>499.12</b>	<b>514.87</b>	<b>526.47</b>	<b>1,953.89</b>	<b>530.00</b>	<b>625.03</b>	<b>651.01</b>	<b>664.43</b>	<b>2,470.48</b>	<b>3,053.19</b>
<b>Gross profit (loss)</b>	<b>226.07</b>	<b>370.03</b>	<b>576.04</b>	<b>173.43</b>	<b>207.43</b>	<b>218.62</b>	<b>239.83</b>	<b>839.31</b>	<b>255.17</b>	<b>315.82</b>	<b>344.08</b>	<b>355.89</b>	<b>1,270.96</b>	<b>349.97</b>	<b>405.18</b>	<b>421.75</b>	<b>426.73</b>	<b>1,603.63</b>	<b>1,943.83</b>
Product development	144.64	199.64	268.54	68.58	78.13	82.55	92.63	321.89	105.10	114.80	127.26	131.43	478.58	126.16	139.78	139.50	137.96	543.40	581.57
Sales and marketing	112.58	145.62	173.88	49.90	59.92	66.53	76.82	253.17	77.27	98.24	103.87	107.37	386.75	105.47	120.75	123.62	125.57	475.40	561.39
General and administrative	94.22	143.47	251.99	56.94	62.99	64.31	66.32	250.55	75.50	82.77	86.91	89.52	334.70	89.97	90.42	90.87	91.32	362.57	367.58
Transaction and advance losses	24.08	54.01	51.24	11.89	18.40	19.89	16.83	67.02	18.03	21.98	23.20	23.61	86.82	23.32	27.99	29.42	29.70	110.43	136.92
Amortization of acquired customer assets	1.05	1.76	0.85	0.21	0.22	0.22	0.23	0.88	0.27	0.67	-	-	0.94	-	-	-	-	-	-
Impairment of intangible assets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total operating expenses</b>	<b>376.57</b>	<b>544.49</b>	<b>746.49</b>	<b>187.51</b>	<b>219.65</b>	<b>233.51</b>	<b>252.84</b>	<b>893.51</b>	<b>276.16</b>	<b>318.46</b>	<b>341.24</b>	<b>351.93</b>	<b>1,287.80</b>	<b>344.92</b>	<b>378.93</b>	<b>383.40</b>	<b>384.55</b>	<b>1,491.81</b>	<b>1,647.46</b>
<b>Operating income (loss)</b>	<b>(150.49)</b>	<b>(174.46)</b>	<b>(170.45)</b>	<b>(14.08)</b>	<b>(12.22)</b>	<b>(14.89)</b>	<b>(13.01)</b>	<b>(54.21)</b>	<b>(20.99)</b>	<b>(2.65)</b>	<b>2.84</b>	<b>3.96</b>	<b>(16.84)</b>	<b>5.05</b>	<b>26.25</b>	<b>38.35</b>	<b>42.18</b>	<b>111.83</b>	<b>296.38</b>
<b>EBITDA</b>	<b>(131.91)</b>	<b>(146.83)</b>	<b>(132.71)</b>	<b>(4.64)</b>	<b>(3.10)</b>	<b>(5.81)</b>	<b>(3.38)</b>	<b>(16.93)</b>	<b>(10.83)</b>	<b>9.68</b>	<b>16.14</b>	<b>17.84</b>	<b>32.83</b>	<b>18.82</b>	<b>42.18</b>	<b>54.82</b>	<b>59.08</b>	<b>174.90</b>	<b>374.03</b>
<b>Adjusted EBITDA</b>	<b>(67.74)</b>	<b>(41.12)</b>	<b>45.74</b>	<b>27.03</b>	<b>36.50</b>	<b>34.30</b>	<b>41.18</b>	<b>139.01</b>	<b>35.89</b>	<b>65.32</b>	<b>65.37</b>	<b>75.52</b>	<b>242.11</b>	<b>78.07</b>	<b>110.34</b>	<b>125.22</b>	<b>131.26</b>	<b>444.89</b>	<b>686.19</b>
Interest (income) and expense	1.06	1.16	(0.24)	0.50	3.27	1.85	2.84	8.46	2.82	2.66	2.79	2.82	11.08	2.84	2.87	2.90	2.93	11.55	12.02
Other (income) and expense	1.10	0.45	(0.54)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Income (loss) before income taxes</b>	<b>(152.65)</b>	<b>(176.07)</b>	<b>(169.67)</b>	<b>(14.58)</b>	<b>(15.49)</b>	<b>(16.74)</b>	<b>(15.85)</b>	<b>(62.66)</b>	<b>(23.81)</b>	<b>(5.30)</b>	<b>0.05</b>	<b>1.14</b>	<b>(27.92)</b>	<b>2.21</b>	<b>23.38</b>	<b>35.45</b>	<b>39.25</b>	<b>100.28</b>	<b>284.36</b>
Provision for income taxes	1.44	3.75	1.92	0.51	0.47	(0.65)	(0.19)	0.15	0.18	0.60	-	-	0.78	-	-	-	-	-	-
<b>Net income (loss)</b>	<b>(154.09)</b>	<b>(179.82)</b>	<b>(171.59)</b>	<b>(15.09)</b>	<b>(15.96)</b>	<b>(16.10)</b>	<b>(15.66)</b>	<b>(62.81)</b>	<b>(23.99)</b>	<b>(5.91)</b>	<b>0.05</b>	<b>1.14</b>	<b>(28.70)</b>	<b>2.21</b>	<b>23.38</b>	<b>35.45</b>	<b>39.25</b>	<b>100.28</b>	<b>284.36</b>
<b>Adjusted EPS - Diluted</b>		<b>(0.39)</b>	<b>0.04</b>	<b>0.05</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.27</b>	<b>0.06</b>	<b>0.13</b>	<b>0.11</b>	<b>0.13</b>	<b>0.44</b>	<b>0.13</b>	<b>0.19</b>	<b>0.22</b>	<b>0.23</b>	<b>0.77</b>	<b>1.16</b>
