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**Quantitative Analysis of Adaptive Behavior – Use of Numeric  
Codes in Money Laundering Patterns to Obscure Detection**

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## 1. ABSTRACT

Financial institutions deploy both manual and automated resources to detect and investigate financial crimes, such as money laundering, economic sanctions evasion and terrorism financing. Automated systems use combinations of rules or scenarios, value thresholds, peer group activity, rolling analysis of actual activity to historical activity, tolerances based on customer risk ratings, and often, artificial intelligence to identify atypical activity. Human, manual intervention involves investigating, determining patterns and trends and documenting the rationales for closing an investigation without further escalation to a financial intelligence unit or reporting bank customers' potentially suspicious behavior and transactional activity.

Criminals, money launderers and those who aid the formers' activities are well aware of financial institutions' efforts to identify suspicious activity. Their awareness may derive from reading typologies of financial crimes frequently published by multinational organizations and financial intelligence units (FIUs), receiving questions on transactions from their banks or from their bank's correspondents. The types of questions posed, focus on specific transactions, ownership or counterparties to transactions offer insights into their bank's current focus on financial crime prevention activities.

As a result of financial institutions' efforts to detect atypical transactions and report suspicious activity in a timely manner, criminals and money launderers need to continuously modify their behavior, transactional activity patterns, types of formation vehicles ("companies") and even methods of communication between themselves and the immediate beneficiary of wires.

My research findings show that money launderers change their behavior more rapidly than financial institutions may anticipate. In this instance, in changing how wire originators potentially communicate to the immediate beneficiary via numeric values contained in specific value positions in the wires

During a four-month transactional review conducted across four financial institutions across three countries, my transactional analysis disclosed specific commonalities – use of what seemed to be similar numeric codes in the wires' ending values – in atypical inbound and outbound wires across the four countries and multiple financial institutions.

Research results further suggest that similar ending values may not be caused the foreign exchange impact of currency conversions. In several instances, the similar numeric ending values occurred regardless of the total USD value and / or the applicable daily exchange rates.

## 2. EXECUTIVE SUMMARY

### Overview

This research sought to identify if wire transactions ending in consistent penny values could be attributed to the effect of currency conversions to USD or whether the transactions' penny values might indicate use of numeric codes to instruct the nominal beneficiaries of the subsequent wire beneficiary.

We assessed SWIFT wire data across four months from March 2020 through November 2020. The wire data originated in three countries<sup>1</sup> from four financial institutions.<sup>2</sup> This analysis focused on third party, commercial payments sent and received by customers of the four financial institutions ("third party wires").

Following removal of Bank to Bank and third party wires less than \$5,000, the final dataset contained 17,571 wires (\$2,085,063,032). Average value of in- and outbound wires was \$118,665.

### Results

1. All four financial institutions exhibited patterns of atypical activity characterized by consistent numeric values in the penny fields. These observations occurred across a four-month period in 2020 and initially involved only Individuals. Later in 2020, these same patterns involved Companies on both sides of the wires.
2. Although 100 combinations of penny values could have been used in the outbound wires, the seven consistent values used in the penny fields were \$0.20, \$0.28, \$0.35, \$0.50, \$0.57, \$0.84 and \$0.00. Noting that there are actually only 7 numbers used and the number 4 is only one of the six numbers and penny value \$0.84 was used by a non- Asian originator since the Asian symbol for number 4 means death.
3. In the three countries reviewed, currency exchange rates were either fixed rates or tightly controlled in a narrow band. Wire fees were not observed in the data and it appears that currency conversions were effected overseas.
4. The use of the consistent penny values accompanied a high velocity of transactions – usually across 2 – 4 days and occasionally, multiple same-day wires.
5. Transactions involved in the consistent penny values appeared to be rather lower value and perhaps difficult to detect – between \$27,112 and \$27,113.
6. Geographic corridors of these wires with consistent penny values evolved from:
  - a. Country A sending to Country C and the US to

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<sup>1</sup> Identified in this report as Country A, Country B, and Country C

<sup>2</sup> Financial institutions are identified in the report as FI A1 & FI A2, FI B, FI C1 and FI C2.

- b. Country A sending to 16 other countries (many considered higher risk for money laundering) to
- c. Country B sending to Canada and the US to
- d. Country C and Country B and Vietnam sending to Country B and the US.

