# DWELL TIME FOR IMPORT TRANSIT CONTAINERS AT DAR ES SALAAM PORT: AN ANALYSIS OF THE ROLE OF FREE STORAGE TIME

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**A DISSERTATION SUBMITTED IN FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION OF THE OPEN UNIVERSITY OF TANZANIA**

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## CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance by the Open University of Tanzania a Dissertation titled "***Dwell Time for Import Transit Containers at Dar es Salaam Port: An Analysis of the Role of Free Storage time***", in partial fulfilment of the requirements for the degree of Master of Business Administration (MBA) of the Open University of Tanzania.

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**(Supervisor)**

……....

**Date**

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## DECLARATION

I, Idrisa Alli, do hereby declare that this Dissertation is my own work and that it has not been submitted for any degree or examination in any other University and that all sources used or quoted have been indicated and acknowledged by the author in complete references.

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Signature

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Date

## DEDICATION

This work is dedicated to all those who helped me carry out this research and to my son, Ihsan; may you grow up stronger, wiser and happier!

## ACKNOWLEDGEMENT

Many thanks are due to Allah the Almighty, for His Compassion and endless Mercy.

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## ABSTRACT

Dwell time is the principal indicator of the Port's efficiency. Dwell time can be broken into three components: operational dwell time, transactional dwell time and discretionary dwell time. All customs and terminal inefficiencies are absorbed in the first two components above. The aim of this study was to determine delivery patterns and find evidence of discretionary behaviours by the importers taking advantage of the long free storage time offered for transit containers. The study was conducted by extracting terminal handling data for import containers for the first quarter of 2014 from Tanzania Ports Authority (TPA) terminal and linking this data with clearance data from Tanzania Revenue Authority (TRA) for the same container records so as to study the trends. Pearson's Correlation Coefficient was used to determine the strength and direction of relationship between the two variables and was found to be equal to 0.725 which shows strong positive correlation. The findings from the analysis suggest that the actual time required to complete customs and terminal procedures is very minimal and that the majority of the deliveries tend to happen in the last days of the expiry of free storage. The general impression from study findings is that delivery of containers is dictated by free time given at the Dar es Salaam Port; subsequently influencing average dwell time of the containers. The study recommends reduction of free time from 14 days to 7 days or less to meet a target of 5 days by 2015 and introduction of punitive demurrage fees to discourage importers from leaving their containers at the port despite finishing clearance processes. Lastly, findings like these should be made available to importers to justify new measures to be taken.

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| | |
|---|---|
| ASYCUDA | Automation System of Customs Data |
| BRN | Big Results Now |
| CDPO | Centralized Data Processing Office |
| CFA | Clearing and Forwarding Agent |
| CFS | Container Freight Station |
| DSM | Dare es Salaam |
| ICD | Inland Container Depot |
| ODCY | Off-Dock Container Yards |
| OGD | Other Government Agencies |
| PAD | Pre Arrival Declaration |
| SPSS | Statistical Package for Social Sciences |
| TAFFA | Tanzania Freight Forwarders Association |
| TANSAD | Tanzania Single Administrative Document |
| TASAA | Tanzania Shipping Agents Association |
| TATOA | Tanzania Truck Owners Association |
| TAZARA | Tanzania and Zambia Railway Authority |
| TBS | Tanzania Bureau of Standards |
| TEU | Twenty Equivalent Units |
| TFDA | Tanzania Food and Drugs Authority |
| TISS | Tanzania Inter-Bank Settlement System |
| TMEA | Trade Mark East Africa |
| TOS | Terminal Operations System |
| TPA | Tanzania Ports Authority |

| | |
|---|---|
| UNCTAD | United Nations Conference on Trade and Development |

# CHAPTER ONE

# 1.0 INTRODUCTION

## 1.1 Background to the Research Problem

Container dwell time is the length of time over which the container stays at the particular port. It is one of the principal indicators of port's efficiency. The container dwell time demonstrates terminal productivity and overall terminal operational efficiency. The importance of dwell time in container terminal is stressed empirically by Merckx (2005) that reducing dwell time by a half can double yard throughput without investing in new spatial capacity.

The competitive position of the port relies on, among other factors, its ability to handle cargo in the shortest time possible. Shippers often look at this factor to determine which terminal to use where there are alternative choices. Similarly, port authorities and terminal operators rely on this factor to devise appropriate strategic and tactical plans to improve their ports.

In order to improve the cargo supply chain, The Tanzania government through its Big Results Now (BRN) initiative for the Ministry of Transport requires the Dar es Salaam Port to reduce the current dwell time of 14 days for transit containers and 9 days overall to only 5 days by the year 2015 (URT, 2013). Due to this, a committee of experts from all sectors affiliated to Port activities was called upon to come up with a plan on how to achieve the set target. The committee came up with a number of recommendations and directives to which the Port and its stakeholders have to

adhere in a bid to reach the BRN target. Most of these recommendations are aimed at improving port performance in terms of operational and transactional efficiencies only (URT, 2013).

However, there is a possibility that high dwell time in sub-Saharan Africa in general and Tanzania in particular is caused by discretionary behaviours by customers. The customers tend to use the Port as a warehouse in the supply chain rather than a node in the total intermodal logistics chain (Refas & Cantens, 2011).

This study therefore utilizes actual data for import transit containers from TPA Dar es Salaam terminal and Tanzania Revenues Authority (TRA) databases in order to: (1) explore the average time required to finish all operational and transactional activities at the Port; (2) study delivery pattern to check whether the free time allowed influences the way customers take the containers from the Port and finally (3) apply statistical techniques to prove the assertion that the free storage time plays a significant role for import transit containers delivery at the Port.

## 1.2 Problem Statement

The on-going efforts to improve performance at the Port of Dar es Salaam are unlikely to achieve intended results of reducing cargo dwell time. This is because most of these efforts are aimed at improving operational and transactional efficiencies. The efforts have included constructing new berths, expanding yards, purchasing new equipment for container handling, implementing information systems to facilitate flow of information in the cargo clearance and delivery

procedures (TPA , 2012). Although these are necessary, they are not sufficient steps to reduce dwell time to attain the intended target.

Rodrigue (2008) argues that the interaction of logistic players with different interests in sea port terminals may have significant impact on dwell time. He further argues that freight forwarders are using terminals as an extended component of their distribution centres and making the best use of the free storage time available in seaport. Over the past decade, the international donor community has been investing in projects that facilitate trade and improve trade logistics in the developing world.

These projects have assumed incorrectly that customs, terminal operators and other controlling agencies are solely responsible for the long delays in ports, with infrastructure coming in second. In reality, customs responsibility (especially for months-long delays) may not be as important as usually perceived, and in-depth data collection and objective analysis are required to determine the actual drivers of long cargo delays (Kgare, *et al.*, 2011).

Similar situations were evidenced in the port of Doula, Cameroon, where despite numerous structural reforms and port improvements, the dwell time remained stagnant at 22 days (Refas & Cantens, 2011). Is this the case with Dar es Salaam Port? This study aims at examining the contribution of the free storage time on the overall import transit containers dwell time by finding evidence or patterns that can suggest such discretionary behaviours by freight forwarders.

## 1.3 Research Objectives

To address the identified problems, the following research objectives were formulated:

### 1.3.1 Main Research Objective

The main objective of this study was to investigate the influence of free storage time for import transit containers on the average container dwell time at the Port of Dar es Salaam.

### 1.3.2 Specific Objectives

To respond to the main research objective, the following specific research objectives were formulated:

i). To determine average dwell time for import transit containers at the Dar es salaam port.

ii). To determine the average time required to perform transactional and operational activities at TRA and TPA respectively.

iii). To assess delivery patterns of the import transit containers.

iv). To assess the way free storage time influences the container dwell time.

## 1.4 Research Questions

To comprehensively address the above specific research objectives and adequately guide the study, the following research questions were formulated:

i). What is the average dwell time for import transit containers?

ii). How long, on average, does it take to complete customs clearance procedures and port operations?

iii). Are there patterns in container delivery showing some logical trends?

iv). Is there empirical evidence to prove that container dwell time is influenced by free storage time offered?

## 1.5 Significance of the Study

Dwell time is one of the principal indicators of the port performance. The ability of the port to attract cargo and subsequently generate revenue for the country very much depends on how the port is able to minimize the time vessels and cargo stay in the port.

Hummel (2001) shows that increased transport time adversely affects trade and economies in general; and in turn how shorter times can propel business in the countries connected through sea port.

The reduction of dwell time will thus reduce transportation cost for goods passing through the Dar es Salaam Port, and increase port's revenues. An efficient maritime supply chain will also enable the country to attract increased maritime trade and give it a competitive advantage over its immediate rivals.

Halving dwell time doubles port capacity without extra investment (Merckx, 2005); therefore a lot of money that would otherwise be misappropriated into counter-productive programmes will be saved.

The optimization of port capacity will enable the ports to utilize infrastructure in a better and more efficient manner. Consequently, turn-around time for vessels will be

reduced substantially, allowing ports to attract and handle more vessels. Moreover, reduction of dwell time will help to decongest the port and support efficient yard planning.

### 1.5.1 Major Contribution of the Study

Although there are substantial researches in the area of port performance, quite few researches focus on the issue of dwell time specifically. Even those studies that try to focus on the issue, they look into it from different perspectives, including on how dwell time impacts on trade, competitiveness and productivity. Some researchers suggest that free storage time may be an encouraging factor for discretionary storage. This study attempted to investigate the relationship between dwell time and free storage for import transit containers. The study particularly checked whether data from terminals and customs really supported the long held view of discretionary behaviour of importers.

The findings of this research serve as stepping stone for future researches on the topic and will usher close examination on the determinant factors of the container dwell time at the port of Dar es salaam and other similar ports..

## 1.6 Organization of the Study

This study is organized into five chapters. Chapter One introduces the study; it begins with a brief background to the problem, a statement of the research problem, the objectives and research questions and justification for the study. Chapter Two presents a detailed review of relevant literature; conceptual definitions, theoretical

and empirical literature review, research gap and conceptual and theoretical frameworks.

Chapter Three presents research methodology and how data were analysed. It also gives the limitation of the study.

Chapter Four presents and discusses research findings with respect to the objectives of the study. Chapter Five presents the summary, research conclusions and recommendations of the study.

# CHAPTER TWO

# 2.0 LITERATURE REVIEW

## 2.1 Overview

This chapter critically reviews published materials pertinent to the topic of the study. The purpose is to build foundation upon which this study is based and develop understanding and insight into relevant researches and trends (Saunders, *et al.*, 2010). In this regard, this chapter reviews theoretical and empirical studies related to container dwell time and its determinant factors in general, free storage time in particular. In the second part conceptual framework of the study is presented and lastly research gaps from literature reviewed are discussed.

## 2.2 Definitions of Key Concepts

i). **Port**: Alderton (2008) defines a port as a maritime intermodal interface. It is an area where there are facilities for berthing or anchoring ships and where there is equipment for the transfer of goods from ship to shore or vice versa.

ii). **Containers**: Containers are large boxes used to transport goods from one destination to another. They are designed to facilitate movement of goods without intermediate reloading. Goods in containers require less packaging, are less likely to be damaged and result in higher productivity as compared to conventional bulk cargo (Huynh and Walton, 2005).

iii). **Transit container**: Container destined for a transit state. The transit state is defined as a country through which container passes en route to destination country.

iv). **Dwell time**: Manalytics (1979) as cited by Merckx (2005) defined dwell time as the average time a container remains stacked on the terminal and during which it waits for some activity to occur. According to this definition, dwell time also refers to the efficiency of terminal operations. The shorter the dwell time the more efficient the performed operation and vice versa.

v). **Free storage period**: Kgare et al. (2011) defined it as the time from when the vessel completes discharge and the container is stored in the port area until collection for a specified period without incurring any port storage charges.

vi). **Import**: Goods brought into the country from oversees as final destination or transit to other countries.

## 2.3 Theoretical Literature Review

There are not many researches focusing on dwell time and storage time exclusively. This may be because of the fact that containerization concept itself is relatively new phenomenon. Most of the studies have looked into port efficiencies, port capacity, port economics and trade volumes.

There are four standout theories that explain determinant factors of dwell time at container ports; it is from these theories that the objective of this study originates.

### 2.3.1 Warehouse-derived Terminalisation of the Supply Chain

Refers to an emerging trend where the function of warehousing, in whole or in part, is shifted to the terminal. The terminal becomes the main buffer instead of the distribution centre, which functionally makes the terminal a component of the supply

chain; no longer as a factor of delay, but as a storage unit. Even if this trend appears paradoxical vis-à-vis “just-in-time” strategies, it gives the supply chain a higher level of flexibility to lower their warehousing costs as well as to adapt to unforeseen events such as demand spikes or delays. An “inventory in transit” strategy coupled with an “inventory at terminal” can reduce significantly warehousing requirements at distribution centres.

Rodrigue and Notteboom (2009) argued that freight forwarders, on the one hand, were using terminals as an extended component of their distribution centres and made use of the free time available to store containers at the Port. It is this inference that this research is set to find out, the effect of a long free storage on container dwell time at the port of Dar es salaam.