Shares outstanding - diluted		170.50	362.58	366.74	376.36	383.95	450.70	426.52	461.76	470.02	479.42	489.01	475.05	495.12	501.31	507.58	513.92	504.48	530.19
<b>Total net revenue</b>	<b>850.19</b>	<b>1,267.12</b>	<b>1,708.72</b>	<b>461.55</b>	<b>551.51</b>	<b>585.16</b>	<b>616.04</b>	<b>2,214.25</b>	<b>668.60</b>	<b>814.94</b>	<b>858.96</b>	<b>882.35</b>	<b>3,224.85</b>	<b>879.97</b>	<b>1,030.21</b>	<b>1,072.76</b>	<b>1,091.16</b>	<b>4,074.11</b>	<b>4,997.03</b>
Starbucks transaction revenue	123.02	142.28	78.90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transaction costs	450.86	672.67	943.20	257.78	311.09	328.04	333.38	1,230.29	327.91	395.35	412.81	417.87	1,553.94	419.03	502.59	527.97	532.66	1,982.25	2,450.48
Bitcoin costs	-	-	-	-	-	-	-	-	33.87	36.60	37.01	37.38	144.86	37.18	37.56	37.93	38.31	150.98	157.11
Deferred revenue adjustment	-	-	-	-	-	-	-	-	-	2.44	-	-	2.44	-	-	-	-	-	-
<b>Adjusted revenue</b>	<b>276.31</b>	<b>452.17</b>	<b>686.62</b>	<b>203.78</b>	<b>240.41</b>	<b>257.12</b>	<b>282.66</b>	<b>983.96</b>	<b>306.82</b>	<b>385.43</b>	<b>409.13</b>	<b>427.10</b>	<b>1,528.49</b>	<b>423.76</b>	<b>490.07</b>	<b>506.86</b>	<b>520.19</b>	<b>1,940.88</b>	<b>2,389.43</b>
<b>Net income (loss)</b>	<b>(154.09)</b>	<b>(179.82)</b>	<b>(171.59)</b>	<b>(15.09)</b>	<b>(15.96)</b>	<b>(16.10)</b>	<b>(15.66)</b>	<b>(62.81)</b>	<b>(23.99)</b>	<b>(5.91)</b>	<b>0.05</b>	<b>1.14</b>	<b>(28.70)</b>	<b>2.21</b>	<b>23.38</b>	<b>35.45</b>	<b>39.25</b>	<b>100.28</b>	<b>284.36</b>
Starbucks transaction revenue	(123.02)	(142.28)	(78.90)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Starbucks transaction costs	150.96	165.44	69.76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Share-based compensation expense	36.12	82.29	138.79	31.67	39.59	40.05	44.53	155.84	46.82	52.12	47.14	55.62	201.70	57.21	66.16	68.43	70.23	262.02	304.65
Depreciation and amortization	18.59	27.63	37.75	9.44	9.13	9.09	9.63	37.28	10.16	12.33	13.30	13.88	49.67	13.77	15.93	16.47	16.91	63.08	77.66
Interest (income) expense	1.06	1.16	(0.24)	0.50	3.27	1.85	2.84	8.46	2.82	2.66	2.79	2.82	15.23	4.88	4.88	4.88	4.88	19.51	19.51
Other (income) expense	1.10	0.45	48.32	-	-	-	-	-	-	3.45	-	-	3.45	-	-	-	-	-	-
Provision (benefit) for income taxes	1.44	3.75	1.92	0.51	0.47	(0.65)	(0.19)	0.15	0.18	0.60	-	-	0.78	-	-	-	-	-	-
Loss on sale of property plant and equipment	0.11	0.27	(0.05)	-	0.00	0.06	0.04	0.10	(0.10)	0.07	-	-	(0.03)	-	-	-	-	-	-
Impairment of intangible assets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Adjusted EBITDA</b>	<b>(67.74)</b>	<b>(41.12)</b>	<b>45.74</b>	<b>27.03</b>	<b>36.50</b>	<b>34.30</b>	<b>41.18</b>	<b>139.01</b>	<b>35.89</b>	<b>65.32</b>	<b>65.37</b>	<b>75.52</b>	<b>242.11</b>	<b>78.07</b>	<b>110.34</b>	<b>125.22</b>	<b>131.26</b>	<b>444.89</b>	<b>686.19</b>
<b>Tax rate</b>	<b>-0.9%</b>	<b>-2.1%</b>	<b>-1.1%</b>	<b>-3.5%</b>	<b>-3.0%</b>	<b>3.9%</b>	<b>1.2%</b>	<b>-0.2%</b>	<b>-0.7%</b>	<b>-11.4%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>-2.8%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>
<b>Adjusted revenue growth</b>	<b>72.5%</b>	<b>63.6%</b>	<b>51.9%</b>	<b>39.4%</b>	<b>40.7%</b>	<b>44.6%</b>	<b>47.3%</b>	<b>43.3%</b>	<b>50.6%</b>	<b>60.3%</b>	<b>59.1%</b>	<b>51.1%</b>	<b>55.3%</b>	<b>38.1%</b>	<b>27.1%</b>	<b>23.9%</b>	<b>21.8%</b>	<b>27.0%</b>	<b>23.1%</b>
<b>Transaction revenue growth</b>	<b>63.2%</b>	<b>48.4%</b>	<b>38.6%</b>	<b>34.3%</b>	<b>32.1%</b>	<b>31.3%</b>	<b>30.3%</b>	<b>31.9%</b>	<b>29.6%</b>	<b>29.7%</b>	<b>29.2%</b>	<b>2</b>							