**Conclusion:**

1. This review found that currency exchange rates in the three countries reviewed did not cause the consistent penny values found in the wires. Because the wire values in the penny fields were so similar, and in spite of the different currencies used, no impact from exchange rates or transaction fees was observed.
2. In fact, the opposite effect was observed; i.e., that despite daily exchange rates changes the consistent penny values remained the same. For example on 3/12, originator LL sent one wire for **\$27,113.57** and originator RR sent one wire for **\$27,113.20**. On 3/12/20, Country A's exchange rate was 0.2722 and the two different penny values do not appear to be the result of the exchange rate from Country A's currency to USD.
3. Several originators used the same penny values in the same month and across several common days, although it does not appear possible that the originators could have known each other. One originator was located in Country C while the other two were located in the US, although they all sent out wires from Country A. The observation potentially supports that these originators may have received similar instructions from a third party.
4. Other originators used the same penny values across multiple months, leading to an observation that despite high velocity activity bursts of a few days by each originator, there may have been a plan to cycle through originators quickly to avoid detection.
5. Exchange rates do not appear to have affected the use of specific penny values nor do wire transfer fees and nearly all individual originators sent or received only one wire each for nearly identical values.<sup>3</sup> Although 100 combinations of penny values were available to use in the outbound wires, only seven consistent values were used: \$0.20, \$0.28, \$0.35, \$0.50, \$0.57, \$0.84 and \$0.00 across four financial institutions in three countries.
6. As a result, we conclude that the purpose of using only these seven combinations of number in the penny field seems highly likely to indicate a code sent by the wire' originator to inform the nominal beneficiary of who is to next receive the funds.

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<sup>3</sup> With the exception of the penny value fields.

### **3. OVERVIEW**

Objective:

When criminals and money launderers identify a need to modify their behavior or transactional activity patterns, could they use wire transfer fields to communicate information between the wire originator and subsequent beneficiary and could financial institutions potentially observe in wires' data fields?

1. In what form could the communications be reflected?
2. Can behavioral changes by money launderers – in the form of communication - be identified and measured?
3. How quickly do behavioral modifications related to communications methods manifest?
4. Can financial institutions identify significant changes in their customers' wire activity?  
Are transaction alerts sufficient?

## 4. METHODOLOGY

The approach sought to identify commonalities in transactional values between financial institutions in differing geographical corridors, initiated during a periodic transactional review.

The analysis' objective aimed to identify any patterns of wire activity used by potential money launderers to avoid, obscure and / or evade detection by financial institutions.

### Transactions

We assessed SWIFT wire data across four months from March 2020 through November 2020.

The wire data originated in three countries<sup>4</sup> from four financial institutions.<sup>5</sup>

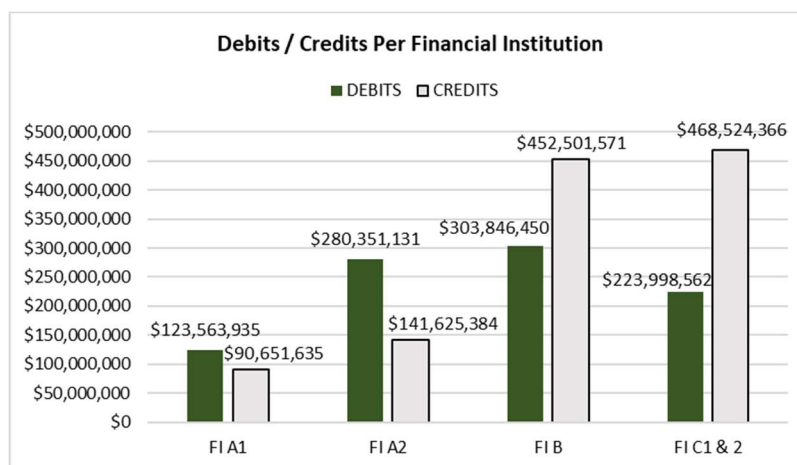
After downloading the initial dataset, we excluded all Bank-to-Bank wires with SWIFT codes CHI31, and certain CHO10s, FWI10, FWO10, SWI202 and SWI202 where banks were found in the originator name and beneficiary name fields.

As a result, this analysis focused on third party, commercial payments sent and received by customers of the four financial institutions ("third party wires").

- Third party wires valued below \$5,000 per transaction were removed from the initial dataset (12,475 wires - \$33,679,743). These transactions reflected very low value incoming and outgoing wires mainly by individuals.

Average value of wires less than \$5,000 was \$2,700, compared to the average transaction value of \$118,665 in the adjusted, final dataset. Removing low value wires had no impact on research results - low value wires accounted for 1.6% of total in- and outbound wire value.

- Following removal of Bank to Bank and third party wires less than \$5,000, the final dataset contained 17,571 wires (\$2,085,063,032). Average value of in- and outbound wires was \$118,665. Values per financial institution shown in the chart below.