### 2.3.2 Port Policies and Management

Moini et al., (2012) argue that Port policy and management can have a direct impact on container dwell time. For example, agreements between container terminals and shippers specify the allowable free period for a container before demurrage fees are incurred. The amount of demurrage fees to be paid after elapse of the free time can also determine whether the customer leaves the container as the cheaper alternative as opposed to taking out the cargo to a private warehouse.

Other factors related to port policies and management include intricate clearance procedures, statutory inspection of containers and degree of computerization for documents transfer (India Secretariat for the Committee on Infrastructure,

2007).Again here the questions of free storage and discretionary behaviour are insinuated as suggested in the first theory of warehouse-derived terminalisation of supply chain.

### 2.3.3 The Demand Side of Port-Hinterland Container Logistics

The demand side of container distribution originates from shippers. The shipper is a transportation customer who needs to move containerized cargo from one location to another. He/she is normally the cargo owner, and could be the consignor or the consignee depending on its position and function in the supply chain. The term shipper is also employed to designate an intermediary broker or third-party logistics company governing and coordinating the whole delivery process for cargo owners. In port-hinterland container logistics, shippers typically aim to the minimization of generalized costs, which include direct and indirect costs of distribution operations (Iannone, 2013).

The theory essentially argues that shippers are holding the ports at ransom by looking for ways to minimize their total cost with little regards paid to the efficiency of the container ports. In other words, if leaving the container at the port for some time is cheaper than moving it quickly to destination warehouse, the shipper will opt for the former.

The decision taken by the shipper to move the cargo out of the port quickly or late will depend on port policies as discussed in the theory of port policies and management as well as the supply chain setup for the business undertaken by the shipper.

### 2.3.4 Port Infrastructures

Extensive researches have so far been done on this as single most determinant factor of higher dwell time at container terminals. Issues looked into include:

Inadequate Port Capacity: The volume of the cargo being handled at the port has been increasing especially with emergency of containerization while the infrastructure has remained the same over time. This leads to congestion and difficulty in handling cargo in time.

Poor transport system within the Port and immediate hinterland: Very few ports are directly connected with reliable railway system. Those lucky enough to have intermodal link, the railways have been ailing; forcing customers to opt for trucks. Trucks pose another challenge in the hinterlands and the ports alike.

Inadequate cargo handling equipment: cargo handling equipment like gantry cranes, reach stackers and Gottwald cranes are very expensive and most terminal operators cannot afford them adequately. This causes delays due to waiting for handling equipment (India Secretariat for the Committee on Infrastructure, 2007).

Huynh (2008) introduced a method to evaluate the effect of container dwell time and storage policies on import container throughput, storage density and re-handling productivity. He considered two import storage strategies: 1) non-mixed- no stacking of new import containers on top of old ones and 2) mixed –stacking. For a non-mixed storage policy, it was found that the increase in container dwell time lowered

throughput while it increased re-handling productivity. For the mixed storage policy, the increase in container dwell time raised throughput but decreased re-handling productivity.

## 2.4 Empirical Analysis of Relevant Studies

There are many factors that affect performance of a container terminal. One indicator of the terminal's performance is the average time a container remains stacked on the terminal from the moment it is offloaded from the vessel to the time it gets out of the gate in the import cycle, and the converse in the export cycle. Merckx (2005) did extensive research on the impact of dwell time on terminal throughput. He observed that halving container dwell time doubles yard throughput at no investment.

However, he noted the common practice by shippers to use terminal stacking areas as overflow nodes in logistics chains. Merckx (2005) introduced punitive storage charging as the means of discouraging the shippers to use the terminal as their warehouse. In Africa however, this alone cannot be a remedy to the problem of dwell time because concession rates are normally used as a marketing tool to attract cargo and compete with rival ports (kgare et a., 201l).

Nyema (2014) looked into the factors influencing container dwell time at Mombasa port, covering broader issues directly influencing container terminal efficiency such as inadequate quay/gantry crane equipment, reducing berth times and delays of container ships, container cargo and truck turnaround time, custom clearance, limited storage capacity, poor multi-modal connections to hinterland and infrastructure..

According to Nyema (2014), these issues were the culprits for the delays at Mombasa Port and he advocated improvement of infrastructure and integrated cargo clearance information systems as an answer to the problem of higher dwell times and congestions at the Port. The major shortcoming in this study is the fact that he did not use terminal data, since he interviewed terminal users and recorded their opinions. In view of this fact Moini et.,(2012) are of the firm opinion that to correctly determine which factors influenced dwell time the most, one needs to study the terminal operations data.

One unique study of dwell time was carried out by Refas and Cantens in 2011 at the Port of Doula, Cameroon; commissioned by the World Bank. Cameroon was a special example of the port that has undergone substantive operational and transactional reforms in a bid to improve performance. Doula Port is largely a transit port feeding hinterland countries of central Africa. As such the World Bank took keen interest in improving performance at the port in terms of equipment, spatial increase of container yards, fully implemented ASSYCUDA system for custom clearance as well as terminal cargo handling system. However, the results were disappointing as dwell time remained constant for ten years despite the efforts (Refas & Cantens, 2011).

The study was carried out to find out why the dwell time was not dropping down. They used Clearance data from ASSYCUDA combined with handling data from the port and applied statistical analysis to determine the causes of persistent dwell time. It was found that it took less than 7 days to complete customs and port clearance

procedures. The question remained why then the average dwell time was stuck at 20 days. Some external factors, primarily discretionary behaviours by shippers making use of the available long free time at the port were suggested.

The Port of Durban in South Africa has the lowest container dwell time of all sub-Saharan African ports. Kgare et al., (2011) show that Durban port is one of the relatively advanced ports in Africa with container dwell time at an average of 3-4 days, and at same time free time offered at Durban port is 3 days. This suggests a positive correlation between free time and dwell time, which this research intends to find out for the Port of Dar es salaam.

## 2.5 Conceptual Framework

As depicted in the conceptual model of the study presented in Figure 2.1 below, average dwell time is a combination of three dwell times, namely operational, transactional and discretionary dwell times. Discretionary dwell time seems to have greater contribution than others, which is caused by presence of huge free storage period.

Operational dwell time is mainly the time to unload vessels and store containers in yards. It mainly depends on the efficiency of the port and the availability of equipment combined with the level of occupancy of storage facilities.

Transactional dwell time mainly concerns the transaction time between the importers/port services and customs procedures.

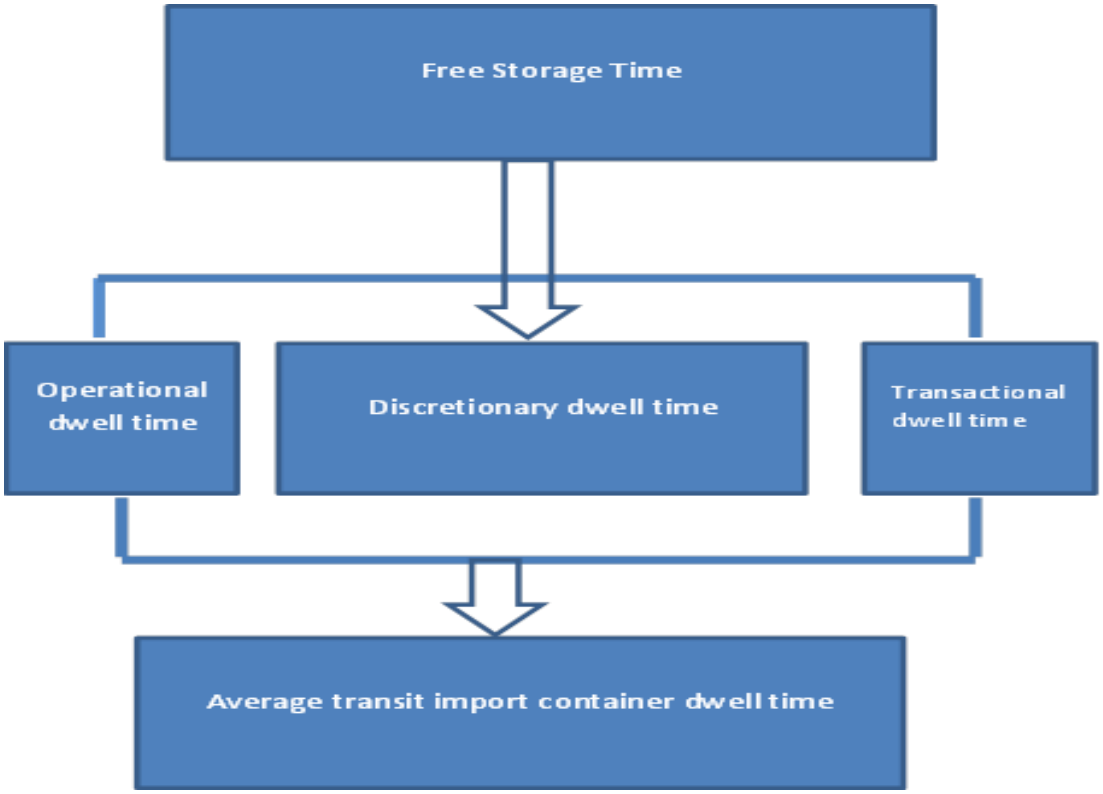



**Figure 2.1: Conceptual Framework**

Source: **(**Literature Review by Researcher, 2015)

## 2.6 Review of Variables

### 2.6.1 Container Dwell Time

Merckx (2005) defines the container dwell time as the average time a container remains stacked on the terminal and during which it waits for some activity to occur. According to this definition, dwell time also refers to the efficiency of terminal operations. The shorter the dwell time the more efficient the performed operation and vice versa.

Dwell times can be influenced by many factors, some of which are unrelated to the service quality. For instance, commercial customers often use the storage yard as an

overflow node in their supply chain creating an intentional delay. This situation distorts dwell time data since some of the commercial customers place their export cargo on the terminal well before the time required to catch the intended vessel and may leave their import cargo on the terminal yard for an extended time after arrival.

Another aspect of the dwell time is the amount of time required to process the paperwork for the release/intake of a container. However, with the increasing level of information and paperless documentation procedures in maritime transportation, this specific element is becoming less relevant. In order to analyse data on container dwell times, it is important to take these aspects into account.

### 2.6.2 Disaggregated Analysis

Raballand *et al.,* (2012) divide the container dwell time into three constituent components. These are operational dwell time, transactional dwell time and discretionary dwell time as shown in Figure 2.2 below.

#### 2.6.2.1 Operational Dwell Time

Refers to the performance of physical operations at the port or container terminal, mainly the time to unload vessels and store in yards. It depends on the efficiency of the port and the availability of equipment combined with the level of occupancy of the storage facilities.

#### 2.6.2.2 Transactional Dwell Time

Mainly concerns the transaction time between the importers customs and other government agencies (OGD).

### 2.6.2.3 Discretionary Storage

It is the residual having taken into account operational and transactional dwell time.

### 2.6.3 Free Storage Time

Several factors affect the length of the period over which a container remains in a marine terminal yard (container dwell time).

The single most important factor, according to recent studies on dwell time in sub-Saharan African ports, is the use of the port as storage warehouse by importers or their agents. It seems that importers are taking advantage of the opportunity of free storage given and only consider taking their cargo when the free storage nears expiry (Refas & Cantens, 2011).

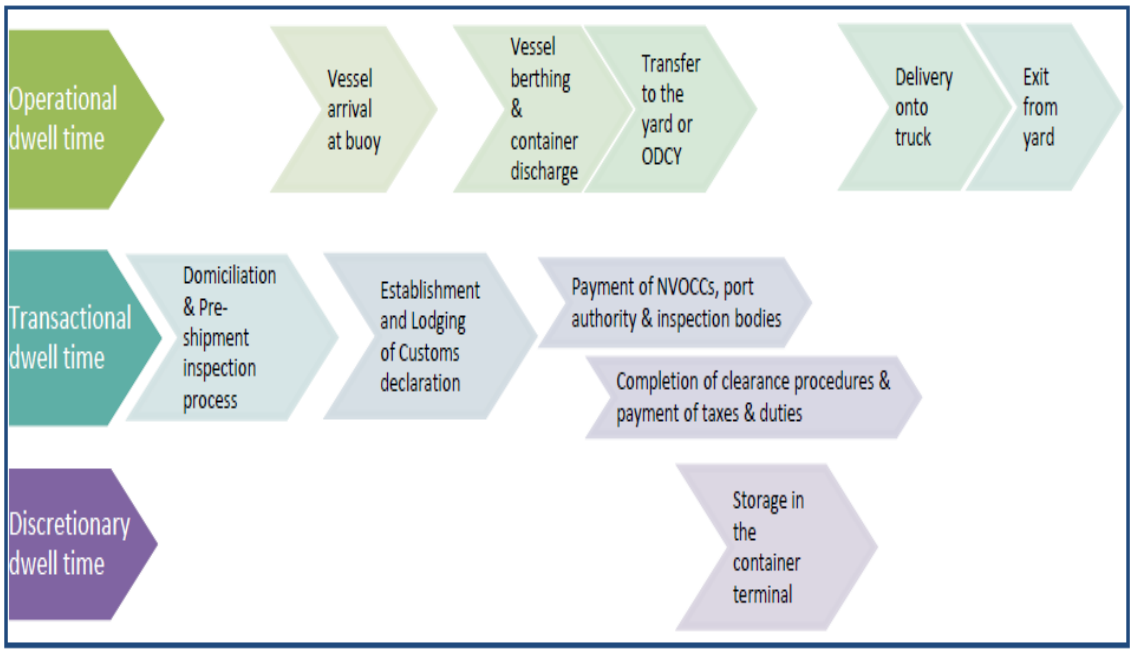



**Figure 2.2: The Components of Cargo Dwell Time: Sequence of Operational, Transactional and Logistics Operations**

**Source**: (Refas and Cantens, 2011)

Free storage time is defined as the time from when the vessel completes discharge and the container is stored in the port area until collection for a specified period without incurring any port storage charges. This leads to discretionary storage which is the sum of all idle times between container arrival and exit from container yard that are strictly storage times with no clearance process or handling operation performed.

