



Rating  
**Buy**

Asia  
China

Health Care  
Health Care

Company  
**Modern Dental Group**

Reuters  
3600.HK

Bloomberg  
3600 HK

Exchange  
HSI

Ticker  
3600

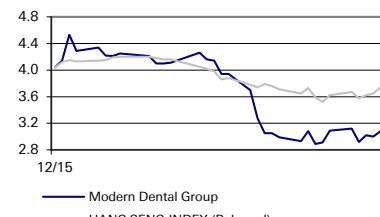
Date  
1 February 2016

**Initiation of Coverage**

Price at 1 Feb 2016 (HKD)	3.13
Price target - 12mth (HKD)	4.60
52-week range (HKD)	4.53 - 2.89
HANG SENG INDEX	19,683

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**Price/price relative**



Performance (%)	1m	3m	12m
Absolute	-23.8	-	-
HANG SENG INDEX	-10.2	-13.1	-19.7

Source: Deutsche Bank

**A leader in the global dental prosthetic market**

As a leader in the fragmented global dental prosthetic market, Modern Dental Group (MDG) is well positioned to capture growth and consolidation opportunities in the value chain. With an efficient manufacturing process and a global sales and distribution network, MDG has established brand recognition in key prosthetic markets including Europe, China, and Australia, while it plans to expand in the US. In the future, we expect acquisitions to be a significant growth driver. We model CAGRs of 23% and 20% for revenue and core profit over 2015-18, respectively. We initiate Buy with a target price of HKD4.6.

**Global exposure with an integrated business model**

We believe the global dental prosthetics market, driven by both medical and aesthetic demand, has a relatively defensive growth outlook. While the global market is highly fragmented, MDG has a leading market share in Europe, Australia and China, with an aim to expand in the US. Having inked seven acquisitions since 2013, MDG has successfully transformed itself into an integrated dental prosthetic player with a global sales and marketing network. We highlight that China remains a bright spot among global markets with a 17% CAGR from 2010 to 2014 and an anticipated CAGR of 19% from 2014 to 2018, according to Roland Berger. The strong position of MDG in China should enable the company to enjoy sustainable growth. We forecast sales contribution from China to increase to 34% in 2018 from 28% in 2014.

**M&A adds an additional leg of growth**

We expect acquisitions in Europe, China, and the US to become a major growth driver in the near/mid term. We anticipate the US and China to become priorities in executing M&A strategies based on sufficient market opportunities and growth prospects. With these acquisitions, we anticipate further and accelerated penetration of the global market. We forecast a 21%/2% organic revenue CAGR for China/ex-China over 2015-18 and a 30%/20% total revenue CAGR for China/ex-China in the same period.

**Initiating Buy with target price of HKD4.6; risks**

Our target price is based on 20x 2016E EPS of HKD0.23. This compares with MDG's global dental consumables peers of 28x 2016E EPS with 19% growth in 2017E (vs. 27% we model for MDG). We apply a 30% discount to its global peers due to low barriers to enter the dental prosthetic industry, which has low technology requirements. Downside risks include slow acquisitions, low ASP growth, and possible suspension of facilities in Shenzhen.

**Forecasts And Ratios**

Year End Dec 31	2013A	2014A	2015E	2016E	2017E	2018E
Sales (HKDm)	777.7	1,192.2	1,401.9	1,803.1	2,301.6	2,607.9
DB EPS FD(HKD)	0.24	0.24	0.35	0.23	0.29	0.32
DB EPS growth (%)	25.2	-1.8	47.7	-34.1	26.7	10.9
PER (x)	—	—	9.0	13.6	10.7	9.7

Source: Deutsche Bank estimates, company data

<sup>1</sup> DB EPS is fully diluted and excludes non-recurring items

<sup>2</sup> Multiples and yields calculations use average historical prices for past years and spot prices for current and future years, except P/B which uses the year end close

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Model updated: 29 January 2016

## Running the numbers

Asia

China

Health Care

## Modern Dental Group

Reuters: 3600.HK

Bloomberg: 3600 HK

## Buy

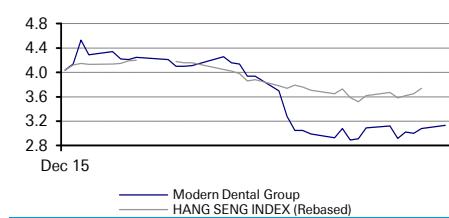
Price (1 Feb 16)	HKD 3.13
Target Price	HKD 4.60
52 Week range	HKD 2.89 - 4.53
Market Cap (m)	HKDm 3,130

USDm 402

## Company Profile

Modern Dental Group Limited is a leading global dental prosthetic device provider with a focus on providing custom-made prostheses to customers in the growing prosthetics industry. The product portfolio is broadly categorized into three product lines, including fixed prosthetic devices, removable prosthetic devices, and other devices such as orthodontic devices, sports guards and anti-snoring devices.

## Price Performance





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# Investment thesis

## Outlook

As a leader in the fragmented global dental prosthetics market, we believe Modern Dental Group (MDG) seems well positioned to capture growth and consolidation opportunities in the value chain. With an efficient manufacturing process and a global sales and distribution network, MDG has established brand recognition in key prosthetics markets including Europe, China, and Australia, while it aims to expand in the US. In the future, we expect acquisitions to become a growth driver. We model CAGRs of 23% and 20% for revenue and core net profit, respectively, over 2015-18 (excluding future acquisitions, these growth rates would be 8% and 9% for revenue and net profit, respectively). We expect growth to be driven by the following elements:

- MDG is likely to capture single-digit organic growth in Europe and Australia and 21% organic revenue growth in China from 2015 to 2018 due to growing dental expenditures and MDG's wide exposure in these markets. Importantly, we believe the ASPs would continue to rise modestly, based on its brand loyalty and value proposition.
- We expect acquisitions in Europe, China, and the US to become a major growth driver in the near/mid term, as MDG executes its strategy to become a more integrated global player with better control of its sales network. We believe its increasing China exposure is likely to be a major growth driver in the mid/long term.
- Lastly, with a proven track record in creating a global brand and integrating acquired assets, we believe the management team has the required expertise to execute its future growth strategy.

We believe the dental prosthetics market, driven by both medical and aesthetic demand, possesses relatively defensive growth prospects. With an integrated business model, we anticipate further and accelerated penetration of the global market for MDG with additional financial resources.

## Valuation

Our target price of HKD4.6 is based on 20x 2016E EPS of HKD0.23. This compares with MDG's global dental consumables peers of 28x 2016E EPS with 19% growth in 2017E (vs. 27% we model for MDG). We apply a 30% discount to its global consumables peers due to the dental prosthetics industry's low barriers to entry because of low technology requirements. We do not believe the HK-listed healthcare peers would be a relevant benchmark due to their lack of exposure to the dental consumables industry.

## Risks

Downside risks include slower acquisitions, lower ASP growth, unfavorable reimbursement policies of dental prosthetics, and possible suspension of production facilities in Shenzhen by the government due to the absence of land-use rights by landlords.



# Valuation

## Target price of HKD4.6 based on 20x 2016E EPS

### Focusing on PE-multiple-based valuation approach

Our target price of HKD4.6 is based on 20x 2016E EPS of HKD0.23. There is no direct listed comparable to MDG. We believe the closest peers are companies shown in Figure 1 that operate in the broader global dental consumables industry. We expect stronger earnings growth in 2017 for MDG vs. the peers (27% vs. 19%). However, we also see relatively low barriers of entry in the dental prosthetics industry compared to the companies in the peer group, which have higher barriers due to technology requirements. This suggests longer-term growth for MDG could be at risk. In addition, MDG has a smaller market capitalization than the peer group, which generally warrants a P/E discount, and the company is yet to establish a track record as a listed entity. As a result, we have applied a 30% discount to the 2016 P/E of the peers in setting our target price.

Figure 1: Global dental consumables peers

BBG Ticker	Name	29-Jan 52-week			Mkt cap (US\$m)	PE		Crncy	EPS Growth %			EV/EBITDA			EBITDA Growth %			
		Price (LC)	High	Low		2015E	2016E		2015E	2016E	2017E	2015E	2016E	2017E	2015E	2016E	2017E	
STMN SW EQUITY	STRAUmann HLDG-R	305.5	310.0	208.1	4,707	32.6	26.7	23.8	CHF	8.0	21.9	12.1	23.0	19.6	17.8	8.5	8.2	5.1
ALGN US Equity	ALIGN TECHNOLOGY	59.5	68.3	52.5	4,730	35.4	27.7	22.3	USD	(5.5)	28.0	24.0	20.1	16.5	13.4	(2.0)	10.4	10.9
048260 KS EQUITY	OSSTEM IMPLANT	82,400.0	86,000.0	42,650.0	976	42.6	32.0	25.9	KRW	57.6	32.8	23.9	27.4	19.8	16.4	15.7	17.7	9.9
<b>Global dental consumables</b>						<b>34.8</b>	<b>27.6</b>	<b>23.3</b>		<b>6.6</b>	<b>25.7</b>	<b>18.6</b>	<b>22.1</b>	<b>18.2</b>	<b>15.7</b>	<b>4.4</b>	<b>10.1</b>	<b>8.2</b>

Source: Deutsche Bank, Bloomberg Finance LP

We do not believe the HK-listed peers, summarized in Figure 2, across the healthcare industry should be used as a benchmark, due to their lack of exposure to the dental consumables industry.

Figure 2: HK-listed healthcare companies

BBG Ticker	Name	30-Jan 52-week			Mkt cap (US\$m)	PE		Crncy	EPS Growth %			EV/EBITDA			EBITDA Growth %			
		Price (LC)	High	Low		2015E	2016E		2015E	2016E	2017E	2015E	2016E	2017E	2015E	2016E	2017E	
1099 HK EQUITY	SINOPHARM-H	29.7	39.7	25.9	10,568	17.1	14.7	13.7	CNY	21.3	16.0	7.7	8.1	7.3	6.1	18.5	14.7	13.7
2196 HK EQUITY	FOSUN PHARMA-H	20.5	32.9	19.0	7,147	24.7	20.1	17.2	CNY	35.5	22.9	16.6	11.5	8.7	6.9	60.4	20.9	9.8
2607 HK EQUITY	SHANGHAI PHARM-H	16.0	28.6	14.7	6,904	13.0	11.3	10.5	CNY	20.7	14.6	8.2	5.3	4.7	4.3	42.8	10.7	5.8
1177 HK EQUITY	SINO BIOPHARM	5.3	7.7	4.6	5,060	22.3	19.6	16.8	HKD	19.2	13.8	16.6	11.7	9.9	9.1	27.3	29.7	10.0
460 HK EQUITY	SIHUAN PHARM	4.4	5.5	4.2	5,843	19.5	15.4	12.4	CNY	17.6	26.8	23.8	11.1	10.7	7.7	36.9	(1.9)	29.5
1093 HK EQUITY	CSPC PHARMA CEUTI	7.9	8.1	5.9	5,992	22.9	18.2	14.9	HKD	34.2	26.1	22.1	13.4	10.9	9.0	25.8	21.0	19.2
874 HK EQUITY	BAIYUNSHAN PHR-H	17.1	33.7	16.4	3,929	14.3	12.8	11.5	CNY	8.2	12.1	11.0	14.9	13.0	12.1	1.0	6.8	3.8
1066 HK EQUITY	SHANDONG WEIG-H	5.1	7.5	4.5	2,958	15.7	13.5	12.0	CNY	20.6	16.0	12.9	9.7	8.4	7.2	19.9	13.1	13.8
2188 HK EQUITY	LUYE PHARMA GROU	6.4	11.2	6.2	2,729	22.1	18.2	14.8	CNY	35.6	21.7	23.2	15.7	13.1	10.7	15.4	9.5	10.7
570 HK EQUITY	TRAD CHIMED	4.9	7.0	4.5	2,807	19.7	11.9	10.2	CNY	17.0	66.0	16.5	11.3	8.5	6.9	60.8	79.9	16.0
867 HK EQUITY	CHINA MEDICAL SY	10.5	14.3	8.0	3,357	18.2	14.2	11.5	CNY	22.1	28.1	23.1	15.5	12.0	9.5	26.5	24.8	22.2
1513 HK EQUITY	LIVZON PHARM-H	34.8	52.6	29.4	2,151	18.6	15.9	13.5	CNY	13.1	17.3	17.1	14.4	12.2	10.8	10.9	8.5	6.7
1530 HK EQUITY	3SBIO INC	9.4	11.1	7.4	3,019	30.0	23.6	18.1	CNY	24.1	27.1	30.6	26.2	13.1	9.6	65.4	93.4	25.8
1666 HK EQUITY	TONG REN TANG-H	11.9	14.5	9.5	1,957	23.6	20.9	18.6	CNY	18.1	12.9	12.5	12.4	11.2	9.8	11.6	5.1	7.1
1515 HK EQUITY	PHOENIXHEALTH	7.5	16.2	7.3	807	20.6	17.0	12.7	CNY	8.1	20.9	34.1	12.7	10.5	8.0	19.7	23.4	29.9
2877 HK EQUITY	CHINA SHINEWAY	9.3	14.2	8.4	991	9.0	8.7	8.2	CNY	(2.9)	3.5	6.1	3.3	2.8	2.2	2.0	5.1	6.8
587 HK EQUITY	HUA HAN HEALTH I	0.8	2.3	0.7	750	11.3	8.8	7.9	HKD	11.1	28.6	11.1	0.1	0.1	0.1	15.0	6.5	9.2
1349 HK EQUITY	FUDAN ZHANGJIANG	6.1	12.3	5.5	723	33.2	26.4	18.5	CNY	29.2	25.8	42.6	23.6	17.7	11.7	9.0	15.4	22.9
3933 HK EQUITY	THE UNITED LAB	3.6	6.3	3.1	752	7.6	6.8	6.3	HKD	15.6	10.9	9.0	4.0	3.5	2.9	(2.5)	0.6	5.1
2005 HK EQUITY	SSY GROUP LTD	2.0	4.2	1.7	723	11.8	9.8	8.6	HKD	(14.1)	20.6	14.6	8.2	7.1	6.3	(8.6)	7.3	6.2
950 HK EQUITY	LEES PHARM	7.1	15.3	6.9	538	17.5	15.6	13.1	HKD	15.3	12.3	18.8	11.0	10.4	8.7	12.7	3.0	9.3
2348 HK EQUITY	DAWNRAY'S PHARMAC	5.3	7.8	4.0	542	12.7	9.8	7.8	CNY	37.3	28.6	26.0	7.5	6.0	5.0	18.1	12.1	9.4
1681 HK EQUITY	CONSUN PHARMA CEU	4.3	6.5	4.2	548	13.4	10.8	9.0	CNY	24.4	23.7	20.4	7.5	5.7	4.8	2.8	14.6	9.7
1345 HK EQUITY	PIONEER PHARM	1.8	6.8	1.7	310	6.9	6.0	5.2	CNY	(3.5)	15.9	14.9	7.2	6.2	5.5	2.0	7.4	6.8
853 HK EQUITY	MICROPORT SCIENT	3.7	4.7	2.7	670	NA	42.7	39.2	USD	NA	NA	9.1	21.2	13.8	11.6	23.8	24.0	9.1
963 HK EQUITY	BLOOMAGE BIOTE	17.7	19.8	10.5	797	25.2	19.6	16.1	CNY	11.7	28.9	21.6	18.0	14.1	11.5	5.0	13.0	10.9
<b>HK Healthcare</b>						<b>19.3</b>	<b>16.1</b>	<b>13.8</b>		<b>21.7</b>	<b>21.4</b>	<b>16.4</b>	<b>11.6</b>	<b>9.4</b>	<b>7.7</b>	<b>29.0</b>	<b>19.9</b>	<b>13.8</b>

Source: Deutsche Bank, Bloomberg Finance LP



### DCF valuation as a cross-check

We use a discounted cash flow analysis to cross-check our valuation. The value per share obtained from the DCF model is HKD4.61. We forecast free cash flow until 2024 and summarize our analysis in Figure 3.

Figure 3: Discounted cash flow analysis

HKDm	2016C	2017E	2018E	2019E	2020E	2022E	2023E	2024E	Terminal value
Revenue		2,302	2,608	2,843	3,070	3,254	3,417	3,554	
Growth		27.6%	13.3%	9.0%	8.0%	6.0%	5.0%	4.0%	
EBIT		387	435	468	500	523	542	557	
Growth		23.0%	12.3%	7.7%	6.7%	4.7%	3.7%	2.7%	
EBIT margin		16.8%	16.7%	16.5%	16.3%	16.1%	15.9%	15.7%	
Tax		(76)	(85)	94	100	105	108	111	
Tax rate		20%	20%	20%	20%	20%	20%	20%	
EBIT*(1-Tax rate)		311	350	562	599	628	651	668	
<b>Adjustment:</b>									
Add D&A		74	86	94	101	107	112	117	
Less CAPEX		(169)	(178)	(194)	(210)	(222)	(234)	(243)	
CAPEX as a % of revenue		7%	7%	7%	7%	7%	7%	7%	
Less Change in WC		(14)	23	25	27	28	30	31	
Others		6							
FCF		209	280	486	517	540	559	573	573
									Terminal Value
									6,196
Terminal growth rate		0.0%							
WACC		9.2%							
PV of CF - discounting to July 1, 2017			191	234	373	363	318	301	282
NPV - Enterprise Value		5,116							3,053
Cash		437							
Debt		(895)							
Minority at book		15							
Minority value - 3x P/B		45							
Equity Value		4,613							
Fully Diluted Shares		1,000							
<b>Value/Share (RMB\$)</b>		<b>4.61</b>							

Source: Deutsche Bank, Bloomberg Finance LP

Our DCF valuation is based on a perpetual growth rate of 0% and a WACC of 9.2%. The WACC is derived from a risk-free rate of 3.9%, equity risk premium of 5.6%, beta of 1.37, cost of debt of 5%, tax rate of 20% and target debt ratio of 31%.

Figure 4: Sensitivity analysis

		Perpetual growth				
		-0.4%	-0.2%	0.0%	0.2%	0.4%
WACC	8.8%	4.73	4.80	4.88	4.96	5.05
	9.0%	4.60	4.67	4.74	4.82	4.90
	9.2%	4.47	4.54	<b>4.61</b>	4.69	4.76
	9.4%	4.36	4.42	4.49	4.56	4.63
	9.6%	4.24	4.30	4.37	4.43	4.50

Source: Deutsche Bank estimates



# Risks

## Slower-than-expected acquisitions

While MDG has a strong track record in M&A, we believe a key risk is to identify the appropriate targets given that the company would like to expand globally. Additionally, the negotiation of acquisition consideration and time for integrating businesses might delay the M&A process. Delays in acquisitions would lead to slower revenue and profit growth.

