**INTERNATIONAL CENTRE FOR SETTLEMENT
OF INVESTMENT DISPUTES**

Case No. ARB/16/42

**OMEGA ENGINEERING LLC
and
MR. OSCAR RIVERA**

Claimants

v.

THE REPUBLIC OF PANAMA

Respondent

EXPERT REPORT OF QUADRANT ECONOMICS

Prepared by

Dr. Daniel Flores

7 January 2019

1445 New York Ave NW – Floor 6
Washington, DC 20005

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DEFINED TERMS

BIT	Bilateral Investment Treaty
CAPM	Capital Asset Pricing Model
Claimants	Omega Engineering LLC and Oscar Rivera
DCF	Discounted Cash Flow
IACAC	Inter-American Commercial Arbitration Commission
ICC	International Chamber of Commerce
ICSID	International Centre for Settlement of Investment Disputes
ISO	International Organization for Standardization
Claimants' Memorial	Claimants' Memorial presented on 25 June 2018
CNO	Certificados de No Objeción
Compass Lexecon Report	Report prepared by Pablo Lopez Zadicoff and Sebastian Zuccon of Compass Lexecon presented on 25 June 2018
CPP	Cuentas de Pago Parcial
EMBI	Emerging Markets Bond Index
ETA	Estimate-to-Actual
Existing Contracts	Eight ongoing contracts awarded to Omega Panama prior to the Valuation Date (excludes one completed project and one cancelled project)
FMV	Fair Market Value
GDP	Gross Domestic Product
Job Cost Reports	Analysis of Job Costs and Accounts Payable by Job
LCIA	London Court of International Arbitration
LMMA	London Maritime Arbitrators Association
McKinnon Report	Expert Witness Statement of Greg A. McKinnon presented on 25 June 2018
Measures	Alleged acts taken against Claimants by Panama
NFPS	Non-financial Public Sector
Omega Panama	Omega Engineering Inc.
Omega U.S.	Omega Engineering LLC
Pay Apps	Payment Applications
Potential New Contracts	Future contracts assumed to be awarded to Omega Panama but for the Measures
PR Solutions	PR Solutions S.A.
Panama/Respondent	Republic of Panama
SCC	Stockholm Chamber of Commerce
SMA	Society of Maritime Arbitrators
TPA	Trade Promotion Agreement
UNCITRAL	United Nations Commission on International Trade Law
Valuation Date	23 December 2014
2015-2019 Strategic Plan	Plan Estratégico de Gobierno 2015-2019 published by the Ministry of Economics and Finance in December 2014

I. Introduction and Qualifications

1. This matter involves the claims of Omega Engineering LLC ("Omega U.S.") and Oscar Rivera (together, "Claimants"), the latter being the sole equity holder of Omega Engineering Inc. ("Omega Panama"), against the Republic of Panama ("Panama" or "Respondent").[1]

2. Claimants allege that Respondent took certain measures against Mr. Rivera and Omega Panama (the "Measures") which have prevented Omega Panama from (i) receiving payment for amounts billed to entities of the Respondent, (ii) completing existing contracts it had with Respondent, and (iii) ever doing business in Panama in the future. The alleged Measures include: (i) failing to make payments to Omega Panama, (ii) failing to provide construction permits and change orders, (iii) early unlawful termination and abandonment of contracts, and (iv) initiation of criminal investigations against Mr. Rivera and Omega Panama.[2] Using a valuation date of 23 December 2014 (the "Valuation Date"), Claimants request:

    - ▮▮▮▮▮▮▮▮▮▮ relating to earnings from contracts that supposedly would have been won and successfully completed by Omega Panama in perpetuity absent the Measures (the "Potential New Contracts");

    - ▮▮▮▮▮▮▮▮▮▮ relating to eight public works contracts that were awarded to Omega Panama between 2011 and 2013 (the "Existing Contracts"), including (i) balances on billings not yet paid by Panama for work allegedly completed by Omega Panama as of the Valuation Date, and (ii) earnings expected to have been realized from the completion of the Existing Contracts after the Valuation Date; and

    - ▮▮▮▮▮▮▮ in interest, calculated through 25 June 2018.[3]

3. Claimants rely on the calculations set forth in the report prepared by Pablo López Zadicoff and Sebastian Zuccon of Compass Lexecon, submitted on 25 June 2018 (the

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[1] Claimants' Memorial ¶ 2; Compass Lexecon Report, ¶ 1; **C–0018**, Share Register for Omega Engineering Inc.

[2] Compass Lexecon Report, ¶ 3.

[3] Compass Lexecon Report, ¶ 113, Table XVII. That is, US$ 81.58 million – US$ 55.43 million = US$ 26.15 million. Consistent with the analysis presented in the McKinnon Report and the Compass Lexecon Report, I present all currency amounts pertaining to Omega Panama in US dollars. *See* McKinnon Report, n. 1.

"Compass Lexecon Report"). Compass Lexecon was instructed to rely upon the tabulations presented in the report submitted by Greg A. McKinnon on 25 June 2018 (the "McKinnon Report").[4]

4. I have been asked by Counsel for Respondent to carry out the following tasks:

    - Analyze and comment on the economic rationale and the methodology employed by Compass Lexecon to value Claimants' interest in Omega Panama in relation to the Potential New Contracts, including the specific assumptions Compass Lexecon makes regarding the DCF analysis it uses to arrive at such value.

    - Analyze and comment on the methodology employed by Compass Lexecon to calculate the alleged damages associated with the Existing Contracts, including Unpaid Progress Billings and Expected Future Cash Flows.

    - Comment on the appropriate rate of interest on compensation, should the Tribunal decide to award compensation and interest on that compensation.

5. I am a Managing Director at Quadrant Economics, an economic research and consulting firm. I have master's and doctoral degrees in economics from Boston University and a bachelor's degree in economics from the University of Barcelona.

6. I have spent the past 24 years teaching, conducting research and consulting in the field of economics. I have taught courses in Principles of Economics, Advanced Microeconomics, International Economics, and Economics of the Public Sector at the University of Barcelona, Boston University, and Skidmore College. My research and consulting activities have included analysis of the economic effects of regulation, anticompetitive conduct, as well as contractual and non-contractual disputes in a variety of industries, including agriculture, chemicals, construction materials, electricity generation and distribution, finance and banking, minerals and mining, oil and gas, pharmaceuticals, real estate, semiconductors, telecommunications, and transportation. I have testified as an expert economist in civil litigation in the United States as well as in arbitration proceedings under the rules of International Chamber of Commerce ("ICC"), the International Centre for Settlement of Investment Disputes ("ICSID"), the Inter-American Commercial Arbitration Commission ("IACAC"), the London

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[4] Compass Lexecon Report, ¶ 4.

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Court of International Arbitration ("LCIA"), the London Maritime Arbitrators Association ("LMMA"), the Stockholm Chamber of Commerce ("SCC"), the Society of Maritime Arbitrators ("SMA") and the United Nations Commission on International Trade Law ("UNCITRAL"). My biographical information and a summary of my training, past experience, publications, and prior testimony are attached as **QE‒0001**.

7.   In preparing this Report, I have been assisted by Quadrant Economics staff working under my direction and supervision. I have relied upon documents already in the record and those attached to this report as **QE‒0002** through **QE‒0051**.

II.   **Summary of Conclusions**

8.   I have concluded as follows:

(i)   With regard to the Potential New Contracts claim, the value of Claimants' interest in Omega Panama is zero. The nature of its business and the lack of any discernable competitive advantage held by Omega Panama mean that a hypothetical buyer of Omega Panama would be unwilling to pay to acquire its operations. Omega Panama had no significant tangible or intangible assets that add value to the company such that a willing buyer could be found. Furthermore, even if a buyer willing to ascribe economic value to Omega Panama could be found, Compass Lexecon's conclusions regarding that value are flawed, for two reasons. First, Compass Lexecon erroneously includes the present value of cash flows into perpetuity, when in fact, the willing buyer would consider, at most, the cash flows that it might obtain within the first few startup years, during which Omega Panama might provide profits above those of a new company. Second, Compass Lexecon's analysis suffers from a reliance on a limited amount of volatile historical operating data. The assumptions underlying its estimates of future costs and revenues are speculative and overestimate any value that Omega Panama could have had. I discuss the various assumptions underlying Compass Lexecon's analysis in **Section III.**

(ii)   With regard to the Existing Contracts claim, Compass Lexecon erroneously discounts the value of advances to Omega Panama which occurred prior to the Valuation Date. Furthermore, Compass Lexecon applies a discount rate to Expected Future Cash Flows that does not adequately reflect the risks associated with those cash flows. Finally, Compass Lexecon overestimates the value as of the Valuation Date of the Unpaid Progress Billings by applying an

interest rate that overcompensates the Claimants. I discuss these topics in **Section IV.**

(iii) With regard to interest, Compass Lexecon's use of the cost of equity of Omega Panama to calculate interest is inappropriate, because it compensates Claimants for risks they did not bear. Interest on an award of damages should compensate for the time-value of money, not for business risks to which the award of damages has not been exposed. I discuss this topic in **Section V**.

9. **Figure 1** below summarizes the damages calculated by Compass Lexecon as of the Valuation Date and the results of the corrections to those calculations that I present in this Report.

Figure 1
Summary of Results[5]

	Compass Lexecon	Quadrant Economics
	(US$ Millions)	
	(1)	(2)
1. Existing Contracts		
2. New Contracts		
3. Damages as of 23 December 2014		

III. The Valuation of Potential New Contracts is Speculative and Unfounded

10. Claimants' largest head of damages stems from earnings from the Potential New Contracts that Compass Lexecon assumes would have been won and successfully completed by Omega Panama in perpetuity. In this section, I examine Compass Lexecon's analysis regarding the Potential New Contracts claim.

11. Compass Lexecon explains how it decided on the appropriate approach for valuing the alleged damages stemming from Potential New Contracts. First, it states its understanding that the appropriate standard to evaluate Claimants' alleged damages is

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[5] Compass Lexecon Report, Table I; **QE−0002**, Valuation Model, tab "Summary," (select option "QE(Midpoint)" in cell C14, "QE" in cell C16, and "QE" in cell C42, and view result of calculation in cell O12).

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that of Fair Market Value ("FMV").[6] Compass Lexecon presents the definition of FMV provided by the American Society of Appraisers:

> …the price, expressed in terms of cash equivalents, at which property would change hands between a hypothetical willing and able buyer and a hypothetical and able seller, acting at arm's length in an open and unrestricted market, when neither is under compulsion to buy or sell and when both have reasonable knowledge of the relevant facts.[7]

12.   Second, Compass Lexecon affirms that the asset being valued in an FMV valuation "represent[s] the cash-flow generating capabilities of the assets associated with Claimant's investment."[8]

13.   Compass Lexecon asserts that the Discounted Cash Flow ("DCF") method is the most appropriate method for assessing the FMV of Omega Panama as of the Valuation Date.[9] The DCF method requires the modeling of expected future cash flows, and the application of a discount rate to determine the present value of those future cash flows, accounting for the passage of time and business risks.

14.   From an economic perspective, to substantiate their quantification of the Potential New Contracts claim, Claimants must, at a minimum, establish that (i) Omega Panama possessed income generating assets that a hypothetical buyer would be willing to buy, (ii) the cash flows projected by Compass Lexecon are reasonable, and (iii) its discount rate adequately reflects the business risks facing Omega Panama. In the sections that follow, I examine whether Omega Panama would have had any value to a potential willing buyer, and whether Compass Lexecon's DCF valuation is conceptually sound, relies on reasonable assumptions with respect to cash flows, and adequately accounts for risks of a general contractor operating in Panama. I conclude that:

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[6] Compass Lexecon Report, ¶ 60.

[7] Compass Lexecon Report, ¶ 61.

[8] Compass Lexecon Report, ¶ 63.

[9] Compass Lexecon Report, ¶ 66. I understand that it is common ground that Respondent never expropriated any of Omega Panama's physical assets. Thus, other valuation methods that seek to establish the liquidation, replacement or book value of Omega Panama's physical assets are not relevant or applicable to the quantification of Claimants' claims.

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(i)   Omega Panama did not possess assets, either tangible or intangible, that a hypothetical buyer would have been willing to pay for;

(ii)   Compass Lexecon's DCF analysis contains a fundamental conceptual flaw in that it includes the value of expected cash flows in perpetuity, ignoring the nature of Omega Panama's business;

(iii)   The cash flows in Compass Lexecon's DCF analysis do not properly reflect either the short and volatile historical record of Omega Panama's operations or the macroeconomic and fiscal reality in Panama;

(iv)   Compass Lexecon's discount rate underestimates the risks of running a general contracting business in Panama;

(v)   Compass Lexecon's "reasonability" check is unreasonable and does nothing to support the reasonableness of its valuation.

A. Omega Panama would have had Zero Value to a Potential Willing Buyer

15.   As explained above, Compass Lexecon states that the appropriate standard for evaluating the alleged damages related to Potential New Contracts is FMV.[10] Compass Lexecon cites the American Society of Appraisers statement that FMV relies on assessing the "cash equivalents, at which property would change hands between a hypothetical willing and able buyer and a hypothetical and able seller."[11] It also cites Lieblich, who states that "the buyer must believe that he is paying no more than the asset is worth to him,"[12] and goes on to say:

> [T]he value of income-producing capital assets or enterprise to its present owner or to a potential private purchaser is a function of the cash that the asset or enterprise is expected to generate in the future. This is because investors purchase and own capital assets in order to increase their wealth, and the only way to

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[10] *See* ¶ 11 above.

[11] Compass Lexecon Report, ¶ 61, citing **C–0392 [CLEX–12]**, American Society of Appraisers. 2001. International Glossary of Business Valuation Terms, p. 4

[12] Compass Lexecon Report, ¶ 62, citing **C–0121 [CLEX–13]**, Lieblich, W. 1991. *Determining the Economic Value of Expropriated Income-Producing Property in International Arbitration.* Journal of International Arbitration, 8 (1) 59 - 80, p. 74.

achieve that goal is to own assets that will generate cash or that will entitle their owner to receive more cash in the future.[13]

16. A fundamental concept underlying the application of the FMV standard using a DCF approach is that the willing buyer is purchasing an asset that it expects will generate income in the future. The assets can be tangible – such as large construction equipment used to build a building or a manufacturing plant that makes computer chips – or intangible – such as a patent or a well-established brand (like Nike or BMW).

17. Examples of assets that are often the subject of international arbitration disputes include oil concessions and telecommunication spectrum licenses. In those instances, a company secures the exclusive rights to exploit a natural resource or use a defined band of spectrum. The value of the telecommunications license rests on the fact that it gives the company access to the underlying resource, which is limited – there are only so many bands of wireless spectrum that can be used in a certain area. Thus, to provide telecommunications services in a certain area, an operator must secure access to those limited frequencies. If a buyer were interested in acquiring T-Mobile's subsidiary in a certain country, it would not only have to pay for the value of the brand, existing customer base, and physical equipment, but also would have to pay a considerable amount for the spectrum licenses that the T-Mobile subsidiary possesses in that country.

18. Compass Lexecon states that "business relationships and track records are, like in any services industry, the core asset[s]" of a general construction company such as Omega Panama.[14] It also explains that the general construction industry does not require "substantial investment in fixed assets as the most important costs are labor and equipment, which can be hired or rented."[15]

19. Unlike a construction company that owns large construction equipment, Omega Panama had virtually no income-producing tangible assets.[16] Similarly, unlike a telecommunications company that owns a spectrum license or an oil company that

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[13] Compass Lexecon Report, ¶ 63.

[14] Compass Lexecon Report, ¶ 65.

[15] Compass Lexecon Report, ¶ 65.

[16] *See* ¶¶ 42-45 below.

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owns an oil concession, Omega Panama owned no special rights or exclusive access to a limited resource. The only income-generating rights that Omega Panama had were the eight ongoing contracts it had as of the Valuation Date. It did not own any rights to future construction projects. In fact, Omega Panama would have been one of thousands of companies competing for an unknown number of future public contracts.[17]

20.   Another element that could provide value to Omega Panama would be the value (or cost) of establishing the business. This might include business licenses, insurance, human resources, and other legal logistics. However, establishing a general contracting business in Panama is relatively easy to accomplish. The World Bank consistently ranks Panama amongst the easiest countries in which to start a business.[18] It estimates that starting a business in Panama requires the completion of five procedures, which take approximately six days to complete.[19] Upon registering a business in Panama, an entrant into the Panamanian public sector construction market would have to complete a registration form on PanamaCompra in order to formally submit bids for public works construction projects.[20]

21.   As a consequence, simply having a business license and the necessary permits to bid on contracts through PanamaCompra is not a source of value, precisely because it is not costly to do so, and there are no caps on the number of contractors that can exist.

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[17] **QE−0004**, La Estrella de Panamá, "Panama-Compra', con nueva versión," 29 December 2009, p. 2.

[18] In 2018 the World Bank released its first Starting a Business ranking for Panama among comparator economies. The World Bank Panama ranked Panama first among comparator economies in that ranking. **QE−0005**, World Bank Group, "Doing Business 2019, Economy Profile of Panama," 2018, p. 6. Since the time Omega Panama began to operate in Panama until the present, the World Bank has given Panama high marks in the Starting a Business category in its annual Doing Business study. Panama achieved a Starting a Business score of 88.49 (out of 100) in the World Bank's 2010 Doing Business report. In the latest World Bank report, Doing Business 2019, Panama achieved a Starting a Business score of 92.07 (out of 100). **QE−0006**, World Bank Group, "Starting a Business," Doing Business 2010-2019.

[19] **QE−0005**, World Bank Group, "Doing Business 2019, Economy Profile of Panama," 2018, p. 8.

[20] **QE−0007**, PanamaCompra, "Bidder Registration Form," pp. 1-4. In addition to registering in PanamaCompra, public tender bidders have to meet bid-specific requirements. In general, the bid proposals in which Omega Panama participated required bidding contractors to submit nine standard credentials, including, among others, a performance bond, an identification certificate, and a business license. The typical request for proposals in PanamaCompra includes a list of documents required from contractors that are designed to establish the eligibility of the bidding party to formally be considered for a bid. **QE−0008**, MINSA CAPSI, "Request for Proposal," Application Eligibility Required Documents, 2010, pp. 33-35 of PDF.

22.   Thus, consistent with Compass Lexecon's assertions, the only income-generating asset that Omega Panama may have had was its reputation and business contacts. In other words, the result of a DCF analysis of Omega Panama's FMV as of the Valuation Date should reflect only the value of that portion of Omega Panama's expected earnings that are derived from its reputation and business contacts – those are the income-generating assets that Omega Panama allegedly possessed as of the Valuation Date.

23.   As I discuss in the subsections that follow, Omega Panama's track record was not well established, and there is no indication that Omega Panama had special access to business contacts that gave it an edge over its competitors. Given this, and the lack of any other tangible or intangible assets that could have contributed value to Omega Panama, a potential buyer looking to enter the Panamanian general contracting industry would not have seen any value in Omega Panama.

24.   A simple example helps illustrate this concept. Consider a driver for a peer-to-peer ride service such as Uber. An Uber driver essentially runs a services company. To create this company, a driver must fill out forms to register as an Uber driver, have a driver's license, and can even lease the only major capital asset she needs, a car. There are no significant startup costs, the barriers to entry are low, and there is no limit to the number of drivers that Uber will permit to drive. Consider an Uber driver who has been driving for a couple of years and expects that the income she has observed over that historical period will continue as long as she continues to offer her services. How much would a willing buyer pay to acquire this driver's operation? The answer is nothing, even though the driver can argue she will receive positive future cash flows. She has no tangible or intangible income generating assets to sell – she leases her car, there is not a limit to the supply of Uber permits, and driver's licenses cost little to obtain.

25.   The same applies to Omega Panama. The design and construction in Omega Panama's projects is carried out by subcontractors. These professionals and the use of their assets represent an operational cost to Omega Panama, not an asset it can sell to a prospective buyer. A prospective entrant to the Panamanian general contracting sector considering whether it would be advantageous to buy Omega Panama would observe that it was a small company with few physical assets, a license to operate in Panama which was easily obtainable, eight projects which were on average half completed, and no guarantee of any future revenues. Thus, that prospective entrant would not place any positive value on Omega Panama relating to the Potential New Contracts.

26.   In the following sections, I discuss in further detail Omega Panama's track record. I also look at how Omega Panama stacked up against its competition. Finally, I review the physical assets, operational infrastructure, and human resources that comprised Omega Panama, in order to put into perspective what a hypothetical buyer of Omega Panama would have been purchasing.

1. Omega was not an Established Company with a Proven Track Record in Panama

a. Most of Omega's Projects Were Not Yet Half Completed as of the Valuation Date

27.   Compass Lexecon contends that Omega Panama's value relies on "its capacity to participate in bids for construction works in Panama" and that absent the Measures it would have had a "burgeoning reputation and a track record of completing projects."[21] It also states that in a service industry, "business relationships and track records are… the core asset that each company has" and that the "business's reputation and access to resources… allows it to provide value to its… shareholders."[22] Compass Lexecon's assertions that Omega Panama had "developed a proven track record" and a "burgeoning reputation" rest on the fact that it had won ten bids over approximately four years, and had successfully completed only one of them as of the Valuation Date.[23]

28.   As of the Valuation Date, the eight active projects Omega Panama was responsible for were in varying degrees of completion, with the average project less than half complete – based on Claimants' own metrics. **Figure 2** below shows the status of each project according to the McKinnon Report, along with the one project completed by Omega Panama. According to McKinnon, four of the eight unfinished existing projects were

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[21] Compass Lexecon Report, ¶ 64.

[22] Compass Lexecon Report, ¶ 65.