It is this link between container dwell time and discretionary storage prompted by free time that this study explores at the Port of Dar es salaam.

### 2.6.4 Import Transit Container Clearance Procedures

There are various actors, institutions and agencies, that are in one way or another involved in the process of cargo delivery at the Port of Dar es salaam as required by the law. Their involvement depends on the type and nature of the cargo involved, destination and other factors. The main actors involved in the clearance of cargo at the Port (TPA, 2010) are:

- Tanzania Ports Authority (TPA)
- Tanzania Revenue Authority (TRA)
- Tanzania Freight Forwarders Association (TAFFA)
- Tanzania Shipping Agents Association (TASAA)
- Tanzania Truck Owners Association (TATOA)
- Tanzania Bureau of Standards (TBS)
- Tanzania Food and Drugs Authority (TFDA)

- Ministry of Agriculture, Food Security and Cooperatives
- Ministry of Health – Port Health Office
- Ministry of Livestock Development and Fisheries
- Ministry of Natural Resources and Tourism
- Tanzania Atomic Energy Commission
- The Government Chemist Laboratory Agency

#### 2.6.4.1 The Import Process at the Port

i). The TPA receives Cargo Manifest electronically from Ships Agent.

ii). The CFA lodges Custom's Release Order and Delivery Order at TPA's Revenue Office.

iii). CFA collects invoice from TPA's Revenue Office.

iv). CFA agent pays relevant port charges to TPA's Bank Account and obtains receipt for payment made.

v). CFA agent announces truck for delivery.

vi). Truck proceeds to gate and driver produces valid driving licence and truck registration card to TPA's gate attendants and obtains gate-in ticket.

vii). Truck proceeds to loading point and loads cargo.

viii). TPA issues gate pass for loaded truck and truck proceeds to check point for inspection and other gate-out formalities.

ix). Truck proceeds to exit gate, obtains gate-out ticket to exit port gate.

These activities constitute what is called operational dwell time. Kgare *et al.*, (2011) assert that operational dwell time is mainly the time to unload vessels, storage in

yards and marshalling of trucks for delivery. It mainly depends on the efficiency of the port and the availability of equipment combined with the level of occupancy of the storage facilities.

**2.6.4.2 The Import Clearance Process at Customs Department**

i). Customs agent submits Tanzania Single Administrative Document (TANSAD) with attachments electronically to Centralized Data Processing Office (CDPO) through Automation System of Customs Data (ASYCUDA ++) and ASY-SCAN connected remotely in their office or Data Bureau.

ii). Customs agent generates TANSAD using ASYCUDA++ system based on

iii). (Pre Arrival Declaration) A-PAD issued by Dar es Salaam (Customs Service Centre) CSC and submits with scanned attachments electronically to CDPO.

iv). Customs agent pays Duties and Taxes to the bank. The amount exceeding Tshs 5 million is paid through Inter-bank Settlement System (TISS) and amount less than Tshs 5 million is paid directly to a TRA cashier or point of sale system.

v). Customs agent submits payment receipt to cashier for striking into ASYCUDA++ system (payment through TISS).

vi). Customs officer enter TANSAD registration number into ASYCUDA++ system once Duties and taxes of the respective TANSADs are affected on ASYCUDA++ system requesting for release.

vii). Selectivity is performed automatically. TANSADs are channelled into GREEN for Direct Release, YELLOW for Documentary check, RED for Scanning/Physical verification.

viii). Customs officer performs documentary check to reconcile information recorded in A-PAD and TANSAD. If it conforms, release order is issued or TANSAD is channelled to scanning or physical verification (depending on risk criteria). If Non-conformity is observed, TANSAADs are channelled into Error Management for amendment.

ix). TANSAD selectivity status is availed to Agent and the entry/exit station for subsequent cargo release.

These activities constitute what is called transactional dwell time. Kgare *et al.,* (2011) assert that transactional dwell time mainly concerns the transaction time between the importers/port services and customs.

## 2.7 Research Gap

Based on the theoretical and empirical literature reviewed in this chapter, it can be seen that since the emergence of containerization, researchers have been trying to find out the causes of longer dwell times at ports. Some have concentrated on improvement of infrastructure such as ports' spatial capacities and crane moves, and they have tried to develop mathematical models to express the same. Some have been able to point out the root cause of the longer dwell time as being shippers' decision in the light of total logistic costs (Iannone, 2013). Kgare et al. (2011) were able to empirically show discretionary behaviour by customers willingly leaving their containers at the port as cheap warehouse option.

From the literature reviewed, this is the first research that attempts to investigate

whether the free time can be dictating the longer dwell times for import containers at the port of Dar es Salaam.

## 2.8 Chapter Summary

Transport and supply chain researchers have been paying more attention to the issue of dwell time in recent years. This may have been caused by the expansion of cross-border trades and high level of integration in the supply chain.

Port researchers have studied the issue of port dwell time by looking at four main topics: port operations and, in particular, the means of optimizing port productivity; trade competitiveness, which considers the impact of cargo dwell time on trade; port competition, which has recently been the subject of growing attention in the context of direct competition between port terminals at the regional and global levels; and supply chain performance. However, no one has specifically analysed port dwell time as a subject of research by itself. In other words, port dwell time is generally seen as a determinant of analytical outputs such as port efficiency, port capacity, or even trade volumes, but it is not treated as an issue worthy of attention by itself. Nevertheless, research has shown its growing importance and relevance in the context of modern port operations and trade logistics.

The importance of reducing dwell time to increase port capacity throughput is undisputed. It is established that halving dwell time can potentially double the throughput of the port. Researchers have spent a lot of time to understand why cargo spends weeks in sub-Saharan Africa. They have studied determinant factors of the

dwell time and concluded that private sectors more than public institutions of customs and port authorities accounted for long dwell times in Sub-Saharan African ports.

# CHAPTER THREE

# 3.0 RESEARCH METHODOLOGY

## 3.1 Introduction

This chapter presents the methodology employed in the study; it describes research methods, target population, sampling techniques and the sample size. In addition, it presents data collection methods employed in the study and rationale for employing these techniques.

## 3.2 Research Design

This study is primarily quantitative and also descriptive because the aim of the researcher is to quantify relationships between variables, which are free storage and dwell time for import transit containers at Dar es Salaam Port and to determine correlation between these two variables.

According to the research questions, the main variables of the study are of numerical nature and are mathematically analysed in order to establish relationships between them. It was therefore imperative for the researcher to go for quantitative research design.

Zikmund et al., (2009) state that the descriptive method of research is used to gather information about existing conditions. The emphasis is on describing rather than on judging or interpreting. The aim of descriptive research is to verify formulated hypotheses that refer to the present situation in order to elucidate it. The descriptive approach is quick, practical and cost effective. Moreover, this method allows a

flexible approach, thus, when important new issues and questions arise during the duration of the study, further investigation may be conducted. The aim of the research was to investigate whether there is evidence in the data from terminal and customs to suggest discretionary behaviour on the part of importers and their agents opting to take advantage of the long free time offered. It was therefore logical for the researcher to employ this method.

### 3.3 Population

The study aimed at tracking container records in the Port and Customs information systems to determine durations for clearance and delivery i.e. operations at the Port and Customs. The target population was Import Transit Containers through Dar es Salaam Port TPA container terminal about 3000 TEUs for the period under observation (January-April 2014).

### 3.4 Sampling

This was a cross-sectional study; therefore a snapshot of a population at a certain time was selected, allowing conclusions about phenomena across a wide population to be drawn. Given the study time available, it would be impractical for a researcher to conduct longitudinal study for the subject under observation. Moreover, the study deals with huge database of continuous operational data from container terminal of the Dar es salaam Port and corresponding records from TRA. It was thus wise for the researcher to take a' snapshot' that is a point in time for the study. The cross-sectional study design is best suited for descriptive research in which the aim is to study some patterns in the data and relationships between variables.

Only the most productive records were selected fulfilling the following criteria were selected:

i). Import Transit containers records extracted from TPA and TRA systems in the period of January-April 2014. The period is known as 'peak' period therefore delays are most prevalent and noticeable in this period than any other period of the year (Moini, 2010).

ii). The first 'peak' quarter after BRN initiative came into effect. The aim was to capture infrastructural and operational improvements' impacts on the dwell time.

iii). The containers selected had to have complete records in both TPA and TRA systems.

This study used 583 records that satisfied the criteria above.

### 3.5 Data Source

In order to meet the objectives of the study, the researcher required data from TPA Terminal Operations System (TOS) as well as Customs Database (TRA Assycuda++). The data provided by the TPA terminal and Customs contained information for all import transit containers that were handled by the terminal during a first quarter of 2014. Data fields' headers are shown in Figures 3.1 and 3.2 below. Since these records were not naturally integrated, further analysis and organization were performed to get records which appeared in both systems.

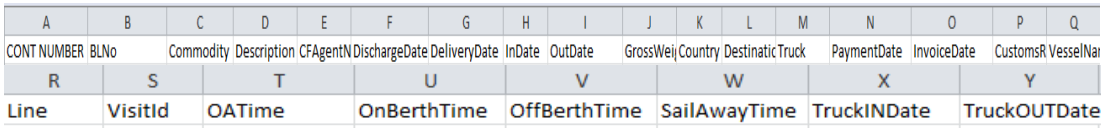
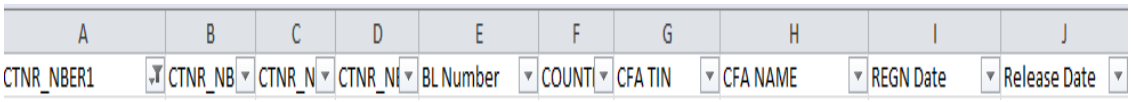



**Figure 3.1: Data fields from TPA Terminal Operations System**

Source: (Documentary Review, 2015)



| A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|
| CTNR_NBER1 | CTNR_NB | CTNR_N | CTNR_NI | BL Number | COUNT | CFA TIN | CFA NAME | REGN Date | Release Date |

**Figure 3.2: Data fields from Customs Clearance System Assycuda++**

Source: (Documentary Review, 2015)

From these records relevant data were extracted and processed for analysis. The data included container number, destination, discharge date, delivery date, and truck in and out dates, release lodge in date and release issue date. Total container dwell time, operational dwell time and transactional dwell time were henceforth determined.

Data selection based on three criteria devised by the researcher as follows:

i). Purpose: The objective of the study guided data selection process. Only data that could help to answer research questions were selected.

ii). Scope: Container records selected were those falling in the pre-mentioned time horizon, import, transit destination through Dar es Salaam port TPA container terminal.

iii). Format and Completeness: Only clean records were selected for which there was link in TPA and TRA databases.

### 3.6 Measurement of Variables

The study is based on two variables; the independent variable i.e. free storage time, and dependent variable, dwell time. Both are quantitative numerical variables.

Free time is defined as the time from when the vessel completes discharge and the

container is stored in the port area until collection for a specified period without incurring any port storage charges (Refas & Cantens, 2011).

Import container total dwell time in ports is defined as the total time lapse between discharge from the vessel and delivery out of the exit gate (Kgare*et al.,* 2012).Operational dwell time is also defined as total time for the physical transfers only plus the necessary idle time between operations by terminal operator.

Transactional dwell time mainly concerns with transactions time of importers or their agents at customs.

### 3.6.1 Operationalization of Variables

**Operational dwell time** is equal to the sum of Discharge and Transfer Time plus Invoice Issue and Receipt Time plus Delivery Truck Turnaround Time.

**Transactional dwell time** is equal to difference between Release Issue Date and Release Request Date.

**Total dwell time** is equal to the difference between Container Delivery Date and Container discharge Date.

**Free time impact** is equal to the difference between Pre-Set Free Time and (the sum of Operational Dwell time and Transactional Dwell Time).

**Discretionary dwell time** is equal to the difference between Total Dwell Time and (the sum of Operational Dwell Time and Transactional Dwell Time).

### 3.7 Data Analysis

Data used in this study were first extracted from the Terminal Operations Database of TPA and clearance data from TRA's Assycuda++ system. The clean records from both files were merged into one file and then formulas applied to obtain required variable quantities as per definitions. The records were exported into Statistical Package for Social Sciences (SPSS) for statistical analyses. Microsoft Excel 2010 and SPSS Version 20 were used to generate descriptive statistics and trends in the data as per objectives.