## Lower-than-expected ASP growth

While we believe the company can successfully pass on cost pressure via ASP adjustment of dental prosthetic products, other factors such as competition and FX movements might limit the room of ASP increases. As such, the company might face greater-than-expected GM erosion if ASP growth misses expectations.

## FX

We highlight the global exposure of MDG as it has key presence in Europe, China, the US, and Australia. According to the company, it has net negative exposure to EUR and AUD, and net positive exposure to RMB. MDG is also exposed to FX translation risk as its financial statements are prepared in HKD.

## Changes in reimbursement

The reimbursement policies of dental treatments differ in different countries and changes in policies might impact market growth positively or negatively. For example, in 2005, the government in Germany changed the reimbursement system from a comprehensive plan to a fixed subsidy system. This led to a 20% decrease in sales value of the dental prosthetics market. Additionally, in Australia, the launch of the CDDS (Chronic Disease Dental Scheme) program in 2007 resulted in decent expansion of a 3.9% CAGR from 2008 to 2012. However, the government terminated the program in 2012 and the market declined a CAGR of 5.5% from 2012 to 2014.

## Risk related to manufacturing facilities in Shenzhen

The facilities in Shenzhen accounted for 84.9%/86.0%/89.2%/91.0% of MDG's total production volume in 1H15/2014/2013/2012, respectively. The company currently leases the production facilities. However, the landlords of the facilities do not hold the land-use rights and building ownerships certificates for the properties due to historical circumstances. The company has indicated that this kind of situation is not uncommon in the area but there is risk of being required by the government to relocate the production facilities. MDG has formulated a contingency plan and a long-term development plan for this risk.



# Investment positives

## A leader in the global dental prosthetics industry

### Fragmented global dental prosthetics market

We estimate the dental prosthetics market that MDG has presence in (the US, EU, Greater China, and Australia) reached USD17.1bn in 2014, based on data from Roland Berger, with 54%/29%/15%/2% contribution from EU/US/Greater China/Australia, respectively. The CAGRs for the EU/US markets were 1% and 7% from 2010 to 2014. However, China delivered a 17% CAGR from 2010 to 2014, representing the highest-growth region. The market is highly fragmented, with the top four players accounting for only 3.5%/4.3%/16.0% of market share in 2014 in Western Europe/China/US. For Australia, the top three players accounted for 13.3% of market share in 2014.

Figure 5: Global dental prosthetics market size

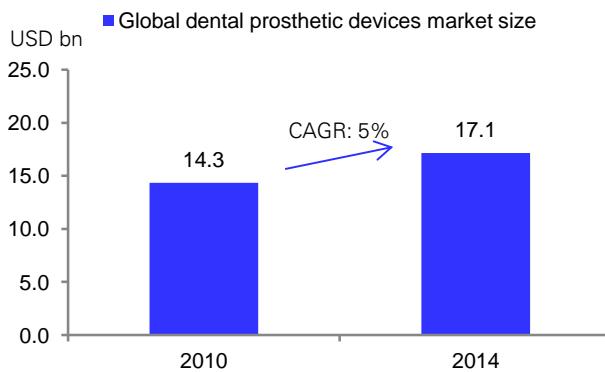


Figure 6: Global dental prosthetics market breakdown (2014)

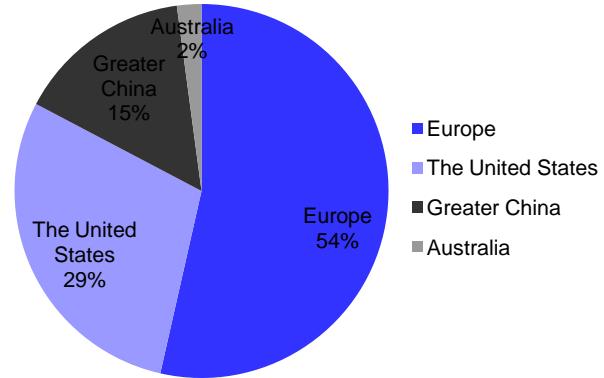


Figure 7: Market size of Europe, the US, and China

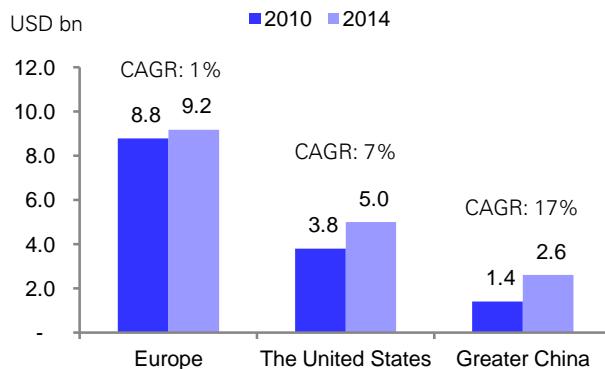
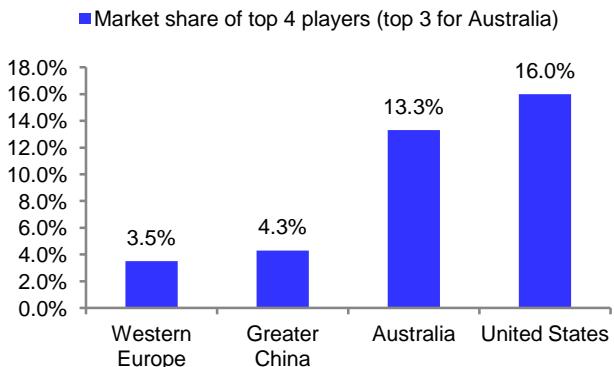


Figure 8: Market share of key players (2014)

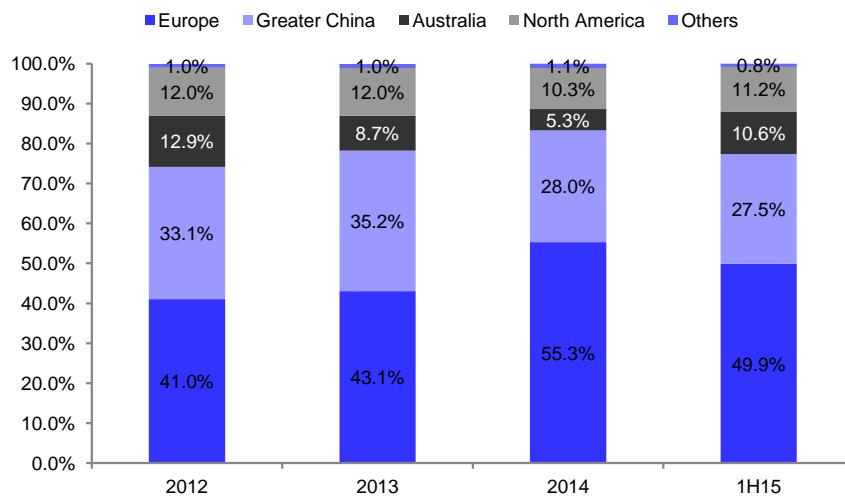




### A diversified revenue base

MDG mainly operates in North America, Europe, Australia, and Greater China (including Hong Kong and Macau). Europe is currently the largest revenue driver as it accounted for 55.3%/49.9% of revenue in 2014/1H15. We highlight the higher contribution with 55.3% in 2014 vs. 41.0% in 2012 was due to acquisitions of Permadental (a German distributor) in 2013 and Elysee (a distributor in Western Europe) in 2014.

Figure 9: Geographic breakdown of sales of MDG



Source: Deutsche Bank, Company data

### MDG has leading market share in most markets

We believe MDG is the leading player in the global market. As indicated by Roland Berger, the company ranked first in market share in Western Europe, Greater China, and Australia in 2014. For the US market, while we do not have detailed market share data, we believe it would be a strategic M&A focus. We summarize the data in the following exhibit.

Figure 10: Market share and rank of MDG in its markets

	Revenue of MDG in 2014	Market share of MDG	Rank	Market share of top player
Western Europe	EUR62m	0.92%	1	0.92%
Germany	EUR18m	0.4%	3	1.4%
France	EUR15m	1.2%	1	1.2%
Netherlands	EUR22m	6.3%	2	14.7%
Belgium	EUR7m	2.9%	1	2.9%
Greater China (Export and domestic)	RMB470m	2.5%	1	2.5%
Greater China (Domestic)	RMB173m	1.1%	1	1.1%
Hong Kong	HKD109m	54.2%	1	54.2%
Australia	AUD28m	7.1%	1	7.1%
The United States	NA	NA	NA	NA

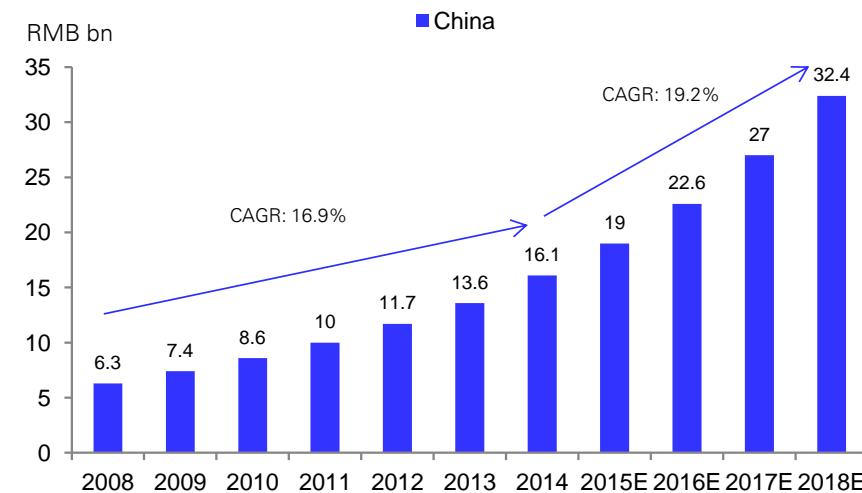
Source: Deutsche Bank, Roland Berger



### China market is expected to deliver the highest growth

The domestic market of Chinese custom-made dental prosthetics recorded a sales value of RMB16.1bn in 2014 vs. RMB6.3bn in 2008, representing a CAGR of 16.9%. According to Roland Berger, the market should increase at a CAGR of 19.2% from 2014 to 2018. This is likely to be the market with the highest growth as Western Europe, Australia, and the US are projected to post single-digit growth from 2014 to 2018.

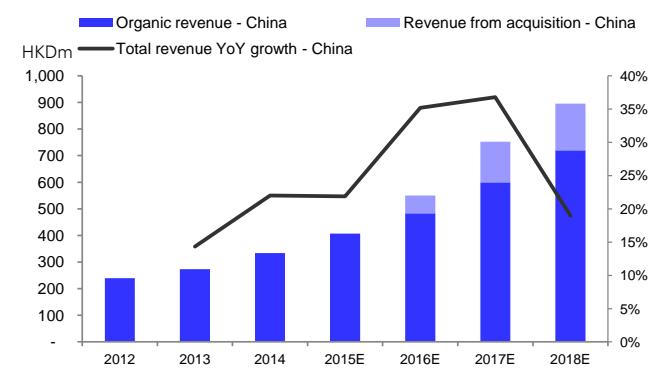
Figure 11: Dental prosthetics market size in China



Source: Deutsche Bank estimates, Roland Berger

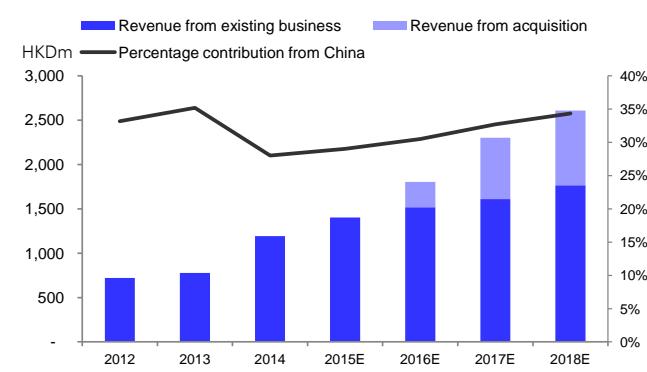
We believe the strong leadership position of MDG in China would allow the company to enjoy sustainable growth in the near/mid term. We forecast CAGRs of 21%/2% organic revenue for China/ex-China from 2015-18 and 30%/20% for China/ex-China in the same period, assuming several acquisitions take place in China, Europe, and the US. In both cases we expect China to outgrow the rest of the geographic mix and the revenue contribution from China shall continue to increase. In 2014, China accounted for 28% of total revenue. We believe the contribution from China would increase to 34% in 2018 with our acquisition assumptions.

Figure 12: Revenue from China



Source: Deutsche Bank estimates, Company data

Figure 13: Total revenue of MDG



Source: Deutsche Bank estimates, Company data

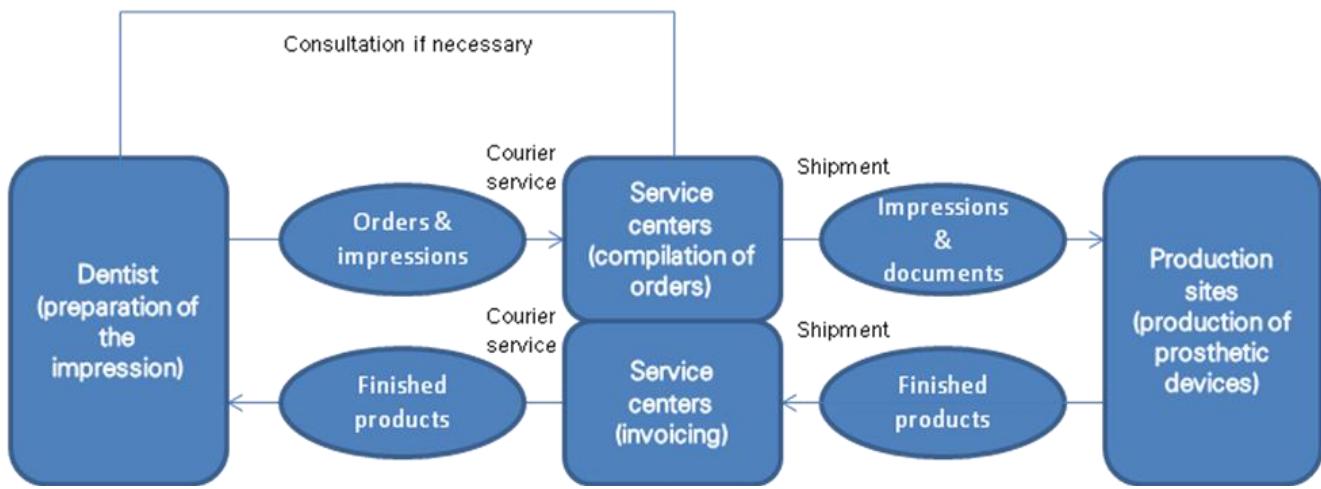


## Integrated business model with efficient manufacturing and a global sales and distribution network

### Transforming into an integrated model through acquisitions

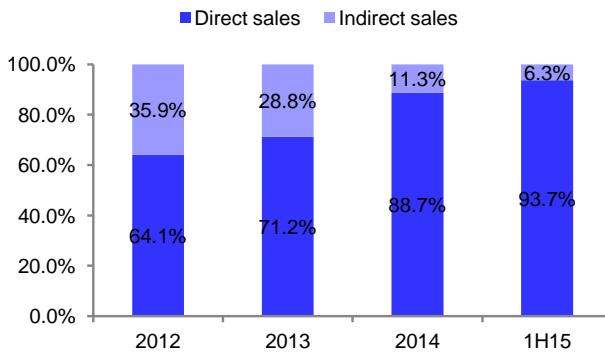
Since 2011, the company has been transforming its business into an integrated model through the acquisitions of distributors, including The SCDL Group in Australia in 2015, Elysee in Europe in 2014, Permadental in Germany in 2013, and Labocast in France in 2011. As such, the percentage of direct sales increased to 93.7% in 1H15 from 64.1% in 2012. Currently, the company uses distributors in limited markets such as California (US) and Drammen (Norway).

Figure 14: Value chain



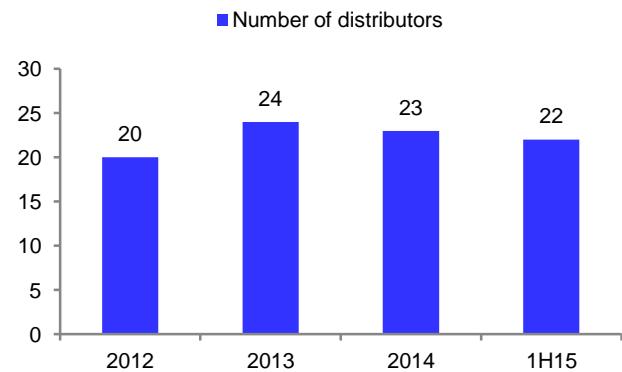
Source: Deutsche Bank, Company data

Figure 15: Percentage of direct sales and indirect sales



Source: Deutsche Bank, Company data

Figure 16: Number of distributors used by MDG



Source: Deutsche Bank, Company data

### Global distribution network with strong experience and recognition

We highlight the company owns all major distributors in its key markets after the aforementioned acquisitions. These distributors have a strong footprint and experience in distributing dental prosthetic devices, as we summarize in the following exhibit. With the global sales network, the company had a customer base of over 12,000 accounts worldwide for the six months ended June 30, 2015. Additionally, MDG was the preferred supplier for over 270 state-owned hospitals in China as of June 30, 2015.



The company's global sales and distribution network provides direct access to end customers, including dentists and dental clinics in the EU, US, Australia, and Hong Kong, as well as hospitals and dental clinics in China. It also allows a greater degree of control over how products are distributed so that the company could track changing customer preferences. As such, the company is able to execute its promotion strategy in a more targeted manner to satisfy diversified client needs.

Figure 17: Distributors of MDG in different regions

Region	Brand / distributor	Covering area	Brand history (years)
Europe	Elysee	Netherlands, Belgium, Denmark, Norway, Switzerland, Spain, Sweden, and Finland	14
	Labocast	France	19
	Permadental	Germany	15
China	YZJ	21 cities in China	29
Hong Kong	Modern Dental Lab	Hong Kong	29
Australia	Southern Cross	Melbourne, Sydney, Brisbane	15
US	Modern Dental USA	Boston, Chicago, Los Angeles, Seattle, Troy, Wilmington, Savannah, and Scottsdale	6

Source: Deutsche Bank, Company data

### Expecting ASP improvement

MDG sets benchmark prices for its products in the fourth quarter of each year and reviews then annually. Prices for fixed and removable prosthetic devices, the two largest products by sales, are usually based on prevailing market rates. Facing uncertainties in costs of precious alloy and wages, the company has the ability to pass the costs to customers by price adjustments with its strong brand recognition and direct access with dentists. We summarize the ASP in different markets of MDG in the following exhibit.