[23] Compass Lexecon Report, ¶¶ 44-46, 64. Of the ten contracts won by Omega Panama, one was completed (Tocumen Airport Northern Terminal), one was cancelled before the project began (Caja Seguro Social), and eight were unfinished as of the Valuation Date. *See* ¶¶ 28-29 below. In addition to the fact that Omega Panama finished only one of its projects, its performance has also been criticized. For example, in relation to the Mercados Periféricos project, Omega Panama's design was deficient and it failed to obtain the required permits. Witness Statement of Eric Díaz, ¶¶ 11-14. In relation to the La Chorrera project, Omega Panama failed to maintain the bond that was required to guarantee its completion of the project. Witness Statement of Vielza Rios, ¶ 16. According to the INAC, the contract for Ciudad de las Artes was rescinded in December 2014 due to Omega's default on its contractual obligations. **C-0044**, INAC Resolution No. 391-14 DG-DAJ dated 23 December 2014, pp. 4-6.

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less than half complete, three were slightly more than half completed, and one was nearing completion.[24] Using McKinnon's cost and completion metrics, Omega Panama had completed, on average, 40.6% of the nine projects for which it had won contracts.[25] This is the basis from which Compass Lexecon concludes that Omega Panama had a proven track record in the Panamanian public general contracting market.[26] However, this record relies on a small sample, short operating history, and a lack of completed projects. From a business and economics perspective, this is not a sound basis from which to forecast future performance, and Compass Lexecon's assumptions regarding Omega Panama's future performance absent the Measure are mere speculation.

Figure 2
Completion Progress of Omega Panama's Projects[27]

	Revised Contract Amount (US$ Millions)	Project Progress Reported by McKinnon (Percent)
	(1)	(2)
1. Aeropuerto Internacional Tocumen	▓	▓▓
2. MINSA CAPSI Rio Sereno	▓	▓
3. MINSA CAPSI Kuna Yala	▓	▓
4. MINSA CAPSI Puerto Caimito	▓	▓
5. Mercado Público, Ciudad de Colón	▓	▓
6. Ciudad de las Artes	▓	▓
7. Unidad Judicial La Chorrera	▓	▓
8. Palacio Municipal, Ciudad de Colón	▓	▓
9. Mercados Periféricos	▓	▓
10. Total	▓	▓

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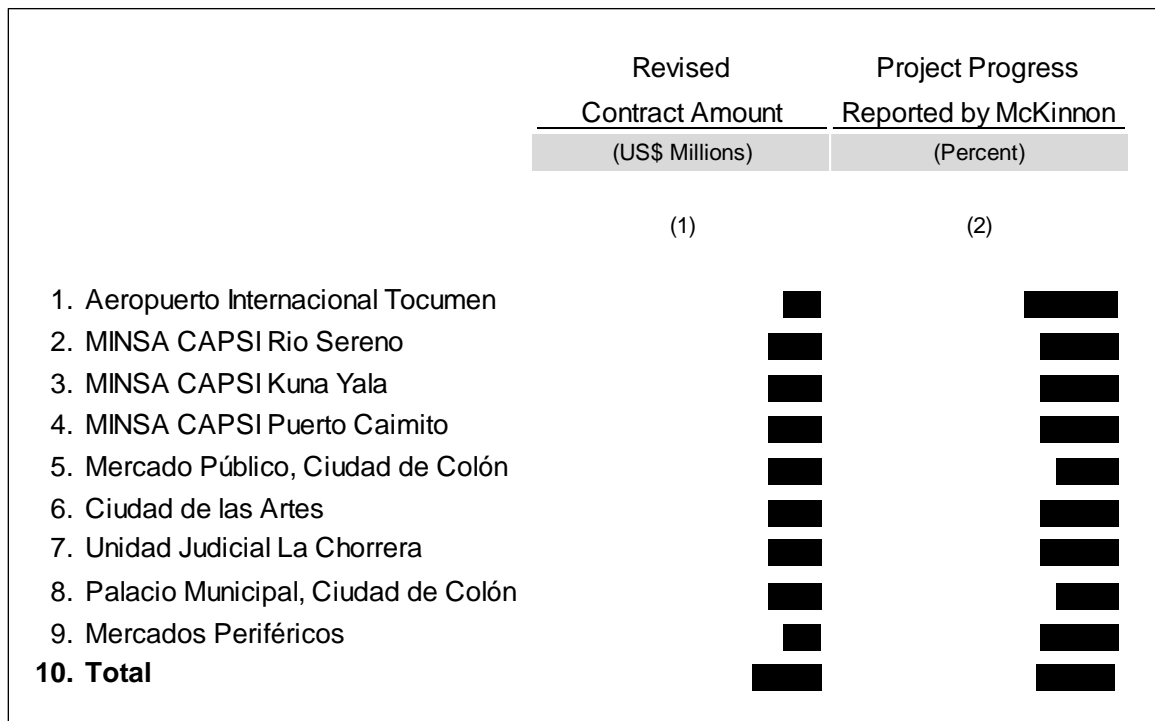
[24] The progress reports for the projects are not in the record.

[25] McKinnon calculates the completion progress of each project by dividing the actual costs to date by the estimated costs at completion. These actual costs to date include some costs that were incurred in 2015. *Compare* **C−0328**, Estimated Cost Analysis P-001 to P-010 *with* **C−330**, Job Costs Reports, tab "P001," cells F8117-F8155.

[26] Compass Lexecon Report, ¶ 64.

[27] **C−0134**, Addendum No. 1 to Contract No. 035/11, p. 2. McKinnon Report, n. 24, Annex 2, p. 1, Annex 3, pp. 3, 5, 7, 8, 10, 12, 13, 16. McKinnon estimates each project's progress by comparing the estimated Direct

29.   Compass Lexecon explains that its valuation of Omega Panama is "based on the historical performance of the company."[28] As explained above, this historical record amounts to winning 10 bids over a four-year period and finishing only one of them. Compass Lexecon opines that absent the "Measures undertaken by Panama, Claimants and the Omega Consortium would have been able to continue generating new business… with an established track record of ten completed projects in the country."[29] As a preliminary point, I note that one of the ten projects won by Omega Panama (relating to Caja Seguro Social) was canceled before it ever started and is not even part of Claimants' claim. Thus, Compass Lexecon is wrong to claim that Omega Panama could have achieved an "established a track record of ten completed projects" – at most, it could have completed nine projects. More fundamentally, Omega Panama's operating history was short, included few projects, and fails to demonstrate that the company would have been able to consistently and successfully complete projects. Thus, even assuming that the alleged Measures did not occur, it would be highly speculative to conclude that Omega Panama would have achieved the success that Compass Lexecon assumes it would have.

b. Compass Lexecon Speculates about Omega Panama's Future Success in the Private General Contracting Market

30.   Compass Lexecon's statements regarding Omega Panama's prospects in the private general contracting market are symptomatic of the speculative nature of its valuation exercise. It states as follows:

> Although the Omega Consortium was not successful in any of the eight private sector bids it participated in, we should expect that once the consortium would have been established and with a portfolio of 10 projects for the public sector, it would have

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Construction Costs required to complete each project and the total estimated Direct Construction Costs at completion for each project. *See e.g.*, McKinnon Report, Annex 3, p. 2 (column "% Complete," row "Direct Construction Costs"), Annex 3, p. 3 ¶ 2(a). However, McKinnon does not use the methodology described above for Palacio Municipal de Colón. I apply the same methodology to Palacio Municipal de Colón that McKinnon uses for the other projects. For the Ciudad de las Artes project, I rely on the completion percentage reported in the McKinnon Report. However, I note this figure differs from the lower 21% completion figure in Annex 3, Table 5 of the McKinnon Report.

[28] Compass Lexecon Report, ¶ 12.

[29] Compass Lexecon Report, ¶ 59.

substantial local experience to allow for private sector contracting.[30]

31. There is no basis for Compass Lexecon's statement. The reality is that Omega Panama failed in all of its attempts to secure private sector contracts.[31] It only had "a portfolio of 10 projects for the public sector."[32] Of these ten projects, one was completed, one was canceled before it began, and the remaining eight were not yet, on average, even half completed.[33] Omega Panama's operating record prior to the Measures does not show that it had the capacity to achieve enduring success in public sector contracting, let alone private sector contracting. Compass Lexecon's expectations about Omega Panama's future success are simply baseless conjectures.

c. Claimants' Statements Relative to PR Solutions as a Test Vehicle for Omega Panama are Inconsistent

32. Claimants go to great lengths to discuss the role of PR Solutions S.A. ("PR Solutions") as a test vehicle to protect the Omega brand name.[34] As discussed, the importance of brand value is key to Compass Lexecon's valuation of Omega Panama because it represents the core asset from which Omega Panama could derive value, distinct from any other general contractor in the Panamanian public works market.[35] According to Claimants, once Mr. Rivera "decided that Panama was the most attractive market for Omega U.S., he needed to determine the best entry strategy."[36] This led him to "create a company with a different name to complete a small pilot project to test field conditions."[37] Claimants argue that this strategy provided Mr. Rivera the opportunity

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[30] Compass Lexecon Report, ¶ 39.

[31] It appears that Omega Panama bid for a total of 16 private sector bids (that is 58 − 42 = 16), but Claimants and Compass Lexecon only indicate that Omega Panama lost eight of those bids, and do not clarify what the outcomes of the other eight bids were. Claimants' Memorial, n. 69; Compass Lexecon Report, ¶¶ 38-39.

[32] Compass Lexecon Report, ¶ 39.

[33] *See* ¶¶ 27-29 above.

[34] Claimants' Memorial, ¶¶ 30-31.

[35] Compass Lexecon Report, ¶ 65.

[36] Claimants' Memorial, ¶ 29.

[37] Claimants' Memorial, ¶ 29.

to protect the "Omega US brand from unforeseen developments in a new market."[38] Mr. Rivera explains in his witness statement that, "if something were to go wrong with a bid or a construction project, … ensuring that the local entity operating in the new country is not, by name at least, associated with the main company can be very beneficial."[39]

33.   The logic provided by Claimants for creating PR Solutions is belied by the facts presented by Claimants and Compass Lexecon. Mr. Rivera registered PR Solutions with the Panamanian Companies Registry in June 2010.[40] PR Solutions later submitted its first bid in September 2010 to work on Panama's Tocumen International Airport (note that this contract is different from the Tocumen International Airport contract later won by Omega Panama).[41] This contract was signed in December of 2010 and PR Solutions completed the project in December 2011.[42]

34.   Claimants state that "once PR Solutions successfully bid for and won a project, Omega US would invest its own goodwill in Panama and register Omega Engineering Inc [(Omega Panama)]."[43] However, according to documents on the record, Omega Panama was registered on 26 October 2009,[44] and bid on at least two projects between March and May 2010 – <u>before</u> PR Solutions was even created.[45] Furthermore, Omega Panama bid on a further 10 projects in October 2010, before PR Solutions had signed its first contract with the Panamanian Government.[46] Given this timeline, I fail to see

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[38] Claimants' Memorial, ¶ 29.

[39] Rivera Witness Statement, ¶ 22.

[40] Claimants' Memorial, ¶ 30. *See also* Rivera Witness Statement, ¶ 22.

[41] I note that PR Solutions was the only company that bid for this project. **QE−0010**, PanamaCompra, Acto de Apertura, Bid 2010-2-02-0-08-AV-000527, p. 1. *See also* Claimants' Memorial, ¶ 30; Rivera Witness Statement, ¶ 23. Note that PR Solutions and Omega Panama each won separate contracts for work at Tocumen International Airport. *Compare* **C−0005**, Contract No. 017/10 dated 14 December 2010 *with* **C−0006**, Contract 035/11 dated 28 February 2012.

[42] Claimants' Memorial, ¶ 30. *See also* Rivera Witness Statement, ¶¶ 23-24.

[43] Claimants' Memorial ¶ 29.

[44] **C−0017**, Public Registry of Omega Engineering Inc., p. 4.

[45] **C−0388 [CLEX–06]**, Omega Historical Bids, tab "Data – Bid Database – P1" (*see* bids 2010-1-38-0-08-LA-003850 and 2010-0-01-0-08-LV-004147). **QE−0011**, Departamento de Compras y Proveeduría, Acta de Apertura, Bid 2010-1-38-0-08-LA-003850, 24 March 2010, pp. 1-2; **QE−0012**, República de Panamá, Asamblea Nacional, Resolución de Adjudicación No.12, Bid 2010-0-01-0-08-LV-004147, 18 May 2010, p. 1.

[46] **C−0388 [CLEX–06]**, Omega Historical Bids, bid 2010-0-12-0-99-LV-000823, tab "Data – Bid Database –

how Claimants could have been using PR Solutions to "protect" the Omega brand from the missteps a startup might encounter, when Omega Panama began bidding for projects before PR Solutions was created, let alone before gaining the experience of conducting and successfully completing a project in Panama. To the contrary, Omega Panama had already lost US$ 176.4 million in bids before PR Solutions began its first project.[47]

d. Conclusion on the Speculative Nature of Compass Lexecon's Assertions Relative to Omega Panama's Track Record

35.   Omega Panama's "track record" is that of a new entrant that had lost at least eight private sector bids, lost 31 public sector bids, and won just ten public sector bids over a four-year time period.[48] Moreover, it had completed only one of those projects and had not even reached the half-way point on most of the remaining projects. Those elements do not constitute a proven track record, and certainly do nothing to support Compass Lexecon's wishful thinking that Omega Panama had attained or was about to attain a core asset (*i.e.*, reputation) worth US$ 46.75 million.

2. Omega Panama did not Stand out Amongst its Competitors

36.   Compass Lexecon argues that "[t]he Omega Consortium's bids were mainly focused on low to mid-size infrastructure projects in which <u>its international experience and superior financial capacity would make it stand out from its competitors</u>."[49] As explained below, Compass Lexecon's unsupported suppositions are belied by a review of Omega Panama's competition.

37.   Compass Lexecon points to Omega Panama's international experience as an attribute that would make it more competitive in the bidding process on PanamaCompra. Even if it were true that Omega Panama was backed by extraordinary international experience, Compass Lexecon fails to explain why or how that international experience

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P1." *See also* **QE−0013**, PanamaCompra, Acta de Apertura, Bid 2010-0-12-0-99-LV-000823, p. 1.

[47] **C−0240 [CLEX−02]**, CL Valuation Model, tab "V. Historical Information," row "Tendered Bids" for 2010; Claimants' Memorial, ¶ 30; **C–0005**, Contract No. 017/10 dated 14 Dec. 2010.

[48] Compass Lexecon Report, Table III. It appears that Omega Panama bid for a total of 16 private sector bids (that is 58 – 42 = 16), but Claimants and Compass Lexecon only indicate that Omega Panama lost eight of those bids, and do not clarify what the outcomes of the other eight bids were. Claimants' Memorial, n. 69; Compass Lexecon Report, ¶¶ 38-39.

[49] Compass Lexecon Report, ¶ 41 (emphasis added).

would be significant. I note that the tenders in which Omega Panama participated did not consider or assign more points based on a company's international experience.[50]

38.   Even if international experience could have provided Omega Panama a meaningful advantage, it is not true that it stood out from its competitors on this basis or that of financial capacity.   In fact, Omega Panama competed against companies with overwhelmingly more significant international experience and financial capacity. Below is a brief review of some of the companies that bid for the same contracts as Omega Panama:

(i)   Elecnor S.A., a multinational company which has been in operation since 1958 with a presence in 40 different countries and € 1.7 billion in revenues in 2014.[51]

(ii)   Actividades de Construcción y Servicios, S.A. ("ACS"), a multinational company which has been in operation since 1997 with presence in more than 50 different countries and € 34.9 billion in revenues in 2014.[52]

(iii)   Comsa EMTE S.L. a multinational company which has been in operation for more than 120 years with a presence in 25 different countries and € 1.4 billion in revenues in 2014.[53]

39.   Omega Panama was a much smaller company. As of December 2014, it had US$ ▮ million in revenues.[54]   Furthermore, the only international exposure that Compass

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[50] Omega Panama participated in tenders under a "Best Price" and a "Best Value" purchasing modality. A review of the tenders made by Omega Panama under these modalities shows that the main selection criteria were price, financial capacity, technical capacity, and experience. International experience does not appear among the selection criteria. **C−0388 [CLEX−06]**, Omega Historical Bids, tab "Data – Bid Database – P1;" *See also* Compass Lexecon Report, ¶ 35.

[51] **QE−0014**, Elecnor, S.A., "2014 Financial Statements and Directors' Report," pp. 9, 14, 15 of PDF. **QE−0009**, PanamaCompra, Actas de Apertura, Bid 2011-1-10-0-02-LV-038388, and Bid 2011-1-10-0-07-LV-039678, p. 1.

[52] Actividades de Construcción y Servicios, S.A. bid through its subsidiary Sociedad Española de Montajes Industriales, S.A. **QE−0015**, Actividades de Construcción y Servicios, S.A., "2014 Annual Report of AGS Group 2014," pp. 4, 6, 8, of PDF. **QE−0009**, PanamaCompra, Actas de Apertura, Bid 2011-1-10-0-02-LV-038388, and Bid 2011-1-10-0-07-LV-039678, pp. 1, 3.

[53] Comsa EMTE S.L. bid through its subsidiary Comsa S.A. **QE−0016**, COMSA EMTE, "Annual Summary," 2014, pp. 2-4 of PDF. **QE−0009**, PanamaCompra, Actas de Apertura, Bid 2011-1-10-0-02-LV-038388, and Bid 2011-1-10-0-07-LV-039678, pp. 1, 3.

[54] **C−0138**, Omega Engineering, Inc. Interim Balance Sheets for the Year Ended 31 December 2014, tab "Earnings."

Lexecon attributes to Omega Panama is Omega U.S.'s operations in Puerto Rico, which Mr. Rivera affirms had dwindled and represented only ███ of Omega LLC and Omega Inc.'s combined business by early 2013.[55]

40.   Another example of Omega Panama's failing to meet Claimants' assertions that it stood out amongst its peers is its lack of an ISO Certification. The International Organization for Standardization ("ISO") collaborates with area experts to develop "specifications for products, services and systems, to ensure quality, safety and efficiency."[56] The Panamanian Government deemed ISO certification to be of value, with some ministries and departments including ISO certification in the point system they used to award contracts.[57] Many of Omega Panama's competitors had earned this certification. For example, the competition for the Ciudad de Chitre project announced in 2013 included four companies, including Omega Panama. All three of the companies Omega Panama competed against had ISO certification – Omega Panama did not, and never won the project.[58]

41.   In summary, Compass Lexecon's valuation of Omega Panama based on Potential New Contracts relies on establishing the value of Omega Panama's reputation and business relationships.[59] Compass Lexecon argues that "Omega Consortium's… international experience and superior financial capacity" bolstered its credentials in comparison with its competitors.[60] However, there is no basis for Compass Lexecon's assertion. Omega Panama's competitors included multinational companies with at least 50 years' experience in the construction sector, with projects in dozens of countries around the world and billions of dollars in revenues.[61] Furthermore, Omega Panama lacked in other fundamental aspects, such as ISO certification.

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[55] Rivera Witness Statement, n. 55.

[56] **QE−0017**, International Organization for Standardization (ISO) website, "About ISO," p. 1.

[57] *See* **C−0388 [CLEX–06]**, Omega Historical Bids, p. 90 of PDF, under criteria "Calidad y Capacidad Técnica."

[58] **C−0388 [CLEX–06]**, Omega Historical Bids, p. 90 of PDF.

[59] *See* ¶ 27 above.

[60] Compass Lexecon Report, ¶ 41.

[61] *See* ¶ 38 above.

3. Omega Panama had Minimal Staff and Assets

42.   As explained above, Compass Lexecon claims that Omega Panama's core asset is its business relationship and track record.[62] It states that "the general construction industry does not necessarily require substantial investment in fixed assets as the most important costs are labor and equipment, which can be hired or rented."[63] Indeed, a review of Omega Panama's audited financial statements confirms that it owned few assets and only had a small permanent operation.

43.   As of December 2013, Omega Panama had US$ ████████ in income-generating assets.[64] According to its audited financial statements, those assets included "Office Equipment," "Computer Equipment," and "Motor Vehicles."[65]

44.   Claimants argue that prior to the Valuation Date, Omega Panama had become a successful operation with "dozens of direct employees consisting of engineers, architects, accountants and trade specialists."[66] However, Omega Panama paid very little in salaries. In 2012, it paid US$ ████████ in salaries.[67] In 2013, that figure dropped to US$ ████████ The minimum wage in Panama in 2013 was approximately US$ 461 per month.[69] Thus, the salary expense presented in Omega Panama's audited financial statements would have been sufficient to employ ██ full-time employees at minimum wage.[70] However, professionals such as "engineers, architects, accountants and trade

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[62] *See* ¶ 18 above.

[63] Compass Lexecon Report, ¶ 65.

[64] **C−0136**, Omega Engineering, Inc. Financial Statements and Supplementary Information as of 31 December 2013 and 2012 and Independent Auditor's Report, n. 6, p. 11 of PDF.

[65] **C−0136**, Omega Engineering, Inc. Financial Statements and Supplementary Information as of 31 December 2013 and 2012 and Independent Auditor's Report, n. 6, p. 11 of PDF. I understand that fixed assets were not expropriated by the Respondent, so there is no need to compensate Claimants for the value of those assets.

[66] Claimants' Memorial, ¶ 36.

[67] **C−0136**, Omega Engineering, Inc. Financial Statements and Supplementary Information as of 31 December 2013 and 2012 and Independent Auditor's Report, p. 16 of PDF.

[68] **C−0136**, Omega Engineering, Inc. Financial Statements and Supplementary Information as of 31 December 2013 and 2012 and Independent Auditor's Report, p. 16 of PDF.

[69] That is, (US$ 490 + US$ 432) / 2 = US$ 461. **QE−0018**, Priscilla Pérez, "Esta ha sido la evolución del salario mínimo en Panamá en los últimos seis años," El Capital Financiero, 14 December 2017, p. 2.