Pearson correlation coefficient was used to determine the strength of relationships between the two variables, free time impact and discretionary dwell time.

# CHAPTER FOUR

# 4.0 PRESENTATION AND DISCUSSION OF FINDINGS

## 4.1 Introduction

This chapter presents and discusses research findings. The results are presented according to the study objectives which are:

i). To determine average dwell time for import transit containers at the Dar es salaam port.

ii). To determine the average time required to perform transactional and operational activities at TRA and TPA.

iii). To assess delivery patterns of the import transit containers.

iv). To assess the way free storage time influences the container dwell time.

Quantitative statistical techniques have been employed to analyse data and present the findings to answer the study questions.

## 4.2 Distribution of the Containers Studied by Country of Destination and Size

The study investigated the dwell times and delivery patterns of import transit containers at the Dar es Salaam Port. The Dar es salaam Port serves six transit countries of Malawi (MW), Zambia (ZM), DR Congo (CD), Burundi (BI), Rwanda (RW) and Uganda (UG). The study did not discriminate 20 feet containers and 40 feet containers.

**Table 4.1: Percentage Distribution of Containers by Country of Destination**

| Transit Country | Percentage Number of Containers |
|---|---|
| BI | 18 |
| CD | 21 |
| MW | 1 |
| RW | 28 |
| UG | 0.5 |
| ZM | 31.5 |

Source: (Field data, 2015)

**Table 4.2: Percentage Distribution of Containers by Size**

| Container Size | Percentage Number of Containers |
|---|---|
| 20" | 48 |
| 40" | 52 |

Source: (Field data, 2015)

As it can be seen in Table 4.1 above, Burundi, DR Congo, Rwanda and Zambia accounted for more than 90% of the transit containers in the sample studied. This may be an indication that Malawi and Uganda are no longer relying on Dar es Salaam Port as their main gateway. This is because Uganda and Malawi have alternative seaport gateways of Mombasa and Nacala respectively.

Table 4.2 shows that the distribution of containers in the sample was evenly distributed with regard to size, with 20 feet containers accounting for 48% and 40 feet containers accounting for 52%. This shows that there is no significant difference in terms of choice of container size and, therefore, whatever applies to 20 feet containers applies to 40 feet containers just as well.

### 4.3 Dwell Time for Import Transit Containers

The total time the container remains stacked in the yard is a very important performance indicator in the container terminal. The longer the dwell time the worse the performance or productivity of the container terminal. In the world of stiff competition between ports serving the same hinterland, dwell time can make or break the business of the port and subsequently the overall economy of the country. Importers often choose the port that guarantees less dwell time in a normal just-in-time supply chain setup.

One of the objectives of this study was to find how long on average import transit containers stay at the Dar es Salaam Container Terminal. The data analysis was carried with aid of SPSS software and results are displayed in the figure 4.3 below

**Table 4.3: Average Dwell Time for Import Transit Containers at Dar es Salaam TPA Container Terminal**

Descriptives

| | | | Statistic | Std. Error |
|---|---|---|---|---|
| Container Dwell Time | Mean | | 13.92 | .035 |
| | 95% Confidence Interval for Mean | Lower Bound | 13.85 | |
| | | Upper Bound | 13.99 | |
| | 5% Trimmed Mean | | 13.96 | |
| | Median | | 14.00 | |
| | Variance | | .722 | |
| | Std. Deviation | | .850 | |
| | Minimum | | 6 | |
| | Maximum | | 18 | |
| | Range | | 12 | |
| | Interquartile Range | | 0 | |
| | Skewness | | -2.731 | .101 |
| | Kurtosis | | 30.905 | .202 |

**Source**: (Field data, 2015)

The results displayed in table 4.3 shows that the average dwell time for import transit containers is 13.92 days. The median is at 14 days. This is in agreement with a study carried by TMEA (2013), which shows average dwell time at 14 days too. We may be surprised why 14. It is this suggestion that prompted this study. Two questions arise from this number. First, 14 is storage free period given for transit import containers; are dwell times and this free period anyhow correlated? The correlation analysis carried out in the same sample may shade some light. Secondly, why is there no significant variation in the result from previous studies? Is there a deliberate attempt by importers to take advantage of the free period time as Refas and Cantens (2011) suggest in their study.

Kgaelet al., (2012) suggest the use of median instead of the mean to measure average dwell time. This is because the mean tends to be acutely affected by long stayers i.e outliers; Containers could stay so long in the port, but not because of port or customs inefficiencies. In the findings as shown in Figure 4.3, the median is at 14 days. This may be because long stayers became outliers in the SPSS analysis that were rejected and thus prompting median and mean to converge together.

### 4.4 Transactional and Operational Dwell Times

The time taken to complete customs clearance procedures (transactional time) and the time taken to do actual handling of the container at the terminal (operational time) are absolute indicators of the performance of the port because they exclude factors that are not related to customs and the terminal operator. Analysis of the data showed that it takes an average of 2.1 days to complete customs and agencies

procedures and 1.34 to complete all terminal procedures which makes roughly 4 days average. This finding concurs with the Kgare *et al.,* (2012) who studied sub-Saharan ports. In fact, the figure is comparable to that of the Durban Port in South Africa, which has an average dwell time of 4 days. The huge difference found in the average dwell time between the Dar es Salaam and Durban Port cannot wholly be attributed to absolute port performance or productivity. Rather, it is an indication of some deliberate actions by port users not willing to remove their cargo from the port because it is either cheaper or there is no punitive demurrage fees charged.

Another surprising finding from these data and literature is that, Durban Port has roughly 3 days operational and transactional dwell time, 3 days free time and 4 days average dwell time. The Dar es Salaam Port, on the other hand, has average of 4 days transactional and operational dwell time, 14 days average total dwell time and 14 days pre-set free time. Can it be that average dwell time in Sub –Saharan Africa is driven by free time given rather than port performance? This calls for correlation analysis into the data and study of delivery behaviour patterns.

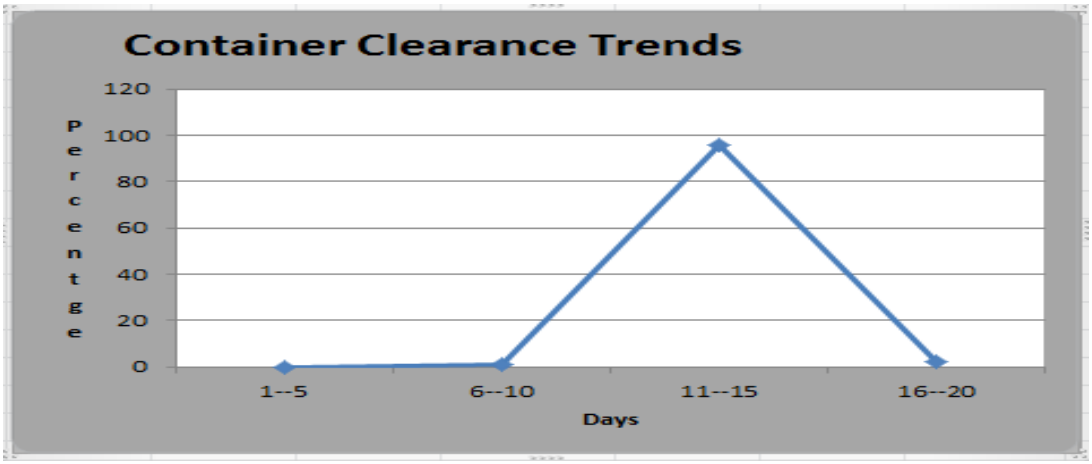



**Figure 4.4: Import Transit Containers Delivery Trends**

Source: (Field data, 2015)

## 4.5 Container Delivery Patterns

The study also sought to find out whether there are discernible delivery patterns in the ways importers or their agents remove the cargo from the terminal. The findings from the terminal data are depicted in Figure 4.4 below.

Based on Figure 4.4 above, there is little or no activity in the first 5 days of the container's stay at the port. This is followed by some minimal activity from day 6 to day 10. There is then a sharp rise in the activity from days 11 to 15 followed by sharp drop in days 16 to 20.Is the peaking in the day 11 to 15 accidental? Refas and Cantens (2011) suggest that, possible explanation of the main peak observed may be a psychological threshold linked to an expiration of the free time period (an interesting opportunity of free storage that shippers want to fully take advantage of).

**Table 4.5: Distribution of Container Delivery in Percentages**

| Dwell Days | | | Frequency | R.F | R.P(%) |
|---|---|---|---|---|---|
| 1 | ___ | 5 | 0 | 0 | 0 |
| 6 | ___ | 10 | 4 | 0.006861 | 0.686106 |
| 11 | ___ | 15 | 565 | 0.969125 | 96.91252 |
| 16 | ___ | 20 | 14 | 0.024014 | 2.401372 |
| | | | 583 | 1 | 100 |

Source: (Field data, 2015)

It is not suprising that majority of deliveries, almost 90%, are happening towards the 14$^{th}$ day, the day of the expiry of free storage period as indicated in Table 4.5. This is yet another indication that free storage may be influencing importers decision to remove their containers from the terminal.

## 4.6 Correlation Analysis

Figure 4.6 gives graphical relationship between our main variables under investigation, which suggest a positive correlation.

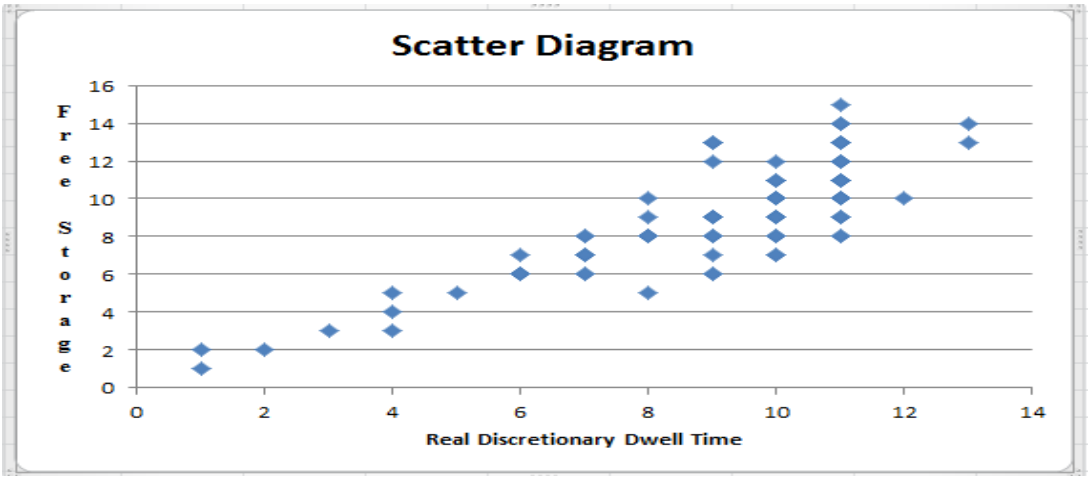



**Figure 4.6: Scatter Diagram of Free Time Impact against Discretionary Dwell Time**

Source: **(**Field data , 2015)

Pearson's Correlation Test was used to test the direction and strength between the main study variables- free storage discretionary dwell time and real discretionary dwell time. The results are presented in Figure 4.1 below from SPSS analysis output.

**Table 4.7: Correlation Analysis of the Main Variables**

Correlations

| | | Dwell Time Relative to Free Storage Time | Real Discretionary Dwell Time |
|---|---|---|---|
| Dwell Time Relative to Free Storage Time | Pearson Correlation | 1 | .725** |
| | Sig. (2-tailed) | | .000 |
| | N | 583 | 583 |
| Real Discretionary Dwell Time | Pearson Correlation | .725** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 583 | 583 |

**. Correlation is significant at the 0.01 level (2-tailed).

Source: (Field data, 2015)

The relationship between free storage impact (as measured by Dwell time relative to free storage) and Real Dwell time (as measured by Real Discretionary Dwell time) was investigated using the Pearson Product-Moment Correlation Coefficient. The computation indicates that there is a strong positive correlation between the two variables, $r = .728$, $n = 583$,

$p < .0005$.

The result as shown in Table 4.7 highlights a strong association of .725 between variables under study, with statistical significance of less than 0.05. We thus conclude that there is a statistically significant correlation between the variables. In other words, an increase or decrease in free storage time does significantly relate to an increase or decrease of dwell time of containers at the Dar es salaam Port.

# CHAPTER FIVE

# 5.0 CONCLUSIONS AND RECOMMENDATIONS

## 5.1 Conclusions

This study sought to examine if free storage time given for import transit containers has an influence on the average container dwell time at the Port of Dar es Salaam. Thus trying to explain why longer dwell times persist at Dar es salaam despite huge efforts and investments being undertaken to improve the Port's spatial capacity, operational productivity and transcational efficiency.

To achieve the main objective, the study sought to answer the following questions:

i). What is the average dwell time for import transit containers?

ii). How long does it take to complete customs clearance procedures and port operations?

iii). Are there patterns in container delivery showing some trends?

iv). Is there empirical evidence to show that container dwell time is influenced by free storage time.