<sup>4</sup> Identified in this report as Country A, Country B, and Country C

<sup>5</sup> Financial institutions are identified in the report as FI A1 & FI A2, FI B, FI C1 and FI C2.

- *Incoming* wires (credits) totaled \$1,011,677,571 in 7,151 wires – average value \$141,474.
- *Outgoing* wires (debits) totaled \$651,408,947 in 6,190 wires – average value \$105,236.

We segmented these financial institutions' customers into five types:

1. **Trading Companies** – companies with the word trading<sup>i</sup> in the name<sup>6</sup> or whose industry sector involved trading, such as commodities, oil & gas, import/exporters
2. **Non-Trading Companies** – companies without “trading” (or a variation) in the name
3. **Exchange Houses** – remitters and money services businesses
4. **Financial Services** – brokerage firms, insurance, factoring, asset management, leasing, finance
5. **Individuals** –

### Counterparty Geographies

Counterparty geographies include countries to which wires were sent or from which the four financial institutions' customers received wires.

- For third party customers sending outgoing wires (debits), we assessed the wire beneficiaries' countries of location as provided in the wire data as “**counterparty beneficiary geographies.**”
- For third party customers receiving incoming wires (credits), we assessed the wire originators' countries of location found in the wire data as “**counterparty originator geographies.**”

Across the four months, we evaluated whether patterns could be observed in the top counterparty countries (by wire value) either on the counterparty originator or counterparty beneficiary geography.

During the review period, wire data reflected 5 legal entities and 44 individuals transacting in a similar manner through originating 92 wires.

### MATERIALS

1. Primary resources used in this analysis comprised detailed inbound and outbound wire data obtained via an interface system from SWIFT.
2. A secondary source included “*Factbox: Step by step - How Chinese 'money brokers' launder cash for Mexican drug cartels*” REUTERS 12/3/2020, By Drazen Jorgic, <https://www.reuters.com/article/us-mexico-china-cartels-factbox/factbox-step-by-step-how-chinese-money-brokers-launders-cash-for-mexican-drug-cartels-idUSKBN28D1LW>
3. Internet searches used to establish a two-digit ISO code for countries where the wires included a partial address; no country code; a city name only; a partial or corrupted country name or incorrect country ISO code.

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<sup>6</sup> Variations of the word trading were also used, such as Trd, Trade, Trdg, or Tr found in the beneficiary or originator fields and/or in the originator or beneficiary address fields of each wire.



4. Data cleansing and normalization techniques deployed to apply consistency across the datasets. The normalization and cleansing, however, were only used in data fields containing text, such as originator or beneficiary names. For example, some wires might reflect an originator name as PINGZHIQUAN where other wires might reflect the name as PING ZHIQUAN. In this instance, if the individual with two spellings of the name used the same address, then the originator name was normalized as PING ZHIQUAN.
5. Similar normalization occurred for legal entity names where wires might contain various spellings of the same name - ABC Co Limited, ABC Co Ltd, A B C Company Ltd or any one of a number of variations. Based on open source searches to validate the corporate name, a unified spelling of the company name (particularly the corporate extension type) was established.

## RESULTS – TRANSACTIONAL ANALYSIS

### Incoming and Outgoing Wire Analysis

From March 2020 through November 2020, the Covid pandemic produced waves of illness, death and economic stresses globally. The stresses provoked by a global pandemic may have caused businesses and individuals to transact differently and due to the transactional decrease in early to mid-2020, some atypical patterns (possibly new ones) gained visibility.

### 5. Financial Institution A2 (FI A2)

In **March 2020**, analysis of FI A2's inbound and outbound transactions resulted in an atypical pattern of activity sent by Individuals (shown in the table below).

ORIGINATOR / BENEFICIARY	Count	Value
<b>LL</b>	<b>9</b>	<b>\$244,019.41</b>
LL	9	\$244,019.41
\$0.20	1	\$27,113.20
\$0.57	5	\$135,567.85
\$0.76	2	\$54,225.52
\$0.84	1	\$27,112.84
<b>RR</b>	<b>16</b>	<b>\$401,276.83</b>
R	16	\$401,276.83
\$0.13	1	\$27,113.13
\$0.20	3	\$81,339.60
\$0.42	1	\$13,556.42
\$0.56	1	\$21,690.56
\$0.57	7	\$189,794.99
\$0.60	1	\$13,556.60
\$0.69	1	\$27,112.69
\$0.84	1	\$27,112.84
<b>OF</b>	<b>6</b>	<b>\$162,679.59</b>
SF	6	\$162,679.59
\$0.20	2	\$54,226.40
\$0.31	1	\$27,114.31
\$0.47	1	\$27,112.47
\$0.57	1	\$27,113.57
\$0.84	1	\$27,112.84
TT	1	\$54,225.00
TT	1	\$54,225.00
\$0.00	1	\$54,225.00
<b>Grand Total</b>	<b>32</b>	<b>\$862,200.83</b>

Noting other atypical activity existed in these FI A2 transactions, such as use of questionable originator and beneficiary addresses which appeared to correspond to other companies.