## BTIG Covered Companies Mentioned in this Report

SQUARE INC. (SQ, Sell, \$30.00 PT; Current Price: \$94.11; Analyst: Mark.Palmer)

## Appendix: Analyst Certification and Other Important Disclosures

### Analyst Certification

I, Mark Palmer, hereby certify that the views about the companies and securities discussed in this report are accurately expressed and that I have not received and will not receive direct or indirect compensation in exchange for expressing specific recommendations or views in this report.

I, Giuliano Bologna, hereby certify that the views about the companies and securities discussed in this report are accurately expressed and that I have not received and will not receive direct or indirect compensation in exchange for expressing specific recommendations or views in this report.

### Regulatory Disclosures

#### Ratings Definitions

**BTIG LLC's ("BTIG") ratings, effective June 12, 2017, are defined as follows:**

**BUY** – A security which is expected to produce a positive total return of 15% or greater over the 12 months following the recommendation. The BUY rating may be maintained as long as it is deemed appropriate, notwithstanding price fluctuations that would cause the target to fall outside of the 15% return.

**SELL** – A security which is expected to produce a negative total return of 15% or greater over the next 12 months following the recommendation. The SELL rating may be maintained as long as it is deemed appropriate, notwithstanding price fluctuations that would cause the target to fall outside of the 15% return.

**NEUTRAL** – A security which is not expected to appreciate or depreciate meaningfully over the next 12 months.

**NOT RATED** – A security which is not rated or covered by BTIG.

**UNDER REVIEW** – Effective immediately, coverage of the following securities is Under Review. Ratings, price targets, disclosures, and estimates for the companies listed below are suspended and should no longer be relied upon.