By collecting and analyzing the data, the following findings are observed:

i). The mean and median dwell time for import transit containers from the sample drawn is 14 days.

ii). It takes an average of 4 days to complete customs clearance procedures, truck marshalling and terminal container handling procedures.

iii). Most import transit container deliveries tend to happen in the last 2 days of the expiry of the free storage, with majority happening in the last day.

iv). There is a strong positive correlation between free storage and dwell time of import transit containers at the Dar es Salaam Port.

The general observation from the study findings is that delivery of containers is dictated by free time given at the Dar es Salaam Port, thereby influencing average dwell time of the containers. This means reduction of dwell time as the target cannot be achieved by huge investments in increasing terminal spatial capacities, structural operational reforms, sophisticated handling equipment and efficient declaration and clearance procedures alone. These count for very little time of the whole dwell time. As of now, these count for 4 days of the 14 days dwell time of the import transit containers. Furthermore, the study has revealed that importers and their agents are not motivated to move their containers early; exploiting the huge free storage time of 14 days offered. Importers tend to deliver their containers not as soon as they finish clearance procedures but rather as expiry of free time approaches.

## 5.2 Recommendations

Based on the above findings from the study, the following are recommended:

i). Free storage time for import transit containers must be lowered considerably from the current 14 days to 7 days or less to achieve the BRN target of 5 days dwell time by 2015. The rationale is that importers and their agents will continue to exploit the huge free storage period until punitive measures are introduced.

ii). Introduce punitive demurrage fees so as to discourage importers from leaving their containers at the Port. The point here is that the storage fees at the Port

must be many times higher than private Off-Dock Container Yards (ODCY) so that importers clear their containers and immediately move to the private yards if, for some reasons, they are not ready to send them to respective destination countries.

iii). ICDs and CFSs should not only serve as port extensions, but rather as alternative storage areas. This means ICD must charge lower storage fees than port terminal and longer free period than the terminal. If they cannot operate in the mixed mode, then some ICDs and CFSs must be designated as purely private container storage areas. ICDs and CFSs operating in the similar manner as the terminal itself helps to decongest the port in the short run, but eventually they will be saturated and in fact does very little as far as dwell times are concerned.

iv). Strong private sector awareness campaign must be launched so that importers are aware of the losses of leaving the commodities idle at the port contrary to just-in-time inventory techniques. Terminal operators must confront customers with valid data of the actual time required to perform port clearance procedures as basis of lowering free storage time.

### 5.3 Areas for Further Research

While this study simply shows evidence of discretionary behaviour by importers and their agents willingly leaving the containers at the port by exploiting available free storage period, further research is called for in the following areas:

i). Comparative cost advantages of leaving the containers at the port of Dar es salaam and delivering early to the required transit destination in the light of

total logistics costs.

ii). The dwell time pattern with other cargo types such as Motor Vehicles which are the second largest commodity handled in Dar es Salaam Port nowadays. Does it exhibit the same behaviour as containers?

iii). The consignee-agents relationship must be examined. For transit containers with consignee in hinterland countries, it may be that the agents are exploiting this by working slowly, misusing funds while giving a different picture of the port performance to their principals.

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# APPENDICES

## APPENDIX 1: Sample TRA Customs Assycuda++ Data

| CONT_NUMBER | BL Number | COUNTRY | CFA NAME | REGN Date | Release Date |
|---|---|---|---|---|---|
| AMCU4600710 | CNCL110202 | CD | Bollore Africa Logistics Tanzania L | 20140313 | 20140314 |
| AMFU3197366 | KR2592416 | CD | Oceanair Freight Ltd | 20140127 | 20140130 |
| AMFU4242109 | CNCL110962 | ZM | SPEDAG INTERFREIGHT TANZANIA LIMITE | 20140310 | 20140313 |
| AMFU8595491 | MSCUMJ572207 | CD | Oceanair Freight Ltd | 20140120 | 20140122 |
| AMFU8623905 | MSCUDR149610 | CD | Oceanair Freight Ltd | 20140120 | 20140122 |
| AMFU8799999 | NBDAR4700728 | ZM | Efficient Freighters (T) Ltd | 20140217 | 20140219 |
| AMFU8811590 | MSCUI0885989 | CD | Vinmart Limited | 20140314 | 20140319 |
| AMFU1421060 | EPIRINDMUM157316 | ZM | CONTINENTAL RELIABLE CLEARING(T) CO | 20140304 | 20140305 |
| AMFU3123701 | MSCUK8450286 | RW | Freight World Ltd | 20140122 | 20140123 |
| AMFU3142492 | BGV0140582 | BI | Bollore Africa Logistics Tanzania L | 20140127 | 20140129 |
| AMFU3204737 | WECC1330DAR1648 | BI | Bollore Africa Logistics Tanzania L | 20140102 | 20140104 |
| AMFU5002801 | WUCJ000367 | ZM | Quality Business Consultants (T) Lt | 20140220 | 20140221 |
| AMFU5025685 | EPIRINDMUM156921 | CD | CONTINENTAL RELIABLE CLEARING(T) CO | 20140128 | 20140128 |
| AMFU8451405 | 752986586 | CD | CONTINENTAL RELIABLE CLEARING(T) CO | 20140211 | 20140213 |
| AMFU8464721 | 710527990 | CD | QUINCHER FREIGHT FORWARDERS CO. LTD | 20140211 | 20140213 |
| AMFU8532430 | MSCUI0903113 | CD | Cusna Investment Co. Ltd | 20140310 | 20140310 |
| AMFU8539857 | 951336345 | RW | Jaguar Carriers Junior S. A. R. L. | 20140211 | 20140211 |
| AMFU8630801 | MSCUI3958353 | CD | B & M Freight Forwarders Co. Ltd. | 20140206 | 20140211 |

| | | | | | |
|---|---|---|---|---|---|
| AMFU8743979 | QSTZ4855349 | RW | Great Lakes Freight Ltd | 20140128 | 20140131 |
| AMFU8793429 | 1.49303E+11 | ZM | Great Lakes Freight Ltd | 20140118 | 20140121 |
| AMFU8823061 | 5.403E+11 | RW | Bollore Africa Logistics Tanzania L | 20140106 | 20140108 |
| AMFU8843026 | MSCUI0724014 | ZM | B & M Freight Forwarders Co. Ltd. | 20140219 | 20140219 |
| AMFU8881366 | IN7254760 | CD | Great Lakes Freight Ltd | 20140102 | 20140107 |
| AMZU4861870 | EPIRCHNSHN185117 | ZM | DOW ELEF INTERNATIONAL TANZANIA LTD | 20140325 | 20140327 |
| APMU8045910 | 752936955 | ZM | Oceanair Freight Ltd | 20140125 | 20140128 |
| APMU2821071 | 867503342 | ZM | SIM LOGISTICS (T) LTD | 20140322 | 20140324 |
| APMU2955363 | 867140915 | MW | Manchinchi Marine Movers Ltd | 20140320 | 20140322 |
| APMU29957617 | 753769262 | ZM | Quality Business Consultants (T) Lt | 20140329 | 20140331 |
| APMU8057021 | 867439873 | CD | Freight World Ltd | 20140312 | 20140314 |
| APMU8063615 | 867375891 | ZM | NETWORK CONSUL LOGISTICS COMPANY | 20140312 | 20140313 |
| ARDU2004886 | AN300579 | RW | Juni Trust Freight Ltd | 20140218 | 20140218 |
| BAXU2594310 | BAXPDY003084 | CD | Koru Freight Ltd | 20140319 | 20140321 |
| BAXU2613473 | BAXPDY003084 | CD | Koru Freight Ltd | 20140319 | 20140321 |
| BAXU2620451 | BAXPDY003084 | CD | Koru Freight Ltd | 20140319 | 20140321 |
| BAXU2622686 | BAXPDY003084 | CD | Koru Freight Ltd | 20140319 | 20140321 |
| BBXU6030586 | WECC1495DAR1005 | CG | SPEDAG INTERFREIGHT TANZANIA LIMITE | 20140304 | 20140307 |
| BHCU3004596 | ELINJEADES130414 | CG | OVERLAND CARRIERS & FORWARDERS (T) | 20140123 | 20140127 |
| BHCU3109051 | BGV0141444B | RW | Bollore Africa Logistics Tanzania L | 20140321 | 20140324 |
| BHCU3176717 | HJSCTSEL30968700 | CD | Manchinchi Marine Movers Ltd | 20140325 | 20140326 |
| BHCU4233220 | EPIRINDMUM156973 | CD | CONTINENTAL RELIABLE CLEARING(T) CO | 20140203 | 20140204 |
| BHCU4703900 | HKA1263037 | BI | Bollore Africa Logistics Tanzania L | 20140120 | 20140123 |
| BHCU4954166 | DRUN001301 | CD | Vigu Trading Co. Ltd | 20140324 | 20140324 |
| BIJU2941734 | BSL/BND/DAR/9219 | ZM | KUEHNE+NAGEL LIMITED | 20140116 | 20140121 |
| BLJU2942392 | ELINJEADES130511 | ZM | OVERLAND CARRIERS & FORWARDERS (T) | 20140213 | 20140214 |

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|---|---|---|---|---|---|
| BMOU2040600 | 1.203E+11 | CG | X-PRESS MARITIME AGENCY CO. LTD | 20140121 | 20140122 |
| BMOU2571607 | KHIDAR140000002 | RW | Basic Intraregion Ltd | 20140123 | 20140124 |
| BMOU2592298 | SHADAR140000015 | ZM | Oceanair Freight Ltd | 20140208 | 20140211 |
| BMOU4379888 | NBDAR4116054 | ZM | Efficient Freighters (T) Ltd | 20140325 | 20140327 |
| BMOU4629966 | 1.433E+11 | ZM | Oceanair Freight Ltd | 20140218 | 20140222 |
| BMOU4825866 | 3.004E+11 | ZM | Oceanair Freight Ltd | 20140213 | 20140214 |
| BMOU5394172 | 142452326071 | ZM | Efficient Freighters (T) Ltd | 20140322 | 20140326 |
| BMOU2047992 | IN7256206 | ZM | A & HIS D CO LTD | 20140129 | 20140131 |
| BMOU2053064 | IN8255723 | ZM | EUROTZ LTD | 20140324 | 20140325 |
| BMOU2063870 | IN1987511 | BI | Cusna Investment Co. Ltd | 20140124 | 20140127 |
| BMOU2166440 | IN1986228 | ZM | Freight World Ltd | 20140110 | 20140115 |
| BMOU2175550 | DGCI000507 | CD | Great Lakes Freight Ltd | 20140106 | 20140109 |
| BMOU2248488 | 1.024E+11 | RW | A & HIS D CO LTD | 20140224 | 20140225 |
| BMOU2315797 | 752962962 | ZM | Great Lakes Freight Ltd | 20140208 | 20140211 |
| BMOU2369638 | 867162265 | CD | SAMI AGENCIES LTD | 20140203 | 20140205 |
| BMOU2463480 | 752904172 | BI | Cusna Investment Co. Ltd | 20140203 | 20140205 |
| BMOU2469133 | 752911743 | CD | CNF Tanzania Ltd | 20140127 | 20140128 |
| BMOU2552274 | PTJDAR14S5038 | RW | Jaguar Carriers Junior S. A. R. L. | 20140211 | 20140212 |
| BMOU2556710 | PLYDAR1320749 | RW | Panache Limited | 20140120 | 20140122 |
| BMOU2557574 | BTUDAR140000002 | ZM | COSMOS HAULAGE COMPANY LIMITED | 20140218 | 20140221 |
| BMOU2560259 | TFZHADARP1460123 | ZM | MPEPA TRADERS CO. LTD | 20140311 | 20140311 |
| BMOU2562462 | BMTDAR130000073 | CD | Bollore Africa Logistics Tanzania L | 20140107 | 20140110 |
| BMOU2574355 | PLUDAR140000002 | BI | Jet Freight Ltd | 20140324 | 20140326 |
| BMOU2576419 | 7QDLUNM1401502 | ZM | Freight World Ltd | 20140305 | 20140310 |
| BMOU2579737 | EQDDARM1311201 | CD | Triple "D" Ltd | 20140102 | 20140106 |
| BMOU2579737 | EQDDARM1311202 | CD | Triple "D" Ltd | 20140104 | 20140109 |