[70] That is, minimum wage per month of US$ 461 × 12 months = US$ 5,532 per year. ████████████████ ████████████████████████████

specialists" are usually paid much more than the minimum wage, so the actual number of employees must have been much lower.[71]

45.   In conclusion, neither the asset base nor scale of Omega Panama's operations supports Compass Lexecon's valuation. The audited financial statements confirm that the company had few income generating assets and call into question the description Claimants have provided about the scale of the organization based on employee numbers. These observations are consistent with Compass Lexecon's statement that running a general contracting company requires little investment in fixed assets because "the most important costs are labor and equipment, which can be hired or rented."[72] As discussed previously, these items are operational costs to a business, not income generating assets that are a source of value and can be sold.[73]

B. Compass Lexecon's DCF Analysis is Fundamentally Flawed

1. Compass Lexecon Mistakenly Assumes a Buyer Would have Paid for Cash Flows in Perpetuity

46.   As explained above, a willing buyer looking to enter the Panamanian public general contracting market would not have ascribed any value to Omega Panama. Compass Lexecon assumes that such a buyer would have existed, and that this buyer would have paid for the value of cash flows stemming from contracts that Compass Lexecon assumes Omega Panama would have won in the future, including not only in the years immediately following the Valuation Date, but in perpetuity.

47.   Even if one were to accept Compass Lexecon's assumption that Omega Panama had any value to a potential buyer, the valuation it performs would still require a key conceptual correction. Compass Lexecon erroneously assumes that a potential buyer would be willing to pay for the present value of all of Omega Panama's cash flows from 2015 onwards. In reality, a potential entrant into the Panamanian public general contracting market would only be willing to pay for the value of Omega Panama's cash

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[71] I reserve the right to update my analysis if relevant documents on this issue become available during the document production phase of this Arbitration.

[72] Compass Lexecon Report, ¶ 65.
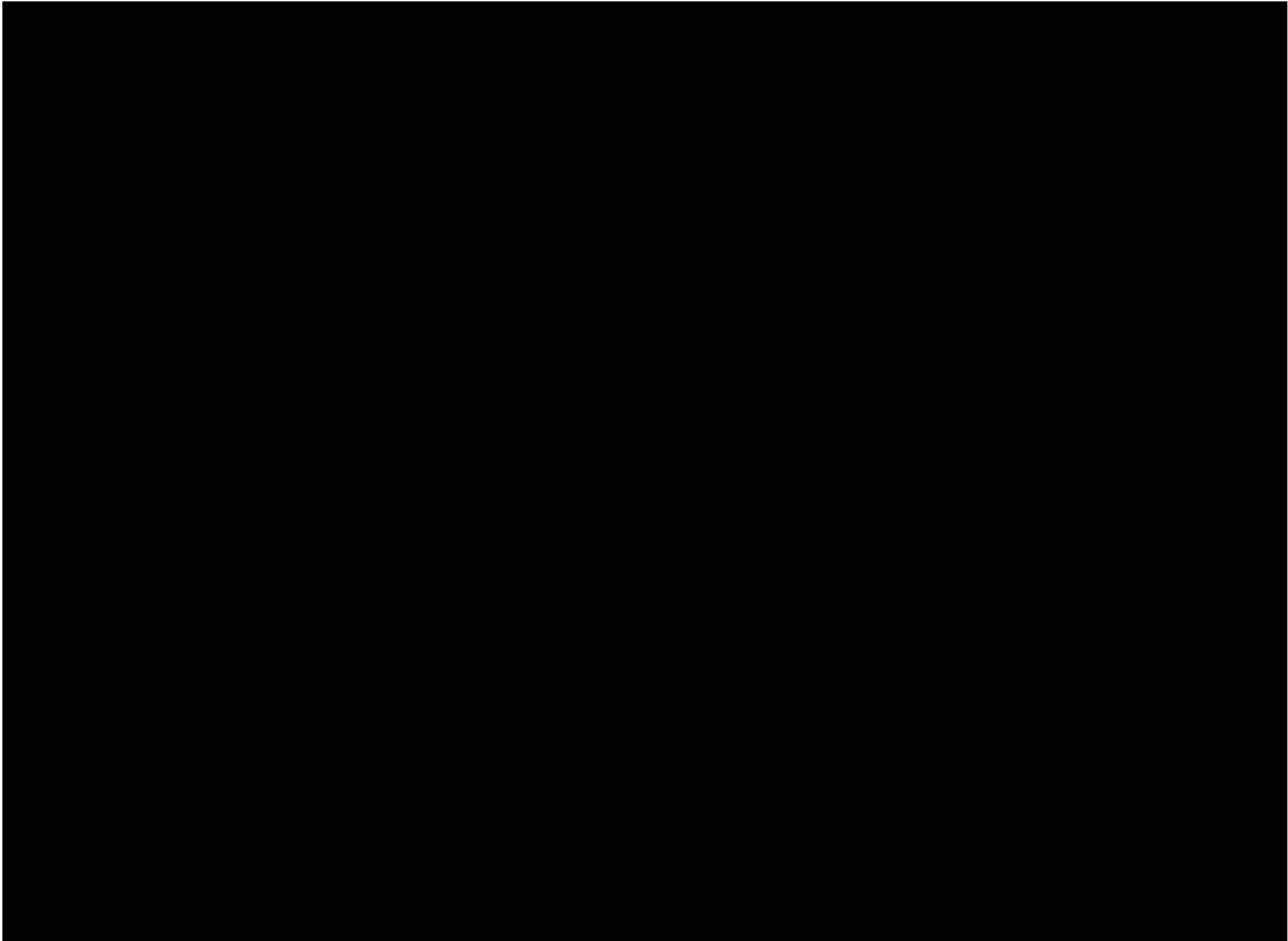
[73] *See* ¶¶ 22-24 above.

flows, above and beyond the cash flows it could derive by starting its own company. I develop this concept in the paragraphs that follow.

48.   As explained above, Omega Panama had no significant physicals assets, staff, or the contractual rights to any long-term stream of revenues.[74] Omega Panama was not an exceptional company in the general contractor market, and had no brand value. In fact, Omega Panama was just one of many companies attempting to win bids through PanamaCompra.[75] A company looking to enter the Panamanian public general contracting market at the end of 2014 could choose between (i) buying Omega Panama with its partially completed contracts and operations, and (ii) incorporating a new company and obtaining its own registration on PanamaCompra.

49.   Because of low barriers to entry in the Panamanian general contracting market, and the lack of any discernible advantage Omega Panama would have had over any other small general contracting operation, a potential new entrant to the Panamanian general contracting market could have replicated Omega Panama's experience from 2010 through 2014, and potentially have fared even better in its initial start-up years. **Figure 3** below illustrates the potential future cash flow options the new entrant could choose between. The red line represents the supposed expected cash flows modeled by Compass Lexecon. According to its model, Omega Panama grows significantly from 2015 to 2020, at which point it follows a steady-state path of earnings. The blue line represents a hypothetical new company that has no earnings in the first year, followed by a period of growth before reaching the same steady state earnings that Compass Lexecon assumes for Omega Panama.

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[74] *See* ¶¶ 15-26, 42-45 above.

[75] *See* ¶ 19 above.

50. Given the low barriers to entry for a general contracting company like Omega Panama, the only additional value it could have over a new company would be the higher cash flows that Omega Panama might earn compared to the new company in the first few years of the new company. Once the new company reaches the steady-state level of earnings in 2020, Omega Panama has no higher earnings than the new company. Thus, Compass Lexecon has erred in including all of Omega Panama's assumed future cash flows in its DCF analysis.

51. Returning to the analogy of the Uber driver presented above illustrates this concept.[77] Assume that the typical time to process an Uber application and lease a car is three months and, for simplicity, that there are little to no transaction costs required to obtain

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[76] **QE−0003**, Supporting Figures, tab "1 - Willing Buyer's View." For illustrative purposes, the cash flows for Omega Panama are simplified to include the cash flows from Potential New Contracts assumed by Compass Lexecon, and exclude the effects of the relatively small cash flows from existing contracts, as well as the large negative cash flow effect from the application of advances. Furthermore, general expenses are applied consistent with Compass Lexecon's modeling of cash flows after 2019. *See* ¶ 82 below.

[77] *See* ¶¶ 24-25 above.

the Uber permit and car lease. A hypothetical buyer may begin to generate revenues immediately by taking over the Uber permit and car lease from the existing driver. In this case, the hypothetical buyer may offer to purchase the current Uber driver's operation for the present value of the next three months of expected cash flows. However, the value of the Uber permit and car lease do not extend beyond those three months because the hypothetical buyer would have begun on his own after three months, had he not purchased the current Uber driver's operation. It would make no economic sense for the hypothetical buyer to pay for the cash flows starting three months out, because he could generate those on his own, without paying the current Uber driver anything.

52.   Returning to the case of Omega Panama, if one were to assume an <u>extreme case</u> in which a new company were not expected to have any earnings in the first five years of operations, the value of Omega Panama to a hypothetical buyer as of the Valuation Date, accepting all of Compass Lexecon's other assumptions (which, as explained below cannot be accepted), would be US$ 16 million, a US$ 30.75 million decrease from Compass Lexecon's calculation.[78] This is an extreme case because a new company would generate some earnings in the first five years of operations, just like Omega Panama did. This means that a more precise adjustment would render the value of Omega Panama even lower than US$ 16 million.

2. Compass Lexecon's DCF Model Relies on Unfounded Assumptions

53.   Compass Lexecon opines that the valuation of Omega Panama is best performed using a DCF analysis.[79] The World Bank Guidelines on the Treatment of Foreign Direct Investment explain that a going concern, the subject of a DCF analysis, shall be "in operation for a sufficient period of time to generate the data required for the calculation of future income."[80] This guideline implies that an adequate operational history is required in order to provide a basic measure of confidence for making assumptions about future performance. Omega Panama lacked such an operational history. In the

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[78] **QE−0002**, Valuation Model, tab "Summary" (select option "QE" in cell C40 and view result of calculation in cell O13). That is, US$ 46.75 million – US$ 16.00 million = US$ 30.75 million.

[79] Compass Lexecon Report, ¶¶ 66-70.

[80] **QE−0019**, General Counsel of the World Bank et al., "Legal Framework for the Treatment of Foreign Investment," "Report to the Development Committee and Guidelines on the Treatment of Foreign Direct Investment," (The World Bank, 1992), p. 42.

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sections that follow, I analyze the validity of the different components of Compass Lexecon's DCF analysis. At the same time, I call attention to the volatility and limited scope of Omega Panama's operational history, which causes Compass Lexecon's conclusions to be speculative.

54.   Compass Lexecon assesses the economic impact of the alleged Measures on Omega Panama by comparing (i) an actual scenario under which Omega Panama has lost all value, with (ii) a counterfactual scenario in which the Measures did not occur.[81] In its counterfactual scenario, Compass Lexecon calculates that Omega Panama would have had an FMV of US$ 46.75 million relating to the Potential New Contracts.[82]

55.   Any DCF analysis requires that a series of future cash flows be discounted to a valuation date. Those cash flows are the result of taking into account both revenues and costs. In order to forecast future revenues for Omega Panama, Compass Lexecon makes assumptions regarding Panama's Gross Domestic Product ("GDP"), future government spending, the size of Omega Panama's target market and Omega Panama's rate of success in winning contracts. **Figure 4** summarizes those revenue assumptions.

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[81] Compass Lexecon Report, ¶ 9.

[82] Compass Lexecon Report, Table I. On a nominal basis, Compass Lexecon estimates that Omega Panama lost US$ 23.76 million in cash flows between 2015 and 2019, and US$ 53.49 million in cash flows from 2019 and beyond, for a total of US$ 77.25 million. **C−0240 [CLEX−02]**, CL Valuation Model, tab "IV. New Contracts," cells D88-D92, D110. Subsequently, Compass Lexecon calculates the present value of the US$ 77.25 million figure by applying a discount rate of 11.65%, which it estimates is US$ 46.75 million as of the Valuation Date. **C−0240 [CLEX−02]**, CL Valuation Model, tab "IV. New Contracts," cells D7, E19. I discuss the methodology Compass Lexecon uses to calculate Omega Panama's cash flows and **Sections III.B.2.a-III.B.2.d** and discuss Compass Lexecon's discount rate in **Section III.B.2.e**.

Figure 4
Assumptions Underlying Compass Lexecon's Revenue Forecasts[83]
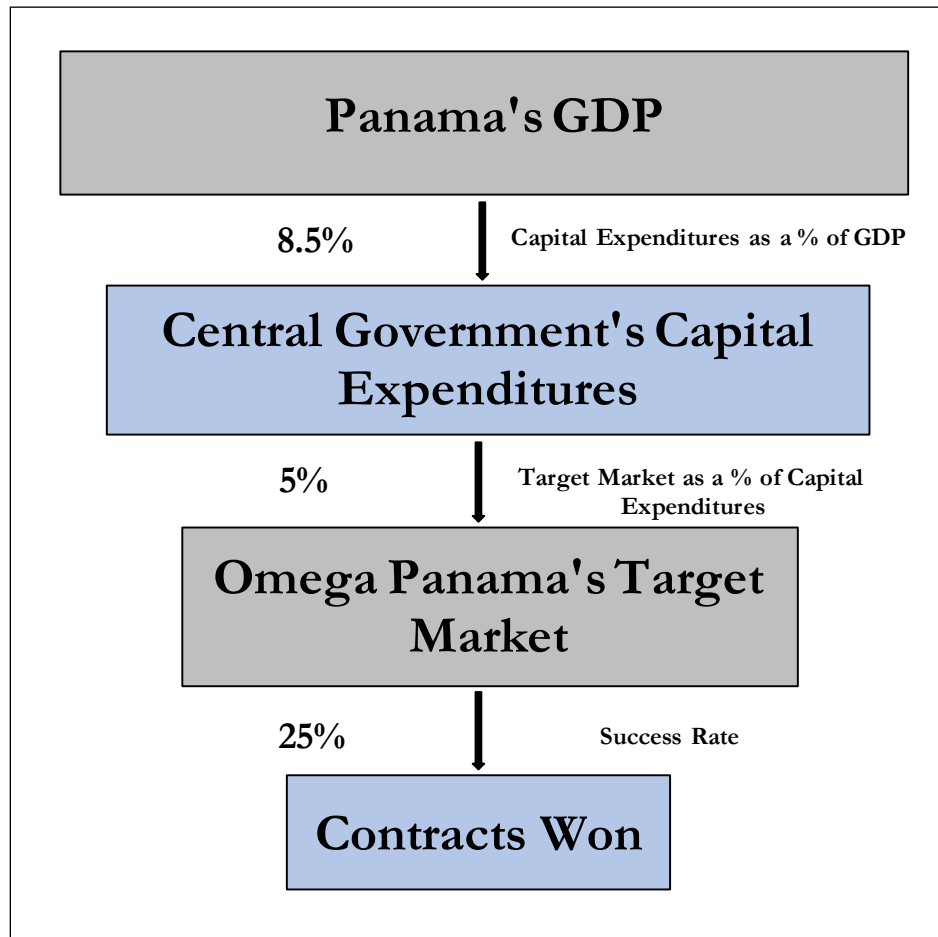
56.   In addition, Compass Lexecon estimates a gross profit margin and general expenses in order to calculate Omega Panama's expected earnings.

57.   Based on the analysis that follows, I conclude that Compass Lexecon's valuation of Omega Panama relating to the Potential New Contracts claim is unfounded and speculative because it relies on limited and volatile historical data. This conclusion is consistent with the discussion above in relation to Omega Panama's lack of both a proven track record, and tangible or intangible income-generating assets.[84]   In particular, in **Section III.B.2.a**, I show that Compass Lexecon's forecast of Panama's capital expenditures is unfounded because it is based on a period of historically high relative capital expenditures in Panama and ignores expectations for public spending

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[83] Compass Lexecon Report, ¶¶ 83-91.

[84] *See* ¶¶ 10-45 above.

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known as of the Valuation Date.[85]   In **Section III.B.2.b**, I show that Compass Lexecon's success rate estimate is speculative and ignores the volatility of Omega Panama's bid results and Omega Panama's limited operating history.[86]   In **Section III.B.2.c**, I show that Compass Lexecon's gross profit margin estimate for Omega Panama is based on speculative assumptions and ignores the only source that is based on actual historical data, namely Omega Panama's 2011 through 2013 audited financial statements.[87]   In **Section III.B.2.d**, I explain that Compass Lexecon fails to include general expenses in its calculation of Omega Panama's cash flows from 2015 to 2019.[88]   Finally, in **Section III.B.2.e**, I discuss how Compass Lexecon's discount rate fails to adequately reflect the risks faced by a construction company in Panama such as Omega.[89]

a. Expected Government Spending on Infrastructure

58.   To determine Omega Panama's future revenues, Compass Lexecon estimates the government funding available to support the projects that Omega Panama would bid for, that is, Omega Panama's "target market."[90]   Compass Lexecon argues that the budget for these projects would come from the Panamanian central government's capital expenditures budget, and that this budget can be estimated using a fixed percentage of Panama's GDP.[91]   Compass Lexecon states that "on average, the central Government's capital expenditure was around 8.5% of GDP" for the period from 2009 to 2014.[92]   Using this historical average, Compass Lexecon forecasts that Panama's

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[85] *See* ¶¶ 58-68 below.

[86] *See* ¶¶ 69-76 below.

[87] *See* ¶¶ 77-81 below.

[88] *See* ¶ 82 below.

[89] *See* ¶¶ 83-87 below.

[90] Compass Lexecon Report, ¶ 88-90. Compass Lexecon estimates Omega Panama's market share by observing the weighted average ratio of Omega Panama's total historical bids and the Panama total fiscal capital expenditures budget. It estimates that Omega Panama's market share was 5.7% between 2010 to 2013 and was 5.0% between 2011 and 2013, and then chooses 5.0% in its valuation of Omega Panama's Potential New Contracts. Compass Lexecon does not explain why its market share estimate of 5% should hold in perpetuity. Compass Lexecon Report, ¶ 90, n. 62. According to the data collected by Compass Lexecon, Omega Panama's market share reached ██████████████████████████   *See also* **C−0240 [CLEX−02]**, CL Valuation Model, tab "V. Historical Information," cells F15, H15.

[91] Compass Lexecon Report, ¶ 89.

[92] Compass Lexecon Report, ¶ 89. I note that the figures Compass Lexecon uses are not actual amounts spent,

central government capital expenditures will be 8.5% of forecasted GDP in perpetuity.[93] That forecast is unrealistically high, as it is based on an exceptional period of high public spending in Panama that was not to continue into the future, as I explain next.

59. The narrow historical period that Compass Lexecon considers in its estimation of capital expenditures encompasses the duration of the Martinelli administration.[94] A broader review of Panama's historical capital expenditure reveals that Compass Lexecon's results are based on a period of much higher than normal capital spending. Panama's capital expenditures drastically increased during the Martinelli administration between 2010 and 2014.[95] Non-financial Public Sector ("NFPS") capital expenditures totaled US$ 18.84 billion during the Martinelli administration, in comparison to US$ 6.01 billion during the Torrijos administration between 2005 and 2009.[96]

60. **Figure 5** below presents the actual NFPS capital expenditures from 1995 to 2014 by administration.

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but budgeted amounts. Compass Lexecon derives the 8.5% historical average based on line items categorized under the rubric of "Investments" in Panama's approved budgets for each year. Compass Lexecon Report, n. 60; **C−0391 [CLEX−09**], Republic of Panama's Fiscal Budgets for the period 2009-2014.

[93] **C−0240 [CLEX−02]**, CL Valuation Model, tab "IV. New Contracts," cell D26.

[94] President Ricardo Martinelli took office in July 2009 and stayed in power until July 2014, when he was replaced by President Juan Carlos Varela. Claimants' Memorial, ¶¶ 3, 9, 16.

[95] *See* **Figure 5** below.

[96] **QE−0021**, República de Panamá, Ministerio de Economía y Finanzas, Dirección de Programación de Inversiones, Informe de Ejecución del Programa de Inversiones Públicas no Financieras, 2017, p. 19 (column "Executed"). The measure of capital expenditures used here is based on NFPS investment. This includes the central government, municipalities and other similar entities, but excludes both the Panama Canal Authority and the financial public sector. **QE−0020**, Manual de Clasificaciones Presupuestarias del Gasto Público, Official Gazette No. 26716-C, 4 February 2011, pp. 21, 22.