Figure 18: ASP (HK\$ per case) in core markets

Market	2012	2013	2014	1H14	1H15	2013 YoY	2014 YoY	1H15 YoY
Europe	933	1,036	1,833	1,676	1,698	11%	77%	1%
Greater China	577	620	660	664	668	7%	6%	1%
North America	1,151	1,221	1,085	1,097	1,111	6%	-11%	1%
Australia	619	706	731	748	1,417	14%	4%	89%
Others	422	408	501	389	363	-3%	23%	-7%
<b>Total</b>	<b>745</b>	<b>813</b>	<b>1,097</b>	<b>1,070</b>	<b>1,108</b>	<b>9%</b>	<b>35%</b>	<b>4%</b>

Source: Deutsche Bank, Company data

We believe the company has been able to achieve ASP improvement in the past two years, and we continue to expect slight ASP improvement in the near/mid term. Additionally, we highlight the following points on the above data. For Europe, the significant increase in ASP in 2014 was due to the acquisitions of Permadental in 2013 and Elysee in 2014, which allowed the company to sell products to customers directly vs. selling to distributors before the acquisitions. We believe the ASP increase in EUR would be greater given its depreciation. For Australia, the ASP increase of 89% in 1H15 was due to the acquisition of SCDL Group, which is a distributor, and this enabled MDG to conduct direct sales. For North America, the decrease in ASP in 2014 was attributed to product mix changes.



### Volume growth likely to remain healthy

We also highlight that the volume growth of MDG is likely to remain healthy, driven by improving ROI from sales and marketing as well as synergies from the acquisitions of several distributors and dental laboratories previously. We summarize the number of cases of prostheses sold in the key markets in Figure 19.

Figure 19: Sales volume (in thousands) in the core markets

Market	2012	2013	2014	1H14	1H15	2013 YoY	2014 YoY	1H15 YoY
Europe	317	323	360	186	200	2%	11%	7%
Greater China	392	440	494	227	279	12%	12%	23%
North America	75	77	113	49	69	2%	47%	40%
Australia	150	96	87	43	50	-36%	-9%	17%
Others	16	20	26	12	14	22%	31%	22%
<b>Total</b>	<b>951</b>	<b>956</b>	<b>1,080</b>	<b>516</b>	<b>612</b>	<b>1%</b>	<b>13%</b>	<b>18%</b>

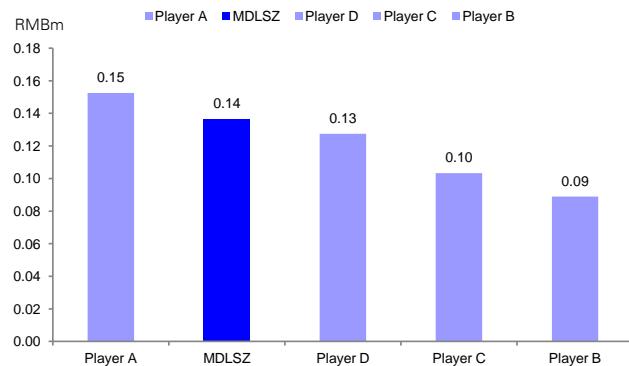
Source: Deutsche Bank, Company data

The strong growth in North America in 2014 was driven by the acquisition of Quantum Dental in 2013 and Sundance Dental in 2014, which led to a higher production capacity as they were both dental laboratories. Additionally, the strong growth in 1H15 for North America was attributed to contribution from Sundance. As for Australia, the decline in 2013 was caused by the termination of CDDS (a subsidy program for dental treatment) as well as redirect of orders from The SCDL Group (a key distributor) to another manufacturer, while the decrease in 2014 was again caused by the latter reason. We remind investors that MDG acquired SCDL in March 2015.

### MDG is among the most efficient dental prosthetic manufacturers in China

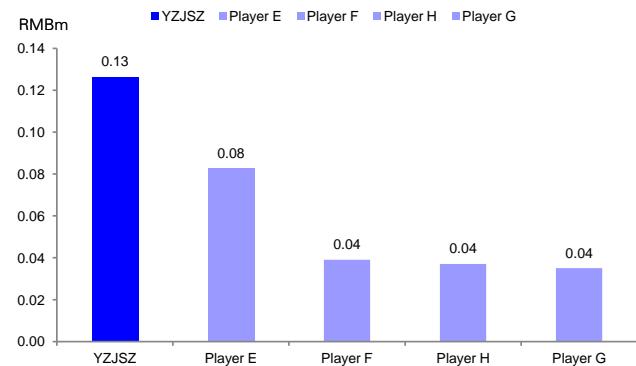
We believe MDG is among the most efficient dental prosthetic manufacturers in China. Being a labor-intensive industry, a meaningful indicator for efficiency would be the revenue per technician for dental prosthetic devices manufacturers. MDG ranked No.2 for exporters and No.1 for domestic producers, respectively, in 2014 through its subsidiaries of MDLSZ and YZJSZ. Additionally, we highlight MDLSZ had the largest market share with 1.6% in China if we combine both the domestic and export market in 2014, while YZJSZ was the largest player in the domestic market with a 1.1% share in 2014.

Figure 20: Revenue per staff for China exporters (2014)



Source: Deutsche Bank, Roland Berger

Figure 21: Revenue per staff for domestic suppliers (2014)



Source: Deutsche Bank, Roland Berger



## M&A adds another leg of growth; proven track record in consolidation

MDG has established a strong track record in M&A, including acquiring dental laboratories and distributors. M&A is likely to continue to be an important growth driver as we believe strategic acquisitions will be carried out in China and overseas. We summarize the major acquisitions in Figure 22.

Figure 22: Summary of recent acquisitions of MDG

Target	Business	Region	Acquisition date	Consideration and payment method	Revenue contribution
Permadental Group	Distributor	Germany	11/1/2013	Cash: EUR30.2m	HK\$29.0m Nov 1, 2013 to Dec 31, 2013, HK\$179.2m (2014), HK\$83.6m (1H15)
Elysee Group	Distributor	Netherlands, Belgium, Denmark, and Spain	4/11/2014	Cash: EUR29.9m for 95% stake	HK\$248m (Apr 11, 2014 to Dec 31, 2014), HK\$158.3m (1H15)
Quantum Dental	Dental laboratory	Canada	7/1/2013	Cash: CA\$2.6m	HK\$11.6m (Jul 1, 2013 to Dec 31, 2013), HK\$24.5m (2014), HK\$10.6m (1H15)
Prestige Dental Lab	Dental laboratory	Canada	12/1/2014	Cash: CA\$0.3m	Nil
Sundance Dental	Dental laboratory	The United States	5/20/2014	Cash: US\$1.9m	HK\$16.1m (May 20, 2014 to Dec 31, 2014), HK\$17.2m (1H15)
Gold & Ceramics	Dental laboratory	Australia	7/1/2013	Cash: AU\$1.1m	HK\$6.4m (Jul 1, 2013 to Dec 31, 2013), HK\$8.9m (2014), HK\$3.8m (1H15)
SCDL Group	Distributor	Australia	3/20/2015	Cash: AU\$43.4m	HK\$66.1m (March 20, 2015 to June 30, 2015)

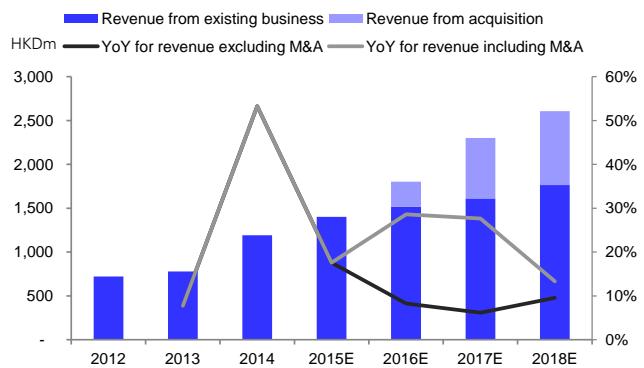
Source: Deutsche Bank, Company data

We expect more acquisitions in China, Europe, and the US. We believe the strategy of the company is to increase the number of points of sales in China, acquire more service centers in North America, and acquire independent laboratories and establish more proprietary laboratories in Europe. Assuming several acquisitions in 2016 and 2017, we estimate CAGRs for revenue/core net profit from 2015 to 2018 to be 23%/20% vs. 8%/9% for its existing business mix.

We expect our assumed acquisitions in 2016 and 2017 to lead to GM and core EBIT margin erosion as the acquired businesses might have lower GM and OPM than the existing business, because 1) for China, the existing business focuses on high value-added products while the acquired business might not and 2) for the US, additional sales and marketing costs might be required to expand into the market. We show detailed financials in a later section of this report.

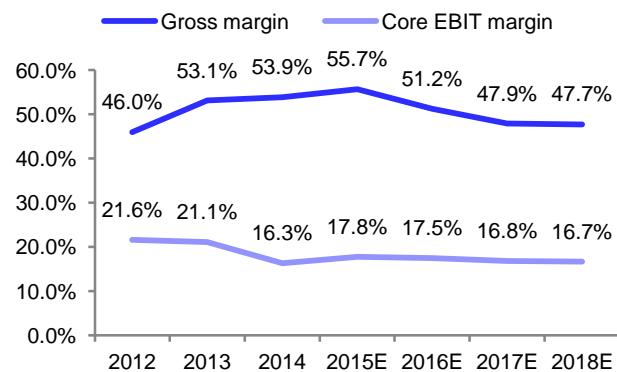


Figure 23: Revenue growth for MDG



Source: Deutsche Bank estimates, Company data

Figure 24: GM and OPM



Source: Deutsche Bank estimates, Company data



# Industry overview

## Major markets overview

### A fragmented global market

We estimate the dental prosthetics market that MDG has presence in (US, EU, Greater China, and Australia) reached USD17.1bn in 2014 based on data from Roland Berger, with 54%/29%/15%/2% contribution from EU/US/Greater China/Australia, respectively. The CAGRs for EU/US markets were 1% and 7% from 2010 to 2014. However, China delivered a 17% CAGR from 2010 to 2014, representing the highest-growth region. The market is highly fragmented, with the top four players accounting for only 3.5%/4.3%/16.0% of market share in 2014 in Western Europe/China/US. For Australia, the top three players accounted for 13.3% of market share in 2014.

Figure 25: Global dental prosthetics market size

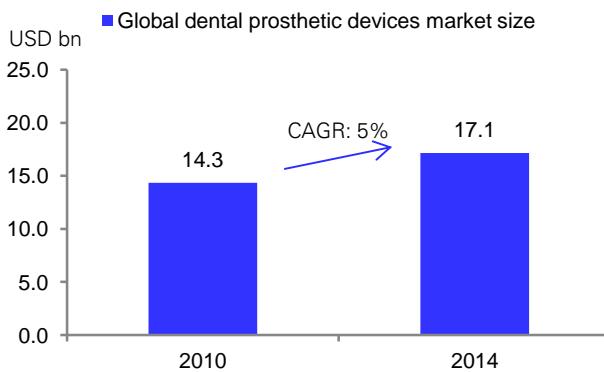


Figure 26: Global dental prosthetics market breakdown (2014)

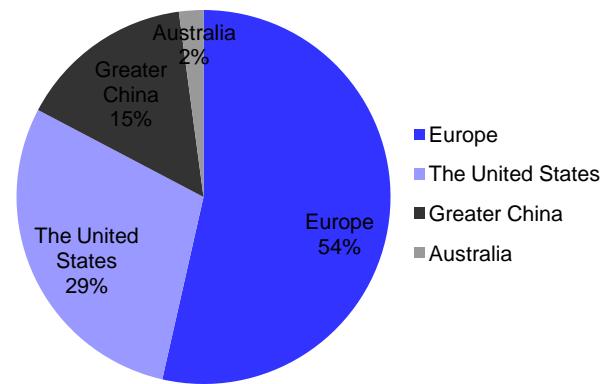


Figure 27: Market size of Europe, the US, and China

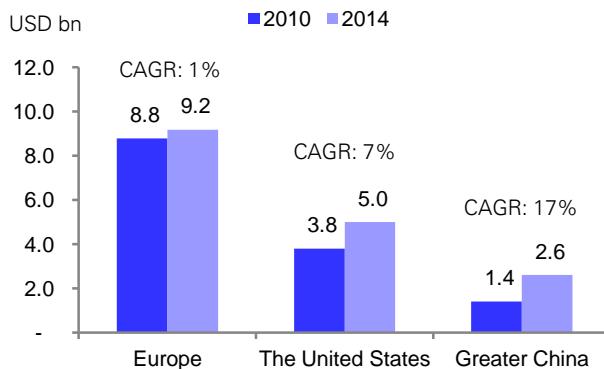
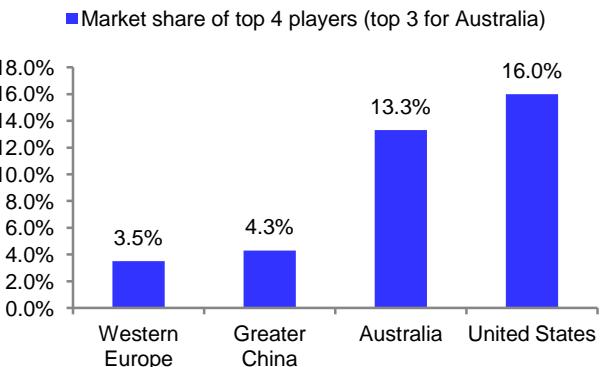


Figure 28: Market share of key players (2014)





### Aging trend in key markets

The demand for dental prosthetics products will likely be supported by the aging population. According to Roland Berger, the population of the key markets in which MDG operates would increase at a single-digit percentage from 2013 to 2018. We believe the population over 65 years old will grow faster than the general population, indicated by the increasing percentage of the aging population. China, a rapidly growing market for dental prosthetics, is expected to have 1,400m people by 2018, while the population over 65 could represent 12% of the total population.

Figure 29: Total population by country (m)

	2008	2013	2018E	% increase (2008-2013)	% increase (2013-2018)
Germany	82.1m	82.3m	83.1m	0.3%	0.9%
Netherlands	16.5m	16.8m	17.1m	2.2%	1.6%
France	64.2m	65.8m	67.3m	2.4%	2.3%
Belgium	10.7m	11.2m	11.5m	4.5%	2.4%
China	1,328.0m	1,360.7m	1,400.0m	2.5%	2.9%
Hong Kong	7.0m	7.2m	7.5m	3.9%	4.3%
US	304.1m	316.4m	328.3m	4.0%	3.8%
Australia	21.2m	23.1m	25.2m	8.8%	9.0%

Source: Deutsche Bank, Roland Berger

Figure 30: Percentage of population aged over 65 by country

	2008	2013	2018	Variance (2008-2013)	Variance (2013-2018)
Germany	20%	21%	22%	1 ppt	1 ppt
Netherlands	15%	17%	19%	2 ppt	2 ppt
France	16%	18%	20%	2 ppt	2 ppt
Belgium	17%	18%	19%	1 ppt	1 ppt
China	8%	10%	12%	2 ppt	2 ppt
Hong Kong	13%	14%	17%	1 ppt	3 ppt
US	13%	14%	16%	1 ppt	2 ppt
Australia	12%	13%	15%	1 ppt	2 ppt

Source: Deutsche Bank, Roland Berger



#### Per capita dental expenditure likely to show stable growth

Growing awareness on oral health and increasing per capita income are likely to support steady growth in per capita dental expenditure in most markets. We summarize the per capita dental expenditure data in Figure 31. We believe healthcare coverage is a major reason of differences in per capita expenditure among countries. For example, dental prosthetic treatments are partially covered by the public healthcare schemes in Germany, France, and Belgium, while treatments can only be covered by private insurance in the Netherlands. Additionally, underprivileged patients can receive additional reimbursement for dental prosthetic treatments in France and Belgium. For Australia, we highlight that the government terminated the subsidy program for dental treatment in 2012, which led to a drop in market size in 2013 and 2014. Yet the Australian market is likely to pick up, according to Roland Berger.

Figure 31: Per capita dental expenditure by country (HK\$)

HK\$	2008	2013	2018E	% increase (2008-2013)	% increase (2013-2018)
Germany	2,111.3	2,452.3	2,687.0	16.2%	9.6%
Netherlands	1,684.3	1,947.2	2,000.1	15.6%	2.7%
France	1,486.8	1,645.7	1,708.7	10.7%	3.8%
Belgium	1,117.9	1,371.7	1,403.0	22.7%	2.3%
China	118.0	178.6	250.9	51.3%	40.5%
Hong Kong	402.5	546.7	728.3	35.8%	33.2%
US	2,776.8	2,769.9	2,851.3	-0.2%	2.9%
Australia	2,317.1	2,823.4	3,135.3	21.8%	11.0%

Source: Deutsche Bank, Roland Berger



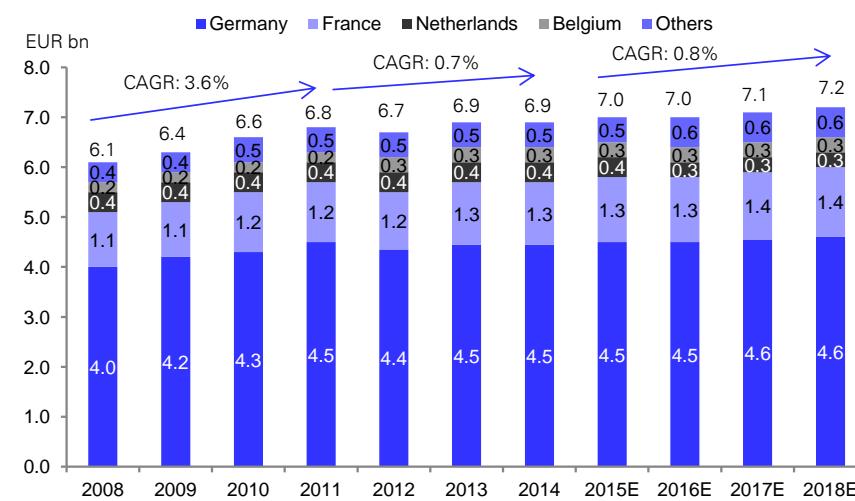
## Market overview for Europe

### Steady growth with Germany as the biggest market

The European dental prosthetics market was valued at EUR6.9bn in 2014, according to Roland Berger. The market recorded a CAGR of 3.6% from 2008 to 2011. Growth moderated afterwards with a 0.7% CAGR from 2011 to 2014. Roland Berger expects that the market will stabilize and deliver growth from 2014 to 2018 at a CAGR of 0.8%.

Europe is a relatively scattered market. According to Roland Berger, MDG was the largest player with a 0.92% market share with EUR62m revenue in 2014. MDG conducts its businesses through Permadental & Semperdent in Germany, Elysee in Netherlands, Belgium, Denmark, Norway, Switzerland, Spain, Sweden, and Finland, and Labocast in France.