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|---|---|---|---|---|---|
| BMOU2590886 | YQDDARM1312203 | CD | NKIRA TRADING INVESTMENT LTD | 20140123 | 20140124 |
| BMOU2593020 | SHADAR140000067 | CD | Triple "D" Ltd | 20140305 | 20140308 |
| BMOU2599604 | JEADAR140000003 | ZM | CONTINENTAL RELIABLE CLEARING(T) CO | 20140124 | 20140127 |
| BMOU2868386 | 1.064E+11 | CD | B & M Freight Forwarders Co. Ltd. | 20140304 | 20140305 |
| BMOU2946724 | HJSCTATY36702500 | ZM | Cusna Investment Co. Ltd | 20140317 | 20140321 |
| BMOU3017591 | GTG0178682 | RW | Panache Limited | 20140217 | 20140218 |
| BMOU4084737 | ZNSADARP1454507 | CD | Triple "D" Ltd | 20140314 | 20140318 |
| BMOU4129071 | AETZ0204742 | BI | Switch Trade Ltd | 20140327 | 20140331 |
| BMOU4144815 | AETZ0203948 | RW | Great Lakes Freight Ltd | 20140304 | 20140306 |
| BMOU4147650 | AETZ0204420 | RW | Great Lakes Freight Ltd | 20140315 | 20140318 |
| BMOU4171045 | 867263283 | ZM | Freight World Ltd | 20140204 | 20140206 |
| BMOU4176480 | 562113771 | CD | QUINCHER FREIGHT FORWARDERS CO. LTD | 20140219 | 20140220 |
| BMOU4369010 | ZNSADARP1453094 | RW | Jaguar Carriers Junior S. A. R. L. | 20140130 | 20140131 |
| BMOU4374931 | SHKULUN1300032 | ZM | ARISTEPRO INVESTMENT COMPANY LTD | 20140124 | 20140127 |
| BMOU4375666 | KJAIDARP1312612 | RW | Jaguar Carriers Junior S. A. R. L. | 20140120 | 20140122 |
| BMOU4379234 | CCUDAR140000008 | RW | BALEX INTERNATIONAL LTD | 20140211 | 20140214 |
| BMOU4381294 | NBDAR3691766 | RW | B & M Freight Forwarders Co. Ltd. | 20140128 | 20140128 |
| BMOU4383091 | ZNSADARP1453494 | RW | Jaguar Carriers Junior S. A. R. L. | 20140324 | 20140326 |
| BMOU4384082 | NBDAR4323251 | ZM | Koru Freight Ltd | 20140312 | 20140314 |
| BMOU4469641 | 1.4338E+11 | ZM | Bollore Africa Logistics Tanzania L | 20140203 | 20140204 |
| BMOU4639373 | NBDAR4700066 | BI | Air Sea C & F. Ltd | 20140219 | 20140222 |
| BMOU4665984 | 40300291298 | ZM | Cusna Investment Co. Ltd | 20140106 | 20140110 |
| BMOU4863207 | 1.494E+11 | ZM | Transroad (T) Ltd | 20140218 | 20140221 |
| BMOU4944464 | COSU6077429180 | CD | B & M Freight Forwarders Co. Ltd. | 20140312 | 20140313 |
| BMOU4967449 | CHKUDAR1400093 | ZM | Great Lakes Freight Ltd | 20140220 | 20140221 |
| BMOU4967541 | DNSADARP1480422 | RW | FAST FORWARD INTERNATIONAL (T) LTD | 20140313 | 20140317 |

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|---|---|---|---|---|---|
| BMOU4969694 | NBDAR3334949 | CD | Vigu Trading Co. Ltd | 20140120 | 20140121 |
| BMOU5012644 | 1.014E+11 | CD | Cusna Investment Co. Ltd | 20140219 | 20140221 |
| BMOU5061700 | COSU6091624370 | ZM | STAR VISION INTERNATIONAL LTD | 20140127 | 20140129 |
| BMOU5222321 | AETZ0204558 | RW | Great Lakes Freight Ltd | 20140317 | 20140318 |
| BMOU5239670 | COSU6091658690 | CG | Dar-Cost Enterprises Ltd | 20140305 | 20140306 |
| BOMU5393279 | 1.42452E+11 | ZM | Efficient Freighters (T) Ltd | 20140322 | 20140326 |
| BSIU2045892 | 752904045 | RW | CREST CLEARING & FORWARDING LTD | 20140108 | 20140110 |
| BSIU2231156 | EPIRINDMUM156970 | CG | X-PRESS MARITIME AGENCY CO. LTD | 20140310 | 20140310 |
| BSIU2248729 | EPIRINDMUM157180 | CG | X-PRESS MARITIME AGENCY CO. LTD | 20140224 | 20140225 |
| BSIU2316079 | EPIRINDMUM157127 | BI | X-PRESS MARITIME AGENCY CO. LTD | 20140220 | 20140221 |
| BSIU2392037 | AETZ0203434 | BI | SODETRA(SPRL)LTD | 20140217 | 20140219 |
| BSIU2452922 | 1.0045E+11 | RW | X-PRESS MARITIME AGENCY CO. LTD | 20140221 | 20140221 |
| BSIU9085773 | IN7257841 | CD | Oceanair Freight Ltd | 20140314 | 20140318 |
| BSIU9120160 | EPIRCHNTAO147676 | CD | Oceanair Freight Ltd | 20140322 | 20140327 |
| BSIU2063978 | DGGA000126 | ZM | KUEHNE+NAGEL LIMITED | 20140228 | 20140228 |
| BSIU2098655 | EPIRSGSNGS113113 | CD | NKIRA TRADING INVESTMENT LTD | 20140128 | 20140131 |
| BSIU2106880 | GEN0553535 | ZM | Great Lakes Freight Ltd | 20140315 | 20140317 |
| BSIU2125914 | WECC1330DAR1686 | RW | Bollore Africa Logistics Tanzania L | 20140124 | 20140128 |
| BSIU2127218 | WECC14VADAR0053 | MW | Bollore Africa Logistics Tanzania L | 20140221 | 20140221 |
| BSIU2195450 | EPIRCHNSHN184959 | ZM | Great Lakes Freight Ltd | 20140322 | 20140325 |
| BSIU2197283 | WECC1395DAR1082 | RW | SPEDAG INTERFREIGHT TANZANIA LIMITE | 20140121 | 20140124 |
| BSIU2201866 | EPIRCHNSHN185141 | ZM | CONTINENTAL RELIABLE CLEARING(T) CO | 20140324 | 20140324 |
| BSIU2211709 | EPIRAEESAD135905 | ZM | Freight World Ltd | 20140207 | 20140211 |
| BSIU2228893 | EPIRSGSNGS112862 | CD | NKIRA TRADING INVESTMENT LTD | 20140127 | 20140131 |
| BSIU2229694 | EPIRSGSNGS113226 | CD | NKIRA TRADING INVESTMENT LTD | 20140327 | 20140331 |
| BSIU2316037 | EPIRCHNSHN184732 | RW | Panache Limited | 20140214 | 20140214 |

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|---|---|---|---|---|---|
| BSIU2316464 | EPIRSGSNGS113266 | CD | NKIRA TRADING INVESTMENT LTD | 20140310 | 20140310 |
| BSIU2586393 | COSU6084561080 | RW | SPEDAG INTERFREIGHT TANZANIA LIMITE | 20140310 | 20140311 |
| BSIU2646717 | MUNDAR130000071 | RW | Freight World Ltd | 20140118 | 20140120 |
| BSIU9003435 | 1.014E+11 | RW | Cusna Investment Co. Ltd | 20140203 | 20140205 |
| BSIU9013599 | 603100741 | ZM | Great Lakes Freight Ltd | 20140310 | 20140313 |
| BSIU9016026 | 753513759 | RW | Great Lakes Freight Ltd | 20140224 | 20140226 |
| BSIU9017589 | 867479192 | RW | Jaguar Carriers Junior S. A. R. L. | 20140321 | 20140325 |
| BSIU9019832 | 603091168 | BI | Bollore Africa Logistics Tanzania L | 20140325 | 20140326 |
| BSIU9021193 | 752978468 | CD | Freight World Ltd | 20140217 | 20140218 |
| BSIU9023215 | IN1986620 | ZM | Great Lakes Freight Ltd | 20140117 | 20140117 |
| BSIU9060944 | WECC1430DAR1008 | CD | Triple "D" Ltd | 20140219 | 20140221 |
| BSIU9063007 | WECC1430DAR1014 | ZM | Cusna Investment Co. Ltd | 20140219 | 20140219 |
| BSIU9069406 | WECC1401DAR1009 | CD | Uplands Freight Forwarders Ltd | 20140218 | 20140220 |
| BSIU9073350 | WECC1430DAR1020 | CD | Cusna Investment Co. Ltd | 20140225 | 20140227 |
| BSIU9076920 | WECC1430DAR1031 | CD | Cusna Investment Co. Ltd | 20140225 | 20140226 |
| BSIU9082413 | WECC1430DAR1009 | CG | Jaguar Carriers Junior S. A. R. L. | 20140219 | 20140219 |
| BSIU9083390 | WECC1441DAR1001 | CD | Triple "D" Ltd | 20140227 | 20140227 |
| BSIU9086424 | CNCL405147 | ZM | Rukwi Holdings Co. Ltd | 20140217 | 20140217 |
| BSIU9120025 | EPIRCHEASL100653 | ZM | CONTINENTAL RELIABLE CLEARING(T) CO | 20140217 | 20140218 |
| BSIU9120597 | EPIRINDMAA108459 | BI | Cusna Investment Co. Ltd | 20140120 | 20140124 |
| BSIU9121633 | EPIRCHNXNG129001 | CD | CONTINENTAL RELIABLE CLEARING(T) CO | 20140324 | 20140325 |
| BSIU9132941 | HKK0143639 | CD | NKIRA TRADING INVESTMENT LTD | 20140214 | 20140218 |
| BSIU9134081 | 1.40301E+11 | RW | SAMI AGENCIES LTD | 20140118 | 20140121 |
| BSIU9194183 | AETZ0204650 | ZM | Great Lakes Freight Ltd | 20140317 | 20140318 |
| BSIU9203325 | AWTZ0864583 | RW | Freight World Ltd | 20140117 | 20140117 |
| BSIU9356469 | COSU6083280680 | BI | SKY PACKAGING (T) LTD | 20140123 | 20140127 |

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|---|---|---|---|---|---|
| BSIU9391330 | TR2309868 | ZM | Great Lakes Freight Ltd | 20140301 | 20140303 |
| BSIU9392240 | IN7255555 | RW | Great Lakes Freight Ltd | 20140113 | 20140115 |
| BSIU9498191 | 1.404E+11 | ZM | Transroad (T) Ltd | 20140218 | 20140221 |
| BSIU9504859 | 1.013E+11 | RW | Cusna Investment Co. Ltd | 20140203 | 20140205 |
| BSIU9547629 | RTM9027529 | RW | Great Lakes Freight Ltd | 20140324 | 20140326 |
| CAIU2136997 | BSL/BND/DAR/9103 | UG | Oceanair Freight Ltd | 20140121 | 20140122 |
| CAIU2136997 | BSL/BND/DAR/9103 | UG | Oceanair Freight Ltd | 20140121 | 20140123 |
| CAIU2400712 | 562002027 | CD | Vinmart Limited | 20140203 | 20140205 |
| CAIU2774796 | MSCUXK854755 | CG | OVERLAND CARRIERS & FORWARDERS (T) | 20140219 | 20140220 |
| CAIU2852883 | MSCUQN519247 | CN | OVERLAND CARRIERS & FORWARDERS (T) | 20140311 | 20140313 |
| CAIU2935083 | MSCUN4992490 | RW | CREST CLEARING & FORWARDING LTD | 20140217 | 20140218 |
| CAIU3189008 | MSCUK8468205 | CG | X-PRESS MARITIME AGENCY CO. LTD | 20140201 | 20140203 |
| CAIU3315699 | NBDAR3185516 | BI | CREST CLEARING & FORWARDING LTD | 20140121 | 20140124 |
| CAIU8071390 | NBDAR4323033 | CD | Oceanair Freight Ltd | 20140210 | 20140213 |
| CAIU8081417 | DBFC600209 | CD | Oceanair Freight Ltd | 20140125 | 20140127 |
| CAIU8316403 | 752909107 | MW | CREST CLEARING & FORWARDING LTD | 20140125 | 20140128 |
| CAIU8591745 | NBDAR4531013 | ZM | Efficient Freighters (T) Ltd | 20140204 | 20140208 |
| CAIU8661360 | WECC1369DAR0126 | CD | Oceanair Freight Ltd | 20140120 | 20140122 |
| CAIU8937951 | MSCUI0740259 | CD | Oceanair Freight Ltd | 20140219 | 20140220 |
| CAIU9015847 | NBDAR4531007 | ZM | Oceanair Freight Ltd | 20140207 | 20140210 |
| CAIU9061591 | AE1381919 | ZM | Efficient Freighters (T) Ltd | 20140303 | 20140305 |
| CAIU2016836 | MSCUI3981165 | CD | Vigu Trading Co. Ltd | 20140121 | 20140122 |
| CAIU2108721 | MY1469004 | ZM | First Choice C&f | 20140204 | 20140205 |
| CAIU2187696 | NBDAR4700063 | BI | TACAS LTD | 20140210 | 20140215 |
| CAIU2195705 | EPIRSGSNGS113154 | CD | Koru Freight Ltd | 20140214 | 20140214 |
| CAIU2342642 | IN1993524 | ZM | Cusna Investment Co. Ltd | 20140130 | 20140130 |