Actual unusual activity appeared in these 3 originators' outbound value that ranged from \$13,556.42 to \$27,114.41 in 32 wires out.

With 4 exceptions, almost all wires were sent for \$27,112 or \$27,113 from Country A.

22 wires contained common digits in the penny positions, such as \$0.20, \$0.57 and \$0.84.

Further research into these wires with common patterns of numbers in the penny positions noted that the three number sequences occurred across all three originators.

- Originator LL located in Country A<sup>7</sup> sent 9 wires (\$244,019) to himself at a business address in Malaysia.
- The two remaining originators located in Country A sent 23 wires (RR - \$401,277 and FO - \$162,680, total of \$618,181) to themselves at US addresses which appeared to belong to other people.

Another unusual feature of these “penny value” transactions was the velocity with which they occurred.

- From 3/9 to 3/26, **Originator LL** sent wires every 2 – 3 days to a bank in Country C. On two occasions, LL sent two wires for the same value on the same day (3/12 & 3/24). The four wires sent on these two days ended in \$0.57.
- From 3/2 to 3/23, **Originator RR** sent wires every 1-2 days to a US bank referencing “salary”. On three occasions, RR sent 2-4 wires out on the same day (3/2 -2 wires, 3/26-4 wires & 3/23-3 wires). On 3/2, the two wires ended in \$0.20 and \$.60 while on 3/16 and 3/23, the seven wires ended in \$0.57
- From 3/2 to 3/25, **Originator OF** sent wires every 2 – 5 days to a US bank referencing “investment” although the beneficiaries were Individuals. As shown in the previous table, ending values in common with originators LL and RR were \$0.20, \$0.57 and \$0.84.

## WIRE FREQUENCY

An unusual feature of all these wires reflected different penny values, even when the wires were sent on the same day.

- For example on 3/12, **LL** sent one wire for \$27,113.57 and originator **RR** sent one wire for \$27,113.20. Country A’s exchange rate on 3/12/20 was 0.2722 and the two different penny values do not appear to be the result of the exchange rate from Country A’s currency to USD.
- On 3/16, **LL** sent one wire for \$27,113.20 and originator **RR** sent three wires, each for \$27,113.57. Country A’s exchange rate on 3/16 was 0.2722.

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<sup>7</sup> Per originator’s address in the wires

Penny Position Values	Count	Value
\$0.57	13	\$352,476.41
\$0.20	6	\$162,679.20
\$0.84	3	\$81,338.52
\$0.76	2	\$54,225.52
\$0.00	1	\$54,225.00
\$0.31	1	\$27,114.31
\$0.13	1	\$27,113.13
\$0.69	1	\$27,112.69
\$0.47	1	\$27,112.47
\$0.56	1	\$21,690.56
\$0.60	1	\$13,556.60
\$0.42	1	\$13,556.42
<b>Grand Total</b>	<b>32</b>	<b>\$862,200.83</b>

Table reflects that \$596,494.13 (69% of total) in penny values of \$0.57, \$0.20 and \$0.84 occurred frequently in FI A2's dataset of possible atypical transactions.

We considered whether exchange rate fluctuations may have affected frequent occurrence of these penny values – 68% by volume and 69% by value – in the possible atypical transactions.

### Country A Exchange Rates – March 2020

In March 2020, Country A maintained a nearly fixed exchange rate between its currency and the US dollars.

- Originators provided Country A addresses in the outbound wires: one could assume that the originators brought local currency to convert to USD prior to wiring out the funds.
- Therefore, a fixed exchange rate could not cause minor fluctuations in the outbound wire values, such as in the wires' penny values.
- Originators may have brought US dollars to pay for the wires, and if FI A2 charged a wire fee to the originators – even a value-based fee, we would have observed essentially the same value in each outbound wire, rather than changes in the penny values. For example, a \$15.00 wire fee would have produced an outbound wire valued at \$15 less than the principal amount. Penny positions would not have been affected.