#### Distribution of Ratings and Investment Banking Clients

BTIG must disclose in each research report the percentage of all securities rated by the member to which the member would assign a "buy", "neutral" or "sell" rating. The said ratings are updated on a quarterly basis. BTIG must also disclose the percentage of subject companies within each of these three categories for whom the member has provided investment banking services within the previous twelve months. **Stocks under coverage as of the end of the most recent calendar quarter (September 30, 2018): 298**

**Distribution of BTIG's Research Recommendations (as of September 30, 2018):**

**BUY: 58.4%; NEUTRAL: 38.3%; SELL: 3.4%**

**Distribution of BTIG's Investment Banking Services (as of September 30, 2018):**

**BUY: 28.2%; NEUTRAL: 10.5%; SELL: 0.00%**

For purposes of FINRA ratings distribution rules, BTIG's stock ratings of Buy, Neutral and Sell fall into Buy, Hold and Sell categories, respectively.

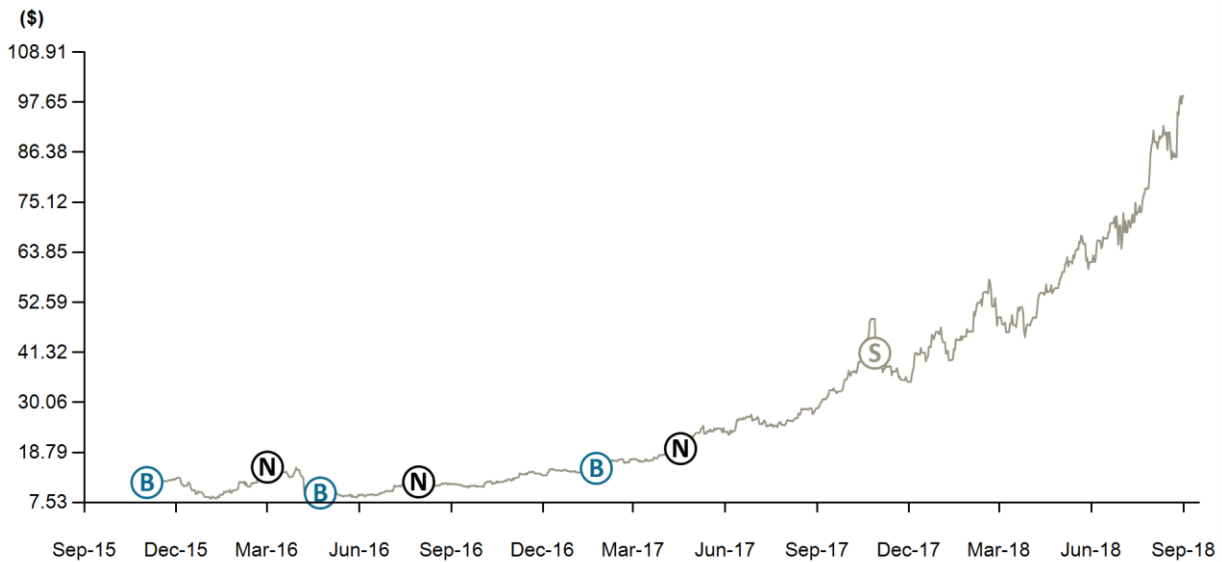
### Company Valuation and Risk Disclosures

#### Square Inc. (SQ, Sell, \$30.00 PT)

**Valuation:** Our \$30 price target for SQ is based on 20x our FY20E adjusted EBITDA of \$686mm. The multiple we use reflects our anticipation of the company's continued rapid growth.

**Risks:** The primary Upside risks include, better than anticipated performance by the company, rapid growth, continued multiple expansion, Square's ability to launch new lines of business, the company's ability to expand into additional countries to continue their rapid growth and an acquisition of the company.

**Square Inc. (SQ)**



*Note: Closing Price and Target Price have been adjusted for corporate actions.*

Date	Closing Price (\$)	Target Price (\$)	Analyst	Rating
02-Dec-15	11.93	15	Mark Palmer	Buy
31-Mar-16	15.28	NA	Mark Palmer	Neutral
23-May-16	9.46	12	Mark Palmer	Buy
29-Aug-16	12.01	NA	Mark Palmer	Neutral
22-Feb-17	15.04	20	Mark Palmer	Buy
17-May-17	19.56	NA	Mark Palmer	Neutral
27-Nov-17	41.02	30	Mark Palmer	Sell

## Other Disclosures

Additional Information Available Upon Request

### General Disclosures

Research reports produced by BTIG LLC ("BTIG") are published for and intended to be distributed solely to BTIG institutional and corporate clients. Recipients of BTIG reports will not be considered clients of BTIG solely because they may have received such BTIG report.