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Figure 5
NFPS Capital Expenditures by Administration
1995-2014[97]
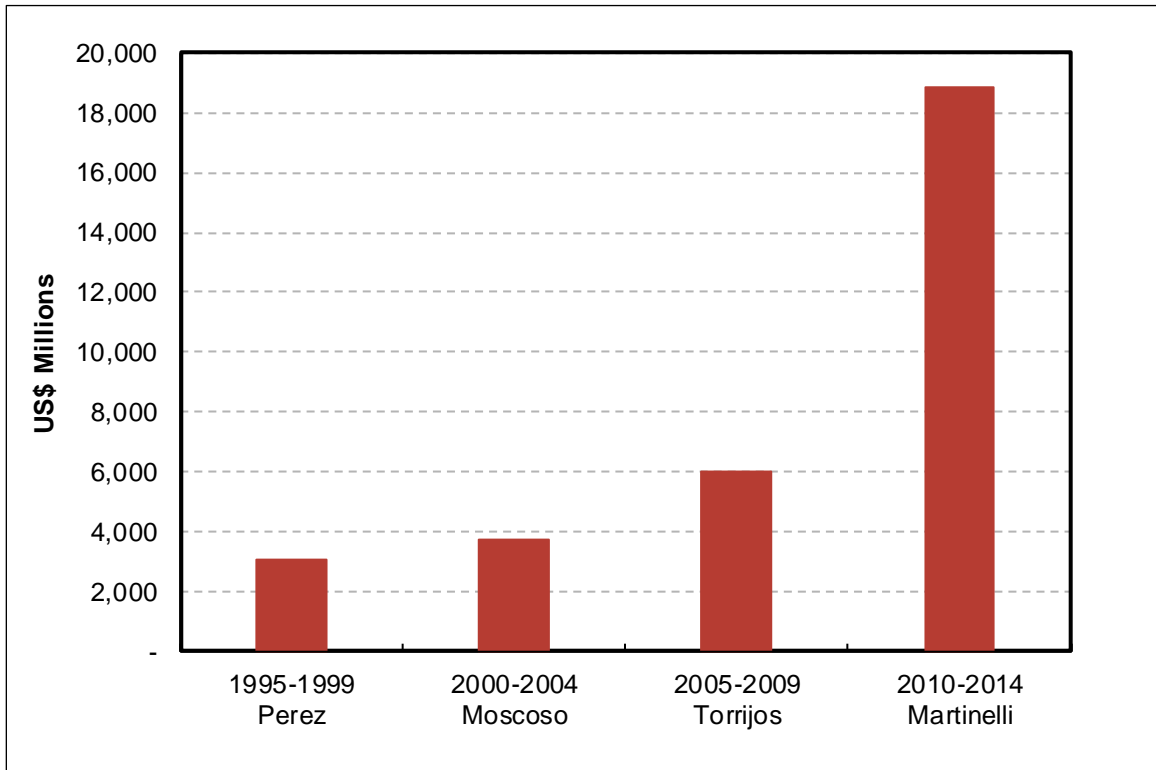
61.   **Figure 6** below shows Panama's historical central government capital expenditures as percentage of GDP from 1995 to 2014, using Compass Lexecon's own methodology.[98] This figure shows that Compass Lexecon's adopted time frame of 2009-2014 is an abnormal period. Compass Lexecon observes that "expenditure on investments and infrastructure also showed a very significant increase during the 2009-2013 period… investment more than doubled."[99] However, Compass Lexecon provides no support for why a reasonable estimate of future capital expenditure should rely on an abnormal historical period. **Figure 6** below shows that Panama did not invest more than 6% of

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[97] This figure presents nominal values. **QE−0021**, República de Panamá, Ministerio de Economía y Finanzas, Dirección de Programación de Inversiones, Informe de Ejecución del Programa de Inversiones Públicas no Financieras, 2017, p. 19.

[98] I use 2015 IMF data rather than Compass Lexecon's 2014 IMF data because the former contains actual information through 2014, whereas the data Compass Lexecon relies upon contains estimates of GDP after 2012. *Compare* **C−0409 [CLEX−31]**, IMF, World Economic Outlook Database – October 2014 *with* **QE−0022**, IMF World Economic Outlook, October 2015.

[99] Compass Lexecon Report, ¶ 37.

GDP on central government capital expenditures in the 14 years preceding the period chosen by Compass Lexecon.

Figure 6
Panama's Central Government Capital Expenditures as a Percentage of GDP
1995-2014[100]
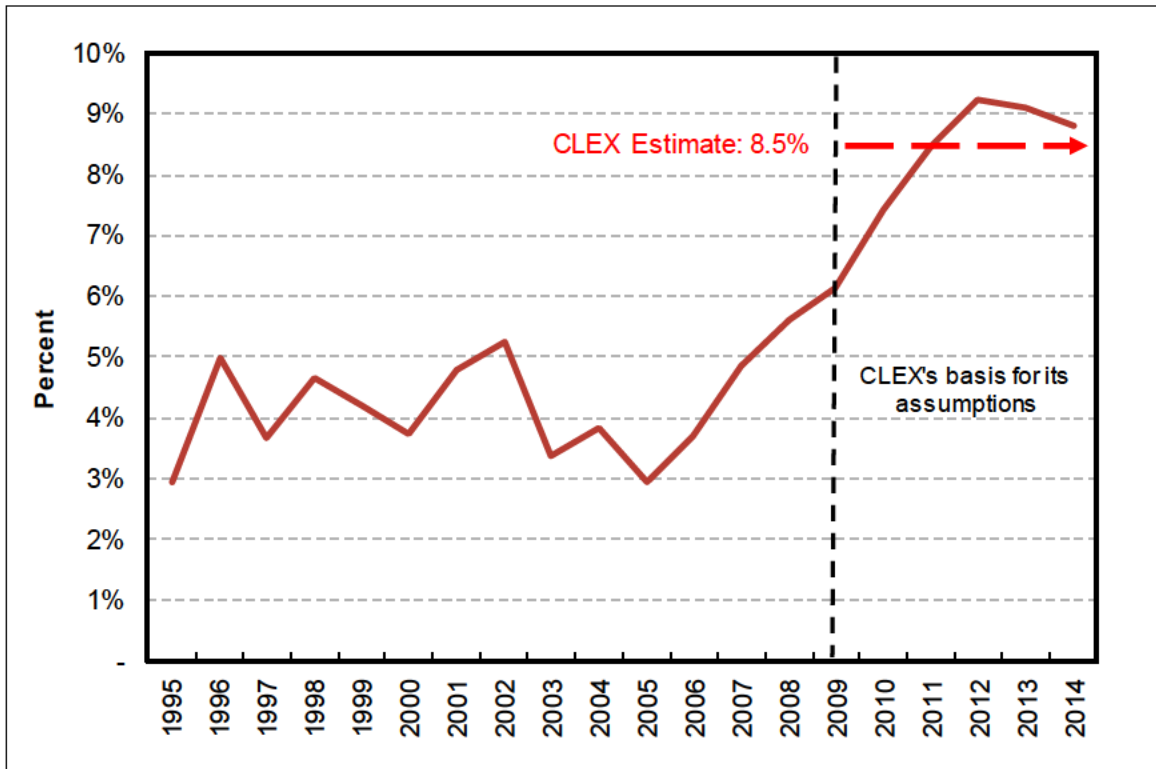
62.   As of the Valuation Date, it was clear that the historical jump in capital expenditures witnessed during the Martinelli administration would need to revert to a more stable level. That increase in capital expenditures resulted in a 66% increase in public debt between 2009 and 2014, from US$ 11.0 billion to US$ 18.2 billion.[101] In the weeks leading up to the 2014 presidential election, the president of the National Association of Economists of Panama, Raul Moreira, stated that "the first thing the next

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[100] **QE−0003**, Supporting Figures, tab "3 - CAPEX 1995-2014." *See also* **QE−0023**, Resumen del Presupuesto General del Estado, República de Panamá, 1995-2017, pp. 3, 5, 7, 9, 11, 13, 16, 18, 20, 23, 26, 28, 30, 32, 35, 37, 39, 41, 43, 45, 47, 49, 51 of PDF.

[101] That is, at end of 2009: US$ 10.150 billion for external debt + US$ 0.822 billion for internal debt = US$ 10.972 billion; and, at the end of 2014 US$ 14.352 billion for external debt + US$ 3.879 billion for internal debt = US$ 18.231 billion. US$ 18.231 billion / US$ 10.972 billion − 1 = 66%. **QE−0024**, Ministerio de Economía y Finanzas, "Evolución de la Deuda Total del Sector Público," October 2018, p. 1.

government must do is recapture fiscal discipline, in such a way that the level of revenues and debt are in line with the ability to pay that debt."[102]

63. Due to Panama's large increase in public debt and delays in the Panama Canal expansion project, at the beginning of 2014 then-candidate Juan Carlos Varela recognized the need to implement fiscal discipline to face government commitments. Mr. Varela stated that "there is a clear need for an honest government [that will maintain] fiscal discipline."[103]

64. A source on which Compass Lexecon relies observes that the economic expansion witnessed by Panama, in particular the non-residential construction sector, could not be permanent:

> Within the context of such an impressive economic performance, there are two warning signals worth noticing. First, growth has decelerated since 2012. Deceleration is not necessarily a negative feature. It might be a signal of convergence to a steady state rate after such a long spell of growth acceleration. But it could also hint that some pillars of growth are subsiding. Construction, the spearhead of the large economic expansion, has been growing at a compounded annual rate of more than 18% for ten years, tripling its share within GDP over that period. Non-residential construction, the main driver of demand in construction in Panama, cannot grow indefinitely at a higher pace than the rest of the economy.[104]

65. **Figure 7** below presents average annual NFPS capital expenditures as a percentage of GDP by administration. It shows the abnormally high level of capital spending that occurred during the Martinelli administration, and the subsequent reversion that began during the first three years of the Varela administration.

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[102] **QE‒0025**, Panamá América, "Nuevo gobierno panameño obligado a disciplina fiscal para alentar crecimiento," 30 April 2014, p. 2 (translated from the original in Spanish).

[103] **QE‒0026**, La Prensa, "Nuevo Gobierno obligado a disciplina fiscal por crisis en Canal, dice Varela," 17 January 2014, p. 2 (translated from the original in Spanish).

[104] **C‒0390 [CLEX‒08]**, Ricardo Hausmann, Luis Espinoza & Miguel Angel Santos, Shifting Gears: A Growth Diagnostic in Panama, p. 3 of PDF.

Figure 7
NFPS Capital Expenditures as Percentage of GDP by Administration
1995-2017[105]
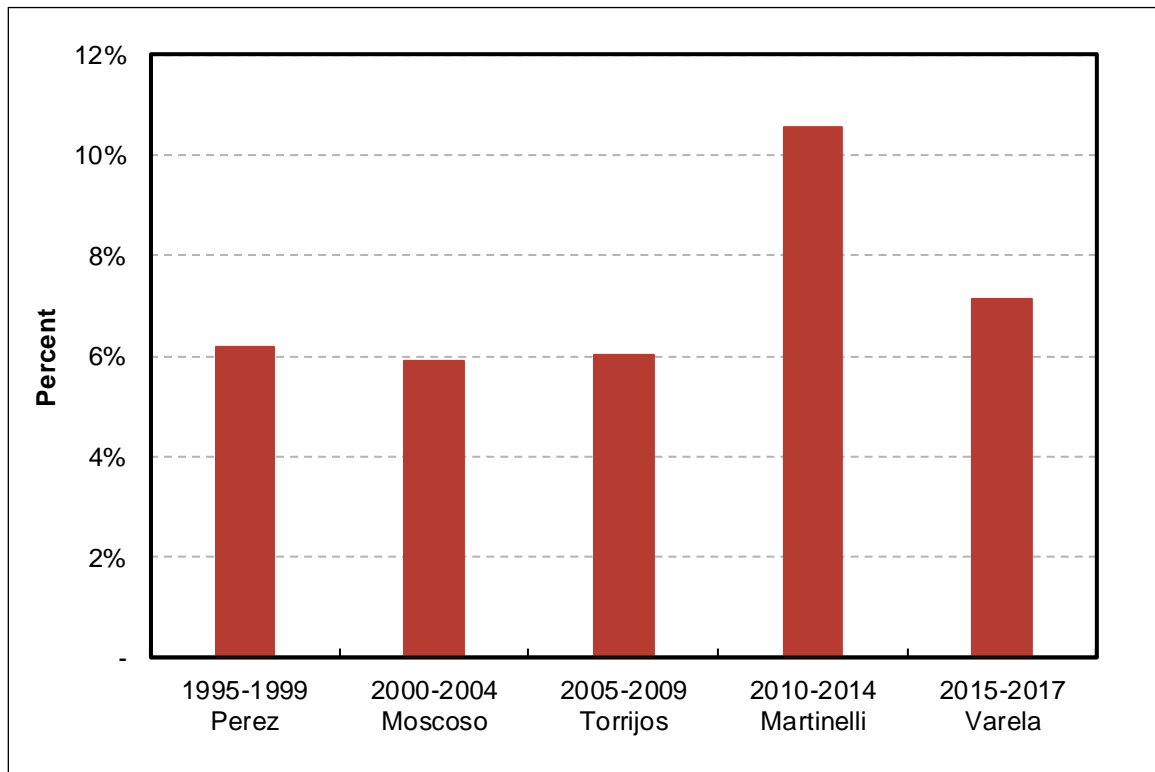
66.   According to Article 16 of Law 34 of 2008, after government elections are held, the incoming administration is required to present a strategic five-year fiscal plan that includes the government's projected capital expenditures.[106] In December 2014, the Ministry of Economics and Finance published the Plan Estratégico de Gobierno Panamá 2015-2019 (the "2015-2019 Strategic Plan") containing the Quinquennial Investment Plan.[107] Consistent with Mr. Varela's statements from earlier in 2014, this

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[105] **QE−0021**, República de Panamá, Ministerio de Economía y Finanzas, Dirección De Programación de Inversiones, Informe de Ejecución del Programa de Inversiones Públicas no Financieras, 2017, pp. 19-20. *See also* **QE−0022**, IMF World Economic Outlook, October 2015, p. 1; **QE−0003**, Supporting Figures, tab "2 - Historical CAPEX."
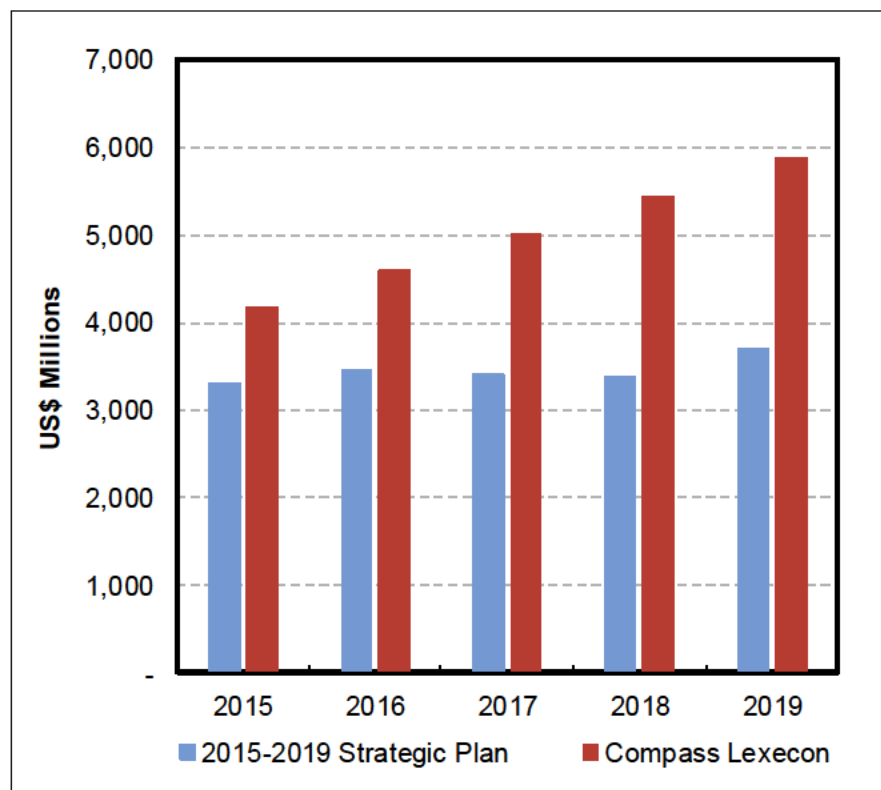
[106] **QE−0027**, Plan Estratégico de Gobierno (PEG) 2015-2019, December 2014, pp. 3, 9, 127. *See also* **QE−0028**, Ley 34 De Responsabilidad Social Fiscal, Official Digital Gazette No. 26056, 6 June 2008, p. 9. **QE−0003**, Supporting Figures, tab "2 - Historical CAPEX."

[107] **QE−0027**, Plan Estratégico de Gobierno (PEG) 2015-2019, December 2014, pp. 131-138.

plan reins in future NFPS capital expenditures below the levels observed during the Martinelli administration.[108]

67.   Compass Lexecon's projection of capital expenditures ignores the economic, political, and fiscal outlook as of the Valuation Date. **Figure 8** below compares Compass Lexecon's projections of central government capital expenditures with the 2015-2019 Strategic Plan's projections. As the figure shows, Panama expected restrained spending on capital expenditures while Compass Lexecon's model assumes a much more buoyant trajectory.

Figure 8
Projected Central Government Capital Expenditures:
2015-2019 Strategic Plan vs. Compass Lexecon[109]

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[108] *Compare* **QE−0027**, Plan Estratégico de Gobierno (PEG) 2015-2019, December 2014, p. 128, row "Gastos de Capital" *with* **QE−0021**, República de Panamá, Ministerio de Economía y Finanzas, Dirección De Programación de Inversiones, Informe de Ejecución del Programa de Inversiones Públicas no Financieras, 2017, p. 20, "Cuaderno N° 2," column "Ejecutado" for years 2012 through 2014.

[109] **QE−0003**, Supporting Figures, tab "4 - Central Gov't CAPEX."

68.   Compass Lexecon relies on a period of abnormally high capital expenditures in Panama and assumes that an 8.5% average capital expenditure to GDP ratio should be used in perpetuity to forecast Omega Panama's future revenues.[110]   That assumption is particularly inappropriate, given that the 2015-2019 Strategic Plan offers the best contemporaneous forecast of central government capital expenditures.[111] Applying the forecast in the 2015-2019 Strategic Plan reduces Compass Lexecon's valuation of the Potential New Contracts claim as of the Valuation Date by US$ 19.3 million, to US$ 27.4 million, keeping everything else in Compass Lexecon's model unchanged.[112]

b. Expected Success Rate of Omega Panama's Bids

69.   After estimating the dollar value of public works contracts that Omega Panama would bid for in each year, Compass Lexecon multiplies this amount by the percentage of bids Omega Panama would be successful in winning.[113] It estimates Omega Panama's success rate as the proportion of its target market that it "would have been able to materialize into actual contracts,"[114] calculated by comparing the US dollar value of public works bids it won to the US dollar value of public works bids it submitted.[115] It calculates that Omega Panama achieved a success rate of 21.4% between 2010 and

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[110] Compass Lexecon Report, ¶ 89(b).

[111] *See* ¶ 66 above.

[112] That is, US$ 46.75 million – US$ 27.42 million = US$ 19.32 million. **QE−0002**, Valuation Model, tab "Summary" (select option "QE" in cell C25 and view result of calculation in cell O13). I note that Compass Lexecon fails to implement the operational constraint that it states it assumes in its model. It was instructed to assume that Omega Panama would continue "employing the same number of staff it had in the year 2013 to manage its construction business and administer its new contracts." Compass Lexecon Report, ¶ 12.c. It notes that an adjustment factor is applied to the target market size in its model "in years 2015 and 2016 to reflect Omega's Consortium lower participation in tenders due to its ongoing interests in unfinished existing contracts." Compass Lexecon Report, Table XIII. Indeed, its model limits the number of contracts to eight in 2015 and 2016. **C−0240 [CLEX−02]**, CL Valuation Model, tab "IV. New Contracts," row "Adjustment Factor." However, from 2017 onwards Omega is allowed to win contract awards constrained only by the projected growth of GDP and Compass Lexecon's assumptions, including its high estimate of government spending on capital expenditures.

[113] Compass Lexecon Report, ¶ 91; **C−0240 [CLEX−02]**, CL Valuation Model, tab "IV. New Contracts," cells D41, E42-I42.

[114] Compass Lexecon Report, ¶ 91.

[115] Compass Lexecon Report, ¶ 91, nn. 63, 64.

2013,[116] and of 29.2% between 2011 and 2013.[117] It takes the average of these two proportions and assumes that Omega Panama's success rate from 2015 into perpetuity would have been 25%.[118] Compass Lexecon does not explain why it estimates Omega Panama's success rate using those two periods, 2010-2013 and 2011-2013.

70. As explained above, in the valuation of a going concern, the company should be "in operation for a sufficient period of time to generate the data required for the calculation of future income."[119] Compass Lexecon ignores the volatility of Omega Panama's bid results and the lack of substantial operating history, both of which hinder the derivation of income projections with reasonable certainty. **Figure 9** below shows Omega Panama's bid history, based on Compass Lexecon's tabulation.

Figure 9
Omega Panama's Public Works Bid History[120]

	2009	2010	2011	2012	2013	2014
	(US$ Millions, Unless Otherwise Stated)					
	(1)	(2)	(3)	(4)	(5)	(6)
1. Tendered Bids	-	176.4	336.8	87.1	61.4	-
2. % of Gov. Expense	-	8.8%	12.7%	2.6%	1.7%	-
3. Bids Won	-	-	52.5	87.1	2.0	-
4. Success Rate	**-**	**0.0%**	**15.6%**	**100%**	**3.2%**	**-**
5. Total Bids Submitted (Qty)	-	14	21	3	4	-

71. The activity of Omega Panama by year is as follows:

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[116] That is, US$ 141.6 million / US$ 661.7 million = 21.4%. Compass Lexecon Report, ¶ 91, n. 63. *See also* **C−0240 [CLEX−02]**, CL Valuation Model, tab "V. Historical Information," cells E16-H16, E14-H14.

[117] That is, US$ 141.6 million / US$ 485.3 million = 29.2%. Compass Lexecon Report, ¶ 91, n. 64. *See also* **C−0240 [CLEX−02]**, CL Valuation Model, tab "V. Historical Information," cells F16-H16, F14-H14.

[118] Compass Lexecon Report, ¶ 91.

[119] *See* ¶ 53 above. **QE−0019**, - General Counsel of the World Bank et al., "Legal Framework for the Treatment of Foreign Investment," "Report to the Development Committee and Guidelines on the Treatment of Foreign Direct Investment," (The World Bank, 1992), p. 42.

[120] **C−0240 [CLEX−02]**, CL Valuation Model, tab "V. Historical Information," cells D14-H17; **C−0388 [CLEX-06]**, Omega Historical Bids.