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|---|---|---|---|---|---|
| CAIU2352785 | IQDZNZM1310475 | UG | CYCLE WORLD TRADING CO LTD | 20140307 | 20140310 |
| CAIU2390430 | 603066223 | RW | Basic Intraregion Ltd | 20140128 | 20140129 |
| CAIU2468672 | 561925874 | RW | SAMI AGENCIES LTD | 20140116 | 20140120 |
| CAIU2474844 | 951389463 | ZM | NETWORK CONSUL LOGISTICS COMPANY | 20140319 | 20140320 |
| CAIU2478372 | 951284821 | RW | FAST FORWARD INTERNATIONAL (T) LTD | 20140122 | 20140124 |
| CAIU2491775 | IN7257525 | RW | A & HIS D CO LTD | 20140224 | 20140224 |
| CAIU2495810 | DHK0100469B | ZM | Great Lakes Freight Ltd | 20140324 | 20140325 |
| CAIU2505082 | MSF107006 | CD | NKIRA TRADING INVESTMENT LTD | 20140211 | 20140213 |
| CAIU2517822 | 753515491 | CD | Bollore Africa Logistics Tanzania L | 20140310 | 20140310 |
| CAIU2531878 | HJSCTSXN3S094300 | RW | Bollore Africa Logistics Tanzania L | 20140318 | 20140319 |
| CAIU2643625 | HJSCHKG3G1091500 | ZM | NKIRA TRADING INVESTMENT LTD | 20140201 | 20140204 |
| CAIU2753480 | MSCUXJ133896 | CD | Manchinchi Marine Movers Ltd | 20140331 | 20140331 |
| CAIU2755271 | HJSCTATY36240200 | ZM | B & M Freight Forwarders Co. Ltd. | 20140120 | 20140124 |
| CAIU2783669 | MSCURH494636 | CD | CONTINENTAL RELIABLE CLEARING(T) CO | 20140315 | 20140315 |
| CAIU2831670 | DR322680 | BI | Rukwi Holdings Co. Ltd | 20140211 | 20140213 |
| CAIU2832362 | DR321850 | RW | SAMI AGENCIES LTD | 20140123 | 20140124 |
| CAIU2841826 | DR403154 | BI | SODETRA(SPRL)LTD | 20140328 | 20140331 |
| CAIU2851906 | MSCUI6905146 | RW | BERO COMPANY LTD | 20140304 | 20140306 |
| CAIU2896536 | MSCUK8487460 | RW | Cusna Investment Co. Ltd | 20140225 | 20140225 |
| CAIU2901627 | MSCUI3986024 | CD | Vigu Trading Co. Ltd | 20140122 | 20140127 |
| CAIU2921958 | COSU6084560000 | RW | DOW ELEF INTERNATIONAL TANZANIA LTD | 20140129 | 20140130 |
| CAIU3008007 | MSCUAV939507 | RW | Bollore Africa Logistics Tanzania L | 20140304 | 20140306 |
| CAIU3032446 | 561929513 | ZM | SIM LOGISTICS (T) LTD | 20140127 | 20140131 |
| CAIU3050516 | MSCUCA301575 | RW | Great Lakes Freight Ltd | 20140303 | 20140304 |

## Appendix 2: Sample TPA Terminal Operations Data

| CONT NUMBER | BLNo | DischargeDate | Delivery Date | Country | PaymentDate | Invoice Date | TruckINDate | TruckOUTDate |
|---|---|---|---|---|---|---|---|---|
| TGHU8161652 | JD456417 | 3/5/14 12:07 | 3/5/14 16:49 | RW | 3/5/14 16:43 | 2/28/14 15:16 | 3/5/14 11:53 | 3/5/14 19:33 |
| LMCU4600158 | DR321678 | 1/24/14 3:03 | 1/24/14 14:12 | RW | 1/25/14 18:50 | 1/22/14 12:38 | 1/24/14 11:09 | 1/24/14 15:42 |
| TTNU5582176 | LEYE87DES03 | 2/21/14 15:58 | 2/22/14 14:15 | ZM | 2/22/14 14:16 | 2/5/14 16:18 | 2/21/14 18:57 | 2/22/14 21:35 |
| SITU4995723 | LEYE87DES03 | 2/21/14 15:58 | 2/22/14 15:15 | ZM | 2/22/14 14:16 | 2/5/14 16:18 | 2/21/14 17:37 | 2/22/14 21:36 |
| MAEU6157545 | LEYE87DES03 | 2/21/14 15:58 | 2/22/14 14:16 | ZM | 2/22/14 14:16 | 2/5/14 16:18 | 2/21/14 17:32 | 2/22/14 21:36 |
| MAEU6157545 | LEYE87DES03 | 2/21/14 15:58 | 2/22/14 14:16 | ZM | 2/22/14 14:15 | 2/5/14 16:18 | 2/21/14 17:32 | 2/22/14 21:36 |
| TTNU5582176 | LEYE87DES03 | 2/21/14 15:58 | 2/22/14 14:15 | ZM | 2/22/14 14:16 | 2/11/14 12:33 | 2/21/14 18:57 | 2/22/14 21:35 |
| SITU4995723 | LEYE87DES03 | 2/21/14 15:58 | 2/22/14 15:15 | ZM | 2/22/14 14:16 | 2/11/14 12:33 | 2/21/14 17:37 | 2/22/14 21:36 |
| MAEU6157545 | LEYE87DES03 | 2/21/14 15:58 | 2/22/14 14:16 | ZM | 2/22/14 14:16 | 2/11/14 12:33 | 2/21/14 17:32 | 2/22/14 21:36 |
| MAEU6157545 | LEYE87DES03 | 2/21/14 15:58 | 2/22/14 14:16 | ZM | 2/22/14 14:15 | 2/11/14 12:33 | 2/21/14 17:32 | 2/22/14 21:36 |
| TTNU5582176 | LEYE87DES03 | 2/21/14 15:58 | 2/22/14 14:15 | ZM | 2/22/14 14:16 | 2/19/14 13:11 | 2/21/14 18:57 | 2/22/14 21:35 |
| SITU4995723 | LEYE87DES03 | 2/21/14 15:58 | 2/22/14 15:15 | ZM | 2/22/14 14:16 | 2/19/14 13:11 | 2/21/14 17:37 | 2/22/14 21:36 |
| MAEU6157545 | LEYE87DES03 | 2/21/14 15:58 | 2/22/14 14:16 | ZM | 2/22/14 14:16 | 2/19/14 13:11 | 2/21/14 17:32 | 2/22/14 21:36 |
| MAEU6157545 | LEYE87DES03 | 2/21/14 15:58 | 2/22/14 14:16 | ZM | 2/22/14 14:15 | 2/19/14 13:11 | 2/21/14 17:32 | 2/22/14 21:36 |
| TTNU5582176 | LEYE87DES03 | 2/21/14 15:58 | 2/22/14 14:15 | ZM | 2/22/14 14:16 | 2/19/14 13:24 | 2/21/14 18:57 | 2/22/14 21:35 |
| SITU4995723 | LEYE87DES03 | 2/21/14 15:58 | 2/22/14 15:15 | ZM | 2/22/14 14:16 | 2/19/14 13:24 | 2/21/14 17:37 | 2/22/14 21:36 |
| MAEU6157545 | LEYE87DES03 | 2/21/14 15:58 | 2/22/14 14:16 | ZM | 2/22/14 14:16 | 2/19/14 13:24 | 2/21/14 17:32 | 2/22/14 21:36 |
| MAEU6157545 | LEYE87DES03 | 2/21/14 15:58 | 2/22/14 14:16 | ZM | 2/22/14 14:15 | 2/19/14 13:24 | 2/21/14 17:32 | 2/22/14 21:36 |
| TTNU5582176 | LEYE87DES03 | 2/21/14 15:58 | 2/22/14 14:15 | ZM | 2/22/14 14:16 | 2/19/14 13:54 | 2/21/14 18:57 | 2/22/14 21:35 |
| SITU4995723 | LEYE87DES03 | 2/21/14 15:58 | 2/22/14 15:15 | ZM | 2/22/14 14:16 | 2/19/14 13:54 | 2/21/14 17:37 | 2/22/14 21:36 |
| MAEU6157545 | LEYE87DES03 | 2/21/14 15:58 | 2/22/14 14:16 | ZM | 2/22/14 14:16 | 2/19/14 13:54 | 2/21/14 17:32 | 2/22/14 21:36 |
| MAEU6157545 | LEYE87DES03 | 2/21/14 15:58 | 2/22/14 14:16 | ZM | 2/22/14 14:15 | 2/19/14 13:54 | 2/21/14 17:32 | 2/22/14 21:36 |
| LMCU1062470 | KA300900 | 3/3/14 12:30 | 3/4/14 14:54 | CD | 2/28/14 20:29 | 2/25/14 16:02 | 3/4/14 11:54 | 3/4/14 16:49 |
| TTNU5582176 | LEYE87DES03 | 2/21/14 15:58 | 2/22/14 14:15 | ZM | 2/22/14 14:16 | 12/23/13 15:52 | 2/21/14 18:57 | 2/22/14 21:35 |
| SITU4995723 | LEYE87DES03 | 2/21/14 15:58 | 2/22/14 15:15 | ZM | 2/22/14 14:16 | 12/23/13 15:52 | 2/21/14 17:37 | 2/22/14 21:36 |
| MAEU6157545 | LEYE87DES03 | 2/21/14 15:58 | 2/22/14 14:16 | ZM | 2/22/14 14:16 | 12/23/13 15:52 | 2/21/14 17:32 | 2/22/14 21:36 |
| MAEU6157545 | LEYE87DES03 | 2/21/14 15:58 | 2/22/14 14:16 | ZM | 2/22/14 14:15 | 12/23/13 15:52 | 2/21/14 17:32 | 2/22/14 21:36 |
| LMCU9134350 | JD456417 | 3/5/14 12:07 | 3/6/14 16:00 | RW | 3/5/14 16:43 | 2/28/14 15:16 | 3/5/14 11:53 | 3/6/14 18:51 |
| PCIU2059522 | PTJDAR14B8030 | 3/13/14 4:37 | 3/14/14 16:15 | RW | 3/14/14 18:01 | 3/13/14 16:37 | 3/14/14 12:26 | 3/14/14 23:47 |
| LMCU1217551 | DR321678 | 1/24/14 3:03 | 1/25/14 19:04 | RW | 1/25/14 18:50 | 1/22/14 12:38 | 1/25/14 11:28 | 1/25/14 20:13 |
| TTNU5582176 | LEYE87DES03 | 2/21/14 15:58 | 2/22/14 14:15 | ZM | 2/22/14 14:16 | 2/13/14 14:30 | 2/21/14 18:57 | 2/22/14 21:35 |