### OBSERVATIONS

Based on these observations:

- More than expected occurrence of the same values in the penny values
- Penny values differing by \$0.37 (from \$0.20 to \$0.57) in the same day despite a tightly controlled exchange rate
- Little to no information in wires' OBI fields,

We concluded that the penny values may represent a code to the subsequent beneficiary of these wires. Other transactional reviews in subsequent months supported this hypothesis.

## 6. Financial Institution A1 (FI A1)

In **June 2020**, analysis of FI A1’s inbound and outbound transactions resulted in identifying a similar pattern of potentially atypical outbound activity as the one identified in FI A2

The table below shows some examples FI A1’s penny values, noting that the \$0.20 value identified in FI A2 was also identified in the FI A1 dataset.

Possible atypical activity observed totaling \$1,599,688 in 59 wires sent by 44 Individual originators.

ORIGINATOR / By Penny Values	Count	Value
<b>\$0.50</b>	8	\$216,908.00
LC	1	\$27,113.50
KD	1	\$27,113.50
BG	1	\$27,113.50
AI	1	\$27,113.50
MI	1	\$27,113.50
DA	1	\$27,113.50
WJ	1	\$27,113.50
FS	1	\$27,113.50
<b>\$0.57</b>	12	\$325,362.84
DA	1	\$27,113.57
LC	1	\$27,113.57
VD	1	\$27,113.57
MD	1	\$27,113.57
VE	1	\$27,113.57
HF	1	\$27,113.57
CG	1	\$27,113.57
DI	1	\$27,113.57
BL	1	\$27,113.57
NR	1	\$27,113.57
MR	1	\$27,113.57
ZY	1	\$27,113.57
Total	59	\$1,599,688.37

This Table reflects selected penny values of **\$0.50** and **\$0.57** that occurred frequently in FI A1’s possible atypical transactions.

Penny values at the **\$0.20**, **\$0.28** and **\$0.35** levels also occurred frequently.

Example of single outbound wire from originators.

Individuals *sent funds* to 16 countries, mainly US, Country A, Turkey, Colombia & China

Again in June, FI A1’s third party transactions displayed several commonalities with FI A2’s wires’ penny values:

- Two of the same originators identified in the March 2020 dataset – RR and OF - transacted in the June dataset.
  - Originator **RR** sent 1 wire for \$27,113.20 to a US bank on 6/1/20 referencing “salary” .
  - Originator **OF** sent 1 wire for \$27,113.50 to a US bank on 6/22/20 referencing “education” rather than the same values sent to the same beneficiaries that referenced “investment” in March.

- Nine of the 44 Individual originators sent 2 or more wires out – a total of 24 wires totaling \$650,720. None of these originators received inbound wires in June.
- Thirty five originators sent only one outbound wire each in values ranging from \$27,113.20 to \$27,113.57. None of these originators received inbound wires in June.
- Use of same penny values in June wires as in March 2020, specifically in the **\$0.20** (\$488,037 in 18 wires) and **\$0.57** levels (\$325,363 in 12 wires) shown in the table below.

Row Labels	Count	Value
\$0.20	18	\$488,037.60
\$0.28	6	\$162,679.68
\$0.35	15	\$406,700.25
\$0.50	8	\$216,908.00
\$0.57	12	\$325,362.84
<b>Grand Total</b>	<b>59</b>	<b>\$1,599,688.37</b>

Table reflects increasing use of other penny values at the **\$0.28**, **\$0.35** and **\$0.50** levels in the single outbound wires from each originator.

**COUNTERPARTY COUNTRIES**

We further researched whether there might be a correlation between the penny values and the countries to which these were sent: i.e. counterparty *beneficiary* countries.

- Country A received the highest wire values across all five penny levels in the June dataset.
- The US was also a common wire beneficiary across the five penny value levels.
- Wires to Colombia took place only at the \$0.20, \$0.28 and \$0.35 levels
- Wires to Ghana took place only at the \$0.28 and \$0.35 levels.
- Wires to China only occurred at the \$0.50 and \$0.57 levels
- The remaining eleven counterparty countries received only one wire each in June – not sufficient data to derive a conclusion.
- CONCLUSION: While patterns of some counterparty countries were observed at specific penny value levels, a definitive conclusion could not be reached due to limited data.