Figure 32: Dental prosthetics market size in Western Europe



Source: Deutsche Bank, Roland Berger

### Germany: biggest market in Europe with moderate growth

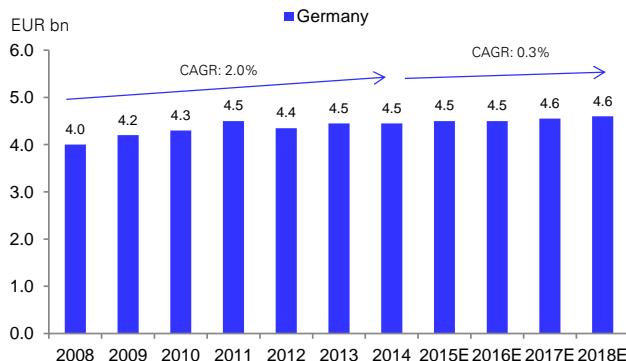
The dental prosthetics market in Germany reached a value of EUR4.5bn in 2014. The market increased at a CAGR of 2.0% from 2008 to 2013 and is expected to expand at a CAGR of 0.3% from 2014 to 2018, according to Roland Berger. The reimbursement rate for dental expenses in the public healthcare scheme is the highest in Germany among Western Europe. Additionally, people are willing to pay out-of-pocket expenses for oral health.

In 2005, the dental prosthetics market decreased by approximately 20%, as the public healthcare reimbursement system changed from a comprehensive system to a fixed subsidy system. This led to growth of importers in the German market as they offer lower prices.

There are six key players in the market – most of them import dental prosthetic devices from countries including China, the Philippines and Turkey. MDG is the third-largest player in 2014 with a 0.4% market share and EUR18m revenue through Permadental and Semperdent.

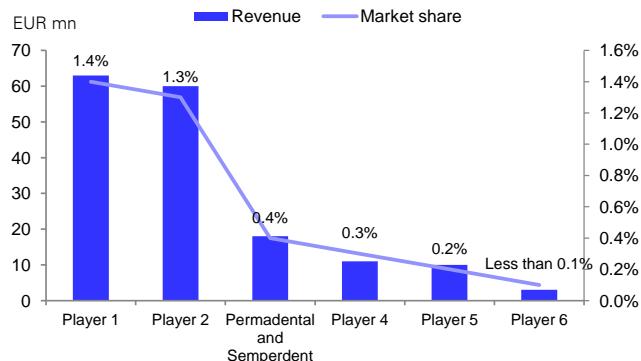


Figure 33: Dental prosthetics market size in Germany



Source: Deutsche Bank, Roland Berger

Figure 34: Market share in Germany in 2014



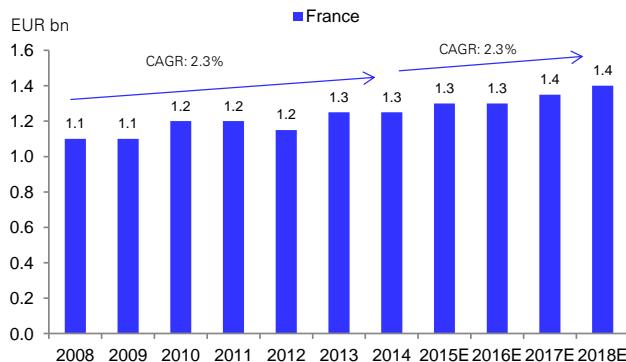
Source: Deutsche Bank, Roland Berger

### France: ongoing steady growth expected

The dental prosthetics market in France was valued at EUR1.3bn in 2014, representing a CAGR of 2.3% from 2008. The market is expected to expand at a CAGR of 2.3% from 2014 to 2018 due to low market penetration of prosthetics and upcoming regulatory reforms, according to Roland Berger.

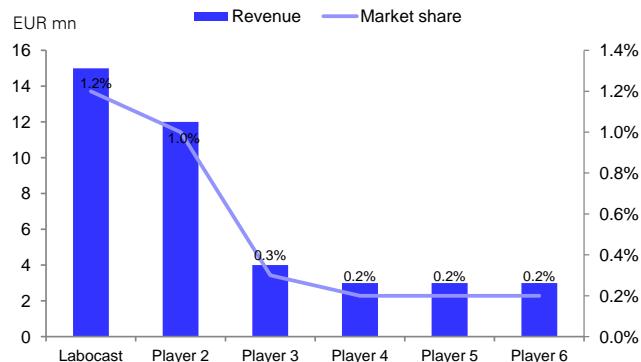
We highlight that approximately 70% of dental treatment expenses are either out-of-pocket or covered by private insurance in France. And for dental treatments covered by the public healthcare scheme, only two-thirds of the expenses can be reimbursed based on an indexed price catalog. For dental prosthetic treatments, dentists are able to set prices much higher than the indexed prices. This led to high out-of-pocket expenses and a low average reimbursement rate of 15% for dental prosthetic treatments. Underprivileged patients in France are included in CMU-Complémentaire, which provides reimbursement for dental prostheses up to EUR375. There are six key players in France and the top two players are importers. MDG was the largest player with a 1.2% market share with EUR15m sales in 2014 through Labocast.

Figure 35: Dental prosthetics market size in France



Source: Deutsche Bank, Roland Berger

Figure 36: Market share in France in 2014



Source: Deutsche Bank, Roland Berger



#### Netherlands: market value likely to decrease due to lower ASPs

The dental prosthetics market size was EUR0.4bn in 2014. The market witnessed a CAGR of 3.9% from 2008 to 2010, but declined at a CAGR of 3.6% from 2010 to 2014. Roland Berger expects the market to decline further from 2014 to 2016 due to lower ASPs from price ceilings set by the government and the market is likely to remain flat from 2016 to 2018.

The public healthcare scheme covers only specialist dental care including surgery and dentures for patients over the age of 18. Approximately 70% of dental expenses are out-of-pocket or covered by private insurance. However, patients under private insurance might still have to pay a large amount of out-of-pocket expenses due to limited coverage. The price erosion for dental prosthetic products is likely to lead to negative growth for the market, while importers which offer products at lower prices might benefit.

There are six key players in the market with the top three players having a total share of 24.2% in 2014. MDG had a 6.3% market share with EUR22m revenues in 2014 through Elysee, and is the second-largest player. The largest player had a 14.7% share and the third-largest player had 3.2% in 2014.

#### Belgium: likely to enjoy stable growth

The market size of dental prosthetics in Belgium was EUR0.3bn in 2014, which had a CAGR of 4.6% from 2008 to 2014. According to Roland Berger, the market will likely see a CAGR of 0.7% from 2014 to 2018.

Patients bear almost 90% of expenses for dental prosthetics in Belgium and 50% for total dental expenses. For public insurance, a special feature is that there is a maximum limit based on financial situation that a patient would pay for medical treatments. Additional amount above the limit will be borne by the government. For private insurance, it only covers a small portion of dental prosthetic expenses.

With six key players in the market, MDG is the largest player in 2014 with a 2.9% market share and EUR7m revenue. The other five players had a 1.5%/1.5%/1.5%/0.9%/0.6% market share, respectively.

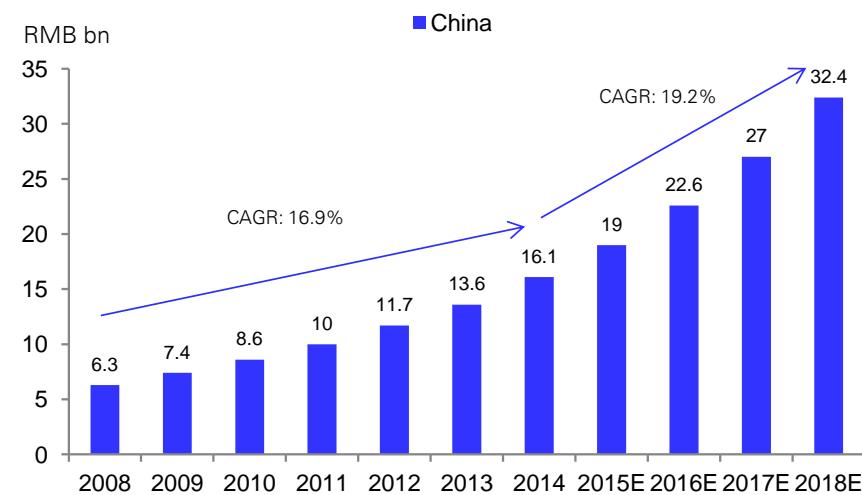


## Market overview for China

### Strong growth of 19.2% expected from 2014 to 2018

The domestic market of Chinese custom-made dental prosthetics had a value of RMB16.1bn in 2014 vs. RMB6.3bn in 2008, representing a CAGR of 16.9%. According to Roland Berger, the market will increase at a CAGR of 19.2% from 2014 to 2018. The market growth is driven by the aging population, growing per capita income, as well as favorable policies. First, on aging population, the percentage of population over the age of 65 should increase to 12.0% in 2018 from 9.7% in 2013. Second, per capita disposable income is expected to increase at a CAGR of 8.9% from 2014 to 2018, compared with 13.0% from 2008 to 2013. Third, on policy, the government started to include dental care in public medical insurance coverage in 2012.

Figure 37: Dental prosthetics market size in China



Source: Deutsche Bank, Roland Berger

In 2013, there were approximately 2,000 dental laboratories registered with the China Food and Drug Administration (CFDA). We highlight a number of dental prosthetics providers in China are solely export-oriented as they provide outsourcing services to foreign dental prosthetics market players. According to Roland Berger, there are ten large-scale dental laboratories in China, which have an average of about 1,300 employees.

MDG is the largest player in 2014 with a 2.5% share through its subsidiary MDLSZ, YZJSZ, and YZJBJ. We highlight the first-, second- and fourth-largest players are all export-oriented. Excluding the exporters, MDG is also the largest player with a 1.1% market share through YZJSZ and YZJBJ in the domestic market. We summarize the details of the top players in Figure 38.



**Figure 38: Operational and financial data for the top ten players in China  
(export and domestic market combined)**

Company	Headquarter	Sales in 2014 (RMB m)	Total market share	Export % based on volume	Total staff
MDLSZ	Shenzhen	297	1.6%	100%	2,175
Player 2	Shenzhen	183	1.0%	100%	1,200
YZJSZ and YZJBJ	Shenzhen	173	0.9%	0%	1,369
Player 4	Zhuhai	160	0.8%	100%	1,800
Player 5	Shenzhen	155	0.8%	15%	1,500
Player 6	Shenzhen	153	0.8%	65%	1,200
Player 7	Shenzhen	151	0.8%	75%	800+
Player 8	Shenzhen	115	0.6%	60%	1,000
Player 9	Dongguan	104	0.5%	50%	1,100
Player 10	Shanghai	62	0.3%	60%	500

Source: Deutsche Bank, Roland Berger

**Figure 39: Operational and financial data for the top seven players in China  
(domestic market)**

Company	Headquarter	Sales in 2014 (RMBm)	Market share	Total Staff
YZJSZ and YZJBJ	Shenzhen	173	1.1%	1,369
Player 11	Shenzhen	124	0.8%	1,500
Player 12	Dongguan	43	0.3%	1,100
Player 13	Shenzhen	42	0.3%	1,200
Player 14	Shenzhen	37	0.2%	1,000
Player 15	Shenzhen	29	0.2%	800+
Player 16	Shanghai	20	0.1%	500

Source: Deutsche Bank, Roland Berger

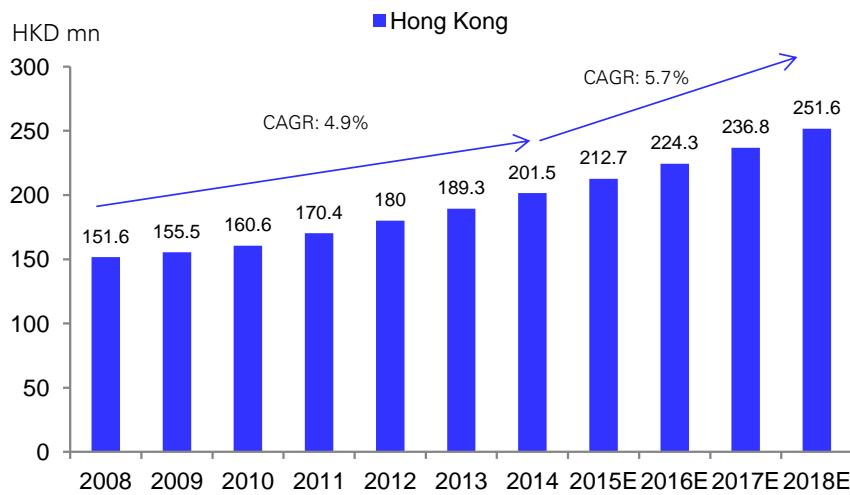


## Market overview for Hong Kong

### Growth acceleration expected from 2014 to 2018

According to Roland Berger, the dental prosthetics market in Hong Kong had a size of HKD201.5m in 2014, compared with HKD151.6m in 2008. The market recorded a CAGR of 4.9% from 2008 to 2014, and is expected to increase at a CAGR of 5.7% from 2014 to 2018. Growth drivers include an aging population and better healthcare scheme. The percentage of population aged 65 and above is expected to increase to 17% by 2018 from 14% in 2013, according to Roland Berger. Additionally, the government launched a healthcare voucher scheme in 2008 and increased the number of vouchers to the elderly in 2012. Together with other financial support on dental care, approximately 65% of the population in Hong Kong receives dental care benefits from employers and/or individual medical insurance.

Figure 40: Dental prosthetics market size in Hong Kong



Source: Deutsche Bank estimates, Roland Berger

The market is relatively concentrated in Hong Kong with the top seven players accounting for 90% of the market share. MDG is the dominant player with a 54.2% market share and HKD109m revenue in 2014. The key advantage of MDG is its sales and distribution network which covers over 70% of the dentists in Hong Kong.

Figure 41: Operational and financial data for the top players in Hong Kong

Company	Manufacturing location	Revenue (HKD m)	Market share	Local employees
Modern Dental Laboratory	Shenzhen / HK	109	54.2%	~15
Player 2	Shenzhen	30	14.7%	2-3
Player 3	Shenzhen	12	5.8%	4-5
Player 4	Shenzhen	11	5.4%	2-3
Player 5	Shenzhen	5	2.7%	2-3
Player 6	Shenzhen	5	2.5%	2-3
Player 7	Shenzhen	3	1.6%	4-5

Source: Deutsche Bank, Roland Berger



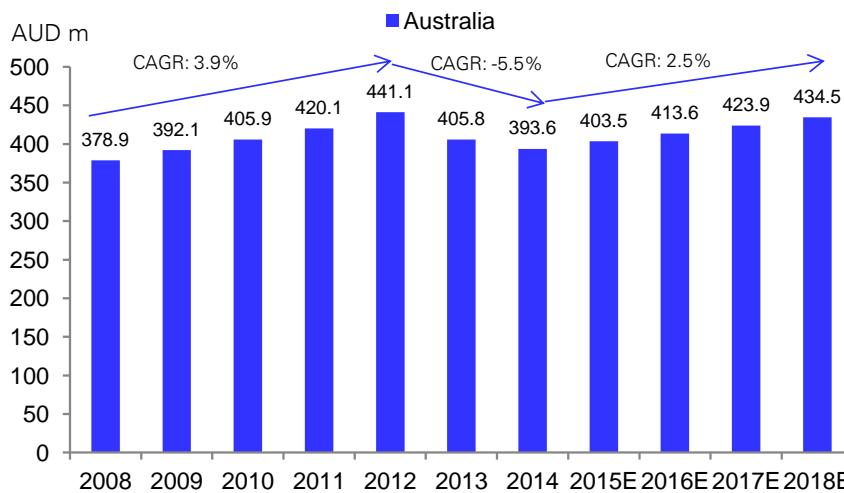
## Market overview for Australia

### Growth picking up slowly

The market size of dental prosthetics in Australia was AUD393.6m in 2014, according to Roland Berger. The market grew steadily, at a CAGR of 3.9% from 2008 to 2012 but declined by 8% in 2013 as the government terminated Chronic Disease Dental Scheme (CDDS), the subsidy scheme for dental treatment. Roland Berger forecasts the market to increase at a CAGR of 2.5% from 2014 to 2018.

With the termination of CDDS in 2012, some new programs were launched by the government. However, they generally do not cover customized-dental products related treatments, which affected the dental prosthetics market in 2013 and 2014. For private insurance, while 54% of the population in Australia has dental insurance and approximately 75% of the insurance schemes cover dental prosthetics, the coverage ratio is less than 10% of the total costs. Patients therefore pay the majority of the costs as out-of-pocket expenses. As such, the market growth is likely to be driven by per capita disposable income, which is forecast by the United Nations to have a CAGR of 2.1% from 2013 to 2018.

Figure 42: Dental prosthetics market size in Australia



Source: Deutsche Bank, Roland Berger

There are three major players in the market in Australia. MDG owned the largest market share of 7.1% with AUD28m revenue in 2014 through Southern Cross Dental, Gold & Ceramics, and Modern Dental Australia.

Figure 43: Operational and financial data for the top players in Australia

Company	Revenue (AUD m)	Market share	Import %	Number of employees	Number of laboratories
Southern Cross Dental	28	7.1%	85%	71	3
Player 2	15	3.7%	60%	25	1
Player 3	10	2.5%	0%	50	1

Source: Deutsche Bank, Roland Berger

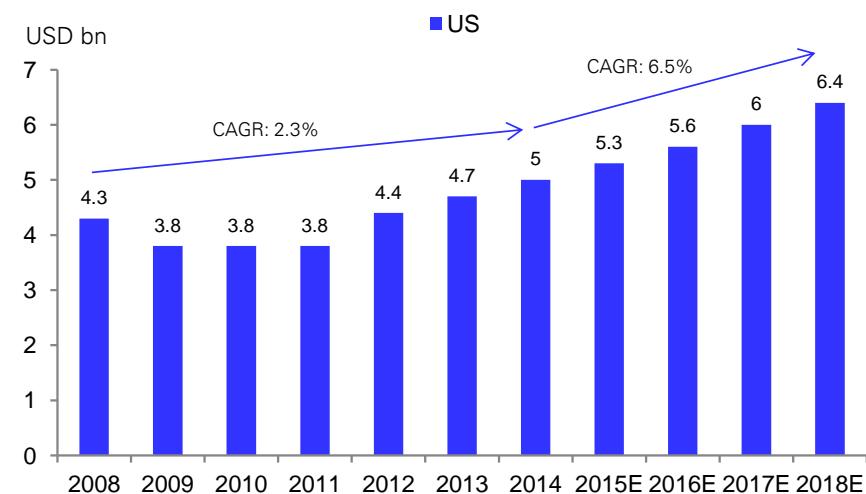


## Market overview for the US

### Growth supported by aging population, insurance coverage and technology

The market size of dental prosthetics in the US was USD5.0bn in 2014, according to Roland Berger. The market exhibited a CAGR of 2.3% from 2008 to 2014 and is expected to register a CAGR of 6.5% from 2014 to 2018. Key drivers include aging population, insurance coverage, and technology improvement. Roland Berger expects the population aged 65 and above in the US to register a CAGR of 3.1% from 2013 to 2018 vs. 2.9% from 2008 to 2013. This is likely to drive the dental prosthetics market as people aged above 65 spend approximately 1.2x of other age groups on dental care. As well, according to Roland Berger, an addition of 17.7m adults and 8.7m children will be covered under the Affordable Care Act by 2018 for dental care. In 2014, the population size of the US was 319m, and 13% of the population in the US was covered by Medicaid and 50% were covered by private insurance. On technology, with CAD/CAM becoming more common in the US, dental laboratories in the US will be able to lower ASPs with similar products' quality.