- In 2010, Omega Panama bid on 14 contracts worth ██████████, and did not win any.[121] This occurred despite Claimants' assertions regarding the "eminent standing" that Claimants' held in the region, with "over 35 years of experience" being "one of the largest construction companies in Puerto Rico and fastest-growing Puerto Rican construction company in Latin America."[122] This year of failing to win any contracts occurred even after "Mr. Rivera and his team held a number of introductory meetings with local bankers, insurance companies, accountants, and other local business providers with experience in the country."[123]

- In 2011, Omega Panama bid on 21 contracts worth ██████████, winning six of them.[124] Thus, in its first two years of operation, leading up to 2012, Omega Panama had a success rate of 8%.[125]

- In 2012, Omega Panama scaled back its bidding significantly, to just three contracts worth ██████████. It won all three contracts – the Ciudad de las Artes, the town hall in Colón, and the judicial building in La Chorrera.[126]

- In 2013, Omega Panama scaled back its bidding further, to US$ ██████████ and had a success rate of just 3.2%.[127]

- In 2014, including the seven months prior to Mr. Varela assuming the Presidency, Omega Panama did not bid on any projects.

72.   **Figure 10** below illustrates the volatile results achieved by Omega Panama during its short operating history.

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[121] **C–0388 [CLEX–06]**, Omega Historical Bids.

[122] Claimants' Memorial, ¶¶ 1, 17.

[123] Claimants' Memorial, ¶ 25.

[124] **C–0388 [CLEX–06]**, Omega Historical Bids.

[125] That is, (0.0% + 15.6%) / 2 = 7.8%, a simple average, or US$ 52.5 million / (US$ 176.4 million + US$ 336.8 million) = 10.2%, a weighted average. **C–0240 [CLEX–02]**, CL Valuation Model, tab "V. Historical Information," cells E16-F16, E14-F14.

[126] **C–0388 [CLEX–06]**, Omega Historical Bids; **C–0240 [CLEX–02]**, CL Valuation Model, tab "V. Historical Information," cells G14, G16.

[127] **C–0240 [CLEX–02]**, CL Valuation Model, tab "V. Historical Information," cell H17.

Figure 10
Omega Panama's Volatile Success Rate[128]
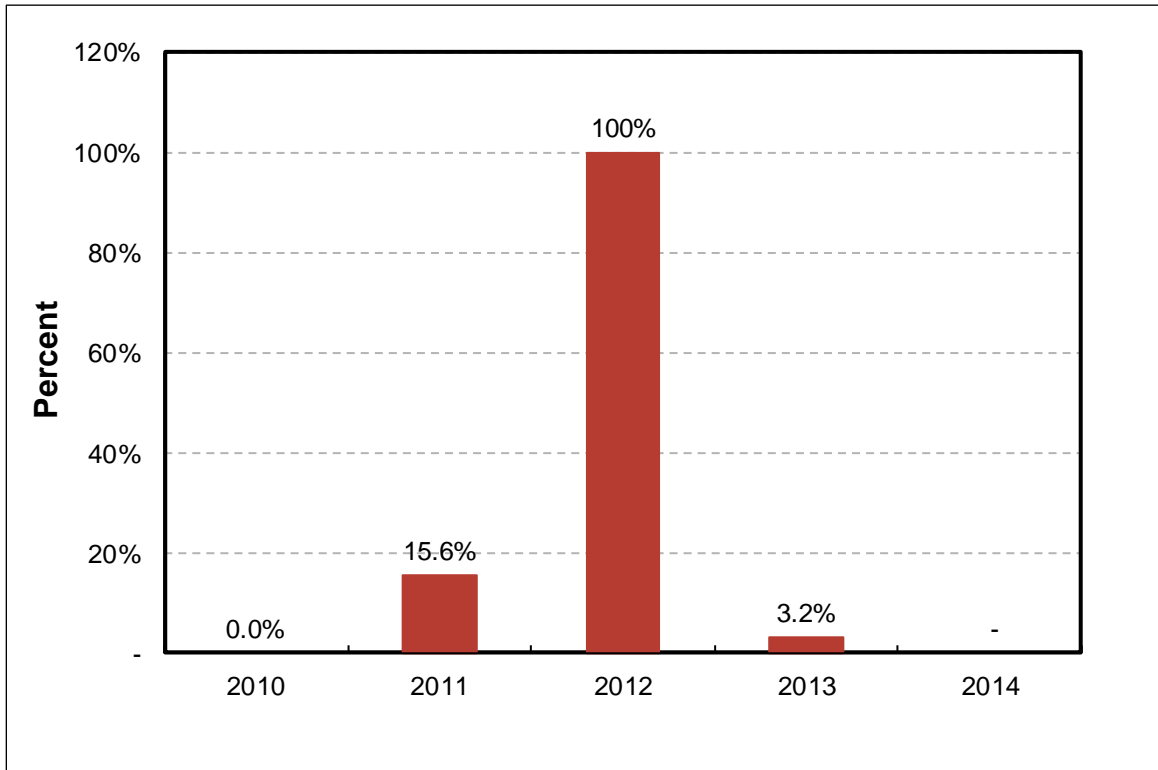
73. It is important to note that Compass Lexecon's success rate estimate does not take into account Omega Panama's 2014 operating year. According to Mr. Rivera, the Measures impacted Omega Panama's operations in Panama only sometime after July 2014.[129] Even if one accepts that operating data after July 2014 should be ignored, by excluding the first half of 2014, Compass Lexecon's analysis of Omega Panama's success rate omits the most recent operating history preceding the Valuation Date. Claimants do not explain why Omega Panama did not submit any public works bids during the first seven months in 2014, which followed a year in which Omega Panama won only 3.2% of its bids.[130]

74. Given the available data and the volatility of these results, it is unreasonable that a hypothetical buyer of Omega Panama would expect a 25% year-over-year rate of bidding success into perpetuity. The lack of success of Omega Panama in its first two

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[128] **C–0240 [CLEX–02]**, CL Valuation Model, tab "V. Historical Information," cells E17-H17.

[129] Rivera Witness Statement, ¶ 69.

[130] **C–0240 [CLEX–02]**, CL Valuation Model, tab "V. Historical Information," cell H17.

years, the large uptick in proportional success it had in 2012, the drop off in 2013, and no bids in 2014 constitute a highly erratic, limited and uncertain history. It is unreasonable to believe that any hypothetical buyer would project a 25% success rate in perpetuity based on such a volatile record.

75. Compass Lexecon's estimate of Omega Panama's bidding success is not robust. An analysis is considered robust when small changes in the underlying data do not create large changes in the results of the analysis. That is not the case for Compass Lexecon's analysis of Omega Panama. For example, if Omega Panama had lost just one additional bid – the Ciudad de las Artes contract – Compass Lexecon's calculated success rate would drop from 25% to 14%.[131]

76. One commonly-accepted manner of addressing variability in the observed data is to remove outliers. There are two outliers in the annual data tabulated by Compass Lexecon, the 0% success rate in 2010 and the 100% success rate in 2012. The average success rate excluding those two outliers is 9.4%.[132] Applying a success rate of 9.4%, reduces Compass Lexecon's valuation of the Potential New Contracts claim as of the Valuation Date by US$ 29.2 million to US$ 17.6 million, keeping everything else in Compass Lexecon's model unchanged.[133]

c. Profit Margin

77. To project the cash flows from the Potential New Contracts, Compass Lexecon estimates the costs that Omega Panama incurs to complete a contract. This includes paying all the subcontractors that do the actual construction.[134] Compass Lexecon

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[131] That is, (0.0% (2010) + 15.6% (2011) + 37.4% (2012) + 3.2% (2013)) / 4 = 14.0%. If Omega Panama had not won the Ciudad de las Artes contract, valued at US$ 54.5 million, its success rate in 2012 would have fallen to 37.4%. Compass Lexecon Report, Table V; **C–0240 [CLEX–02]**, CL Valuation Model, tab "V. Historical Information" (first subtract US$ 54.5 million from cell G16 and view resulting calculation in cell G17).

[132] **QE−0002**, Valuation Model, tab "V. Historical Information," cell C23.

[133] That is, US$ 46.75 million – US$ 29.18 million = US$ 17.56 million. **QE−0002**, Valuation Model, tab "Summary" (select option "QE" in cell C29 and view result of calculation in cell O13).

[134] The McKinnon Report reviews Omega Panama's bid estimates and observes that "subcontractor costs approximates 59% of Omega's trade costs," and that "less than 10% of the work was bid as self-performed work using Omega employees and equipment." McKinnon Report, ¶¶ 31-32.

accounts for Omega Panama's operating costs by applying a gross profit margin to its forecast of gross revenues,[135] which it estimates based upon the following sources:[136]

(i)   Omega Panama's 2011-2013 audited financial statements.

(ii)   Omega Panama's Project Job Costs estimates that were prepared for project bids.

(iii) Margin estimates calculated by McKinnon.

78. According to Compass Lexecon, the average gross profit margin based on Omega Panama's audited financial statements from 2011 through 2013 is ███.[137] It calculates that Omega's Project Job Costs reports suggests a ███ gross profit margin.[138] Compass Lexecon concludes "based on the result of both relevant analyses, we opted to forecast the margins on future projects at ███," which it claims is "consistent with the profit margin [of ███ assumed by McKinnon."[139]

79. Compass Lexecon considers three alternative sources for its gross profit margin estimate, but ignores the only source that is based on actual historical data, not speculative assumptions. The Project Job Costs from which Compass Lexecon calculates a ███ gross profit margin are based on estimates made prior to the commencement of the projects, and represent only what Omega Panama was hoping to earn.[140] The ███ gross profit margin Compass Lexecon presents is a result of several assumptions made by McKinnon. First, McKinnon relies upon audited

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[135] Compass Lexecon Report, ¶¶ 97-99. A gross profit margin is calculated by dividing gross profit by revenues. Gross profit is estimated by subtracting the cost of goods and services sold from revenues. The cost of goods sold excludes general and administrative expenses ("G&A"). G&A expenses "are expenses from the ordinary course of running the business that are not directly related to producing the goods or services being sold." **QE−0029**, Jonathan Berk and Peter DeMarzo, "Corporate Finance," 3rd ed. (Pearson Education Inc., 2013), p. 3 of PDF.

[136] Compass Lexecon Report, ¶ 99.

[137] Compass Lexecon Report, ¶ 99.

[138] Compass Lexecon Report, ¶ 99.

[139] Compass Lexecon does not explain or cite to an underlying calculation to support its ███ estimate. The ███% gross profit margin figure appears as a hardcoded value that does not include an underlying calculation. *See* **C−0240 [CLEX−02]**, CL Valuation Model, tab "Summary," cell G31. *See also* Compass Lexecon Report, ¶ 99, n. 68.

[140] **C−0399 [CLEX−20]**, Omega Job Costs Reports, table "Initial construction estimates for the Omega Consortium's Ongoing Projects," p. 1.

financial statements for five projects, which he reports as ███████.[141] He then estimates that once the MINSA CAPSI Puerto Caimito project was completed, Omega Panama would achieve a ██████ gross profit margin.[142] McKinnon then contends that since this project has the same client as the other two MINSA CAPSI projects and was "near completion at approximately ████ complete," it is reasonable to apply the same higher profit margin to those projects which were roughly half complete.[143] Under these assumptions, Compass Lexecon chooses a gross profit margin of ███████ Given the three alternatives presented by Compass Lexecon, the best estimate of Omega Panama's gross profit margin is the estimate supported by the audited financial statements. There is no compelling reason to rely either on Omega Panama's unproven aspirations of future profits, or to make assumptions about the profitability of uncompleted work.

80. According to Compass Lexecon, the gross profit margin based on the audited financial statements is ██████.[144] Compass Lexecon does not provide the details of its calculation. According to Omega Panama's audited financial statements, the company achieved an average annual gross profit margin of ████████.[145]

81. Applying the gross profit margin of ███████ reduces Compass Lexecon's valuation of the Potential New Contracts claim as of the Valuation Date by US$████ million to US$████ million, keeping everything else in Compass Lexecon's model unchanged.[146]

d. General Expenses

82. General expenses include operating costs such as office rent and salaries for Omega Panama's full-time staff. These expenses are less sensitive to changes in operational activity than, for example, the cost of contractors used to build a project. Compass

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[141] McKinnon Report, Annex 2, p. 1, n. 2.

[142] McKinnon Report, Annex 2, p. 1, n. 2.

[143] McKinnon Report, Annex 2, p. 1, n. 2. According to the McKinnon Report, the MINSA CAPSI Rio Sereno project was 62% complete and the MINSA CAPSI Kuna Yala project was 48% complete. McKinnon Report, Annex 3, pp. 3, 5.

[144] Compass Lexecon Report, ¶ 99.

[145] **QE−0002**, Valuation Model, tab, "1 - Omega P&L," cell G24.

[146] That is, ██ **QE−0002**, Valuation Model, tab "Summary." Select option "QE" in cell C31 and view result of calculation in cell O13.

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Lexecon estimates general expenses to equal ███ of contract revenues per year.[147] While Compass Lexecon recognizes that Omega Panama would incur general expenses as part of its operation, it does not include them in the calculation of its cash flows from 2015 to 2019, even though it calculates them in its model for all years and applies them after 2019.[148] Consistently applying general expenses to equal ███ of contract revenues in all years reduces Compass Lexecon's valuation of the Potential New Contracts claim as of the Valuation Date by US$ ███████ to US$ ███████, keeping everything else in Compass Lexecon's model unchanged.[149]

e. Discount Rate

83. Omega Panama's projected cash flows would be subject to general market and industry-specific risks in Panama. In order to calculate the present value of those cash flows as of the Valuation Date, a discount rate that accounts for such risks must be applied. In **Annex A**, I provide a detailed analysis concerning the calculation of the discount rate applicable to a small general contractor in Panama, such as Omega

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[147] Compass Lexecon Report, ¶ 101. Compass Lexecon calculates general expenses "based on the last available audited financial statements from December 31, 2013." Compass Lexecon Report, ¶ 101. Based on Omega Panama's 2013 financial statements, it calculates that general expenses were ███ of contract revenues, which it says is in line with "Mr. McKinnon's implied estimate of ███." Compass Lexecon Report, ¶ 101. Compass Lexecon ultimately applies an "ad hoc" general expense of ███ of total contract revenues per year in its projections of Omega Panama's cash flows. Compass Lexecon Report, ¶ 101. Compass Lexecon has not provided the underlying calculation it used to derive the ███ general-expense-to-revenue ratio from Omega Panama's 2013 financial statements. ████████████████████████████ **C–0136**, Omega Engineering, Inc. Financial Statements and Supplementary Information as of 31 December 2013 and 2012 and Independent Auditors' Report, p. 5 of PDF. Compass Lexecon does not explain why Omega Panama's general expenses in 2013 are indicative of Omega's future general expenses. The ratio of general expenses to revenues was ███████████ in 2011, 2012, and 2013, respectively. **QE–0002**, Valuation Model, tab, "1 - Omega P&L," cells G22-I22. Even considering that 2011 was its first full year of operations, Omega Panama never established a stable level of general expenses. Thus, Compass Lexecon's estimate is speculative.

[148] The overhead applicable to Existing Contracts is based on the McKinnon Report, which relies on the average overhead expense for 2013 and 2014. However, the overhead expense used by McKinnon for 2014 is unsupported. *See* McKinnon Report, ¶ 101(b), n. 27. For 2015 and 2016, Compass Lexecon reduces the amount of overhead attributable to Potential New Contracts by subtracting out the overhead applicable to the Existing Contracts that still would be ongoing in those years.

[149] That is, ████████████████████████████████ **QE–0002**, Valuation Model, tab "Summary" (select option "Yes" in cell I33 and option "QE" in cell C44.

Panama.[150]   In this section, I provide a high-level review of the most significant corrections that are required to Compass Lexecon's discount rate analysis.

84.   Compass Lexecon uses the cost of equity of a company in the engineering and construction industry in Panama to discount the cash flows it forecasts for Omega Panama. It estimates this rate to be 11.65%.[151] Compass Lexecon uses the Capital Asset Pricing Model ("CAPM") to calculate Omega's cost of equity.[152] However, Compass Lexecon fails to adequately account for the fact that its calculation is based on theory and data that seeks to measure the risks affecting publicly-traded shares of large, liquid, US-based engineering and construction companies. Such companies would have a cost of equity in the range of 9.8% to 11.3%.[153]

85.   However, in order properly apply the CAPM to a company like Omega Panama, one must first adjust the results of the CAPM to reflect the higher required rates of return associated with smaller, less liquid companies. A smaller, less liquid company operating in the U.S. engineering and construction sector would have a cost of equity in the range 15.5% to 17.1%.[154]

86.   Finally, as Compass Lexecon recognizes, a cost of equity "estimated from U.S. data fails to account for the fact that operations take place outside the U.S."[155] To account for this Compass Lexecon adds a country risk premium to its CAPM results.[156] However, this premium reflects the risk of investing in Panamanian sovereign bonds, not the (higher) risk of equity investments in Panamanian companies. Implementing an adequate adjustment to the cost of equity for a small engineering and construction company in the U.S. yields a cost of equity in the range of 18.4% to 23.3% for an analogous company in Panama.[157]

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[150] *See* ¶¶ 113-142 below**.**

[151] Compass Lexecon Report, ¶¶ 105-106.

[152] Compass Lexecon Report, ¶¶ 116-118.

[153] *See* **Figure 11** below. **QE−0002**, Valuation Model, tab "3 - Discount Rate."

[154] *See* **Figure 11** below. **QE−0002**, Valuation Model, tab "3 - Discount Rate."

[155] Compass Lexecon Report, ¶ 118.

[156] Compass Lexecon Report, ¶ 118.

[157] *See* **Figure 11** below. **QE−0002**, Valuation Model, tab "3 - Discount Rate."

87. **Figure 11** below summarizes the adjustments to the CAPM required to adequately reflect the risk of investing in a small illiquid company in Panama.

Figure 11
CAPM Adjustments Required to Reflect the Risk of a Small General Contractor in Panama[158]

	Calculation	Big Company in the U.S.	Small Company in the U.S.	Small Company in Panama
		(Percent, Unless Otherwise Stated)		
		(1)	(2)	(3)
1. Risk-Free Rate		2.54% - 2.57%	2.54% - 2.57%	2.54% - 2.57%
2. Equity Risk Premium		5.78% - 7.00%	5.78% - 7.00%	5.78% - 7.00%
3. Re-levered Adjusted Beta		1.25	1.25	1.25
4. Additional Risk Premium		n/a	5.78%	5.78%
5. Country Equity Risk Premium		n/a	n/a	2.84% - 6.20%
6. Cost of Equity	R1 + (R2 x R3) + R4 + R5	**9.76% - 11.31%**	**15.54% - 17.09%**	**18.38% - 23.29%**

88. Applying a discount rate for a small company in Panama at the midpoint of the range calculated in **Figure 11** above (20.8%) reduces Compass Lexecon's valuation of the Potential New Contracts claim as of the Valuation Date by US$ 24.0 million to US$ 22.8 million, keeping everything else in Compass Lexecon's model unchanged.[159]

f. Summary of Corrections to Compass Lexecon's DCF

89. Compass Lexecon's valuation of Omega Panama's Potential New Contracts is unfounded and speculative. Contrary to Compass Lexecon's assumptions, there would not have been a buyer willing to pay to acquire Omega Panama based on the Potential New Contracts imagined by Compass Lexecon.

90. Furthermore, even if such a buyer would have existed, the future cash flows that it would have considered paying for would have been limited to those potentially in excess of the cash flows earned by a new company during its first few startup years. Under the (unreasonable) assumption that a willing buyer for Omega Panama could

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[158] **QE−0002**, Valuation Model, tab "3 - Discount Rate."

[159] That is, (18.38% + 23.29%) / 2 = 20.84%. That is, US$ 46.75 million – US$ 22.76 million = US$ 23.99 million. **QE−0002**, Valuation Model, tab "Summary" (select option "QE(Midpoint)" in cell C14 and view result of calculation in cell O13).

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have been found, at the very least, the following corrections to Compass Lexecon's analysis would be required:

(i)   Remove perpetuity cash flows from the calculation of Omega Panama's NPV, to account for the fact that a hypothetical willing buyer would not be willing to pay for what it could earn without having to acquire Omega Panama;

(ii)   Adjust Compass Lexecon's fiscal expense ratio from 8.5% to reflect the capital expenditure forecasts published by the Panamanian government in the 2015-2019 Strategic Plan;

(iii)   Adjust Compass Lexecon's success rate estimate from 25% to 9.4%;

(iv)   Adjust Compass Lexecon's "ad hoc" gross profit margin estimate of ▇▇▇ to ▇▇▇▇▇ consistent with Omega Panama's audited financial statements;

(v)   Apply general expenses;

(vi)   Apply a discount rate in the range of 18% to 23% to Omega Panama's future cash flow projection in order to adequately reflect the risks of a small illiquid investment in a general contracting company operating in Panama.

91.   **Figure 12** below shows the cumulative impact of the necessary corrections to Compass Lexecon's valuation of Omega Panama's Potential New Contracts.