**WIRE FREQUENCY**

Another unusual feature of these “penny value” transactions was the **velocity** with which they occurred in the top transactors (by value and volume)

- From 6/10 – 6/15, Originator **GA** sent wires every 1-2 days to a US bank. On 6/15 GA sent two wires for \$27,113.28 each, referencing “salary” and “wife”
- From 6/4 – 6/8, Originator **PJ** sent two wires each to a Colombian bank on 6/4 and 6/8/20, referencing “loan.” Two wires were for \$28,113.20, one wire for \$27,113.28 and one wire for \$27,113.35

- From 6/2 – 6/9/20, Originator **HO** sent four wires to a Turkish bank referencing “my account.” Wires on 6/2, 6/3 and 6/4 were sent for \$27,113.20 each while the fourth wire was sent for \$27,113.35 on 6/9/20.
- From 6/19 to 6/22/20, Originator **DI** sent two wires across 2 days to a Russian bank, referencing “personal account”. On 6/19, the wire value was \$27,113.50 and on 6/22/20, the wire value was \$27,113.57.

An unusual feature of all the top transactors’ wires reflected different penny values, even when the wires were sent on the same day.

- For example on 6/8/20, **PJ** sent one wire for \$27,113.28 and a second wire for \$27,113.35. All other wires on 6/8/20 were valued at \$27,113.35 each. On 6/8/20, Country A’s exchange rate was 0.2722 all day.
- Originator **AG** sent \$27,113.20. On Country A’s exchange rate on 6/12/20 was 0.2722 and the two different penny values do not appear to be the result of the exchange rate from Country A’s currency to USD.
- On 6/16, **LL** sent one wire for \$27,113.20 and originator **RR** sent three wires, each for \$27,113.57. Country A’s exchange rate on 6/16 was 0.2722.

### **Country A Exchange Rates – June 2020**

Country A maintained a fixed exchange rate between its currency and the US dollar on all business days in 2020 at 0.2722. Thus, a fixed exchange rate would have had no impact on the penny value variations.

### **Atypical Third Party Behavior**

- The velocity with which these wires were sent does not appear to correspond to any business activities.
  - Top originator **GA**’s wires to “wife” totaling \$108,453 in three days appears an excessive amount of family support
  - Top originator **PJ**’s wires for “loan” totaling \$108,453 in four days also appears an excessively fast loan distribution, especially as PJ was the beneficiary of the wires.
- Nine third-party originators sent out two or more wires for nearly the same value each.
- Thirty-five third party originators only sent out single wires in June.
- Use of multiple common PO box numbers observed across multiple originators.
- Usually, OBI fields in the wires referenced text such as ‘wife’, “education”, “family support”, “loan” or “investment”. However, eleven of the 44 originators wired funds to unrelated individuals.

- Five originators wired to themselves in country A, while 39 originators wired to themselves in 15 other countries.

## **OBSERVATIONS**

Based on these observations:

- More than expected occurrence of the five specific values in the penny value levels
- Wires' penny values differing on the same day despite a tightly controlled currency exchange rate at 0.2722
- Two of the same wire originators in the June dataset as identified in March.
- Velocity with which the wires occurred implies urgency and coupled with several wires sent on the same day with different penny values could indicate that despite the nominal
- FI A1's June wires displayed similar transactional activity to the outbound wires analyzed in March 2020 – the concentration of penny values in 5 specific values (\$0.20, \$0.28, \$0.35, \$0.50 and \$0.57)<sup>8</sup>

We concluded that in June 2020 despite the wires' nominal beneficiaries, the penny values may represent a type of code to the subsequent beneficiary of these wires. Other transactional reviews in subsequent months supported this hypothesis.

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## **7. Financial Institution B (FI B)**

Financial Institution B is located in Country B. In **August 2020**, analysis of FI B's inbound and outbound transactions resulted in observing an atypical pattern of activity (shown in table below).

FI B's wire originator was a Company, an exchange house, sending to Individual beneficiaries in the US and Canada.

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<sup>8</sup> June's values concentrated in three specific values (\$0.20, \$0.28, \$0.35, \$0.50 and \$0.57)



ORIGINATOR / BENEFICIARY COUNTRY	Count	Value
<b>COMPANY Y</b>	<b>12</b>	<b>\$744,551.90</b>
<b>CA</b>	8	\$546,134.14
XD	1	\$77,288.19
TF	1	\$49,970.19
TF	1	\$69,970.19
XH	1	\$35,985.19
HH	1	\$29,985.19
YH	1	\$70,000.00
JR	1	\$99,985.19
XY	1	\$112,950.00
<b>US</b>	4	<b>\$198,417.76</b>
WD	1	\$42,084.19
WD	1	\$56,363.19
RY	1	\$49,985.19
RY	1	\$49,985.19
<b>Grand Total</b>	<b>12</b>	<b>\$744,551.90</b>

Table reflects concentration of penny values at the \$0.19 and potentially the \$5.19 levels in FI B's outbound wires, sent by Company Y.