Figure 44: Dental prosthetics market size in the US



Source: Deutsche Bank, Roland Berger

In 2014, there were approximately 6,300 dental laboratories in the US. According to Roland Berger, the top four players owned a market share of 16% in 2014. We summarize the details of the players in the US in Figure 45.

Figure 45: Details of different players in the US market

Size	Local employees	Labs	Average revenue (USD thousands)
Large	>25	276	~6,400
Medium	10-25	600	~1,700
Small	1-9	5,398	~350

Source: Deutsche Bank, Roland Berger



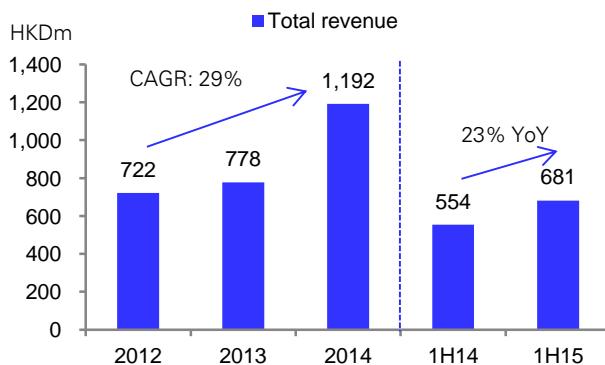
# Business overview

## Core business segments

MDG is mainly involved in the manufacturing and selling of prosthetic devices, including fixed prosthetic devices, removable prosthetic devices, and other devices (sports guards, orthodontic devices, and anti-snoring devices). Total revenue for the company was HKD1.2bn in 2014, representing a CAGR of 29% from 2012 to 2014. The growth acceleration in 2014 was mainly driven by acquisitions. Core net income reached HKD122m in 2014, showing a CAGR of 11% from 2012 to 2014.

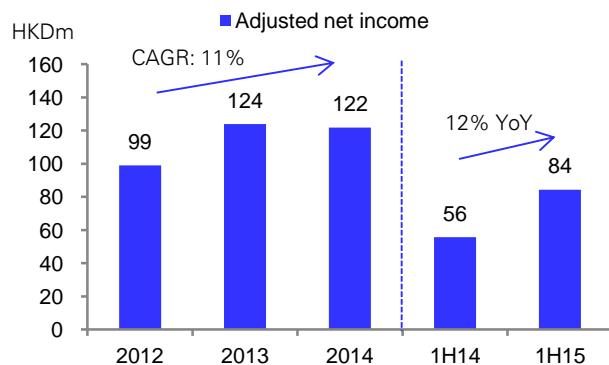
Fixed prosthetic devices are the largest segment of the company, accounting for 69.1% of revenue and 70.7% of gross profit in 2014. Removable prosthetic devices are the second-largest segment, accounting for 22.2% of total revenue and 21.8% of gross profit.

Figure 46: Total revenue of MDG



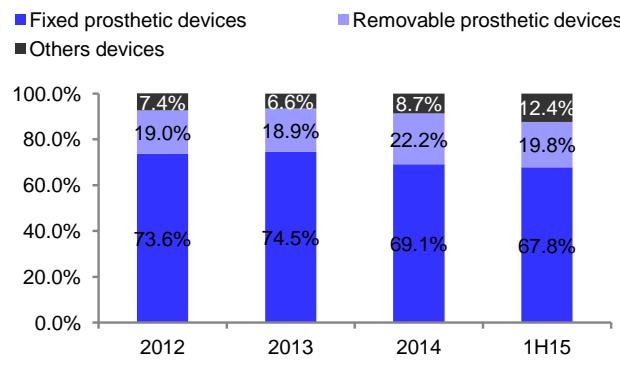
Source: Deutsche Bank, Company data

Figure 47: Core net profit



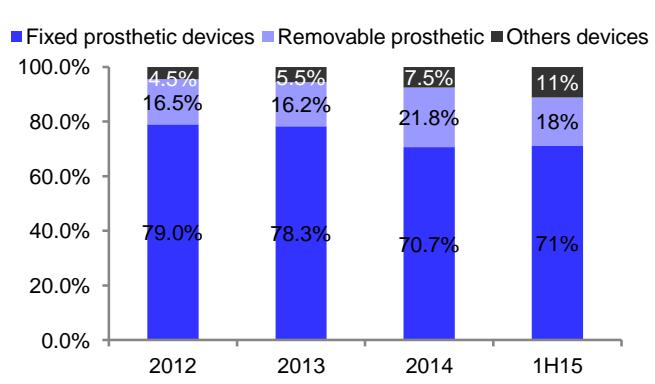
Source: Deutsche Bank, Company data

Figure 48: Revenue breakdown



Source: Deutsche Bank, Company data

Figure 49: Gross profit breakdown



Source: Deutsche Bank, Company data



### Retail price ranges

We summarize the retail price ranges of the three main product categories of MDG from 2012 to 1H15 across different regions in Figure 50. The following data take into account of the products from Permadental (acquired in 2013) and Elysee (acquired in 2014) for Europe, and The SCDL Group (acquired in 2015).

Figure 50: Retail price ranges for products MDG from 2012 to 1H15

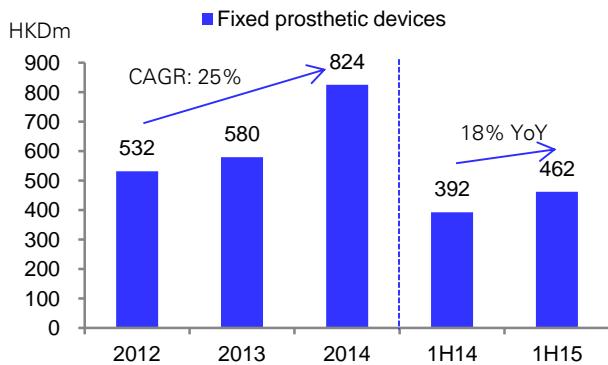
HK\$		Europe	Greater China	US	Australia
Fixed prosthetic devices	Highest price	4,602.8	5,628.6	1,108.3	3,461.0
	Lowest price	435.1	137.6	379.8	767.9
Removable prosthetic devices	Highest price	3,307.5	13,279.0	1,054.0	1,913.0
	Lowest price	502.2	106.3	298.4	776.6
Other devices	Highest price	1040.0	1973.3	2611.8	23,423.2
	Lowest price	224.2	143.8	728.5	517.7

Source: Deutsche Bank, Company data

### Fixed prosthetic devices

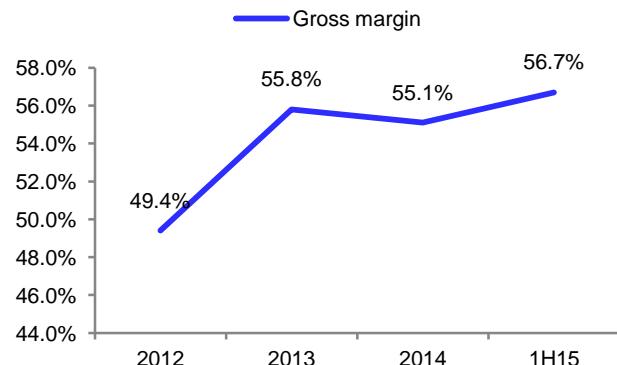
Accounting for 69.1% of revenue in 2014, fixed prosthetic devices is the largest business segment of MDG. The segment generated revenue of HKD824m in 2014, representing a CAGR of 25% from 2012 to 2014. Additionally, this segment has the highest gross margin among all segments, with 56.7%, in 1H15, 55.1% in 2014, 55.8% in 2013 and 49.4% in 2012. The margin expansion from 2012 to 2013 was mainly due to higher ASPs resulting from the acquisition of distributors which allowed MDG to directly deal with end users.

Figure 51: Revenue of fixed prosthetic devices



Source: Deutsche Bank, Company data

Figure 52: Gross margin of fixed prosthetic devices



Source: Deutsche Bank, Company data



Fixed prosthetic devices are permanently affixed to the users' mouths. We summarize the key products in this segment in the following exhibit.

Figure 53: Key products of fixed prosthetic devices

Products	Photo	Description
Metal-ceramic crowns and bridges		They are the most commonly used devices since the 1970s. Generally there is a metal framework for strength and covered in porcelain for aesthetics.
Metal crowns and bridges		They are one of the oldest devices and are made of dental alloy (precious, semi-precious or non-precious alloy).
Metal-free crowns and bridges		They usually have a zirconia framework covered in porcelain. Alternatively, the entire product is made of ceramic, zirconia or lithiumdisilicate glass ceramic.
Custom implant abutment		They are installed onto dental implants for the support of implant prosthetics. They are generally made of titanium and/or ceramics.

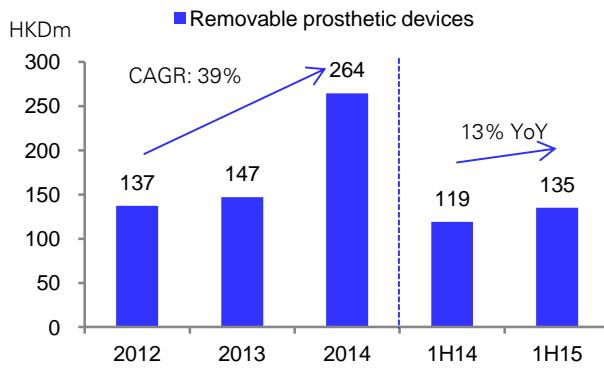
Source: Deutsche Bank, Company data



### Removable prosthetic devices

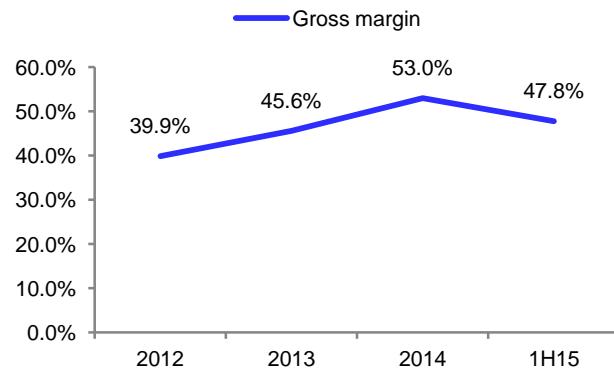
Removable prosthetic devices accounted for 22.2% of the revenue of the company in 2014. Revenue from this segment was HKD264m in 2014, which expanded at a CAGR of 39% from HKD137m in 2012. Gross margin of this segment increased from 39.9% in 2012 to 45.6% in 2013, 53.0% in 2014 and 47.8% in 1H15, mainly due to the higher ASPs from acquisitions of distributors.

Figure 54: Revenue of removable prosthetic devices



Source: Deutsche Bank, Company data

Figure 55: Gross margin of removable prosthetic devices



Source: Deutsche Bank, Company data

Different from fixed prosthetic devices, these devices are not affixed to users' mouth and can be removed.

Figure 56: Key product of removable prosthetic devices

Product	Photo	Description
Removable denture		Removable denture is made of dental resins and artificial teeth. It is often reinforced with a metal framework.

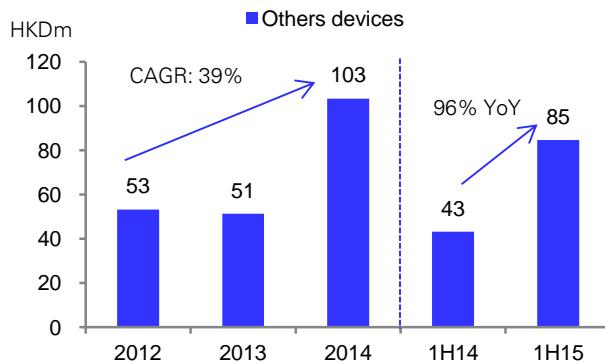
Source: Deutsche Bank, Company data

### Other devices

The company also produces orthodontic devices, sports guards, anti-snoring devices, dental equipment, and raw materials, which accounted for 8.7% of revenue in 2014. The revenue from other devices was HKD103m in 2014 and had a CAGR of 39% from 2012 to 2014. Gross margin improved from 28.1% in 2012 to 48.7% in 1H1, which we believe is due to product mix changes.

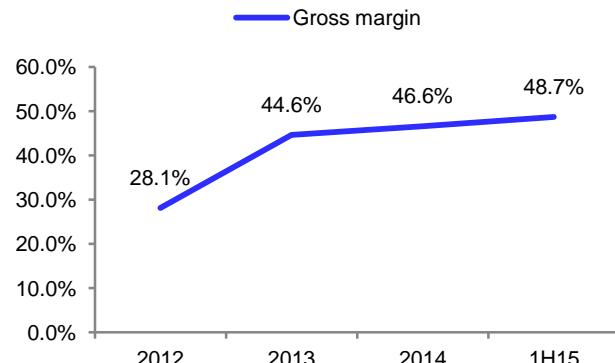


Figure 57: Revenue of other devices



Source: Deutsche Bank, Company data

Figure 58: Gross margin of other devices



Source: Deutsche Bank, Company data

We summarize the details of the devices in Figure 59.

Figure 59: Key products of other devices

Products	Photo	Description
Orthodontic devices	A photograph showing two dental models of teeth with orthodontic wires and brackets attached.	They are used to apply a force to align specific teeth, to correct certain deformities or to hold teeth in position after realignment.
Sports guards	A photograph of a colorful, multi-colored sports mouthguard.	They provide protection to athletes and sportspersons. It is made from an impact resistant and shock absorbing material.
Anti-snoring devices		They are used in the treatment of snoring obstructive sleep-apnea.

Source: Deutsche Bank, Company data



## Geographic footprint

### Well recognized brands with a global footprint

MDG operates in Europe, North America, China, Australia, and Hong Kong through different brands, which we summarize in Figure 60.

Figure 60: Brand portfolio of MDG

Brand name	History	Geographical presence	Market position (based on revenue in 2014)
Permadental & Semperdent	Started business in 2000 under "Permadental"; started business under "Permadental & Semperdent" in 2012; registering the brand	Germany	Ranked third with 0.4% market share
Elysee	Started business in 2001	Netherlands, Belgium, Denmark, Norway, Switzerland, Spain, Sweden; Finland	Second in Netherlands with 6.4% market share; and first in Belgium with 2.9% share
Labocast	Started business in 1996	France	Ranked first with 1.2% share
Modern Dental USA	Started business in 2009	United States	Market share not available, but is pursuing acquisition strategy
Sundance Dental	Started business in 2014	United States	Acquired and consolidated under MDG
Quantum Dental	Started business in 2013	Canada	Acquired and consolidated under MDG
Southern Cross Dental	Started business in 2000	Australia, New Zealand, Ireland	Ranked first in the Australian with 7.1% share
Andent	Started business in 2013	Australia	Acquired and consolidated under Southern Cross
Labo Ocean Indien	Started business in 2014	Indian Ocean countries	Strong revenue growth in the last three years
YZJ	Started business in 1998	Mainland China	Ranked first in the Chinese domestic market with 1.1% share
Modern Dental Laboratory	Started business in 1986	Hong Kong	Ranked first with 54.2% market share
Digitek Dental	Started business in 2012	Hong Kong	Market share not available, the company sells high precision implant parts

Source: Deutsche Bank, Company data

Throughout the past few years, the company has made a number of acquisitions to diversify its brand portfolio. We highlight that the company acquired four distributors, namely Labocast in France, Permadental in Germany, Elysee in Europe and SCDL Group in Australia, to gain direct access to their end customers. Additionally, MDG acquired dental laboratories in Australia, Canada, and the US to improve its manufacturing capabilities.

Figure 61: Summary of recent acquisitions of MDG

Target	Business	Region	Acquisition date	Consideration and payment method	Revenue contribution
Permadental Group	Distributor	Germany	11/1/2013	Cash: EUR30.2m	HK\$29.0m Nov 1, 2013 to Dec 31, 2013, HK\$179.2m (2014), HK\$83.6m (1H15)
Elysee Group	Distributor	Netherlands, Belgium, Denmark, and Spain	4/11/2014	Cash: EUR29.9m for 95% stake	HK\$248m (Apr 11, 2014 to Dec 31, 2014), HK\$158.3m (1H15)
Quantum Dental	Dental laboratory	Canada	7/1/2013	Cash: CA\$2.6m	HK\$11.6m (Jul 1, 2013 to Dec 31, 2013), HK\$24.5m (2014), HK\$10.6m (1H15)
Prestige Dental Lab	Dental laboratory	Canada	12/1/2014	Cash: CA\$0.3m	Nil
Sundance Dental	Dental laboratory	The United States	5/20/2014	Cash: US\$1.9m	HK\$16.1m (May 20, 2014 to Dec 31, 2014), HK\$17.2m (1H15)
Gold & Ceramics	Dental laboratory	Australia	7/1/2013	Cash: AU\$1.1m	HK\$6.4m (Jul 1, 2013 to Dec 31, 2013), HK\$8.9m (2014), HK\$3.8m (1H15)
SCDL Group	Distributor	Australia	3/20/2015	Cash: AU\$43.4m	HK\$66.1m (March 20, 2015 to June 30, 2015)

Source: Deutsche Bank, Company data



### Europe

Accounting for 55.3% of revenue, Europe generated HKD659m sales for MDG in 2014. This represents a CAGR of 49% from 2012. The strong growth was mainly due to the consolidation of newly acquired businesses, including Permadental and Elysee.

### Greater China

This market consists of mainland China, Hong Kong, and Macau. Greater China contributed 28.0% of the revenue of MDG in 2014. Revenue from this region was HKD334m, showing a CAGR of 18% from 2012. The decent growth was driven by overall industry growth and improved sales and marketing strategies.

### North America

The United States and Canada accounted for 10.3% of the total revenue in 2014. Sales from this region were at a CAGR of 19% from 2012 to 2014. We believe the 31% YoY in 2014 was due to the consolidation of new businesses including Quantum Dental, Prestige Dental Lab, and Sundance Dental.