The research analyst(s) responsible for the preparation of this report receives compensation based upon a variety of factors, including the quality and accuracy of research, internal/client feedback, and overall Firm revenues.

BTIG reports are based on public information and BTIG considers the same to be reliable, comprehensive information, but makes no representation or warranty that the reports are accurate or complete. BTIG opinions and information provided in this report are as of the date of the report and may change without notice. An issuer may be classified as "Under Review" or "Research Restricted". In these cases, investors should consider any previous investment recommendation and/or rating to a subject company/issuer to no longer be current and should not be relied upon nor considered a solicitation.

This research report is not an offer to buy or sell or solicitation of an offer to buy or sell any security in any jurisdiction where such an offer or solicitation would be illegal. This research report was not drafted specifically for any particular individual or entity and is not a personal recommendation to participate in any particular trading strategy or transaction. Any recipient of this research report should obtain independent advice specific to their personal

circumstances before undertaking any investment activity and must make their own independent evaluation of any securities or financial instruments.

Facts, views or opinions presented in this report have not been reviewed by, and may not reflect information known to, employees or other professionals in the "BTIG Group" (BTIG Group includes, but is not limited to, BTIG and its parents, subsidiaries and/or affiliates). BTIG Group employees, including Sales Representatives and Traders, may provide oral or written commentary or advice that may be inconsistent with the opinions and/or views expressed in this research report. BTIG Group employees and/or its affiliates not involved in the preparation of this research report may have investments in securities or derivatives of securities of companies mentioned in this report that are inconsistent with the views discussed in this report.

Investors in securities products bear certain risks in conjunction with those investments. The value of, and income from, any investments may vary because of changes in interest rates or foreign exchange rates, securities prices or market indexes, operational or financial conditions of companies or other factors within or beyond the companies control. Recipient of the research reports should be aware that investments in securities may pose significant risks due to the inherent uncertainty associated with relying on forecasts of various factors that can affect the earnings, cash flow and overall valuation of a company. Any investment in securities should be undertaken only upon consideration of issues relating to the recipient's overall investment portfolio and objectives (such as diversification by asset class, industry or company) as well as time horizon and liquidity needs. Further, past performance should not be taken as an indication or guarantee of future performance, and no representation or warranty, express or implied, is made regarding future performance. There may be time limitations on the exercise of options or other rights in any securities transactions.

Investing in foreign markets and securities, including ADRs, is subject to additional risks such as currency fluctuation, limited information, political instability, economic risk, and the potential for illiquid markets. Investing in emerging markets may accentuate these risks. Non-U.S. reporting issuers of foreign securities, however, may not make regular or complete public disclosure relating to their financial condition or the securities that they issue.

The trademarks and service marks contained herein are the property of their respective owners. Third-party data providers make no warranties or representations of any kind relating to the accuracy, completeness, or timeliness of the data they provide and shall not have liability of any damages of any kind relating to such data. The report or any portion hereof may not be reprinted, sold or redistributed without the written consent of BTIG. This report is intended only for use by the recipient. The recipient acknowledges that all research and analysis in this report are the property of BTIG and agrees to limit the use of all publications received from BTIG within his, or her or its, own company or organization. No rights are given for passing on, transmitting, re transmitting or reselling the information provided.

## **Jurisdiction and Dissemination**

BTIG is a U.S. broker-dealer and member of FINRA and SIPC.

BTIG Australia Limited ACN 128 554 601, member of ASIC and ASX; BTIG Hong Kong Limited, an Exchange Participant of SEHK and licensed and regulated by the SFC; BTIG Ltd, member of the LSE, authorized and regulated by the FSA; and BTIG Singapore Pte Ltd, registered and licensed with MAS; are all separate but affiliated entities of BTIG. Unless governing law permits otherwise, you must contact a BTIG entity in your home jurisdiction for further information, or if you want to use our services in effecting a transaction.

Issued and approved for distribution in the UK and EEA by BTIG Ltd. to eligible counterparties and professional clients only. Issued and distributed in Australia to "wholesale clients" only by BTIG Australia Limited. In Singapore and Hong Kong, further information may be obtained from BTIG Singapore Pte Ltd and BTIG Hong Kong Limited, respectively.