Penny values at the \$0.00 levels also occurred although less frequently.

Example of single outbound wires from a company to 9 beneficiaries (via a remitter in Country B) in **Canada** and the **US**.

Individuals *received funds* in 2 countries through six banks.

In **August 2020**, FI B's transactions displayed several similar features as FI A1 & A2 wires' penny values from March and June 2020, specifically in the concentration of the penny values at the \$0.19 level (\$561,602 in 10 wires) seemingly regardless of the total wire value or the currency exchange rate, as shown in the Table above.

All twelve outbound wires referenced "current account" in the OBI fields.

### Country B Exchange Rates – August 2020

Country B maintained a floating exchange rate between its currency and the US dollar. However, in August, the currency floated in an extremely narrow band, ranging from 0.12901 to 0.12903. Thus, a quasi-fixed exchange rate<sup>9</sup> would have had little to no impact on the penny value variations.

### Atypical Third Party Behavior

- All twelve third party beneficiaries received a single wire in August 2020 from Company Y.
- Originator remitter, Company Y, did not receive any inbound wires during the month.
- Use of a remitter in Country B to originate the wires seemed to obscure the actual location of the originators.
- Per information in wires' BBI fields, the actual originators were the same as the Individual beneficiaries. The actual originators reportedly sent funds to themselves at addresses in Canada and the US, and not to Country B. It was unclear whether the 12 originators were

<sup>9</sup> Variation between 1/1000<sup>th</sup> and 7/1000<sup>th</sup> of a penny.

actually located in the beneficiary countries. If they were located in the US and Canada, the need to use a remitter in Country B remains unclear.

- OBI fields in all of the wires referenced “current account”, an apparent reference to a beneficiary checking account.

## **OBSERVATIONS**

Based on these observations:

- More than expected occurrence of specific values in the penny value levels
- Wires’ penny values differing on the same day despite a tightly controlled currency exchange rate ranging from 0.12901 to 0.12903.
- Velocity with which the wires occurred implies urgency and several wires sent on the same day with different penny values
- FI B’s August 2020 wires displayed similar transactional activity to the outbound wires analyzed in March and June 2020 – concentration of penny values in one specific value (\$0.19)
- CONCLUSION: We concluded that in August 2020 despite the wires’ nominal beneficiaries, the penny values may represent a type of code to the subsequent beneficiary of these wires. Another transactional review in a subsequent month also supported this hypothesis.
- Further, the lack of impact of currency exchange rates and the consistent penny values couple with the rapid velocity with which the originator transacted supports a conclusion the consistent penny values were meant for another purpose.
- Although the concentrated use of the \$0.19 penny value resembled earlier penny value transactions in Country A, the geographic corridors differ – Country B to US & Canada differs – is different.

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## **8. Financial Institution C1 and C2 (FI C1 & 2)**

Financial Institution C1 is located in Country C.

Financial Institution C2 is located in Country B; however, FI C2 also transacts with Country C as a *counterparty* beneficiary country on behalf of FI C2’s third party customers.

- The Originators and Beneficiaries in this dataset are all legal entities engaged in general trading, consultancies or unknown business.
- Originator SCS registered in 2019 in Country C; CRB registered in March 2020 and TXS registered in March 2016 in Country B.
- Beneficiaries are located in Country B and to a lesser extent in the US.

In **November 2020**, analysis of FI C1 and C2’s inbound and outbound transactions resulted in observing an atypical pattern of activity in legal entity customers (shown in table below).

Originator	Count	Value
<b>CRB</b>	5	\$999,975.95
SGC	4	\$400,000.00
TAI	6	\$1,703,271.82
<b>TXS</b>	6	\$572,600.75
<b>Grand Total</b>	<b>21</b>	<b>\$3,675,848.52</b>

Value	Pennies	Originator
\$207,145.19	\$0.19	CRB
\$203,845.19	\$0.19	CRB
\$198,615.19	\$0.19	CRB
\$196,375.19	\$0.19	CRB
\$193,995.19	\$0.19	CRB

Value	Pennies	Originator
\$99,741.19	\$0.19	TXS
\$98,985.19	\$0.19	TXS
\$95,145.19	\$0.19	TXS
\$94,154.79	\$0.79	TXS
\$92,425.20	\$0.20	TXS
\$92,149.19	\$0.19	TXS

Table summarizes originators FI C1 and FI C2’s atypical activity. The pop out detail tables below reflect concentration of penny values at the \$0.19 levels in FI C1 & C2’s customers.