### Australia

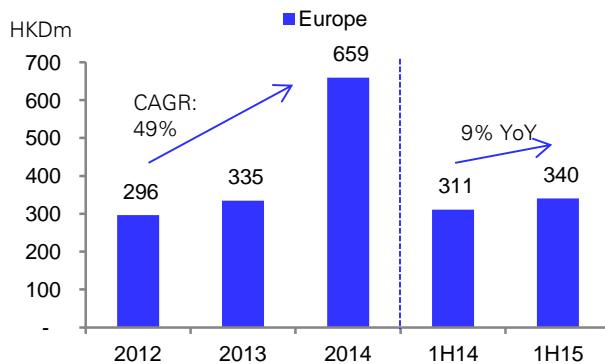
Australia represented 5.3% of the total revenue of MDG in 2014. Revenue from Australia was HKD63m in 2014, representing a CAGR of -17% from 2012. The company attributed the weak performance to the termination of CDDS, the subsidy program for dental treatment, in late 2012. In 2015, MDG acquired The SCDL Group, a distributor in Australia, leading to the sharp revenue growth in 1H15. The consolidation of The SCDL Group is likely to increase the sales in Australia. In 2014, SCDL generated sales of USD36m from July 1, 2013 to June 30, 2014.

### Other regions

In addition to the above regions, the company has presence in Indian Ocean countries and Japan. These represented 1.1% of the total revenue in 2014. The revenue from these areas was HKD13m in 2014, up from HKD7m in 2012.

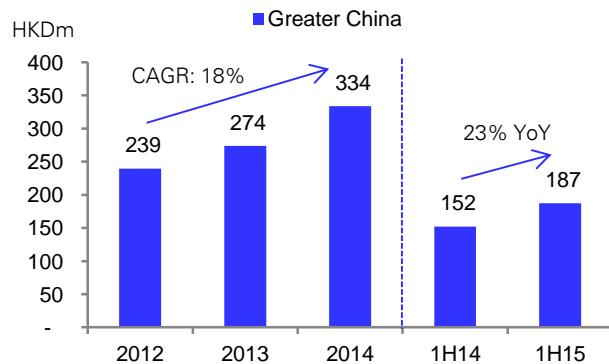


Figure 62: Revenue from Europe



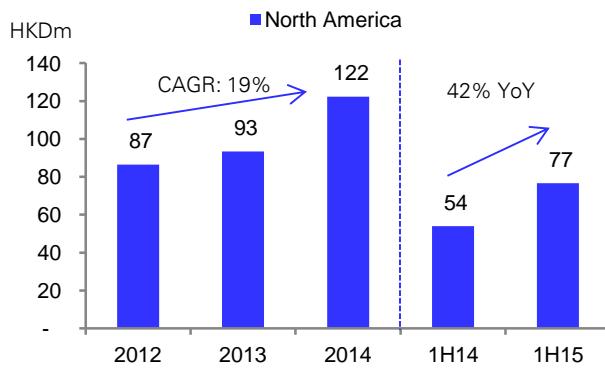
Source: Deutsche Bank, Company data

Figure 63: Revenue from Greater China



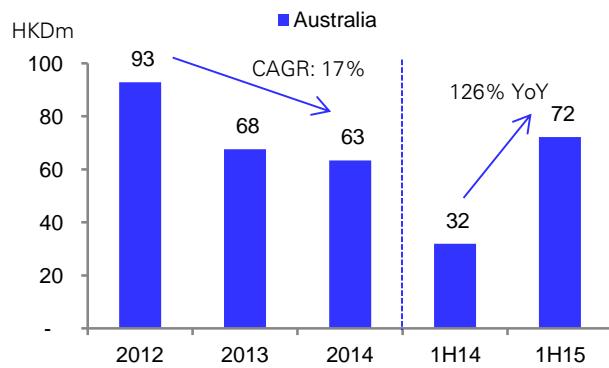
Source: Deutsche Bank, Company data

Figure 64: Revenue from North America



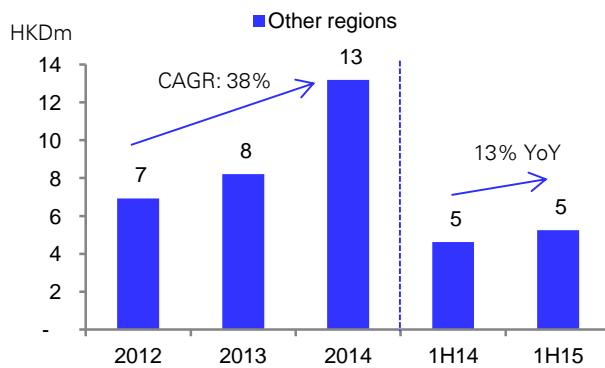
Source: Deutsche Bank, Company data

Figure 65: Revenue from Australia



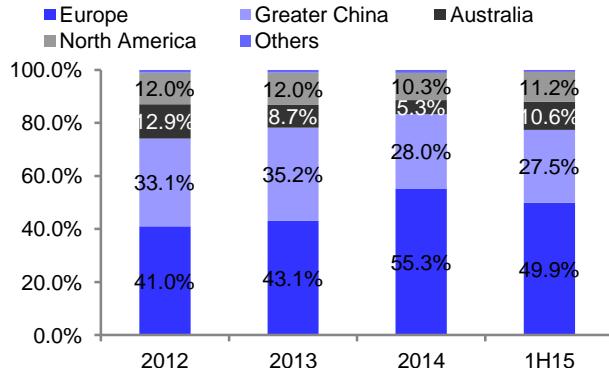
Source: Deutsche Bank, Company data

Figure 66: Revenue from other regions



Source: Deutsche Bank, Company data

Figure 67: Geographic breakdown



Source: Deutsche Bank, Company data



### ASP of dental prosthetic devices by region

We summarize MDG's ASP in different markets in Figure 68.

Figure 68: ASP (HK\$ per case) in the core markets

Market	2012	2013	2014	1H14	1H15	2013 YoY	2014 YoY	1H15 YoY
Europe	933	1,036	1,833	1,676	1,698	11%	77%	1%
Greater China	577	620	660	664	668	7%	6%	1%
North America	1,151	1,221	1,085	1,097	1,111	6%	-11%	1%
Australia	619	706	731	748	1,417	14%	4%	89%
Others	422	408	501	389	363	-3%	23%	-7%
<b>Total</b>	<b>745</b>	<b>813</b>	<b>1,097</b>	<b>1,070</b>	<b>1,108</b>	<b>9%</b>	<b>35%</b>	<b>4%</b>

Source: Deutsche Bank, Company data

We highlight the following points on the above data:

- Europe: the significant increase in ASP in 2014 was due to acquisitions of Permadental in 2013 and Elysee in 2014, which allowed the company to sell products to customers directly compared with selling to distributors before the acquisitions;
- Greater China: the increase in ASP in 2014 was driven by a change in product mix as products with higher prices such as implants and all-ceramics had higher sales contribution;
- North America: the decline in 2014 was due to a change in product mix as Zirconia products, which had lower selling prices, took a larger contribution of sales in 2014;
- Others: the sharp ASP growth in 2014 was driven by a small sales base and product mix changes.

### Sales volume by region

We summarize the number of cases of prostheses sold by MDG in Figure 69.

Figure 69: Sales volume (in thousands) in the core markets

Market	2012	2013	2014	1H14	1H15	2013 YoY	2014 YoY	1H15 YoY
Europe	317	323	360	186	200	2%	11%	7%
Greater China	392	440	494	227	279	12%	12%	23%
North America	75	77	113	49	69	2%	47%	40%
Australia	150	96	87	43	50	-36%	-9%	17%
Others	16	20	26	12	14	22%	31%	22%
<b>Total</b>	<b>951</b>	<b>956</b>	<b>1,080</b>	<b>516</b>	<b>612</b>	<b>1%</b>	<b>13%</b>	<b>18%</b>

Source: Deutsche Bank

We highlight the following key points:

- Europe: volume growth in 2014 was driven by acquisition synergy while volume growth in 2013 was affected by temporary suspension of trading with Permadental due to its acquisition;
- Greater China: decent growth due to better marketing efforts;
- North America: the acquisition of Quantum Dental in 2013 and Sundance Dental in 2014 led to a higher production capacity, as they were both dental laboratories, resulting in strong volume growth;

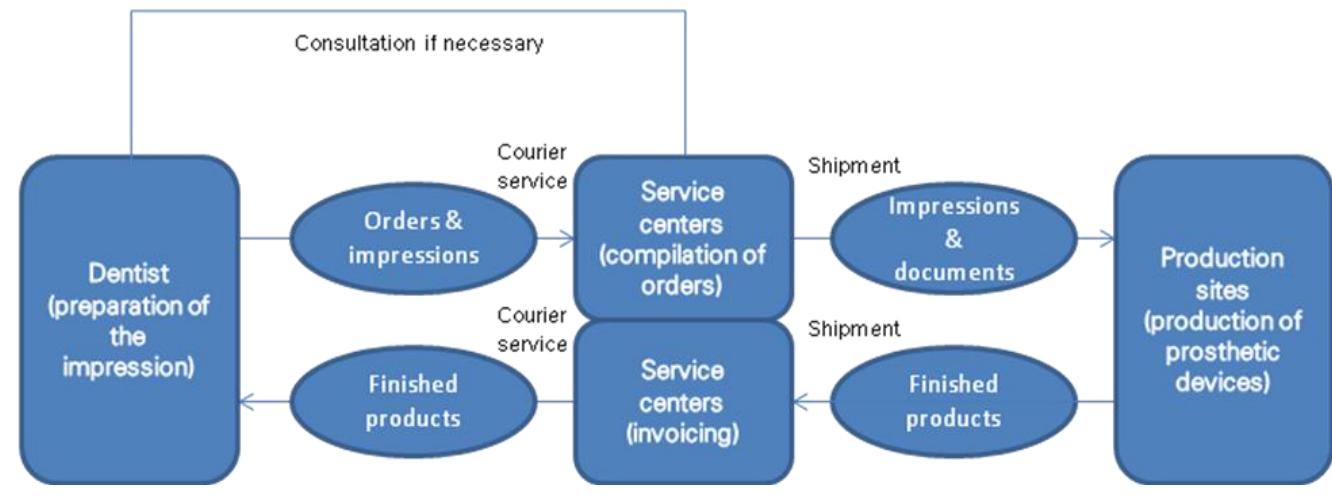


- Australia: the decline in 2013 was caused by the termination of CDDS as well as redirect of orders from The SCDL Group (major distributor) to Andent, while the decrease in 2014 was, again, caused by the latter reason.

## Sales model

The sales process begins with dentists preparing the impression for the patients. Then orders will be placed and the service centers of MDG will collect the orders, which will be sent to the production facilities of the company. The company will produce the prosthetic devices, which will be supplied back to the dentists through service centers. The entire process takes approximately six to ten days.

Figure 70: Value chain

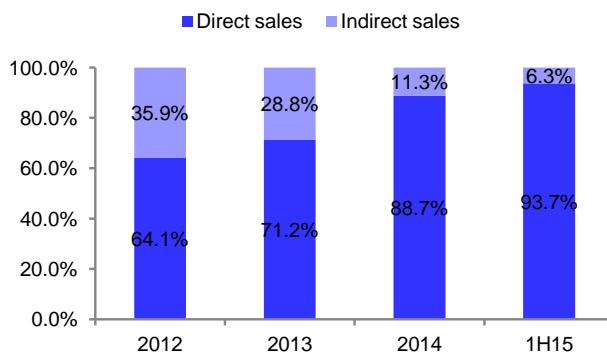


### Lower sales attributable to distributors due to acquisitions

With multiple acquisitions of distributors in the past few years, the percentage of sales attributable to distributors declined to 6.3% in 2015 from 11.3% in 2014, 28.9% in 2013 and 35.9% in 2012. With the acquisition of The SCDL Group in 2015, the percentage is likely to trend down further. The number of distributors that the company used remained stable at 22 in 1H15 vs. 23 in 2014, 24 in 2013 and 20 in 2012, as it still used distributors in selected markets including California (US) and Drammen (Norway).

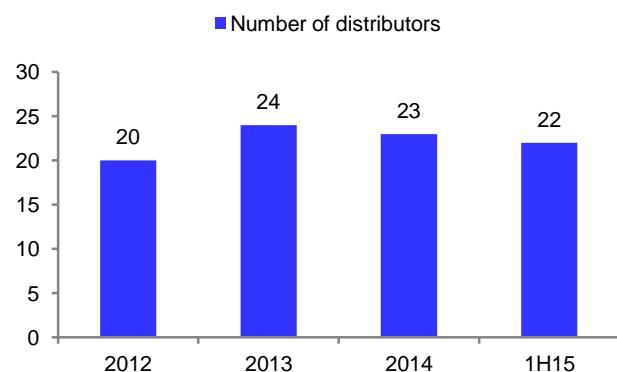


Figure 71: Percentage of direct sales and indirect sales



Source: Deutsche Bank, Company data

Figure 72: Number of distributors used by MDG



Source: Deutsche Bank, Company data

The customer base includes dentists, dental clinics, dental hospitals, general hospital dental departments and distributors. For the six months that ended June 30, 2015, the number of customer accounts was over 12,000. We summarize the number of customers of the company in the following exhibit.

The significant increase in total customers in 2014 was mainly driven by: 1) the acquisition of Permadental in November 2013, Elysee in December 2014, and Sundance Dental in May 2014; 2) improved marketing effort in the US, and 3) organic growth in China. For 1H15, the significant increase in the number of customers in Australia was due to the acquisition of The SCDL Group.

Figure 73: Number of customers of MDG

	2012	2013	2014	1H15
Europe	784	1,809	5,230	4,754
Greater China	1,770	2,053	2,198	2,951
North America	1,579	1,784	2,183	1,767
Australia	9	51	116	3,293
Others	9	11	101	87
<b>Total</b>	<b>4,151</b>	<b>5,708</b>	<b>9,828</b>	<b>12,852</b>

Source: Deutsche Bank, Company data

MDG had 21 points of sales in China and 29 service centers overseas as of June 30, 2015. The number of sales and marketing staff in North America, Europe, Australia, China and Hong Kong and other regions was 12/37/5/32/3 as of June 2015. Additionally, in China, MDG was the preferred supplier for over 270 state-owned hospitals as of June 2015.

Figure 74: Locations of service centers

Region	Locations
Western Europe	Alphen aan den Rijn and s-Heerenberg, Leuven (Netherlands), Arhus (Denmark), Paris (France), Helsinki (Finland), Madrid (Spain), and Klippan (Sweden).
North America	Boston, Chicago, Los Angeles, Seattle, Troy, Wilmington, Scottsdale, Savanna, Windsor
Australia	Brisbane, Melbourne, Sydney
Greater China	Beijing, Tianjin, Shijiazhuang, Zhengzhou, Shenyang, Harbin, Jinan, Qingdao, Changchun, Wuhan, Changsha, Hefei, Nanchang, Shanghai, Hangzhou, Nanjing, Kunming, Shenzhen, Zhongshan, Zhuhai and Guangzhou

Source: Deutsche Bank, Company data



In sales and marketing, the company focuses on building partnerships with dentists, as they link devices providers to patients and they have influence on users' choices. Typical marketing initiatives include organizing educational seminars, providing print advertisements, using call centers, hosting marketing events such as exhibitions, managing key accounts, providing consulting services, hosting site visits, and collaborating with universities.

#### Ability to pass increased costs to customers through pricing

On pricing, the company sets benchmark prices for its products at the beginning of each year and reviews them annually. Prices for fixed and removable prosthetic devices, the two largest products by sales, are usually based on prevailing market rates. Facing uncertainties in costs of precious alloy and wages, MDG has the ability to pass the costs to customers by price adjustments with its strong brand recognition and direct access with dentists.

### Production process

#### Capacity mainly depends on the number of technicians

We highlight that the products of MDG are mostly custom-made and the production process is order-based. As such, the production capacity of MDG is dependent on the number of technicians. On average, each technician can process 0.8 to 1.8 cases of prostheses per day. In 1H15, the company had 3,057 technicians in their facilities in Shenzhen, Beijing and Madagascar on average. We summarize the number of technician in the following exhibit.

Figure 75: Average number of full-time dental technicians of MDG

Average number of technicians	2012	2013	2014	1H15
Production facilities in Shenzhen	2,614	2,549	2,704	2,721
Production facilities in Beijing	115	139	140	148
Production facilities in Madagascar	163	163	178	188
Total	2,892	2,851	3,022	3,057

Source: Deutsche Bank, Company data

#### Adopting advanced CAD/CAM technologies

The company adopted computer aided design/computer-aided manufacturing (CAD/CAM) technologies in 2007 in its manual and digital production process. Currently, while the majority of prosthetic elements are still made manually, MDG continues to increase the use of CAD/CAM elements. CAD/CAM technologies are widely used among global dental laboratories. According to Roland Berger, approximately 23% of dental prosthetic devices were made with CAD/CAM in 2013 in the US, and this percentage is expected to increase to approximately 37% in 2017.

MDG has four major digital production centers in Hong Kong, Troy (US), Melbourne (Australia) and Emmerich am rhein (Germany), which mainly use CAD/CAM technologies. The use of CAD/CAM technologies allows the company to use less-expensive raw materials such as ceramic blocks instead of precious alloys.

In the manual production process, CAD technology is utilized to design the frameworks of prosthetic devices while CAM technology is used in the fabrication process.

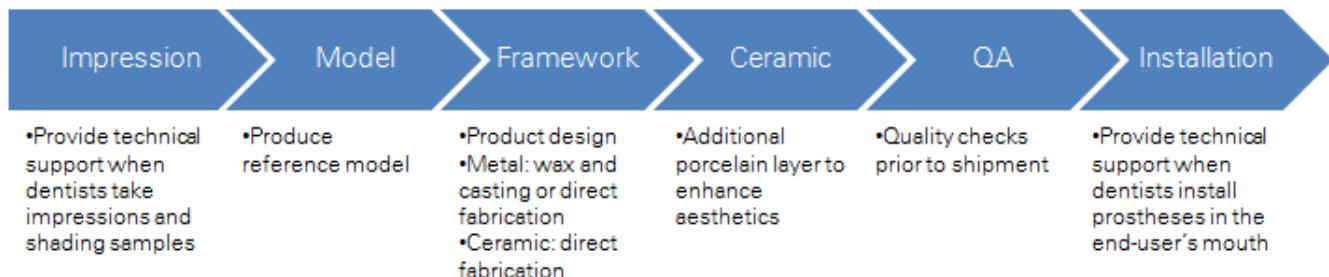


In the digital production process, CAD and CAM technologies are utilized in the production of products with high margins including all-ceramic prostheses. Dentists will first carry out an intra-oral 3D scan to take impressions. Then, with the digital images being sent to the digital production centers, a framework and a model will be designed using computers. The computer numerical control machines will then be operated to fabricate the ceramic material and produce prostheses.

#### Fixed prosthetic devices

We summarize the dental treatment process using fixed prosthetic devices in the following exhibit.