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|---|---|---|---|---|---|---|---|---|
| SITU4995723 | LEYE87DES03 | 2/21/14 15:58 | 2/22/14 15:15 | ZM | 2/22/14 14:16 | 2/13/14 14:30 | 2/21/14 17:37 | 2/22/14 21:36 |
| MAEU6157545 | LEYE87DES03 | 2/21/14 15:58 | 2/22/14 14:16 | ZM | 2/22/14 14:16 | 2/13/14 14:30 | 2/21/14 17:32 | 2/22/14 21:36 |
| MAEU6157545 | LEYE87DES03 | 2/21/14 15:58 | 2/22/14 14:16 | ZM | 2/22/14 14:15 | 2/13/14 14:30 | 2/21/14 17:32 | 2/22/14 21:36 |
| MRKU7348408 | 562608050 | 3/26/14 15:41 | 3/27/14 19:07 | CD | 3/27/14 13:43 | 3/24/14 15:54 | 3/27/14 9:35 | 3/27/14 20:21 |
| PCIU1108812 | ZWCKDARP1455500A | 2/4/14 21:39 | 2/5/14 20:35 | RW | 2/5/14 18:34 | 2/4/14 13:23 | 2/5/14 15:27 | 2/5/14 22:01 |
| MAEU8400124 | 562020295 | 2/13/14 3:56 | 2/15/14 14:44 | RW | 2/15/14 13:47 | 2/15/14 8:36 | 2/15/14 12:18 | 2/15/14 17:51 |
| CLHU3772925 | IQDDARM1401510 | 3/12/14 1:09 | 3/14/14 16:16 | CD | 3/14/14 16:05 | 3/12/14 15:02 | 3/13/14 13:24 | 3/14/14 17:13 |
| PCIU1230501 | PTJDAR14B8074 | 3/17/14 1:08 | 3/19/14 17:58 | RW | 3/19/14 10:48 | 3/18/14 13:30 | 3/19/14 11:07 | 3/19/14 19:18 |
| MRKU6578073 | 562608050 | 3/25/14 18:23 | 3/27/14 16:31 | CD | 3/27/14 13:42 | 3/24/14 15:54 | 3/27/14 9:32 | 3/27/14 17:49 |
| MRKU6595208 | 562608050 | 3/25/14 18:23 | 3/27/14 17:51 | CD | 3/27/14 13:43 | 3/24/14 15:54 | 3/27/14 9:34 | 3/27/14 20:21 |
| MSKU3279574 | 562608050 | 3/25/14 18:23 | 3/27/14 15:50 | CD | 3/27/14 13:43 | 3/24/14 15:54 | 3/27/14 9:34 | 3/27/14 17:48 |
| MSKU4312933 | 562608050 | 3/25/14 7:10 | 3/27/14 13:48 | CD | 3/27/14 13:43 | 3/24/14 15:54 | 3/27/14 9:36 | 3/27/14 17:50 |
| MRKU7165238 | 867375590 | 3/25/14 6:17 | 3/27/14 21:14 | RW | 3/27/14 21:07 | 3/25/14 11:58 | 3/27/14 10:32 | 3/27/14 21:33 |
| MRKU4409372 | 951197897 | 1/30/14 17:36 | 2/1/14 11:10 | BI | 2/1/14 11:02 | 1/30/14 19:13 | 1/31/14 16:46 | 2/1/14 13:10 |
| DFSU6365186 | PTJDAR14B8048 | 3/11/14 1:40 | 3/14/14 18:14 | RW | 3/14/14 17:58 | 3/13/14 7:53 | 3/14/14 12:33 | 3/14/14 23:41 |
| PCIU8287746 | PTJDAR14B8048 | 3/11/14 4:27 | 3/14/14 16:17 | RW | 3/14/14 17:58 | 3/13/14 7:53 | 3/14/14 12:34 | 3/14/14 23:39 |
| PCIU8434913 | PTJDAR14B8043 | 3/11/14 5:33 | 3/14/14 18:48 | RW | 3/14/14 17:59 | 3/12/14 17:37 | 3/14/14 12:36 | 3/14/14 23:38 |
| PCIU8593812 | PTJDAR14B8043 | 3/11/14 4:38 | 3/14/14 18:49 | RW | 3/14/14 17:59 | 3/12/14 17:37 | 3/14/14 12:35 | 3/14/14 23:41 |
| DFSU6365186 | PTJDAR14B8048 | 3/11/14 1:40 | 3/14/14 18:14 | RW | 3/14/14 17:58 | 3/13/14 11:02 | 3/14/14 12:33 | 3/14/14 23:41 |
| PCIU8287746 | PTJDAR14B8048 | 3/11/14 4:27 | 3/14/14 16:17 | RW | 3/14/14 17:58 | 3/13/14 11:02 | 3/14/14 12:34 | 3/14/14 23:39 |
| DFSU6365186 | PTJDAR14B8048 | 3/11/14 1:40 | 3/14/14 18:14 | RW | 3/14/14 17:58 | 3/13/14 15:01 | 3/14/14 12:33 | 3/14/14 23:41 |
| PCIU8287746 | PTJDAR14B8048 | 3/11/14 4:27 | 3/14/14 16:17 | RW | 3/14/14 17:58 | 3/13/14 15:01 | 3/14/14 12:34 | 3/14/14 23:39 |
| TRLU9115409 | PTJDAR14B8030 | 3/11/14 8:19 | 3/14/14 15:42 | RW | 3/14/14 18:00 | 3/13/14 16:37 | 3/14/14 12:32 | 3/14/14 23:44 |
| PCIU2627432 | PTJDAR14B8030 | 3/11/14 14:35 | 3/14/14 16:22 | RW | 3/14/14 18:00 | 3/13/14 16:37 | 3/14/14 12:30 | 3/14/14 23:39 |
| PCIU2206984 | PTJDAR14B8030 | 3/11/14 14:54 | 3/14/14 18:06 | RW | 3/14/14 18:00 | 3/13/14 16:37 | 3/14/14 12:38 | 3/14/14 23:40 |
| PCIU2112653 | PTJDAR14B8030 | 3/11/14 16:18 | 3/14/14 16:44 | RW | 3/14/14 18:00 | 3/13/14 16:37 | 3/14/14 12:23 | 3/14/14 23:44 |
| PCIU2103055 | PTJDAR14B8030 | 3/11/14 18:14 | 3/14/14 16:10 | RW | 3/14/14 18:01 | 3/13/14 16:37 | 3/14/14 12:40 | 3/14/14 23:43 |
| PCIU1728011 | PTJDAR14B8030 | 3/11/14 16:58 | 3/14/14 18:03 | RW | 3/14/14 18:00 | 3/13/14 16:37 | 3/14/14 12:39 | 3/14/14 23:38 |
| PCIU1537870 | PTJDAR14B8030 | 3/11/14 8:16 | 3/14/14 18:38 | RW | 3/14/14 18:00 | 3/13/14 16:37 | 3/14/14 12:26 | 3/14/14 23:37 |
| MSKU1030540 | 867176133 | 1/30/14 14:34 | 2/2/14 10:51 | RW | 2/2/14 10:43 | 1/30/14 19:13 | 2/1/14 12:28 | 2/2/14 13:53 |
| PCIU3069166 | PTJDAR14B8074 | 3/16/14 21:55 | 3/19/14 13:40 | RW | 3/19/14 10:49 | 3/18/14 13:30 | 3/19/14 11:06 | 3/19/14 19:18 |
| PCIU8203832 | PTJDAR14B8031 | 3/16/14 20:18 | 3/19/14 13:41 | RW | 3/19/14 15:00 | 3/18/14 12:58 | 3/19/14 11:08 | 3/19/14 19:18 |
| PCIU8203832 | PTJDAR14B8031 | 3/16/14 20:18 | 3/19/14 13:41 | RW | 3/19/14 10:52 | 3/18/14 12:58 | 3/19/14 11:08 | 3/19/14 19:18 |
| PCIU8203832 | PTJDAR14B8031 | 3/16/14 20:18 | 3/19/14 13:41 | RW | 3/19/14 15:00 | 3/19/14 15:40 | 3/19/14 11:08 | 3/19/14 19:18 |

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|---|---|---|---|---|---|---|---|---|
| PCIU8203832 | PTJDAR14B8031 | 3/16/14 20:18 | 3/19/14 13:41 | RW | 3/19/14 10:52 | 3/19/14 15:40 | 3/19/14 11:08 | 3/19/14 19:18 |
| PCIU8203832 | PTJDAR14B8031 | 3/16/14 20:18 | 3/19/14 13:41 | RW | 3/19/14 15:00 | 3/19/14 15:46 | 3/19/14 11:08 | 3/19/14 19:18 |
| PCIU8203832 | PTJDAR14B8031 | 3/16/14 20:18 | 3/19/14 13:41 | RW | 3/19/14 10:52 | 3/19/14 15:46 | 3/19/14 11:08 | 3/19/14 19:18 |
| PCIU8203832 | PTJDAR14B8031 | 3/16/14 20:18 | 3/19/14 13:41 | RW | 3/19/14 15:00 | 3/19/14 15:51 | 3/19/14 11:08 | 3/19/14 19:18 |
| PCIU8203832 | PTJDAR14B8031 | 3/16/14 20:18 | 3/19/14 13:41 | RW | 3/19/14 10:52 | 3/19/14 15:51 | 3/19/14 11:08 | 3/19/14 19:18 |
| PCIU8203832 | PTJDAR14B8031 | 3/16/14 20:18 | 3/19/14 13:41 | RW | 3/19/14 15:00 | 3/19/14 16:32 | 3/19/14 11:08 | 3/19/14 19:18 |
| PCIU8203832 | PTJDAR14B8031 | 3/16/14 20:18 | 3/19/14 13:41 | RW | 3/19/14 10:52 | 3/19/14 16:32 | 3/19/14 11:08 | 3/19/14 19:18 |
| TCKU1409550 | YQDDARM1312303 | 1/21/14 14:40 | 1/24/14 17:03 | CD | 1/24/14 16:54 | 1/22/14 18:13 | 1/24/14 14:21 | 1/24/14 19:07 |
| PCIU1690385 | STJDAR1430045 | 3/11/14 11:37 | 3/15/14 17:41 | ZM | 3/15/14 14:58 | 3/13/14 17:01 | 3/15/14 11:00 | 3/15/14 22:27 |
| MSKU1492370 | 867153529 | 1/31/14 2:05 | 2/4/14 18:00 | CD | 2/4/14 17:14 | 1/30/14 18:52 | 2/4/14 12:14 | 2/4/14 21:01 |
| PCIU8910162 | SHADAR140000076 | 3/11/14 13:44 | 3/15/14 12:42 | CD | 3/14/14 19:48 | 3/14/14 8:10 | 3/14/14 20:39 | 3/15/14 22:21 |
| MRKU8937594 | 753780851 | 3/20/14 18:31 | 3/24/14 13:11 | BI | 3/24/14 13:08 | 3/20/14 12:51 | 3/24/14 9:36 | 3/24/14 14:58 |
| TEMU6182762 | DNSADARP1481155 | 2/18/14 14:12 | 2/22/14 19:38 | RW | 7/11/13 13:25 | 2/21/14 11:53 | 2/21/14 18:44 | 2/22/14 20:23 |
| PONU8065765 | 951382308 | 3/20/14 17:50 | 3/24/14 20:22 | RW | 3/24/14 14:26 | 3/21/14 12:31 | 3/24/14 10:16 | 3/24/14 22:35 |
| MSKU0183479 | 951382322 | 3/20/14 2:24 | 3/24/14 18:02 | RW | 3/24/14 14:21 | 3/21/14 12:52 | 3/24/14 10:22 | 3/24/14 21:10 |
| MRKU4477551 | 951382301 | 3/20/14 1:15 | 3/24/14 19:14 | RW | 3/24/14 19:19 | 3/21/14 17:16 | 3/24/14 12:40 | 3/24/14 21:10 |
| MSKU9916617 | 951382325 | 3/20/14 20:57 | 3/24/14 15:02 | RW | 3/24/14 14:27 | 3/21/14 12:49 | 3/24/14 10:27 | 3/24/14 18:50 |
| MSKU1991300 | 951399119 | 3/20/14 17:48 | 3/24/14 14:57 | RW | 3/24/14 14:17 | 3/21/14 12:53 | 3/24/14 10:21 | 3/24/14 18:50 |
| MRKU4160103 | 951404691 | 3/20/14 13:36 | 3/24/14 17:31 | RW | 3/24/14 14:25 | 3/21/14 13:21 | 3/24/14 10:15 | 3/24/14 21:10 |
| PCIU9979482 | PTJDAR14B8031 | 3/16/14 16:59 | 3/20/14 19:19 | RW | 3/19/14 10:52 | 3/18/14 12:58 | 3/19/14 11:16 | 3/20/14 20:39 |
| PCIU9979482 | PTJDAR14B8031 | 3/16/14 16:59 | 3/20/14 19:19 | RW | 3/19/14 10:52 | 3/19/14 15:40 | 3/19/14 11:16 | 3/20/14 20:39 |
| PCIU9979482 | PTJDAR14B8031 | 3/16/14 16:59 | 3/20/14 19:19 | RW | 3/19/14 10:52 | 3/19/14 15:46 | 3/19/14 11:16 | 3/20/14 20:39 |
| PCIU9979482 | PTJDAR14B8031 | 3/16/14 16:59 | 3/20/14 19:19 | RW | 3/19/14 10:52 | 3/19/14 15:51 | 3/19/14 11:16 | 3/20/14 20:39 |
| PCIU9979482 | PTJDAR14B8031 | 3/16/14 16:59 | 3/20/14 19:19 | RW | 3/19/14 10:52 | 3/19/14 16:32 | 3/19/14 11:16 | 3/20/14 20:39 |
| MSKU0088810 | 951399169 | 3/20/14 2:21 | 3/24/14 16:56 | RW | 3/24/14 14:23 | 3/21/14 12:25 | 3/24/14 10:14 | 3/24/14 21:09 |
| MRKU4154800 | 951387388 | 3/20/14 1:36 | 3/24/14 16:06 | RW | 3/24/14 14:20 | 3/21/14 12:36 | 3/24/14 10:23 | 3/24/14 18:48 |
| PCIU8595142 | NBDAR4041113 | 2/18/14 15:01 | 2/22/14 12:23 | BI | 2/22/14 11:56 | 2/21/14 16:19 | 2/22/14 10:35 | 2/22/14 13:42 |
| CAIU3327452 | DDMTDARP1481054 | 3/11/14 8:46 | 3/15/14 18:13 | ZM | 3/15/14 15:00 | 3/12/14 13:50 | 3/15/14 13:50 | 3/15/14 22:26 |
| CAIU3327452 | DDMTDARP1481054 | 3/11/14 8:46 | 3/15/14 18:13 | ZM | 3/27/14 13:03 | 3/12/14 13:50 | 3/15/14 13:50 | 3/15/14 22:26 |
| MSKU0016867 | 951382321 | 3/20/14 8:56 | 3/24/14 16:03 | RW | 3/24/14 14:19 | 3/21/14 12:32 | 3/24/14 10:24 | 3/24/14 18:49 |
| MRKU4052243 | 951399154 | 3/20/14 3:52 | 3/24/14 16:15 | RW | 3/24/14 14:18 | 3/21/14 12:33 | 3/24/14 10:26 | 3/24/14 18:47 |
| CAIU3327452 | DDMTDARP1481054 | 3/11/14 8:46 | 3/15/14 18:13 | ZM | 3/15/14 15:00 | 3/31/14 12:34 | 3/15/14 13:50 | 3/15/14 22:26 |
| CAIU3327452 | DDMTDARP1481054 | 3/11/14 8:46 | 3/15/14 18:13 | ZM | 3/27/14 13:03 | 3/31/14 12:34 | 3/15/14 13:50 | 3/15/14 22:26 |
| GLDU9610094 | DACLLWP14395 | 3/11/14 10:18 | 3/16/14 10:51 | MW | 3/16/14 10:50 | 3/12/14 19:02 | 3/15/14 14:11 | 3/16/14 12:43 |