Figure 12
Cumulative Impact of Corrections to Compass Lexecon's Valuation of
Omega Panama's Potential New Contracts[160]
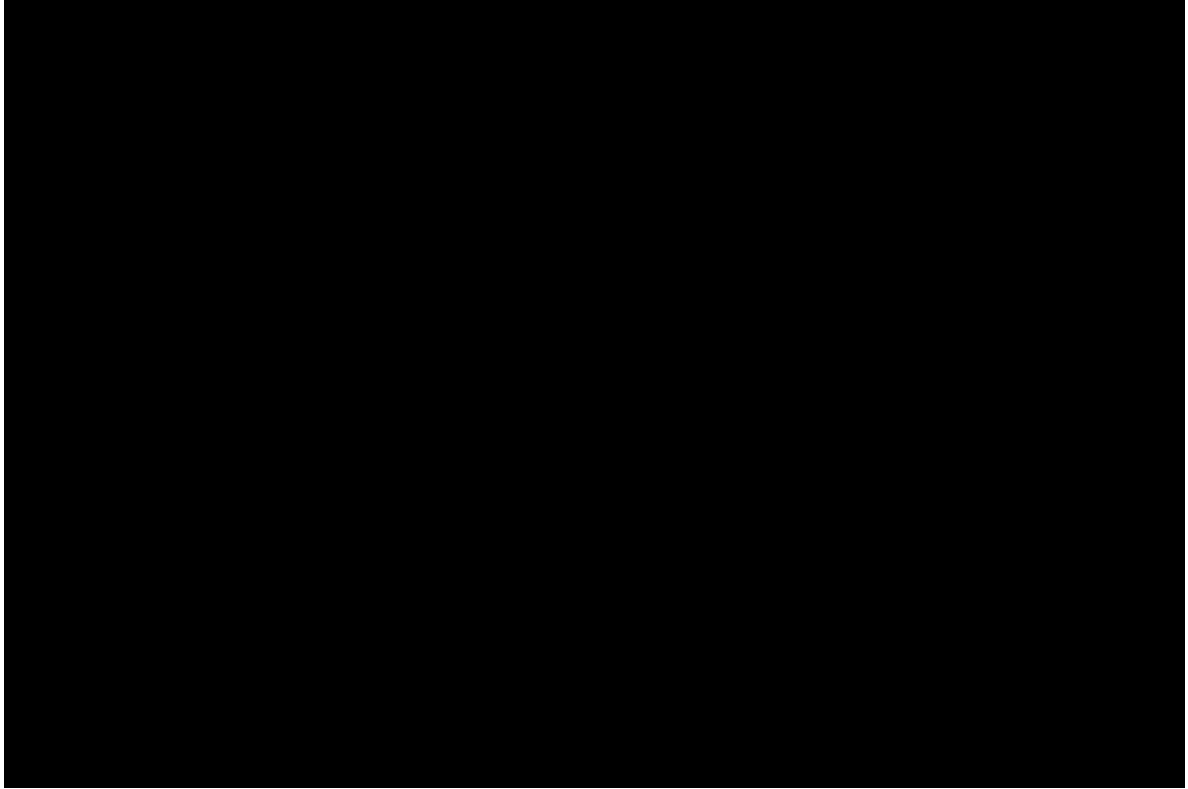
92.   Making these corrections results in a valuation of Omega Panama's Potential New Contracts as of the Valuation Date in the range of US$ ████████ to US$ ████████, again, assuming the existence of a buyer willing to acquire Omega Panama based on the Potential New Contracts imagined by Compass Lexecon.[161] Given that there would not have been such a buyer, the value of Omega Panama is simply zero.

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[160] **QE−0002**, Valuation Model, tab "Summary."

[161] Compass Lexecon assumes that, on average, Omega Panama's future contracts would be 18 months in length and that "an average of 67% of cash flows from each contract would be generated in the year the contract is awarded." Compass Lexecon Report, ¶ 103, n. 73. *See also* **C−0240 [CLEX−02]**, CL Valuation Model, Tab "IV. New Contracts," cell C53. In reality, Omega Panama's historical operating data indicate that, on average, the cash flows received during a project's first year were closer to ████ of the original contract price. **QE−0003**, Supporting Figures, tab "5 - Receipt of Cash Flows," cell E22. Furthermore, while Compass Lexecon assumes that future contracts would last 18 months, it notes that Omega Panama's historical data indicate the actual average length of contracts awarded was 30.4 months. **QE−0003**, Supporting Figures, tab "6 - Historical Project Length," cell E21; Compass Lexecon Report, Table VIII. Accelerating the assumed timing of cash flows and underestimating the time to complete contracts has the effect of overestimating damages.

C. Compass Lexecon's "Reasonability" Check is Unreasonable

93.   Compass Lexecon conducts a "reasonability check" for its valuation of Omega Panama's Potential New Contracts based on a sample of 84 bids that "could have been within Omega Consortium's target market."[162] These bids, occurring in 2015 and 2016 had a total award value of US$ 1,190 million.[163] Compass Lexecon explains that assuming Omega Panama's historical success rate of 25%, "it would have earnt contracts worth US$ 150 million per year, which is almost double our base case projection."[164] This "reasonability" check uses unfounded assumptions and does nothing to support the reasonableness of Compass Lexecon's valuation.

94.   First, a fundamental assumption underlying Compass Lexecon's "reasonability" check is that Omega Panama would have had the capacity to bid for 84 projects in a two-year period, or 42 projects per year. This is completely unfounded. Omega Panama's bid history shows that it bid for 42 projects during a four-and-half year period, from 2010 to the first half of 2014, before the alleged Measures.[165] That is an average of less than ■ bids per year. The most bids Omega Panama was able to make in a single year was ■ bids, in 2011, a figure that is less than half the number of bids assumed in Compass Lexecon's "reasonability" check.

95.   Second, Compass Lexecon's "reasonability" check yields the implausible result that Omega Panama would observe a sudden and enormous surge in success in 2015 and 2016 compared to the immediately preceding years. **Figure 13** below illustrates that Omega Panama had won on average US$ ■ in contracts per year, with even the highest year not even at ■ of the "reasonability" check years.[166]

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[162] Compass Lexecon Report, ¶¶ 93-95.

[163] Compass Lexecon Report, ¶ 95. Compass Lexecon overestimates the awarded value by nearly US$ 80 million. The amount of US$ 89,344,500 for bid "2016-0-14-0-04-LV-010323" reported by Compass Lexecon should be US$ 8,934,500. *Compare* **C−0398 [CLEX−19]**, Omega Potential Bids, cell L88 *with* **QE−0030**, República de Panamá, Ministerio de Vivienda y Ordenamiento Territorial, Informe de Comisión Técnica Evaluadora Verificadora, Acto Público, Bid 2016-0-14-0-04-LV-010323, p. 6.
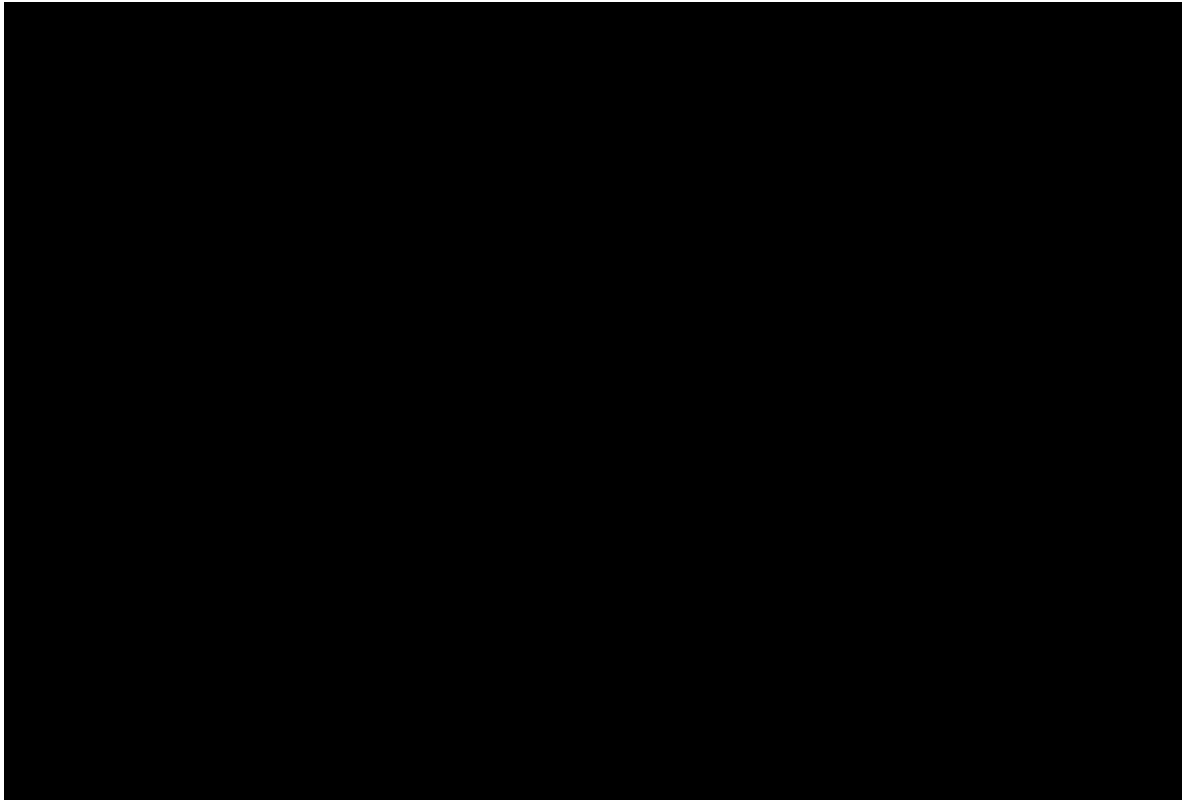
[164] Compass Lexecon Report, ¶ 96.

[165] **C−0388 [CLEX−06]**, Omega Historical Bids. *See* **Figure 9** above.

[166] That is, ■

See **Figure 13** below.

Figure 13
Compass Lexecon's "Reasonability" Check is Unfounded[167]

96.   In conclusion, Compass Lexecon's "reasonability" check is anything but reasonable and does nothing to support the reasonableness of Compass Lexecon's valuation of Omega Panama.

IV.   Comments in Relation to the Existing Contracts Claim

97.   A portion of Claimants' total damages is derived from eight contracts won by Omega Panama.[168] In relation to these eight projects, Compass Lexecon calculates damages based on "Unpaid Progress Billings" and "Expected Future Cash Flows."[169] Compass Lexecon was instructed by Counsel for Claimants to rely on the McKinnon Report to compute damages relating to the Existing Contracts claim.[170] Compass Lexecon

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[167] **C–0240 [CLEX–02]**, CL Valuation Model, tab "V. Historical Information," cells E16-H16; Compass Lexecon Report, Table XIV, ¶ 96.

[168] *See* ¶ 10 above.

[169] Compass Lexecon Report, Sections V.1.2.a-V.1.2.b.

[170] Compass Lexecon Report, ¶ 71. *See* **Annex B** below for comments relating to McKinnon's analysis and the documents supporting it.

quantifies this claim by (i) applying prejudgment interest to Unpaid Progress Billings, (ii) computing the present value of Expected Future Cash Flows on uncompleted projects, and (iii) computing the present value of advance payments received by Omega Panama.[171] In the sections that follow, I discuss several required corrections to Compass Lexecon's analysis and make several comments with regard to the basis for its results. It is important to note that the discussion that follows does not constitute an exhaustive list of corrections. As explained in **Annex B** below, McKinnon, on whom Compass Lexecon relies, uses incomplete information on Omega Panama's operations, which he supplements with certain assumptions that may not be appropriate. I may update my assessment of the Existing Contracts claim as more information regarding Omega Panama's operations becomes available. I also note that my assessment assumes that the losses suffered by Omega Panama were caused by the Measures, not by other causes not attributable to the Respondent, such as Omega Panama's default on its contractual obligations.

A. Compass Lexecon Incorrectly Discounts Advances that were Made to Omega Panama Prior to the Valuation Date

98.   According to the McKinnon Report, Omega Panama received US$ ▆▆▆ ▆▆▆▆ in advances for the eight contracts that were never completed by Omega Panama.[172] These advances occurred prior to the Valuation Date.[173] Indeed, McKinnon estimates that Omega Panama held a positive balance of US$▆▆▆ ▆▆▆▆ in advances in its favor as of the Valuation Date.[174] In its valuation, Compass Lexecon discounts the value of these advances and reduces the Expected Future Cash Flows by this amount.[175] However, as Compass Lexecon explains, the application of a discount rate equal to the cost of equity to expected cash flows "account[s] for both the time value of money and

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[171] Compass Lexecon Report, ¶ 74.

[172] **C–0240 [CLEX–02]**, CL Valuation Model, tab "I. Unpaid Progress Billings," cells G30, G53, G84, G112, G118, G144, G164, G174. *See also* McKinnon Report, Annex 1, Tables 1, 3, 5, 7, 9, 11, 13, 15.

[173] McKinnon Report, Advance Payment dates, Annex 1, Tables 1, 3, 5, 7, 9, 11, 13, 15.

[174] McKinnon Report, Annex 1, Table 1, column "Unamortized Advance Payment Balance." I note that the amount and date for the advance related to Mercado Público Ciudad de Colón is not supported. *See* McKinnon Report, Annex 1 Table 1; **C–0034**, Contract No. 043 (2012), p. 67; **C–0240 [CLEX–02]**, CL Valuation Model, tab "I. Unpaid Progress Billings," cell N112.

[175] **C–0240 [CLEX–02]**, CL Valuation Model, tab "III. Advance Balance," cells F29-F36.

the risk associated with the cash flow."[176] The advances occurred prior to the Valuation Date and, therefore, were not subject to the same risks as the projected future revenues and costs that, according to McKinnon, Omega Panama would have obtained from completing the unfinished projects.

99.   For these reasons, Compass Lexecon errs in discounting the value of the advances, which should be accounted for at their full nominal value as of the Valuation Date. Correcting this error alone reduces Compass Lexecon's assessment of damages relating to the Existing Contracts by US$ ▮▮▮▮▮▮▮ to US$ ▮▮▮▮▮▮.[177]

B. Compass Lexecon Overestimates the Present Value of the Alleged Expected Future Cash Flows by Underestimating the Future Risks to those Cash Flows

100.   Compass Lexecon computes the present value of Expected Future Cash Flows by applying a discount rate of 11.65%,[178] the same cost of equity that it uses in its valuation of Potential New Contracts and its calculation of interest on Unpaid Progress Billings.[179] As I discuss in **Section III.B.2.e** above, and in detail in **Annex A** below, the discount rate used by Compass Lexecon does not adequately reflect the risks faced by a construction company in Panama such as Omega Panama.[180] Taking into account the correction to advances, applying a more appropriate discount rate in the range of 18.4% to 23.3% reduces Compass Lexecon's calculation by between US$ 208,141 and US$ 346,792 to between US$ 7,526,394 and US$ 7,387,743, respectively.[181]

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[176] Compass Lexecon Report, ¶¶ 105-107.

[177] That is, US$ 8,687,898 − US$ 7,734,535 = US$ 953,363 (this excludes pre-award interest). **QE−0002**, Valuation Model, tab "Summary" (select option "QE" in cell C42 and view result of calculation in cell O12).

[178] Compass Lexecon performs a calculation of alleged losses to Omega Panama's existing projects from December 2014 until the completion date of each project. Compass Lexecon Report, ¶¶ 77-80. To perform this calculation, Compass Lexecon states that "each project related cash-flow is assumed to materialize at the mid-point between the date of valuation (December 2014) and the individual date of completion." Compass Lexecon Report, ¶ 78, n. 51. Compass Lexecon does not take into account that several of Omega Panama's contracts establish a payment date grace period. For example, MINSA CAPSI contracts 077, 083 and 085 provided a 90-day grace period from the time of completion to the date of final payment. **C–0028**, Contract No. 077 (2011), p. 60 of PDF; **C–0030**, Contract No. 083 (2011), p. 62 of PDF; **C–0031**, Contract No. 085 (2011), p. 61 of PDF.

[179] Compass Lexecon Report, ¶ 75, 77-79, 106. *See also* **C–0240 [CLEX–02]**, CL Valuation Model, tab "Summary," cells G16, H14.

[180] *See* ¶¶ 113-142 below.

[181] That is, US$ 7,734,535 − US$ 7,526,394 = US$ 208,141. **QE−0002**, Valuation Model, tab "Summary"

C. Compass Lexecon's Cost of Equity is an Inappropriate Interest Rate

101.   Compass Lexecon "compute(s) the present value of unpaid progress billing[s] as of December 23, 2014 by applying an interest rate of 11.65%."[182]   As explained in **Section V** below, the application of Omega Panama's cost of equity would compensate Claimants for risks to which they were not exposed and is inconsistent with economic theory and practice.   By inappropriately applying annual interest of 11.65% to the Unpaid Progress Billings, Compass Lexecon improperly adds US$ 382,757 in interest.[183]

V.   Applicable Rate of Interest

102.   Compass Lexecon calculates interest through 25 June 2018 using an interest rate equal to the cost of equity that it calculates for an established general contractor operating in Panama, 11.65%.[184] I have not calculated pre-award interest since that is a computation that is more properly done once the date of the award is known.   However, should the Tribunal decide to award compensation to Claimants and interest on that compensation, I have a few observations regarding pre-award interest.

103.   Fisher and Romaine address the question as to how a claimant should be compensated for the time elapsed between the date on which the facts that give rise to compensation took place and the date on which the compensation is awarded:

> We begin with a simple case. The violation took place at a single point of time, time 0. It involved the destruction of an asset whose value at that time is clearly known as Y. Hence, had damages been assessed at time 0, an award of Y would have made

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(select option "QE (Lower Range) in cell C14 and "QE" in cell C42 and view result of calculation in cell O12). That is, US$ 7,734,535 – US$ 7,387,743 = US$ 346,792. **QE–0002**, Valuation Model, tab "Summary" (select option "QE (Upper Range) in cell C14 and "QE" in cell C42 and view result of calculation in cell O12).

[182] Compass Lexecon Report, ¶ 75, n. 48. Compass Lexecon fails to support the Payment Terms used to establish the due date for payment of the Unpaid Progress Billings. *See* **C–0240 [CLEX–02]**, CL Valuation Model, tab "I. Unpaid Progress Billings," cells D13-D20.

[183] That is, US$ 7,387,743 – US$ 7,004,986 = US$ 382,757 or, equivalently, US$ 7,526,394 – US$ 7,143,637 = US$ 382,757. **QE–0002**, Valuation Model, tab "Summary" (select option "QE" in cell C42, "QE" in cell C46, and either "QE (Upper Range)" or "QE (Lower Range)" in cell C14, and view result of calculation in cell O12). Note that the corrections to the advances or discount rate explained above do not impact the correction to interest applied to Unpaid Progress Billings.

[184] Compass Lexecon Report, ¶¶ 109-113.

the plaintiff whole. Unfortunately, however, the processes of justice take time, and the award is to be made at time t > 0. How (if at all) should the plaintiff be compensated for this fact?

At first glance, it may seem that the plaintiff is entitled to interest at its opportunity cost of capital, r. After all, had the plaintiff received Y at time 0 [the time of the event], it would have invested the funds, receiving presumably its average rate of return . . .

The fallacy here (in either version) has to do with risk. The plaintiff's opportunity cost of capital includes a return that compensates the plaintiff for the average risk it bears. But, in depriving the plaintiff of an asset worth Y at time 0, the defendant also relieved it of the risks associated with investment in that asset. The plaintiff is thus entitled to interest compensating it for the time value of money, but it is not also entitled to compensation for the risks it did not bear. Hence prejudgment interest should be awarded at the risk-free interest rate . . .[185]

104. To illustrate their point, Fisher and Romaine provide an example:

[S]uppose that Hetty is a prudent investor, while Ravenal is a (very rich) compulsive gambler who always loses and would, by time t, have frittered away the asset. It cannot be right to award Hetty positive interest and award Ravenal nothing at all. In this case, Ravenal's negative returns are the price he pays for indulging his tastes for hopeless risk. He was surely not able to indulge those tastes with the asset in question; hence, he should not have to pay the price. The same general principle applies to less extreme examples with positive returns: The plaintiff should not be compensated (positively or negatively) for risks he or she did not bear.[186]

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[185] **QE−0031**, Franklin M. Fisher and R. Craig Romaine, "Janis Joplin's Yearbook and the Theory of Damages," Journal of Accounting Auditing & Finance, Vol. 5, Nos. 1-2 (New Series): 145-157 (Winter/Spring 1990), p. 146.

[186] **QE−0031**, Franklin M. Fisher and R. Craig Romaine, "Janis Joplin's Yearbook and the Theory of Damages," Journal of Accounting Auditing & Finance, Vol. 5, Nos. 1-2 (New Series): 145-157 (Winter/Spring 1990), p. 147.

105. A similar argument is made by Kantor:

> Historic earnings must be "brought forward" to the valuation date by means of an interest rate, while future earnings are discounted back to the valuation date by means of a discount rate. The interest rate used for bringing historical amounts forward will clearly not contain the same risk factors as the discount rate used to present value future amounts. As a practical matter, the interest rate used for the historical amount is often a "risk-free" rate (such as the rate for US Treasuries) or a statutory rate for pre-judgment interest.[187]

106. Compass Lexecon contravenes the basic principle that interest should not compensate Claimants for risks to which the awarded amount is not subject. It argues:

> From an economic point of view the rate that is commercially reasonable for Claimants' investment is the cost of capital that is available in the marketplace for Claimants' specific type of investment, that is, an equity stake in a general contractor company operating in Panama…We have estimated the CoE at 11.65% as of December 23, 2014[188]

107. However, by choosing the cost of equity as an interest rate, Compass Lexecon proposes that Claimants should earn a return for business risks they have not faced. From an economic perspective, a claimant is not entitled to compensation for risks it did not bear. Any compensation amount that the Tribunal could eventually award to Claimants is not subject to the *ex ante* risks that are captured in the cost of equity.

108. Compass Lexecon claims that Omega Panama could have replaced the purported "lost cash flows" by obtaining equity from an IPO or through capital injections from its owners or retained earnings.[189] Had Claimants received additional funds, they would be faced with the decision of what to do with those funds. By applying the cost of equity to this past amount, Compass Lexecon is assuming that any cash flows received would have been reinvested in equally risky endeavors. Had Claimants done so, those

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[187] **QE−0032**, Mark Kantor, "Valuation for Arbitration: Compensation Standards, Valuation Methods and Expert Evidence," (Kluwer Law International BV, 2008), p. 49.