Figure 76: Production process for fixed prosthetic devices



Source: Deutsche Bank, Company data

#### Metal-ceramic prostheses

The production process of metal-ceramic prostheses is as follows:

- Building a shaped model with wax and covering it with ceramic slurry;
- Heating the model to 600-900 degree Celsius;
- Hardening of the ceramic slurry to form a mold;
- Injecting alloy into the mold to produce the metal framework;
- Applying porcelain to the metal framework to form a tooth shape;
- Heating the framework to 600-800 degree Celsius to harden the ceramic material;
- Making surface alterations, coloring the prosthesis, and coating it with glaze.

#### Metal-free prostheses

The production process of metal-free prostheses is as follows:

- Building up an inner framework with zirconia and applying porcelain for the surface of the prostheses;
- Scanning the reference model and acquiring data for the CAD software to design the inner framework;
- Producing the inner framework with CAM technology;
- Applying porcelain to the metal framework to form a tooth shape;
- Heating the framework to 600-800 degree Celsius to harden the ceramic material;
- Making surface alterations, coloring the prosthesis, and coating it with glaze.



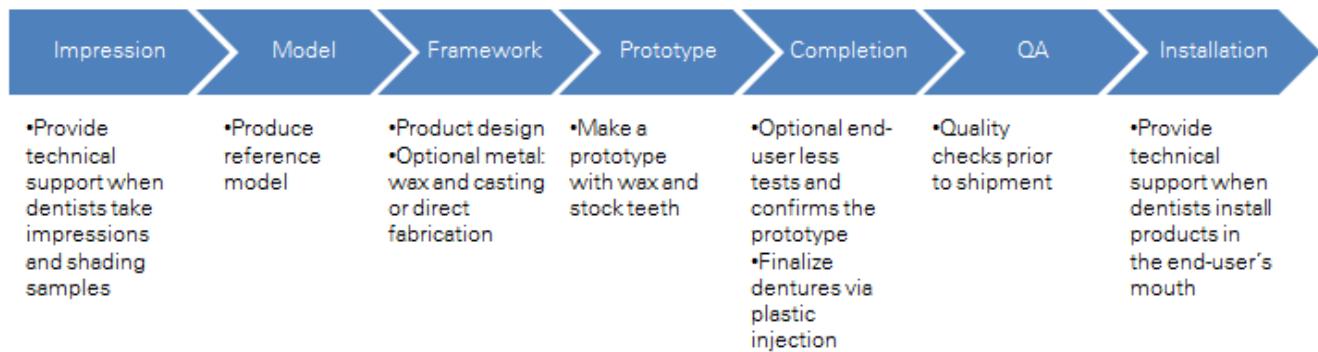
Alternatively, metal-free prostheses can be produced using the following method which utilizes CAD/CAM entirely with lithium-disilicate or zirconia:

- Scanning the reference model and acquiring data to design the prosthetics using CAD technology;
- Producing the prosthetics with CAM technology;
- Heating the prosthesis to 700-1,500 degree Celsius;
- Making surface alternations, coloring the prosthesis, and coating it with glaze.

### Removable prosthetic devices

We summarize the dental treatment process using removable prosthetic devices in the following exhibit.

Figure 77: Production process for removable prosthetic devices



Source: Deutsche Bank, Company data

### Denture

The production process of dentures with internal framework is as follows:

- Building a shaped model covered with heat-resistant ceramic slurry with wax;
- Heating the shaped model to 600-900 degree Celsius to form a mold;
- Injecting alloy into the mold to produce the metal framework;
- Setting stock teeth in position on the framework to construct a prototype.

For dentures without internal framework, it is produced using the following method:

- Setting stock teeth in position with wax on the reference model;
- Occasionally, trials will be conducted for end-users to test and confirm the prototype;
- Upon confirmation of end-users, the denture will be finalized and the wax will be replaced by plastic injection.



## Production facilities

According to the company, it sold approximately 1.1m cases of dental prosthetic devices worldwide in 2014. The principal production facilities are located in Shenzhen and the company has two smaller scale production facilities in Beijing and Antananarivo. As of June 30, 2015, the company employed over 3,400 technicians and over 2,800 of them were located in Shenzhen.

**Figure 78: Production volumes from principal facilities**

Location	Products destination	Production volume in 1H15	Production volume in 2014	Production volume in 2013	Production volume in 2012
Shenzhen, China	All regions	84.9%	86.0%	89.2%	91.0%
Beijing, China	Northern China	5.5%	4.9%	4.6%	4.2%
Antananarivo, Madagascar	France and Indian Ocean market	4.2%	4.4%	4.8%	4.6%

Source: Deutsche Bank, Company data

The aforementioned production facilities are supported by local laboratories. The company has 15 local laboratories and digital production centers in Europe, Canada, the US, and Australia. The local laboratories and digital production centers are responsible for producing high-end and time-sensitive products, and making minor surface alterations to finished products.

### Lack of certificate for the Shenzhen property

The company's Shenzhen facilities are leased from its landlords. However, the landlords do not own the land-use rights and ownership certificates for the properties. According to the Shenzhen government, more than 21,000 buildings were identified with similar title defects due to historical circumstances. The company met with relevant authorities in March 2015 to discuss the above issue. The conclusions include: 1) the Shenzhen facilities are identified as illegal construction; 2) the land is owned by the Xinwei community for industrial use; 3) the usage of the Shenzhen property does not breach the planning conditions of Shenzhen; 4) the authorities and the Xinwei community have no plans to demolish the Shenzhen facilities; and 5) if the building was to be demolished or confiscated, it would usually take three to five years.

The company has discussed further with the authorities and the Xinwei community and the following is the outcome from the discussions:

- The company can continue to use the facilities on a temporary basis pending decisions from the relevant authorities;
- If the authorities decide to demolish or confiscate the facilities, the company cannot legally use the facilities;
- The risk of demolishing or confiscating is remote during the process of the company's relocation plan;
- There will be a notice period of at least 12 months if the authorities decide to demolish or confiscate the facilities.

While the company considers the risk of being required to move out from the Shenzhen facilities is remote, it has a contingency plan and a long-term development plan for the aforementioned issue with the Shenzhen facility.



### Long-term development plan

To support the growing demand for dental prostheses and increasing market share of the company both organically and through acquisitions, the company has formulated a long-term development plan, including the intentions to relocate its Shenzhen facilities to Dongguan that started from late 2015. We believe the relocation plan is likely to occur and we included this in our model with the corresponding capex.

In April 2015, the company entered into an agreement with Dongguan Songshan Lake High-tech Industrial Development Zone Management Committee, under which the company will invest in that area for no less than RMB246m to construct a new facility. The area of the land is 27,347 square meters vs. 26,602 square meters for the current Shenzhen facilities. The amount of RMB246m includes most related costs such as land acquisition, construction, equipment purchase and working capital. The company expects the public tender of the land auction to be completed in the first quarter of 2016. Construction should commence within one year after the tender and the process should be completed within two years.

We summarize the expected timeline for the long-term development plan in the following exhibit. The company expects to have 3,200 technicians during phase 1 of the operation and 2,200 more in phase 2. With an average of 0.8 to 1.8 cases of prostheses per day from each technician, this implies a capacity ranging from 1.58m cases to 3.55m cases a year (assuming 365 days a year). However the capacity depends on other factors including complexity of orders, business mix, working days of facilities, efficiency, ramp-up stage, utilization of digital facilities, and capacity of technicians.

**Figure 79: Proposed timeline for the long-term development plan**

Time (months)	Duration	Actions/steps
T		The company wins the bid in the land auction
T to T+12	12 months	Complete property transactions, design the facility, and determine the budget Perform site inspection Apply for permits
T+12 to T+24	12 months	Construct the facility Determine the budget for relocation
T+24 to T+27	3 months	Construct the facility Renovate the facility, install and set-up the equipments
T+27 to T+33	6 months	Transfer equipment in batches from Shenzhen facility to the new facility Apply for permits to manufacturer medical devices
T+33 to T+36	3 months	Complete equipment transfer Begin phase 1 operation
T+36		Prepare for the phase 2 operation
T+36 to T+48	12 months	Begin phase 2 operation
T+48		

Source: Deutsche Bank, Company data



### Contingency plan

Additionally, the company has a contingency plan to counter the scenario where the lease for the Shenzhen facility is terminated before the new plant in Dongguan is completed. Under the contingency plan, the company has signed the following three agreements with different parties for the relocation of the facilities in Shenzhen for MDLSZ and YZJSZ:

- An agreement with Dongguan Songshan Lake Industrial Development Company Limited to use its factory space with a gross floor area of 14,085.8 square meters (construction is expected to be finished before December 31, 2015) for MDLSZ, if necessary;
- A letter of intent with Shenzhen Xintian Company to formally lease its factory space with a gross floor area of 4,500 square meters before September 1, 2018 (for MDLSZ, if necessary);
- A letter of intent with Shenzhen Kewei Electrical Equipment Company Limited to formally lease its factory space with a gross floor area of 14,497.9 square meters before September 1, 2018 (for YZJSZ, if necessary).

The company indicated that it would take six months for the relocation to be completed if the lease of its current Shenzhen facilities was terminated. Additionally, the company suggested that with its Hong Kong and Beijing facilities, as well as the production nature of dental prosthesis which relies on technicians, hand tools and small machinery, at least 80% of production could be maintained during the relocation.

The commitment fees under the Contingency Plan are estimated to be RMB0.3m, according to the company. Additionally, MDG estimated that the total cost of the Contingency Plan would be RMB5.8m, which includes the cost of relocation of facilities of MDLSZ and YZJSZ of approximately RMB3.6m and RMB2.2m, respectively.

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### Use of proceeds

The company was listed in Hong Kong with an offer price of HKD4.2 on December 15, 2016. The net proceeds from the IPO were approximately HKD664.5m and we summarize the use of proceeds below.

- approximately HKD506.3m would be used for business development both in China and overseas, including M&A;
- approximately HKD50.5m would be spent on marketing and promotion activities;
- approximately HKD191.7m would be used in the Long Term Development Plan;
- approximately HKD6.0m is expected to be used to replenish working capital and other general corporate purposes.

Additionally, the company entered in a loan agreement of USD85m in October 2015 to refinance its existing bank loans and supplement its working capital.



## FX exposure

### EUR, RMB, AUD are key currencies that MDG is exposed to

With its global geographical exposure, the company is exposed to foreign currencies including the EUR, RMB, USD/CAD, and AUD. As of 1H15, approximately 45%, 19%, 10%, 9% of the sales of MDG were denominated in the EUR, RMB, USD/CAD, and AUD, respectively, while HKD sales accounted for approximately 9%. However with the acquisition of the SCDL Group, the exposure of the AUD shall increase after consolidation. As such, we construe the EUR, RMB and AUD would be the main currencies that MDG is exposed to, while exposure to the USD is limited due to the relatively small scale.

### Net positive exposure to RMB

For the RMB, we highlight that MDG has a net positive exposure as the costs of sales denominated in the RMB are larger than sales in the RMB. We highlight that labor costs, mainly denominated in the RMB, accounted for approximately 56%, 55%, and 55% of total costs of sales in 1H15, 2014, and 2013 respectively. Therefore, revenue/profit for MDG shall increase if the RMB depreciates against the HKD.

### Net negative exposure to EUR and AUD; however, hedging is in place

For the EUR, the revenue exposure is partially offset by the raw materials costs in the EUR. Additionally, with FX forward hedging, the sensitivity of profit before tax to EUR/HKD fluctuation has been minimal, as we summarize in Figure 80.

Figure 80: Sensitivity to profit before tax for EUR

	2012	2013	2014	1H15
If HKD weakens against EUR by 5%	0.8%	0.8%	0.0%	0.3%
If HKD strengthens against EUR by 5%	-0.8%	-0.8%	0.0%	-0.3%

Source: Deutsche Bank, Company data

To mitigate FX risks, MDG entered into two forward exchange contracts in Nov 2015 for the EUR and AUD respectively. It is hedging EUR24m in 2016 vs. EUR66m we forecast for its organic revenue in the EUR. As for the AUD, the company is hedging AUD12m vs. AUD52m sales we forecast in 2016. Both contracts will expire at the end of 2016, and we therefore believe FX risks for these two currency pairs would be limited in 2016. We expect the company would continue with FX hedging, going forward.

Figure 81: Forward contracts for EUR and AUD entered in Nov 15

	Contract A	Contract B
Trade date	16-Nov-15	16-Nov-15
Duration	Until December 30, 2016	Until December 30, 2016
Currency pair	EUR/USD	AUD/USD
Monthly notional amount	EUR2m	AUD1m
Forward rate range	1.0731 to 1.0827	0.6935 to 0.7105

Source: Deutsche Bank, Company data



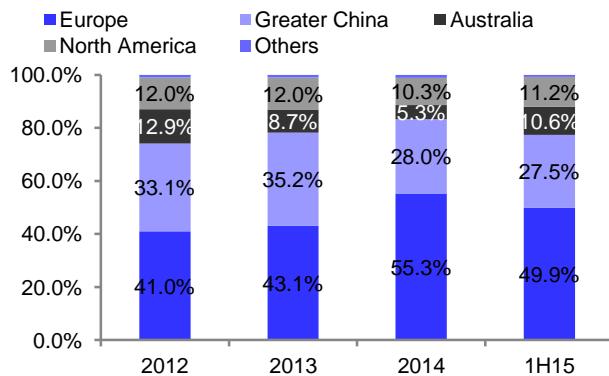
# Company profile

## Company background

MDG is a leading global dental prosthetic device provider. The company had the largest market share, in terms of 2014 revenue, in the dental prosthetics markets in Western Europe, Australia, China and Hong Kong, according to Roland Berger. The company sold 1.08m/0.96m/0.95m dental prosthetic cases globally in 2014/2013/2012.

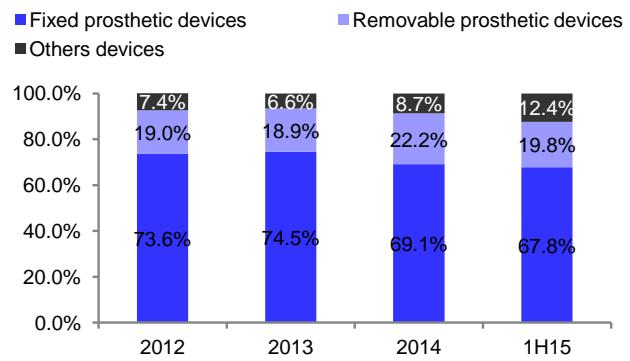
The main business of MDG consists of three product lines, namely fixed prosthetic devices, removable prosthetic devices, and other devices such as orthodontic devices and sports guards. In addition to being a strong manufacturer, MDG has entered into several strategic acquisitions of distributors in the past few years. This allows the company to gain direct access to customers, including dentists, dental clinics, hospitals, distributors and other customers. As of June 30, 2015, the company had 21 points of sale in China and 29 service centers overseas. For the six months that ended June 30, 2015, the company had over 12,000 customer accounts worldwide.

Figure 82: Revenue breakdown by regions



Source: Deutsche Bank, Company data

Figure 83: Revenue breakdown by products



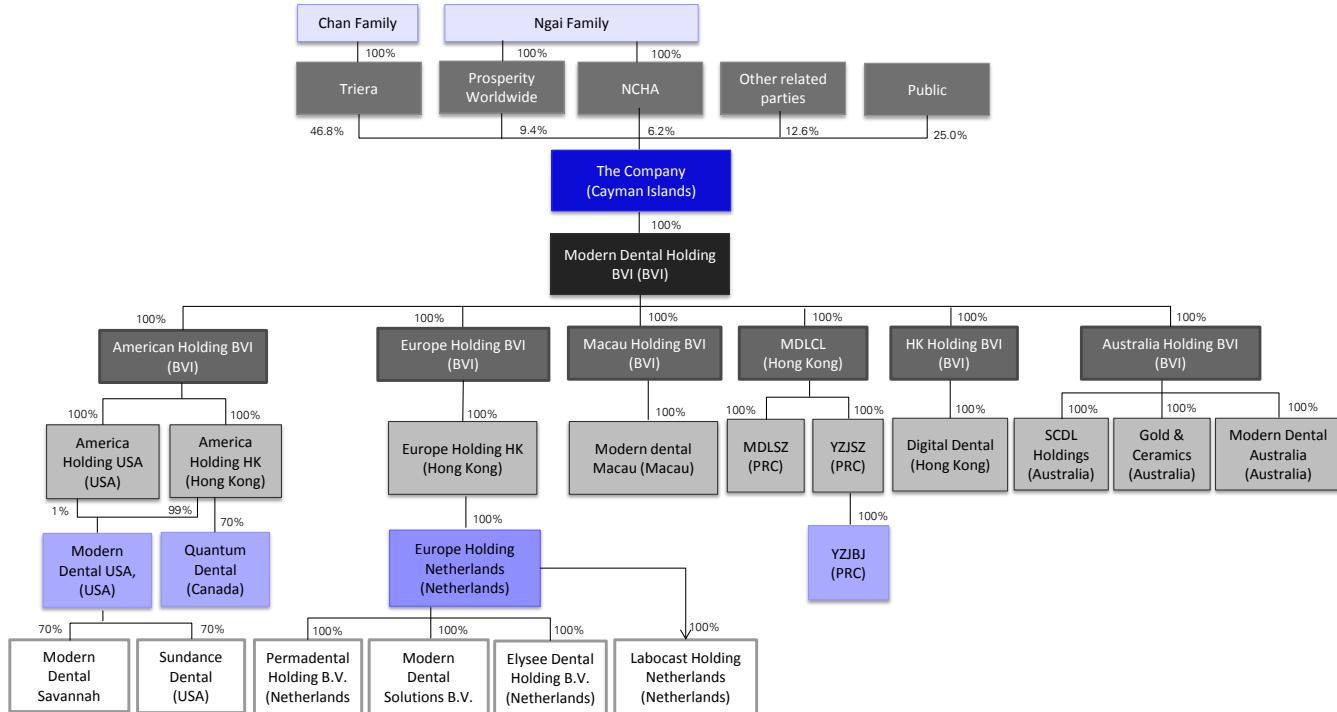
Source: Deutsche Bank, Company data



## Corporate structure

We summarize the company structure in Figure 84.

Figure 84: Company structure



Source: Deutsche Bank, Company data



## Company milestones

We summarize the major events of the company in Figure 85.