Country corridors:

Country C to Country B

Country B to US

Two legal entity originators (highlighted in purple) sent from 4 - 6 wires each in November for a combined total of \$1,572,577.

Originators **CRB** and **SGC** are customers of FI C1

- Located in Country C, Originators **CRB and SGC** sent wires to a common beneficiary, **LCJ**, located in Country B. LCJ is a customer of FI B
- **CRB’s** five wires ended in \$0.19 and were sent from Nov 2 through Nov 4, 2020 - 3 days. CRB’s wire referenced “invoices.”
- **SGC’s** four wires were sent in round dollars on two days (11/27 and 11/30). SGC’s OBI fields referenced “payment for goods”
- **TAI’s** wires were sent from Vietnam (\$842,964 -3 wires) and Country C (\$860,307 – 3 wires) across four days to a shell company in Country B; however, they did not contain consistent penny values as shown by CRB, SGC and TXS’ wires.

Located in Country B, Originator **TXS** is a customer of FI C2

- From Nov 18 through Nov 24, 2020, TXS sent six wires to one US counterparty beneficiary. The six wires were sent on 4 days and OBI fields were blank.

- TXS’ four of the six outbound wires contained penny values on \$0.19, similar to the other outbound wires from Country B’s FI B, ending in \$0.19.

TX_DTE	TRANS AMT	USD to Country C Units
11/2/20	\$193,995.19	4.1569
11/3/20	\$207,145.19	4.1536
11/3/20	\$203,845.19	4.1536
11/4/20	\$198,615.19	4.1654
11/4/20	\$196,375.19	4.1654
11/18/20	\$98,985.19	4.0888
11/19/20	\$99,741.19	4.1008
11/19/20	\$92,149.19	4.1008
11/24/20	\$95,145.19	4.0906

Table shows that in November 2020, despite the decrease in Country C’s exchange rate versus the USD, no change appears in the USD transaction amount, particularly not in the ending values of \$0.19.

Thus, we can consider there may be another purpose in the ending values of the \$0.19 wires in Country C and the \$0.19 wires in Country B.

Both countries’ wires have little to no information in the OBI fields, the free form field where originators include the wires’ purpose and other details. Nor do interest rates appear to affect the wires’ ending value.

Identifying the same ending value pattern of \$0.19 in wires sent by different originators in Country B and Country C, we conclude that the values serve as a code to the next beneficiary.

### Country C Exchange Rates – November 2020

Country C maintained a floating exchange rate between its currency and the US dollar on all business days in 2020 (Table directly above). In November 2020, the rate varied between a high of 4.1 units to a low of 4.06 units per USD. As a result, a floating exchange rate would be expected to affect the penny value variations.

- However, when wires were sent ending in \$0.19, on 9 of 12 occasions the rate varied from a high of 4.164 units to a low of 4.09 units per dollar and yet there was no change in the penny values.

### Atypical Third Party Behavior

- Round dollar wires and an OBI reference to a possible ultimate beneficiary in TAI’s wires from Vietnam
- Third party originators sent out from 4 – 6 wires typically across 2 – 4 days – velocity.
- OBI fields in the wires referenced invoices and ‘payment for goods’ or they were blank.
- Little public information available on the originators and beneficiaries..
- CONCLUSION: FI C1 and C2’s November wires displayed similar transactional activity to the outbound wires analyzed in March, June and August 2020 – the concentration of penny values in specific values (\$0.19 and \$0.00 in November 2020)<sup>10</sup>
- Observation of these 2 specific penny values that could not have been derived from currency exchange or wire fees, where the originators primarily wired to other companies

<sup>10</sup> November’s values concentrated in two specific values (\$0.19 and \$0.00)

with little public information over a very short period of 2-4 days, we hypothesize that the values may represent a code to the subsequent beneficiary of these wires.

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## **9. ‘How Chinese ‘Money Brokers’ Launder Cash for Mexican Drug Cartels’**

This recent Reuters article outlines how Chinese money brokers and Mexican drug dealers use numeric codes to communicate. A recent unsealed indictment in the Chicago case of Gan Xianbing revealed how codes may be used verbally between parties who do not know each other – to arrange a meeting, for example.

Codes such as random serial numbers from paper currency may also be used to confirm identity of a person when delivering cash for launder proceeds of drug sales.

While these identical circumstances may not apply in the wire transactions reviewed in this report, the Reuters and NASDAQ articles highlight how broadly seemingly innocuous numeric codes may be used to illicit business, particularly with Chinese businesspersons.

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