[188] Compass Lexecon Report, ¶¶ 110-111.

[189] Compass Lexecon Report, ¶ 111.

risks could have materialized in negative returns. But Claimants were never exposed to those risks, and thus it would be wholly inappropriate to compensate them for risks they never faced.

109. Compass Lexecon also argues:

> …the CoE is the same rate we use to discount expected cash flows as of December 23, 2014, which allows us to avoid incurring an invalid round-trip that would artificially reduce the compensation by discounting cash flows at a higher rate than the rate used to update those same cash flows to a future date.[190]

110. Compass Lexecon's "invalid round-trip" argument is conceptually flawed, because it ignores the distinction between a discount rate used in a DCF and an interest rate applicable to an award of damages. The cost of capital used to define the discount rate applied in a DCF measures *ex ante* business risks to which projected future cash flows are exposed. In contrast, the interest rate applicable to an award of damages is determined *ex post*. As explained above, the amount of the award is not exposed to the types of business risks considered when determining a cost of capital for a company such as Omega Panama. Consequently, the rate of interest should reflect only the time-value of money.

111. Compass Lexecon states that the interest rate should be "based on the compensation standard set forth" in certain articles of the BIT and TPA between the United States and Panama, which call for the use of "a commercially reasonable rate."[191] Although the BIT and TPA do not provide a definition for the term "commercially reasonable rate," from an economic point of view such a rate can be defined as interest rates that are generally available to investors. The specific commercial interest rate will depend on the risk profile of the financial product generating the interest payments. For example, "junk" bonds typically offer a relatively high interest rate because of the perceived higher risks. Since the amount of an arbitral award is not exposed to business

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[190] Compass Lexecon Report, ¶ 112.

[191] Compass Lexecon Report, ¶ 109; **CL–0001**, Treaty between the United States of America and the Republic of Panama Concerning the Treatment and Protection of Investment, entered into force on 30 May 1991, Article IV.1, p. 14; **CL–0003**, United States-Panama Trade Promotion Agreement, entered into force on 31 Oct. 2012, Article 10.7, 4(b), p. 42 of PDF. Compass Lexecon notes that these articles relate to compensation as a result of lawful expropriation, but that Counsel for Claimants have "confirmed that the same commercially reasonable rate would apply to compensation for other breaches under the treaties." Compass Lexecon Report, n. 75.

risk, the yield of the six-month or one-year U.S. Treasury bills constitutes a reasonable commercial rate in this case.[192] This principle has been accepted by other tribunals. For example, in the *Vestey v. Venezuela* arbitration, the bilateral investment treaty between the United Kingdom and Venezuela also referred to a "normal commercial rate" and the tribunal decided to award interest using the yield of the 6-month U.S. Treasury bills.[193]
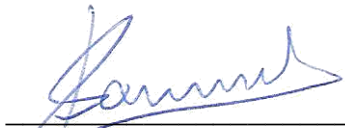
112. In conclusion, calculating pre-award interest using a short-term rate such as the yield of the six-month or the one-year U.S. Treasury bill, is consistent with economic theory and practice, and with the concept of "a commercially reasonable rate."

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[192] Given that U.S. Treasury bills can be bought through banks, brokers, and directly from the U.S. Treasury at www.treasurydirect.gov, their yields represent commercial interest rates.

[193] **QE−0033**, Vestey Group Limited v. Bolivarian Republic of Venezuela, ICSID Case No ARB/06/4, Award, dated 15 April 2016, ¶¶ 328, 446. I was respondent's valuation expert in that arbitration.

I solemnly declare upon my honor and conscience that the contents of this expert report are true and correct and that the opinions set forth herein are my considered and honestly held opinions on the issues I address.


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Daniel Flores, Ph. D.

Quadrant Economics

Annex A. Discount Rate

113.   The discount rate represents the minimum rate of return that investors require to invest in a company instead of other assets. Compass Lexecon uses Omega Panama's cost of equity as its discount rate.[194] Compass Lexecon relies on the CAPM to calculate its cost of equity.[195] However, it fails to acknowledge several shortcomings of the CAPM, underestimating the discount rate applicable to Omega Panama.

114.   **Figure 14** below compares Compass Lexecon's calculation of the cost of equity for Omega Panama as of the Valuation Date with the corrected calculation presented in this Report. I discuss the proper calculation of each component in the sections that follow.

Figure 14
Cost of Equity Calculation as of the Valuation Date[196]
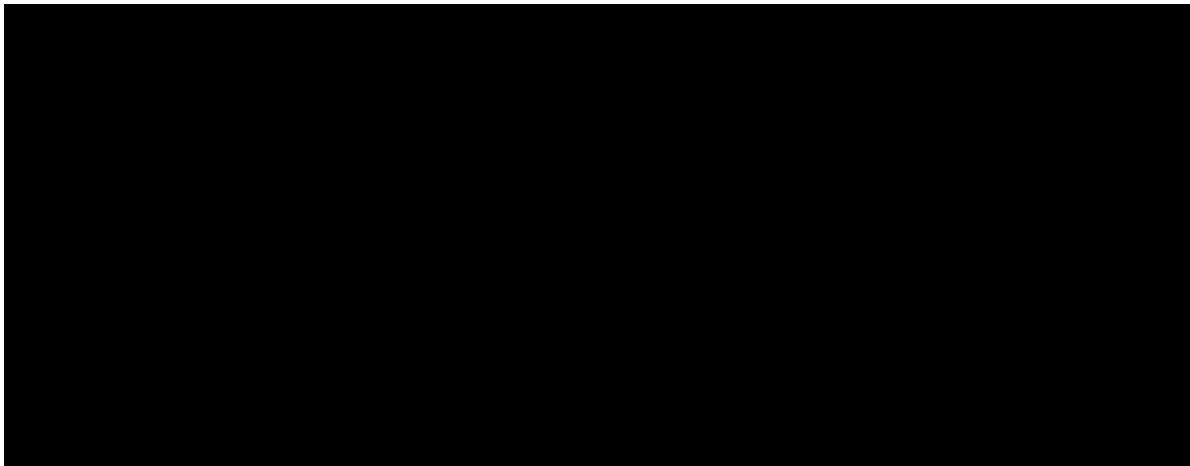
A. Risk-Free Rate

115.   The first component of the cost of equity is the risk-free rate, which measures the return that investors can obtain by investing in a risk-free asset, such as U.S. government bonds. Given that those bonds are perceived to be virtually risk free, their yield only captures the time value of money (that is, the fact that investors generally prefer having one dollar today over having one dollar many years in the future) and expected inflation.

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[194] Compass Lexecon Report, ¶¶ 106, 115-137, n. 6.

[195] Compass Lexecon Report, ¶¶ 116-118.

[196] **QE−0002**, Valuation Model, tab "3 - Discount Rate."

116. Compass Lexecon estimates the average yield of 10-year U.S. Treasury Bonds for 2014, resulting in 2.54%.[197] However, given that there is a developed and highly-liquid market for U.S. Treasury bonds, the best estimate of the future outlook on the risk-free rate is given by the yield of such bonds at the Valuation Date, not by an annual average that includes old data that do not represent the financial reality at the Valuation Date. The risk-free rate using the yield of 20-year U.S. Treasury bonds was 2.57% as of the Valuation Date.[198] In my calculations, I have provided a range of estimates for the risk-free rate that includes the value Compass Lexecon adopts.

B. Equity Risk Premium

117. The next component of the cost of capital is the equity risk premium, also known as market risk premium. This component measures the extra return that investors require in order to invest in a well-diversified portfolio of equities, rather than U.S. government bonds. Given that investing in equity is riskier than investing in U.S. government bonds, equities need to offer a higher rate of return than U.S. government bonds to attract investors. This required return above the U.S. government bond yield is called the equity risk premium. It cannot be directly observed so it must be estimated.

118. Duff & Phelps, in the publication "Guide to the Cost of Capital," explain that:

> if one is using historical risk premiums as the estimator of the ERP [equity risk premium] for use in cost of capital models intended for discounting expected cash flows, the most widely used statistic is the arithmetic average of realized risk premiums.[199]

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[197] Compass Lexecon Report, ¶¶ 121-122.

[198] Note that the difference between Compass Lexecon's risk-free rate and the one proposed in this report is minimal. **QE−0034**, US Department of the Treasury, "Daily Treasury Long Term Rate Data," 2014, p. 6 of PDF; Compass Lexecon Report, ¶ 122.

[199] **QE−0035**, Duff & Phelps, "2015 Valuation Handbook, Guide to Cost of Capital," (John Wiley & Sons, Inc., 2015), p. 3-19. Duff & Phelps took over a number of widely-used and well-respected publications from Ibbotson/Morningstar. Those publications were originally developed by Prof. Roger Ibbotson, a finance professor at the Yale School of Management and founder of Ibbotson Associates, a company that was subsequently acquired by Morningstar. As Pratt and Grabowski, authors of several books on valuation, explain, "Morningstar produces four Ibbotson publications and online tools that valuation and corporate finance professionals at all levels have found useful in the estimation of the cost of capital for companies of various industries and sizes." **QE−0040**, Shannon P. Pratt and Roger J. Grabowski, "Cost of Capital, Applications and Examples," 4th ed., (John Wiley & Sons, Inc., 2010), pp. 429-430.

119.   As of the Valuation Date, Duff & Phelps reported an equity risk premium in the U.S. of 7.00%.[200] Compass Lexecon adopts "the market risk premium that is estimated in Damodaran's historical data at 5.78% as of January 1, 2015."[201] In my calculations, I have provided a range of estimates for the equity risk premium that includes the value Compass Lexecon adopts.

C. Beta

120.   The beta coefficient measures the exposure of a company's equity to overall risk in the equity market. A beta higher than one indicates that the company's equity is riskier than the overall market, while a beta lower than one indicates that the company's equity is less risky than the overall market.

121.   Compass Lexecon uses a raw beta of 1.31 calculated by professor Damodaran for the Engineering/Construction industry as of 5 January 2015. After adjusting this raw beta for the "reversion to one effect" and re-levering it, using Panama's corporate tax rate and Damodaran's optimal capital structure, Compass Lexecon arrives at a re-levered beta of 1.25.[202]

122.   I reviewed Compass Lexecon's calculations and consulted the 2014 Duff & Phelps Valuation Handbook: Industry Cost of Capital.[203] Based on this, I conclude that 1.25 is a reasonable estimate of beta to be used in determining the cost of equity for Omega Panama.

D. Additional Risk Premium

123.   The CAPM seeks to determine, from a theoretical point of view, the minimum rate of return for an investment. This model makes several simplifying assumptions, the most important of which is that this rate of return depends on a single variable, the beta

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[200] **QE−0035**, Duff & Phelps, "2015 Valuation Handbook, Guide to Cost of Capital," (John Wiley & Sons, Inc., 2015), p. 55 of PDF.

[201] Compass Lexecon Report, ¶ 123.

[202] The Compass Lexecon Reports refers to a re-levered beta for the construction sector of Panama as of the Valuation Date of 0.98. However, Compass Lexecon uses a beta of 1.25 in its calculations. Compass Lexecon Report, ¶ 133, Table XVIII; **C–0240 [CLEX–02]**, CL Valuation Model, tab "VI. CoE."

[203] *Compare* **C–0240 [CLEX–02]**, CL Valuation Model, tab "VI. CoE." *with* **QE−0036**, Duff & Phelps, "2014 Valuation Handbook, Industry Cost of Capital, December Quarterly Update," (John Wiley & Sons, Inc., 2015), SIC code "15," p. 10 of PDF. *See also* **C–0404 [CLEX–26]**, Damodaran - Cost of Capital.

coefficient.[204]   However, empirical studies have shown that the CAPM has serious deficiencies.[205] Therefore, although the CAPM can be a starting point, appraisers often make adjustments to the rate of return resulting from the CAPM.

124.   There are several reasons why the unadjusted CAPM would underestimate the true cost of equity of a company. First, the data used to derive the beta coefficient in the CAPM are primarily based on large companies. The financial literature demonstrates that the CAPM tends to underestimate the cost of capital of small companies because beta coefficients tend to be higher for smaller companies.[206] Calculating the cost of equity based on beta coefficients derived from the CAPM would underestimate the true cost of equity of Omega if no adjustment were made.

125.   Second, the CAPM measures the cost of equity for large publicly-traded companies, whereas Omega Panama is an illiquid asset.[207]   As Shannon Pratt explains, the shareholders of illiquid assets, such as Omega Panama, "cannot merely call a stockbroker, execute a transaction in seconds, and have cash in hand within three business days. It may take months to prepare a controlling interest for sale, with significant legal, accounting, investment banking, and management time costs incurred in the process."[208] Liquidity is attractive to shareholders because it provides clear price information and allows shareholders to quickly sell shares if they choose to. Moreover, publicly-traded companies are subject to more intense investor and regulatory scrutiny than private or closely-held companies.[209] In this sense, a size premium, used as a *proxy*

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[204] **QE−0037**, Richard A Brealey, Stewart C Myers, and Franklin Allen, "Principles of Corporate Finance," 10th ed. (McGraw-Hill/Irwin 2011), p. 203.

[205] **QE−0038**, Eugene F. Fama, Kenneth R. French, "The Capital Asset Pricing Model: Theory and Evidence," Journal of Economic Perspectives, Vol. 18, No. 3: 25 46 (Summer 2004), p. 43.

[206] As Ibbotson/Morningstar explains: "If small stocks have high returns because they have high betas, and if methods of measuring betas for smaller companies produce betas that are too low, then in the context of the CAPM some sort of adjustment is necessary in order to produce a discount rate of the right magnitude. A small stock premium is one such adjustment." **QE−0039**, Ibbotson/Morningstar, "2010 Valuation Yearbook, Market Results for Stocks, Bonds, Bills and Inflation 1926−2009," (Morningstar, 2010), pp. 85-91, 100.

[207] The market risk premium and the beta coefficient, the two main components of the CAPM, are normally calculated in relation to the S&P 500 index, which is made up of the 500 largest companies in the market in the United States.

[208] **QE−0040**, Shannon P. Pratt and Roger J. Grabowski, "Cost of Capital, Applications and Examples," 4th ed., (John Wiley & Sons, Inc., 2010), pp. 587-588.

[209] **QE−0032**, Mark Kantor, "Valuation for Arbitration: Compensation Standards, Valuation Methods and Expert Evidence," (Kluwer Law International BV, 2008), p. 258.

for the additional risk premium, measures the difference in profitability between liquid companies (on which the CAPM is based) and illiquid companies (such as Omega Panama). As Ibbotson/Morningstar explains:

> While it would be very useful to estimate the equity cost of capital of companies that are not publicly traded, there is not a direct measure of liquidity . . . Even though liquidity is not directly observable, market capitalization is; thus the size premium can serve as a partial measure of the increased cost of capital of a less liquid stock.[210]

126. Third, the CAPM assumes that investors in publicly-traded companies can eliminate the risks affecting a specific company by diversifying their portfolio and holding an equal portion of all available stocks. Thus, the theory goes, even if a specific company is negatively affected by adverse events, other companies in the portfolio will be positively affected by favorable events. The only risk that would matter, under this theory, is the non-diversifiable, or "systematic," risk of an asset. This theory, even if it could apply to investments in shares of publicly-traded companies, does not apply to investments in illiquid non-publicly-traded assets, such as Omega Panama. While investors in the stock market can buy small portions of a large number of companies, which allows for transparent pricing that adjusts quickly to changes in market conditions, and enables the shareholder to sell the shares quickly, there is no liquid and transparent market where one can quickly sell stock from illiquid companies like Omega Panama. To the extent that investors in illiquid non-publicly-traded assets cannot completely diversify as investors in shares of publicly-traded companies can, illiquid non-publicly-traded assets will be affected by unsystematic risk, contrary to what the CAPM assumes. Thus, the required rate of return predicted by the CAPM will understate the true required rate of return of those assets.[211]

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[210] **QE−0039**, Ibbotson/Morningstar, "2010 Valuation Yearbook, Market Results for Stocks, Bonds, Bills and Inflation 1926−2009," (Morningstar, 2010), p. 85.

[211] To address this CAPM deficiency, Prof. Damodaran suggests considering a "total beta" coefficient, which includes total risk (including non-systematic risk), as a benchmark in the valuation of private companies (that is, unlisted companies). Damodaran estimated the total unlevered beta for the engineering/construction industry to be 3.96, compared to the unlevered beta of 1.04 used by Compass Lexecon. **QE−0041**, Aswath Damodaran, "Investment Valuation: Tools and Techniques for Determining the Value of Any Asset," 3rd ed. (John Wiley & Sons, Inc., 2012), pp. 672-673. **QE−0043**, Aswath Damodaran website, "Total Beta by Industry Sector," 5 January 2015, p. 1; Compass Lexecon Report, Appendix B, Table XVIII. The total beta is one of several methods available to estimate the cost of capital of private companies. Pratt and Grabowski review

127. Fourth, there are other considerations that the CAPM does not take into consideration. For example, companies in the real world face restrictions in their financial, management and technical resources.[212] Financial constraints exist because, unlike the static world of the CAPM, the real world is dynamic – a decision to invest means potentially foregoing another investment, which represents an opportunity cost.[213] Incorporating these considerations reduces the price that a buyer is willing to pay relative to the price predicted by the CAPM, which does not take these factors into account.[214]

128. In conclusion, although the difference between the actual rate of return observed and the one predicted by the CAPM is often labeled a "size premium," the rationale behind including a premium to the CAPM estimate is broader than this label suggests. Considerations such as <u>measurement limitations with the CAPM, illiquidity, diversification, and indirect costs</u> lead to a higher required rate of return than the CAPM predicts. To address this, it is common to adjust the rate of return predicted by the CAPM, often with an additional risk premium (also referred to as a size/illiquidity premium) as calculated initially by Ibbotson/Morningstar and later by

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several studies that show that the discount rate for private companies is higher than the discount rate for publicly-traded companies. **QE−0040**, Shannon P. Pratt and Roger J. Grabowski, "Cost of Capital, Applications and Examples," 4th ed., (John Wiley & Sons, Inc., 2010), pp. 587-596. *See also* **QE−0042**, Maher Kooli, Mohamed Kortas, and Jean-Francois L'Her, "A New Examination of the Private Company Discount: The Acquisition Approach," The Journal of Private Equity, 48 55 (Summer 2003), pp. 48-55.

[212] As explained by Prof. Boyle, these are "indirect costs that arise out of departures from the static and frictionless world of textbooks." He also explains that: "Although these indirect costs may involve no direct cash outlay, they are nevertheless real economic costs that add to the total quantum of capital employed by the investment, and therefore on which it must earn its costs of capital. But if the investment is to earn WACC on its total investment cost, then clearly it must earn more than WACC on its direct (cash) investment cost." **QE−0044**, Glenn Boyle, "Corporate Investment Policy - What is the Cost of Capital?", p. 2 (emphasis in original).

[213] **QE−0044**, Glenn Boyle, "Corporate Investment Policy - What is the Cost of Capital?", pp. 7-8.

[214] In fact, several studies show that companies in the real world use minimum required rates of return well above the rates predicted by the CAPM. **QE−0045**, James M Poterba and Lawrence H Summers, "A CEO Survey of US Companies' Time Horizons and Hurdle Rates," MIT Sloan Management Review, (Fall 1995); **QE−0046**, Iwan Meier and Vefa Tarhan, "Corporate Investment Decision Practices and the Hurdle Rate Premium Puzzle," January 2007; **QE−0047**, Steve A Sharpe and Gustavo A Suarez, "The Insensitivity of Investment to Interest Rates: Evidence from a Survey of CFOs," December 2013.

Duff & Phelps.[215]   These adjustments are applied in valuations across the world, including in developing countries.[216]

129.   Duff & Phelps's Valuation Handbook Guide to Cost of Capital quantifies the effect of the size of the company classifying the companies according to their market value in deciles (the first decile contains larger companies, while the tenth decile contains smaller companies). For each decile, Duff & Phelps calculates the actual rate of return compared to the rate of return predicted by the CAPM.[217]   As a starting point, I use Compass Lexecon's estimated value for Omega Panama to determine the applicable size premium based on Duff & Phelps' classifications. Based on this assumption, Omega Panama would fall under the tenth decile, resulting in an additional risk premium of 5.78%.[218]

130.   Compass Lexecon fails to recognize the limitations of the CAPM and does not include any additional risk premium adjustment and thus underestimates the risks affecting Omega Panama's future cash flows.[219]

E. Country Equity Risk Premium

131.   The country risk premium measures the extra return required by investors in order to invest in a company that is not located in the U.S. Investors generally perceive that

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[215] *See* n. 199 above; **QE−0035**, Duff & Phelps, "2015 Valuation Handbook, Guide to Cost of Capital," (John Wiley & Sons, Inc., 2015), Exhibit 7.3, pp. 7-9 and 7-10.

[216] For example, a 2012 PricewaterhouseCoopers survey of valuation practices in Africa found that 70% of respondents in Southern Africa applied a size premium. The survey found that: "The number of respondents considering a small stock premium has remained relatively stable over the years, with a majority favouring the application of a small stock premium." **QE−0048**, PricewaterhouseCoopers, "An African Perspective, Valuation Methodology Survey 2012," 6th ed., p. 45. This survey also reveals that: "No less than 30% of respondents always adjust the CAPM by applying a specific risk premium, while 58% of respondents regularly or occasionally consider an adjustment to the CAPM for specific risks. This demonstrates that although the use of a specific risk premium is not supported by the CAPM and financial theory, specific risk premiums are widely used in practice." **QE−0048**, PricewaterhouseCoopers, "An African Perspective, Valuation Methodology Survey 2012," 6th ed., p. 51.