Figure 85: Major events of the company

Time	Event
1986	Modern Dental Laboratory was established in Hong Kong as a sole proprietorship
1992	Modern Dental Laboratory Company Limited was acquired and the company started its Hong Kong and overseas business The production line of the company relocated to Shenzhen
1996	The company started working with Labocast
1998	Yangzhijin Shenzhen was established in Shenzhen as the first dental laboratory in mainland China of the company
2000	The company started working with Permadental Group and The SCDL Group
2001	The company started working with Elysee Group
2005	The production line of the company was moved to Shiling Industrial Zone in Shenzhen
2007	Yangzhijin Shenzhen was awarded Top 10 Brands for Dental Prosthetics in China
2008	Yangzhijin Shenzhen acquired Yangzhijin Beijing to develop its Northern China market The company acquired Labocast to develop its French and Indian Ocean market
2011	The first raw material production center in Hong Kong, Digitek Dental, was incorporated
2013	The company established its European headquarter in the Netherlands The company acquired Quantum Dental to develop its Canadian market The company acquired Gold & Ceramics to develop its Australian market
2014	The company acquired the Permadental Group to develop its German market The company acquired Elysee Group to develop its Dutch, Belgian, Danish and Spanish market The company set up its production facility in Troy in the US
2015	The company acquired SCDL Group to develop its Australian market The company set up its production facility in Emmerich, Germany The company was listed in Hong Kong

Source: Deutsche Bank, Company data



## Management profile

We summarize the profiles of executive directors and senior management of the company in Figure 86.

Figure 86: Management profiles

Name	Age	Title	Experience
Mr. Chan Kwun Fung	61	Chairman of the Board; Executive Director	Joined the company since 1991 Over 30 years of experience in the dental prosthesis field
Mr. Chan Kwun Pan	57	Vice-chairman of the Board; Executive Director	Founded the company in 1986 Over 30 years of experience in the dental prosthesis field
Mr. Ngai Shing Kin	66	Chief Executive Officer; Executive Director	Joined the company since 1996 Over 48 years of experience in the dental prosthesis field Prior to joining the company, Mr. Ngai was a student dental technician and a dental technician in the Department of Health in Hong Kong. Additionally, Mr. Ngai was a lecturer and an instructor at the Hong Kong Polytechnic University and The University of Hong Kong.
Mr. Ngai Chi Ho Alwin	38	Chief Operating Officer; Executive Director	Joined the company in 2006 Over nine years of experience in the dental prosthesis field
Mr. Cheung Ting Pong	35	Chief Financial Officer; Executive Director	Prior to joining the company, Mr. Ngai was a solicitor for three years Joined the company in 2011 Over 13 years of experience in financial operations
Mr. Chan Chi Yuen	30	General Manager of YZJSZ; Executive Director	Joined the company in 2011 Obtained a diploma in business administration from the Southern Alberta Institute Technology in Canada in June 2009
Dr. Chan Ronald Yik Long	28	General Manager of MDLCL; Executive Director	Joined the company in 2014 A registered dentist in Hong Kong, Dr. Chan obtained a bachelor's degree in sciences from the University of Calgary in Canada in June 2008, a bachelor's degree in dental surgery from The University of Hong Kong in December 2014, and a master's degree in business administration with distinction from Edinburgh Business School, Heriot-Watt University in the UK in June 2015
Ms. Chan Yik Yu	27	Chief Marketing Officer; Executive Director	Joined the company in 2014 Over three years of experience in the marketing field Obtained a bachelor's degree in commerce from the Haskayne School of Business, University of Calgary in Canada in June 2010
Mr. August Wilhelm Torsten Schwafert	50	Chief Executive Officer of Europe Holding Netherlands	Joined the company in 2014 Over 25 years of management experience in the dental field and has extensive relationships in European dental industry.
Mr. Gregory Scialom	40	President and Managing Director of Labocast Holding Netherlands	Joined the company in 2011 Over 14 years of experience in the dental prosthetic field at Labocast
Mr. Christopher Aughton	44	Chief Executive Officer of the SCDL Group	Joined the SCDL Group in 2012 Over 15 years of management experience in finance and information technology

Source: Deutsche Bank, Company data



# Financial forecasts

## Key assumptions for the model

- Our revenue forecasts are based on separate estimates for different regions, including North America, Greater China, Europe, Australia, and others. We project our revenues using the local currency, and then convert the numbers back to the HKD using the following end-of-year exchange rates from our macro team.

Figure 87: Exchange rates assumptions

	2016	2017	2018
EURHKD	7.36	6.59	6.59
RMBHKD	1.11	1.11	1.11
AUDHKD	4.64	4.51	4.51
USDHKD	7.75	7.75	7.75

Source: Deutsche Bank estimates

- Assuming several acquisitions in 2016 and 2017, we estimate a revenue CAGR of 23% from 2015 to 2018 vs. 8% for its existing business mix during the same period.
- We estimate these acquisitions will bring HKD285m, HKD690m, HKD843m revenue in 2016, 2017 and 2018, respectively, assuming six months of consolidation of each acquisition in its first year. We expect the acquired businesses to have a lower GM and OPM than the existing business of MDG because: 1) for China, the existing business focuses on high value-added products while the acquired business might not, and 2) for the US, additional sales and marketing costs might have to be incurred in order to expand into the market. For the existing business, we expect ASP to slightly increase.
- Our effective tax rate assumptions are 27%, 24%, 20%, 20% for 2015, 2016, 2017 and 2018 respectively. We expect the tax rate to decline gradually as MDG would achieve a lower rate through reorganization.
- Overall, we expect an earnings CAGR of 20% over 2015-2018. We note that 11%, 24%, and 27% of our net profit number in 2016E, 2017E and 2018E, respectively, is derived from acquisitions that are not yet announced, and we do not assume new acquisitions in 2015 and 2018. Our earnings CAGR forecast for the existing business mix is 9% over 2015-2018.
- We expect an EPS CAGR of -3% over 2015-2018 after accounting for dilution from the IPO.
- Our core earnings adjustments include non-recurring expenses such as listing expenses, imputed interest on shareholder's loan, other income and gains, as well as other one-off transaction costs.
- The company entered into two forward FX contracts, in EUR/US\$ and AU\$/US\$, in November 2015, which will last until the end of 2016. The forward rate range is 1.0731 to 1.0827 for EUR/US\$ and 0.6935 to 0.7105 for AU\$/US\$. The monthly notional amount is EUR2m and AUD1m. We expect HKD33m gains from the forward contracts, but these gains would be non-recurring.



Figure 88: Income statement

Income Statement (HKD millions)	2012	2013	2014	2015E	2016E	2017E	2018E
<b>Revenue</b>	<b>722</b>	<b>778</b>	<b>1,192</b>	<b>1,402</b>	<b>1,803</b>	<b>2,302</b>	<b>2,608</b>
COGS	(390)	(365)	(550)	(621)	(879)	(1,198)	(1,363)
Organic Acquisition	(390)	(365)	(550)	(621)	(672)	(714)	(782)
<b>Gross profit</b>	<b>332</b>	<b>413</b>	<b>642</b>	<b>781</b>	<b>924</b>	<b>1,103</b>	<b>1,245</b>
Selling and distribution expenses	(65)	(79)	(138)	(140)	(162)	(184)	(209)
Administrative expenses	(111)	(158)	(313)	(422)	(438)	(520)	(589)
Other operating expenses	(1)	(12)	(6)	(7)	(9)	(12)	(13)
<b>EBIT - reported</b>	<b>155</b>	<b>164</b>	<b>186</b>	<b>212</b>	<b>315</b>	<b>387</b>	<b>435</b>
<b>EBIT - core</b>	<b>156</b>	<b>164</b>	<b>194</b>	<b>249</b>	<b>315</b>	<b>387</b>	<b>435</b>
Depreciation and amortization	19	27	52	62	68	74	86
<b>EBITDA - reported</b>	<b>174</b>	<b>191</b>	<b>239</b>	<b>274</b>	<b>383</b>	<b>461</b>	<b>521</b>
<b>EBITDA - core</b>	<b>175</b>	<b>191</b>	<b>247</b>	<b>312</b>	<b>383</b>	<b>461</b>	<b>521</b>
Other income and gains	4	3	19	1	33	-	-
Interest income	0	1	1	2	12	6	5
Finance costs	(0)	(16)	(30)	(19)	(13)	(13)	(13)
<b>Profit before tax</b>	<b>159</b>	<b>152</b>	<b>175</b>	<b>196</b>	<b>347</b>	<b>380</b>	<b>426</b>
Income tax expense	(20)	(28)	(44)	(53)	(83)	(76)	(85)
Tax rate	12%	19%	25%	27%	24%	20%	20%
<b>Net income after tax</b>	<b>139</b>	<b>124</b>	<b>131</b>	<b>143</b>	<b>264</b>	<b>304</b>	<b>341</b>
Minority interests	(37)	(9)	(11)	0	(8)	(12)	(17)
<b>Net income attributable to Equity holders - reported</b>	<b>102</b>	<b>114</b>	<b>120</b>	<b>143</b>	<b>256</b>	<b>292</b>	<b>324</b>
Core earning adjustments	3	(10)	(2)	(44)	25	-	-
<b>Net income attributable to Equity holders - core</b>	<b>99</b>	<b>124</b>	<b>122</b>	<b>187</b>	<b>230</b>	<b>292</b>	<b>324</b>

Core EPS: Basic (HKD) 0.19 0.24 0.24 0.35 0.23 0.29 0.32  
**Core EPS: Diluted (HKD)** **0.19** **0.24** **0.24** **0.35** **0.23** **0.29** **0.32**

Source: Deutsche Bank estimates, Company data



Figure 89: Balance sheet

Balance sheet (HKD millions)	2012	2013	2014	2015E	2016E	2017E	2018E
<b>Assets</b>							
Inventories	37	47	58	62	83	114	110
Trade receivables	183	210	253	308	413	508	536
Prepayments and other current assets	14	23	25	28	36	46	52
Due from related parties	42	40	38	-	-	-	-
Due from shareholder	-	1	66	-	-	-	-
Current tax assets	-	2	8	8	8	8	8
Restricted bank deposits	10	10	10	10	10	10	10
Cash and cash equivalents	115	117	168	861	437	332	603
<b>Current assets</b>	<b>401</b>	<b>451</b>	<b>626</b>	<b>1,277</b>	<b>987</b>	<b>1,018</b>	<b>1,319</b>
Property, plant and equipment	91	102	138	150	271	402	524
Goodwill	82	418	596	855	1,205	1,405	1,405
Intangible assets	40	218	268	235	200	164	135
Assets from acquisitions	-	-	-	-	250	350	350
Available for sale investments	0	0	-	-	-	-	-
Derivative financial instruments	1	1	3	3	3	3	3
Long-term prepayment	-	1	-	-	-	-	-
Deferred tax assets	9	5	1	1	1	1	1
<b>Non current assets</b>	<b>223</b>	<b>744</b>	<b>1,006</b>	<b>1,244</b>	<b>1,930</b>	<b>2,325</b>	<b>2,418</b>
<b>Total assets</b>	<b>624</b>	<b>1,195</b>	<b>1,632</b>	<b>2,521</b>	<b>2,917</b>	<b>3,343</b>	<b>3,737</b>
<b>Equity and Liabilities</b>							
Trade and bills payables	69	30	41	44	101	129	132
Other payables and accruals	50	87	165	155	220	300	341
Interest bearing bank and other borrowings	1	435	136	-	-	-	-
Dividend payables	40	-	25	-	-	-	-
Due to related parties	-	13	15	-	-	-	-
Due to shareholders	-	17	9	-	-	-	-
Due to non-controlling shareholders	4	8	-	-	-	-	-
Tax payable	24	20	33	39	50	64	72
<b>Current liabilities</b>	<b>189</b>	<b>610</b>	<b>424</b>	<b>238</b>	<b>370</b>	<b>492</b>	<b>545</b>
Interest bearing bank and other borrowings	2	1	221	895	895	895	895
Derivative financial instruments	36	34	9	9	9	9	9
Due to shareholders	55	49	406	-	-	-	-
Other non-current liabilities	-	-	6	6	6	6	6
Deferred tax liabilities	14	17	14	14	14	14	14
<b>Non current liabilities</b>	<b>107</b>	<b>101</b>	<b>657</b>	<b>925</b>	<b>925</b>	<b>925</b>	<b>925</b>
<b>Total liabilities</b>	<b>296</b>	<b>711</b>	<b>1,081</b>	<b>1,162</b>	<b>1,295</b>	<b>1,417</b>	<b>1,470</b>
Shareholders' equity:	299	441	544	1,352	1,607	1,899	2,223
Minority interests	29	43	7	7	15	27	44
<b>Total equity</b>	<b>328</b>	<b>484</b>	<b>551</b>	<b>1,359</b>	<b>1,622</b>	<b>1,926</b>	<b>2,267</b>
<b>Total equity and liabilities</b>	<b>624</b>	<b>1,195</b>	<b>1,632</b>	<b>2,521</b>	<b>2,917</b>	<b>3,343</b>	<b>3,737</b>

Source: Deutsche Bank estimates, Company data



Figure 90: Cash flow statement

Cash flow statement (HKD millions)	2012	2013	2014	2015E	2016E	2017E	2018E
<b>Net income before tax</b>	<b>159</b>	<b>152</b>	<b>175</b>	<b>196</b>	<b>347</b>	<b>380</b>	<b>426</b>
Adjustments:							
Depreciation	14	18	25	30	33	38	56
Amortization	5	9	27	32	35	36	30
Finance costs	0	16	30	19	13	13	13
Bank interest income	(0)	(1)	(1)	(2)	(12)	(6)	(5)
Others	(2)	3	(14)	-	-	-	-
<b>Net change in working capital</b>	<b>(54)</b>	<b>15</b>	<b>(26)</b>	<b>17</b>	<b>(2)</b>	<b>(14)</b>	<b>23</b>
<b>Cash flow operating activities</b>	<b>121</b>	<b>212</b>	<b>218</b>	<b>292</b>	<b>415</b>	<b>448</b>	<b>543</b>
Interest received	0	1	1	2	12	6	5
Income tax paid	(10)	(32)	(37)	(53)	(83)	(76)	(85)
<b>Net cash flows from operating activities</b>	<b>112</b>	<b>180</b>	<b>181</b>	<b>241</b>	<b>344</b>	<b>378</b>	<b>463</b>
Payment for property, plant and equipment and intangible assets	(23)	(27)	(18)	(42)	(154)	(169)	(178)
Proceeds from disposal of PPE	0	0	1				
Acquisition of subsidiaries	(3)	(326)	(336)	(259)	(600)	(300)	-
Others	1	0	3	-	-	-	-
<b>Net cash used in investing activities</b>	<b>(24)</b>	<b>(353)</b>	<b>(351)</b>	<b>(301)</b>	<b>(754)</b>	<b>(469)</b>	<b>(178)</b>
Issue of shares	0				665		
Borrowings and repayments	(4)	260	219	132	-	-	-
Others	(37)	(72)	(17)	(25)	-	-	-
<b>Net cash generated from (used in) financing activities</b>	<b>(42)</b>	<b>173</b>	<b>179</b>	<b>752</b>	<b>(13)</b>	<b>(13)</b>	<b>(13)</b>
<b>Net increase (decrease) in cash and cash equivalents</b>	<b>46</b>	<b>1</b>	<b>10</b>	<b>693</b>	<b>(424)</b>	<b>(105)</b>	<b>271</b>
Cash and cash equivalents at beginning of year	69	115	117	168	861	437	332
Effect of exchange rate changes on cash	0	1	1	-	-	-	-
Bank overdrafts	-	-	39				
<b>Cash and cash equivalents at end of year</b>	<b>115</b>	<b>117</b>	<b>168</b>	<b>861</b>	<b>437</b>	<b>332</b>	<b>603</b>

Source: Deutsche Bank estimates, Company data



# Appendix 1

## Important Disclosures

Additional information available upon request

Disclosure checklist			
Company	Ticker	Recent price*	Disclosure
Modern Dental Group	3600.HK	3.13 (HKD) 1 Feb 16	1,6,7,9

\*Prices are current as of the end of the previous trading session unless otherwise indicated and are sourced from local exchanges via Reuters, Bloomberg and other vendors. Other information is sourced from Deutsche Bank, subject companies, and other sources. For disclosures pertaining to recommendations or estimates made on securities other than the primary subject of this research, please see the most recently published company report or visit our global disclosure look-up page on our website at <http://gm.db.com/ger/disclosure/DisclosureDirectory.eqs>.

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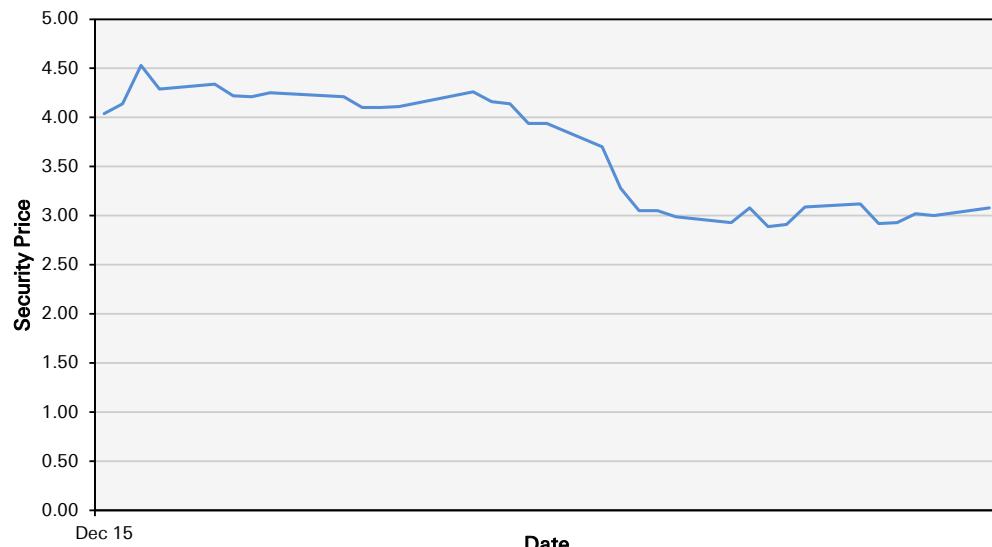
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**Historical recommendations and target price: Modern Dental Group (3600.HK)**  
(as of 2/1/2016)



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Strong Buy  
Buy  
Market Perform  
Underperform  
Not Rated  
Suspended Rating

**Current Recommendations**

Buy  
Hold  
Sell  
Not Rated  
Suspended Rating

\*New Recommendation Structure  
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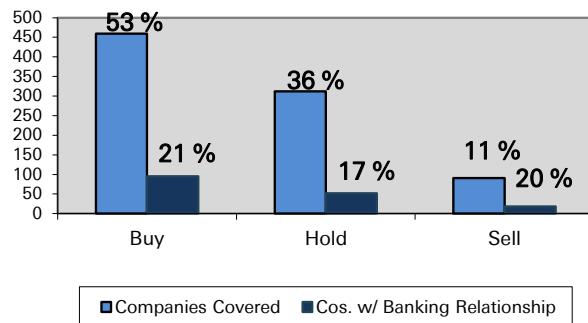
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**Equity rating dispersion and banking relationships**





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