[217] **QE−0035**, Duff & Phelps, "2015 Valuation Handbook, Guide to Cost of Capital," (John Wiley & Sons, Inc., 2015), Exhibit 7.3, p. 7-10.

[218] According to Duff & Phelps' classification, and using Compass Lexecon's estimates, the premium applicable to Omega Panama is 5.78%, which I use as a *proxy* for the additional risk premium in my calculations. Compass Lexecon Report, Table I. **QE−0035**, Duff & Phelps, "2015 Valuation Handbook, Guide to Cost of Capital," (John Wiley & Sons, Inc., 2015), Exhibit 7.3, pp. 7-9 and 7-10.

[219] Compass Lexecon Report, ¶¶ 115-137, Table XVIII.

investments in emerging economies are riskier than investments in developed economies such as the U.S., and thus require an additional return, above and beyond the equity risk premium in the U.S., in order to invest in a company located in an emerging economy.[220]

132. Compass Lexecon uses the sovereign debt approach to measure Panama's country risk.[221] This approach uses the "spread between the yields of the host state's sovereign bonds and yield of a risk-free security with similar maturities, and corresponding to debt in the same currency."[222] Compass Lexecon uses the 2014 average of Panama's Emerging Markets Bond Index ("EMBI") to arrive at a country risk of 1.89%.[223]

133. However, Compass Lexecon methodology does not capture the risk of an equity investment in Panama. As Prof. Damodaran cautions:

> The country default spreads provide an important first step in measuring country equity risk, but still only measure the premium for default risk. Intuitively we would expect the country equity risk premium to be larger than the country default risk spread. To address the issue of how much higher, we look at the volatility of the equity market in a country relative to the volatility of the bond market used to estimate the spread.[224]

134. Similarly, Ibbotson/Morningstar comment that "it is important to note that there may be additional risks inherent in the equity market of a particular country that are not captured in the yield spread."[225]

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[220] As Compass Lexecon explains: "This risk premium is the incremental return demanded by investors from an investment in a country or location where the investment is exposed to greater risk than would be the case in a more stable economy, such as the United States." Compass Lexecon Report, ¶ 134.

[221] Compass Lexecon Report, ¶ 135.

[222] Compass Lexecon Report, ¶ 135. According to a source cited by Compass Lexecon, "The EMBI (Emerging Market Bond Index) is JP Morgan's index of dollar-denominated sovereign bonds issued by a selection of emerging market countries." **C–0408 [CLEX–30]**, Financial Times, Definition of EMBI, p. 1 of PDF.

[223] Compass Lexecon Report, ¶ 136.

[224] **QE−0049**, Aswath Damodaran, "Equity Risk Premiums (ERP): Determinants, Estimation and Implications − The 2014 Edition," March 2014, p. 60 (emphasis added).

[225] **QE−0039**, Ibbotson/Morningstar, "2010 Valuation Yearbook, Market Results for Stocks, Bonds, Bills and Inflation 1926−2009," (Morningstar, 2010), p. 119.

135. As Prof. Damodaran explains, "relative standard deviation of equity is a volatile number, both across countries (ranging from 4.62 for Spain to 0.86 for Greece) and across time (Brazil's relative volatility numbers have ranged from close to one to well above 2)."[226] Due to this variation across years and across countries, Prof. Damodaran proposes using a global average multiplier of 1.5 in his country equity risk calculations.[227] Thus, at the very least, Compass Lexecon's equity risk premium should be multiplied by 1.5 to account for the fact that an investor is buying equity in a company and not government bonds, resulting in an country risk premium of 2.84%.[228]

136. A reasonable estimate of the risk premium applicable to an equity investment in Panama (rather than the risk applicable to Panama's sovereign debt) can be derived from the Country Risk Rating Model. This model estimates the relationship between risk and return by modeling country credit risk scores against stock market returns, using regression analysis.[229] Using the results of this regression analysis, Duff & Phelps calculate the cost of equity implied by a country's credit risk rating.

137. This model is based on country credit risk ratings obtained from the publication *Institutional Investor*, which has been issuing reports on country credit ratings since 1979.[230] The ratings are based on an ongoing survey of 75-100 bankers conducted every six months. The bankers are asked to rate each country on a scale of 0 to 100, with 100 representing the smallest risk of default and 0 representing the highest. The editors of *Institutional Investor* weigh the bankers' responses according to their institutions' exposure to a particular market.[231]

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[226] **QE−0049**, Aswath Damodaran, "Equity Risk Premiums (ERP): Determinants, Estimation and Implications − The 2014 Edition," March 2014, p. 61.

[227] **QE−0049**, Aswath Damodaran, "Equity Risk Premiums (ERP): Determinants, Estimation and Implications − The 2014 Edition," March 2014, p. 61, n. 91.

[228] That is, $1.89\% \times 1.5 = 2.84\%$.

[229] **QE−0050**, Duff & Phelps, "2015 International Valuation Handbook, Guide to Cost of Capital," (John Wiley & Sons, Inc., 2015), p. 15 of PDF.

[230] **QE−0050**, Duff & Phelps, "2015 International Valuation Handbook, Guide to Cost of Capital," (John Wiley & Sons, Inc., 2015), p. 13 of PDF.

[231] **QE−0050**, Duff & Phelps, "2015 International Valuation Handbook, Guide to Cost of Capital," (John Wiley & Sons, Inc., 2015), p. 13 of PDF.

138. Erb, Harvey, and Viskanta devised a method by which these country credit risk ratings could be converted into estimates of the required cost of equity in these countries.[232] The original study used actual market returns for 47 countries to determine the parameters in the model.[233] This study, based on the *Institutional Investor* survey, has been updated regularly by Duff & Phelps. It is now called the Country Risk Rating Model and is based on data from 72 countries.[234]

139. After reviewing a number of approaches to determining the international cost of capital, Ibbotson/Morningstar has this to say about the Country Risk Rating Model:

> While no cost of equity model produces reliable numbers in every situation, the Country Risk Rating Model offers a number of advantages that the other international models are unable to overcome. These advantages include:
>
> 1. Breadth of coverage
>
> 2. Reasonable results
>
> 3. Stability of results.[235]

140. It continues:

> Most of the models we have discussed require data that simply does not exist for many countries, since most countries do not have organized equity markets…. The Country Risk Rating Model requires only a credit rating to produce a cost of equity estimate. Therefore, the model can be applied to almost any

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[232] **QE−0051**, Claude B. Erb, Campbell R. Harvey, and Tadas E. Viskanta, "Expected Returns and Volatility in 135 Countries," The Journal of Portfolio Management, (Spring 1996), pp. 46-58 (Spring 1996).

[233] The authors calculated two sets of discount rates by this method: one by positing a linear relationship and one based on a logarithmic relationship between discount rates and ratings. The linear model assumes that returns vary with the absolute change of the risk ratings; the logarithmic model assumes that they vary with the proportional change of the risk ratings. **QE−0051**, Claude B. Erb, Campbell R. Harvey, and Tadas E. Viskanta, "Expected Returns and Volatility in 135 Countries," The Journal of Portfolio Management, (Spring 1996), pp. 46-58 (Spring 1996), pp. 48-51.

[234] **QE−0050**, Duff & Phelps, "2015 International Valuation Handbook, Guide to Cost of Capital," (John Wiley & Sons, Inc., 2015), p. 14 of PDF.

[235] **QE−0039**, Ibbotson/Morningstar, "2010 Valuation Yearbook, Market Results for Stocks, Bonds, Bills and Inflation 1926−2009," (Morningstar, 2010), p. 120.

country in the world. Another advantage of the Country Risk Rating Model is that it consistently produces results that are reasonable. The model works by using data from the developed world and extrapolating that data to developing markets. This methodology sidesteps the use of the inconsistent or incomplete data usually available in developing markets, thus avoiding the nonsensical results that this data may produce…. Finally, the Country Risk Rating Model produces results that are relatively stable. Cost of equity estimates should vary across time as conditions change, but they should not vary radically from one time period to the next unless country-specific conditions change dramatically from one period to the next.[236]

141.   As of the Valuation Date, the country equity risk premium for Panama, according to the Country Risk Rating Model, was 6.2%.[237] In my calculations, I have included a range of 2.84% to 6.2%, to reflect both the corrected Compass Lexecon estimate of the country risk premium, and that derived from the Country Risk Rating Model.

F. Discount Rate Results

142.   Investors have a number of options for where to invest their capital. The objective of a discount rate analysis is to determine the minimum rate of return that a willing buyer of Omega Panama would require to forego these alternatives. Based on the analysis described in this section, a reasonable discount rate for Omega Panama as of the Valuation Date should be in the range of 18.38% to 23.29%.[238]

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[236] **QE−0039**, Ibbotson/Morningstar, "2010 Valuation Yearbook, Market Results for Stocks, Bonds, Bills and Inflation 1926−2009," (Morningstar, 2010), p. 120.

[237] **QE−0050**, Duff & Phelps, "2015 International Valuation Handbook, Guide to Cost of Capital," (John Wiley & Sons, Inc., 2015), p. 21 of PDF.

[238] *See* **Figure 14** above.

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Annex B. Comments Regarding the Documentation in Support of the Existing Contracts Claim

143. Compass Lexecon was instructed to rely upon the tabulations presented in the McKinnon report as the basis for its assessment of damages relating to the Existing Contracts. In turn, McKinnon relies on documents provided by Claimants as well as statements made by Mr. Rivera.[239] I note that the documentation in support of the Existing Contracts claim is incomplete. I have the following comments in relation to the support for payments for each project presented in the McKinnon Report:

(i) **MINSA CAPSI Rio Sereno**: The McKinnon Report relies on 17 payment requests ("Pay Apps") submitted by Claimants for the MINSA CAPSI Rio Sereno Project.[240] Pay Apps 1 through 14 were paid in full via Certificados de No Objeción ("CNO").[241] McKinnon indicates that Pay Apps 15 through 17 have outstanding balances.[242] I note that Pay Apps 15 through 17 include a stamp and signature for the Ministry of Health at the beginning of each document, but the signature line at the end of the document is not signed.[243] Furthermore, Pay App 15 includes some amounts from an "Addendum 5" which is not on the record.[244]

(ii) **MINSA CAPSI Kuna Yala**: The McKinnon Report relies on 25 Pay Apps submitted by Claimants for the MINSA CAPSI Kuna Yala project.[245] Pay Apps 1 through 19 and 21 through 23 were paid in full via CNOs.[246] Pay Apps 20, 24, and 25 were signed by Omega Panama, the Ministry of Health and the Comptroller but have outstanding balances.[247]

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[239] McKinnon Report, ¶ 21.

[240] McKinnon Report, Annex 1, Table 3.

[241] McKinnon Report, Annex 1, ¶ 3.

[242] McKinnon Report, Annex 1, Table 3.

[243] **C−0333**, Payment Applications for Contract No. 077 (2011), pp. 68-92. *See also* **C−0255**, Invoice - Payment Application Rio Sereno, pp. 27-51.

[244] **C−0333**, Payment Applications for Contract No. 077 (2011), pp. 68-73.

[245] McKinnon Report, Annex 1, Table 5.

[246] McKinnon Report, Annex 1, ¶ 7.a.

[247] McKinnon Report, Annex 1, Table 5. *See also* **C−0336**, Payment Applications for Contract No. 083 (2011),

(iii) **MINSA CAPSI Puerto Caimito**: The McKinnon Report relies on 22 Pay Apps submitted by Claimants for the MINSA CAPSI Puerto Caimito project.[248] Pay Apps 1 through 18 were paid in full via CNOs.[249] In relation to Pay Apps 19 through 22, Claimants state that these were submitted to the Ministry of Health and not paid.[250] The Pay App for work order 19 is not present – Claimants only produced the invoice for this work order.[251] Pay Apps 20 through 22 include a stamp and signature for the Ministry of Health at the beginning of each document, but the signature line at the end of the document is not signed.[252]

(iv) **Ciudad de las Artes**: The McKinnon Report relies on 19 Pay Apps submitted by Claimants for the Ciudad de las Artes project.[253] Pay Apps 1 through 8 were paid in full via Cuentas de Pagos Parcial ("CPP").[254] Pay Apps 9 through 11 were partially paid.[255] Pay Apps 12 through 19 were signed by Omega and INAC, but they have outstanding balances.[256]

(v) **Unidad Judicial La Chorrera**: The McKinnon Report relies on 13 Pay Apps submitted by Claimants for the Unidad Judicial La Chorrera project.[257] The first 12 were paid in full via checks.[258] Pay App 13 was paid with two different checks and has a small outstanding balance.[259]

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pp. 129, 154-167.

[248] McKinnon Report, Annex 1, Table 7.

[249] McKinnon Report, Annex 1, ¶ 11.a.

[250] McKinnon Report, Annex 1, ¶ 11.b.

[251] **C−0273**, Invoice – 019 for Contract No. 85 (2011), pp. 1-2.

[252] **C−0271**, Payment Applications for Contract No. 085 (2011), pp. 265-286.

[253] McKinnon Report, Annex 1, Table 9.

[254] McKinnon Report, Annex 1, ¶ 17.a.

[255] McKinnon Report, Annex 1, ¶ 17.b.

[256] McKinnon Report, Annex 1, Table 9, ¶ 17.c. *See also* **C−0338**, Account Payment Details for Contract No. 093-12, pp. 132, 143, 152, 161, 170, 179, 188, 197.

[257] McKinnon Report, Annex 1, Table 11.

[258] McKinnon Report, Annex 1, ¶ 21.a.

[259] McKinnon Report, Annex 1, ¶ 21.b. *See also* **C−0306**, Payment Application Request – Unidad Judicial,

(vi) **Palacio Municipal, Ciudad de Colón**: The McKinnon Report relies on four Pay Apps submitted by Claimants for the Ciudad de Colón project.[260] Pay Apps 1 and 2 were paid in full via checks.[261] Pay App 3 was signed by Omega Panama, the Municipality of Colón, and the Comptroller, but has an outstanding balance.[262] Pay App 4 is not signed by Omega Panama, the Municipality of Colón, or the Comptroller.[263]

(vii) **Mercados Periféricos**: The McKinnon Report relies on eight Pay Apps submitted by Claimants for the Mercados Periféricos project.[264] However, for Pay App 1 through 7 there is no backup on the record. According to McKinnon, he was "informed by Mr. Rivera that those Pay Apps were submitted to Republic of Panama, Municipality of Panama for payment but were not paid."[265] Documentation for Pay App 8 is on the record, but it is not signed by any Panamanian government entity, only by Omega Panama.[266]

144. In addition, McKinnon notes in his Annex 2 that US$ 17.26 million in change orders that contribute to the claim for Expected Future Cash Flows are not fully supported. Footnote 1 of his table "Calculation of Expected Cash Flows on Uncompleted Work" notes that "Partially Executed Change Orders represent changes signed by Omega and Gov't Ministry official but lacking Gov't Controller's signature."[267]

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pp. 17-29; **C−0340**, CSS – Receipt 324963 – Payment 28 Oct. 2015- Ck 14952 – OJ, p. 4; **C−0342**, Omega Engineering, Inc. Receipt D00899504 Tax Payment-C001269267 Lic Com - Pago 30 Oct. 2015 - Ck 14972 – OJ, p. 3.

[260] McKinnon Report, Annex 1, Table 13.

[261] McKinnon Report, Annex 1, ¶ 25.a.

[262] **C−0298**, Payment Applications for Contract No. 01-13, p. 6; McKinnon Report, Annex 1, Table 13.

[263] **C−0298**, Payment Applications for Contract No. 01-13, p. 8. *See also* **C−0308**, Payment Application – Palacio Municipal, pp. 1-5.

[264] McKinnon Report, Annex 1, Table 15.

[265] McKinnon Report, Annex 1, ¶ 29.b.

[266] **C−0294**, Payment Application for Contract No. 857-2013, p. 7.

[267] McKinnon Report, Annex 2, p. 1, n. 1. *See also* **C−0106**, Addendum No. 4 to Contract No. 077 (2011), p. 14; **C−0107**, Addendum No. 3 to Contract No. 083 (2011), p. 10; **C−0171**, Addendum No. 4 to Contract No. 085 (2011), p. 20.

145.   I also note that two of the documents that McKinnon includes in section III.A of his report, "Documents Relied Upon," were prepared by Mr. Rivera.[268] These documents include the Cost-to-Complete and the Estimate-to-Actual ("ETA").[269] Furthermore, the Analysis of Job Costs and Accounts Payables by Job ("Job Cost Reports") in that same section includes "numerous entries that reference in the Name column "Not Received."[270] McKinnon was "informed by Mr. Rivera that these were manual accounting entries associated with checks or other transactions that were not made through the accounting system," and that "back-up documentation for these transactions was kept in paper files at Omega Panama's office in Panama."[271]

146.   It is worth noting that, after addressing many of the documents provided to him, McKinnon states that he is "unable to confirm that the cost-to-complete estimates and related mark-ups for the Projects in the ETA Analysis would be reasonably achieved."[272] After explaining that the three MINSA CAPSI projects should all expect the same level of profitability, defined by the expected profitability of the MINSA CAPSI Puerto Caimito project, McKinnon then states that the "best information available at this time of the expected profit margins at completion for [the remaining] Projects is from Omega's audited financial statements."[273] That is, McKinnon appears to indicate that he could not rely on the project-specific data presented to him in relation to the projects that were on average only half completed.[274] Instead, he determined the best information available to him was that from three years of financial statements, during which time Omega Panama had completed only one project.[275] In footnote 2 of the first table in Annex 2 of his report, McKinnon confirms that "Estimated Cost at Completion is based on the reasonably expected margin for the

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[268] McKinnon Report, ¶¶ 45, 48.

[269] McKinnon Report, ¶¶ 45, 48.

[270] McKinnon Report, ¶ 39.

[271] McKinnon Report, ¶¶ 39-40.

[272] McKinnon Report, ¶ 89.

[273] McKinnon Report, ¶ 93.

[274] *See* ¶ 28 above.

[275] *See* ¶ 28 above.

project based on the best information available, <u>setting aside estimates of the same from Omega</u>."[276]

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[276] McKinnon Report, Annex 2, p. 1, n. 2.

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List of Exhibits

	Description
<u>QE-0001</u>	Biographical Information, Daniel Flores, Quadrant Economics
<u>QE-0002</u>	Valuation Model
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<u>QE-0004</u>	La Estrella de Panamá, "Panama-Compra', con nueva versión," 29 December 2009
<u>QE-0005</u>	World Bank Group, "Doing Business 2019, Economy Profile of Panama," 2018
<u>QE-0006</u>	World Bank Group, "Starting a Business," Doing Business 2010-2019
<u>QE-0007</u>	PanamaCompra, "Bidder Registration Form"
<u>QE-0008</u>	MINSA CAPSI, "Request for Proposal," Application Eligibility Required Documents, 2010
<u>QE-0009</u>	PanamaCompra, Actas de Apertura, Bid 2011-1-10-0-02-LV-038388, and Bid 2011-1-10-0-07-LV-039678
<u>QE-0010</u>	PanamaCompra, Acto de Apertura, Bid 2010-2-02-0-08-AV-000527
<u>QE-0011</u>	Departamento de Compras y Proveeduría, Acta de Apertura, Bid 2010-1-38-0-08-LA-003850, 24 March 2010
<u>QE-0012</u>	República de Panamá, Asamblea Nacional, Resolución de Adjudicación No.12, Bid 2010-0-01-0-08-LV-004147, 18 May 2010
<u>QE-0013</u>	PanamaCompra, Acta de Apertura, Bid 2010-0-12-0-99-LV-000823
<u>QE-0014</u>	Elecnor, S.A., "2014 Financial Statements and Directors' Report" (excerpt)
<u>QE-0015</u>	Actividades de Construcción y Servicios, S.A., "2014 Annual Report of AGS Group 2014" (excerpt)
<u>QE-0016</u>	COMSA EMTE, "Annual Summary," 2014 (excerpt)

QE−0017	International Organization for Standardization (ISO) website, "About ISO"
QE−0018	Priscilla Pérez, "Esta ha sido la evolución del salario mínimo en Panamá en los últimos seis años," El Capital Financiero, 14 December 2017
QE−0019	General Counsel of the World Bank et al., "Legal Framework for the Treatment of Foreign Investment," "Report to the Development Committee and Guidelines on the Treatment of Foreign Direct Investment," (The World Bank, 1992)
QE−0020	Manual de Clasificaciones Presupuestarias del Gasto Público, Official Gazette No. 26716-C, 4 February 2011
QE−0021	República de Panamá, Ministerio de Economía y Finanzas, Dirección De Programación de Inversiones, Informe de Ejecución del Programa de Inversiones Públicas no Financieras, 2017
QE−0022	IMF World Economic Outlook, October 2015
QE−0023	Resumen del Presupuesto General del Estado, República de Panamá, 1995-2017
QE−0024	Ministerio de Economía y Finanzas, "Evolución de la Deuda Total del Sector Público," October 2018
QE−0025	Panamá América, "Nuevo gobierno panameño obligado a disciplina fiscal para alentar crecimiento," 30 April 2014
QE−0026	La Prensa, "Nuevo Gobierno obligado a disciplina fiscal por crisis en Canal, dice Varela," 17 January 2014
QE−0027	Plan Estratégico de Gobierno (PEG) 2015-2019, December 2014
QE−0028	Ley 34 De Responsabilidad Social Fiscal, Official Digital Gazette No. 26056, 6 June 2008
QE−0029	Jonathan Berk and Peter DeMarzo, "Corporate Finance," 3rd ed. (Pearson Education Inc., 2013) (excerpt)
QE−0030	República de Panamá, Ministerio de Vivienda y Ordenamiento Territorial, Informe de Comisión Técnica Evaluadora Verificadora, Acto Público, Bid 2016-0-14-0-04-LV-010323
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